

Methods for Evaluating Commercial and Industrial Land Sufficiency: A Recommendation for Oregon Communities

Prepared for

**The Advisory Committee on
Commercial and Industrial
Development**

by

**Otak, Incorporated
ECONorthwest**

December 9, 2002

FINAL REPORT

Table of Contents

	Page
ACKNOWLEDGEMENTS	III
SUMMARY	V
CHAPTER 1 INTRODUCTION	1
BACKGROUND	1
CONTEXT FOR LAND PLANNING IN OREGON	1
SCOPE AND ORGANIZATION OF THIS REPORT.....	4
CHAPTER 2 CONTEXT AND OVERVIEW.....	7
WHY ECONOMIC DEVELOPMENT?	7
THE ECONOMIC DEVELOPMENT PROCESS	9
WHY COMMERCIAL AND INDUSTRIAL LANDS ANALYSIS?.....	12
DATA AND ANALYTICAL TECHNIQUES FOR EVALUATING COMMERCIAL AND INDUSTRIAL LAND.....	13
CHAPTER 3 PREPARING A LOCAL ECONOMIC DEVELOPMENT STRATEGY ..	19
TYPICAL OBJECTIVES FOR ECONOMIC DEVELOPMENT	19
DEVELOPING AN ECONOMIC DEVELOPMENT STRATEGY	22
CHAPTER 4 BASIC ANALYSIS METHODS	25
LONG TERM CONDITIONS.....	25
DETERMINING THE SUPPLY OF BUILDABLE LAND	35
COMPARING LAND DEMAND AND SUPPLY.....	39
SHORT TERM CONDITIONS.....	39
CHAPTER 5 ADVANCED ANALYSIS METHODS.....	41
ASSESSING ECONOMIC TRENDS AND LAND NEEDS (DEMAND)	41
DETERMINING SUPPLY “HOLDING CAPACITY”	57
COMPARING LAND DEMAND AND SUPPLY.....	68
CHAPTER 6 CONCLUSIONS AND POLICY RECOMMENDATIONS	71
CONCLUSIONS	71
RECOMMENDATIONS	75
APPENDIX A GLOSSARY	80
APPENDIX B DATA SOURCES	84

Acknowledgements

Advisory Committee on Commercial and Industrial Development

Mike Byers	Independent Consultant
Jon Chandler	Legislative Advocates, Inc.
Katy Coba	Oregon Economic and Community Development Department
Paul Curcio	Department of Land Conservation and Development
Martin Davis	Morrow County
Ann Gardner	Schintzer Steel Industries
Vickie Hardin Woods	Oregon Planning Directors Association
Marcy Jacobs	Oregon Economic and Community Development Department
Mary Kyle McCurdy	1000 Friends of Oregon
Mike Ogan	Portland Development Commission
Don Schellenberg	Oregon Farm Bureau
Dick Sheehy	Industrial Design and Construction
Gordon Safley	Southern Oregon Regional Economic Development, Inc.
Doug Sweetland	Benton County Economic Development Agency
John Tamulonis	City of Springfield Community and Economic Development Dept.
Ray Teasly	Mid-Willamette Valley Council of Governments
Rick Williams	Melvin Mark Companies
Pete Williamson	Oregon Ports Group
Dennis Yee	Metro

Advisory Committee Staff & Consultant

Bob Rindy	Department of Land Conservation and Development
Steven Santos	Oregon Economic and Community Development Department
Arnold Cogan	Cogan Owens Cogan, Facilitator to Advisory Committee

HB 3557 Consultant Team

Todd Chase, AICP	Otak, Project Manager
Michael Houghton	Otak
Charlotte Larson	Otak
Terry Moore, AICP	ECONorthwest
Bob Parker	ECONorthwest
Cindy Eldkrona	FatEarth
Matt Lounsbury	Fat Earth

Summary

House Bill 3557 (HB 3557) was passed by the 2001 Oregon Legislature in consideration of the connection between Oregon land use planning laws and economic growth. The purpose of HB 3557 was to establish a committee to provide recommendations to the Oregon legislature, state planning and economic development agencies, and local governments “to help ensure that Oregon communities are providing sufficient buildable commercial and industrial lands.”

The conclusions and recommendations contained in this report are based on technical research and analysis about how Oregon communities can provide a sufficient supply of commercial and industrial land for desired economic growth and development.

KEY FINDINGS

Existing Oregon law already requires local governments to:

- Prepare comprehensive plans and land use regulations that provide an adequate supply of long-term sites of suitable sizes, types, locations and service levels for industrial and commercial uses;
- Provide opportunities for residential, commercial and industrial growth over time through changes to urban growth boundaries;
- Prepare an economic opportunity analysis that reviews national, state and local trends and site requirements, that inventories commercial and industrial lands in context with site development constraints (e.g., public utilities, access, size, slopes, floodplain, soils), and that assesses community economic development potential;
- Define economic development objectives for the community;
- Provide an adequate commercial and industrial land supply that is, or can be, readily served by public roads and utilities.

Because the level of analysis of commercial and industrial land need often varies by jurisdiction, depending upon factors such as population and economic development objectives, two alternative methods are described in this report.

- The basic analysis method describes the steps that any jurisdiction should take to meet the requirements of OAR 660-009-0015 (Economic Opportunities Analysis) and determine short and long-term land needs within urban growth boundaries.
- The advanced analysis method builds upon the basic method, and includes a more refined level of analysis, with additional focus on providing an adequate near-term land supply.

CONCLUSIONS

The committee concluded that the Oregon land use planning system is basically sound and includes many elements that help promote and sustain business and industry statewide. Through this system, the state has invested considerable resources in comprehensive land use plans over the past 30 years. Local land use plans provide predictability to the land development process and give Oregon an edge in retaining and growing existing businesses, and in recruitment of new businesses.

Although the committee expressed support for the core policies of the state's land use system, the committee also recommended several important improvements to the system that should be considered by the Land Conservation and Development Commission (LCDC) and the Oregon legislature.

The committee reached several additional conclusions, including:

- Competitive “market-ready” development sites are in short supply;
- Additional methodologies and guidance are needed to assist local governments in planning for economic development;
- Strategic industrial sites should be “protected” for industrial use; and
- Coordinated visioning is critical for realizing economic objectives.

POLICY RECOMMENDATIONS

The following policy recommendations are intended to provide LCDC, OECD, and the Oregon Legislature with a list of options to spur short-term and long-term economic growth and to improve the framework of Oregon’s land use planning system:

- Endorse the Recommended Methodologies, to provide clarity to local governments regarding commercial and industrial land need.
- Prepare Interactive Guidebook for Local Governments on how to conduct commercial and industrial land needs analysis (Goal 9 compliance), how to evaluate short-term land supply/demand, and how to adopt “model ordinances” that retain strategic sites for desired commercial and industrial development.
- Encourage Analysis of Commercial and Industrial Land Supply and Demand, including provision of technical assistance or grants from OECD and DLCD to assist local jurisdictions with addressing development constraints, and expediting project permitting, design and construction.
- Examine State-wide Land Use Policies Regarding Short-term Land Supply by directing LCDC and, if necessary, the Legislature to review and improve upon current state policy regulations.

- Expand Regional Investment Plans, in accordance with ORS 197.712 and ORS 285B.233-239, there needs to be more emphasis upon identification of short-term and long-term land supply; local priorities; documentation of significant resources; funding strategies; and performance measures to achieve economic objectives.
- Protect Strategic Industrial Sites using regulatory mechanisms that prevent premature conversion of industrial zoned land to non-industrial use.
- Create Statewide Site Certification Program that immediately addresses the statewide need for “market ready” employment sites. This new program is needed to facilitate the removal of site development constraints, and to identify specific sites so that Oregon remains competitive for accommodating strategic employers.
- Improve Coordination Among Local, Regional and State Agencies, especially when evaluating employment forecasts, land needs, and economic development priorities.
- Require Metro to Prepare an Economic Development Functional Plan, with specific regional economic strategies that are coordinated with local governments economic development visions and growth objectives.
- Allocate Adequate Funding for Investments that Support Strategic Economic Development, with allocation of adequate funding levels in existing state programs such as the Special Public Works Fund, and the Immediate Opportunity Fund.
- Identify New Economic Development Funding Sources that are stable and reliable to strengthen and support ongoing economic development efforts across the State.

The past three decades (since the passage of Senate Bill 100) have shown that Oregon’s land use planning practices are often able to achieve long-range objectives, but may not adequately address short-term needs. There is an opportunity to improve upon statewide land use planning by providing assistance to communities that desire to strengthen the economic foundation of their locality. The policy recommendations identified in this report would help serve that purpose.

BACKGROUND

The 2001 Oregon Legislature adopted HB 3557 with the intent of helping to "ensure that Oregon communities are providing sufficient buildable commercial and industrial lands under ORS 197.712." The legislation required the Oregon Economic and Community Development Department and the Department of Land Conservation and Development to establish an Advisory Committee on Commercial and Industrial Development. The committee was charged with recommending a methodology for use by local governments in determining whether the local government has sufficient buildable commercial and industrial lands.

This report describes and evaluates various methods for evaluating commercial and industrial land, and in doing so provides the basis for recommendations by the Advisory Committee. Appendix A provides a full list of participants in the study.

CONTEXT FOR LAND PLANNING IN OREGON

Most of the state policies for local governments regarding planning for economic development are set forth in Goal 9 of the Oregon Statewide Planning Goals. Additional requirements are also provided in statute and, in more detail, in statewide Administrative Rules (Division 9, Industrial and Commercial Development, OAR 660-009-000).

In comparison to that body of regulation, the provisions of HB 3557 are rather narrow. They deal with a subset (albeit an important one) of the Goal 9 requirements: "providing sufficient buildable commercial and industrial lands." The implications of that requirement, however, occur and have effects in a broader context.

ORS 197.712 begins with the general declaration that "...in carrying out statewide comprehensive land use planning, the provision of adequate opportunities for a variety of economic activities throughout the state is vital to the health, welfare and prosperity of all the people of the state." This statute then requires (through LCDC) that local comprehensive plans contain several types of analyses in order to ensure that economic issues have been adequately addressed in the local comprehensive planning process (these analyses are also stated or implied in the Goal 9 administrative rule, OAR 660-009-0015).

Of direct relevance to the purposes of HB 3557 is the requirement that "Comprehensive plans and land use regulations shall provide for at least an adequate supply of sites of suitable sizes, types, locations and service levels for industrial and commercial uses consistent with plan policies," and that local governments shall provide "Reasonable opportunities for urban residential, commercial and industrial needs over time through changes to urban growth boundaries." (Section 1, Chapter 812, Oregon Laws 2001, and referenced in ORS 197.712)

When OAR 660-009-0015 and HB 3557 are read sequentially, it is hard to draw any conclusion other than that HB 3557 is largely a restatement of requirements already in OAR 660-009-0015. Since OAR 660-009-0015 (also referred to as the Economic Opportunity Analysis section of the OAR) is relatively short, we cite it here to support that conclusion.

Cities and counties shall review and, as necessary, amend comprehensive plans to provide the information described in sections (1) through (4) of this rule:

(1) Review of National and State and Local Trends. The economic opportunities analysis shall identify the major categories of industrial and commercial uses that could reasonably be expected to locate or expand in the planning area based on available information about national, state and local trends. A use or category of use could reasonably be expected to locate in the planning area if the area possesses the appropriate locational factors for the use or category of use;

(2) Site Requirements. The economic opportunities analysis shall identify the types of sites that are likely to be needed by industrial and commercial uses which might expand or locate in the planning area. Types of sites shall be identified based on the site requirements of expected uses. Local governments should survey existing firms in the planning area to identify the types of sites which may be needed for expansion. Industrial and commercial uses with compatible site requirements should be grouped together into common site categories to simplify identification of site needs and subsequent planning;

(3) Inventory of Industrial and Commercial Lands. Comprehensive plans for all areas within urban growth boundaries shall include an inventory of vacant and significantly underutilized lands within the planning area which are designated for industrial or commercial use:

(a) Contiguous parcels of one to five acres within a discrete plan or zoning district may be inventoried together. If this is done the inventory shall:

(A) Indicate the total number of parcels of vacant or significantly underutilized parcels within each plan or zoning district; and

(B) Indicate the approximate total acreage and percentage of sites within each plan or zone district which are:

(i) Serviceable, and

(ii) Free from site constraints.

(b) For sites five acres and larger and parcels larger than one acre not inventoried in subsection (a) of this section, the plan shall provide the following information:

(A) Mapping showing the location of the site;

(B) Size of the site;

(C) Availability or proximity of public facilities as defined by OAR chapter 660, division 11 to the site;

(D) Site constraints which physically limit developing the site for designated uses. Site constraints include but are not limited to:

(i) The site is not serviceable;

(ii) Inadequate access to the site; and

(iii) Environmental constraints (e.g., floodplain, steep slopes, weak foundation soils).

(4) Assessment of Community Economic Development Potential. The economic opportunities analysis shall estimate the types and amounts of industrial and commercial development likely to occur in the planning area. The estimate shall be

based on information generated in response to sections (1) through (3) of this rule and shall consider the planning area's economic advantages and disadvantages of attracting new or expanded development in general as well as particular types of industrial and commercial uses. Relevant economic advantages and disadvantages to be considered should include but need not be limited to:

- (a) Location relative to markets;
- (b) Availability of key transportation facilities;
- (c) Key public facilities as defined by OAR chapter 660, division 11 and public services;
- (d) Labor market factors;
- (e) Materials and energy availability and cost;
- (f) Necessary support services;
- (g) Pollution control requirements; or
- (h) Educational and technical training programs.

It seems clear that an Economic Opportunity Analysis (EOA) directly addresses the purpose of HB 3557: to "ensure that Oregon communities are providing sufficient buildable commercial and industrial lands under ORS 197.712¹." The EOA inventories all land (point (3)); looks at national, state, and local market forces and trends (point (1)) and, more specifically, looks at local conditions (point (4)). This largely replicates the considerations² listed in HB 3557, and ultimately requires some determination of land sufficiency and possibly of the need to expand an urban growth boundary to establish land sufficiency.

After its review of these issues, the Advisory Committee for this project concluded that this study should not take current policy for evaluating industrial and commercial lands as given. In particular, the charge for the consultants was:

- Independent of what Goal 9 and the Goal 9 administrative rule (OAR 660-009-0000) allow, suggest, or require: What steps make sense for those local governments that want to "ensure that Oregon communities are providing sufficient buildable commercial and industrial lands under ORS 197.712?"
- Yet more broadly—and again independent of what Goal 9 and the Goal 9 administrative rule allow and/or recommend—What is a larger process for developing an economic development strategy and supporting technical analysis that makes sense for local governments?

That broad charge led to some more specific ones. Among the things that Goal 9 and its administrative rule do not require, but that the Advisory Committee believed could be important to the evaluation of land sufficiency and economic development, are:

¹ The phrase "under ORS 197.712" does not add much by way of insight or requirements because, as noted above, ORS 197.712 is general about how sufficiency would be determined—more general than the ORS specifications for an EOA.

² HB 3557 adds these considerations: (H) The changing nature of commercial and industrial uses and the implications of that for land use planning; (I) The conversion of industrial land to non-industrial uses; (J) Existing uses of land that may limit development or redevelopment; and (K) Topographical or other physical constraints.

- The relative importance of various demand factors (e.g, parcel size and location, access, utility capacity, power supply, etc.) for conducting the evaluation.
- Short-term constraints on land supply. Goals 9, 10 and 14 all require a 20-year view of land supply. The Committee believes that it is possible for a jurisdiction to meet the requirements for a 20-year land supply, but still be constrained in the short-run (e.g., because of lack of services or property owner unwilling to sell/lease land).
- Potential efficiencies from regional analysis. All moderate-size cities have to comply with Goal 9, which means describing and evaluating their economies. Economies, however, are best evaluated at a regional level (which might mean a county or several counties). If cities do that analysis independently: they are likely to (1) duplicate and waste effort, (2) produce inconsistent results that are hard to compare, and (3) miss some of the interconnections on cause, effect, and policy.

In addition, the Committee asked that the final report provide context for an analysis of the adequacy of an industrial and commercial land supply by describing an overall process for developing and adopting a local economic development strategy.

SCOPE AND ORGANIZATION OF THIS REPORT

This document is a report, not a handbook. Its primary audience is the Advisory Committee for this project, and the people that the Advisory Committee reports to: the state legislature and staff at DCLD and OECDD. Its purpose is to inform them regarding the gaps in state policy regarding local requirements for an evaluation of a sufficiency of industrial and commercial land.

The secondary audience, however, is local government planners. To identify gaps in state policy, researchers on this project first described, for comparison purposes, an ideal process for doing an industrial and commercial land evaluation. Thus, the HB 3557 report can be used by local governments as a guide for conducting commercial/industrial land needs analyses. While the authors believe that the methods described are consistent with state policy, in some cases they go beyond what state policy requires (especially with what are referred to later as "Advanced Methods"). Thus, the methods in this report are not intended to be used as requirements against which local planning efforts can be measured under current legislation.

Early in the study the Advisory Committee decided that an analysis of commercial and industrial buildable lands is best understood in the context of a larger strategy for economic development. Thus, this report begins by providing that context (Chapters 2 and 3) before going into the details of a Commercial and Industrial Lands Analysis (Chapters 4 and 5). The rest of this report is organized as follows:³

- Chapter 2, Context and Overview, provides a description of why communities should engage in economic development planning, a

³ The work in this report draws heavily on prior work done in Oregon on economic development, industrial land, and buildable lands analysis for state and local government by ECONorthwest and Otak.

broad analytical framework, and a discussion of state planning requirements.

- Chapter 3, Preparing an Economic Development Strategy, describes economic development strategies and a process for developing an economic development strategy.
- Chapter 4, Basic Analysis Methods, describes methods that are appropriate for smaller jurisdictions that do not have access to detailed data and may not have a need for detailed methods.
- Chapter 5, Advanced Analysis Methods, describes methods that are appropriate for jurisdictions that have staff analysts and access to detailed economic and GIS data.
- Chapter 6, Conclusions and Policy Recommendations, presents the consultant's and the committee's conclusions and identifies potential state policy changes that would address "gaps" in current state requirements for local governments regarding sufficiency of local industrial and commercial land supplies.
- Appendix A, Glossary, defines technical terms used in this report.
- Appendix B, Data Sources lists standard social and economic data sources analysts can use for Goal 9 analyses.

The report is organized so that readers can easily reference sections that are appropriate to their jurisdictions. Readers should refer to Chapters 2 and 3 for the context of economic development; Chapter 4 describes basic methods; and Chapter 5 describes advanced methods.

How should a jurisdiction decide whether to go to the additional effort and expense that the advanced evaluation methods require?

Every Oregon city that is required to complete a periodic review and update of its comprehensive plan faces the question of whether to include its "economic element" in the Periodic Review work program. Given the structural changes that have occurred to Oregon's economy in recent decades, most cities should at least consider such an update.

Many variables affect a jurisdiction's decision about methods to use in addressing the Goal 9 requirements. Staff availability and capability, data availability, jurisdiction size and growth rate, and economic development objectives are a few.

Table 1-1 provides a simple matrix readers can use to determine if basic or advanced methods are appropriate for your agency. Given the number of considerations, and the qualitative nature of many of them, Table 1-1 does not lead to unambiguous conclusions about the proper level of analysis. It should, however, help readers decide on the level of analysis most likely to be appropriate for their agency.

Table 1-1. What level of analysis is right for your jurisdiction?

Criterion	Basic Methods	Grey Area	Advanced Methods
Size (000s) people	<5	5-25	25+
Staff planning/economics expertise	None	Some	Staff planner or economist
GIS availability and capability	None	Some	Full GIS Capability
Schedule for decisions	Less than 12 months	12-18 months	More than 12 months
Economic development growth objectives and commitment of local policy makers	Insignificant/ Unmeasurable	Small but measurable	Significant
Budget for the analysis*	<\$15k	\$15k - \$30k	\$30k+

** Includes technical analyses and development of plan findings. Additional time/budget may be required for more extensive public involvement, special environmental analyses or engineering studies, and adoption proceedings.*

Source: ECONorthwest and Otak.

WHY ECONOMIC DEVELOPMENT?

This chapter provides a context for jurisdictions that are developing or revising the Goal 9 element of their comprehensive plans. The motivation to plan for economic development, however, extends beyond state planning requirements. An economic development plan provides a basis for achieving local economic development objectives and ensures that the necessary conditions exist to attract new industries. Specifically, economic development planning allows cities to identify local economic strengths and weaknesses, and target appropriate industries for recruitment and expansion. An assessment of buildable sites, infrastructure, labor force characteristics, and market conditions provides the context for an effective economic development strategy. That strategy, in turn, can have an affect on the type, amount, and pattern of growth that comes to a community.

In short, economic development planning, coupled with other public policies regarding land use and public facilities, provides an opportunity for jurisdictions to exercise some control over how they grow and the quality of life they intend to provide for their citizens.

Cities often have difficulty agreeing on economic development policies. One reason for this is that different interest groups define economic development differently, and have different ideas about the objectives and effectiveness of economic development policies. Many people would probably agree that the purpose of a city's economic development should be to make them better off (presumably by improving their economic circumstances and other aspects of their quality of life). Unfortunately, there is no practical way to take a single measure of their welfare, either in the aggregate or on an individual basis. In the real world, local governments pursue multiple, and sometimes conflicting, objectives.

Moreover, the path that connects public actions to desired ends is not well defined. In the real world the interrelationships among markets, and between markets and policy, are complicated.

Problems begin with definitions. What is economic development? Is it more jobs? Better jobs? More sales? More profit? More development? More tax base? What if all that development comes at the expense of environmental quality or neighborhood livability? What if most of the profits accrue to a few people in a few firms? Is that still the kind of economic development that the public wants to spend its tax dollars on?

As ideas about economic development have broadened to address these and other questions, so have the definitions. Two examples emphasize the underlying economics and tradeoffs:

Economic development is the process of innovation through which we increase the capacity of individuals and organizations to create wealth. The goods and services we value include not only those items that are traded in the

marketplace but also less tangible things—the quality of our environment, public security, and other elements that contribute to our sense of well-being.⁴

Economic development should help to achieve a more widely shared and sustainable quality of life.⁵

These definitions imply that economic development policy should be fundamentally about increasing society's well-being. Other terms for that well-being are welfare, public good, or public interest. This simple definition has powerful implications. It expands the scope of economic development. Yes, a person's well-being can be increased with more and better material goods, and by a job that pays wages that allow the purchase of those goods. But material goods are not the only, or even the primary, measures of well-being.

A region's quality of life comprises the various location-specific benefits and costs individuals enjoy or endure by living in the region. If the quality of life is beneficial, it produces a net increase in the standard of living for the local residents. In effect, these net quality-of-life benefits are analogous to a "second paycheck" that each resident of the region receives, supplementing the first paycheck received from an employer or other source of income. It is the sum of the first and second paychecks that determines the overall well-being of a region's residents.

The notion that quality of life can affect the standard of living one enjoys from living in a particular place is not new; it derives from at least as far back as the early part of this century and is addressed in most textbooks on urban and regional development. But the incorporation of that idea into the actual economic development and actions of local governments is new. In the early 1980s, economic development programs in states and municipalities in the Pacific Northwest focused on the recruitment of large (usually industrial) firms, and on little substantive connection with some other departments (e.g., transportation planning and environmental quality). That has changed.

Thus, economic development planning is about more than just attracting jobs to a community. It affects every aspect of a community and has implications that potentially impact provision of infrastructure, rate of growth, local wage structure, schools, and many other public services.

THE ECONOMIC DEVELOPMENT PROCESS

The economic development process is similar to the standard planning model in many respects. It has direct relationships with land use, regional coordination, transportation and other elements that are commonly addressed in local comprehensive plans.

⁴ Vaughan, Roger J. 1984. *The Wealth of States: Policies for a Dynamic Economy*, 1st Edition. Washington, DC: CSPA.

⁵ Schweke, William, Brian Dabson, and Carl Rist. 1996. *Improving Your Business Climate: A Guide to Smarter Public Investments in Economic Development*. Washington, D.C.: Corporation for Enterprise Development.

Like comprehensive planning, economic development planning typically begins by identifying a community vision as well as goals and objectives for implementing that vision. An accurate factual base is essential and should cover broad economic trends, the local business mix, land supply, labor force, and other economic characteristics.

To supplement the factual base, many economic development plans evaluate internal and external factors that will affect future outcomes. Such an evaluation is typically packaged as a SWOT analysis (strengths, weaknesses, opportunities, and threats).

Start With a Vision

The community vision and the factual overview of economic and market conditions provides the basis for economic development policies. The policies are intended to implement actions that will achieve the community's economic development vision. The process described above is iterative. For example, the economic development vision may be adjusted to reflect data from the factual base.

The aspirations of local communities should be documented and adopted as a vision document, in conjunction with a factual assessment of local and regional economic conditions. Economic development is usually one of several elements considered in local vision documents. Other elements often include housing, transportation, education, and recreation.

While Oregon law does not currently require local visioning, OAR 660-009-0020(1) does require local jurisdictions to prepare and adopt policies stating economic development objectives as part of comprehensive plans. Some idea of economic development objectives provides guidance for local goals or policies regarding efforts to stimulate job growth and provide locations for the development such growth requires.

The Role of Land Supply

Statewide Planning Goal 9 requires comprehensive plans to “provide for at least an adequate supply of sites of suitable sizes, types, locations, and service levels for a variety of industrial and commercial uses...”. This report focuses on this requirement by describing various methods for comparing the anticipated demand for commercial and industrial land (estimated as a function of expected commercial and industrial employment growth) with the supply of buildable sites and public services.

An adequate land supply includes a variety of commercial and industrial vacant or redevelopable areas. Sites of various sizes and locations are necessary to accommodate a range of potential small, medium and large land uses, in accordance with local economic development objectives. Of equal or greater importance to job growth is the provision of adequate roads and utilities. Without an adequate supply of readily serviceable sites, job growth will be slower; existing firms will have trouble expanding; local start-ups will find space expensive; firms interested in locating in the region will go to where serviceable land is available and less expensive.

It is important to note that the requirements of OAR 660-009 only apply to areas within Urban Growth Boundaries. The administrative rule does not

preclude economic development planning in other areas, but it does not require it. Moreover, the administrative rule recognizes that different levels of effort are appropriate for different cities:

The effort necessary to comply with OAR 660-009-0015 through 660-009-0025 will vary depending upon the size of the jurisdiction, the detail of previous economic development planning efforts, and the extent of new information on local, state and national trends. A jurisdiction's planning effort is adequate if it uses the best available or readily collectable information to respond to the requirements of this rule.

Table 2-1 summarizes the key Goal 9 and OAR 660-0009 requirements. The table states the requirement, provides the policy basis, describes applicability, and provides a brief description of the requirement.



Intel, one of Oregon's largest private employers, would not have located in the Ronler Acres Business Park if the City of Hillsboro and Washington County did not have the vision and the land supply needed to attract strategic employers.

Table 2-1. Summary of key Goal 9 requirements

Requirement	Administrative Rule	Applicability	Comments
Employment Forecasts	n/a	Optional for all cities under OAR 660-009	Provides basis for understanding future regional, county, and local employment trends and planning for employment growth.
Review of National and State and Local Trends	Goal 9; OAR 660-009-0015(1)	Required for all cities over 2,500.	Provides context for how broader economic trends will impact local economic growth.
Analyze Site Requirements	OAR 660-009-0015(2)	Required for all cities over 2,500.	Requires identification of the types of sites that are likely to be needed by industrial and commercial uses in the planning area.
Inventory of Industrial and Commercial Lands	OAR 660-009-0015(3)	Required for all cities over 2,500.	Requires inventory of vacant and under-utilized parcels designated for commercial and industrial uses.
Assessment of Community Economic Development Potential	Goal 9; OAR 660-009-0015(4)	Required for all cities over 2,500.	Requires cities to estimate the types and amounts of industrial and commercial development likely to occur in the planning area given local economic advantages and disadvantages.
Economic Development Objectives	OAR 660-009-0020(1)	Required for all cities.	Requires comprehensive plans to have policies stating economic development objectives.
Community Development Objectives	OAR 660-009-0020(2)(a)	Required for cities over 2,500 persons	Requires plans to state overall objectives for economic development in the planning area and identify categories or particular types of industrial and commercial uses desired by the community ("target industries").
Commitment to Provide Adequate Sites and Facilities	Goal 9; OAR 660-009-0020(2)(b)	Required for cities over 2,500 persons	Requires policies to designate an adequate number of sites of suitable sizes, types and locations and ensure necessary public facilities through the public facilities plan for the planning area.
Identification of Needed Sites	OAR 660-009-0025(1)	Required for cities over 2,500 persons	Requires plan to identify the approximate number and acreage of sites needed to accommodate industrial and commercial uses to implement plan policies.
Long-Term Supply of Land	OAR 660-009-0025(2)	Required for cities over 2,500 persons	Requires supply of land in each site category to meet 20-year demand.
Short-Term Supply of Serviceable Sites	OAR 660-009-0025(3)	Cities required to develop a capital improvement program under OAR 660-0011. Evaluation required during periodic review.	Requires estimate of serviceable acres available during a 1-5 year period.
Sites for Uses with Special Siting Requirements	OAR 660-009-0025(4)	Jurisdictions which adopt objectives or policies to provide for specific uses with special site requirements shall adopt policies and land use regulations to provide for the needs of those uses.	Special site requirements include large acreage sites, special site configurations, direct access to transportation facilities, or sensitivity to adjacent land uses, or coastal shoreland sites designated as especially suited for water-dependent use under Goal 17.

Source: ECONorthwest; Statewide Planning Goal 9; OAR 660-009

Note: Cities under 2,500 are no longer required to conduct periodic review under SB 544.

WHY COMMERCIAL AND INDUSTRIAL LANDS ANALYSIS?

Different regions have different combinations of factors that contribute to successful business operations. Land is one of these factors. Business development requires land to be in the right location, with the right site characteristics, at the right price. Other factors include labor (including technological expertise) and capital (investments in infrastructure, technology, and public services). While all locations possess these factors to some degree, the proportions vary. The right mix of productive factors may allow firms in one location to produce goods and services more cheaply than firms in other locations.

Regional Coordination is Important

Regional coordination can help as communities efficiently evaluate their economic development potential. Coordination among cities, counties, state agencies and port authorities within a market region can sometimes save costs by avoiding duplicative primary data research activities. Regional coordination can also shed light on jurisdiction-level economic development objectives. Coordination can enable jurisdictions to make better-informed decisions regarding specific needs and opportunities that exist within the region. Jurisdictions can then determine potential economic development actions that are needed to address regional opportunities that other jurisdictions are not currently addressing.

An example of state-level coordination includes Oregon's Community Solutions Team (CST). The CST includes regional representatives from five state agencies, including: the Department of Land Conservation and Development, the Oregon Department of Transportation, Oregon Economic and Community Development Department, the Department of Environmental Quality, and the Department of Housing and Community Services. Regional representatives from these state agencies meet periodically to discuss current state issues, and to coordinate among departments. There are also examples of regional coordinating entities, such as the Mid-Columbia Economic Development District (in the Columbia River Gorge) and others.

Expanding and redefining the role of the CST and regional coordinating entities to include local governments and Port Authorities would help further enhance communications and coordination with regard to economic development initiatives.

A commercial and industrial lands analysis addresses the requirements of OAR 660-009-0015—the economic opportunities analysis. The general intent, to match expected demand for commercial and industrial lands with the local inventory, provides a basis for local policy and allows local governments to tailor their policies to identified needs. Regions or cities without a range of buildable parcels will be at a disadvantage in accommodating strategic economic development. An analysis of buildable commercial and industrial land can tell a jurisdiction whether it is missing opportunities for economic development because of problems with its land supply.

DATA AND ANALYTICAL TECHNIQUES FOR EVALUATING COMMERCIAL AND INDUSTRIAL LAND

In Oregon, state law currently requires land needs assessments to be consistent with ORS 197.712 and with OAR 660-009-0015(3). Determination of future land needs requires analysis of both supply and demand factors.

Land supply gets described through a comprehensive inventory of existing developed and buildable lands. With respect to commercial and industrial development, ORS 197.712(2)(c) requires jurisdictions to provide an adequate supply of sites of suitable sizes, types, locations, and service levels for industrial and commercial uses consistent with plan policies. OAR 660-009-0015(3) requires jurisdictions to inventory vacant and significantly underutilized lands within the planning area which are designated for industrial or commercial use.

Demand for land gets described through analysis of national, regional, and local demographic and economic data. For non-residential uses, business growth is the primary driver of demand for land. That growth can be described with different measures of business activity: revenues, profit, output, employment, wages, building permits, and absorption are the most measures. Of these, employment data is used most often because it is most readily available, consistent over time, and has a relatively good correlation with land need. Employment growth drives estimates of probable absorption rates for commercial and industrial lands.

The integration of supply and demand data to determine future land needs and UGB requirements is based on a number of assumptions about future conditions. Some of these assumptions can be built into an interactive model; others can't. For example, modeling need based on population growth and existing commercial and industrial development is relatively easy, adding variables such as long-term economic conditions, industry patterns, and income are much more speculative and difficult.

Zoning Designations Are Still Important

For planning purposes, distinguishing between commercial and industrial uses is less critical than it was 20 years ago. Today commercial and light-industrial activities have many similarities. There remain, however, significant differences between these types of uses and heavy industrial activities, such as metals fabrication, smelters, pulp and paper mills, and solid waste treatment and disposal facilities. Hence, land use zoning and comprehensive plan designations are still important to households and employers, who want to know the relative compatibility of future adjacent "neighbors".

Not all "industrial jobs" go on industrial designated land. According to the Regional Industrial Land Study for the Portland-Vancouver Metropolitan Area, the "traditional" industrial job sectors (including construction, manufacturing, transportation, communication, and public utilities) accounts for between 17% and 91% of the jobs in employment districts. The low end of the range includes industrial jobs in commercial zone districts, such as downtown Portland and suburban office corridors. The high-end of the range includes areas zoned for heavy industry, such as the Rivergate Industrial Area. About half of the jobs in mixed-use industrial districts, such as the

Central Eastside district and Airport Way Corridor in Portland, are classified as industrial jobs.

The Regional Industrial Land Study also documented the fact that non-traditional industrial job sectors (including retail, service and government sectors) also utilize industrial land. The range of non-industrial jobs as a proportion of total jobs, was 15% for heavy industrial districts; 23% for general industrial districts; and 32% for mixed-use and light industrial districts.

The methodology described in the Basic and Advanced Analysis sections recognize the changing nature of jobs and their related land requirements.

Preserving Land for Its Intended Use is Critical

Some amount of ancillary non-industrial activities, such as restaurants and office supplies are important amenities for tenants in industrial zones. If, however, non-industrial activities are allowed to “crowd out” industrial uses, an industrial district could transition overtime to a mixed-use area. This type of transition will likely change the amount and mix of job types, in a manner that may or may not be consistent with local economic development objectives.

Local jurisdictions that recognize the importance of preserving special land use districts for their intended purpose usually adopt special overlay zones or land use plan districts (such as Portland’s Industrial Sanctuary district). Local land use regulations help to preserve key land areas for their intended use, and help manage demand for public facilities, such as high pressure water lines or roadway interchanges. Examples of local land use policies aimed at preserving industrial development within industrial zone districts includes:

- Adopting special land use districts or overlay zones, such as “industrial sanctuaries” or “strategic employment areas”;
- Limiting retail or other non-industrial uses within special districts;
- Adopting a “no net loss” policy as part a comprehensive land use policy regarding rezoning applications (e.g. on land area zoned industrial);
- Adopting large-lot parcel requirements to avoid incremental reductions in land supply by small land users.

For the purposes of an economic opportunities analysis for cities that are part of a larger regional economy, the focus is usually on sub-regional economic development opportunities. The factors that affect larger inter-regional location decisions are usually considered (either explicitly or implicitly) in long-run population and employment forecasts for the region. In other words, those forecasts are the forecasters’ (in this case, the state Department of Administrative Services) best guess of the number of households and business that, after considering myriad locational factors, will choose to locate given region or county.

State and regional job growth forecasts are one of the cornerstones of any commercial and industrial lands analysis. Other key considerations include

local economic development objectives and local land supply. Figure 2-1 shows the key steps in a commercial and industrial lands analysis.

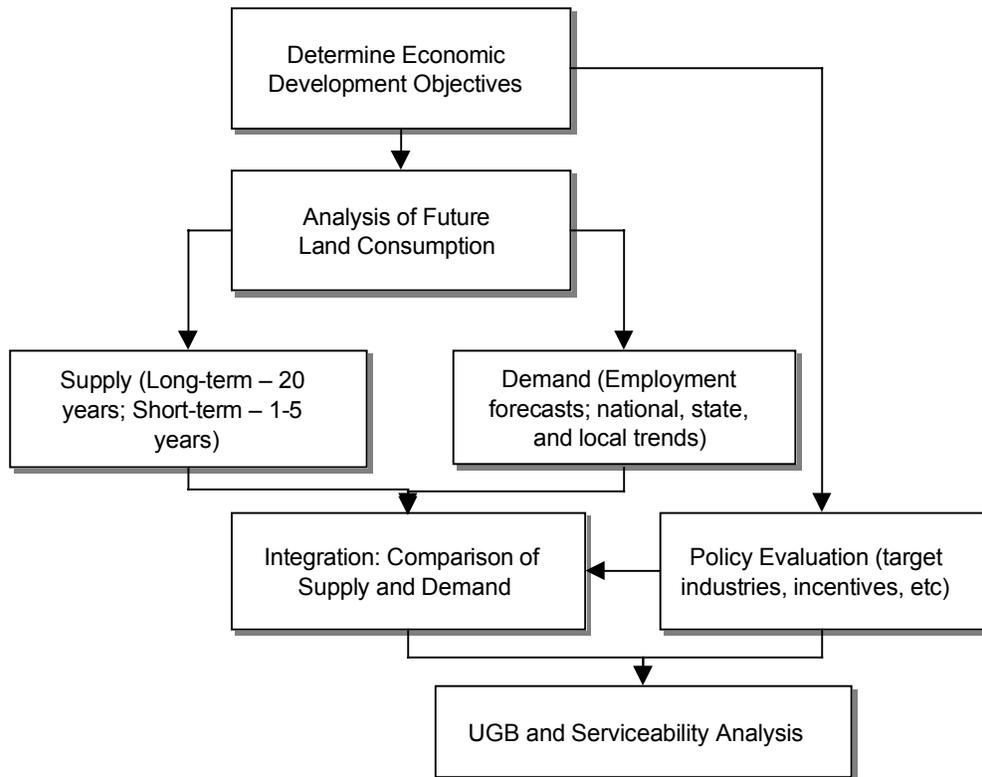
Ideally, the analysis begins with adopting a community vision and a review of local economic development objectives. This review provides the context for what a jurisdiction hopes to accomplish and helps guide other steps in the process—most importantly economic development policies.

The next step is analysis of future land consumption. This step has a supply component and a demand component. The supply component requires an inventory of lands designated for commercial and industrial uses as well as specific characteristics of those lands. The demand component requires consideration of local economic advantages and disadvantages as well as external economic trends.

Once the supply and demand analyses are completed, the demand for land (expressed as acres by plan designation and site type) is compared to the local supply. An evaluation of existing or proposed local economic development policies is necessary at this point since policies can affect the type of allowable development as well as land availability.

The final step in the process is to make a determination of whether the jurisdiction has sufficient land to meet both the long-term (20-year) and short term (1-5 year) supply requirements.

Figure 2-1. Overview of commercial and industrial lands analysis



Such an analysis is important for a number of reasons. While the long-term land needs analysis is necessary to achieve adequate long-range land use planning, the short-term analysis is critical in order to address short-term market opportunities.

Importance of Short-term Planning

The short-term is typically defined by planners as the period less than five years. From a commercial or industrial employer's perspective, a much shorter time period (one year or less) is considered when evaluating sites for their operations. Implicit in most employment forecasts is the assumption that buildable land is available in suitable locations, in appropriate sizes, and with available infrastructure. Hence, if a region cannot provide an adequate supply of buildable lands, it will not likely get the rate of employment growth that it has projected.⁶

Business decision makers in the market for commercial and industrial land may have definitions of "adequate supply" independent of the definitions in state statute. Prospective commercial and industrial employers want to see an ample supply of land within a primary market area that they deem competitive in terms of:

- Parcel size, steep slopes and configuration;
- Adequacy of infrastructure: roads, utilities, and telecommunications;
- Environmental issues, such as wetlands, floodplains and hazardous materials;
- Land ownership and land availability;
- Land price and overall development costs; and
- Local land use regulations.

All of these site development constraints affect the cost and timing of development, which are bottom line site competitiveness determinants. The local economic development strategy should address what a jurisdiction is willing to do to be competitive for certain types of commercial and industrial activities.

A commercial and industrial lands study can also help jurisdictions in other areas of planning and capital budgeting. For example, mapping out the location of major industrial sites and estimating employment density can assist in evaluating infrastructure capacity as well as targeted infrastructure improvements.

Conducting the buildable lands inventory and economic opportunities analysis requires various data. Table 2-2 provides a list of potential data sources for meeting the Goal 9 technical requirements (as described in Table 2-1). Readers should note that this is not a comprehensive list of all the data

⁶ Such projections almost always assume (implicitly) that land supply and price in the future will be no more of a problem than they have been in the past.

necessary to complete a buildable lands inventory or an economic opportunities analysis; it is intended as a preliminary list. A more specific discussion of potential data sources is included in the discussion of basic and advanced methods in Chapters 4 and 5. Appendix B includes a more comprehensive listing of data sources by topic.

Table 2-2. Summary of selected Goal 9 requirements and data sources

Requirement	Data sources
Employment Forecasts	No standardized source exists for local employment forecasts. County-level employment forecasts are available through the Office of Economic Analysis (http://www.oea.das.state.or.us/); Employment Security 202 data (Oregon Employment Department)
Review of National and State and Local Trends	Provides context for how broader economic trends will impact local economic growth. Such overviews are available from the state (state economic forecasts) and often from regional governments (Metro, COGs).
Analyze Site Requirements	Requires identification of the types of sites that are likely to be needed by industrial and commercial uses in the planning area.
Inventory of Industrial and Commercial Lands	County assessment data; geographic information systems (GIS); field review; aerial photographs; comprehensive plan/zoning maps
Assessment of Community Economic Development Potential	Bureau of Economic Analysis (http://www.bea.gov/), Oregon Labor Market Information System (http://www.olmis.org); US Census (http://www.census.gov); Employment Security 202 data (Oregon Employment Department); local transportation system plan; local school system/community college
Identification of Needed Sites	Urban Land Institute; local interviews
Long-Term Supply of Land	County assessment data; geographic information systems (GIS); field review; aerial photographs; comprehensive plan/zoning maps
Short-Term Supply of Serviceable Sites	Public facilities plans; interviews with city engineers
Sites for Uses with Special Siting Requirements	Interviews

Source: ECONorthwest; Statewide Planning Goal 9; OAR 660-009

Preparing a Local Economic Development Strategy

Chapter 3

OAR 660-0020 requires communities to include commercial and industrial development policies in the comprehensive plans. Components of a local economic development strategy include a vision statement, economic development goals and objectives, policies, and actions. This chapter provides an overview of a process that jurisdictions can use to prepare a local economic development strategy.

TYPICAL OBJECTIVES FOR ECONOMIC DEVELOPMENT

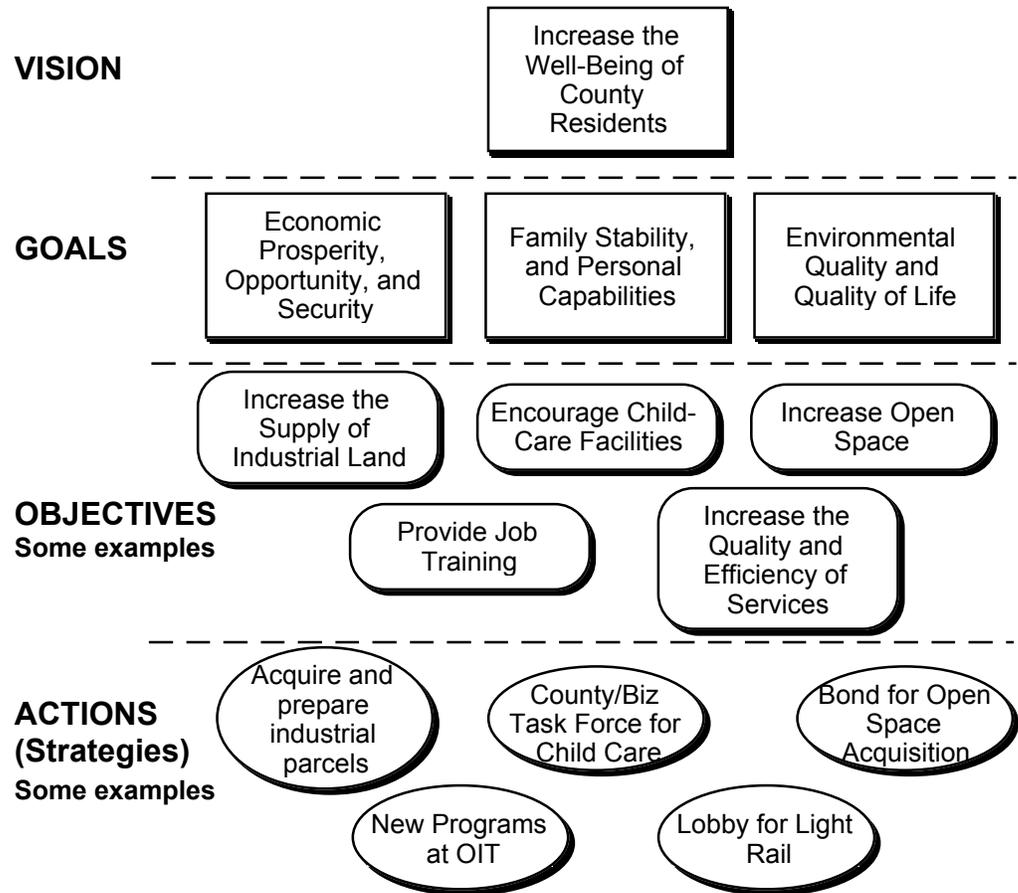
There are many possible economic futures for any given jurisdiction; there are some impossible ones as well. The challenge for any jurisdiction is to decide on a future that is not only desirable, but that is also possible given the factors that constrain it. That future is referred to as the City's "economic vision" or "economic development objectives." Thus, a vision for the future economy of any jurisdiction should be:

- A balance between what the jurisdiction would like to achieve, and what resources and public support the jurisdiction can realistically expect to muster in support of that vision;
- Consistent with the role of the jurisdiction's economy the larger regional and state economies;
- Consistent with state laws;
- Understandable to citizens without technical training or experience with economic development; and
- Capable of being incorporated into the jurisdiction's comprehensive plan.

An effective economic development strategy should build from a vision to actions that implement and realize that vision. Consistent with the guidelines above, the vision, and goals should be framed in a manner that can be included in the comprehensive plan. Some of the objectives and actions should take the form of land use policies, others will not. For example, if the jurisdiction has an objective to preserve industrial land for industrial development, industrial land policies would be included in a local comprehensive plan or development ordinance. If a better trained labor force is an objective, a jurisdiction might include specific policies for workforce training in its local economic development strategic plan or another document.

General goals for growth, development, and livability are very similar across jurisdictions: professional literature, popular press, and surveys show very consistent results. Figure 3-1 shows a typical example of how broad goals get increasingly more specific, ultimately leading to specific actions to be taken in the short run.

Figure 3-1. Example of visions to actions



Source: ECONorthwest, Clackamas County Economic Development Strategy

Jurisdictions must work with stakeholders and interested citizens to choose an economic development strategy. To facilitate the that work, this section lists some typical objectives for economic development, some of the key issues that jurisdictions are likely to address, and a range of economic development strategies from other jurisdictions. These lists are illustrative, not comprehensive.

Table 3-1 below shows sample economic development policies. The type of policies that are appropriate depend on the community and its economic development objectives.

Table 3-1. Summary of potential economic development policies

Category/Policy	Description
Land Use	Policies regarding the amount and location of available land and allowed uses.
Provide adequate supply of land to support employment growth	As per State requirements, provide an adequate supply of development sites to accommodate anticipated employment growth with the public and private services, sizes, zoning, and other characteristics needed by firms likely to locate in a particular city.
Cut red tape	Take actions to reduce costs and time for development permits. Adopt development codes and land use plans that are clear and concise.
Public Services	Policies regarding the level and quality of public and private infrastructure and services.
Provide adequate infrastructure to support employment growth	Provide adequate public services (i.e. roads, water, and sewer) and take action to assure adequate private utilities (i.e. electricity and communications) are provided to existing businesses and development sites.
Focused public investment	Provide public and private infrastructure to identified development sites.
Communications infrastructure	Actions to provide high-speed communication infrastructure, such as developing a local fiber optic network.
Business Assistance	Policies to assist existing businesses and attract new businesses.
Business retention	Targeted assistance to businesses facing financial difficulty or thinking of moving out of the community.
Recruitment and marketing	Establish a program to market the community as a location for business in general, and target relocating firms. Take steps to provide readily available development sites, an efficient permitting process, well-trained workforce, and perception of high quality of life.
Development districts (enterprise zones, redevelopment districts, etc.)	Establish districts with tax abatements, loans, subsidized infrastructure, reduced regulation, or other incentives available to businesses in the district that meet specified criteria.
Public/private partnerships	Make public land or facilities available, public lease commitment in proposed development, provide parking, and other support services.
Financial assistance	Tax abatement, waivers, loans, grants, and financing for firms meeting specified criteria.
Business incubators	Create low-cost space for use by new and expanding firms in Sweet Home with shared office services, access to equipment, and networking opportunities.
Mentoring and advice	Provide low-cost mentors and advice for local small businesses in the area of management, marketing, accounting, financing, and other business skills.
Export promotion	Assist businesses in identifying new products and export markets; represent local firms at trade shows and missions.
Workforce	Policies to improve the quality of the workforce available to local firms.
Job training	Create opportunities for training in general or implement training programs for specific jobs or specific population groups (i.e. dislocated workers).
Job access	Provide transit/shuttle service to bring workers to job sites.
Other	
Regional collaboration	Coordinate economic development efforts with the County and the State so that clear and consistent policies are developed.
Quality of life	Maintain and enhance quality of life through good schools, cultural programs, recreational opportunities, adequate health care facilities, affordable housing, and environmental amenities.

Source: ECONorthwest.

DEVELOPING AN ECONOMIC DEVELOPMENT STRATEGY

The previous section provided a broad overview of what an economic development strategy should include. This section incorporates ideas in that overview into five steps for developing an economic development strategy, that is consistent with the example shown in Figure 3-1.

STEP 1. DEVELOP VISION STATEMENT AND GOALS

The vision statement and related goals serve as the foundation of the economic development strategy, which should describe the level of effort a jurisdiction will make towards accommodating desired job growth. This step needs to include, at a minimum, meetings with local decision-makers to establish the vision statement and key economic development goals. A more involved process could include public workshops, focus group meetings, and household or business surveys.

Attention should also be directed towards placing the vision in context with larger regional, national and international market realities. Hence, the economic opportunities analysis should be conducted concurrently with visioning and goal setting. It is possible to complete other elements of the economic development strategy without a vision statement. This approach, however, comes with risk—since the vision statement and goals provide the context for policies and actions, and should be crafted in a manner that's consistent with market realities.

The vision statement should reflect what the jurisdiction wants to be in the future, and clarify the implications for the type and location of future commercial and industrial development jobs. Jurisdictions often assume that a common vision is shared by their entire community, only to find out that differences exist when a large development project is approved or when controversial policies are considered.

The appropriate level of visioning and goal setting tends to vary by community. At this initial step in preparing an economic development strategy it is most important to start with a broad vision and general goals that are supported by the vast majority of residents. These general goals can then be translated into more specific objectives and actions after Steps 1, 2 and 3 are completed.

Data sources: Key person interviews; focus group meetings; public workshops; hearings.

Timeline: 40-80 hours⁷

STEP 2. CONDUCT ECONOMIC OPPORTUNITIES ANALYSIS

The next step in the strategy is to address the OAR 660-009-0015 requirements for a buildable lands analysis and an economic opportunities analysis. Methods for the buildable lands analysis are discussed in chapters 4 and 5.

⁷ All hours listed are just for technical work (staff and consultants); they do not include the time of technical or advisory panels, elected officials, or other agency staff.

Data sources: See Chapter 4 for basic methods; Chapter 5 for advanced methods

Timeline: 100-240 hours

STEP 3. IDENTIFY ECONOMIC DEVELOPMENT ISSUES

This step builds from the vision described in Step 1 and the conditions described in the economic opportunities analysis (Step 2) to identify and evaluate major economic development issues facing a jurisdiction. Common issues include:

- Land Use: buildable land, housing, and urban renewal
- Public infrastructure and services: transportation, water and sewer service, quality of life
- Workforce: education and training
- Business development: recruitment and retention
- Finance
- Coordination

A more detailed delineation of the issues will clarify the types of policies and actions that will be needed to achieve the economic development vision. The issue discussion does not need to be particularly detailed; the intent is to identify the issues and quantify them to the extent possible.

Data sources: Economic development vision and goals; economic opportunities analysis; other data as dictated by issues

Timeline: 100-300 or more hours

STEP 4. DEVELOP POLICIES

At a minimum, jurisdictions should adopt policies that address the type and location of commercial and industrial lands, and how those lands will be provided with public services. Many jurisdictions go beyond this step to also adopt policies that preserve commercial and industrial lands. Table 3-1 above provides an overview of potential policies.

Data sources: Economic opportunities analysis; buildable lands inventory; public hearings; surveys; US Census

Timeline: 80-160 hours

STEP 5. DEVELOP ACTION PLAN

Some jurisdictions develop implementation or “action” plans as a companion to their economic development strategy. The action plan describes specific steps that would be taken to address economic development goals and objectives. It should also identify responsible parties, partners, the timeframe for implementation, cost, and funding sources. One potential framework for the action plan follows.

What and Why? What does the action do and why does the City want to do it?

When? When should the action happen? To keep the analysis simple, the possible categories are: Year 1, Year 2-3, and Year 4-5. Indirectly, the answer to "When?" is also an answer to "How important?" and "In what order?"

Who? What City department or public agency is responsible for or needs to be involved to get the action completed?

How much? How much City staff and Council time is this likely to take. The amount of time can usually be directly converted to a budget. For capital improvements, a rough estimate of cost is also included.

How will we know we succeeded? What measurable target can we set (e.g., something specific achieved by some date) that will indicate that we have been successful?

What else? Are there any other policies that go with this? Other advice on implementation?

The action plan can be summarized in a matrix that may be no longer than 4-5 pages. This step is important: most economic development strategies will not implement themselves—they need targeted effort and resources.

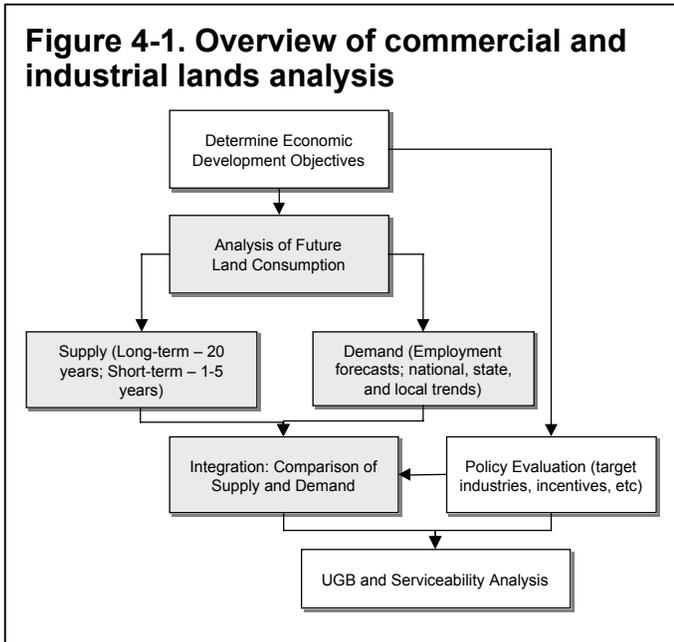
The action plan is the tool that provides the roadmap for implementation. It acknowledges the local vision, economic development objectives, economic opportunities analysis, land needs forecasts, and land constraints findings, and identifies, among other things, the specific actions necessary to create an adequate and competitive commercial and industrial land base. Implementation of the action plan will focus public investment and staff resources on activities judged to be efficient in achieving desired job growth and fiscal benefits.

Data sources: Economic development vision and goals; economic opportunities analysis; economic issues; meetings with potential partners; research on funding sources.

Timeline: 80-120 hours

Basic Analysis Methods

This chapter describes basic methods for an analysis of commercial and industrial lands. This level of analysis is intended to assist any size of jurisdiction with an evaluation of its existing commercial and industrial land inventory and the job-holding capacity of that inventory. The basic analysis, by virtue of being relatively simple, is also quicker and cheaper; it does not require significant data collection, analysis, and interpretation.



The basic methods describe approaches jurisdictions can use to address the requirements of OAR 660-009-0015 (Economic Opportunities Analysis). This chapter is organized into four key sections that correspond with steps in the commercial and industrial lands analysis process. Figure 4-1 highlights the steps in that process that are described in this chapter.

This chapter is divided into two sections: one on basic methods for evaluating long-term demand and supply conditions, and one on estimating short-term conditions. The bulk of the chapter address long-term issues because the regulations of the Oregon planning program are aimed almost exclusively at 20-year (long-term) land needs. Chapter 5, on advanced techniques, provides a longer discussion of short-term supply and demand issues.

LONG-TERM CONDITIONS

ASSESSING ECONOMIC TRENDS AND LAND NEEDS (DEMAND)

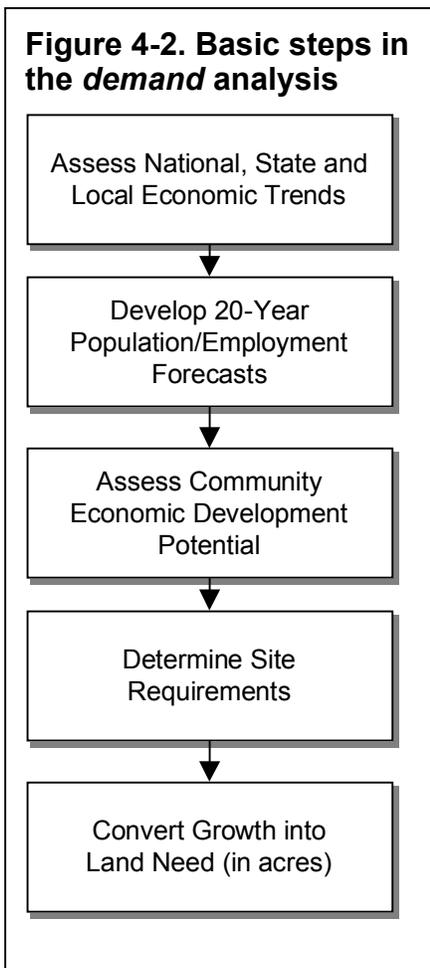
Local economic development policies will be less effective without a clear description of likely economic conditions and regional comparative advantages. That description can be written in a way that will simultaneously meet the requirements of Goal 9 and its administrative rules.

OAR 660-009-0015 provides the context for the demand analysis (termed an “Economic Opportunities Analysis” in the administrative rule). Figure 4-2 shows the key steps in assessing economic trends and long-term land needs; or what this report calls the demand analysis. These steps are described in more detail below.

STEP 1. ASSESS NATIONAL, STATE, AND LOCAL ECONOMIC TRENDS

OAR 660-009-0015(1) requires jurisdictions to assess national, state, and local economic trends. More specifically, it requires the economic

opportunities analysis to identify the major categories of industrial and commercial uses that could reasonably be expected to locate or expand in the planning area based on available information about national, state and local trends.



The economy of any Oregon jurisdiction is strongly influenced by economic forces beyond its control. The fortunes of the national and state can have bigger impacts on economic development than local policies. This analysis should provide an overview of these larger economies as context. Moreover, this analysis should include both a long-run component (20-year) as well as a short-term component (1-5 years). In general, the economic opportunities analysis should take a long-run perspective on the local economies (as the Goal 9 requirements intend). While important, short-run business cycles have less impact on land demand in the context of Goal 9 and Goal 14.

The assessment of national, state and local economic trends should include data and analysis of the following topics:

- Population trends and characteristics (i.e., historic growth rates, age, race, etc.);
- Income trends (per-capita, household, and family);
- Employment trends (by industry and occupation); and
- Public policy (i.e., state tax policy, etc.).

These trends should be summarized to describe the economic outlook for Oregon and how they will influence local economic growth.

For a basic analysis, a jurisdiction may be able to pull much of this information from state and regional agencies in Oregon. For example, the Oregon Department of

Administrative Services, Office of Economic Analysis, publishes quarterly economic and revenue forecasts for five years (<http://www.oea.das.state.or.us/>) and describes national, international, regional, and state factors that will affect future economic performance. Regional agencies (e.g., Metro, and various COGs) often have a description and forecast of a regional economy. Small cities may be able to piggyback on the work of larger ones (e.g., the City of Veneta could use a recent economic overview prepared by the City of Eugene).

Data sources: US Census, Oregon Employment Department, Bureau of Economic Analysis, ES 202 Data.

Timeline: 20-50 hours

STEP 2. DEVELOP 20-YEAR POPULATION/EMPLOYMENT FORECASTS

Population and employment forecasts provide the foundation of estimating land needs. The State Office of Economic Analysis (OEA) develops a long-term forecast of population and employment growth in Oregon and its counties.

Cities are required to develop coordinated population forecasts by ORS 195.036. The process of coordinating population forecasts is performed at the county level and uses the OEA population forecasts as control totals. In short, the population forecasted for all of the incorporated cities and rural areas of a county must sum to a figure close to the OEA forecast, or reasons for significant differences must be fully documented.⁸

No standard data sources exist for employment estimates and forecasts at the city level. Moreover, state policy does not require local jurisdictions to develop employment forecasts as part of the Goal 9 process.

Several options exist for cities desiring to develop local employment forecasts. These are summarized in Table 4-1.

Table 4-1. Basic employment forecasting methods

Method	Description
Trend extrapolation	Uses historical employment growth rates and extrapolates them into the future.
Ratio trend	Uses current city/county ratio of employment and extrapolates to the future.
Population/employment ratio trend	Uses population forecast as the basis for employment using ratio between population and employment.
Comparative	Past growth pattern is compared with growth patterns of larger, older areas. Should consider social, economic, political, and other variables.

Source: ECONorthwest

These methods are relatively simple and rely on past trends as an indicator of future growth. They can be used alone or in combination to arrive at a point estimate or a range for future employment. A number of assumptions are implicit in these methods: (1) past growth is a good indicator of future growth; (2) factors affecting local economic growth will not change substantially; and (3) selection of base year can significantly affect the forecast. The analysis can be extended by evaluating those assumptions, documenting reasons for changing those assumptions, and adjusting the basic forecast accordingly.

The basic methods described in Table 4-1 do not result in employment estimates by land use type (i.e., commercial, industrial, etc.) or by industry or occupation. Additional work is necessary to develop these disaggregated estimates.

Data sources: County population/employment forecasts, population estimates (PSU or Census), local employment estimates⁹

⁸ Because incorporated cities are required to have coordinated population forecasts, they should already be familiar with the process used to develop and acknowledge those forecasts. This report does not describe methods for developing population forecasts.

⁹ The Census employment estimates for cities and other geographic areas count the number of employees that reside in that geographic area. In other words it counts workers where they live, not where they work.

Timeline: 10-20 hours

STEP 3. ASSESS COMMUNITY ECONOMIC DEVELOPMENT POTENTIAL

The growth forecast developed in Step 2 implicitly assumes that the economic factors that influenced growth in the past will behave in a similar way in the future. However, that forecast represents only one possible future—actual growth could be more or less depending on national and regional economic conditions, the economic attributes of the local jurisdiction, and locally adopted economic development policies that change the direction of the local economy. National and regional economic conditions were addressed in Step 1, and there is little that cities can do to affect these conditions. Cities, however, can influence local attributes that affect economic development.

This step evaluates local factors affecting economic development and the advantages, opportunities, disadvantages, and constraints these factors present. This evaluation forms the basis for developing economic development strategies.

The economic opportunities analysis must estimate the types and amounts of industrial and commercial development likely to occur in the planning area. The estimate should consider the planning area's economic advantages and disadvantages of attracting new or expanded development in general as well as particular types of industrial and commercial uses. OAR 660-009-0015(4) requires cities to consider the following economic advantages and disadvantages:

- Location relative to markets;
- Availability of key transportation facilities;
- Key public facilities;
- Labor market factors;
- Materials and energy availability and cost;
- Necessary support services;
- Pollution control requirements; or
- Educational and technical training programs.

The factors above are referred to in the literature of economic development as production factors: they are inputs that businesses use to produce goods and services. To the extent that a jurisdiction can supply these and other factors in relatively ample amounts, high quality, and low prices, it has a comparative advantage.

There is substantial discussion in the economic development literature about the relative importance of these factors. To generalize substantially, the conclusions are that (1) all factors are or can be important; (2) the factors interact; and (3) the relative importance to firms varies, in large part because the inputs to production vary across firms.

Different firms choose their locations for different reasons. For example, a firm that spends a large portion of total costs on unskilled labor will be drawn to locations where labor is relatively inexpensive. A firm with large energy demands will give more weight to locations where energy is relatively inexpensive. In general, firms choose locations they believe will allow them to maximize net revenues: if demand for goods and services is held roughly constant, then revenue maximization is approximated by cost minimization.

The typical categories that economists use to describe a firm's production function are similar to those listed in OAR 660-009-0015(4):

- **Labor.** Because labor is a large part of the production function of many businesses (and especially service businesses) the relative productivity and cost of labor is often the single most important factor. Other things equal, firms want productivity, in other words, labor output per dollar. Productivity can decrease if certain types of labor are in short supply, which increases the costs by requiring either more pay to acquire the labor that is available, the recruiting of labor from other areas, or the use of the less productive labor that is available locally.
- **Land.** Land is an important part of the production function, which is sometimes taken for granted. Demand for land depends on the type of firm. Manufacturing firms need more space and tend to prefer suburban locations where land is relatively less expensive and less difficult to develop. Warehousing and distribution firms need to locate close to interstate highways. Some firms may have long-term growth objectives that may drive them to acquire more land than their current size would initially require, if they desire to "land bank" surrounding areas for future expansion.

Land availability can be a threshold issue for a few large firms, but in general land and development costs (or rent) will account for less than 15%, and perhaps less than 5% of amortized operating costs. This report noted earlier all the issue that affect the effective price of land, including environmental constraints, service requirements, and fees. If the costs to get land development-ready exceed some threshold level, businesses and developers may not consider it to be part of the effective supply.

- **Local Infrastructure.** An important role of government is to increase economic capacity by improving quality and efficiency of infrastructure and facilities, such as roads, bridges, water and sewer systems, airport and cargo facilities, energy systems, and telecommunications.
- **Access to Markets.** Though part of infrastructure, transportation merits special attention. Firms need to move their product, either goods or services, to the market, and they rely on access to different modes of transportation to do this. While transportation has become relatively inexpensive compared to other inputs, and transportation costs have become a less important location factor, access to transportation is still critical. That long-run trend, however, could shift because of decreasing funds to highway construction, increasing congestion, and increasing energy prices.

- **Materials.** Firms producing goods, and even firms producing services, need various materials to develop products that they can sell. Some firms need natural resources: a manufacturing sector like lumber needs trees. Or, farther down the line, firms may need intermediate materials: for example, dimensioned lumber.
- **Entrepreneurship.** This input to production may be thought of as good management, or even more broadly as a spirit of innovation, optimism, and ambition that distinguishes one firm from another even though most of their other factor inputs may be quite similar.

The supply, cost, and quality of any of these factors obviously depend on market factors: on conditions of supply and demand locally, nationally, and even globally. But they also depend on public policy. In general, public policy can affect them through:

- **Regulation.** Regulations protect the health and safety of a community and help maintain the quality of life. However, simplified bureaucracies and straightforward regulations can help firms react quickly in a competitive marketplace.
- **Taxes.** Firms tend to seek locations where they can optimize their after-tax profits. But tax rates are not a primary location factor, they matter only after corporations have made decisions on labor, transportation, raw materials, and capital costs. Within a region, production factors are likely to be similar, so differences in tax levels across communities are more important in the location decision than are differences in tax levels between regions.
- **Financial incentives.** Governments offer firms incentives to encourage growth. Generally, economic research has shown that most types of incentives have had little significant effect on firm location between regions. However, for manufacturing industries with significant equipment costs, property or investment tax credit or abatement incentives can play a significant role in location decisions. Incentives are more effective at redirecting growth within a region than they are at providing a competitive advantage between regions.

Economists have shown that firms locate in a city because of the presence of factors other than direct factors of production. These indirect factors include agglomerative economies, also known industry clusters, location amenities, and innovative capacity.

- **Industry Clusters.** Firms tend to locate in areas where there is already a concentration of firms like their own. The theory works in practice because firms realize operational savings and have access to a large pool of skilled labor when they congregate in a single location.
- **Quality of Life.** A region that features many quality amenities, such as good weather, recreational opportunities, culture, low crime, good schools, and a clean environment attracts people simply because it is a nice place to be. A region's quality of life attracts skilled workers, and if the amenities lure enough potential workers to the region, the excess labor supply pushes their wages down so that firms can find skilled labor for a relatively low cost.

- **Innovative capacity.** Increasing evidence suggests that a culture promoting innovation, creativity, flexibility, and adaptability will be essential to keeping U.S. cities economically vital and internationally competitive. Innovation is particularly important in industries that require an educated workforce. High-tech companies need to have access to new ideas typically associated with a university or research institute. Government can be a key part of a community's innovative culture, through the provision of services and regulation of development and business activities that are responsive to the changing needs of business.

To understand how changes in public policies affect local job growth, economists have attempted to identify the importance for firms of different locational factors. They have used statistical models, surveys, and case studies to examine detailed data on the key factors that enter the business location decision.

Economic theory says that firms locate where they can reduce the costs of their factors of production (assuming demand for products and any other factors are held constant). Firms locate in regions where they have access to inputs that meet their quality standards, at a relatively low cost. Because firms are different, the relative importance of different factors of production varies both across industry and, even more importantly, across type of firm.

No empirical analysis can completely quantify firm location factors because numerous methodological problems make any analysis difficult. For example, some would argue simplistically that firms will prefer locating in a region with a low tax rate to reduce tax expenses. However, the real issue is the value provided by the community for the taxes collected. Because taxes fund public infrastructure that firms need, such as roads, water, and sewer systems, regions with low tax rates may end up with poor infrastructure. Thus, the area is less attractive to firms. When competing jurisdictions have roughly comparable public services (type, cost, and quality) and quality of life, then tax rates (and tax breaks) can make a difference.

Further complicating any analysis is the fact that many researchers have used public expenditures as a proxy for infrastructure quality. But large expenditures on roads do not necessarily equal a quality road system. It is possible that the money has been spent ineffectively and the road system is in poor condition.

Although empirical analyses face many such methodological difficulties, the studies provide much information about why firms locate where they do. Economists have improved their statistical techniques and use a variety of data sources to quantify input factors. They have supplemented empirical analyses with theoretical models of firm behavior and surveys of business managers.

Governments can most easily affect tax rates, public services, and regulatory policies. Economists generally agree that these factors do affect economic development. The effects, however, are modest and the effects will vary since different firms have different needs. Governments need to keep in mind that their most direct tools do not address factors that are primary to business location decisions—and therefore their expectations for affecting change should be set accordingly.

An important aspect of the discussion is that firm function can matter more than the firm's industry. A single company may have offices spread across cities, with headquarters located in a cosmopolitan metropolitan area, the research and development divisions located near a concentration of universities, the back office in a suburban location, and manufacturing and distribution located where land is cheap and interstate access is good.

In summary, a basic analysis should try to describe in a common-sense way how a local jurisdiction performs on the factors listed above. The evaluation should provide a basic description of each factor and indicate how present trends may impact future economic development in the community.

Data sources: Transportation and infrastructure maps, Oregon Employment Department "Regional Economic Profile," key person interviews.

Timeline: 80-150 hours

STEP 4. DETERMINE SITE REQUIREMENTS

Step 3 illustrated that land is only one requirement of that firms have when they consider locating or expanding in a local jurisdiction; that land is unlikely to be the most important factor in the location decision for most firms; but that land (availability, location, site characteristics, and relative cost) is still important to most firms, and may be a threshold issue for a few. OAR 660-009-0015(2) requires the economic opportunities analysis identify site requirements of industrial and commercial uses which might expand or locate in the planning area. The required site and building characteristics for the target industries range widely. As such, a variety of parcel sizes, building types and land use designations are required to attract target industries.

More specific site development issues include the following:

- Land use buffers
- Flat sites
- Parcel configuration and parking
- Soil type
- Building density
- Air transportation
- Fiber optics and telephone
- Potable water
- Power requirements
- Transportation
- Transit
- Pedestrian and bicycle facilities
- Employee training

The timeline for development approvals and necessary infrastructure, if not in place already is also an important consideration. Sites that are readily available, readily served by roads and infrastructure, pre-approved for

specific uses, competitively priced, and actively marketed by public or private sectors are the most competitive.

Land ownership and control are considered to be less important long-term site development factors than many of the factors listed above.

Transferring land ownership through a fee simple land sale versus a long-term land lease may or may not be a constraint to development depending upon how the land leases are structured.

In summary, there is a wide range of site requirements for commercial and industrial employers. While most employers rely on efficient transportation access and basic water, sewer and power infrastructure, they have varying need for parcel size, slope, configuration, and buffer treatments.

The best method to gather information on the site requirements of commercial and industrial employers is to conduct interviews with developers or business managers. It is requisite that jurisdictions have some idea of the types of industries that they expect will locate or expand in the future.

Data sources: Interviews with developers, business managers

Timeline: 40-80 hours

STEP 5. CONVERT GROWTH INTO LAND NEED

One of the important objectives of the economic opportunity analysis is to determine whether a jurisdiction has a sufficient amount of buildable land within its UGB to accommodate expected employment growth over the next twenty years as required by State law. The analysis builds from the forecast of population or employment developed in Step 2.

Several approaches exist for translating population/employment forecasts into land need. Table 4-2 summarizes the approaches.

Table 4-2. Basic methods for estimating land demand

Method	Description
Population/developed land ratio	Uses the number of developed commercial and industrial acres per 1000 persons and extrapolates it to the planning horizon using the local population forecast.
Employment/developed land ratio	Uses the number of developed commercial and industrial acres per 1000 employees and extrapolates it to the planning horizon using the local population forecast. Requires both a current employment estimate and an employment forecast.
Employee per acre (EPA) ratio	Assumes a specific employment density, expressed in employees per acre. At the simplest level, the method uses an aggregate EPA ratio for all new employment. Requires both a current employment estimate and an employment forecast.
Expert consultation	Relies on the expertise of local developers, business leaders and others to estimate land needs.

The first method is the easiest: most jurisdictions will have current year population estimates (available from Portland State University) as well as population forecasts. Estimates of the amount of developed commercial and industrial land should be developed during the supply analysis. The second method is similar to the first, but uses local employment estimates and forecasts.

The third method requires employee per acre assumptions. Employee per acre assumptions allow conversion of employment into acres. Employment density, however, varies considerably by industry—and even within industries. Thus, a small jurisdiction might use an assumption of 8 employees per acre, while a larger one might assume 15-20. Of importance here are whether the assumption is for net acres (i.e., land that is available for sale in parcels or lots after roads (right-of-way) has already been deducted, or gross acres (total land before those deductions): one should assume more employees on a net acre than on a gross acre, other things being equal.

A variation of the third method is to build up to estimates of employees by using assumptions about floor-to-area ratios (FAR) and about square feet of built space per employee. For example, assumptions of 500 square feet of total (not usable or leasable) office space per employee and of an FAR of 0.3 (built space equals 30% of the buildable area) would yield about 26 employees per net acre, and about 21 employees per gross acre. This method tends to yield greater densities than those typically assumed for employees per acre, perhaps because the FAR assumes for a single lot are hard to sustain over a larger area.

Data sources: Current population/employment estimates and forecasts; employee per acre assumptions

Timeline: 40-80 hours

DETERMINING THE SUPPLY OF BUILDABLE LAND (THE ACRES AVAILABLE TO ACCOMMODATE THE LAND NEED BASED ON EXPECTED GROWTH)

This section summarizes the steps in the land supply analysis. The purpose of the inventory of land is not only to document how much land is available for commercial and industrial uses—it also allows jurisdictions to estimate "holding capacity" or the amount of employment that can be accommodated on buildable commercial and industrial land.

Conducting an inventory of commercial and industrial buildable lands does not differ substantially from a residential land inventory. Thus, the general structure described here is based on the DLCDC HB 2709 workbook, which specifically addresses residential lands. As outlined in the Workbook, the steps and sub-steps in the supply inventory are:

1. Calculate the gross vacant acres by plan designation, including fully vacant and partially vacant parcels.
2. Calculate gross buildable vacant acres by plan designation by subtracting unbuildable acres from total acres.
3. Calculate net buildable acres by plan designation subtracting land for future public facilities from gross buildable vacant acres.

4. Calculate total net buildable acres by plan designation by adding redevelopable acres to net buildable acres.

The basic method assumes that the jurisdiction does not have geographic information systems capability, or an assessment file. The basic method relies on local knowledge and fieldwork to complete the inventory. The steps are more or less comparable to steps 1-4 above. The data needed to conduct such an analysis includes the following:

- Comprehensive plan and zoning maps
- County assessor parcel maps
- Aerial photos (if available)
- Field analysis

STEP 1. IDENTIFY VACANT/PARTIALLY VACANT PARCELS

The analysis uses local knowledge to identify vacant or partially vacant lands. Those lands are identified on the plan map. The county assessor parcel maps can help identify acreages.

STEP 2. IDENTIFY DEVELOPMENT CONSTRAINTS

This step is critical for determining if there is an adequate and competitive supply of sites to meet market demand. Identification of development constraints occurs through fieldwork and/or aerial photo interpretation. The analyst should visit sites identified as vacant or partially vacant to determine whether any development constraints exist. Development constraints can include existing development or natural features such as steep slopes, wetlands, floodplains, etc.

Results from the Regional Industrial Land Study for the Portland-Vancouver Metropolitan Area indicated that development constraints can affect the timing of private investment on a site, and can even preclude development activity for many years. There are three primary types of development constraints:

- Lack of urban services and infrastructure. Infrastructure constraints include streets that are not up to urban standards, high levels of traffic congestion on nearby arterial streets, and inadequate sewer, water, power or telecommunication systems. The Regional Industrial Land Study determined that transportation is the leading infrastructure constraint that cannot be addressed entirely by private developers.
- Environmental issues and land use regulations. These include natural geologic hazards, steep topography, wetlands, floodplains, riparian buffer setbacks, the presence of hazardous waste materials, and land use regulations that limit the type, location, and extent of development that can occur (e.g., marine and aviation use restrictions).

- **Property Ownership.** Land may be buildable and suitable for development, but not readily available because of land banking or speculation by existing property owners. Such properties may be counted in the long-term land supply, but should not necessarily be included in the short-term land supply.

Table 4-3 shows a site-evaluation score-sheet can be used to identify and compare development constraints among several parcels.

STEP 3. IDENTIFY MIXED-USE AND REDEVELOPMENT POTENTIAL

The next step is to identify parcels that may have mixed-use and redevelopment potential. Recent state and national real estate trends indicate that commercial and residential uses often encroach into industrial-districts, and industrial uses encroach into non-industrial districts. Hence, it may be important to conduct a survey of existing land uses to estimate the distribution of commercial, industrial and other activities within all local zone districts. This work can be conducted using land use maps or aerial photography, supplemented by field research.

Redevelopment opportunities, such as opportunities for the reuse of a vacant mill site, are often unique to a particular jurisdiction. The basic method relies on local knowledge to make these assessments. Interviews with realtors and developers can be helpful.

Once mixed-use and redevelopment opportunities are identified, the results from Steps 1 and 2 should be adjusted, as appropriate, to account for unique local circumstances that impact commercial and industrial development potential. This may entail assuming some level of residential/other use occurs on buildable industrial land, and accommodating a portion of commercial and industrial land needs thought redevelopment.

STEP 4. ESTIMATE EMPLOYMENT HOLDING CAPACITY

This step is not strictly necessary. Demand can be compared to supply based on either acres or employment. Since the previous task ended by converting forecasted employment growth to land need, one could go directly to the next task (Comparing Land Demand and Supply) and compare the acres from Step 5 of the Demand task with acres of supply (the sum of Steps 1, 2, and 3 of this task).

Nonetheless, once decisions have been made about how to convert employment growth to land requirements, it is relatively simple to do the calculation the other way to see how much employment the available commercial and industrial land is likely to be able to accommodate. Table 4-3 provides an example.

Table 4-3 Sample Site Evaluation Score Sheet

<i>Standard/Measurement Criteria</i>	<i>Score</i>	<i>Standard/Measurement Criteria</i>	<i>Score</i>
A. Urbanization 5: Within the UGB 3: Adjacent to the UGB 1: Removed from the UGB	5	G. SCS Soil Suitability Rating 5: Fair to good for industrial buildings 3: Moderate-poor for industrial buildings 0: Severe for industrial buildings	3
B. Traffic/Access 5: Standard public access 3: Sub-standard public access 1: Private access	3	H. SCS Soils Survey 5: Soil rated class VI to VIII 3: 50% of soil rated class IV to V 1: Soil rated class I to III	1
5: Industrial cut-through traffic only 3: Commercial cut-through traffic 1: Residential cut-through traffic	5	I. Electric Power Line Service 5: Exists contiguous or crossing site 3: Exists within 1 mile of site 1: Exists greater than 1 mile from site	5
C. Multi-Modal 5: Within ¼ mile of I-84 interchange 3: Within 1 mile of I-84 interchange 1: More than 1 mile from I-84 interchange	3	J. Piped Water Service 5: Exists contiguous or crossing site 3: Exists within 1 mile of site 1: Exists greater than 1 mile from site	5
5: Site has direct railroad access 3: Railroad access within 1 mile of site 1: Railroad access over 1 mile from site	1	+3: Existing service +2: To be served within 5 years +1: To be served within 8 years -1: Not identified to be served	+3
5: Airport access within 1 mile of site 3: Airport access within 2 miles of site 1: Airport access over 2 miles from site	5	K. Piped Sewer Service 5: Exists contiguous or crossing site 3: Exists within 1 mile of site 1: Exists greater than 1 mile from site	5
D. 100 Year Floodplain 5: Site outside of floodplain 3: 50% of site in floodplain 1: More than 50% of site in floodplain	5	+3: Existing service +2: To be served within 5 years +1: To be served within 8 years -1: Not identified to be served	+3
E. Wetland On NWI Map 5: No wetland mapped 0: Site contains mapped wetland	5	L. Piped Storm Service 5: Exists contiguous or crossing site 3: Exists within 1 mile of site 1: Exists greater than 1 mile from site	5
F. Topography 5: Site has slope of 10% or less 3: 50% of site has slope of 10% or less 1: Site has slope greater than 10%	5	+3: Existing service +2: To be served within 5 years +1: To be served within 8 years -1: Not identified to be served	+3
Subtotal	37	TOTAL	70

Table 4-4. Sample buildable land calculation

	Plan Designation		
	Commercial	Light Industrial	Heavy Industrial
Total acres	100	50	150
- Developed acres	75	15	60
= Vacant acres	25	35	90
- Constrained acres	4	6	12
= Unconstrained vacant acres	21	29	78
+ Redevelopable acres	3	0	10
= Total buildable acres	24	29	88
Density Assumption (employees per acre)	12 to 20	10 to 15	7 to 12
Estimated holding capacity (employees)	288 to 480	290 to 435	616 to 1,056

The estimate of holding capacity requires density assumptions as expressed in employees per acre. The employees per acre assumption is multiplied by the estimate of total buildable acres to arrive at an estimate of employment holding capacity.

Data sources: Comprehensive plan map, aerial photo, assessor maps, field verification, flood maps, wetland maps

Timeline: 60-120 hours

COMPARING LAND DEMAND AND SUPPLY

This step is relatively straightforward. It takes the output of the land demand analysis and compares it to the total buildable land supply to determine whether the jurisdiction has a 20-year supply of buildable land.

At the simplest level, a jurisdiction could compare total land demand with total land supply. This approach has shortcomings in that it doesn't distinguish between different land use designations. Ideally, the land demand estimates are categorized consistent with local plan designations. This allows a direct comparison between demand and supply for each designation.

The simple comparison (per state law) as described above, in the Basic Method Analysis, has inherent limitations—it is both highly aggregated and long-run (20 years). Some of the real issues jurisdictions face are more disaggregated (e.g., by parcel location, size, and type), short run (is land available now at a price buyers will pay?), and urban form (how will commercial and industrial development impact other community development objectives?). Those issues can be addressed in part by additional attention towards short-term demand and supply, and may require more advanced methods of analysis (Chapter 5).

Data sources: Land demand and supply estimates

Timeline: 40-80 hours

SHORT-TERM CONDITIONS

STEP 1. DETERMINE SHORT-TERM BUILDABLE LAND NEEDS

Short-term commercial and industrial demand can be determined efficiently by interpolating long-term land needs by five-year time increments. A simple interpolation of land needs is considered to be adequate for the basic analysis. However, it is still important to keep in mind how the short-term land needs relate to the local vision, economic development objectives and market realities.

STEP 2. CONSIDER SHORT-TERM CONSTRAINTS

Short-term land supply should take into account the results from the land inventory and evaluation of development constraints. Parcels with relatively high “scores” (see Table 4-3) and insignificant development constraints may be considered as the most appropriate for short-term development

Property ownership constraints such as corporate land banking, and legal complications (e.g., property transfer is complicated by probate proceedings) and lack of adequate public facilities may be considered as a short-term land constraints, but not necessarily long-term constraints to development.

If there are no sites without development constraints, then the local jurisdiction may need to perform additional work to address near-term market demand in accordance with local economic objectives. Additional coordination with the property owner, public works department, planning department and state agencies (i.e. ODOT and OECDD) will likely be required to ensure that needed capital facilities are identified along with necessary funding commitments.

Data sources: Land demand and supply estimates

Timeline: 40-80 hours

This chapter describes methods intended for jurisdictions that wish to conduct a more refined level of analysis, with additional focus on providing an adequate near-term supply. The advanced methods address some concerns raised by the Advisory Committee that are not addressed by the requirements of HB 3557 or the Goal 9 administrative rule (OAR 660-009).

Chapter 4 described basic methods and provided additional context for the economic opportunities analysis required by OAR 660-009-0015. The advanced methods described in this chapter require more detailed data and analysis, and geographic information systems. They may also require jurisdictions to conduct primary research on employment densities, development trends, and other factors that require assumptions in the 20-year demand forecast.

In many cases, it will make more sense for a jurisdiction to make some quick calculations using basic methods before attempting the advanced methods. In other words, the advanced method is intended to build from the work conducted under the basic method.

ASSESSING ECONOMIC TRENDS AND LAND NEEDS (DEMAND)

This section breaks demand in long-term (20 years) and short-term (1–5 years), and into aggregate (total) demand and disaggregated demand. An aggregate forecast might estimate the total amount of industrial land needed for a jurisdiction during a 20-year planning period. A disaggregated forecast might start with the aggregated, long-run forecast as a control total, but then break it down by subarea, by industrial sector, by parcel size, and by time period (e.g., 1–5 years, 5–10 years, etc.). The more disaggregated the demand analysis, the more work required.

Chapter 2 noted that many different variables could be used to estimate the growth of commercial and industrial activity that will require the development of vacant land: revenues, profit, output, employment, wages, building permits, and absorption are possible measures. Describing the methods by which each of these measures could be converted to a demand for commercial or industrial land is too large an undertaking for this report. Rather, the rest of this chapter focuses on employment, which is the most common variable used to forecast growth in business activity as it relates to the need for land for commercial and industrial development.

LONG-TERM DEMAND ANALYSIS

Estimating the aggregated, long-term demand for commercial and industrial land starts with a long-term employment forecast. Forecasted employment growth can be translated into demand for land using assumptions about the number of employees per acre. The resulting estimate of land demand can be further refined by applying assumptions about re-use of vacant buildings, redevelopment of built sites, and floor-to-area ratios for employment in multi-story buildings.

In addition to estimating total land need, OAR 660-009 mandates an analysis of site requirements for commercial and industrial firms that might expand or locate in the planning area. An employment forecast will indicate the types of firms that are expected to expand or locate in the planning area. The analysis of site requirements requires consideration of the size, shape, soil, transportation access, services, and other site characteristics that may be needed by those firms.

All the advanced techniques can be incorporated into a spreadsheet model. There may be several supporting worksheets supporting each set of input data, and there may be separate worksheets for various alternative geographies (e.g., neighborhoods within a city, cities within a county, or counties within a region).

The method calculates land need for a given time period and a given geography through any or all of the following steps, each of which is explained in more detail after this summary list:

1. Establish baseline employment level and historic growth trend
2. Forecast employment growth
3. Group industries by land use type
4. Net out employment growth that will not result in demand for land (i.e., growth that can be accommodated in existing underutilized land or buildings) and factor in the effects of mixed-use development districts.
5. Apply assumptions to convert employment growth to land demand
6. Adjust net acres to total acres
7. Adjust for vacancy rate

STEP 1: ESTABLISH BASELINE EMPLOYMENT LEVEL AND HISTORICAL GROWTH TREND

Establishing a baseline employment level and historical employment growth trends are lumped together in the same step because they involve the same data source and process.

The Oregon Employment Department publishes employment data for the State and individual counties, showing the number of reporting units (a proxy for establishments), monthly employment, average annual employment, quarterly payroll, and annual payroll by sector and industry (called the ES-202 data). These data are derived from unemployment insurance data provided by individual firms, so they include only employees covered by the State's unemployment insurance program, referred to as "covered employment." Covered employment is typically about 85% of the workforce. The primary groups of workers not included in covered employment data are proprietors (the self-employed), seasonal agricultural workers, and some classes of railroad employees.

The level of detail available at the county level varies because the Employment Department is required by law to maintain the confidentiality of data provided by individual firms. Thus, employment sectors or industries that have one or a few firms are combined with other industries to avoid publishing data that could reveal employment or payroll at an individual firm.

Published data from the Oregon Employment Department will have a sufficient level of detail for most counties in Oregon. Employment data for cities, however, is not published by the Oregon Employment Department. Cities can request confidential employment data for planning purposes from the Employment Department. Confidential ES-202 employment data shows monthly employment and quarterly payroll for individual firms, along with the firm name, street address, state, zip code, and industry code. Jurisdictions that receive confidential employment data are required to maintain the confidentiality of individual firms.

When requesting confidential employment data, jurisdictions should request data for the most current year available along with data for a year 5–10 years earlier in order to establish historic employment trends in the jurisdiction. In addition, jurisdictions should request data for an area larger than the planning area, preferably the county or counties in which the planning area is located. Converting the raw data to a format useful for establishing a baseline employment level and describing historic employment trends involves several steps:

Step 1-A. Sort data by geographic identifier or geocode individual firms

Ideally, jurisdictions will want employment data for firms within the planning area, typically the UGB. The only way to reach this ideal is to examine each individual record to determine whether the firm is within the planning area. Some of this work can be done by a computer but given variances in addresses some manual examination of records cannot be avoided.

For many jurisdictions, geocoding individual firms may be too time-consuming and costly. Data for the planning area can be approximated by sorting the data by zip code from the firm's mailing addresses. In most cases, the zip code area will be larger than the planning area, but the planning area will contain most of the employment in the zip code area. Employment in zip code areas but outside of the planning area (typically the UGB) is likely to be a small share of employment in the zip code area. If jurisdictions know of large firms in the zip code area but outside of the planning area, these firms can be manually deleted from the data set.

Step 1-B. Sum data by industry

Step 1-A will result in a data set that represents firms in the planning area. This data will indicate the industry classification for each firm. The data for average annual employment and total payroll can be summed by industry. This summation, along with a count of firms by industry, yields summary data for employment by industry. With summary employment data by industry for two years, the trends for employment in the planning area can be analyzed. Useful indicators of trends by industry include employment

growth, payroll growth, average firm size, and payroll per employee. Trends in payroll should use constant dollars for an accurate comparison.

Summary data by industry in the most recent year also provides a baseline employment level from which employment growth can be forecasted.

Summary data by industry may contain confidential information. Data for industries in which there are fewer than three firms, or in which one firm represents more than 80% of employment in that industry, must remain confidential. Jurisdictions may use this data for planning purposes but it cannot be published or otherwise released outside of staff conducting the analysis.

Step 1-C. Adjust data to reflect total employment

Employment data from the Oregon Employment Department is "covered" employment, meaning that it includes only employees covered by unemployment insurance. On average, this measure of employment omits about 15% of the workforce, primarily proprietors, seasonal agricultural workers, and some classes of railroad employees. Data from the U.S. Bureau of Economic Analysis (BEA) can be used to adjust covered employment to reflect total employment. The BEA publishes employment data by county that reflects total rather than just covered employment; this data reports the total number of proprietors, and this percentage can be applied to all industries in the planning area to adjust covered employment to total employment. Alternately, the BEA publishes data series of total and covered employment by industry for counties. These two data series can be used to calculate the share of proprietors by industry, and these percentages applied to covered employment by industry in the planning area to adjust it to total employment. While either method results in estimates of total employment by industry based on assumptions, not adjusting covered employment guarantees a local jurisdiction will be missing a significant share of employment in its demand forecast.

Adjustments for agricultural workers and railroad employees need not be made because these employees generate little if any demand for additional non-residential land.

Data sources: Oregon Employment Department ES 202 Data, Bureau of Economic Analysis employment by county

Timeline: 40-60 hours

STEP 2. FORECAST EMPLOYMENT GROWTH

The State of Oregon Office of Economic Analysis publishes long-term forecasts of total employment growth by county.¹⁰ The State forecast does not forecast employment by industry or employment in areas smaller than counties, and the job forecasts are generally based upon population ratios. Thus, local jurisdictions will be faced with developing their own employment forecasts that take into account their unique development issues,

¹⁰ The most recent long-term forecast is available at the Office of Economic Analysis web site at <http://www.oea.das.state.or.us/>

opportunities, and constraints. To forecast employment, local jurisdictions must make judgements about the average annual growth rate expected for each industry in the jurisdiction. This judgement should be based on consideration of economic trends and indicators available to the jurisdiction. Trends and indicators that should be considered include the following:

- Historical growth rate of industries in the planning area. Step 1 will allow jurisdictions to calculate the average annual growth rate for industries in the planning area over the period covered by the employment data.
- Expansion plans of large firms in the planning area. OAR 660-009-0015 requires local jurisdictions to survey local firms to identify the types of sites that may be needed for expansion.
- Average annual growth rate for all industries indicated by the State's long-term forecast of employment growth by county.
- Average annual growth rate for industries indicated by the Oregon Employment Department's 10-year forecast of employment by industry for Workforce Planning Areas.¹¹
- National and state long-run employment trends by industry.
- The Assessment of Community Economic Development Potential required by OAR 660-009-0015. This Assessment should include consideration of the planning jurisdiction's location relative to markets, availability of transportation facilities, public services, labor market conditions, raw material and energy availability, and other factors affecting local economic development.

When developing an employment forecast, jurisdictions should focus on the long-run trends in each industry to determine the likely average annual growth rate for each industry over the planning period. Every industry and firm will have year-to-year fluctuations in employment that are difficult to forecast and that are not relevant for the purposes of forecasting land demand. What is relevant is the long-run average trend over the planning period.

Once average annual growth rates have been selected for each industry, these rates can be applied to the baseline level of employment established in Step 1 to calculate the resulting employment level and employment growth by industry.

Data sources: Oregon Employment Department ES 202 Data and 10-year regional growth forecast by industry and occupation, Bureau of Economic Analysis employment by county

Timeline: 30-60 hours

¹¹ The Oregon Employment Department publishes 10-year projections of employment growth by industry in Workforce Analysis Regions every two years. Workforce Analysis Regions are individual counties or groups of counties. The current projections are available on the Oregon Labor Market Information System web site at <http://www.qualityinfo.org/olmisj/OlmisZine?zineid=00000013>

STEP 3. GROUP INDUSTRIES BY LAND USE TYPE

To use employment growth to forecast demand for non-residential land, employment growth by industry should be grouped by land use types based on their similar use of land in terms of employment density and development types. For example, four land use types (in bold) and their corresponding typical industries are:

1. **Commercial: Retail Trade.**
2. **Office: Finance/Insurance/Real Estate, and Services.**
3. **Industrial: Agriculture (other than farming)/Forestry/Fishing, Mining, Construction, Manufacturing, Transportation/Utilities, and Wholesale Trade.**
4. **Public: Federal, State, and Local Government.**

These groupings are not as distinct as they appear. There is substantial overlap. Ultimately, however, it is not the land use type that matters to the calculations, but the assumptions about the types of buildings and densities that the employees in these land use types will be sheltered in. For example, the majority of both Professional Services (Office) and State Government (Public) will end up working in office buildings. That gets dealt with in Step 5.

Data sources: Local employment forecast by industry

Timeline: 16-32 hours

STEP 4. NET OUT EMPLOYMENT GROWTH THAT WILL NOT RESULT IN DEMAND FOR LAND

Three types of employment growth will not result in additional demand for non-residential land development: expansion by local firms that already own adequate built space or land for expansion; employment growth accommodated in vacant buildings/underutilized sites; and the location of commercial and industrial jobs within residential or mixed-use zone districts.

Step 4-A. Growth by expanding local firms that will not need additional land

OAR 660-009-0015 requires local jurisdictions to survey local firms to identify their expansion plans. Some local firms may indicate that they intend to expand in the planning period, and these firms may already own sufficient built space or land to accommodate the expansion. In this case, that employment growth should be subtracted from the forecast employment growth by land use type because the employment growth will not generate demand for additional non-residential land. Land owned by these firms that will be used for expansion should not be included in the inventory of buildable land either, as it is not available for future growth by other firms.

As a practical matter, it is too much work to interview every firm in a jurisdiction, or even a large percentage. It is probably adequate to talk to the 5 – 10 largest employers.

Step 4-B. Growth accommodated in vacant buildings and redevelopment of currently developed sites

Some share of employment growth will be accommodated in developed buildings that are vacant or by redevelopment of sites that are currently developed. Developed sites are not included in the inventory of buildable land, thus this employment growth should be netted out of the estimate of employment growth used to estimate land demand.

Netting out this employment growth is usually done by assuming that some share of employment growth will be accommodated in vacant buildings or redevelopment. There is very little empirical data on the share of employment growth accommodated in vacant buildings or redevelopment in local jurisdictions or through studies in other areas. Thus, this assumption is primarily a reasonable guess, usually 10% to 15% of employment growth. This assumption could vary by industry or land use type and should be based on a consideration of local conditions. Local jurisdictions with large vacant manufacturing plants that are expected to be re-used or redeveloped should net out a higher percentage in this step than a jurisdiction with few vacant buildings or underused sites that are expected to redevelop over the planning period.

After this step, a jurisdiction will have an estimate of employment growth, by land use type, that will need to be accommodated over the planning period by the development of land now vacant in the planning area. That employment is the basis for estimating the demand for non-residential land.

Step 4-C. Analysis of Mixed-Use Zone Districts

An emerging trend in land use planning centers upon creating neighborhood and regional centers with a mix of jobs, services and recreational features. New zone districts are being adopted that allow a mix of employment and residential land uses, such as Mixed-Use Commercial Districts, and Mixed-Use Employment Districts. These districts tend to require medium to high density housing and allow retail, office and even light industrial land uses.

In light of these emerging land use trends, it is important for local jurisdictions that have or are considering adopting mixed-use zone districts to perform an assessment of land uses within such zones. This may entail GIS based analysis of employment sectors by standard industrial classifications (SIC) for a particular zone district (using ES202 data), or field research to verify numbers of dwellings and types of employers within mixed-use zones. The results of this analysis will help planners estimate the amount of commercial and industrial jobs that are accommodated in mixed-use districts.

A similar analysis can be conducted to determine the extent to which residential/other uses occur on industrial and commercial zone districts, which is typically on the order of 0% to 25% of the land area.

Table 4-5 Sample Mixed Use Zoning Analysis of Jobs and Dwellings Based on Mixed-Use Town Center Zone with 24.4 net buildable acres

Mixed Use Zone Town Center –	Range (FAR/Acre)*	Assumed Range	Assumed Distribution	Assumed Distribution	Estimated Floor Area	Assumed Floor	Estimated New Jobs
---------------------------------	----------------------	------------------	-------------------------	-------------------------	-------------------------	------------------	-----------------------

Jobs		(FAR/Acre)*	of Land Use	of Acres (net Buildable)	(SF)	Area SF Per Job	
Retail Use	0.20-0.30	0.25	70%	17.1	186,000	550	338
Office Use	0.35-0.50	0.50	20%	4.9	106,000	350	304
Civic/Other Use	0.20-0.40	0.40	10%	2.4	42,000	750	56
Total	--	--	100%	24.4	334,000	--	698

Mixed-Use Zone Town Center – Dwellings	Estimated Floor Area (SF)**	Assumed Average SF/Dwelling	Estimated Dwelling Units
Retail Floor Area	186,000	--	--
Upper-Level Housing	61,380	950	65

* FAR = ratio of building floor area to total site land area.

**Retail floor area estimate derived from above calculation on retail use.

Source: Otak, Inc.

We recommend analyzing mixed-use zones separately from commercial and industrial land use zones, since the affect they have on attracting commercial and industrial jobs will vary by locality, and market conditions. Once the analysis of local mixed-use zones is conducted, planners will have a general handle on their commercial and industrial job holding capacity by utilizing the technique describe under the basic method chapter. When mixed-use zones apply, a small allocation of total commercial and industrial jobs should be made for these mixed-use zones (0% to 10% of total jobs) and deducted from the overall commercial/industrial job forecasts used to determine land needs in commercial and industrial zone districts.

Data sources: Interviews with local industries; ES202 data analysis of job sectors by land use zone; and analysis of home-based occupations.

Timeline: 40-60 hours

STEP 5. APPLY ASSUMPTIONS TO CONVERT EMPLOYMENT GROWTH TO LAND DEMAND BY LAND USE TYPE

There are two methods of converting employment growth to land demand. The first method, and simplest, is to apply estimates of the number of employees per acre. The second is to apply estimates of the amount of building square feet per employee, then apply estimates of floor-area ratios (FAR) to translate building size to net acres.

Option A. Employees per acre

Assumptions about employees per acre can be based on empirical measures or assumptions used in other studies related to demand for land.

It is always tempting to pull estimates from other studies, but caution is required. A review of studies using employees per acre estimates shows wide variability and significant differences in definitions and assumptions. Jurisdictions can have significant differences in current and likely future densities because of historical development patterns, location, jurisdiction size, likely future market conditions, local policies, and so on. That said, typical estimates are around 10-15 employees per acre for general commercial and office-park industrial, and around 20 for office in non-metropolitan downtowns and suburban settings (office in metropolitan downtowns like Portland can reach 100 employees per acre in downtown high-rise office buildings, but even that would not be an average for the entire city).

Local empirical measures are likely to yield better results. Empirical measures can be developed by local jurisdictions by matching confidential employment data for individual firms in the planning area to parcel size data available through assessment and taxation data. The resulting measures of employees per acre can be averaged by industry or land use type, and the average applied to the employment forecast to estimate land demand in acres. Alternatively, some sampling can be done via interviews (for number of employees and possibly space), assessment data on building footprint, and field check.

In either case, measures of employees per acre can vary widely, even among firms in the same industry. For example, a 24-hour market with many part-time employees will have a much higher number of employees per acre than a supermarket open only 12 hours that primarily has full-time employees. A 24-hour operation running three shifts could have three times the employees per acre of the identical business running one shift.

The advice here is not only to proceed with caution, but also to remember and emphasize in the analysis that one is working with averages. In statistical terms, there is a lot of variability around the mean, but the mean may still be a good measure on average. The problems arise if one assumes that all individual businesses will have the same number of employees per acre as the average.

Whether using local measures or measures developed by others, employee per acre assumptions should be adjusted to reflect local conditions and expected trends in land use by industry or land use type.

Option B. Building square feet per employee and FARs

Applying assumptions of building square feet per employee (SFE) to the employment forecast will result in an estimate of total building space needed to accommodate forecast employment growth. This estimate can be translated to net acres of land by applying assumptions of building floor-area ratios (FARs). Like employees per acre, assumptions about building square feet per employee and FARs can be based on studies by others or be developed by local jurisdictions.

Regarding existing studies, the advice here is similar to that for employees per acre above, though the estimates here are slightly more reliable. For SFE, there is general consensus in empirical studies about a reasonable range for mean values. For example, SFE for office is general 300 – 500; retail is either the same or slightly higher. For industrial and warehousing it might reach as high as 600 – 1000. FARs average around .2 to .4 for suburban areas, though there is variability by land use and building type.

To develop measures of building square fee per employee, a local jurisdiction would match confidential employment data for individual firms in the planning area to building size data available through assessment and taxation data. Building size and land area from assessment and taxation data can be used to calculate a FAR for each firm as well. The resulting measures can be averaged by industry or land use type to develop measures to apply to the employment forecast.

Again, both of these estimates can vary widely even among firms in the same industry, and the assumptions applied to the employment forecast should be adjusted to reflect local conditions and expected trends in land development by industry or land use type.

Ideally, the employees per acre calculations should lead to estimates similar to those of the SFE/FAR calculations. Using the example above, if office employment is at 500 SFE and an FAR of .3, then it yields a density of about 21 employees per acre. [Deduct 20% of the acre to account for roads, etc (gross to net): approximately 35,000 sf. Multiply by FAR of .3: approximately 10,000 sf of built space per gross acre. Divide by 500 SFE: approximately 21

employees per acre.] That number is at the high end of some of the estimates of employees per acre in other studies. Our experience suggests that the SFE/FAR calculations consistently estimate more density than the employees per acre calculations.

Data sources: Employment density studies;¹² local employment density study

Timeline: Depends on method

STEP 6. ADJUST NET ACRES TO TOTAL ACRES

Step 5 will result in an estimate of demand in net acres; that is, it will not include land area for streets, other right-of-way for powerlines or pipelines, parks or open space, and similar uses. Land for these uses can vary substantially for non-residential development.

A net-to-gross factor could range from 0%-25% of total land area needed for non-residential development. This adjustment should reflect local conditions. For example, a jurisdiction where streets and public facilities in non-residential areas are already developed need not make a large adjustment to net acres, while jurisdictions with large blocks of non-residential land that will need streets and public facilities should use an adjustment of about 25%. This adjustment will increase net acres to total acres of demand.

Data sources: Analysis of local non-residential net-to-gross acre factor

Timeline: 20-40 hours

STEP 7. ADJUST FOR VACANCY RATE

For real estate markets to operate efficiently, there needs to be more supply than immediate demand. This point applies in a couple ways.

First, with respect to land markets, most real estate economists would be content with an available supply of land that was two to five times greater than the immediate demand. If, for example, increased business activity for next year were estimated to support the development of 100 now-vacant commercial and industrial acres, then having 200 to 500 acres on the market would probably give adequate choice to those looking to develop that land.

Here, as elsewhere throughout this report, generalizations need to be qualified. The example above suggests a need for at least twice as many parcels, of different sizes and with services readily available, for sale as will actually be developed for that year. Oregon land use law, however, does not directly recognize land market factors. The implicit assumption of Oregon law is that a 20-year supply of land in a UGB should result in adequate choice in the short-run. That assumption is not obviously wrong, but it could be wrong in some cases (e.g., if a few large parcels are held by a single owner who does not decide to offer the parcels for sale during the period). That point is addressed in the next section, Short-Term Demand Analysis.

¹² Employment density studies have been conducted by Metro, the Puget Sound Regional Council, and the Southern California Association of Governments, among others.

The second way that vacancy rates apply is to built space. Here, the standards are very different. No one expects that half of the built space in the market should be empty to allow businesses choice: vacancy rates like that indicate a dying economy. Rather, there has to be some choice of built space for firms that might be looking for new space (which is a small percentage of all firms at any given time). A minimum vacancy rate for built space for efficient market operation is probably around 5%, but vacancy rates are cyclical and the assumption needs to reflect a long-term average vacancy rate. A 10% rate could be used; 15% would be the upper bound. The estimate of total acres of demand buildable should be increased by this percentage on the assumption that the market will want to build slightly more (say 5% more) space than the employment estimates for net space needs would require.

Data sources: Interviews with local realtors on vacancy rates

Timeline: 8-16 hours

STEP 8. DISAGGREGATE THE TOTAL DEMAND

This step is optional: it depends on how much detail a jurisdiction wants or needs, and is willing to pay for. The total demand that results at the end of Task 7 would be for 20 years, for the entire jurisdiction, subdivided by commercial and industrial. A jurisdiction may want to estimate, however, different sub-categories of demand: heavy industrial vs. high-tech; westside vs. eastside; short-term vs. long-run, or demand for land by parcel size. Unless the total demand has been developed by summing disaggregated demand estimates (which is possible if GIS is used), then new estimates will have to be made to subdivide the aggregate (total) land need forecast into components.

This section does not describe all possible methods for all possible disaggregations. Rather, it uses parcel size as an example.

OAR 660-009 requires cities and counties to identify the site requirements of firms that may expand or locate in the planning area. Among site requirements, parcel size is important and can be estimated using the same employment and land use data used to estimate total land demand. In addition, OAR 660-009-0015 requires the inventory of industrial and commercial lands to include the distribution of sites by size. Thus, an estimate of demand by parcel size can be compared to supply by parcel size to identify any land deficiencies that should be addressed. A parcel may include more than one tax lot, if they are contiguous and can be combined under one ownership.

The most direct way to estimate parcel sizes is to geocode employment data and match it to parcel size from assessment and taxation data. The results will need to be manually reviewed for each firm, because some parcels can be much larger than they need to be to support the employment of individual firms, and more than one employer may be located on the same parcel. A manual review of each record may be inefficient for jurisdictions with a large number of firms.

An alternate method is to infer parcel size distribution from firm size (employees per firm) distribution. Firm size distribution can be ascertained directly from ES-202 employment data, and the number of employees per

firm can be converted to parcel size per firm based on the employment density assumptions (employees per acre or building square feet per employee and FAR) used for the total land need estimate described above.

With either method, the resulting data on firm size and parcel size can be summarized into a distribution of average parcel size by firm size for industries or land use types. For example, firms can be divided into several groups, such as 1 to 5 employees, 6 to 30 employees, 31 to 100 employees, etc. Within each group for each industry or land use type, the total number of acres of land (derived from geocoding employment data or estimating parcel size from employment density assumptions) can be divided by the number of firms in that size category to calculate the average parcel size for firms in each employment size category.

Data sources: ES-202 data geocoded to parcels; random sample of developed parcels

Timeline: 40-80 hours

SHORT-TERM DEMAND ANALYSIS

Existing state regulations require local jurisdictions to adopt policies that designate an adequate number of commercial and industrial sites of suitable sizes, types and locations, and to ensure provision of necessary public facilities (OAR 660-009-0020(2)(b)). There are also existing regulations that requires jurisdictions to identify needed sites to implement plan polices (OAR 660-009-0025(1)), and to estimate the serviceable acres available over a 1-5 year time period along with a capital improvement program (OAR 660-0011) during each periodic review.

Unfortunately, getting to this level of short-term analysis has proven difficult for most large and small jurisdictions in Oregon. In our opinion, after conducting several Goal 9 evaluations in the overall context of periodic review, accomplishing the task of identifying 20-year land needs and UGB requirements tends to exhaust local planning resources and political patience. With limited local funding for planning as well as constructing/maintaining infrastructure, the politics of land use decisions weighs heavily during any significant change in local land use policies. As such, it is often easier to meet “minimum requirements” of long-term land use planning, then more stringent challenges of identifying short-term sites along with funding commitments.

Given the current nature of a sluggish state and national economy, cities are realizing that the marketplace does not automatically make constrained land ready for development. Instead, we find that land that is constrained by ownership (existing property owner will not sell), environmental issues (wetlands on site require special permitting which increases site development costs), and/or infrastructure (site is not served by adequate roads or utilities) can keep short-term demand from being accommodated. Hence, short-term land use strategies are now more important than ever.

The short-term demand analysis should “dovetail” with the data and results from the Local Economic Strategy (Chapter 3), and the Basic Land Analysis Methods (Chapter 4). All of the interviews, SWOT analyses, EOA findings and Local Economic Strategy objectives can be used to determine existing market conditions and short-run economic growth potential. Conclusions

regarding short-term demand will depend upon the results of the aforementioned analyses.

Prior to quantifying short-term demand potential, it is necessary to understand short-term market conditions. Likely market scenarios should be determined and will typically fall somewhere on the spectrum ranging from strong to weak-market potential.

- **Strong-Market Scenario**—regional and local economic growth pressure is strong, few sites/buildings exist in market area, and local economic strategy objectives wish to capitalize on near-term development opportunities;
- **Mixed-Market Scenario**—regional and local growth pressure is strong, local economic strategy objectives support growth, but the local supply of land/buildings (existing or in the development “pipeline”) appears adequate to meet short-term demand;
- **Weak-Market Scenario**—regional and local economic growth pressure is weak to moderate, local economic strategy objectives do not support significant growth, and the local supply of land/buildings appears adequate to meet short-term demand.

An honest assessment of short-term growth opportunities in context with the competitive supply of land/buildings and local economic development strategy objectives is necessary to understand short-term demand potential. Once the assessment of growth potential is made, commercial and industrial land demand can be quantified over the short-term (1-5 years) using the following steps.

1. Interpolate long-term parcel demand (from step 8 above) into short-term demand. This need not be a straight-line interpolation in light of the short-term growth opportunity assessment. Figure 5-1 illustrates how this interpolation can be made for the strong, mixed, and weak-market scenarios. In the sample analysis shown on Figure 5-1, all three of the market scenarios assume the same long-term parcel demand, but varying levels of short-term demand to reflect local growth policies.
2. Adjust short-term parcel demand upward to reflect a land market factor. As mentioned in Step 7, the land market factor accounts for the need to provide a competitive inventory of sites to help meet various tenant preferences regarding parcel size, location and cost. Depending upon local Economic Development Strategy objectives, factors typically range from 50 % to 200% of baseline demand forecasts. Figure 5-2 illustrates the affect of a 50% competitive market factor for the mixed market scenarios.
3. Analyze supply constraints and adjust short-term demand potential accordingly. As mentioned above, short-term supply constraints are important considerations for determining short-term demand. A realistic assessment of ownership constraints, environmental constraints, and infrastructure constraints is needed at this time, and should be focused on sites that offer potential for accommodating the short-term demand reflected in the previous step. For example, if during step two it was determined that 4 sites over 70 acres are potentially needed in the short-

run, but the development constraints analysis reveals only 1 site is free of development constraints, the city may opt to focus on other short-term opportunities (i.e., demand for 5-20 acre sites). Figure 5-3 illustrates how market scenarios can vary by parcel size or demand scenario.

Figure 5-1
Cumulative Parcel Demand by Market Scenario

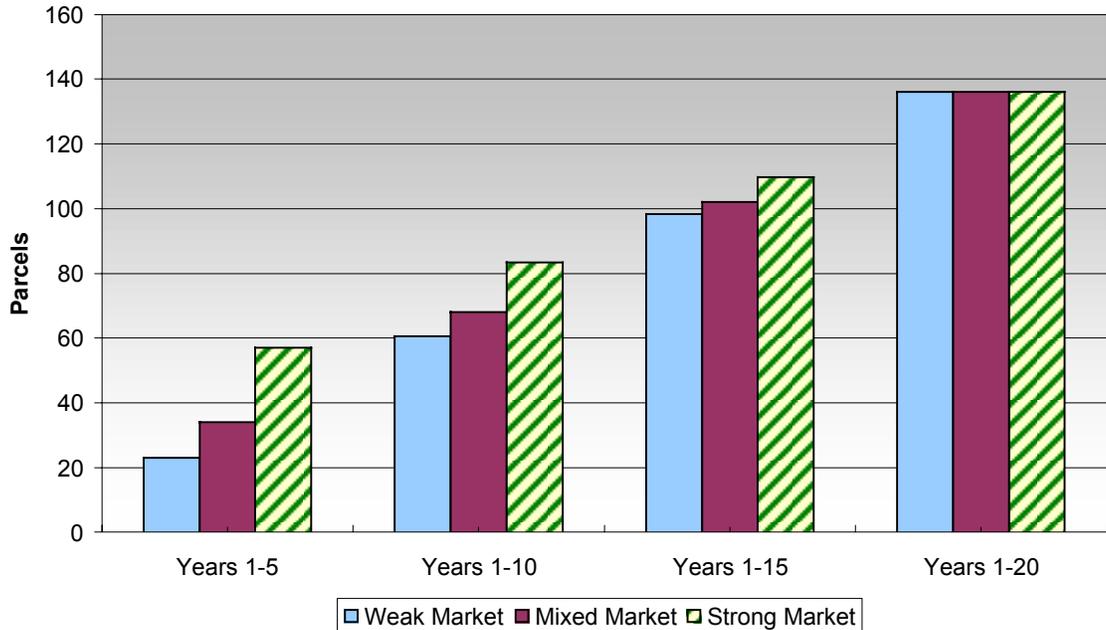


Figure 5-2
Short-Term Land Needs in Parcels
Mixed-Market Scenario
 Competiveness Factor = 50%

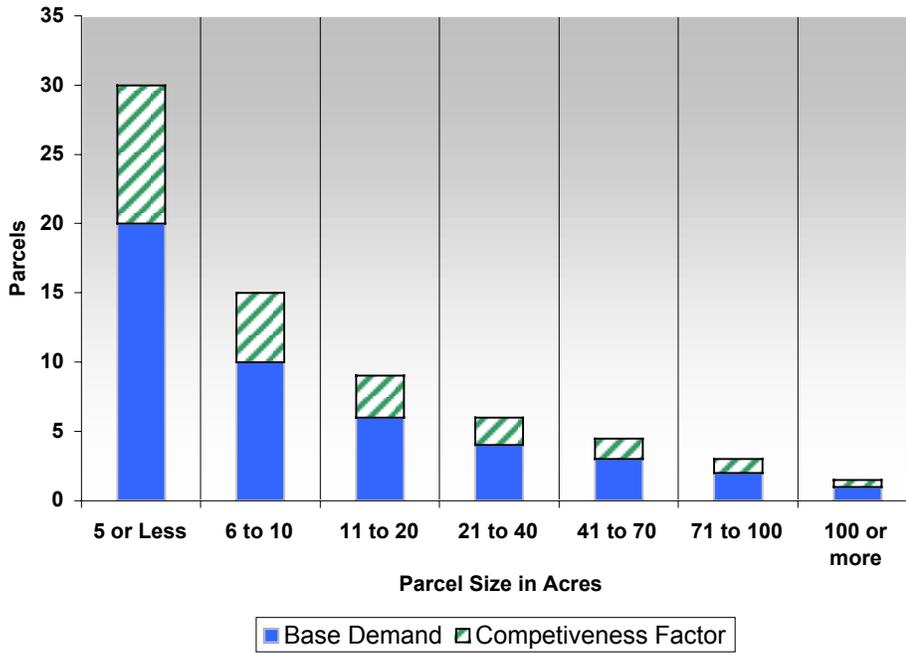
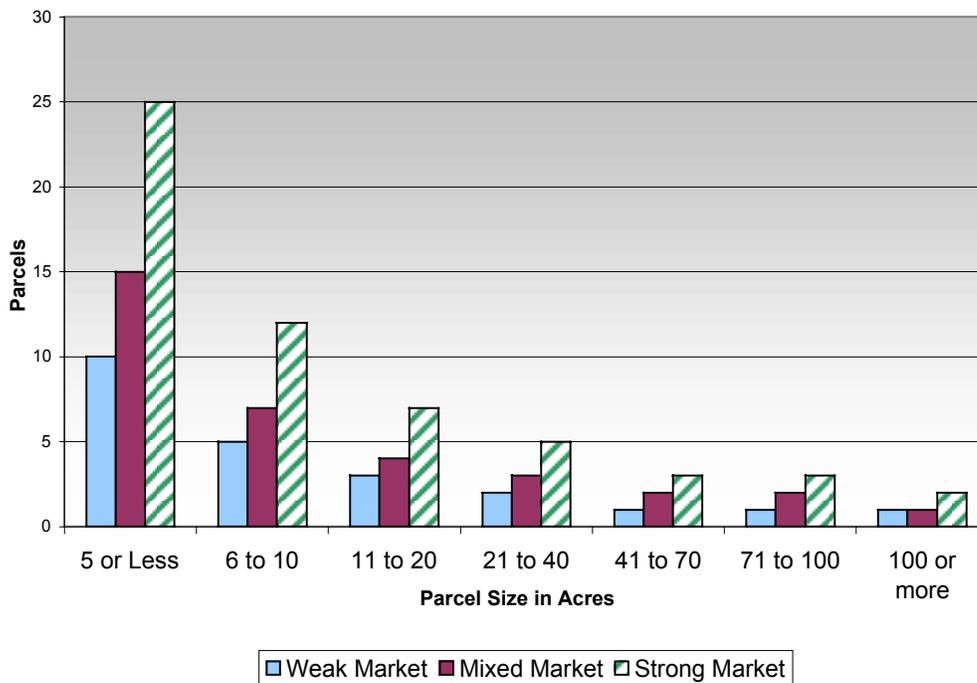


Figure 5-3
Short-Term Land Needs by Market Scenario



4. Prepare and adopt local policies that facilitate desired development. The ability to attain short-term development potential can be optimized by using supportive land use and funding policies. Supportive public policies may include:

- Adopting local land use zoning ordinances that support desired development yet provide enough flexibility to appeal to potential site users,
- Preparing site master plans,
- Completing engineering and architectural design drawings and specifications,
- Conducting proactive marketing efforts (such as the preparation of promotional materials by a local chamber of commerce),
- Issuing requests for development proposals, or requests for expressions of interest from developers for specific sites,
- Assisting property owners with the preparation/approval of environmental permits,
- Identifying public funding or financing sources that can provide needed infrastructure, or be used to help leverage desired private investment,
- Assembling strategic parcels of land, and
- Developing commercial/industrial business parks or speculative buildings.

These and other public policies have successfully been used for decades throughout the United States. Each policy has its own inherent amount of risk and reward, which needs to be carefully considered by each jurisdiction.

DETERMINING SUPPLY “HOLDING CAPACITY”

LONG-TERM LAND SUPPLY

This section summarizes the steps in the land supply analysis. It builds from the basic methods described in Chapter 4 by introducing GIS techniques and more comprehensive data sources into the methods. The general steps in the advanced method do not differ from the basic methods:

1. Calculate the gross vacant acres by plan designation, including fully vacant and partially vacant tax lots.
2. Calculate gross buildable vacant acres by plan designation by subtracting unbuildable acres from total acres.
3. Calculate net buildable acres by plan designation subtracting land for future public facilities from gross buildable vacant acres.
4. Calculate total net buildable acres by plan designation by adding redevelopable acres to net buildable acres.

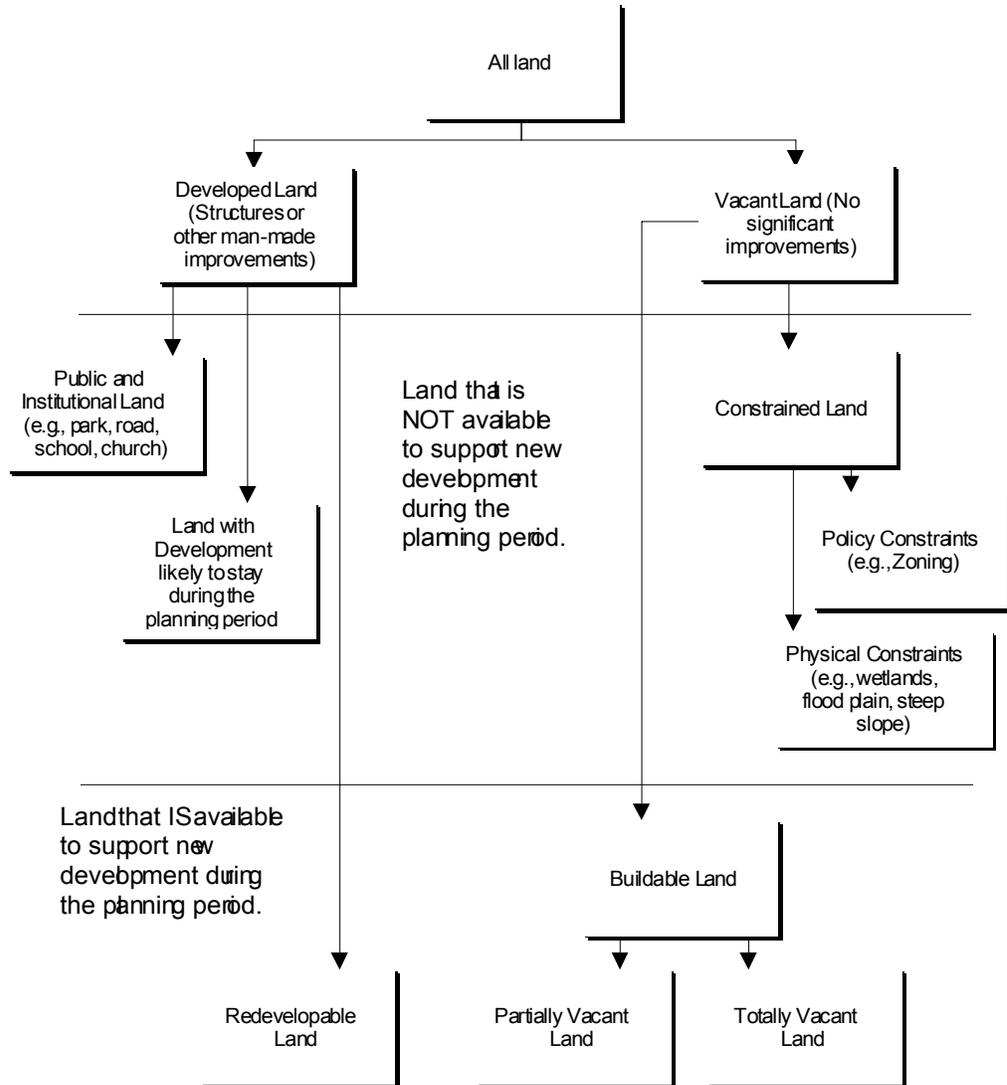
Key aspects of the advanced supply analysis methods are:

- **Working definitions.** Using a set of specific definitions is important in any land supply inventory. For example, several approaches could be applied to determine redevelopable or under-developed tax lots. Improvement-to-land-value ratios are frequently applied to determine redevelopment potential. However, subjective judgment is required to identify at what level redevelopment may occur. The key here is to classify land into several mutually exclusive categories.
- **Constraints.** Not all vacant lands are buildable. They may be constrained by natural features such as slopes, wetlands, and designated floodways. Some of those features may be absolute constraints on development (water courses, cliffs); in most cases, however, physical constraints lead to unbuildable land because of policies that apply to them (e.g., though there are no physical impediments to building in a floodplain, policy prohibits it for several reasons related to the public good). Other policy constraints might include zoning (which often limits use or density) and public facilities (e.g., limits on service extensions).
- **Tax lot data.** GIS coverages provide data that allow classification of each tax lot as developed, partially developed, or vacant. Tax lots that are considered developed are reassessed in a subsequent step to determine whether they have redevelopment potential. All these types of tax lots have constraint overlays.
- **Verification.** Verification generally includes review of aerial photos, orthophotos, and field research. Aerials are used to identify potential problems (based on local knowledge, comments from staff or reviewers, or subsequent field checks). Where questions exist about tax lots (especially large ones in key locations) that cannot be resolved, field checks should occur.
- **Analysis of land by type.** Data may be organized by any of the attributes in the tax lot data file: use, plan designation, or geographic subarea. The sample supply tables attached at the end of this memorandum provide examples of how the tax lot data can be organized.

The advanced methods required use of GIS data to develop a summary of land supply that can be cross-referenced geographically, by attribute. This requires planning information such as land use and zoning and coverages such as parcel boundaries and physical features that can be manipulated at the tax lot level.

There are many ways that “vacant land” and “buildable land” can be defined. Figure 5-1 shows one way that is internally consistent and compatible with statutory guidelines.

Figure 5-1. Classification scheme for urban land



Source: ECONorthwest

Figure 5-1 illustrates that:

- Vacant land means land without structures or other significant man-made improvements. In general, “vacancy” is not a difficult determination to make: most people walking the land or looking at an aerial photograph could agree on what land was covered by significant structures that constituted existing development (and thus precluded new development unless the existing development were demolished).
- Vacant land that is constrained (either physically or legally) is not buildable.
- Complications occur when the physical assessment of vacancy gets overlaid on tax lot boundaries. If tax lot boundaries did not have to be considered, then every square foot of land can be characterized as vacant or developed. Tax lot boundaries, however, often lump developed and vacant land together on the same tax lot (e.g., one house on a three-acre lot). Thus, on a tax lot level vacant land that is

not constrained (i.e., buildable land) comes in two varieties: totally vacant (no significant improvements on the tax lot) and partially vacant (sometimes referred to as under-utilized land).

- Redevelopable land is not vacant, but it is available to support some of the new development demanded by increasing population and employment. Redevelopment occurs on redevelopable land. Infill, however, is defined in this study not as a type of vacant land, but as a condition of a tax lot relative to surrounding tax lots. If surrounding tax lots are primarily developed, then an isolated buildable tax lot (i.e., a tax lot totally or partially vacant) is also an infill tax lot.

Thus, over the long term there are three types of land that can support new development: buildable vacant land, buildable partially-vacant land, and redevelopable land.

STEP 1. ASSEMBLE DATABASES

The first step in the supply analysis is to assemble as much of the data required to complete the database as possible. Data should include:

- ArcView shape files showing parcel boundaries for all tax lots within the Urban Growth Boundary (UGB), as well as any other relevant GIS data layers (plan designation, physical features, etc.);
- Tax lot records for all tax lots within the Urban Growth Boundary (UGB) from the County Assessor in a digital format that can be imported into a spreadsheet or database application;
- Assessor's index and quarter section maps for all areas within the UGB;
- Recent aerial photographs of (preferably digital orthophotographs);
- Maps of any significant natural resources or other constrained lands (preferably in ArcView format);
- Copies of plan designation and zoning maps; and
- A copy of the City's Comprehensive Plan.

It is not unusual for cities to have incomplete data at the beginning of a land supply inventory. Key decisions about whether data will be gathered during the inventory should be made at the beginning of the project. For example, if the city does not have a local wetlands inventory, will it develop the wetland inventory during the project, or will it rely on a standard data source such as the National Wetlands Inventory even if it has identifiable limitations?

The answers to these questions depend on the level of accuracy the jurisdiction desires from the inventory. If the jurisdiction think it may need to expand its UGB as part of the commercial and industrial lands analysis, then a higher level of accuracy is desirable. Conducting more detailed inventories such as wetlands delineation and other natural resources, however, can substantially increase costs and the time needed to complete the inventory.

Data sources: Listed above

Timeline: 60-100 hours or more

STEP 2. CLASSIFY TAX LOTS

The next step in the supply analysis is to classify each tax lot in the UGB in to a mutually exclusive category. This classification typically includes the following categories:

- **Vacant land.** Vacant Land means tax lots with no development. Some definitions use a minimum improvement value and size threshold for vacant land.
- **Partially-vacant land.** Partially-vacant tax lots are sometimes called "underutilized" land. This includes tax lots that have some development on them, but also have visible vacant areas.
- **Constrained land.** Constrained Land is subtracted from total vacant land to get buildable land (which is further divided into totally vacant and partially vacant based on parcel boundaries and existing development on parcels). There are several categories of constraints; Constraints that are typically considered in buildable lands inventories include:¹³
 - Wetlands
 - Riparian areas and shorelines
 - Steep slopes (definitions typically vary for commercial and industrial land uses)
 - Geologic hazards
 - Critical habitat areas
 - Tsunami inundation zones
 - Areas unserviceable over the 20-year planning period (including airport runway/expansion zones)
 - Floodplains and floodways
- **Redevelopable Land.** Redevelopment Potential deals primarily with parcels with developed structures that are likely to be demolished and new buildings constructed in their place. Not all, or even a majority of parcels that meet these criteria for redevelopment potential will be assumed to redevelop during the planning period.

While it is useful to have some notion of where redevelopment will occur in the future, we strongly advocate that redevelopment be addressed on the demand side of the analysis (as described in Step 4 in the Long Term Demand Analysis above).

¹³ This is not a comprehensive list of all the development constraints that a city might include in the inventory. The specific list of constraints should be determined at the beginning of the local supply inventory.

- Developed land. All land that is not vacant, partially-vacant, or redevelopable.

Once the specific definitions are agreed upon, each parcel is assigned a classification in the parcel table of the GIS database. The easiest way to complete this is to develop a rule-based approach and then to follow up with field verification of the classifications. Classification of each tax lot allows the database to be queried and analyzed by tax lot and classification.

Data sources: GIS parcel data; field work

Timeline: 60-100 hours

STEP 3. IDENTIFY DEVELOPMENT CONSTRAINTS

Identification of development constraints occurs through document research, fieldwork and/or aerial photo interpretation. Following is a more detailed discussion of development constraints and approaches to address them in the supply analysis.

Wetlands

How a jurisdiction addresses wetlands depends on the level of data available. If a jurisdiction has a local wetlands inventory that has been mapped this step is easy; use the local wetland inventory. If the jurisdiction has a partial inventory, then the jurisdiction should use that inventory in combination with other sources such as the National Wetland Inventory (NWI).

If the jurisdiction has no wetland inventory, then it should use NWI data as a base. If the jurisdiction feels this significantly underestimates the amount of significant wetlands then additional methods to estimate areas constrained by wetlands should be applied. One approach is to estimate wetland based on soil types. If the jurisdiction has a soils map, it can identify hydric soils and then make an assumption about the percentage of areas in hydric soils that would be in wetlands. The limitation of this approach is that it provides an aggregate estimate of wetland constraints, but does not identify the precise location of those constraints.

Floodplains

Jurisdictions with floodways and floodplains should address these constraints in their land supply inventory. Most jurisdictions rely on the Federal Emergency Management Agency, Flood Inundation Relief Maps (FEMA FIRM) maps to identify the boundaries of floodplains. Federal regulations and many local regulations, however, do not prohibit development in floodplains. Many local zoning ordinances allow development as long as it is elevated 1 foot above base flood level, and proper local/federal permits are obtained. If your jurisdiction allows development based on this standard, certain areas within floodplains should not be deducted from the local buildable land supply.

Drainageways & Riparian Areas

If the jurisdiction has a riparian setback ordinance, drainageways should be included in the constraint analysis. If the riparian areas are mapped, then this is a simple overlay analysis with the GIS database. If they are not, then

the jurisdiction should review the local ordinance and determine an appropriate method. If the ordinance references a setback requirement, then those setbacks can be estimated using the buffer tool in the GIS database.

Hazardous Land: Slide Areas, Steep Slopes, and Earthquake Faults

These areas should be identified in the Goal 7 element of the local comprehensive plan. If a contour layer exists, then cities can use a digital elevation model to identify areas that are constrained by slope. In the absence of a local slope ordinance, jurisdictions can remove all lands over 25% slope from the buildable lands base. Industrial sites should be further constrained for land with 10% to 25% slopes.

Brownfields

Most communities have brownfields. Brownfields are real property where expansion or redevelopment is complicated by actual or perceived environmental contamination (ORS 285A.185). Examples of brownfields include former mill sites, gas stations, scrap yards and dry cleaners. Funding sources are available to assess and cleanup brownfields and regulatory tools are available to manage liability. When environmental and liability issues are mitigated, brownfields can be classified as Redevelopable Land (see above.)

Service constraints

Some jurisdictions face service constraints. These are most frequently due to availability of water and/or sewer above specific elevations. A review of the local water and sewer master plans will allow identification of areas that are not scheduled for services during the next 20 years.

Parks and Open Space

Most inventories exclude parks and open space from the buildable lands base.

Institutional Uses

Most publicly owned parcels are parks, governmental, or public facilities and are considered unavailable for development.

Data sources: GIS parcel data; wetlands inventory, FEMA FIRM maps, local water and sewer master plans, local park plan, local Goal 7 inventory.

Timeline: 60-100 hours

STEP 4. ESTIMATE TOTAL BUILDABLE LAND SUPPLY BY LAND CLASSIFICATION

Step 4-A. Verification

Before any summary analysis is conducted, jurisdictions should take steps to verify the supply data by using aerial photos and field visits. The verification can be comprehensive for small jurisdictions (e.g., a one-day windshield

survey); large jurisdictions should use standard sampling techniques (e.g., stratified random sampling). This step is important—many factors can lead to misclassification of tax lots.

Step 4-B. Calculate gross buildable acres

This step estimates total buildable land supply and classifies it by land classification. It begins by subtracting constrained acres from total vacant acres—preferably at the tax lot level. This requires an overlay analysis using GIS. The GIS overlay analysis should result in a tabular database that can be summarized by various parcel attributes such as plan designation and zoning, which will also facilitate any further disaggregated analysis later. Table 5-1 shows a sample table structure and calculations. If in Table 5-1 the database were complete as specified, it would allow for disaggregated analysis later by subarea, by land use type, and by parcel size, which are the three most likely types of disaggregation to be requested.

Table 5-1. Sample non-residential lands data worksheet

Tax Lot#	Total Acreage	<i>Minus</i> Developed acreage	<i>Equals</i> Gross vacant acreage	<i>Minus</i> Constrained acres	<i>Equals</i> Gross buildable vacant acres	<i>Minus</i> Acres for public facilities (25%)	<i>Equals</i> Net buildable vacant acres	<i>Plus</i> Redevelopable acres ^a	<i>Equals</i> Total net buildable acres
Commercial Plan Designation									
1202	10.0	0.0	10.0	1.1	8.9	2.2	6.7	-	6.7
1400	5.0	1.0	4.0	0.0	4.0	1.0	3.0	-	3.0
1506	8.0	8.0	0.0	0.0	0.0	0.0	0.0	4.0	4.0
Subtotals							9.7	4.0	13.7
Industrial Plan Designation									
2000	20.0	0.0	20.0	2.0	18.0	4.5	13.5	-	13.5
4500	3.0	3.0	0.0	0.0	0.0	0.0	0.0	3.0	3.0
Subtotals							13.5	3.0	16.5
Total Net Buildable Acres							23.2	7.0	30.2

Source: Adapted from the HB 2709 Workbook

^a Note: We recommend that redevelopment be addressed on the demand side of the analysis

A key issue in this step is how redevelopment potential is addressed. Analysts have two choices: deduct employment from the demand side, or add redevelopable land back on the supply side. We advocate the demand side approach for reasons discussed shortly. Following are methods for identifying redevelopment potential for jurisdictions that choose to use this approach. Note that jurisdictions should choose only one approach (demand or supply) for addressing redevelopment: using both would be double-counting.

Redevelopable land is land that has improvements (is developed) that are not judged to be significant barriers to redevelopment during the study period. A supply side analysis can do a reasonable job of identifying tax lots with redevelopment potential: tax lots with developed structures that have some threshold probability of being demolished and having new buildings

constructed in their place. Many studies use improvement-to-land value ratios to make judgments about redevelopment potential

Metro defines redevelopment potential as parcels that have improvement values significantly lower than surrounding parcels in similar designations. This is a more sophisticated method of addressing redevelopment potential that requires use of advanced GIS tools.

The problem with the supply-side notion of redevelopment potential is that not all tax lots with redevelopment potential will redevelop during the planning period, and that some tax lots not identified with redevelopment potential will. Thus, analysts must make assumptions about how much land with redevelopment potential will actually redevelop during the planning period. We are unaware of any study that has tried to correlate any measure of redevelopment potential in some base year with the actual amount of redevelopment that occurred (on tax lots identified as having redevelopment potential and on other developed tax lots not so identified). In other words, the connection between any measure of redevelopment potential and the actual contribution of that property to accommodating non-residential development is just a theoretical guess.

Because of limited data, and the fact that local policies and public investment can have a large impact on redevelopment, we advocate addressing redevelopment on the demand side as described previously in this report.¹⁴ In short, though assumptions are still required, they are more direct: what percentage of the growth in business activity (as measured by forecasted employment growth) will not require the development of vacant land because of net increases in employment on already developed land (i.e., increased density)?

Step 4-C. Convert gross acres to net acres

A Gross Vacant Acre is an acre of vacant land before land has been dedicated for public right-of-way, private streets, or public utility easements. For example, a standard assumption is that about 20% of land in a residential subdivision is used for streets and utilities: if so, then a gross vacant acre will yield only about 35,000 sq. ft. (80% of a full acre) for lots. At five dwelling units per gross acre, the average lot size would be about 7,000 square feet. The precise percentage for reducing gross to net residential acres can be specific to a jurisdiction, based on an analysis of the last five years of subdivision permits.

A Net Vacant Acre is an acre of vacant land after land has been dedicated for public right-of-way, private streets, or utility easements. A net vacant acre has 43,560 square feet available for construction, because no further street or utility dedications are required: all the land is in lots. Thus, at 7,000 square feet per lot, a net vacant residential acre will accommodate over six dwelling units.

¹⁴ Unless there are unique local circumstances, such as mill site conversions in small cities, where the primary location for employment growth is in one or two specific sites that have been master-planned at a level that produces accurate job density estimates.

Similar types of calculations can and should be made for commercial and industrial land. One method is to randomly select developed commercial and industrial areas and then calculate the amount of land available for development and the amount used for streets, utility easements, and other public purposes. At a minimum, a jurisdiction has to be explicit about what type of acres it is reporting in its estimates of vacant land: gross or net?

Step 4-D. Summarize buildable land by classification and plan designation

Summarizing the supply data in meaningful tables and maps is an important step. At a minimum, jurisdictions should develop maps and summary tables of buildable land by plan designation. Additional summary analysis could include zoning and land classification (e.g., developed, vacant, etc.)

Data sources: GIS parcel data; local gross to net study

Timeline: 60-100 hours

STEP 5. ESTIMATE EMPLOYMENT HOLDING CAPACITY

The final step in the analysis is to estimate how much employment can be accommodated by the buildable land. The estimate of holding capacity requires density assumptions as expressed in employees per acre. The employees per acre assumption is multiplied by the estimate of total buildable acres to arrive at an estimate of employment holding capacity.

The derivation of the employees per acre estimates are described in earlier in this chapter under Long-Term Demand, Step 5. It is worth repeating here, however, some of the caveats. Studies conducted by ECONorthwest show that considerable variation exists even within specific industries. For example, employment densities in commercial uses might range from a high of 20 or more employees per acre for office uses to less than 1 employee per acre for uses such as self-storage facilities. Complicating this variation is the fact that any given industry can include many different occupations—each of which has a different employment density. Moreover, studies conducted in different metropolitan areas come up with vastly different results. Local policies can also dictate employment density.

Ideally, jurisdictions would have employment density assumptions for each non-residential plan designation. The number of employees forecast for each land use type is divided by the employment density assumption (expressed in employees per acre) to estimate the number of acres needed for that land use type.

Data sources: Employment density studies; local employment density study

Timeline: 30-50 hours

SHORT TERM LAND SUPPLY

It is conceivable that a jurisdiction could have a 20-year supply of commercial and industrial land and not have many sites ready for development. In theory, that situation could occur if (1) Vacant, buildable, and serviceable sites were owned by only a few property owners, and they were not ready to

develop. That situation is more likely in small jurisdictions, and in places where a large employer or property owner is “land banking” large amounts of buildable land for development: that land will eventually accommodate employment growth, but it is not really available to accommodate growth in the next 5 to 10 years; or (2) There are significant physical, institutional, or cost constraints on getting necessary public services (primarily roads, water, and sewer) to the vacant land).

OAR 660-009-0025(3) requires local governments that have to prepare a public facilities plan under OAR 660-0011 to assess the short-term supply of land. OAR 660-009-0025(3)(a) requires cities to address the short-term serviceability of commercial and industrial lands. Local governments are encouraged to develop specific criteria for deciding whether or not a site is “serviceable.” Local governments should also consider whether or not extension of facilities is reasonably likely to occur considering the size and type of uses likely to occur and the cost or distance of facility extension.

Technically, most sites can be serviced in the short term given enough money to extend services. The local public facilities plan, however, should define criteria for providing service to a site. Local criteria for determining whether a site is serviceable in the short-term could include capacity, distance from nearest service, and cost. Jurisdictions should carefully review the local public facilities plans and meet with the City engineer to identify criteria and identify which parcels are serviceable in the next 1-5 years.

Other factors that affect short-term land supply go beyond the OAR 660-009 requirements. Land ownership is a key factor. If large tracts of commercial or industrial land are consolidated into a few ownerships, this can create a situation where owners control the land market. In some instances owners of key parcels may be unwilling to sell land. Finally, local market conditions may affect the short term supply of land. In poor economies, owners may be willing to wait to get higher prices for their land.

Jurisdictions should conduct interviews with local landowners, developers and realtors to address short-term site serviceability and availability issues.

Data sources: Local public facilities plans, interviews with public works director, interviews with local landowners, developers and realtors

Timeline: 40-80 hours

COMPARING LAND DEMAND AND SUPPLY

At the basic level, this step is relatively straightforward. It takes the output of the land demand analysis and compares it to the total buildable land supply to determine whether the jurisdiction has a 20-year supply of buildable land.

The simple comparison (per state law) above has inherent limitations—it is both highly aggregated and long-run (20 years). Some of the real issues jurisdictions face are more disaggregated (e.g., by parcel location, size, and type), short run (is land available now at a price buyers will pay?), and go beyond land supply to address urban form (how will commercial and industrial development impact other community development objectives?).

Thus, a more detailed comparison of demand and supply may be beneficial. One place jurisdictions can start is to review the site requirements of firms and conduct a detailed comparison of local sites. At a minimum, this would occur at the plan designation level; more detailed analyses might occur by building type (e.g., R&D, warehouse/distribution, general industrial, Class A office, retail, etc.), site requirements (by size and other characteristics), or industry.

On the supply side, this requires analysis of land by tax lot or parcel size and plan designation. This distribution is then compared to the identified site requirements of firms. For example, a jurisdiction that desires to attract a chip manufacturer but doesn't have any parcels over 20 acres in size will never meet this goal because suitable sites (50 to 100 acres) for the manufacturing facility do not exist.

This detailed comparison could extend into all of the physical aspects of sites including:

- Land use buffers
- Flat sites
- Parcel configuration and parking
- Soil type
- Building density
- Air transportation
- Fiber optics and telephone
- Potable water
- Power requirements
- Transportation
- Transit
- Pedestrian and bicycle facilities
- Air and water quality conformance requirements

A final issue for consideration is location of lands designated for commercial and industrial uses. For example, if all of a city's buildable commercial lands are located in one quadrant of the jurisdiction, a large part of the city's buildable residential lands are in another quadrant and the city has smart growth policies, the city will need to review the spatial distribution of commercial land.

The key tool for this type of analysis, if it is available, is a GIS database.

Data sources: Maps of various buildable lands, GIS database, development goals and policies

Timeline: 40-100 hours

Conclusions and Policy Recommendations

This chapter summarizes the overall conclusions reached by the consultant team and the Advisory Committee. These conclusions provide justification for the Advisory Committees' policy recommendations, which are also included in this chapter.

CONCLUSIONS

The Oregon land use planning system is basically sound and includes many elements that help promote and sustain business and industry statewide. Through this pioneering system, the state has invested considerable time and resources in local land use plans over the past 30 years. Local land use plans provide certainty to developers and give Oregon an edge when marketing the state to potential recruitments. Among other things, these local plans establish an economic vision for cities and counties, and are essential to the success of future economic development efforts. Although the committee expressed support for the core policies of the state's land use system, the committee also recommended several important improvements to the system that should be considered by the Land Conservation and Development Commission (LCDC) and the legislature.

OREGON'S LAND USE PLANNING SYSTEM IS AN ASSET

The state's land use planning system was established in 1973, and it has been evolving continuously ever since. Over the past 30 years, the Legislature has enacted scores of statutory amendments and the LCDC has adopted numerous administrative rules to change or clarify the original 19 Planning Goals. The land use principles established by statutes and statewide planning goals are implemented through 277 local land use plans, one for every city and county, and one for the Portland Metro region. Local land use plans are required to be updated periodically, through a "periodic review process" supported by grants and technical assistance from the Department of Land Conservation and Development (DLCD). Local land use plans include: urban growth boundaries (UGBs) surrounding each city and containing a 20-year supply of land for new development; public facilities plans and local transportation plans; sites zoned for residential, industrial and commercial use; and local economic development strategies.

Local land use plans are important economic development tools because they establish, in advance, a path for development. Under the Oregon system, local governments pre-select a range of potential sites for future development, adopt a plan for roads, sewer, water, and other utilities to serve these sites, and adopt zoning and other procedures to guide development decisions on these sites. Communities are most successful if they carefully choose their economic development vision and adopt a clear plan setting the stage for that vision. Communities will generally fail to achieve their vision if the local plan does not provide suitable sites for future development, or does not provide infrastructure, roads, and a timely, predictable development process. The current economic downturn underscores the need to

continuously evaluate and improve both local and state planning for economic development.

LOCAL LAND SUPPLY ESSENTIAL FOR ECONOMIC DEVELOPMENT

Market-ready sites need to be the core of any local economic development strategy. State law currently requires that “Comprehensive plans and land use regulations shall provide for at least an adequate supply of sites of suitable sizes, types, locations and service levels for industrial and commercial uses consistent with plan policies” (ORS 197.712(2)(c)). ORS 197.712(g)(B) also requires local governments to provide “Reasonable opportunities for urban residential, commercial and industrial needs over time through changes to urban growth boundaries.”

The Advisory Committee concluded that greater compliance with the existing land use planning requirements is necessary to provide for an adequate supply of commercial and industrial lands. Though House Bill 3557 did not fund an evaluation of local plans to determine how much land was available, it did sponsor the development of a methodology for use by local governments to determine the adequacy of the local commercial and industrial land supply.

ADDITIONAL METHODOLOGIES AND GUIDANCE NEEDED

The HB 3557 consultant team and the Advisory Committee concluded that two detailed methodologies for land supply analysis are needed - a "basic" and an "advanced" method. These are described in the preceding chapters of this report. The Advisory Committee believes that, if enough Oregon communities follow these recommended methodologies, the state will determine whether or not Oregon has planned sufficient land for economic development. The methodologies will also assist in the process of updating and improving local economic development plans and will therefore help to provide a foundation for the state's long-term economic health.

The consultant team and the Advisory Committee did not conclude that these recommended methodologies should be mandatory for local jurisdictions. Rather, it was concluded that the legislature and LCDC should decide how to best utilize these new “tools”. If their use is strictly voluntary, commercial and industrial land supply will be re-evaluated only where there is sufficient interest and funding. If the state provides funding and other incentives to encourage jurisdictions to update their commercial and industrial land needs, the methodologies will probably be in high demand.

The Legislature or LCDC could require that local governments use these methodologies whenever a community conducts a major update of its land use plan. State law already requires the periodic review of local land use plans, and urban jurisdictions typically evaluate land supply at periodic review. However, the periodic review process does not receive adequate state funding, and communities often take many years to complete a plan update. Even when local governments willingly and enthusiastically engage in local plan updates that process can take a significant amount of time. Therefore, it should be noted that the benefits of using these methodologies will be realized more in the long-term results.

In either case, the Advisory Committee concluded that the methodologies should be made available in a format that is "user-friendly" to local governments. This report includes many details for the various steps under the two recommended methods, but the descriptions are written with policy makers in mind, rather than for local officials and citizens. The committee discussed two ways to deliver these methodologies to local government. Please see the Recommendations section of this chapter for more detail on possible next steps for the methods contained in this report.

SHORT-TERM LAND SUPPLY REQUIREMENTS

Statewide Planning Goal 9 (Economic Development) requires all cities over 2,500 in population to designate both a long-term supply of land and a near-term supply of serviceable sites to meet the city's needs. In addition, these cities are required to prepare a public facility plan that insures there is a three-year supply of serviceable sites each year. However, despite this requirement, the Advisory Committee believes that many local land use plans do not address near-term land needs for commercial and industrial uses, nor do they contain a near-term public facilities plan adequate to service these sites. In order to realize local and state economic development objectives, local land use plans should be responsive to the near-term, as well as long-term, needs of commercial and industrial uses.

The committee was not charged with evaluating the adequacy of the current land supply planned for commercial and industrial use inside UGBs. Such a study would require considerably more time and funding than provided. However, some anecdotal information about current supply was presented and discussed. For example, it was reported that the recently completed Metro Regional Industrial Land Supply study found that there is indeed a shortage of large contiguous parcels for industrial sites in the greater Portland metro region. Also, the Oregon Economic and Community Development Department (OECDD) provided information indicating that many communities statewide desire new economic development but lack "market ready" industrial sites. The OECDD survey indicated that nearly 35% of communities that desire industrial development do not have a marketable industrial site.

The consultant team and the Advisory Committee concluded that state land use policies requiring a 20-year land supply designated for commercial and industrial development is effective for the long term. Based on the information available, the committee agreed that it is likely that many communities today have a land use plan with sufficient long-term supply of industrial and commercial land. However, statewide policy has not succeeded in providing an adequate near-term supply of sites that are "market ready" (i.e., properly zoned and readily served with roads and utilities). The Advisory Committee was unable to conclude whether this is a problem with state policy, or with the process to implement state policy. It may be that state policy needs to be more explicit and directive about the near-term land supply, and statewide planning efforts need to focus more on this aspect.

MORE "MARKET READY" SITES NEEDED

The consultant team and the Advisory Committee concluded that many sites inside UGBs today are not "market ready". In some cases this is because public facilities or roads are not available or adequate in the short run, or

because of other problems, such as wetlands or other constraints. Frequently, a business recruitment seeking to locate in a community will require a site that can be developed in a short period of time, (e.g., six months). Therefore the Advisory Committee concluded that state land use policies should be augmented with provisions that ensure an adequate near-term supply of "market ready" sites.

An optimal way to attract and promote industrial development is to prepare and plan in advance as much as possible. It is essential that communities complete and update public facilities plans, and take steps to make sites ready in anticipation of demand. Advanced planning and environmental permitting are also necessary to locate and deal with wetlands or other impediments to development. Unfortunately, wetland inventories, public facilities and new roads require funds that are in short supply. The state can increase near-term land supply by targeting funds strategically for this purpose. One of the recommendations in this chapter describes a possible program to do this. The legislature and LCDC can also improve near-term industrial land supply by focussing periodic review on this problem, or by proposing ways to streamline local planning and permitting processes for industrial sites.

One way to facilitate the provision of "market ready" industrial sites is to determine and delineate wetlands and similar features well in advance of development requests, i.e., during periodic plan updates. While permits to fill wetlands can sometimes be obtained from state and federal agencies, permit processes for wetlands can add considerable time to a development application. It is therefore advisable that communities avoid sites with wetlands, especially those wetlands with high functionality, as they identify land for near-term development needs. It may be more beneficial, in the long run, to conserve wetland areas and thus remove them from local buildable land inventories. Sites with such constraints would then be replaced or exchanged, wherever possible, with a supply of sites that do not have such constraints. If communities or land owners decide to pursue wetland fill, developing mitigation plans in coordination with state and federal agencies ahead of time is necessary to make sites "market ready".

PROTECTING STRATEGIC INDUSTRIAL SITES

The Advisory Committee heard anecdotal accounts concerning loss of large industrial sites that are located in proximity to transportation and other public facilities. Such sites provided within a 20-year UGB may remain undeveloped for long periods of time before desired industry arrives seeking to locate in a particular community. In the near term, such sites are subject to development pressure for other uses, such as commercial/office development or residential development, even where sufficient sites for such use are provided elsewhere in UGBs. Once these sites are developed with other uses, local governments usually find it difficult to replace them with new strategic industrial sites. Local governments need to consider policies and procedures that prevent the conversion of strategic industrial sites to non-industrial use. The committee recognized that local governments are authorized to adopt such procedures and policies, but rarely do so.

COORDINATED VISIONING IS CRITICAL

The consultant team and the Advisory Committee concluded that coordinated local and regional visioning is critical to any land supply evaluation. In each of the recommended methods, planning for commercial and industrial development starts with local “vision” and goal setting. A locally adopted economic development strategy clarifies local expectations and preferences for development. The strategy should reflect a realistic assessment of market conditions and opportunities, and the local land use plan should position the jurisdiction to take advantage of market opportunities that are consistent with the local economic development strategy. Oregon law currently requires an Economic Opportunity Analysis that: reviews national, state, and local trends; determines site requirements; inventories commercial and industrial lands in context with site development constraints (e.g., public utilities, access, size, slopes, floodplain, soils); and assesses community economic development potential.

The committee did not have sufficient information to evaluate existing local economic opportunity analyses. However, committee members suggest that there needs to be more attention to this step during local plan updates. The two methodologies described in this report include detailed information about conducting a realistic economic opportunity analysis.

RECOMMENDATIONS

The following policy recommendations are intended to provide LCDC, OECDD, and the Oregon Legislature with a list of actions that can spur short-term and long-term economic growth within the framework of Oregon’s land use planning system.

ENDORSE THE RECOMMENDED METHODOLOGIES

It is recommended that the LCDC and OECDD endorse the methodologies described in this report for use by a local government in determining whether the local government has sufficient buildable commercial and industrial lands. The legislature and LCDC should consider ways to encourage or require use of these methodologies by local governments.

PREPARE INTERACTIVE GUIDEBOOK FOR LOCAL GOVERNMENTS

The legislature should fund, and DLCD and OECDD should work jointly to prepare and distribute, a Guidebook for local governments on commercial and industrial land needs analysis (focused on best practices for ensuring compliance with economic development provisions in statute and state rules). The guidebook could also be prepared as an interactive CD-ROM, and should be based on the methods described in this report in a user-friendly format. These tools would function as a “how to guide” for local governments on several related planning tasks: conducting commercial and industrial land needs analyses; evaluating short-term land supply/demand; adopting “model ordinances”; and preserving strategic areas for desired commercial or industrial uses. Best practice case studies and “real world” examples should be referenced, along with definitions of potentially ambiguous terms, such as “adequate land supply.”

ENCOURAGE PERIODIC ANALYSIS OF COMMERCIAL AND INDUSTRIAL LAND

The periodic review process is an opportunity for local jurisdictions to revisit their economic development objectives, review development opportunities and constraints. Consistent with ORS 197.717, DLCD and OECDD should provide technical assistance to local jurisdictions that desire economic development. This work may entail grants or technical assistance for facilitating desired economic development plans, analyzing potential development constraints (i.e., local wetland inventories, land supply analysis and inventory), and making land available for strategic commercial and industrial projects. Appropriate funding levels for this effort should be identified by DLCD and OECDD, and approved by the Oregon Legislature.

EXAMINE STATE LAND USE POLICIES REGARDING NEAR-TERM LAND SUPPLY

LCDC and, if necessary, the legislature, should review current statewide policy regarding near-term land supply. The committee believes the response to current requirements is insufficient. It is not clear whether this is a problem with the policies or with the implementation by local governments. Efforts to improve both the policies and the response are crucial in achieving state and local economic development goals.

PROTECT STRATEGIC INDUSTRIAL SITES

Local governments should adopt mechanisms that prevent the conversion of strategic industrial sites to non-industrial use. Large contiguous parcels within UGBs strategically located near transportation and other public facilities are not easily replaced once they are zoned for or developed with other land uses. The Interactive Guidebook recommended above should include advice about local policies and procedures that could be effective in retaining strategic industrial sites for use by industries seeking to locate in the community.

EXPAND REGIONAL INVESTMENT PLANS

In accordance with ORS 285B.233-239, it is recommended that there be a concerted effort to include Goal 9 and other short and long-term economic development considerations when regional investment plans throughout the state are updated biennially. These plans could serve as the basis for state financial assistance to projects that meet regional and local economic development priorities as well as provide a regional context for local planning decisions. To make the regional investment plans useful in this regard may require a significant prescriptive directive to specifically address industrial lands needs when developing the regional plans. The plans should be prepared in accordance with ORS 285B.239, with emphasis upon identification of short-term and long-term priorities; documentation of significant regional resources; implementation/funding strategies; and performance measurements for monitoring success. Completion of these plans should be facilitated by OECDD with appropriate levels of funding for technical assistance to regional investment boards and regional partnerships, as defined by ORS 285B.230.

CREATE A STATEWIDE SITE CERTIFICATION PROGRAM FOR “MARKET READY” EMPLOYMENT SITES

A “market ready” site certification program should be established and implemented by OECDD to increase the supply of sites in UGBs to respond to immediate economic development opportunities. A certification program would improve Oregon’s ability to compete nationally for industrial recruitments. Designated “certified strategic-employment sites” would be eligible for special funding that would facilitate the removal of development constraints and the installation of service infrastructure. Certified “strategic sites” should be consistent with specific criteria set by OECDD, such as:

- Zoning (focus on industrial and mixed-use development is recommended);
- Site size, configuration and topography (focus on large contiguous sites is recommended);
- Ownership (property must be available for sale or lease at an asking price that is consistent with the marketplace);
- Availability/adequacy of roads, water, sewer, power and other utilities;
- Environmental and regulatory issues (any unique constraints and permitting issues must be understood);
- Site access and visibility;
- Compatibility with local and state land use regulations;
- Consistency with local economic development goals and objectives and land use and public facility plans; and
- Proof of a clear Implementation strategy that clearly identifies roles/responsibilities for site development, project schedule and funding sources for capital improvements and ongoing maintenance.

Designated “strategic-employment sites” must be adequately zoned for employment use (especially industrial), served by public facilities, and

located in areas that demonstrate an adequate need for employment land. Funding for this new program could be “seeded” using a mix of state and federal sources. Sites that are deemed to have a high return on investment (e.g., leverage additional local public and private investment), and are consistent with local/regional economic objectives should receive priority for funding under this program. Similar site certification programs have been successfully implemented in the states of Virginia and Pennsylvania.

IMPROVE COORDINATION AMONG LOCAL, REGIONAL AND STATE AGENCIES

While coordination is generally required by law, there is no explicit provision in Oregon law that requires formal coordination between state, county and local governments when economic opportunity analyses are prepared. As such, there are circumstances where local economic development policies are out of sync with county and regional growth policies. Formalized coordination of employment growth forecasts and coordination in establishing local development priorities for the short-term and long-term, would help keep local community development objectives in synch with regional and statewide efforts and development strategies.

It should be noted that 1995 legislation did establish such coordination policies for housing needs analysis through coordinated population forecasting requirements stipulated under ORS 195.036. Coordinated employment forecasts are generally a good idea if (1) they are done in conjunction and calibrated with population forecasts, and (2) local jurisdictions have the ability to influence those forecasts by bringing evidence about their historical growth, economic conditions, and vision and policies for future growth.

In some cases coordination among agencies can be accomplished through the Community Development Office (CDO) of the Department of Administrative Services. For example, the CDO has convened an interagency workgroup to specifically examine the issue and impacts of wetlands on industrial lands.

ALLOCATE ADEQUATE FUNDING TO SUPPORT ECONOMIC DEVELOPMENT INVESTMENTS

Existing state economic development programs that leverage strategic job growth, such as the Special Public Works Fund, the Immediate Opportunity Fund, and the Governor's Strategic Reserve Fund, should be provided necessary funding to address site development constraints, install service infrastructure, and attract desired private investment.

IDENTIFY NEW ECONOMIC DEVELOPMENT FUNDING SOURCES THAT ARE STABLE AND RELIABLE

In light of Oregon's current budget funding shortfall, new state funding programs may be required to strengthen economic development assistance programs. The Oregon Legislature should work with appropriate committees to identify and evaluate existing and potential funding sources that can be allocated to policies that support strategic economic development.

REQUIRE METRO TO PREPARE AN ECONOMIC DEVELOPMENT FUNCTIONAL PLAN

With Oregon's existing Goal 9 regulations focused on cities and counties, there has been little attempt to prepare and periodically update regional economic development strategies. Requiring Metro to adopt a regional economic development strategies would help tie together local economic strategies. This would also likely reduce the cost of independent economic analyses for Metro cities. Moreover, as we have witnessed before, regional/local economic strategies and land use planning without formal coordination or funding assistance for immediate action projects will not be as successful in creating job growth. Therefore, coordination and funding assistance for immediate action projects should be considered as part of a regional economic development strategy.

Glossary

Adequate Land Supply (Long-Term) — Commercial and industrial designated land within the urban growth boundary that adequately accommodates the long-term employment needs that are documented in the local Economic Opportunity Analysis. This entails a range of commercial and industrial designated sites of various sizes and locations. Land deemed as “adequate” must also be considered suitable, but not necessarily available. (see definitions for those terms)

Adequate Land Supply (short-term)—Commercial and industrial designated land within the urban growth boundary that adequately accommodates the short-term employment needs that are documented in the local Economic Opportunity Analysis. This entails a range of commercial and industrial designated sites in various sizes and locations. Land deemed as “adequate” must also be considered “suitable” and “available”, and should not be constrained by environmental, infrastructure nor ownership issues.

Available Land—Commercial or industrial designated land that is suitable and offered for sale or lease by the property owner, or is available for future on-site development expansion activities by existing tenants.

Buildable Lands—Lands in urban and urbanizable areas that are suitable, available and necessary for development. Buildable lands include both vacant land and developed land likely to be redeveloped.

Constrained Land—Vacant constrained or partially vacant constrained parcels with that possess significant physical, environmental or infrastructure constraints. Physical constraints may include steep topography, (e.g. sloped over 10% for industrial use and over 20% for commercial use); unstable soils and parcel configuration. Environmental constraints may include on-site wetlands, flood plains or significant riparian areas. Infrastructure constraints may include the lack of adequate public facilities (e.g. roads and utilities).

Covered Employment—Employment covered by unemployment insurance. Covered employment is less than total employment. Persons who are self-employed, farmworkers, and some contractors are examples of employment that is not covered by unemployment insurance.

Developed Land—Parcels that have relatively high-value improvements on them with no vacant areas.

Economic Development Strategy—A planning document that may be adopted as an element in a local comprehensive plan that clearly describes economic development conditions, local policies, growth objectives and implementation steps that are unique to the local jurisdiction.

Employed—All civilians 16 years old and over who work as paid employees, worked in their own business or profession, worked on their own farm, or worked 15 hours or more as unpaid workers on a family farm or in a family business.

Floodplain—The area adjoining a stream that is subject to inundation by flood. The floodplain consists of two parts:

1. **Floodway fringe:** The area of the floodplain lying outside the floodway.
2. **Floodway:** The channel of a river or other watercourse and the adjacent land areas that must be reserved in order to discharge the base flood without cumulatively increasing the water surface elevation more than 0.2 feet.

Gross Vacant Acre — An acre of vacant land before land has been allotted for public right-of-way, private streets, or public utility easements. For example, a standard assumption is that between 20% and 30% of land in a subdivision is used for streets and utilities; if so, then a gross vacant acre will yield only about 35,000 sq. ft. (70%-80% of a full acre) for lots.

Institutional Use — Includes publicly owned parcels such as parks, government buildings and public facilities and are considered unavailable for development. The exceptions are (1) the City-owned airport industrial park, which is leasable land intended for urbanization, and (2) the more-or-less developed area of land owned by OSU, which will almost certainly support future expansions that will accommodate employment and residences (group quarters).

Labor Force—All persons age 16 or over classified in the civilian labor force plus members of the U.S. Armed Forces (persons on active duty with the United States Army, Air Force, Navy, Marine Corps, or Coast Guard).

Land Market Factor—A factor of commercial industrial land demand that is intended to account for the amount of land needed (in excess of baseline demand forecasts) to address user requirements for flexibility and competitiveness in the marketplace. Land market factors typically range from 0% to 200% of baseline demand, depending upon local economic policy objectives, and local/regional economic development potential.

Locational Factors—Features which affect where a particular type of commercial or industrial operation will locate. Locational factors include but are not limited to: proximity to raw materials, supplies, and services; proximity to markets or educational institutions; access to transportation facilities; labor market factors (e.g., skill level, education, age distribution).

Long-term—A planning period 20 years or more from the time of conducting the commercial and industrial buildable lands analysis.

Net Vacant Acre — an acre of vacant land after land has been allotted for public right-of-way, private streets, or utility easements. For example, a one acre site that has 30% of land devoted to streets and utilities yield 0.7 acres of net development area.

Partially Vacant Constrained Land—Same as partially vacant, but with constraints.

Partially Vacant Land—Parcels with some development, but vacant portions large enough to develop.

Redevelopment Potential — Parcels with developed structures that are likely to be demolished and new buildings constructed in their place.

Serviceable Site—A site is serviceable if: (a) Public facilities, as defined by OAR Chapter 660, Division 11 currently have adequate capacity to serve

development planned for the service area where the site is located or can be upgraded to have adequate capacity within one year; and (b) Public facilities either are currently extended to the site, or can be provided to the site within one year of a user's application for a building permit or request for service extension.

Short-term—A planning period that is less than five years from the time of the commercial and industrial buildable lands analysis.

Significant Wetlands—Wetlands that are protected under federal law. Significant wetlands are not part of the buildable land inventory.

Site Requirement—The physical attributes of a site without which a particular type or types of industrial or commercial use cannot reasonably operate. Site requirements may include: a minimum acreage or site configuration, specific types or levels of public facilities and services, or direct access to a particular type of transportation facility such as rail or deep water access).

Standard Industrial Classification (SIC)—The Standard Industrial Classification (SIC) manual is published by the federal Office of Management and Budget. The manual provides a systematic classification of those economic activities (industries) that, together, define and describe the basic composition of our nation's economy.

Suitable Land—Commercial or industrial designated vacant land within an urban growth boundary that is not constrained by environmental issues (e.g., natural hazards, natural resource protection measures, wetlands, floodplains and hazardous materials) topography, and parcel size/configuration. Infrastructure constraints, including lack of adequate roads and utilities do not need to be in place to render a site "suitable" for long-term development. However, infrastructure facilities needed to serve the site should be identified within a locally adopted public facilities plan for a site to be suitable. Land price may also be considered in the definition of site suitability. For example, an industrial-designated site that has an assessed value or asking value that is two times greater than current market value for industrial sites in the market area can render that site unsuitable for industrial use. However, that site may still be suitable for commercial or mixed-use development.

Suitable Site—A site is suitable for industrial or commercial use if the site either provides for the site requirements of the proposed use or category of use or can be expected to provide for the site requirements of the proposed use within the planning period.

Undevelopable Vacant Land—Vacant parcels smaller than 0.075 acre (3,250 sq. ft) or land that has significant environmental or infrastructure constraints (see Constrained Land).

Unemployed—All civilians 16 years old and over are classified as unemployed if they (1) were neither "at work" nor "with a job but not at work", and (2) were looking for work during the last 4 weeks, and (3) were available to accept a job.

Vacant Constrained Land—same as vacant land, but with portions that fall within significant wetlands, riparian areas, and slopes greater than 10% for industrial and 20% for commercial land uses.

Vacant Land—parcels greater than 0.075 acre (3,250 sq. ft) with improvement values less than \$5,000 and no site constraints.

Data Sources

This appendix provides a list of data sources jurisdictions can use to develop or update their Goal 9 plan elements. It is not intended to be comprehensive; it lists primary data sources that address the key Goal 9 requirements.

Table B-1. Data sources for Goal 9 elements

Type of Data	Source(s)
Historical	
Population (U.S., state, county, city, smaller geographic subdivisions)	<p>U.S. Census of Population and Housing (1990) http://www.census.gov</p> <p>Population Estimates for Oregon Counties and Cities, Center for Population Research and Census, Portland State University (annual). http://www.upa.pdx.edu/CPRC/</p> <p>Oregon County Economic Indicators, Oregon Department of Economic Development. http://www.econ.state.or.us/ECONPG.HTM</p> <p>Oregon State Library Census Page, http://webfoot.osl.state.or.us/subject/sb-cens.html</p>
Employment (U.S., state, county, some smaller geographic subdivisions available through the Census)	<p>Oregon Labor Market Information System, http://olmis.emp.state.or.us/OLMISHOM.HTML</p> <p>Bureau of Economic Analysis (BEA). http://www.bea.doc.gov/ (select the Regional Data link)</p> <p>U.S. Census of Population and Housing (1990) http://www.census.gov</p> <p>Oregon County Economic Indicators, Oregon Department of Economic Development. http://www.econ.state.or.us/ECONPG.HTM</p> <p>Oregon Covered Employment and Payroll, Oregon Employment Department (annual), http://olmis.emp.state.or.us/owa_usr/owa/olmis_fmt.readpub?p_choice=sitemap&p_p_ubid=0008</p>
Employment (city)	Special Data Runs of BEA 202 Tapes, Oregon Employment Department (on special request)
Income (state, county)	<p>U.S. Census of Population and Housing (1990) http://www.census.gov</p> <p>Personal Income, for Counties and Metropolitan Areas, Bureau of Economic Analysis, http://www.bea.doc.gov/bea/dr1.htm</p>
Tourism Trends (state county)	<p>Travel and Tourism Visitor Impacts, Dean Runyan Associates for the Oregon Tourism Division (annually since 1987). http://www.traveloregon.com; http://www.teleport.com/~drunyan/state.htm</p>
Regional Economic Trends (state, region, county)	<p>Regional Economic Profile, Oregon Employment Division (annually) http://olmis.emp.state.or.us/pdf/regprof.html</p> <p>Economic and Revenue Forecast, Oregon Office of Economic Analysis, http://www.oea.das.state.or.us/econ.htm</p> <p>Oregon Labor Trends, Oregon Employment Department (monthly), http://olmis.emp.state.or.us/lotrends.html</p> <p>Oregon Industrial Outlook, Oregon Employment Department (annually), http://olmis.org/</p>

Type of Data	Source(s)
Land Use Data (state, county)	Department of Land Conservation and Development (DLCD). http://www.lcd.state.or.us County Assessors
Housing trends (units, tenure, value, building permits; state, county, city)	U.S. Census of Population and Housing (1990) http://www.census.gov Oregon County Economic Indicators, Oregon Department of Economic Development. http://www.econ.state.or.us/ECONPG.HTM Housing Strategies Workbook, Oregon Housing Division (1993) Oregon Multiple Listing Service
Transportation patterns (traffic volumes, commute time, modal choices; state, county, city)	Oregon Traffic Volume Tables, Oregon Department of Transportation (annual), http://www.odot.state.or.us/tdb/traffic_monitoring/tsm-home.htm U.S. Census of Population and Housing, 1990/2000, http://www.census.gov (select Data Access/STF-3A database) State of the Commute in Oregon in 1990 and Scenarios for 2015, Oregon Department of Transportation (1991) Oregon Mileage Reports, Oregon Department of Transportation (annually), http://www.odot.state.or.us/tdb/traffic_monitoring/mileages.htm Vehicle Miles Traveled, Oregon Department of Transportation (annually), http://www.odot.state.or.us/tdb/traffic_monitoring/vmt.htm County Public Works Departments
Parks and recreation space/needs (state, county)	State Comprehensive Outdoor Recreation Plan (SCORP), Oregon Department of Parks and Recreation, (1991)
Water Quality	Water Quality Status Report, Department of Environmental Quality, http://www.odot.state.or.us/tdb/traffic_monitoring/vmt.htm
Air Quality	Oregon Air Quality Report, Department of Environmental Quality (annually), http://www.deq.state.or.us/aq/aq.htm
Projections	
Population (U.S., State, County)	Population Forecast, Office of Economic Analysis, http://www.oea.das.state.or.us/ (state approved) Provisional Population Forecasts, Center for Population Research and Census, Portland State University, http://www.upa.pdx.edu/CPRC/ Regional Population Forecasts, Bonneville Power Administration (1990) U.S. Bureau of Census, http://www.census.gov
Employment (State, County)	Long Term Population and Employment Forecast, Office of Economic Analysis, http://www.oea.das.state.or.us/longterm.htm Business and Employment Outlook, Oregon Employment Department (annually)
Income	Personal Income for Counties and Metropolitan Areas, Bureau of Economic Analysis
Regional Economic Trends	Business and Employment Outlook, Oregon Employment Department (annually) Regional Economic Profile, Oregon Employment Division (annually), http://olmis.emp.state.or.us/pdf/regprof.html
General	

Type of Data	Source(s)
Quick Statistics & Facts	U.S. Statistical Abstract, U.S. Bureau of Census (annual), http://www.census.gov/statab/www/ Oregon: A Statistical Overview, 1996, Southern Oregon Regional Services Institute, Southern Oregon University (bi-annually) http://WWW.SOU.EDU/sorsi/ Oregon Blue Book, Secretary of State Office (annually), http://www.sos.state.or.us/
Oregon Statutes and Administrative Rules	Oregon Revised Statutes (ORS); http://landru.leg.state.or.us/ors/ Oregon Administrative Rules (OAR), http://arcweb.sos.state.or.us/rules/OAR_1997_default.html
State Planning Goals and Other Information	Oregon Land Use Information Center, http://darkwing.uoregon.edu/~pppm/landuse/land_use.html Oregon Department of Land Conservation and Development, http://lcd.state.or.us Oregon Benchmarks, Oregon Progress Board, http://www.econ.state.or.us/OPB/
Other Sites	State Service Center for Geographic Information Systems (GIS), http://www.sscgis.state.or.us/ Data Resources Center, Metro, http://www.multnomah.lib.or.us/metro/index.html