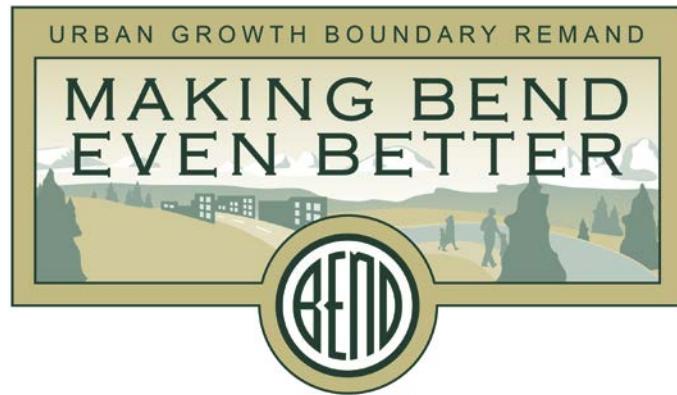Section 8 of Ordinance 2271

Exhibit H

New Housing Needs Analysis, Appendix K of the Bend Comprehensive Plan

13296

URBAN GROWTH BOUNDARY REMAND

MAKING BEND EVEN BETTER

Bend Housing Needs Analysis

Bend's Growth to 2028
August 31, 2016

ACKNOWLEDGEMENTS

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EXECUTIVE SUMMARY

Bend's population grew from about 20,000 people in 1990 to 78,000 people in 2013, nearly tripling. Over the same period, Bend's housing stock grew from about 9,000 dwelling units to nearly 34,000 dwelling units, also nearly tripling. Most new housing development in Bend was single-family detached housing.

As Bend has grown, housing has become less affordable, especially since 2000. Housing sales prices more than doubled between 2000 and 2013, while household income (not adjusted for inflation) increased by 18%. Rental costs also increased in Bend, with the percentage of households paying $1,000 or more in monthly rent increasing from 9% of households in 2000 to more than 40% of households in 2013.

Bend is planning for growth of about 38,500 people between 2008 and 2028, requiring nearly 16,700 new dwelling units. Bend's housing needs are changing, based the following key demographic changes occurring in Bend and across the nation:

- **Growth in Baby Boomers (Age in 2014: 48 to 67 years old; Age in 2028: 62 to 81 years old).** The number of people over age 65 years old is projected to grow by more than 37,000 over the planning period. Given that Bend's population accounts for about half of the County's population, about half of this growth will be in Bend. Households with a householder over the age of 65 typically have lower income than younger households. Those without accumulated wealth (e.g., housing equity or investments) may choose lower-cost multifamily housing. Some Baby Boomers may choose to downsize their housing, resulting in greater demand for small single-family dwellings, cottages, accessory dwelling units, townhomes, apartments, and condominiums.

- **Growth in Millennials (Age in 2014: 17 to 30 years old; Age in 2028: 31 to 44 years old).** The number of Millennials is expected to grow by about 14,000 in Deschutes County over the planning period. Given that Bend's population accounts for about half of the County's population, about half of this growth will be in Bend. Younger Millennials typically have lower income and may have higher debt. Growth in Millennial households will increase the need for affordable housing for renters and homeowners such as: small single-family dwellings, cottages, accessory dwelling units, duplexes, townhomes, garden apartments, and apartments.

- **Growth in Hispanic and Latino population.** The Hispanic and Latino population more than doubled between 2000 and 2013, growing by nearly 6,000 people. The Hispanic and Latino population is expected to continue to grow throughout the State, including in Bend, through 2028. To the extent that in-migrating Hispanic and Latino households have lower than average income, then in-migration of ethnic groups will increase demand for housing affordable to low- and moderate-income households relative to demand for other types of housing. Growth in Hispanic and Latino households will increase the need for affordable housing for renters and homeowners such as: single-family dwellings (both smaller and larger sized dwellings), duplexes, larger townhomes, garden apartments, and apartments. Ownership opportunities for Hispanic and Latino

households will focus on moderate-cost ownership opportunities, such as single-family dwellings on a small lot or in a more suburban location, duplexes, and townhomes.

These demographic changes, combined with the existing and growing need for affordable housing, shows a growing need for single-family attached housing (such as townhomes) and multifamily housing. While the majority of new housing will continue to be single-family detached housing, the type of single-family detached dwellings may change, with more emphasis on smaller and more affordable new single-family detached housing and a decrease in demand for large-lot single-family detached housing.

Bend's current housing policies and regulations support the development of a mix of housing that is not consistent with Bend's needed mix for a larger percentage of single-family attached and multifamily housing types (relative to past trends) and a higher percentage of more affordable single-family detached housing types. The City will need to enact policy and regulatory changes in order to move from the observed trend of building approximately 75% single-family detached units (between 1998 and 2014) to a rate of 55% single-family detached (SFD), 10% single-family attached (SFA) and 35% multifamily (MF) units going forward from 2014 to 2028. This housing mix (55% SFD, 10% SFA and 35% MF) is the basis for determining residential land needs for the remainder of the planning period (2014-2028). Using this needed mix will ensure that a greater supply of land is available for needed types of housing. In addition, the City is proposing a package of efficiency measures to maximize the capacity of buildable residential lands within the existing Urban Growth Boundary, enable development of multifamily and attached housing in mixed use opportunity areas, and make it more feasible and likely that the market will achieve the needed housing mix and densities. Doing so will have the effect of increasing the supply of needed types of housing at the needed mix that will be affordable to households in Bend in 2028.

CHAPTER 1. INTRODUCTION

Role of the HNA

This report presents a housing needs analysis (HNA) for the City of Bend. The purpose of this analysis is to address the requirements for planning for needed housing in urban areas with a population of 25,000 or more under Oregon Revised Statutes (ORS) 197.296(3) and (5). These requirements include, but are not limited to, an inventory of buildable lands for housing, an analysis of national, state, and local demographic and economic trends, and recommendations for a mix and density of needed housing types.

The HNA is a supporting document of the City of Bend Comprehensive Plan. The HNA documents historical housing and demographic trends, the projection of population and housing growth, and analysis of housing affordability. Based on this analysis, the HNA estimates needed housing density and mix for the 2008 to 2028 period. The HNA compares the forecast of needed housing with the capacity of Bend's land base to accommodate new housing from the Bend Buildable Lands Inventory Report (BLI). The BLI is one of four inter-related documents that are central in the City's planning related to the UGB. The major components of each are summarized below in Table 1.

Table 1: Four Key Documents for Bend's Urban Growth Boundary Planning

Document	Buildable Land Inventory (BLI)	Housing Needs Analysis (HNA)	Economic Opportunities Analysis (EOA)	Urbanization Report (UR)
Purpose	Identify buildable residential & employment land by category	Address the requirements for planning for needed housing, including analysis of national, state, and local demographic and economic trends, and recommendations for a mix and density of needed housing types	Document historical housing and demographic trends, the projection of employment growth, identification of target industries, and evaluation of site characteristics needed to accommodate target industries	Analysis of where and how Bend's future growth will be accommodated, both inside the existing Urban Growth Boundary (UGB) and in expansion areas
Primary Legal Standards[1]	ORS 197.296 OAR 660, Divisions 8 and 9	Statewide Planning Goal 10: Housing ORS 197.296 and 197.303 OAR 660, Division 8	Statewide Planning Goal 9: Economic Development OAR 660, Division 9	Statewide Planning Goal 14: Urbanization ORS 197.298 OAR 660, Division 24
Key Subject Matter	Development status categories and definitions Methodology for assigning categories and conducting inventory Inventory results: acres by plan designation and development status	Projection of population and total housing growth Housing market and development trends Demographic characteristics and trends Analysis of affordability Estimate of needed housing (mix and density) Comparison of housing capacity to need	Existing policy and vision National, state, local trends Employment projections Target industries Site needs and characteristics Special site needs Redevelopment analysis Comparison of employment capacity to need and characteristics	Methodology for capacity estimates Pre-policy ("base case") capacity estimate for current UGB Efficiency measures (EMs) proposed Current UGB capacity with EMs UGB alternatives evaluation methodology and results Proposed UGB expansion and summary of Goal 14 evaluation results

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[1] OAR = Oregon Administrative Rules; ORS = Oregon Revised Statutes

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This HNA uses the 2008 HNA adopted by the City of Bend as a foundation. The information and conclusions of the updated HNA are the basis for determination of residential land sufficiency for the 2008-2028 period. This HNA collects the most recent works on residential land need for the City of Bend, addresses issues identified in the 2010 Remand Order, and incorporates direction from the Remand Task Force (RTF) and the Bend Urban Growth Boundary (UGB) Remand project's Residential Technical Advisory Committee (Residential TAC) and Urban Growth Boundary Steering Committee (USC).

An important consideration for the HNA update is that it must address issues identified in the Remand and partial acknowledgement of a decision made in December 2008. A key issue is the planning horizon for the project. The HNA uses the 2008-2028 timeframe, but updates key elements of the HNA to reflect changes that have occurred since 2008. This updated HNA relies on the 2008-2028 population and housing forecasts that were acknowledged by the Land Conservation and Development Commission's (LCDC) 2010 remand order.[2] The HNA presents data from the updated buildable land inventory, which was updated to reflect development that occurred in Bend between 2008 and 2014. The HNA also analyzes changes in Bend's housing market between 2008 and 2013 to account for housing from the 2008-2028 forecast that already occurred.

Framework for a Housing Needs Analysis

The following section describes the state requirements for a housing needs analysis and some key concepts necessary for understanding the housing needs analysis. This section concludes with a discussion of the steps in completing a housing needs analysis, based on a 1997 guidebook, "Planning for Residential Growth."

State Statutes and Administrative Rules

In an effort to address all requirements in statutes and administrative rules for an HNA, this document follows the suggested framework of "Planning for Residential Growth," a guide book prepared in 1997 by the Oregon Transportation and Growth Management (TGM) Program to assist local governments in developing an HNA that complies fully with applicable portions of ORS 197.296 and 197.303, as well as OAR 660-008.[3]

Statewide Planning Goal 10, Housing, is to provide for the housing needs of the citizens of the state.[4] Goal 10 requires cities to inventory lands for residential use and to develop plans that encourage the development of adequate numbers of needed housing units at price ranges and rent levels which are commensurate with the financial capabilities of Oregon households and allow for flexibility of housing location, type and density.

ORS 197.296 provides further requirements for complying with Goal 10. ORS197.296 requires the city to conduct an analysis of housing need by type and density range in accordance with

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[2] The Commission's Remand Order is available on-line at:
http://bendoregon.gov/modules/showdocument.aspx?documentid=5343.

[3] The guidebook is available on-line at
http://www.oregon.gov/LCD/docs/publications/planning_for_residential_growth.pdf.

[4] See OAR 660-0015-0000(10)

ORS 197.303 and statewide planning goals and rules relating to housing. The purpose of this is to determine the amount of land needed for each needed housing type for the next 20 years.

ORS 197.296 requires cities to inventory buildable residential lands and determine the capacity of that land. It requires cities to determine housing capacity and housing need based on: (1) analysis of residential development, (2) trends in residential density and mix, and (3) demographic and economic trends.

ORS 197.296 requires the analysis of housing mix and density to include the past five years or since the most recent periodic review, whichever time period is greater.[5] Bend completed periodic review in 1998. The City had relatively little development over the 2008 to 2014 period, resulting in little change in development densities since 1998. However, the 2007-2009 recession resulted in substantial and long-lasting changes in the housing market, including changes that will affect future housing mix in Bend. As a result, the analysis of housing density is based on analysis of data from 1998 to 2008 but this HNA presents an update the analysis of trends affecting housing mix to include changes in the housing market, demographics, and other factors over the 2008 to 2014 period. These changes will affect Bend's housing market throughout the HNA's planning period.

ORS 197.303 defines needed housing as: single-family detached housing, single-family attached housing, multifamily housing, government assisted housing, and mobile or manufactured homes on lots or in parks.

Appendix B provides the text of key sections of ORS 197.296 and 197.303.

LCDC has adopted an administrative rule at OAR 660-008 to ensure opportunity for the provision of adequate numbers of needed housing units, the efficient use of buildable land within urban growth boundaries and to provide greater certainty in the development process so as to reduce housing costs[6], This rule is intended to define standards for compliance with Goal 10 and to implement ORS 197.303 through 197.307.

Key definitions for the Housing Needs Analysis

This section defines key terms used in the HNA: housing need, housing market demand, and affordable housing.

The language of Goal 10 and ORS 197.296 refers to housing *need*: it requires communities to provide needed housing types for households at all income levels. Put another way, a city's comprehensive plan must show that an adequate supply of land has been planned and zoned for all types of needed housing. Goal 10's broad definition of need covers all households—from those with no home to those with second homes. State policy does not make a clear distinction between need and demand. Following is the definition commonly used in housing needs analysis, which is consistent with definitions in state policy:

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[5] Specifically, ORS 197.296(5) (b) states: "A local government shall make the determination described in paragraph (a) of this subsection using a shorter time period than the time period described in paragraph (a) of this subsection if the local government finds that the shorter time period will provide more accurate and reliable data related to housing capacity and need. The shorter time period may not be less than three years."

[6] See OAR 660-008-0000, Purpose

- *Housing need* can be defined broadly or narrowly. The broad definition is based on the mandate of Goal 10 that requires communities to plan for housing that meets the needs of households at all income levels. Goal 10, though it addresses housing, emphasizes the impacts on the households that need that housing. Since everyone needs shelter, Goal 10 requires that a jurisdiction address, at some level, how every household will be affected by the housing market over a 20-year period. Public agencies that provide housing assistance (primarily the Department of Housing and Urban Development – HUD, and the Oregon Housing and Community Services Department - HCS) define housing need more narrowly. For them, households in need do not include most of the households that can purchase or rent housing at an "affordable" price, consistent with the requirements of their household characteristics. Households that cannot find and afford such housing have need: they are either unhoused, in housing of substandard condition, overcrowded, or spending more of their monthly income on housing than their income and federal standards say they can afford.
- *Housing market demand* is what households demonstrate they are willing to purchase in the market place. Growth in population means growth in the number of households and implies an increase in demand for housing units. That demand is met, to the extent it is, primarily by the construction of new housing units by the private sector based on its judgments about the types of housing that will be absorbed by the market. ORS 197.296 includes a market demand component: buildable land needs analyses must consider the density and mix of housing developed over the previous five years or since their most recent periodic review, whichever is greater. In concept, what got built in that period was the effective demand for new housing: it is the local equilibrium of demand factors, supply factors, and price.

In short, a housing needs analysis should make a distinction between housing that people might need (a normative, social judgment) and what the market will produce (an observable outcome).

Another term using in the housing needs analysis is "affordable housing." The terms "affordable" and "low-income" housing are often used interchangeably. These terms, however, have different meanings:

- *Affordable housing* refers to a household's ability to find housing within its financial means. This term does not refer to either the development or the occupancy of housing through a public subsidy. A number of indicators exist that can be used to determine whether housing is affordable. One indicator is cost burden: households that spend more than 30% of their income on housing and certain utilities are considered to experience cost burden.[7] Any household that pays more than 30% experiences cost burden and does not have affordable housing. Thus, affordable housing applies to all households in the community.

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[7] Cost burden is a concept used by HUD. Utilities included with housing cost include electricity, gas, and water, but do not include telephone expenses. All of the indicators ECO has reviewed, including cost burden, have limitations that can distort results. Cost burden does not consider the impact of household size or accumulated assets. As a result a single-person household with an annual income of $20,000 and accumulated assets of $500,000 would be in the same category as a family of seven with an annual income of $20,000 and no accumulated assets.

- *Low-income housing* refers to housing for "low-income" households. HUD considers a household low-income if it earns 80% or less of median family income. In short, low-income housing is targeted at households that earn 80% or less of median family income, which equated to an annual household income of $47,760 or less in 2013. Low-income households may include those that need some type of financial assistance to close the gap between what they can afford to spend on housing and the prices of housing available in the market.
- *Workforce housing* generally refers to housing that is affordable to households that earn between 60% and 120% of the median family income, which was an annual household income of between $35,800 and $71,640 in 2013.

Steps in the Housing Needs Analysis

The methodology used in the HNA is consistent with the DLCD guidebook, "Planning for Residential Growth," that outlined what steps to perform to complete a housing needs analysis that satisfies state law.[8] These six steps are:

Step 1 – Project the number of new housing units needed in the next 20 years,

Step 2 – Identify relevant national, state, and local demographic and economic trends and factors that may affect the 20-year projection of structure type mix.

Step 3 – Describe the demographic characteristics of the population, and, if possible, household trends that relate to demand for different types of housing.

Step 4 – Determine the types of housing that are likely to be affordable to the projected households based on household income.

Step 5 – Estimate the number of additional needed units by structure type.

Step 6 – Determine the needed density ranges for each plan designation and the average needed net density for all structure types.

To summarize, the City is required to consider its needs for future housing based on type and density over a 20-year planning period. This analysis of housing must examine current and future demographic and economic trends that will influence the types of housing produced and purchased or rented, In addition, this analysis must consider the types of housing needed at various price ranges and rent levels. One of the final steps in this process is an estimate of the number of additional units that will be needed by structure type. Once the City has done this, the City must show that an adequate supply of land for needed housing has been or will be planned and zoned within the existing UGB, and if necessary any area added through an expansion, to demonstrate that the General Plan satisfies Goal 10.

The housing needs analysis is organized by these steps. The next section of the report presents residential development trends, which forms the basis for the housing needs analysis.

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[8] See pages 25 through 33, Planning for Residential Growth: A Workbook for Oregon's Urban Areas, Transportation and Growth Management Program, Lane Council of Governments, and ECO-Northwest (1997) -: http://www.oregon.gov/LCD/docs/publications/planning_for_residential_growth.pdf.

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Prior Housing Needs Analyses and Remand Issues

The purpose of this section is to provide a brief review of the city's past work on completing a housing needs analysis consistent with Goal 10. The City provided this information to the Department of Land Conservation and Development (DLCD) and LCDC in January of 2010 as a component of the City's Appeal of the Director's January 8, 2010 Order and Report on the City's Proposed UGB Expansion.

In 2005, the City completed a buildable lands inventory (2005 BLI) (Supp. Rec. 1987) and a housing needs analysis (2005 HNA) (Rec. 2046). The City followed DLCD's Goal 10 guidebook to develop both products. After further work with a technical advisory committee (TAC), the City updated the 2005 HNA in April 2006 (Supp. Rec. 2157).

In 2007, consultant Angelo Planning Group (APG) prepared a final report that presented land need estimates for housing, schools, parks, and institutional uses (Rec. 2137). This 2007 report also presented a series of forecasts for residential land needs, following Oregon Revised Statutes (ORS) 197.296 and DLCD's Goal 10 workbook. Another consultant, Cogan Owens, prepared a draft General Plan housing element that, along with the 2007 APG land need report, were submitted to DLCD with a 45-day notice on June 11, 2007. (Supp. Rec. 1587, 1789.) Following the initial public hearings in July and August of 2007, the City, working in public work sessions of the Bend Planning Commission and with liaisons of the Deschutes County Planning Commission, reviewed and amended the proposed elements of the UGB expansion, including the work that supported the housing element.

From September 2007 through October 2008, the Bend Planning Commission held 35 public work sessions on the UGB expansion. Through these work sessions, which included extensive public input, the City revised its draft buildable lands inventory, housing needs analysis, and residential land need estimate. This work resulted in 2008 versions of the buildable lands inventory, housing needs analysis (Rec. 1280, 1728), and residential land needs analysis that were incorporated in the 2008 version of the housing element submitted to DLCD in 2009.

On November 2, 2010, LCDC issued its final order of remand and partial acknowledgement on the UGB expansion and its components. The final order was not appealed, and became final in January 2011. With respect to the HNA adopted as part of the UGB expansion, the Commission's order remands the city's decision for it to revise its findings and chapter 5 of its comprehensive plan consistent with a detailed analysis contained in the order.[9] That analysis is based on the January 2010 Director's Report and Order which specifies those tasks the City must complete, described in Appendix B.

Time Periods and Data used in the Housing Needs Analysis

This housing needs analysis uses three periods of time for historical analysis and for the forecast of housing need:

- **Planning Period**, ORS 197.296(2) further requires the City to ensure a 20-year supply of buildable land for needed housing. The statute stats that the 20-year period shall

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[9] See Remand and Partial Acknowledgment Order ACKNOW-001795, LCDC, November 2, 2010, Sub-Issue 2.3, p. 33.

commence on the date initially scheduled for completion of the legislative review. For this HNA, the 20-year period begins in 2008 and ends in 2028.

- **Trend Period**, ORS 197.296(3)(b) requires the HNA to be based on data relating to land within the City's UGB that has been collected since the last periodic review or five years, whichever is greater. In Bend's situation, the last periodic review ended in 1998 with the adoption of the City of Bend Comprehensive Plan. This HNA relies on data collected from 1998 to 2008.

- **Extended Trend Period**. The HNA was originally developed with data available up to 2008. This HNA extends the trend data to include data available between 2008 and 2013. This additional data provides information about changes in Bend's housing market since 2008.

This analysis uses data from multiple well-recognized and reliable data sources. One of the key sources for data about housing and household data is the U.S. Census. This report primarily uses data from two Census sources:

- The **Decennial Census**, which is completed every ten years and is a survey of all households in the U.S. The Decennial Census is considered the best available data for information such as demographics (e.g., number of people, age distribution, or ethnic or racial composition); household characteristics (e.g., household size and composition); and housing occupancy characteristics. As of the 2010 Decennial Census, it does not collect more detailed household information, such as income, housing costs, housing characteristics, and other important household information. The HNA uses Decennial Census data from 1990, 2000, and 2010.

- The **American Community Survey (ACS)**, which is completed every year and is a sample of households in the U.S. The ACS collects detailed information about households, such as demographics (e.g., number of people, age distribution, ethnic or racial composition, country of origin, language spoken at home, and educational attainment); household characteristics (e.g., household size and composition); housing characteristics (e.g., type of housing unit, year unit built, or number of bedrooms); housing costs (e.g., rent, mortgage, utility, and insurance); housing value; income; and other characteristics. This report uses three types of data from the 2013 ACS: (1) one-year ACS data for 2013, (2) three-year ACS data for 2011-2013, and (3) five-year ACS data for 2009-2013. In some cases, one-year data from the 2013 ACS is not available in Bend (as a result of sampling and statistical reasons). In those instances, this report uses 3-year estimates for 2011-2013 data or 5-year estimates for 2009-2013 for Bend.

The housing needs analysis incorporates key information from the 2008 adopted Housing Needs Analysis, such as the forecast of new housing for the 2008-2028 period. This analysis addresses the issues identified in the 2008 Housing Needs Analysis, described in Appendix B.

CHAPTER 2. HISTORICAL AND RECENT DEVELOPMENT TRENDS

Analysis of historical development trends in Bend provides insights into how the local housing market functions. The housing type mix and density are also key variables in forecasting future land need. Moreover, such an analysis is required by ORS 197.296. The specific steps are described in Task 2 of the Transportation Growth Management's *Planning for Residential Lands* Workbook:

1. Determine the time period for which the data must be gathered
2. Identify types of housing to address (all needed housing types)
3. Evaluate permit/subdivision data to calculate the actual mix, average actual gross density, and average actual net density of all housing types

ORS 197.296 requires the analysis of housing mix and density to include the past five years or since the most recent periodic review, whichever time period is greater.[10] Bend's last periodic review was completed in 1998. The period used in the analysis of housing mix is 1999 to 2013, to account for trends in housing mix beyond 2008. The period used in the analysis of housing density was 1999 to 2008, from the adopted 2008 housing needs analysis.

The HNA presents information about residential development by housing types. There are multiple ways that housing types could be grouped. For example, housing types could be grouped by:

1. Structure type (e.g., single-family detached, apartments, etc.)

2. Tenure (e.g., distinguishing unit type by owner or renter units)

3. Housing affordability (e.g., units affordable at given income levels)

4. Some combination of these categories

LCDC's November 2010 order identifies the types of housing the City must consider through this housing needs analysis. The Commission's disposition of this matter was based, in part, on ORS 197.303(3)(a), which identifies "needed housing:"

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[10] Specifically, ORS 197.296(5) (b) states: "A local government shall make the determination described in paragraph (a) of this subsection using a shorter time period than the time period described in paragraph (a) of this subsection if the local government finds that the shorter time period will provide more accurate and reliable data related to housing capacity and need. The shorter time period may not be less than three years."

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(a) Housing that includes, but is not limited to, attached and detached single-family housing and multiple family housing for both owner and renter occupancy;

(b) Government assisted housing;

(c) Mobile home or manufactured dwelling parks as provided in ORS 197.475 to 197.490; and

(d) Manufactured homes on individual lots planned and zoned for single-family residential use that are in addition to lots within designated manufactured dwelling subdivisions.

The Commission's rules further define the three types of housing that must be considered in the housing needs analysis. The following table lists these three types of housing and how they are classified under the Bend Development Code.

Table 2. Comparison of OAR 660, Division 8 Definitions with Types of Housing Allowed under the Bend Development Code

OAR 660-008-005, Definitions	Bend Development Code (See BDC Chapter 1.2)
"Attached Single Family Housing" means common-wall dwellings or rowhouses where each dwelling unit occupies a separate lot. OAR 660-008-0005(1).	Dwelling, single family attached
"Detached Single Family Housing" means a housing unit that is free standing and separate from other housing units. OAR 660-008-0005(3).	Courtyard housing Dwelling, single family detached Accessory dwelling units Manufactured home on individual lot Manufactured homes in parks
"Multiple Family Housing" means attached housing where each dwelling unit is not located on a separate lot. OAR 660-008-0005(5).	Condominium Two and three family housing (duplex and triplex) Multi-family housing (more than 3 units)

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Residential Development Trends

Trends in Housing Mix

Housing mix is the mixture of housing (structure) types (e.g., single-family detached, single-family attached, or multi-family housing) within a city. This section presents data on the distribution of housing by type, or the number of units in each structure. The purpose for considering this data is to see whether the distribution of housing has changed, thereby reflecting different housing choices among Bend households. Figure 1 shows changes in units by structure type from 1990 to 2013 in Bend. Since 1990:

- The supply of housing units in Bend grew by 150% (about 13,500 units) between 1990 and 2000 because of housing construction and annexation. Growth of housing between 2000 and 2013 (nearly 11,700 units) was primarily the result of new construction; no additional units were added through annexation.

- The distribution of units by type did not change significantly over the 23 year period; single family detached dwellings represented 71% to 77% of the supply of housing units.

- Single family attached units increased slightly from 3% to 4% of the housing units.

- Multi-family attached units (all other units), decreased slightly, from 26% to 25%, of all units. Between 2000 and 2013, more than 4,000 multi-family dwellings were built in Bend. As of July 2015, more than 1,300 multifamily units were in the permitting process (not shown in Figure 2).

Figure 1. Mix of Housing and Number of Dwelling Units by Housing Type, Bend, 1990, 2000, and 2013
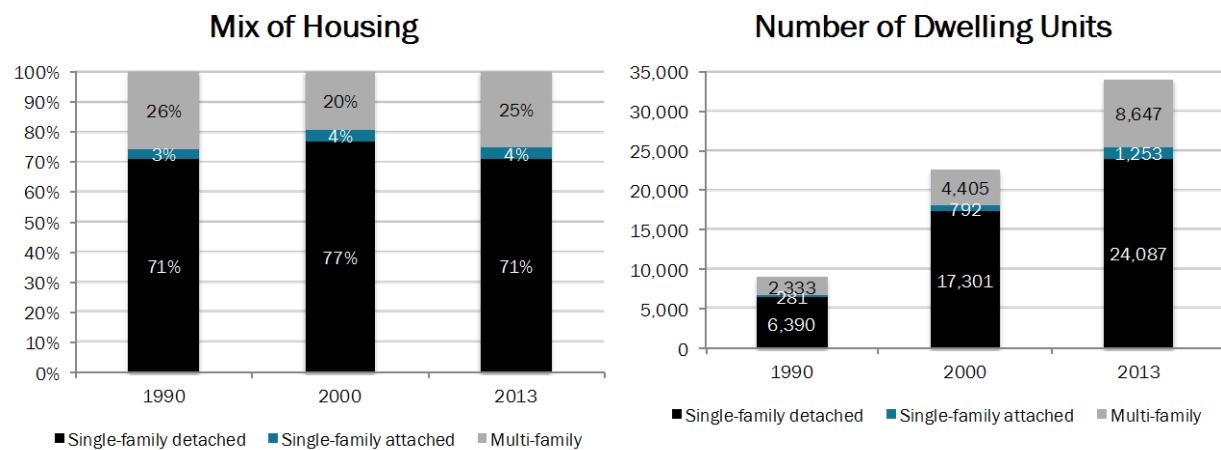
Source: 1990 and 2000 Census SF3, 2013 American Community Survey 1-Year Estimates

Figure 2 shows the mix of housing by unit type (for all housing units in the housing stock) at the national, state, and local levels in 2013. About 71% of Bend's housing was single-family-detached, compared to the state average of 72% and the national average of 68%.

Figure 2. Mix of Housing by Type for all Dwelling Units, US, Oregon, Deschutes Co. and Bend, 2013

Source: 2013 American Community Survey 1-Year Estimates

13314
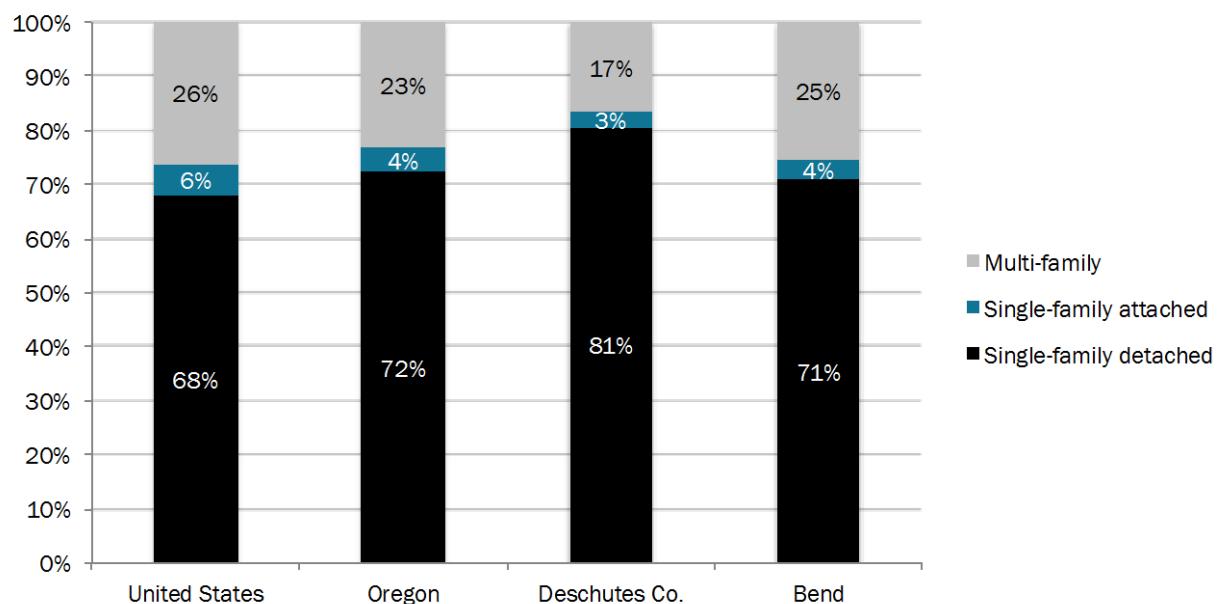
Building permit activity

Figure 3 shows total number of dwelling units permitted for housing of all types in Bend between 1999 and 2013. The data show growth of building permit activity between 2001 and 2005 and a significant decline in residential development activity between 2006 and 2009, which corresponds with the national growth and decline of the housing market bubble. Development has steadily increased since 2009 to a total of 907 permits issued for 2013 and 512 permits issued through the first six months of 2014.

Figure 3. Total Permits Issued for New Residential Development (in dwelling units) by Year, 1999 through July 2014, Bend

Source: City of Bend building permit data; analysis by ECONorthwest

13315
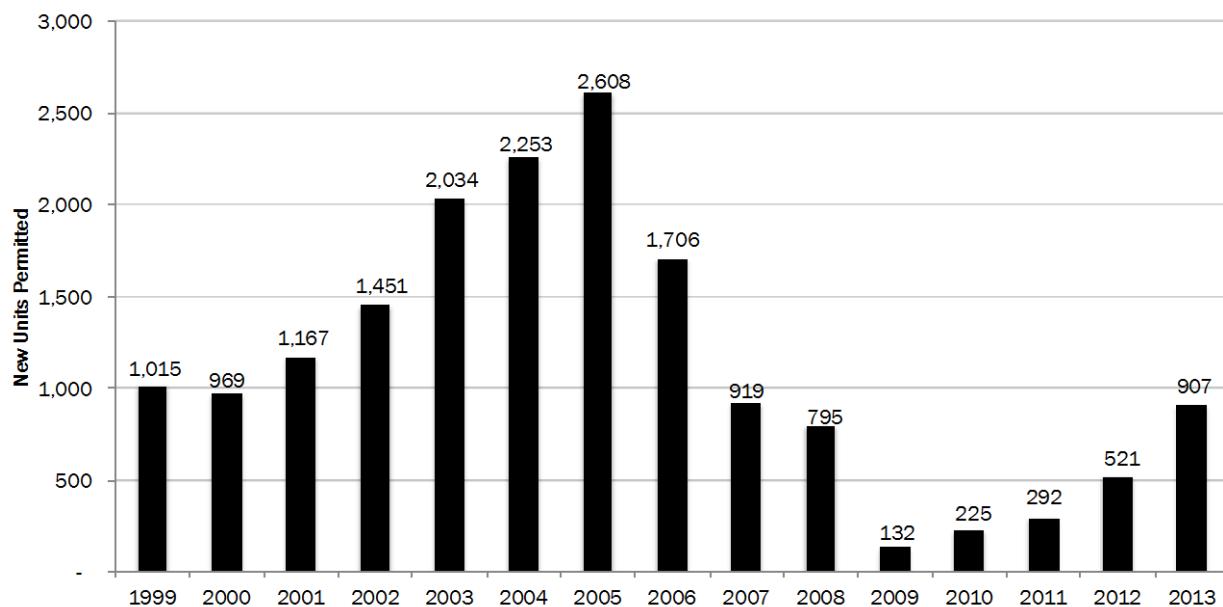
Figure 4. Total Permits Issued by Type of Unit for New Residential Development (in dwelling units) by Year, 1999 through July 2014, Bend
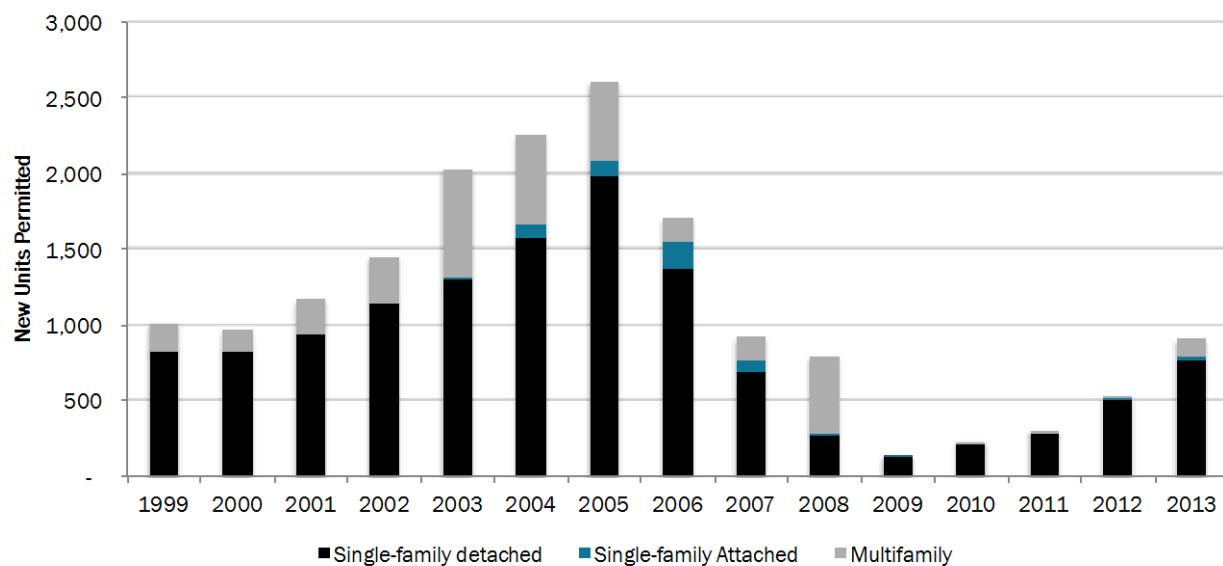
Source: City of Bend building permit data; analysis by ECONorthwest

Table 3 shows new dwellings permitted in Bend for the January 1999 and June 2008, between July 2008 and 2008 through 2013 periods by housing type. The data shows that the majority (about 3/4) of housing development in Bend during these periods was single-family detached housing.

Table 3. Total Permits Issued for New Residential Development (in dwelling units) by Housing Type and Year, 1999 through July 2014, Bend

Housing Type	1999-June 2008		July 2008-June 2014		Total Units		Annual Average (1999-July 2014)	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Single-family detached	10,875	77%	2,411	83%	13,286	78%	949	78%
Single-family Attached	463	3%	112	4%	575	3%	41	3%
Multifamily	2,741	19%	389	13%	3,130	18%	224	18%
Total	14,079	100%	2,912	100%	16,991	100%	1,214	100%

Source: City of Bend building permit data; analysis by ECONorthwest

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Between January 2014 and December 2015, the City issued permits for 2,330 additional units, 66% of which were single-family detached. During this 2 year period, the City issued building permits for 565 multifamily units. By April 2016, the City has nearly 1,960 multifamily units either under construction or in the planning and permitting stages, including the multifamily units permitted in 2014 and 2015. If all or most of these units are built, the City will have added in a few years more than half as many multifamily units as the City permitted over the entire 1999 to 2014 period.

Figure 5. Total Permits Issued by Type of Unit for New Residential Development (in dwelling units) by Year, 2014 and 2015, Bend

Source: City of Bend building permit data; analysis by ECONorthwest

13317
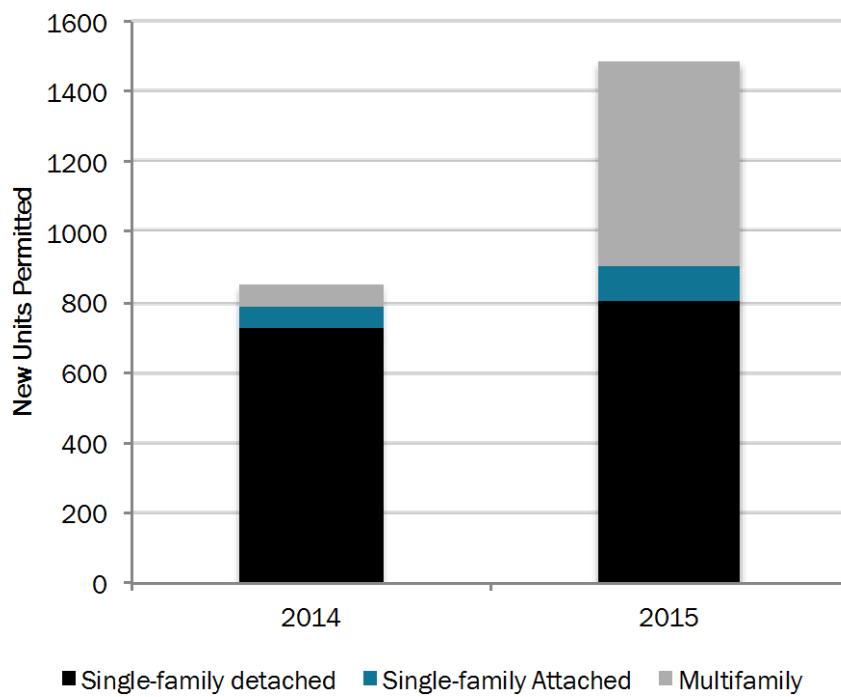
Trends in Tenure

Figure 6 and Figure 7 present data on occupancy and tenure trends for Bend between 1990 and 2013. The data on occupancy presents the numbers of housing units either occupied or vacant. The data on tenure informs the analysis by describing the numbers of units that are either owner-occupied or renter occupied. Please note that the number of units described by tenure are occupied and also describe household choices on whether to purchase or rent housing.

Figure 6 shows that homeownership rates increased from 1990 to 2000 (from 54% to 63%) but returned to roughly 1990 levels by 2013 (55%).

Figure 6. Occupied Housing and Number of Occupied Dwellings by Tenure, Bend, 1990, 2000, and 2013
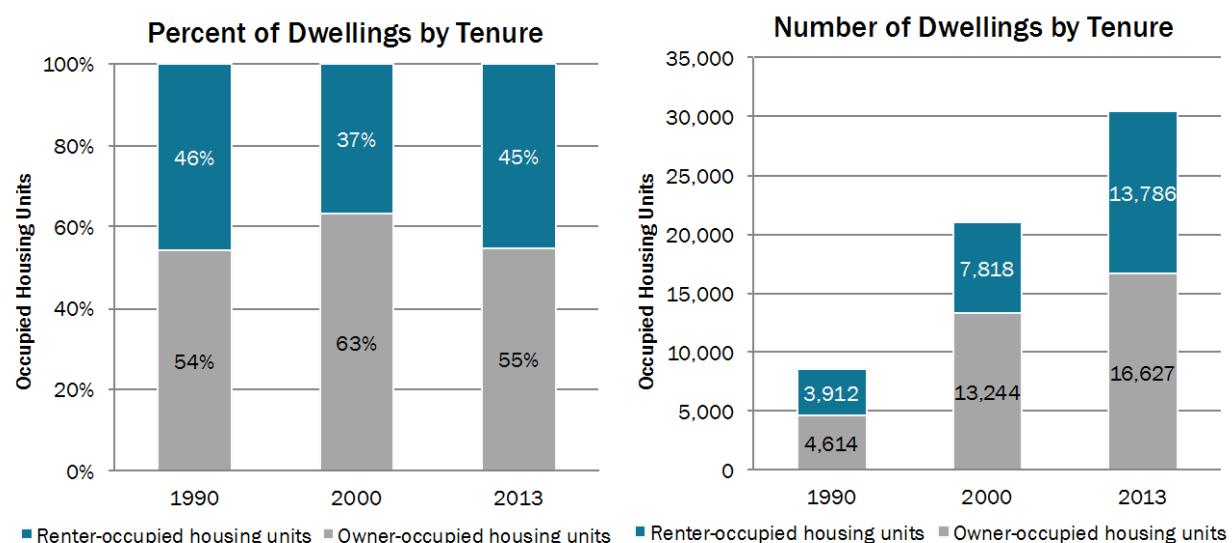
Source: 1990 and 2000 Census SF3, 2013 American Community Survey 1-Year Estimates

Figure 7 presents data on tenure by housing type for 2000 and 2011-2013.[11]

- The number of dwelling units of all types and tenure increased between 2000 and 2011-2013.

- Nearly all owner-occupied housing was and remains in single-family detached housing types, with a 1% increase in the percentage of owner-occupied single-family attached housing between 2000 and 2011-2013.

- The number and percentage of single-family detached units that were renter-occupied increased over this period, with single-family detached units accounting for 41% of rent-occupied units in 2000 and 48% in 2011-2013. This change may, in part, be the continued effects of the recent recession and housing market downturn, where some single-family detached units that were foreclosed on were used for rental units.

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[11] This figure presents data from the American Community Survey for the 2011 to 2013 period, known as a 3-year estimate from the American Community Survey, because data was not available in Bend for a 1-year estimate for 2013.

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Compared to other Oregon cities, Bend has a relatively large percentage of rental housing that is single-family detached housing. In 2011-2013, single-family detached housing accounted for the following percentages of rental housing: 26% in Portland, 29% in Eugene, 32% in Salem, and 40% in Medford.

Figure 7. Occupied Units by Tenure and Type, Bend, 2000 and 2011-2013

Source: 2000 Census SF3, 2013 American Community Survey 3-Year Estimates

13319
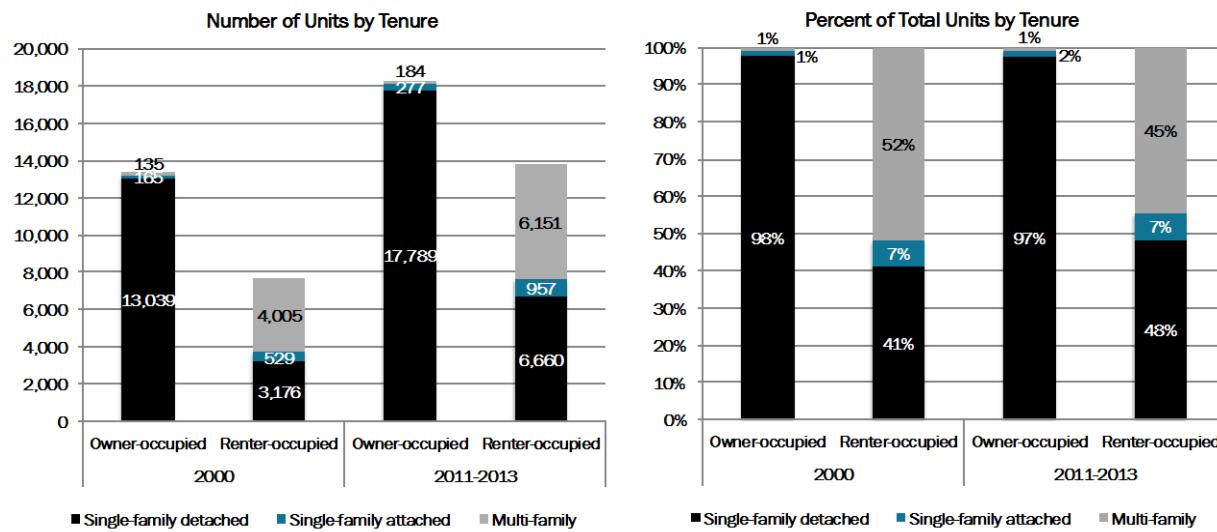
Vacancy Rates

Vacancy rates are cyclical and represent the lag between housing demand and the market's response to that demand by producing additional dwelling units. Figure 8 shows that housing vacancies were about 5% in 1990 and 6% in 2000. In 2013, Bend vacancies were 11%. While vacancy rates were relatively high in 2013 when compared to 1990 and 2013, it is reasonable to expect Bend's vacancy rates to decrease to historical averages (e.g., 5%) with changes in the housing market. In 2015, a survey of rental properties showed that rental vacancy rates were below 2% in Bend, demonstrating a sharp decrease in vacancy rates in Bend since 2013.[12] [13] By 2016, anecdotal evidence suggests that vacancy rates continue to be extremely low, below 1%.

Figure 8. Percentage and Number of Units by Occupancy, Bend, 1990, 2000, and 2013
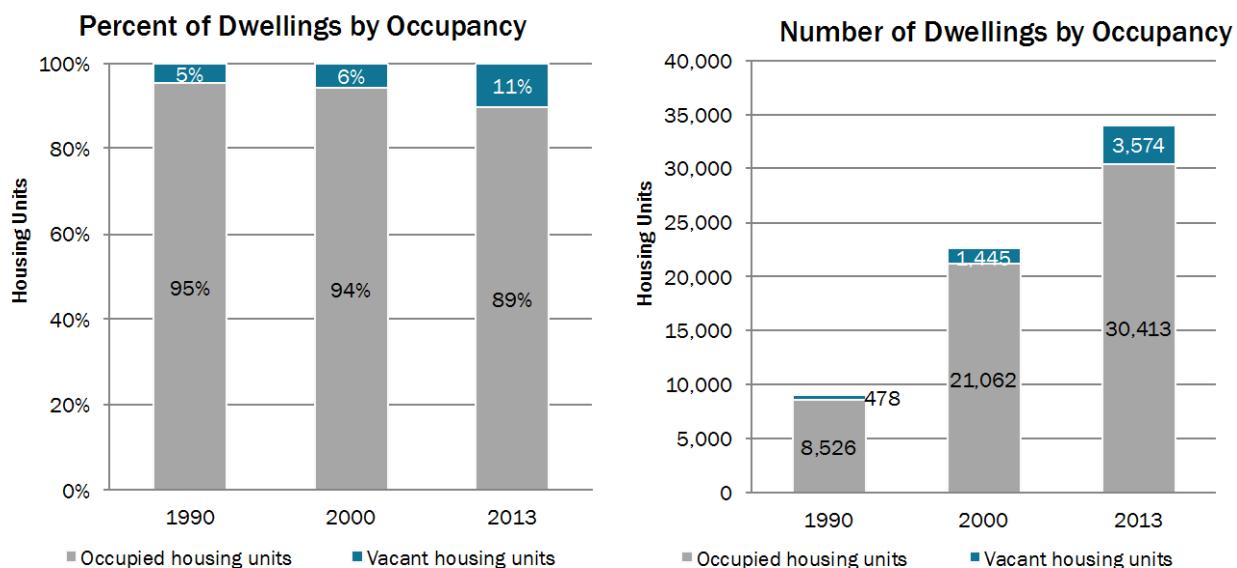
Source: 1990 and 2000 Census SF3, 2013 American Community Survey 1-Year Estimates

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[12] Article in the Bend Bulletin; Survey of rental properties by the Central Oregon Rental Owners Association http://www.bendbulletin.com/business/3176538-151/apartment-complex-slated-for-bend

[13] The residential vacancy rate was not a subject questioned in the Remand. As a result, this analysis uses the vacancy rate from the 2008 HNA. The additional information presented in this section simply shows that assuming a 6% vacancy rate is reasonable, given changes in vacancy rate between 2008 and 2015.

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Residential Development Densities

Table 4 shows allowed densities by zone in Bend by gross and net acres[14]. OAR 660-024-0010(6) defines Net Buildable Acres as follows: "Net Buildable Acre" consists of 43,560 square feet of residentially designated buildable land after excluding future rights-of-way for streets and roads.

Table 4. Range of Allowed Densities, Dwelling Units per Acre, Bend

Density	Low Density Residential (RL)	Standard Density Residential (RS)	Medium Density Residential (RM)	High Density Residential (RH)
Dwelling Units per Gross Acres	1.1 - 2.2	2.0 - 7.3	7.3 - 21.7	21.7 - 43.0
Dwelling Units per Net Acres	1.4 - 2.8	2.5 - 9.1	9.1 - 23.9	23.9 - 47.3

Source: City of Bend
Note: The net densities shown in Table 4 are an approximation based on gross densities, accounting for land needed for rights of way. Bend's development code only regulates density based on gross densities.

Table 5 shows historical development trends in residential zones for three periods: (1) units built before 1998, (2) units built during the 1998-2008 period, and (3) all units in Bend by 2008. Table 5 shows that average net densities increased over time in most zones. Note that Bend adopted minimum densities for each zone for the first time in 2006.

- **Single-family detached densities.**
  - The overall density in the low-density RL zone remained around 2.1 units/net acre (the RL zone contains less than 10% of total housing units).
  - Density in the RS, RM, and RH zones increased from the pre-1998 period to 2008.
  - The majority of housing built in Bend was single-family detached, most of which was developed in the RS zone. Average net densities in the RS zone increased from 3.1 units/acre overall as of 1998 to 3.8 units/acre as of 2008.
  - The average density for single-family detached units increased by 24%, from 2.9 units/net acre as of 1998 to 3.6 units/net acre by 2008.

- **Single-family attached densities.**
  - Single-family attached units were relatively new to Bend's housing inventory, Only 48 units (less than 1% of total housing units) existed prior to 1998. During 1998-2008 they made up 9.5% (610) of total new housing units permitted. Most of those (71%) were built in the RS zone, with the rest built in the RM zone.
  - Table 5 shows that the average net density for single-family attached units built in the RS zone during 1998-2008 was 71% above the overall average for that

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[14] The net densities shown in Table 4 are an approximation based on gross densities, accounting for land needed for rights of way. Bend's development code only regulates density based on gross densities.

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type existing prior to 1998. Overall, the average density of single-family attached units in all zones increased from 7.8 units/net acre prior to 1998 to 9.4 units/net acre in 2008.

- o The average density for single-family attached units across all zones was 21% higher for units built over the 1998-2008 period than for those existing in 1998.

- **Multi-family densities.**

  - o The average net density for multi-family units in the RM zone held steady at 16.6 units/net acre from 1998 to 2008, and decreased slightly in the RH zone from 20.9 to 18.8 units/net acre.

  - o At the same time, multi-family density in the RS zone (consisting primarily of duplex units) increased from 9.7 to 11.3 units per net acre during that period.[15]

  - o The average density for multi-family attached units across all zones increased by 2% from 15.5 units/net acre before 1998 to 15.8 units/net acre as of 2008.

- **All housing types and zones.**

  - o The average net density for development in the 1998 to 2008 period was 5.7 dwelling units per net acre.

  - o The average density for the 1998-2008 period for all housing types in the RH zone is lower than the current allowed density in the RH zone, based on the minimum densities implemented in 2006.

Table 5. Historical Average Net Density by Zone, Dwelling Units per Net Acre, Bend

	RL			RS			RM			RH			All Res. Zones		
	Pre-1998	1998-2008	2008	Pre-1998	1998-2008	2008	Pre-1998	1998-2008	2008	Pre-1998	1998-2008	2008	Pre-1998	1998-2008	2008
Single-family detached	2.0	2.1	2.0	3.1	4.6	3.8	4.7	8.6	5.6	6.6	13.4	7.2	2.9	4.7	3.6
Single-family attached	-	-	-	5.1	8.7	8.4	21.5	12.5	13.1	-	-	-	7.8	9.5	9.4
Multi-family attached	8.8	-	8.8	9.7	14.2	11.3	16.6	16.1	16.6	20.9	17.1	18.8	15.5	16.0	15.8
Manufactured homes in parks	2.7	-	2.7	3.4	-	3.4	6.5	-	6.5	-	-	-	4.1	-	4.1
Manufactured homes on lots	2.9	3.1	2.9	3.2	6.6	3.6	5.8	7.0	6.2	-	-	-	3.1	5.1	3.4
Average Density – All Housing Types	2.1	2.1	2.1	3.2	4.9	3.9	8.5	13.4	9.9	14.4	16.9	15.5	3.7	5.7	4.4

Source: City of Bend memorandum: "Bend Buildable Lands Inventory – Sub-Issue 2.2" revised January 9, 2014

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[15] This density of development for duplexes exceeds the maximum density of the RS Zone.

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Summary of Key Findings about Historical Residential Development in Bend

The majority of housing in Bend is single-family detached housing.

- The mix of housing stock in Bend was relatively consistent over the past two decades, with about 70% of Bend's housing stock in single-family detached housing in 1990 and in 2013.

Building activity has varied substantially over the 1999 to 2013 period.

- Bend permitted an average of about 1,200 units per year between 1999 and 2014, the majority of which were single-family detached units.

- Building permit activity peaked in 2005 with 2,600 units permitted. In 2009 to 2011, fewer than 300 units were permitted per year. The number of units permitted exceeded 900 in 2013, showing that development activity in Bend is returning to historical levels.

- More than three-quarters of units permitted between 1999 and 2013 were single-family detached units.

- Permits issued for multi-family housing averaged about 225 units per year, peaking in number in 2003. Between 2009 and 2012, very few multi-family units were permitted. Between 2010 and 2012, the only multi-family attached units permitted in Bend were duplexes.

Bend's housing tenure remained stable between 1990 and 2013.

- About 55% of dwellings were owner-occupied in 1990 and 2013.

- Nearly all owner-occupied units were single-family detached housing, with a small number of owner-occupied single-family attached and multi-family units.

- Renter-occupied units were generally divided among single-family detached and multi-family, with single-family attached units accounting for about 7% of renter-occupied units.

Housing density generally increased for housing built between 1998 and 2008, compared to housing built before 1998.

- Single-family detached densities in the RS, RM, and RH zones increased, with densities in the RL remaining flat.

- Multi-family densities increased in the RS zone and decreased slightly in the RM and RH zones.

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CHAPTER 3. HOUSING NEEDS ANALYSIS

Step 1 – Project the number of new housing units needed in the next 20 years

The first step in the HNA process is to forecast the number of housing units that will be needed to house the projected population growth over the planning period. In 2008, the City developed and relied on a 2028 population forecast for Bend of 115,063, reflecting an increase in population of 38,512 people between 2008 and 2028.[16] The January 2010 DLCD Director's Report and Order on the UGB Expansion concluded that the forecast complied with applicable law.[17] The 2028 population forecast for Bend was prepared using the 2004 Coordinated Population Forecast for Bend as a base. The Coordinated Population Forecast for Bend is 109,389 people by 2025.[18] Staff extended the forecast out another three (3) years to 2028 using the same growth rate used to forecast population beyond 2025 in the Housing Needs Analysis.[19]

The City relied on this 2028 population forecast to develop a housing unit forecast for Bend from 2008 to 2028.

The forecast of housing units is based on data from the 2000 Census results for Bend.[20] The steps in the forecast are:[21]

- Determine the amount of new population growth by subtracting Bend's population in 2008 (76,551 people) from the 2028 population forecast (115,063 people). The result shows that Bend's population will grow by 38,512 between 2008 and 2028.

- Remove population in group quarters (2.3% or 886 people) to determine the amount of new population in households (37,626 people) over 2008 and 2028.

- Identify the number of new occupied housing units by dividing the population by average household size (2.4 persons per household), which results in growth of 15,678 new households and new occupied housing units in Bend between 2008 and 2028.

- Account for vacant units, with a vacancy rate of 6.4%, which results in 1,003 more housing units, the vacancy rate in Bend in 2000 (Figure 8).

The DLCD Director also concluded that the housing unit forecast of 16,681 new units between 2008 and 2028 complied with the applicable law in his January 2010 Report and Order.[22] Table 6 presents the 2008 to 2028 housing unit forecast for the City of Bend.

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[16] See September 2, 2011 memorandum to the Remand Task Force, presented at the RTF's September 8, 2011 meeting.

[17] See page 25 of 156, January 8, 2010 Director's Report and Order

[18] See Exhibit L-2, Deschutes County Coordinated Population Forecast 2000-2025 (2004) to 45-Day notice

[19] See Exhibit L-3, City of Bend Housing Needs Analysis (2005) to 45-day notice, pages 7-8.

[20] See the 2000 Demographic profile for Bend at: http://censtats.census.gov/data/OR/1604105800.pdf.

[21] These steps are consistent with the Residential Land Needs 2005-2030 Memorandum (April 25, 2007); Table 3, Page 5.

Table 6. Housing Unit Forecast, 2008 to 2028

Variable	Housing Need 2008-2028
Population forecast for 2028	115,063
(-) Less Population on 7/1/08	76,551
(=) New population 2008 to 2028	38,512
(-) Less population in group quarters (2.3%)	886
(=) New population in households	37,626
(/) Divided by household size (2.4)	
(=) Equals new occupied housing units	15,678
(+) Plus vacancy factor (6.4%)	1,003
= New housing units 2008 to 2028	16,681

Between 2009 and the end of July 2014, Bend issued building permits for 2,912 new dwelling units, shown in Table 3. As a result, **the number of additional units that Bend will need to accommodate over the 2014-2028 period is 13,770 units.**

Summary of Key Findings about Needed Housing Units

Step 1 of the housing needs analysis shows that:

- Bend is projected to grow by 16,681 dwelling units over the 2008 to 2028 period.

- Bend issued building permits for 2,912 units between 2009 and July 2014.

- Bend will need to accommodate an additional 13,770 units over the 2014 to 2028 period.

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Step 2 – Identify relevant national, state, and local demographic and economic trends and factors that may affect the 20-year projection of structure type mix

ORS 197.296(5) requires communities to examine demographic and economic trends that will inform the city's analysis of what types of housing will be needed in the future. This section presents an examination of relevant national, state, and local demographic and economic trends and factors that may affect the 20-year projection of the types and mix of housing.[23] The analysis of trends focuses on the period following the acknowledgement of the 1998 City of Bend Comprehensive Plan to 2013. For many variables, this analysis will include data from 1998 or 1999 to 2013; for others, two periods will be presented to look at trends. These periods will include 1990 to 2000, between the two Censuses, and from 2000 to 2013. For 2013, the City is relying on data collected about the State of Oregon and Bend from the American Community Survey.[24] In addition, this analysis incorporates previous work from the 2005 Housing Needs Analysis and the 2007 Residential Land Need Analysis.[25] Most of this data and background was shared with the Residential technical advisory committee (TAC) during their August 5, 2014 meeting.[26]

National Housing Market Trends

This section briefly summarizes national housing trends and builds on previous work by ECONorthwest, Urban Land Institute (ULI) reports, and conclusions from *The State of the Nation's Housing, 2014* report from the Joint Center for Housing Studies of Harvard University. The Harvard report summarizes the national housing outlook as follows:

> "With promising increases in home construction, sales, and prices, the housing market gained steam in early 2013. But when interest rates notched up at mid-year, momentum slowed. This moderation is likely to persist until job growth manages to lift household incomes. Even amid a broader recovery, though, many hard-hit communities still struggle and millions of households continue to pay excessive shares of income for housing."

Several challenges to a strong domestic housing market remain. Demand for housing is closely tied to jobs and incomes, which are taking longer to recover than in previous cycles. While trending downward, the number of underwater homeowners, delinquent loans, and vacancies remains high. *The State of the Nation's Housing* report projects that it will take several years for market conditions to return to normal and, until then, the housing recovery will likely unfold at a moderate pace.

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[23] See September 2, 2011 memorandum to the UGB Remand Task Force, presented at their September 8, 2011 meeting.

[24] For more information about the American Community Survey (ACS), See http://www.census.gov/acs/www/. The ACS data can be accessed from the Census Bureau's American Factfinder website at http://factfinder.census.gov/home/saff/main.html?_lang=en.

[25] See 2005 Housing Needs Analysis at Rec p 2046 and 2007 Residential Land Need Analysis at Rec. P. 2114,

[26] See meeting packet for Residential TAC meeting #1 - http://bendoregon.gov/Modules/ShowDocument.aspx?documentid=17619.

National housing market trends include: [27]

- **Post-recession recovery slows down**. Despite strong growth in the housing market in 2012 and the first half of 2013, by the first quarter of 2014, housing starts and existing home sales were both down by 3% from the same time a year before, while existing home sales were down 7% from the year before. Increases in mortgage interest rates and meager job growth contributed to the stall in the housing market.

- **Continued declines in homeownership**. After 13 successive years of increases, the national homeownership rate declined each year from 2005 to 2013, and is currently at about 65%. The Urban Land Institute projects that homeownership will continue to decline to somewhere in the low 60% range.

- **Housing affordability**. In 2012, more than one-third of American households spent more than 30% of income on housing. Low-income households face an especially dire hurdle to afford housing. Among those earning less than $15,000, more than 80% paid over 30% of their income and almost 70% of households paid more than half of their income. For households earning $15,000 to $29,000, more than 60% were cost burdened, with about 30% paying more than half of their income on housing.

- **Changes in housing characteristics**. National trends show that the size of single-family and multi-family units, and the number of household amenities (e.g., fireplace or two or more bathrooms) has increased since the early 1990s. Between 1990 and 2013 the median size of new single-family dwellings increased 25% nationally from 1,905 square feet to 2,384 square feet and 18% in the western region from 1,985 square feet to 2,359 square feet. Moreover, the percentage of units smaller than 1,400 square feet nationally decreased from 15% in 1999 to 8% in 2013. The percentage of units greater than 3,000 square feet increased from 17% in 1999 to 29% of new one-family homes completed in 2013. In addition to larger homes, a move towards smaller lot sizes is seen nationally. Between 2009 and 2013, the percentage of lots less than 7,000 square feet increased from 26% of lots to 30% of lots. Similarly, in the western region, the share of lots less than 7,000 square feet increased from 43% to 48% of lots.

- **Long-term growth and housing demand**. The Joint Center for Housing Studies forecasts that demand for new homes could total as many as 13.2 million units nationally between 2015 and 2025. Much of the demand will come from Baby Boomers, Millennials,[28] and immigrants.

- **Changes in housing preference**. Housing preference will be affected by changes in demographics, most notably the aging of the Baby Boomers, housing demand from the Millennials, and growth of foreign-born immigrants. Baby Boomers' housing choices will affect housing preference and homeownership, with some boomers likely to stay in their

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[27] These trends are based on information from: (1) The Joint Center for Housing Studies of Harvard University's publication "The State of the Nation's Housing 2013," (2) Urban Land Institute, "2011 Emerging Trends in Real Estate," and (3) the U.S. Census.

[28] Millennials are, broadly speaking, the children of Baby Boomers, born from the early 1980's through the early 2000's.

home as long as they are able and some preferring other housing products, such as multi-family housing or age-restricted housing developments.

In the near-term, Millennials and new immigrants may increase demand for rental units. The long-term housing preference of Millennials and new immigrants is uncertain. They may have different housing preferences as a result of the current housing market turmoil and may prefer smaller, owner-occupied units or rental units. On the other hand, their housing preferences may be similar to the Baby Boomers, with a preference for larger units with more amenities. Recent surveys about housing preference suggest that Millennials want affordable single-family homes in areas that offer transportation alternatives to cars, such as suburbs or small cities with walkable neighborhoods.[29]

State Economic Trends and Cycles

Oregon's *2011-2015 Consolidated Plan* includes a detailed housing needs analysis as well as strategies for addressing housing needs statewide.[30] The plan concludes that, "Oregon's changing population demographics are having a significant impact on its housing market." It identified the following population and demographic trends that influence housing need statewide.

- Oregon's households have higher rates of cost burden, with increases due to higher unemployment and lower wages, when compared to the nation.

- Oregon's foreclosure rates have been at a historical high since 2005, compared with the previous two decades.

- Oregon, like other states, is continuing to loose federal housing subsidies, with losses of about 8% of federally subsidized Section 8 housing units.

- Oregon's communities are losing manufactured housing parks over time, with a 25% decrease in the number of manufactured home parks between 2003 and 2010.

- Oregon's population is increasingly older, more diverse, and, has less affluent households.[31]

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[29] The American Planning Association, "Investing in Place; Two generations' view on the future of communities." 2014. "Survey Says: Home Trends and Buyer Preferences," National Association of Home Builders International Builders Show, accessed January, 2015, http://www.buildersshow.com/Search/isesProgram.aspx?id=17889&fromGSA=1. "Access to Public Transportation a Top Criterion for Millennials When Deciding Where to Live, New Survey Shows," Transportation for America, accessed January 2015, http://t4america.org/wp-content/uploads/2014/04/Press-Release_Millennials-Survey-Results-FINAL-with-embargo.pdf.

[30] http://www.ohcs.oregon.gov/OHCS/HRS_Consolidated_Plan_5yearplan.shtml

[31] State of Oregon *Consolidated Plan 2011 to 2015*. http://www.oregon.gov/ohcs/hd/hrs/consplan/2011_2015_consolidated_plan.pdf

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Step 3 – Describe the demographic characteristics of the population, and, if possible, household trends that relate to demand for different types of housing[32]

Regional and local demographic trends largely follow the statewide trends and provide additional insight into how demographic trends might affect housing in Bend. National and state demographic trends that might affect the key assumptions used in the baseline analysis of housing need are: (1) the aging population, (2) changes in household size and composition, and (3) increases in diversity. This section describes how those trends are playing out at the local level. Most of this data and background was shared with the Residential technical advisory committee (TAC) during their August 5, 2014 meeting[33].

Demographic and socioeconomic factors affecting housing choice

In the context of housing markets, past and current housing conditions demonstrate *the intersection of the forces of housing supply and demand at a price of housing.* Housing demand is derived from the characteristics of households that create or are correlated with *preferences* for different types of housing, and *the ability to pay* (the ability to exercise those preferences in a housing market by purchasing or renting housing; in other words, income or wealth).

One way to forecast housing demand is with detailed analysis of demographic and socioeconomic variables. If one could measure housing demand for each household, one might find that every household has a unique set of preferences for housing. But no city-wide housing analysis can expect to build from the preferences of individual households.[34] Most housing market analyses that get to this level of detail describe *categories* of households on the assumption that households in each category will share characteristics that will make their preferences similar.

The main demographic and socioeconomic variables that may affect housing choice include: age of householder, household composition (e.g., married couple with children or single-person household), size of household, ethnicity, race, household income, or accumulated wealth (e.g., real estate or stocks). The literature about housing markets identify the following household characteristics as those most strongly correlated with housing choice: age of the householder, size of the household, and income:[35]

- **Age of householder** is the age of the person identified (in the Census) as the head of household. Households make different housing choices at different stages of life. For example, a person may choose to live in an apartment when they are just out of high

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[32] The Residential TAC reviewed the information in this section during the August 5, 2014 meeting.

[33] See meeting packet for Residential TAC meeting #1 - http://bendoregon.gov/Modules/ShowDocument.aspx?documentid=17619.

[34] Not only could one not measure the preferences of all existing households (now and in the future); one could not know what specific households would be migrating to the region.

[35] The research in this section is based on numerous articles and sources of information about housing. The memorandum "Demographic Characteristics and Trends that will Affect Housing Demand in Bend for the 2008-2028 period" to the Residential Lands Technical Advisory Committee (July 23, 2014) presents an analysis of our research of the academic literature about the relationship between demographics and housing demand.

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school or college but if they have children, they may choose to live in a single-family detached house.

- **Size of household** is the number of people living in the household. Household size is related to household composition, which describes the age and relationships of people living within the household. Younger and older people are more likely to live in single-person households and people in their middle years are more likely to live in multiple person households (often with children).

- **Income** is the income from all people in the household who have income. Income is probably the most important determinant of housing choice. Income is strongly related to the type of housing a household chooses (e.g., single-family detached, duplex, or a building with more than five units) and to household tenure (e.g., rent or own). A review of census data that analyzes housing types by income in most cities will show that as income increases, households are more likely to choose single-family detached housing types. Consistent with the relationship between income and housing type, higher income households are also more likely to own than rent.

Growing Population

Bend has a rapidly growing population. Population growth figures for Oregon, Deschutes County, and Bend, between 1990 and 2013, are shown in Figure 9.

Deschutes County's 2013 population was an estimated 162,525.

- Between 2000 and 2013, the county's population grew by 53%, or 61,475. Of this growth, net migration accounted for 53,163 in population growth, or 87% of the population growth between 2000 and 2013. In comparison, net migration accounted for 60% of Oregon's growth over the 13-year period.
- Natural increase accounted for 13% of the county's population growth between 2000 and 2013.
- Deschutes County's estimated population growth of 61,475 represents 12% of the state's population growth between 2000 and 2013.

Bend's population has grown significantly since 1990.

- Between 1990 and 2000, Bend's population grew from 20,469 to 52,029, an increase of 31,560 people. About 17,060 of this growth was the result of annexations to the city between 1990 and 1998. Actual population growth accounted for an increase of 14,500 people, representing a 71% increase over the city's 1990 population.
- The city's population grew by 26,251 over between 2000 and 2013. This growth occurred during a period where the City did not annex new housing with population. This new growth in population occurred through natural increase and positive net migration.
- Bend's population grew at an average annual rate of 6.3% over the 1990 to 2013 period, compared to the state average of 1.5%. Bend's average annual growth rate between 2000 and 2013 was 3.5% per year, compared to 1.1% statewide. This growth includes annexations that occurred over the 1990 to 1999 period.

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Figure 9. Population Growth, Oregon, Deschutes County, Bend, 1990 through 2013

	1990	2000	2013	1990 - 2013 Change		
				Change	% Change	Average Annual Growth Rate
Oregon	2,842,321	3,421,399	3,919,020	1,076,699	38%	1.5%
Deschutes County	74,958	115,367	162,525	87,567	117%	3.6%
Bend	20,469	52,029	78,280	57,811	282%	6.3%

Source: Population Research Center, Portland State University

Aging Population

In 2013, the median age in Bend was 36.6, compared to the median of 42.3 in Deschutes County and 39.1 across the State. Figure 10 shows that Bend had a larger share of population between age 20 and 39 than either the county or state averages.

Figure 10. Population by Age, Bend, Deschutes County, and Oregon, 2013

Source: 2013 American Community Survey 1-Year Estimates

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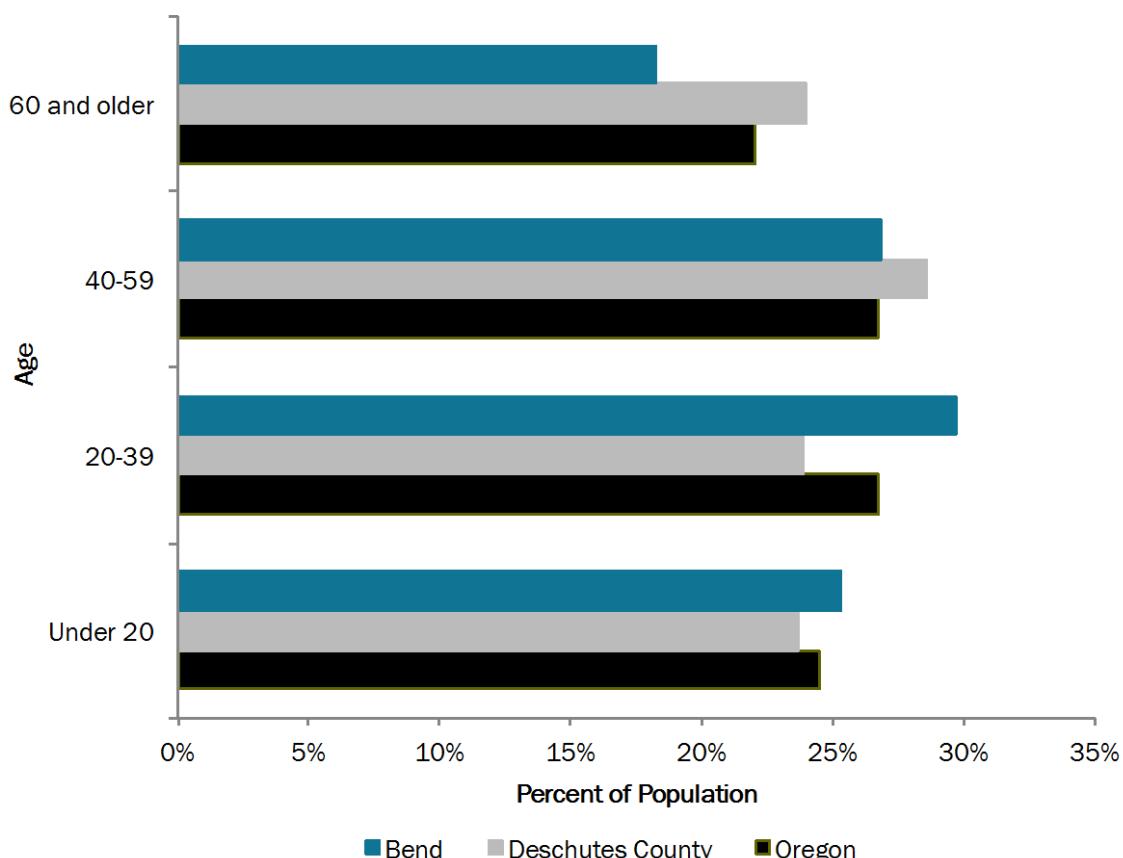
Figure 11 shows the age change in Bend's population between 2000 and 2013. While all age groups grew over the 13-year period, people between the ages of 50 and 59 years added the largest number of people, followed by people aged 60 to 69 years. Together, people aged 50 to 69 accounted for growth of more than 10,000 people or one-third of Bend's growth. People 20 to 39 years old accounted for growth of about 8,000 people over the 13-year period.

Figure 11. Age of Population, Bend, 2000 and 2013

Source: 2000 Census SF3, 2013 American Community Survey 1-Year Estimates

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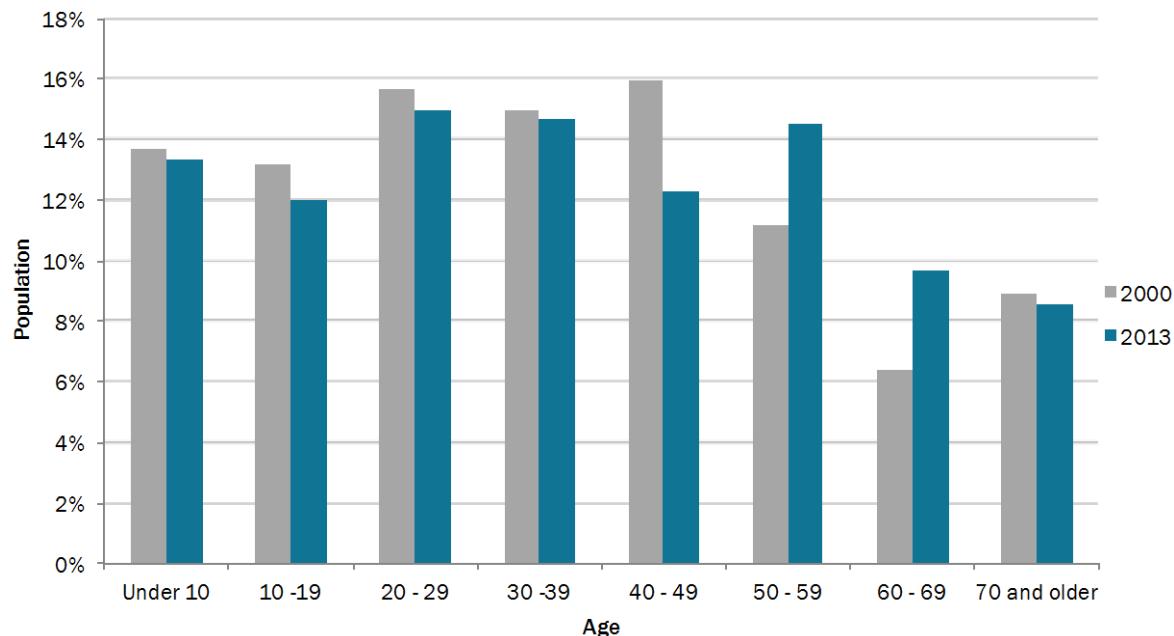
Figure 12 shows a comparison of the current and 2035 projected population for Oregon and Deschutes County by age.[36]

- The entire population of Deschutes County is projected to increase by 37%, compared to a total population increase of 25% across the state.
- Oregon and Deschutes County are projected to see an increase in the share of the population over 60 years of age. 56% of the population growth in Deschutes County through 2035 is projected to come from this age group.
- The Deschutes County population between 20 and 59 years of age are projected to increase by roughly 15%, at a slower rate than across the state.
- While the age distribution of Bend's population is different from the County average (Figure 10), Bend accounts for nearly half of Deschutes County's population. The growth in people over 60 years old in Deschutes County (Figure 12) will be reflected in growth in the percentage of population over 60 years old in Bend.

Figure 12. Forecast of Population by Age, Oregon and Deschutes County, 2015 and 2035
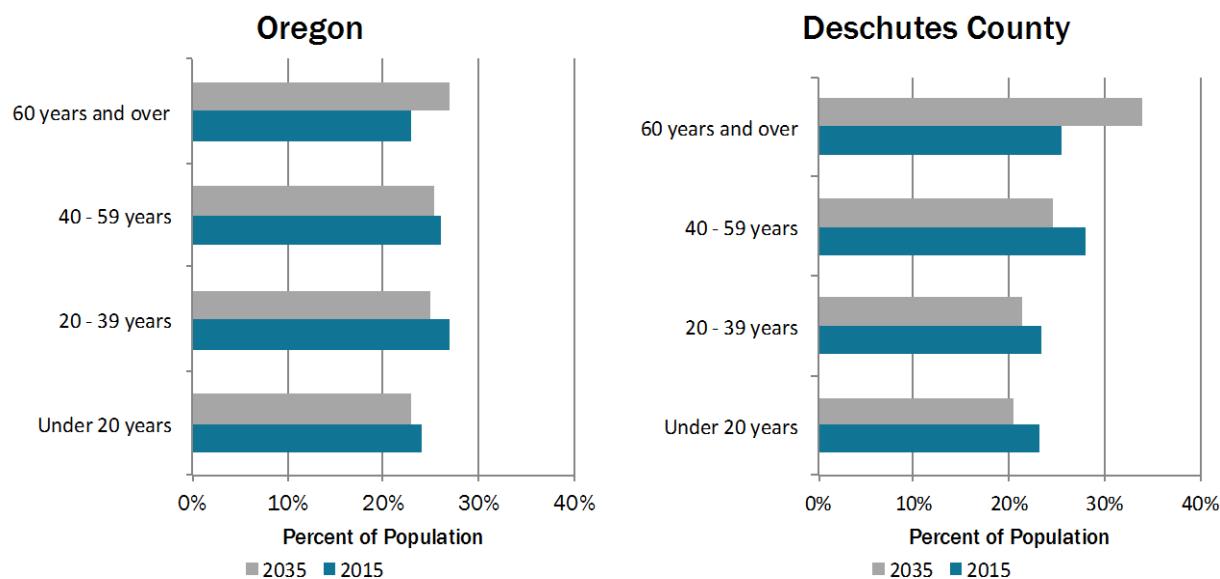
Source: Oregon Office of Economic Analysis.
See the Long-Term County Forecast "2013 Release" through the OEA website:
http://www.oregon.gov/DAS/OEA/Pages/demographic.aspx

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[36] See the Long-Term County Forecast "2013 Release" through the OEA website:
http://www.oregon.gov/DAS/OEA/Pages/demographic.aspx

Increased ethnic diversity

Figure 13 shows the percentage of the total population that is of Hispanic or Latino origin for Oregon, Deschutes County, and Bend, in 2000 and 2013. Between 2000 and 2013, Hispanic or Latino population increased from 5% of the population to 10% of the population, adding nearly 6,000 additional Hispanic or Latino residents. Bend has a greater percentage of Hispanic or Latino population than the county average, but a smaller percentage than the state average.

Figure 13. Hispanic or Latino Population by Percentage, Oregon, Deschutes County, Bend, in 2000 and 2013
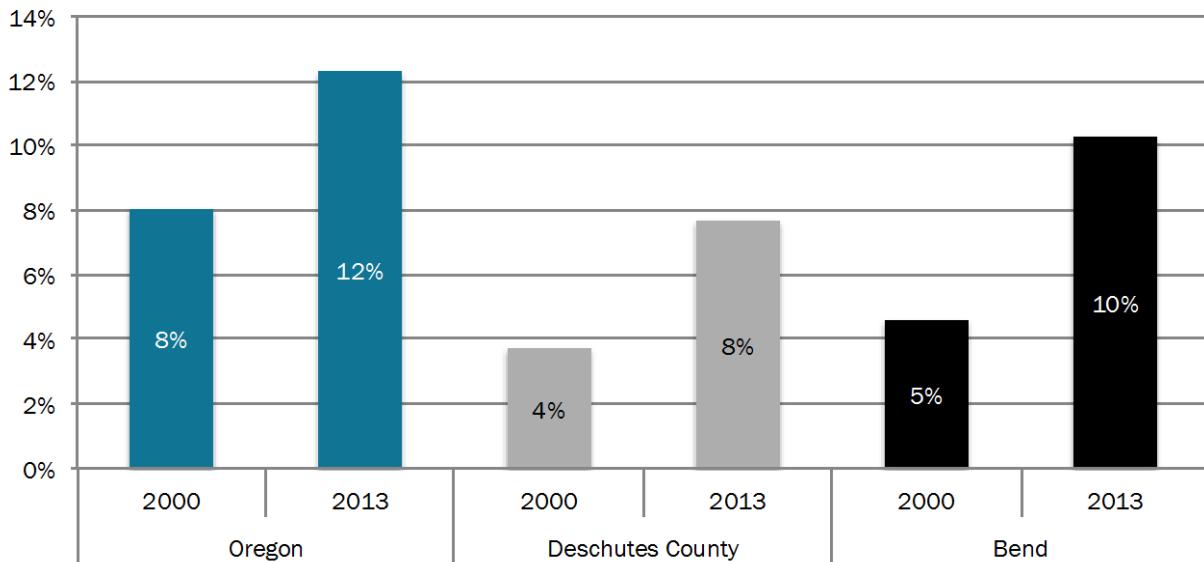
Source: U.S. Census 2000 SF1, American Community Survey 2013 1-year Estimates

Household Size and Composition

This section of the report considers household types (family or nonfamily) by size and how this information relates to household-level decisions to purchase or rent housing.

Household Size

Figure 14 shows change in household size in Bend between 1990, 2000, and 2013. The percentage of one-person households held stable at about 29% of households. The percent of two-person household increased from 36% to 39%. The percentage of households with three or more persons decreased slightly between 1990 and 2013. The trend towards an increase in single-person households between 2000 and 2013 is consistent with national and statewide trends.

Figure 14. Households by Household Size, Bend, 1990, 2000, and 2013
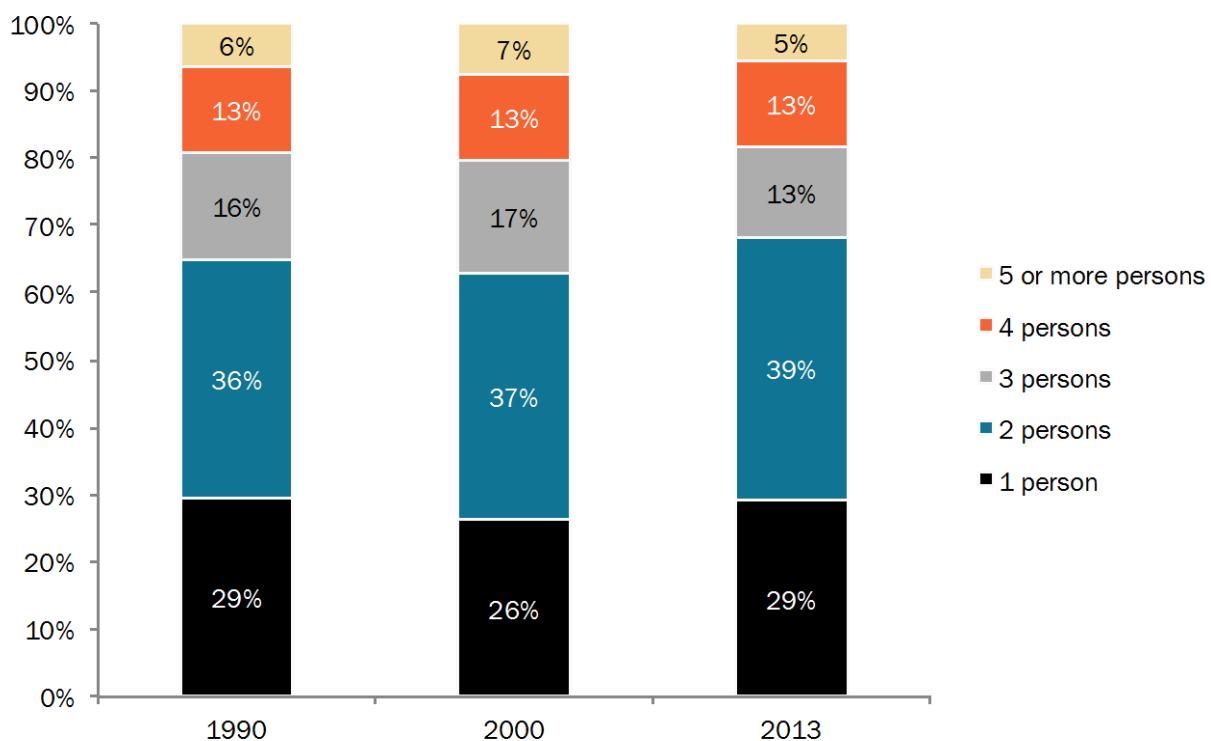
Source: 1990 and 2000 Census SF3, 2013 American Community Survey 1-Year Estimates

Figure 15 compares household size in Bend with the state and county averages. Bend has a slightly larger share of single-person and two person households than the state average. Bend has a smaller percentage of households with four or more people than the state average. Over the next 20 years, households with one or two persons per household are expected to represent the largest category of households by size.

Figure 15. Households by Household Size, Oregon, Deschutes County, Bend, 2013
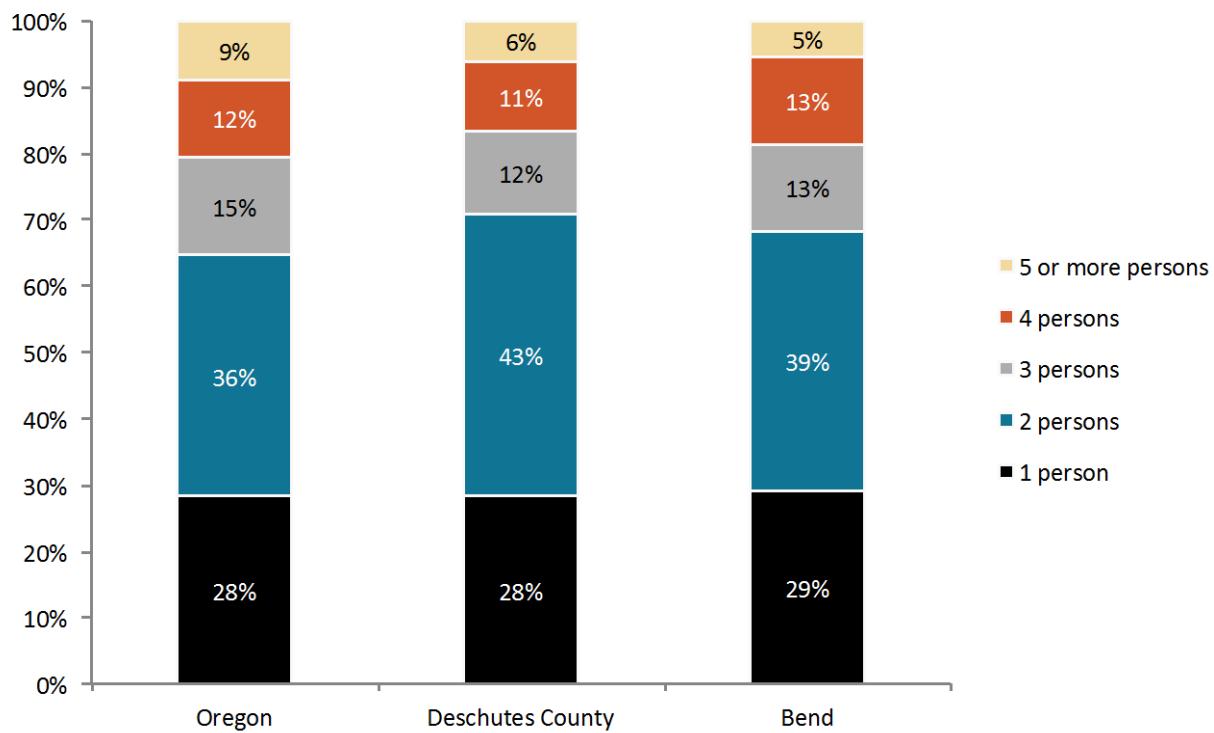
Source: 2013 American Community Survey 1-Year Estimates

Figure 16 shows Bend households by size, and the proportions that were owner-occupied and renter-occupied in 2000 and 2013.

- The share of households with one or two persons increased between 2000 and 2013 for both owner occupied and renter occupied households.

- Between 2000 and 2013, 1-person households saw the most growth (43%) among owner occupied households and 2-person and 4-person households saw the most growth (105% and 92%, respectively) among renter occupied households.

Figure 16. Mix of Households by Tenure and Household Size, Bend, 2000 and 2013
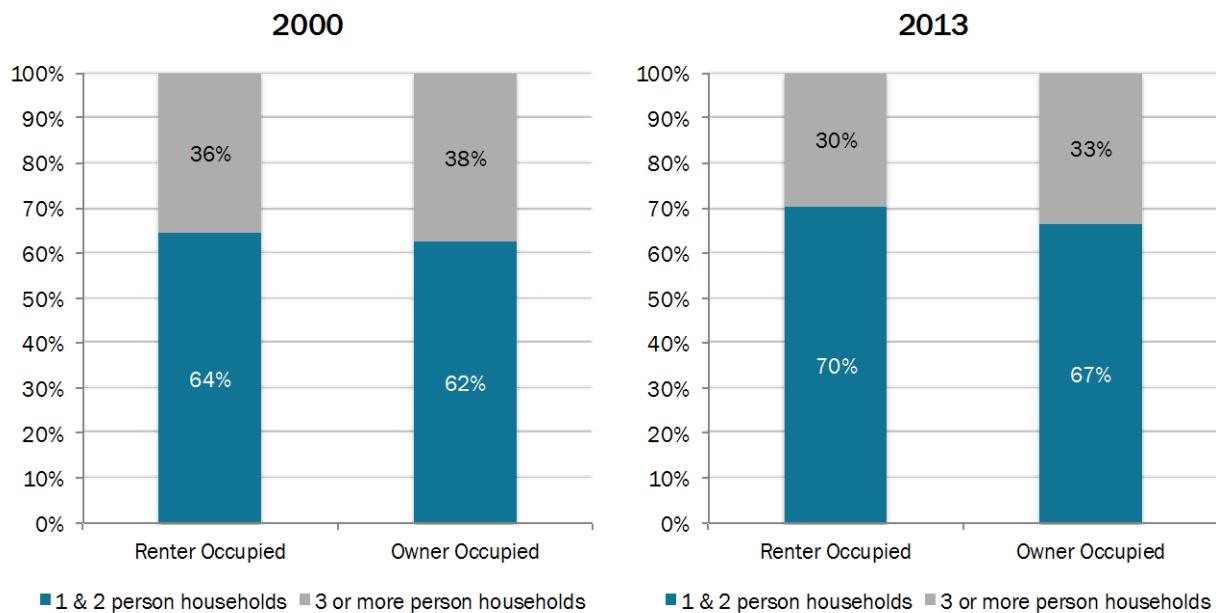
Source: 2000 Census SF3, 2013 American Community Survey 1-Year Estimates

Household Composition

Figure 17 shows household composition in Oregon, Deschutes County, and Bend in 2013.

- A larger share of Bend's housing composition is family households with children (30%) compared to that of Deschutes County (24%) and Oregon (27%).
- Bend also has a larger share of non-family households (e.g., unrelated people living in the same house) than compared to the county and state.

Figure 17. Household Composition of Oregon, Deschutes County, and Bend, 2013

Source: American Community Survey 2013 1-year Estimates

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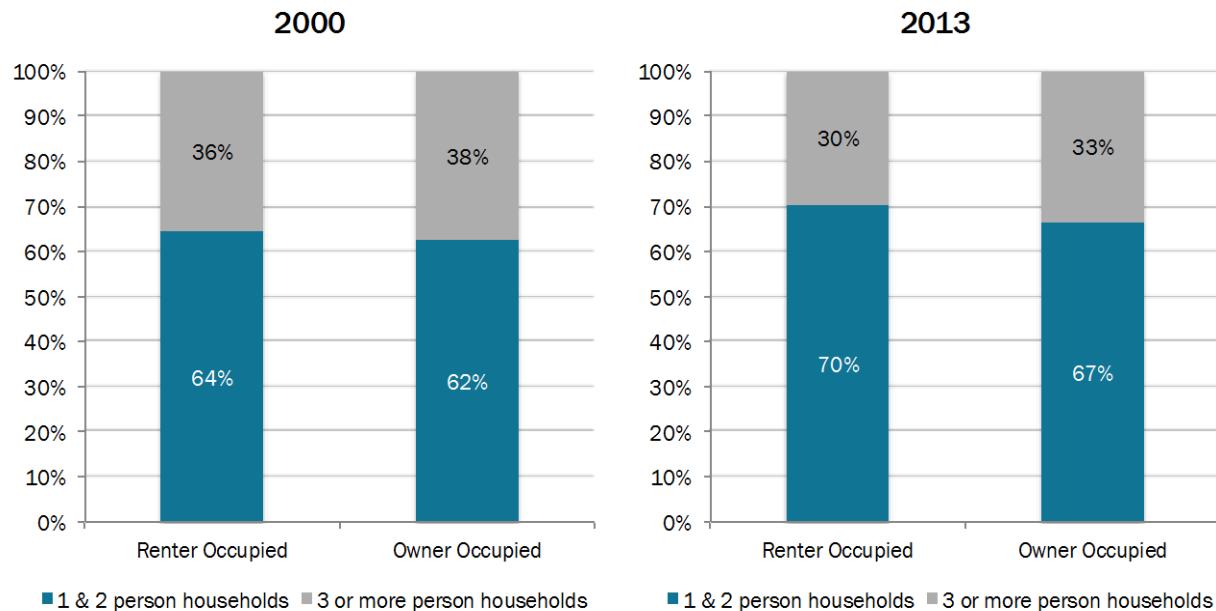
Householder Age

Figure 18 shows the distribution of owner-occupied and renter-occupied housing by age groups in Bend in 2013. The majority of householders younger than 35 years old were renters. Homeownership increased with age. Two-thirds of householders aged 45 to 54 were homeowners. Homeownership rates typically remain stable until age 65 or older, when they begin to decline; however, in Bend, households 55 to 64 years had lower homeownership rates than people 65 years or older.

Figure 18. Households by Age of Householder and Tenure, Bend, 2011-2013
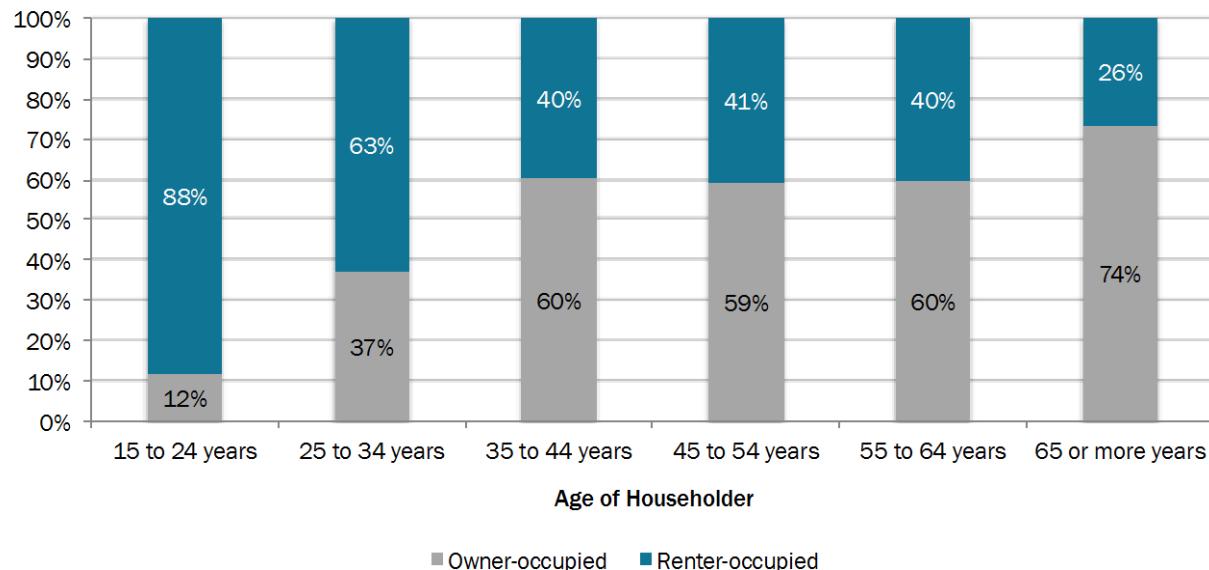
Source: 2013 American Community Survey 3-Year Estimates

Figure 19 shows that the percentage of single-person households increases with age. For householders under age 64, 25% or fewer households are single person households. By age 65, 53% of households are single-person households.

Figure 19. Households by Age of Householder and Household Size, Bend, 2013
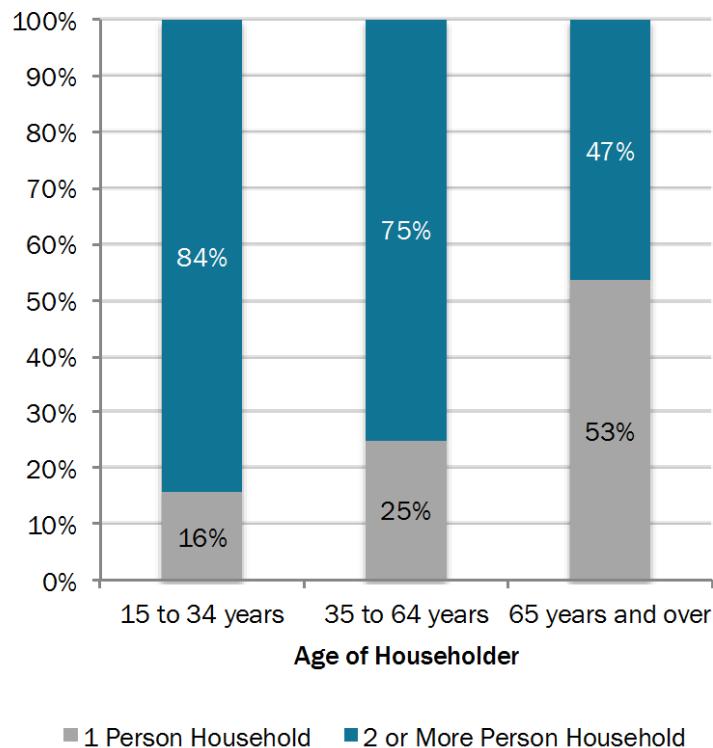
Source: 2013 American Community Survey 1-Year Estimates

Summary of demographic and socioeconomic factors effect on housing choice in Bend

The prior sections described key demographic and socioeconomic factors that affect housing choice in Bend based on historical data.

Over the next decades, the national demographic trends that will affect housing demand across the U.S., as well as Oregon and Bend are:

- **Aging of the baby boomers.** By 2030, the youngest baby boomers will be over 65 years old. By 2030, people 65 years and older are projected to account for about 20% of the U.S. population, up from about 12% of the population in 2000.

- **Growth in Millennials.** Millennials are a large group of people (i.e., Echo Boomers or Generation Y) born from the early 1980's to early 2000's, with the largest concentration born between 1982 and 1995. By 2030, Millennials will all be older than 35 years old, with the oldest Millennials over 50 years old. The Millennials will form households and enter their prime earnings years during the 20-year planning period.

- **Growth of Hispanic and Latino population.** One of the fastest growing groups in the U.S. will be the Hispanic and Latino population. By 2030, Hispanic and Latino population is projected to account for about 20% of the U.S. population, an increase from about 13% of the U.S. population in 2000. Growth in the Hispanic population will be the result of natural increase (more births than deaths) and immigration from other countries.

Table 7 through Table 9 describe the changes in these demographic and socioeconomic trends and their potential effect on housing choice in Bend over the next 20 years. These tables discuss the characteristics of the householder, which is the person identified (by the household) as the head of household on the Census. The tables combine past trends (documented in the prior sections) with future demographic projections and information about housing preferences for these key demographic groups. Appendix A provides the background research that forms the basis for the conclusions in these tables.[37]

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[37] The data presented in Tables 7 through 9 were reviewed with the Residential TAC during their August 5, 2014 meeting. Some of the data has been updated since this meeting.

Table 7. Baby boomers (Age in 2014: 48 to 67 years old; Age in 2028: 62 to 81 years old)

Demographic trends		Baby boomers are the fastest growing segment of Deschutes County's population. • People over 65 years are forecast to grow from 15% of Deschutes County's population in 2010 to 27% in 2035.[38] • Growth in people over 65 years old in Deschutes County will result in growth of more than 37,000 people in this age group in Deschutes County or 24% of population growth over the 2010 to 2035 period.[39] Bend's population accounts for about half of the population in Deschutes County. As population over 65 grows in the County over time, this age group will grow in Bend as well.
Effect of trends on household choice	**Age of household head**	Bend's older householders are more likely to own their home. • Homeownership peaks for householders 65 years and older. Nearly 75% of householders 65 years and older in Bend are homeowners. National studies about the housing preferences of older residents show that the majority express an interest in remaining in their home or in their community as long as possible, a trend that increases with age.[40] • Between about 65% and 80% of people over 65 would like to stay in their homes as long as possible.[41] • The Baby Boomers who want to move generally want to live in a typical community setting, with a mixture of people of different ages, and in a setting where recreational amenities are available.[42] • Of people over 65 who expect to move in the next five years, a smaller proportion of these households expect to live in a single-family home and to be homeowners, compared with households of all ages who expect to move in the next 5 years.[43] • Seniors who moved recently were much more likely to have moved into a smaller home, compared to households of all ages who moved recently.[44]
	Household size and composition	Household size decreases with age after age 65 in Bend. • More than 54% of households 65 years and older were single-person households in Bend. • Growth in households 65 years and older will result in growth in single-person households.
	Household income	Bend's household income peaks around age 45. • Household income decreases after age 65. About 65% of Bend's households over 65 had income of less than $50,000, compared with 49% of households 45 to 64.

[38] Oregon Office of Economic Analysis, *Forecasts of Oregon's County Populations by Age and Sex, 2010 – 2050*, [Excel Workbook] (March 2013).

[39] Ibid.

[40] Ada-Helen Bayer, Ph.D. and Leon Harper, Fixing to Stay: A National Survey of Housing and Home Modification Issues (Washington, D.C.: AARP, 2000).
William H. Frey, Mapping the Growth of Older America: Seniors and Boomers in the Early 21st Century, (Conducted for the Metropolitan Policy Program at the Brookings Institution, May 2007).
Teresa A. Keenan, Home and Community Preferences of the 45+ Population, (Conducted for AARP, November 2010).

[41] Ada-Helen Bayer, Ph.D. and Leon Harper, *Fixing to Stay: A National Survey of Housing and Home Modification Issues* (Washington, D.C.: AARP, 2000).
Andrew Kochera, Audrey Straight, and Thomas Guterbock, *Beyond 50: A Report to the Nation on Livable Communities: Creating Environments for Successful Aging*, (Washington, D.C.: AARP, 2005).
Stephen Engblom, Greg Ault, and Lisa Fisher, *Boomer Residential Preferences*, (Conducted for the Urban Land Institution, Multi-family Trends, May/June 2007).
Teresa A. Keenan, *Home and Community Preferences of the 45+ Population*, (Conducted for AARP, November 2010).

[42] Stephen Engblom, Greg Ault, and Lisa Fisher, *Boomer Residential Preferences*, (Conducted for the Urban Land Institution, Multi-family Trends, May/June 2007).

[43] Teresa A. Keenan, *Home and Community Preferences of the 45+ Population*, (Conducted for AARP, November 2010).

[44] Ibid.

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		• Households with householders over 65 years have a lower than average household income, at about 70% of Bend's median household income, compared with ages 45 to 64 years with 107% of Bend's median household income. • Lower income does not necessarily result in greater problems with housing affordability or lower homeownership rates for people over 65 years because: • Some householders over 65 have paid off their mortgage. For households who have paid off their mortgage, lower income does not necessarily result in lower disposable income or affect their ability to continue to own their home. • Older households may have more accumulated wealth, which could include assets like the value of their house or investments.
	Potential effect on housing demand	The major impact of the aging of the baby boomers on demand for new housing will be through demand for housing types specific to seniors, such as assisted living facilities. Baby boomers will make a range of housing choices in Bend: • Many will choose to remain in their houses as long as they are able. • Those that do move are more likely to move into smaller homes, attached homes, or apartments and are more likely to rent than other households headed by other generations. • Some may downsize to smaller single-family homes (detached and attached) or multi-family units. These will be a mixture of owner and renter units. Nationally, of the 20% Baby Boomers that expect to move, 11% plan to move to an apartment, 16% to attached housing, 65% to single family housing, and 6% to a mobile home.[45] • Baby Boomers who move are likely to choose housing in areas with nearby shopping and other services, such as neighborhoods with integrated services or in downtown Bend. • As their health fails, some will choose to move to group housing, such as assisted living facilities or nursing homes.

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[45] Ibid.

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Table 8. Millennials (Age in 2014: 17 to 30 years old; Age in 2028: 31 to 44 years old)

Demographic trends		Millennials are one of the fastest growing segments of Deschutes County's population • By 2035, the State projects that there will be nearly 67,000 people 25 to 49 years in Deschutes County, up from more than 52,000 people in 2010.[46] • There will be an increase of about 14,000 people between the ages of 25 to 49 years. This group will account for 20% of total population growth over the 2010 to 2035 period.[47] Bend's population accounts for about half of the population in Deschutes County. As Millennials grow in the County, this age group will grow in Bend as well.
Effect of trends on household choice	**Age of household head**	Housing preferences shift for householders as they get older. • Under 25 years old: 88% were renters in Bend • 25 to 34 years old: 76% were renters in Bend • 35 to 44 years old: 44% were renters in Bend
	Household size and composition	Household size increases until householder age 35 in Bend. • 84% of householders in Bend between ages 15-34 years live in households with two or more persons. • About 16% of Bend's householders between 15 to 34 years live in single-person households, compared with 25% of householders 35 to 64 years and 53% of householders over 65 years old.
	Household income	Younger households have lower income and homeownership rates on average. • Younger households generally had less accumulated wealth, such as housing equity. • About 33% of households under 25 years had an income of less than $25,000 in Bend. About 40% of households between 25 and 44 had income of less than $50,000. • Households between 25 and 44 years had higher than average income, at about 129% of Bend's median household income. Higher incomes in this age group suggest greater opportunities for homeownership among people in this age group. • Higher incomes generally correlate with homeownership. The median income for homeowners in Bend was $67,755 (in 2013), compared with $33,121 for renters.
	Potential effect on housing demand	Growth in Millennials will result in increased demand for all housing types in Bend. Recent research hypothesizes that Millennials may make different housing choices than their parents as a result of the on-going recession and housing crisis. Some studies suggest that Millennials will prefer to rent and will prefer to live in multi-family housing, especially in large cities. Other studies suggest that the majority of Millennials' housing preference is to own a single-family home. Recent surveys suggest that as Millennials age and form families, they will increasingly prefer to live in single-family homes in suburban locations or in walkable communities with alternatives to driving. Based on review of recent research it seems unlikely that the majority of Millennials will make fundamentally different housing choices than previous generations as they age and have families, but their housing choices may be constrained by what they can afford due to student loan debt, and prolonged entry into higher paying positions due to the Baby Boomers putting off retirement. These trends are consistent with national housing trends, such as decreased homeownership rates and increases in housing affordability issues. • Millennials are more interested in living within a city (including in a downtown area) or a suburb closer to a city than prior generations.[48]

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[46] Oregon Office of Economic Analysis, Forecasts of Oregon's County Populations and Components of Change, 2010 – 2050, [Excel Workbook] (March 2013).

[47] Ibid.

[48] American in 2013 Focus on Housing and Community, Urban Land Institute
Belden Russonello & Stewart Research and Communications, 2004 National Community Preference Survey,(Conducted for Smart Growth America and National Association of Realtors, 2004).
Eugenia L. Birch, Who Lives Downtown, Living Cities Census Series(Washington, D.C.: The Brookings Institute, November 2005).

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- Millennials are more willing than other age groups to choose to live in a community with a wider range of housing and denser housing, where it is easier to talk to work or nearby urban amenities, and where transportation by automobile is less common.[49]
- Millennials are likely to choose to rent and are more likely to rent a multi-family unit than older households. This choice may be made from preference but is likely to be necessitated by lower income.
- Millennials who prefer single-family units may prefer, or only be able to afford, smaller single-family units.[50]
- As they establish their careers, their incomes increase, and they form families, it seems likely that a large share of Millennials in Bend will choose to live in an owner-occupied single family house. Some Millennials may prefer to rent or own a multi-family unit in or near Bend's downtown.
- Bend is a suburban market, with urban amenities that may appeal to Millennials who prefer to live in a smaller city but in an area with a wide range of access to outdoor recreational activities. Bend itself does not have distant suburbs but nearby smaller cities have filled the role of distant suburbs for Bend. Millennials may choose to live in Bend's suburban neighborhoods, rather than in nearby smaller cities, if housing in Bend is affordable.

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[49] *American in 2013 Focus on Housing and Community*, Urban Land Institute
Belden Russonello & Stewart Research and Communications, *2004 National Community Preference Survey*,(Conducted for Smart Growth America and National Association of Realtors, 2004).

[50] Joint Center For Housing Studies of Harvard University, *State of the Nation's Housing,* (Cambridge, MA: President and Fellows of Harvard College, 2013).

Table 9. Growth of immigrants and change in ethnic composition[51]

Demographic trends		Bend is becoming more ethnically diverse, with growth in the Hispanic and Latino population (both from immigration and from current residents in Bend). • Bend became more ethnically diverse, with Hispanic and Latino population growing by almost 250% between 2000 and 2013, an addition of 5,963 Hispanic or Latino residents. • Nationally, growth in Hispanics is driving population growth, both from immigration and from natural increase of Hispanics living in the U.S.[52]
Effect of trends on household choice	**Age of household head**	The Hispanic population in Bend has a different age structure than Bend's overall population. • In 2013, median age for Hispanics (23.0 years) was lower with the median age for the total population (36.6 years) in Bend. Nationally, growth in Hispanic population between 2013 and 2023 will help off-set decreases in white householders between the ages of 30 and 49.[53]
	Household size and composition	Nationally, Hispanic households with children grew at a faster rate than other minority populations between 1995 and 2005, resulting in increased demand for housing to accommodate families.[54] • In 1999, 51% of Hispanic households had children, compared with 33% of all households.[55] Hispanic households in Bend are more likely to be larger and less likely to be homeowners. • In 2010, the average size of Hispanic households in Bend was 3.4 persons per household, compared with an average of 2.4 persons per household for all households in Bend.[56] • Hispanic households in Bend live in single-family houses (detached and attached) less often than non-Hispanic households. About one-third of Hispanic households live in single-family dwellings, as compared to about 75% of non-Hispanic households. • About one-third of Hispanic households are homeowners, compared with an ownership rate of almost 60% for all households in Bend. In 2013, Oregon's Hispanic households were more likely to be younger homeowners. Nearly three-quarters of Hispanic homeowners in Oregon were younger than 45 years old. In comparison, about one-third of non-Hispanic homeowners were younger than 45 years old.[57].
	Household income	Hispanic households in Bend have lower than average income. • Hispanic households in Bend have lower than average income, with household income at 78% of Bend's median ($37,586) and family income at 81% of Bend's median ($39,052).[58] Immigrants generally have lower income than U.S.-born workers but income increases for immigrants the longer they have been in the U.S. and through successive generations.

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[51] This table contains information from the U.S. Census 2010 and 2011 American Community Survey. Information at the national (U.S.) level about Hispanics in this section is from the Pew Research Center report *Second-Generation Americans: A Portrait of the Adult Children of Immigrants.*

[52] Ibid.

[53] Ibid.

[54] Ibid.

[55] Martha F. Riche, *The Implications of Changing U.S. Demographics for Housing Choice and Location in Cities*, (Washington, D.C.: The Brookings Institution Center on Urban and Metropolitan Policy, March 2001).

[56] U.S. Census, 2000 Decennial Census.

[57] U.S. Census, 2013 American Community Survey

[58] U.S. Census, 2013 American Community Survey, 3-year estimates

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		• First generation immigrants may take several decades to earn sufficient incomes to become homeowners[59] and to have income comparable to a person born in the U.S., of a similar age and education. This is true of Hispanic immigrants.[60] • Income generally increases for second-generation immigrants, who have higher educational attainment.[61] This is true of recent Hispanic immigrants.[62] • In 2012, the national median household income for first generation Hispanic households was $34,600, compared to $48,400 for second-generation Hispanic households, compared with the U.S. average of $58,200.[63] Hispanic households suffered steeper drops in household wealth than non-Hispanic white households during the recession, which may affect their ability to own homes, although the desire for homeownership remains strong.[64]
	Potential effect on housing demand	Growth in Hispanic and Latino households may result in increased demand for multi-family and single-family housing in Bend. Growth in Hispanic and Latino households will increase need for affordable housing for renters and homeowners such as: single-family dwellings (both smaller and larger sized dwellings), duplexes, larger townhomes, garden apartments, and apartments. Ownership opportunities for Hispanic and Latino households will focus on moderate-cost ownership opportunities, such as single-family dwellings on a small lot or in a more suburban location, duplexes, and townhomes. • Affordability is likely to be a more common problem for Hispanic and Latino households, especially recent immigrants, because they have lower income on average. • Homeownership increases the longer immigrants stay in the U.S. Longer-term first generation immigrants and second-generation immigrants may become home owners, depending on their ability to afford owning a home.[65] • Hispanic population with lower income is more likely to choose lower-cost housing, such as multi-family housing because that is what they can afford. • Hispanics are more likely to rent but when they are homeowners, they are more likely to live in a more urban area, compared with white households.[66] • Growth in Hispanics will increase demand for smaller "starter homes" and entry-level apartments.[67]

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[59] James P. Allen, How Successful Are Recent Immigrants to the United States and Their Children? Presidential Address delivered to the Association of Pacific Coast Geographers, 68th annual meeting, Phoenix, Arizona, October 22, 2005 (Los Angeles: The Association of Pacific Coast Geographers, 2006)

[60] Pew Research Center report Second-Generation Americans: A Portrait of the Adult Children of Immigrants, 2013.

[61] Allen, James P. "How Successful Are Recent Immigrants to the United States and Their Children?" Presidential Address delivered to the Association of Pacific Coast Geographers, 68th annual meeting, Phoenix, Arizona, October 22, 2005.

[62] Pew Research Center report Second-Generation Americans: A Portrait of the Adult Children of Immigrants, 2013.

[63] Pew Research Center report Second-Generation Americans: A Portrait of the Adult Children of Immigrants, 2013.

[64] Joint Center for Housing Studies of Harvard University, *The State of the Nation's Housing*, 2013.

[65] Gregory Rodriguez, *Immigrants Today: Where they Come From, Where They Live in the US*, Emergences, Volume 9, Number 2 (Washington, D.C.: Taylor & Francis Ltd 1999).

[66] Martha F. Riche, *The Implications of Changing U.S. Demographics for Housing Choice and Location in Cities*, (Washington, D.C.: The Brookings Institution Center on Urban and Metropolitan Policy, March 2001).

[67] Joint Center For Housing Studies of Harvard University, *State of the Nation's Housing,* (Cambridge, MA: President and Fellows of Harvard College, 2007).

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Summary of key findings about how demographic trends may affect housing choice
Identifying future housing needs based on expected demographic changes requires making qualitative assessments of the future housing market. Demographic changes are likely to affect housing in Bend's housing market in the following ways over the next 20 years. The future housing mix will look different than the recent past. Based on the future demographic trends, the most pressing need is to increase the range (both in size and in pricing) of housing products in walkable neighborhoods.

- **Recession may have delayed some effects of demographic shifts.** The impacts of major demographics shifts are being delayed due to the financial effects of the recession, however, substantial housing demand shifts are underway that will change land use patterns. Baby Boomers are working longer and may not be moving because of a loss of home equity. Millennials have taken on college debt, are having a hard time getting a foothold in the workforce, and are therefore delaying household formation. The extended effects of the recession will mean that more households are renting for an extended period of time before being able to make a home purchase, or will only be financially capable of purchasing a smaller, less-expensive home. In summary, this delay means more near-term demand for rental housing or smaller less-expensive ownership housing.

- **Continued but slower demand for large-lot single-family housing.** In Bend, demand for large-lot single-family housing is likely to take the form of three or four bedroom houses on a lot of about 8,000 to 10,000 square feet. Generation X (the generation born after the Baby Boomers and before the Millennials), is currently in its prime family raising years, and the demographic group most likely to need larger single family homes. Generation X is much smaller than either the Baby Boomer or Echo Boomer generations. As the Baby Boomers move out of their existing single-family homes, there will be fewer households to take them over in the short-term. In recent years, Bend has been attracting retirees who are purchasing (and, in some cases, renting) available single-family dwellings.

  In the future, growth of Millennials and shrinking of the Baby Boomer generation may slow demand for new large-lot single-family housing. The Echo Boomer's preferences are generally for more walkable communities and they are willing to accept smaller homes in closer proximity to amenities. In addition, Millennials have lower income and higher debt.

  However, much of Bend's growth results from in-migration of people from outside of Central Oregon, many of whom are attracted to Bend's access to outdoor amenities, open space, and rural quality of life that Bend offers. Interviews with Bend's development community noted that demand for single-family housing that offers ample parking and storage for outdoor equipment is strong.

  All of these factors contribute to continued demand for large-lot single-family detached

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housing but suggest that demand for this type of housing is likely to slow between the 2008 to 2028 period. Demand for this type of housing is likely to be driven by migration of people to Bend with wealth, as well as increase in income overtime from people living in Bend, especially households with growing families.

- **Demand will increase for a wider range of housing types.** Most of the evidence suggests that the bulk of the change will be in the direction of smaller average house and lot sizes for single-family housing. An aging population, increase in single-person households, increasing housing costs, and other variables are factors that support the conclusion that the future housing supply will include smaller and less expensive units and a broader array of housing choices. A substantial portion of Bend's residents will live in attached housing, such as townhouses, cottage housing, duplexes, garden apartments, or urban apartments. While most households may prefer to own their home, a growing share of households will be renters, either from choice (e.g., Baby Boomers who prefer to rent smaller units) or by economic necessity. Demand for these units will be particularly high in close-in areas near Bend's commercial and recreational amenities.

  o **Demand for a wider range of housing types by retirees**. Older households tend to move less frequently than younger households, and a large majority would like to age in place—a desire that grows stronger with age. Being near family, friends, and social organizations in walkable neighborhoods also becomes increasingly important with age. Of those that have moved recently, a third of Baby Boomers and half of the generation older than Baby Boomers have moved to smaller housing units. Those Baby Boomers who do move may be more likely than they were earlier in their lives to choose smaller homes (both smaller lots and smaller dwellings) and homes in locations with more amenities located near friends and family. These choices apply to both older households already living in Bend who choose to move and to older households who move to Bend from other communities. Interviews with members of Bend's development community indicated that small lot, cluster, or cottage housing might be appropriate housing types to meet this need.

  o **Housing for families will be in demand.** Millennials and Hispanic households are poised to account for the largest percentages of growth in Bend over the next 20 years. Millennials will be entering the phase of life when they form families and have children. In addition, Hispanic households have larger than average household size because they live in multi-generational households and have a larger number of children on average. Growth in households with families will drive need for housing that is both affordable and has sufficient space for a family.

  o **Housing affordability will continue to be an issue.** More than one-third of Bend's households were cost burdened in 2013.[68] This shows that a substantial proportion of Bend's households cannot afford housing in Bend. Interviews with

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[68] A household is considered "cost-burdened" if they pay 30% or more of their gross household income on housing costs. Bend's rate of cost burden was comparable to the State average in 2013.

members of Bend's development community suggest a shortage of homes priced for first-time homebuyers. Many workers in Bend live in nearby communities because affordable housing is in short supply in Bend, and that the demand for small-lot housing with nearby amenities is increasing. The interviewees also indicate that, while there is demand for urban housing products (particularly rental apartments), the wages in Bend's service and tourism economy may not allow workers to afford rents sufficient to pay for units in newly-constructed buildings, which may inhibit further development of these types of housing. For two of the fastest growing demographics in Bend, the Millennials and Hispanic and Latino population, affordability is more likely to be a barrier to homeownership or higher-cost rental housing.

- **Location of housing will be increasingly important.** The location of housing is becoming increasingly important, with increased demand for housing in walkable neighborhoods near retail and other amenities. Where they can afford it, the Millennials generally prefer housing in walkable areas with retail and other amenities nearby, rather than housing in more suburban areas or in outlying cities. Some Baby Boomers who are downsizing are also choosing to live in similar walkable areas.

- **Design of housing and neighborhoods is important.** Well-designed multi-family and compact single-family located in a desirable neighborhood can provide opportunities for a wider range of housing options. Consumers are more likely to make the tradeoff of a smaller lot and home size when neighborhood parks, schools, and retail amenities are within walking distance. Therefore, there will be steady demand for multi-family and small-lot or attached single family housing in close-in locations proximate to Bend's downtown amenities and jobs.

Step 4 – Determine the types of housing that are likely to be affordable to the projected households based on household income

This section summarizes regional and local income, and housing cost trends. Income is a key determinant in housing choice and a household's ability to afford housing. A review of historical income and housing price trends provides insight into the local and regional housing markets. This section presents information about changes in income, housing costs, and housing affordability, including:

- Identifying the types of housing that are likely to be affordable to the projected population based on household income.

- Organizing data gathered on household incomes by income range categories (e.g., high, medium, and low) and calculating the percent of total households that fall into each category.

- Considering local housing prices for the same timeframe as the income data, identifying the structure types financially attainable by each income.[69]

Income

As of 2013, median household income in Bend was about $48,000, compared to $46,800 in Deschutes County and $50,250 for Oregon. Between 1999 and 2013, income in Bend decreased by 16% in inflation adjusted dollars, consistent with state and county trends.

Table 10. Median Household Income (2013 dollars), Oregon, Deschutes County, Bend, 1999 and 2013, Inflation-adjusted

	1999	2013	Change, 1999 to 2013	% Change, 1999 to 2013
Oregon	$57,282	$50,251	-$7,031	-12.3%
Deschutes County	$58,230	$46,791	-$11,439	-19.6%
Bend	$57,200	$48,014	-$9,186	-16.1%

Source: 2000 Census and American Community Survey 2013 1-year Estimates

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[69] Please note that the 1997 guidebook directs the reader to consider structure types and tenure, For the purpose of this analysis, LCDC concluded that the city is not required to consider tenure in this HNA because the City does not regulate housing by tenure, See LCDC's Order pages 26-33.

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Figure 20 summarizes data from the 2000 Census and 2013 ACS for household income in Bend.

- Note that, by 2000, 62% of Bend's households had household incomes less than $50,000. A total of 31% of households had incomes between $50,000 and $99,999. The remaining 9% of households had incomes of $100,000 or more. The median household income in 2000 was $40,857.
- In 2013, the median household income had increased to $48,014, representing an 18% increase over 2000 levels.

Figure 20. Share of Households by Household Income (in nominal dollars), Bend, 2000 and 2013
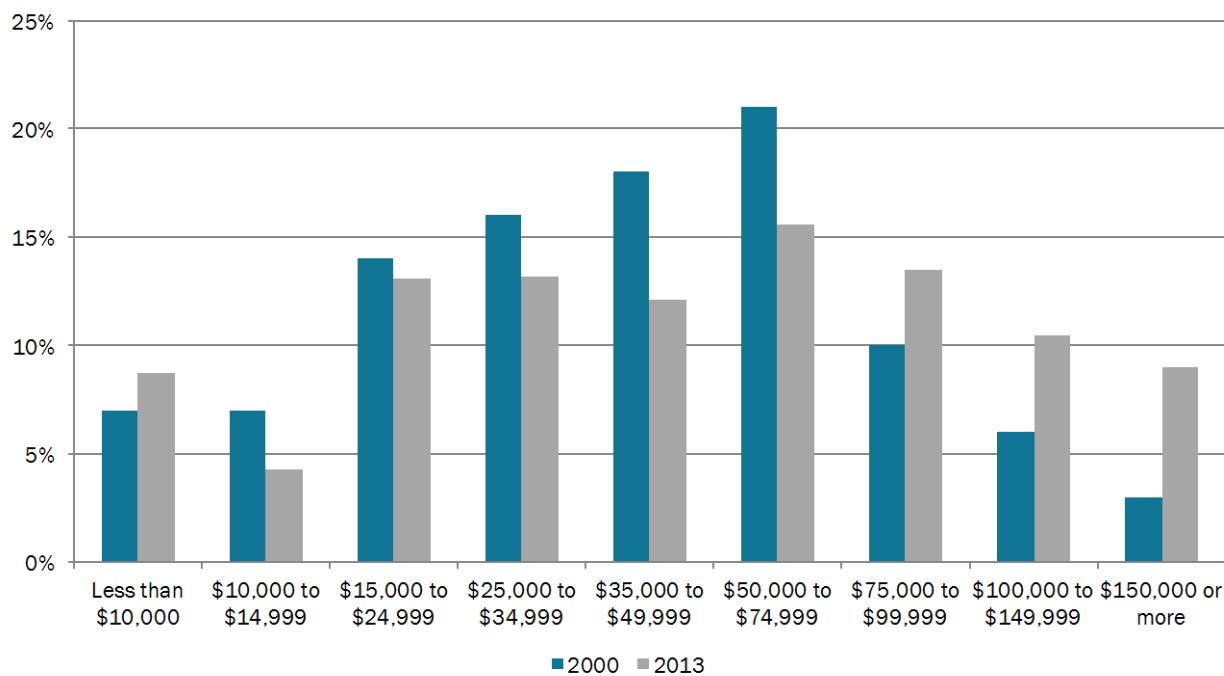
Source: 2000 Census SF3, 2013 ACS 1-Year Estimates
Note: Household income is shown in 1999 dollars for 2000 Census data and in 2013 dollars for 2013 Census data.

Figure 21 divides Bend's income data into one of four categories of Median Family Income (MFI): lower, lower middle, upper middle, and higher. These categories correspond to households that make less than 50%, 50% to 80%, 80% to 120%, and greater than 120% of the 2013 Deschutes County median family income ($59,700).[70] The purpose for this organization of the data is to better estimate the types of housing that will be affordable to each group based on household income.

- Households in the "lower" category are those that have household incomes of less than $29,850 (50% of MFI); these households represent 34% of all households in 2013. These households are generally considered "low-income" and may be eligible for government-subsidized housing. The types of housing that these households can afford

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[70] HUD publishes Median Family Income by county each year.
http://www.huduser.org/portal/datasets/il/il13/index.html

are generally rental housing, such as older apartments, duplexes, or manufactured housing in parks (which could be either owner- or renter-occupied).

- Households in the "lower middle" category are those that have household incomes between $29,850 and $47,760 (50% to 80% of MFI); these households represent 17% of all households in 2013. These households are in the lower-earnings category of "workforce housing." While they can generally afford market-rate rents, they are more likely to be renters than homeowners. The types of housing households in this category can generally afford include smaller single-family detached houses, manufactured homes on lots or in parks, townhouses, duplexes, and apartments.

- Households in the "upper middle" category are those that have household incomes between $47,760 and $71,640 (80% to 120% of MFI); these households represent 16% of all households in 2013. These households are in the higher-earnings category of "workforce housing." These households are a mixture of renters and homeowners. The types of housing households in this category can generally afford include single-family detached houses, manufactured homes on lots or in parks, townhouses, duplexes, and apartments.

- Households in the "higher" category have household incomes of $71,640 or more (120% or more of MFI); these households represent 33% of all households in 2013. These households can afford most types of housing, with the majority of these households living in owner-occupied single-family detached housing.

Figure 21. Distribution of Households by Income Level, Bend, 2013

Source: 2013 American Community Survey 1-Year Estimates

13353
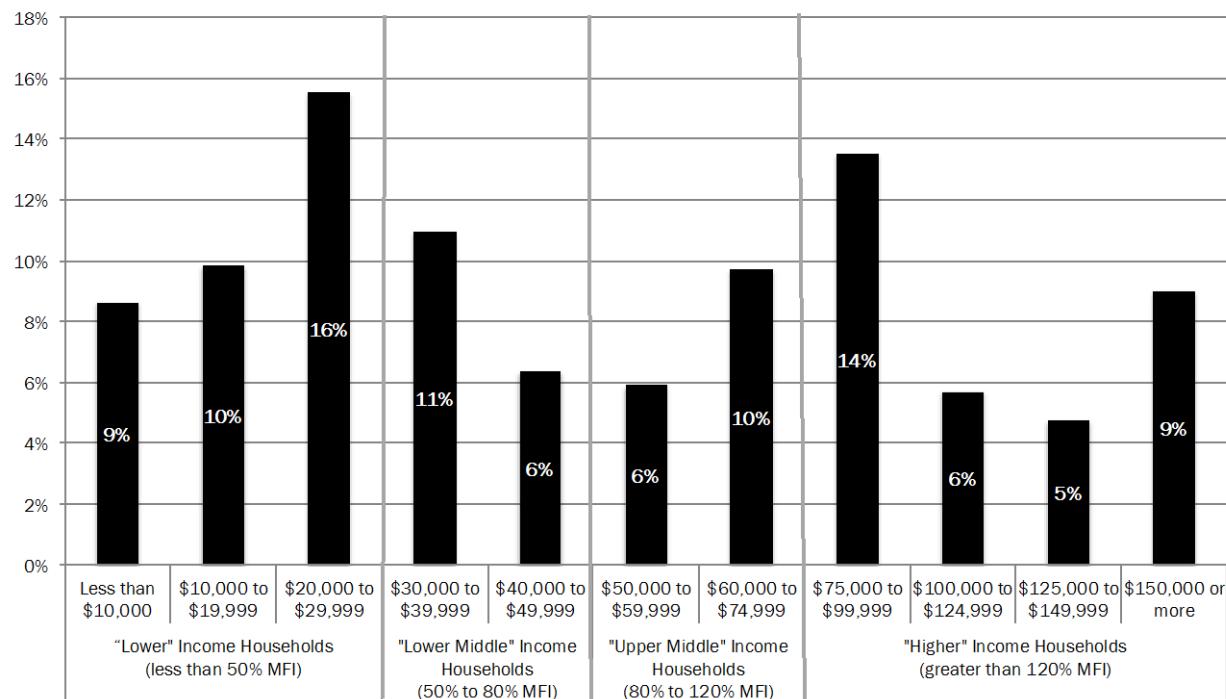
Figure 22 presents data on age of householder by household income. These two variables are valuable indicators for identifying the housing choices that households make at different points in life, based on what they can afford.

- 33% of households with a householder under 25 years of age had household incomes under $25,000; 56% of these households had incomes between $25,000 and $49,999.

- 69% of households with a householder between 25 and 44 years of age had incomes between $50,000 and $100,000 or more.

- 55% of households with a householder between 45 and 64 years of age had incomes between $50,000 and $100,000 or more.

- 36% of households with a householder that was 65 years of age and over had incomes less than $25,000.

Figure 22. Distribution of Households by Household Income and Age of Householder, Bend, 2013
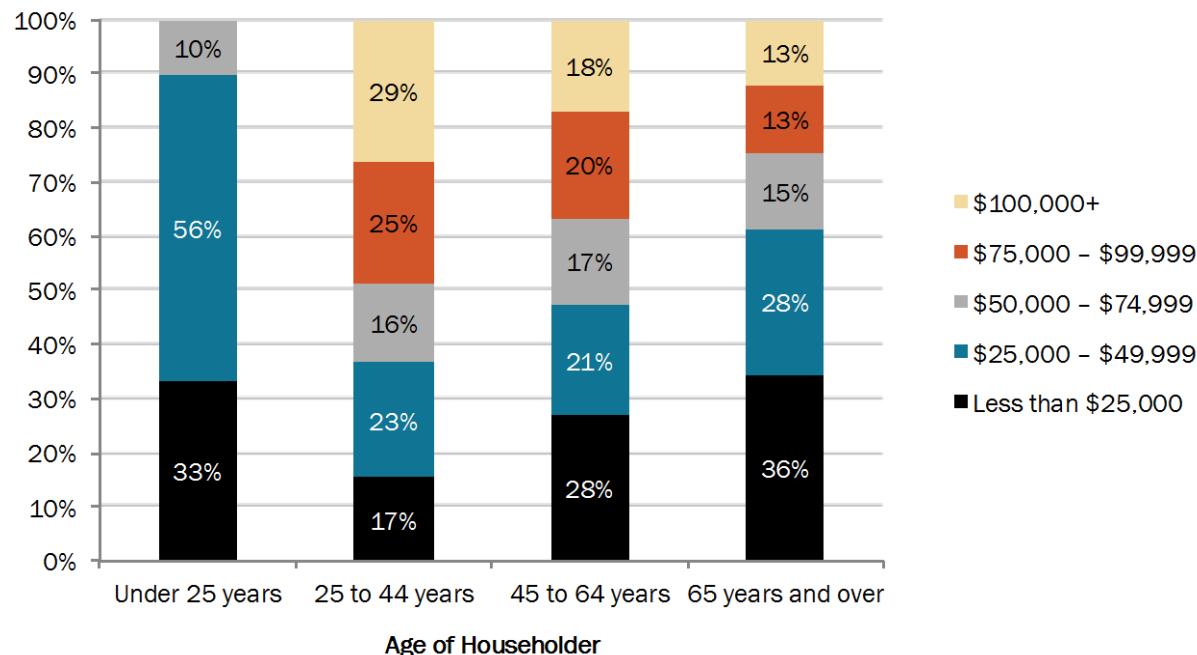
Source: 2013 American Community Survey 1-Year Estimates

Figure 23 shows this same information for Hispanic households in 2009 through 2013.

- 45% of households with a householder under 25 and 41% of households with a householder 65 years of age or older had incomes of less than $25,000.
- Households with householders between the age of 45 and 65 had the greatest share of incomes over $75,000 (61%).

Figure 23. Distribution of Hispanic Households by Household Income and Age of Householder, Bend, 2009-2013
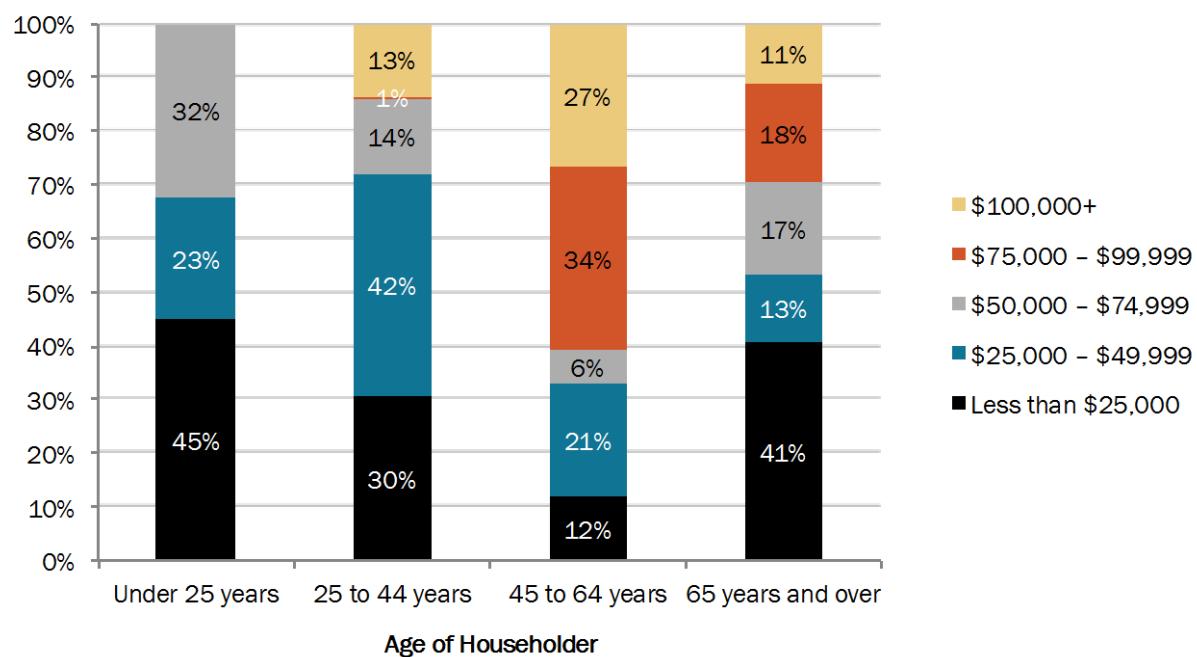
Source: 2013 American Community Survey 5-Year Estimates

Housing values

Figure 24 shows the median sales price in Oregon, Deschutes County, and Bend between 2000 and February 2015. As of February 2015, median sales prices in Bend were $314,000, higher than in Deschutes County ($274,400) and Oregon ($238,250).

Figure 24. Median Sales Price, Oregon, Deschutes County, Bend, Jan 2000 through Feb 2015
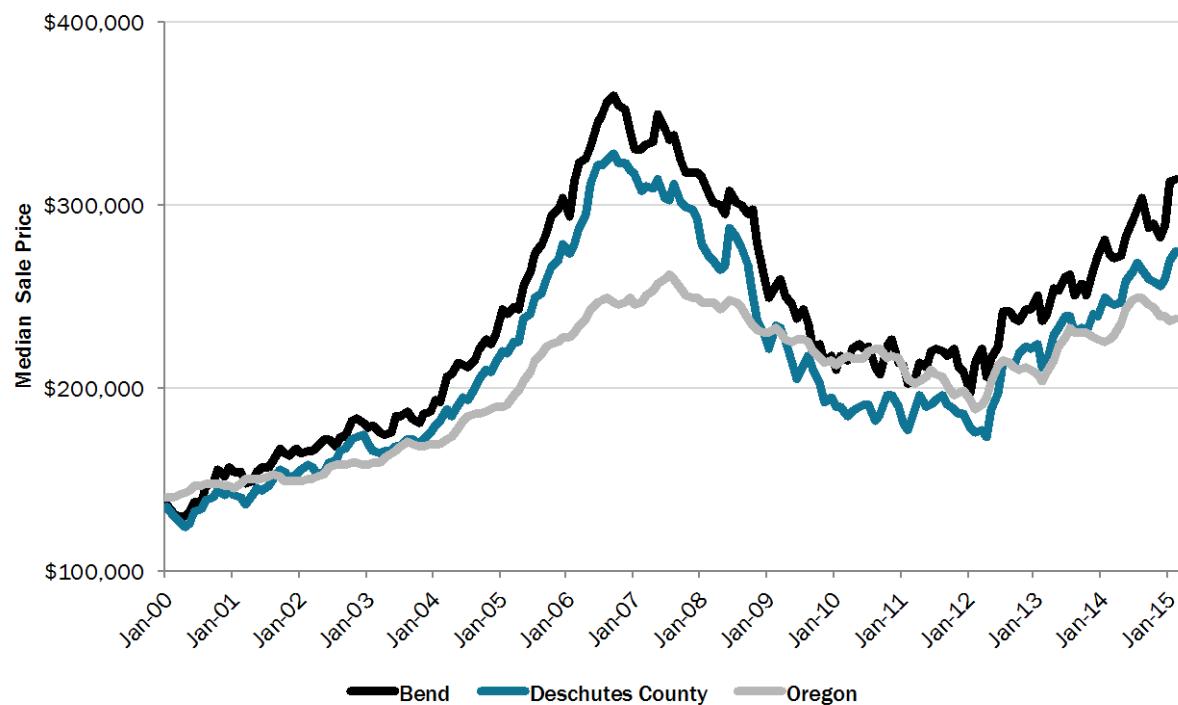
Source: Zillow Real Estate Research

Figure 25 shows median home sales prices for Bend and regional cities in February 2015. In that month, median home sale prices in Bend were about $314,000, above sales prices in Oregon's largest cities, like Eugene, Salem, and Portland, and other central and southern Oregon communities, such as Redmond, and Medford. Between February 2015 and April 2016, median home sales prices in Bend increased an additional 8% ($24,600) to a median of $347,975.

Figure 25. Median Home Sales Price, Bend, Portland, Eugene, Medford, Redmond, Salem, February 2015

Source: Zillow Real Estate Research.

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Figure 26 shows median home sales price per square foot for Oregon, Portland MSA, and Bend MSA from January 2000 through February 2015. Prices per square foot rose in Bend from $91 per square foot in January 2000 to $199 in July 2006. Prices fell after 2007 and rose again starting in 2012. In February 2015, the median price per square foot in Bend was about $165 dollars, comparable to the price in the Portland Region (about $170) and above that of the state as a whole ($154 per square foot).

Figure 26. Median Sales Price per Square Foot, Bend, Oregon, and Portland, Jan 2000 - Feb 2015
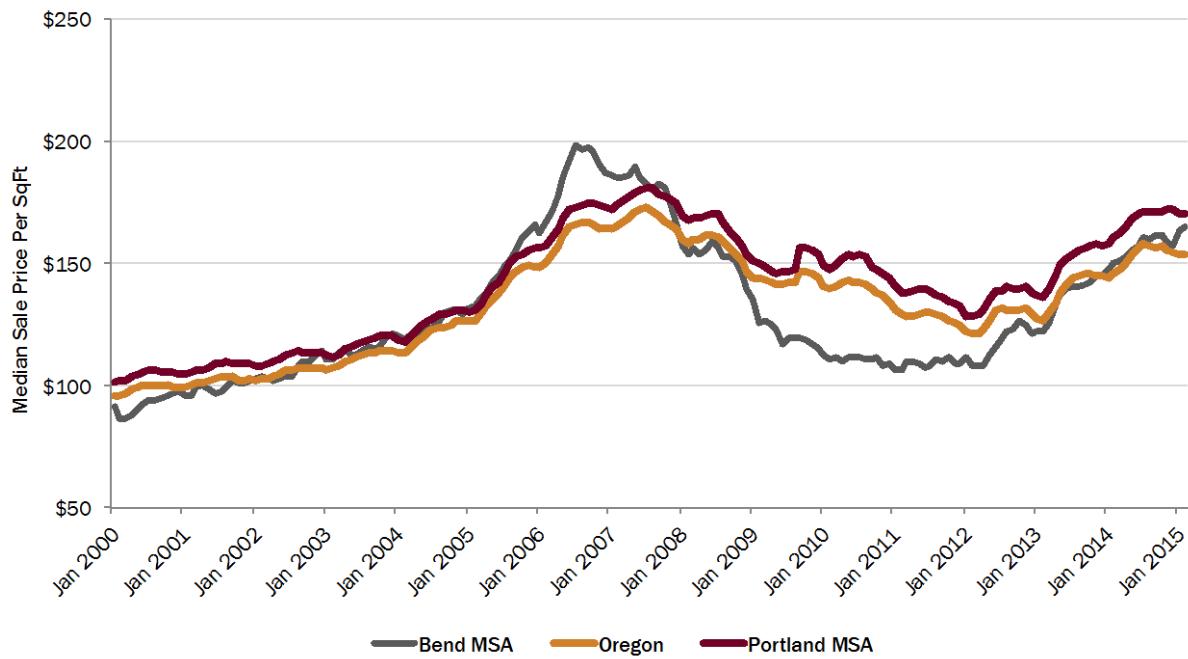
Source: Zillow Real Estate Research
MSA is metropolitan statistical area. The Bend MSA is Deschutes County.

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Figure 27 shows median home sales price per square foot for the Bend MSA and other large urban areas in Oregon in February 2005 and February 2015. Of the area sampled, Bend had the second-highest price per square foot, at $165 per square foot. Bend also saw the second highest growth in price per square foot ($32), with Portland just ahead at an increase of $39 per square foot and Eugene just behind at an increase of $21 per square foot.

Figure 27. Median Sales Price Per Square Foot, Salem, Medford, Eugene, Bend, Portland, Feb 2005 and Feb 2015
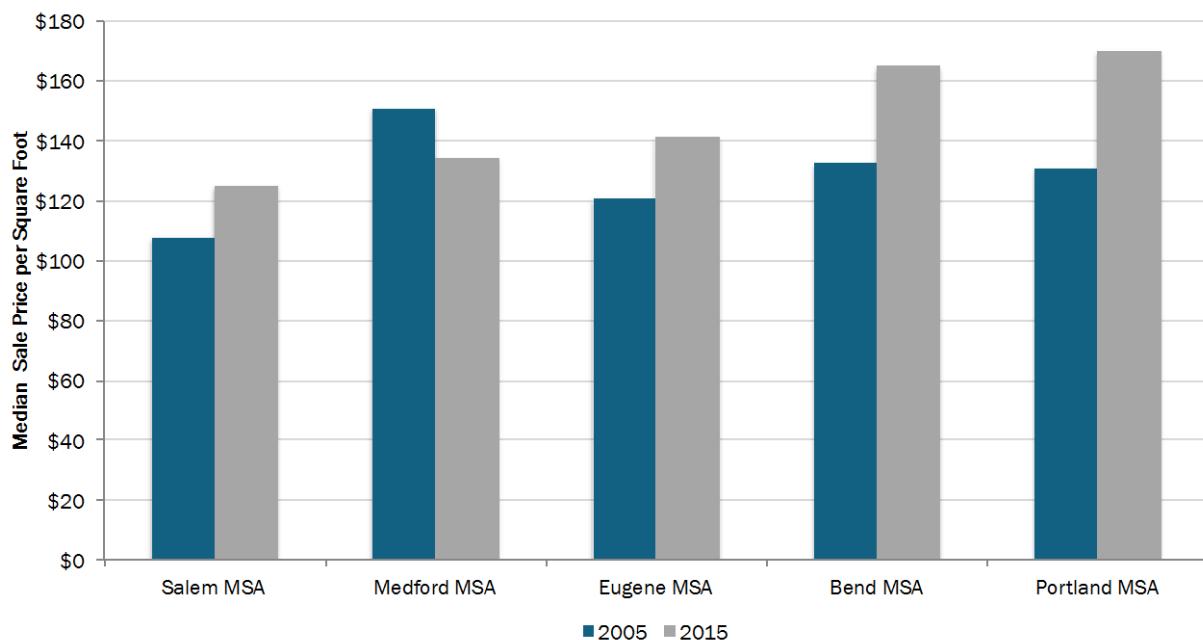
Source: Zillow Real Estate Research.
MSA is metropolitan statistical area.

Table 11 shows median household income and owner value (the estimated value of owner-occupied housing) in Bend between 1999 and 2013. During this period, housing costs increased faster than incomes, with an 18% increase observed in median household income, compared to an 81% increase in median owner value. Results show that the median owner value was 3.4 times the median household income in 1999—a figure that had increased to 5.2 by 2013.

Table 11. Comparison of Household Income and Housing Value Trends, Bend, 1999 to 2013

Indicator	1999	2013	% Change 1999 to 2013
Median Household Income	$40,857	$48,014	18%
Median Owner Value	$138,100	$250,300	81%
Ratio of Housing Value to Income	3.4	5.2	

Source: 2000 Census SF3, 2013 ACS 1-Year Estimates

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Housing rental costs

Figure 28 shows gross rent for renter-occupied units in Oregon, Deschutes County, and Bend, for 2011-2013.

- Almost 23% of all renter occupied dwellings in Bend had gross rent of more than $1,250, compared to roughly 18% of county and state renter occupied dwellings.
- About 10% of renter occupied dwellings in Bend had gross rent of less the $600, compared to 11% for Deschutes County and 15% for Oregon.

Figure 28. Gross Rent for Renter-Occupied Units, Oregon, Deschutes County, and Bend, 2011-13
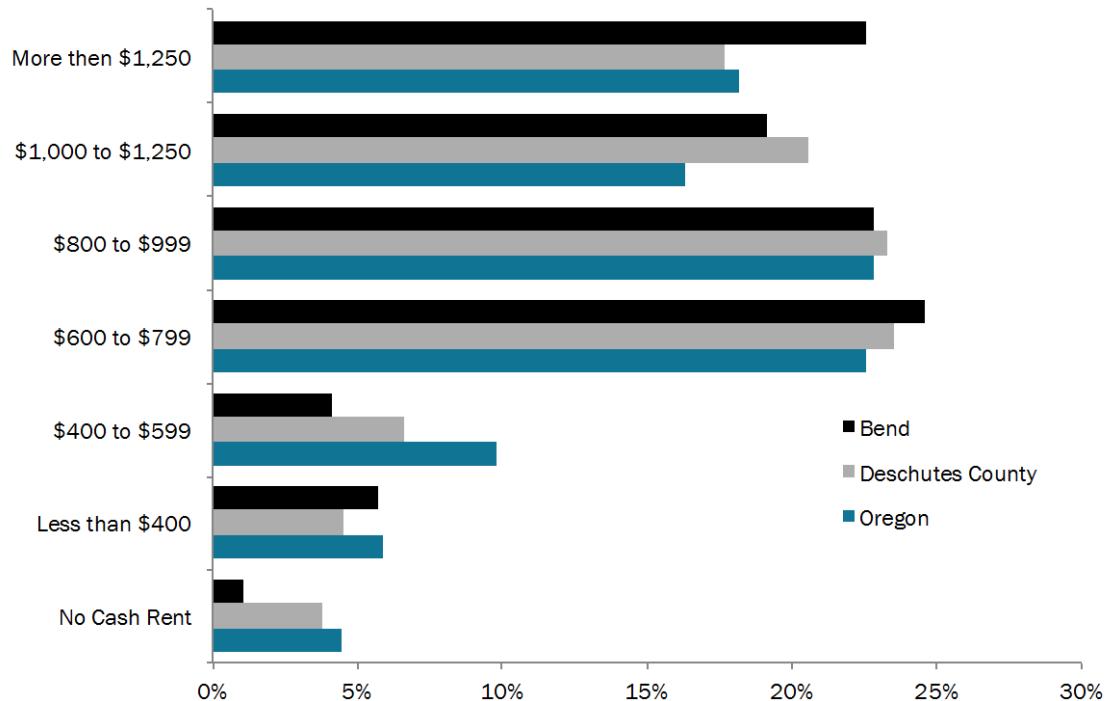
Source: 2013 American Community Survey 3-Year Estimates

Table 10 shows median gross rent for Oregon, Deschutes County, and Bend from 2000 to 2013, adjusted for inflation. Rent increased in Bend by 6%, comparable to increases in Deschutes County, and the state. Over roughly the same period, median household income fell by 16% in Bend (See Table 11), showing that the cost of rent grew faster than incomes.

Table 12. Median Gross Rent, Oregon, Deschutes County, Bend, 2000 and 2013, Inflation-adjusted

	2000	2013	Change, 2000 to 2013	% Change, 2000 to 2013
Oregon	$837	$877	$40	4.8%
Deschutes County	$869	$918	$49	5.6%
Bend	$876	$928	$52	5.9%

Source: 2000 Census American Community Survey 2013 1-year Estimates

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Figure 29 describes changes in gross rent in Bend in between 2000 and 2013. Units with gross rent of $1,000 or more accounted for 84% of the growth in units available to rent between 2000 and 2013.

- The number of rental units that cost $499 or less decreased between 2000 and 2013.
- Conversely, the proportion of units available for rent for $600 or more increased between 2000 and 2013. By 2007, units renting for $600 or more represented 89% of the units rented.

Figure 29. Gross Rent in Bend, 2000 and 2013
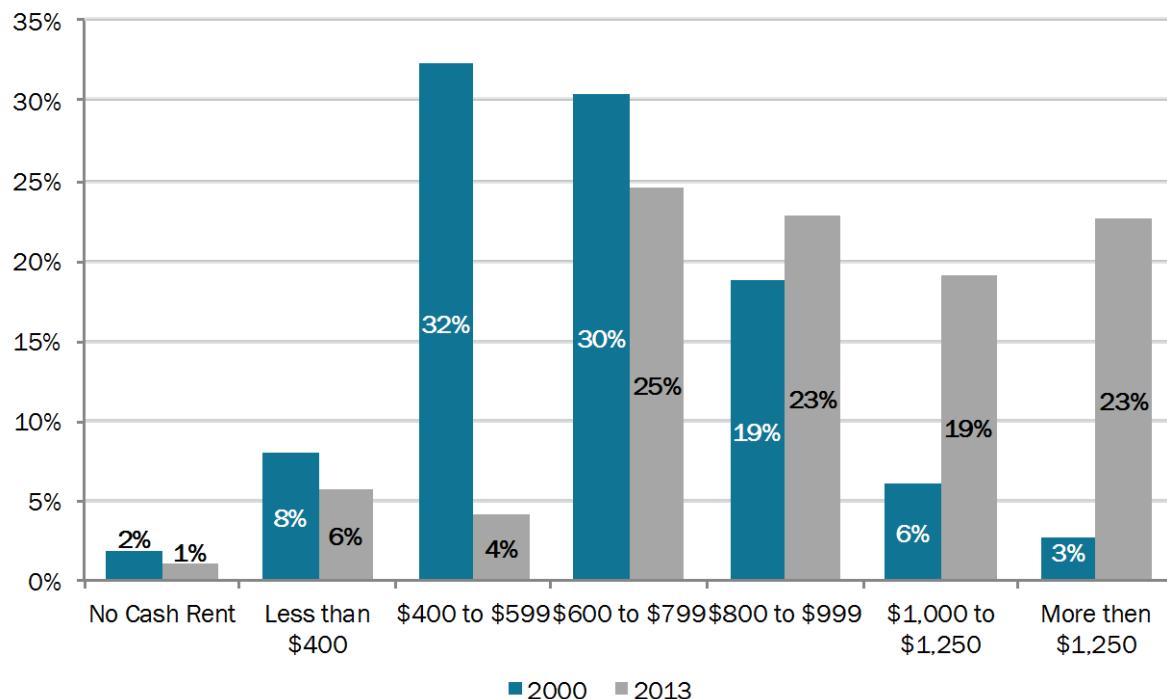
Note: The number of units included in this table includes all types of units available for rent in Bend in 2000 and 2013.
Source: 2000 Census SF3, 2013 American Community Survey 1-Year Estimates

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Housing Affordability

As noted previously, a widely used standard for determining housing affordability is that a household should pay no more than a certain percentage of household income for housing (including payments, interest, rent, utilities, and insurance). HUD guidelines place this percentage at 30%, indicating that households paying more than 30% of their income on housing experience "cost burden". Households paying more than 50% of their income on housing, meanwhile, experience "severe cost burden."

Figure 30 shows the share of households that were cost burdened in 2013 in Oregon, Deschutes County, and Bend. In Deschutes County as a whole, roughly the same percentage of all households – 40% – were cost burdened in 2013, with about 54% of renter households and 31% of owners experiencing cost burden. For comparison, 38% of Oregon's households were cost burdened in 2013, corresponding to 50% of renter households and 29% of owner households.

Figure 30. Cost Burdened, Oregon, Deschutes County, Bend, 2013

Source: American Community Survey 2013 1-year Estimates

13362
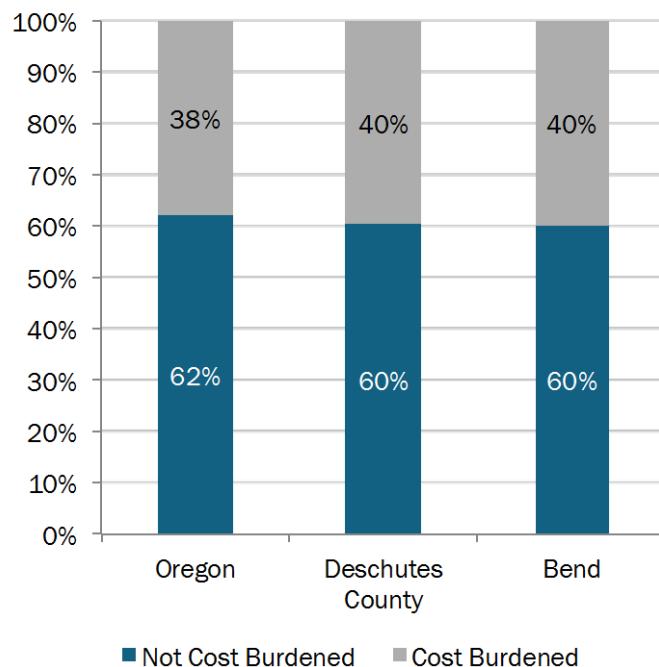
Figure 31 shows the share of Bend households by tenure that were cost burdened in 2013. According to the U.S. Census, approximately 12,119 households in Bend—40% of all households—paid more than 30% of their income for housing expenses in 2013. About 49% of renter households in Bend were cost burdened, compared with 33% of owner households. In 2000, 42% of renter households and 26% of owner households in Bend were cost burdened.

Figure 31. Cost Burden by Tenure, Bend, 2013

Source: 2013 American Community Survey 1-Year Estimates

13363
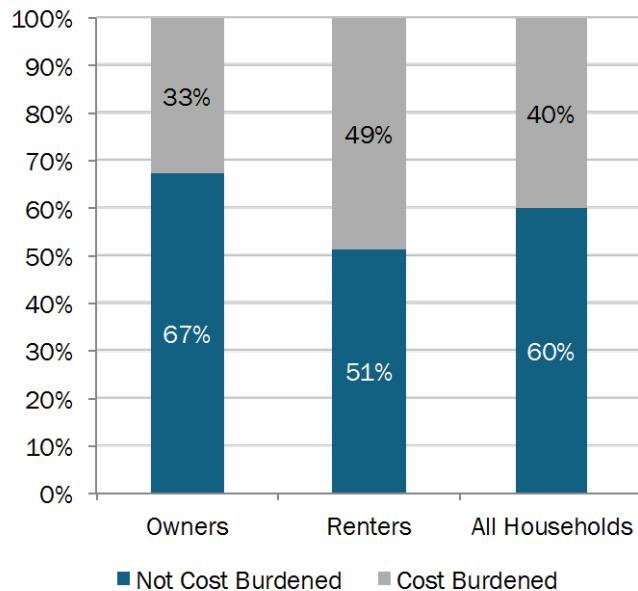
Cost burden is only one indicator of housing affordability. Another way of exploring the issue of financial need is through analysis of wages relative to housing affordability. Table 13 shows an illustration of the affordable housing wage and rent gap for households in Bend at several different percentages of median family income (MFI).

Table 13 uses HUD's estimate of fair market rent for a two-bedroom dwelling in Deschutes County. Fair market rent is estimated as the 40th percentile of gross rents for typical, non-substandard rental units occupied by recent movers in a local housing market. Incomes are based on household income for all wage-earners in the household.

Table 13 shows that a typical family of four must earn $15.44 an hour to be able to afford a two-bedroom unit. While Table 13 illustrates housing affordability as one wage, the income necessary to afford a two-bedroom unit (i.e., $15.44 per hour or about $32,000 per year) could be earned by any number and combination of workers in the household (i.e., a full-time worker earning $9.50 per hour and a part-time worker earning minimum wage).

Table 13. Affordable Housing Wage and Rent Gap for Households based on Household Income, Bend, 2013

Value	Minimum Wage	30% MFI	50% MFI	80% MFI	100% MFI	120% MFI
Annual Hours	2088	2088	2088	2088	2088	2088
Derived Hourly Wage	$8.95	$8.58	$14.30	$22.87	$28.59	$34.31
Annual Wage At Minimum Wage	$18,688	$17,910	$29,850	$47,760	$59,700	$71,640
Annual Affordable Rent	$5,606	$5,373	$8,955	$14,328	$17,910	$21,492
Monthly Affordable Rent	$467	$448	$746	$1,194	$1,493	$1,791
HUD Fair Market Rent (2 Bedroom)	$803	$803	$803	$803	$803	$803
Is HUD Fair Market Rent Higher Than The Monthly Affordable Rent?	Yes	Yes	Yes	No	No	No
Rent Paid Monthly OVER 30% of Income	$336	$355	$57	na	na	na
Rent Paid Annually OVER 30% of Income	$4,030	$4,263	$681	na	na	na
Percentage of Income Paid OVER 30% of Income for Rent	22%	24%	2%	na	na	na
Total Spent on Housing	52%	54%	32%	20%	16%	13%
For this area what would the "Affordable Housing Wage" be?	$15.38	$15.38	$15.38	$15.38	$15.38	$15.38
The Affordable Housing Wage Gap IS:	**$6.43**	**$6.81**	**$1.09**	**na**	**na**	**na**

Source: US Department of Housing and Urban Development 2013 Fair Market Rents , HUD 2013 MFI
HUD sets fair market rents based on an of market rent costs within a county, based on gross rent.
The values in Table 13 are:
Annual hours are the number of hours per year worked at a year-round, 40-hour per week job.
Derived hourly wage is the average annual wage divided by 2,080. For a household earning 80% of MFI, the hourly wage is $22.96.
Annual wage is the average wage made per year. For example, a household earning 80% of MFI has an annual wage of $47,760 (80% of $59,700 (Median Family Income)).
Annual affordable rent is 30% of the annual wage. For a household earning 80% of MFI, this is $14,328 (30% times $47,760).
Monthly affordable rent is the annual affordable rent divided by 12 months.
HUD Fair Market Rent (2 Bedrooms) is the fair market rent in Deschutes County in 2013.
Is HUD Fair Market Rent Higher Than The Monthly Affordable Rent? says whether the fair market rent is greater than the monthly affordable rent.
Rent Paid Monthly OVER 30% of Income is the difference between fair market rent and monthly affordable rent, if fair market rent is greater than monthly affordable rent.
Rent Paid Annually OVER 30% of Income is rent paid monthly over 30% of income multiplied by 12 months.
Percentage of Income Paid OVER 30% of Income for Rent is the annual percentage of the household's rent paid over the amount of rent that is affordable (30% of gross income).
Total Spent on Housing is the percentage of income spent on fair market rent per year.
For this area what would the "Affordable Housing Wage" be? is the wage that a household has to earn to afford a two-bedroom dwelling at fair market rent. This is the same amount for all households, regardless of income.
The Affordable Housing Wage Gap IS: is the difference between the derived hourly wage and the Affordable Housing Wage.

13364

Table 14 shows a rough estimate of affordable housing cost and units by income levels for Bend in 2013 based on Census data about household income, the value of owner occupied housing, and rental costs in the city. The table shows the number and percentage of households in each income level in Bend (e.g., Bend has about 2,631 households (9% of households) with income less than $10,000) based on Census data about income. The table shows the affordable monthly housing costs and affordable housing price, using HUD's standards for affordability. The Table shows the estimated number of owner and renter units in Bend based on Census data about the housing costs of people in Bend. The column "surplus (deficit)" subtracts the estimated number of owner and renter units from the number of households, showing whether Bend has enough housing to meet demand at each income level.

The data indicate that, in 2013:

- About one-fifth of Bend's households could not afford a studio apartment according to HUD's estimate of $557 as fair market rent;

- Almost 40% of households in Bend could not afford a two-bedroom apartment at HUD's fair market rent level of $803;

- A household earning median family income ($59,700) could afford a home valued up to around $149,250.

Based on the data presented in Table 14, in 2013 Bend had a deficit of approximately 5,243 affordable housing units for households that earn less than $25,000 annually (26% of households in the city earn this amount or less).[71]

Table 14. Affordable Housing Costs and Units by Income Level, Bend, 2011-2013

Income Level	Number of HH	Percent	Affordable Monthly Housing Cost	Crude Estimate of Affordable Purchase Owner-Occupied Unit	Est. Number of Owner Units	Est. Number of Renter Units	Surplus (Deficit)	HUD Fair Market Rent (FMR) in 2013
Less than $10,000	2,631	9%	$0 to $250	$0 to $25,000	509	360	(1,763)	
$10,000 to $14,999	1,299	4%	$250 to $375	$25,000 to $37,000	254	364	(681)	
$15,000 to $24,999	3,996	13%	$375 to $625	$37,500 to $62,500	176	1,021	(2,800)	Studio: $557
$25,000 to $34,999	4,028	13%	$625 to $875	$62,500 to $87,500	226	4,262	460	1 bdrm: $645 2 bdrm: $803
$35,000 to $49,999	3,676	12%	$875 to $1,250	$87,500 to $125,000	959	4,556	1,839	3 bdrm: $1,147
$50,000 to $74,999	4,753	16%	$1,250 to $1,875	$125,000 to $187,500	4,004	2,015	1,265	4 bdrm: $1,373
Deschutes County 2013 MFI: $59,700			$1,493	$149,250				
$75,000 to $99,999	4,107	14%	$1,875 to $2,450	$187,500 to $245,000	2,434	904	(769)	
$100,000 to $149,999	3,181	10%	$2,450 to $3,750	$245,000 to $375,000	4,289	154	1,262	
$150,000 or more	2,742	9%	More than $3,750	More than $375,000	3,877	51	1,186	
Total	30,413	100%			16,727	13,686	0	

Source: American Community Survey 2013 3-year Estimates, HUD 2013 Fair Market Rents, HUD 2013 MFI

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[71] The Surplus or deficit in Table 14 is calculated by subtracting the estimated number of owner units and renter units from the number of households in the income category. For example, for households with an income of $10,000 to $14,999, the math is 1,299 households minus 254 owner units minus 364 renter units equals a deficit of 681 units.

Based on the forgoing analysis of household and economic trends, the City concludes that the following types of housing will be those types that are needed and financially attainable by each income group listed above in Table 13 and Table 14.

Table 15 shows the type of housing that is attainable at different household income categories (relative to the 2013 Deschutes County MFI), and the distribution of these households in Bend in 2013. The analysis in Table 14 and Table 15 show that Bend has unmet demand for lower-cost housing types, such as multifamily housing.

Table 15. Housing Attainability, Bend, 2013

Market Segment by Income	Income Range	Number of households	Percent of Households	Financially Attainable Products		
				Owner-occupied	Renter-occupied	
High (120% or more of MFI)	$71,640 or more	10,622	35%	All housing types; higher prices	All housing types; higher prices	
Upper Middle (80%–120% of MFI)	$71,640 to $47,760	4,618	15%	All housing types; lower values	All housing types; lower values	Primarily New Housing
Lower Middle (50%–80% of MFI)	$47,760 to $29,850	4,817	16%	Manufactured on lots; single-family attached; duplexes	Single-family attached; detatched; manufactured on lots; apartments	Primarily Existing Housing
Lower (30%–50% of less of MFI)	$29,850 to $17,910	5,068	17%	Manufactured in parks	Apartments; manufactured in parks; duplexes	
Very Low (Less than 30% of MFI)	Less than $17,910	5,288	17%	None	Apartments; new and used government assisted housing	

Source: American Community Survey 2013 1-year Estimates

13366

Manufactured homes

Manufactured homes are and will be an important source of affordable housing in Bend. They provide a form of homeownership that can be made available to low- and moderate-income households. Cities are required to plan for manufactured homes—both on lots and in parks (ORS 197.475-492).

Generally, manufactured homes in parks are owned by the occupants who pay rent for the space. Monthly housing costs are typically lower for a homeowner in a manufactured home park for several reasons, including the fact that property taxes levied on the value of the land are paid by the property owner rather than the manufactured homeowner. The value of the manufactured home generally does not appreciate in the way a conventional home would, however. Owners of manufactured homes in parks are also subject to the mercy of the property owner in terms of rent rates and increases. It is generally not within the means of an owner of a manufactured home to relocate the home to escape rent increases. Living in a park is desirable to some because it can provide a more secure community with on-site managers and amenities, such as laundry and recreation facilities.

OAR 197.480(4) requires cities to inventory the mobile home or manufactured dwelling parks sited in areas planned and zoned or generally used for commercial, industrial or high-density residential development. Table 16 presents the inventory of mobile and manufactured home parks within Bend in 2015. The results show that there are 12 manufactured home parks with 1,348 spaces and 27 vacant spaces in or adjacent to Bend. Table 16 shows that two manufactured home parks are in commercial zones and none are in industrial or high-density residential zones (although two parks are in a medium density zone).

In response to dwindling numbers of affordable mobile home units, City Council has adopted a program to promote re-zoning of closed manufactured home parks to higher-density zoning to provide an incentive for park owners to replace those units with affordable rental housing.[72]

Table 16. Inventory of Mobile/Manufactured Home Parks, City of Bend, 2014

Name	Location	Park Type	Total Spaces	Vacant Spaces	Zone
Bend Trailer Park	335 SE Roosevelt	Family	7	0	Commercial Limited
Cascade Village - Bend	63700 Cascade Village Dr	55+	89	0	Residential Standard Density
Country Sunse	61445 SE 27th St	Family	148	0	Residential Low Density
Fox Hills Mobile Home Court	61058 Alopex Ln	Family	62	5	Residential Standard Density
Golfside Park	61055 Parrell Rd	Family	94	0	Residential Standard Density
Parrell/Sisters Mobile Home Park	61310 & 61292 Parrell Road	Family	87	6	Residential Standard Density
Rock Arbor Villa Mobile Home Park	2200 NE Hwy 20	55+	77	0	General Commercial
Romaine Village Country Estates	19940 Mahogany St	Family	177	5	Residential Low Density
Snowberry Village	1188 NE 27th	55+	132	0	Residential Standard Density
Suntree Village Mobile Home Park	1001 SE 15th St	55+	214	0	Residential Medium Density
The Pines	61000 Brosterhous Rd	Family	191	11	Residential Standard Density
West Side Pines Cooperative	141 SW 15th St	Family	71	0	Residential Medium Density
Total			1,349	27	

Source: Oregon Manufactured Dwelling Park Directory; http://o.hcs.state.or.us/MDPCRParks/ParkDirQuery.jsp
Note: Several of these mobile/manufactured home parks are located on Bend's periphery, outside of the city and UGB.

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[72] The manufactured home park density bonus program is part of the Manufactured Home Park Redevelopment Overlay in Bend Development Code 2.7.900. Bend's General Plan includes a policy (number 3) that says "Density bonuses may be considered as an incentive to providing affordable housing."

Summary of Key Findings about Housing Affordability

The analysis of housing affordability shows the following trends that will result in increased need for a broader range of housing in Bend:

- **Housing sales prices for owner-occupied units grew substantially faster than incomes over the 2000 to 2013 period.** Since 2000, household income increased by 18% ($7,200 per year) and median sales price increased by 110% ($151,600). Between February 2015 and April 2016, median home sales prices in Bend increased an additional 8% ($24,600). The median owner value increased from 3.4 times the median household income in 1999 to 5.2 by 2013. Cost burden for owners increased from 26% of owner-occupied households being cost burdened in 2000 to 33% of owners in 2013.

  The decreases in housing affordability for homeowners shows an increased need for less costly smaller single-family detached housing, both smaller lots and smaller units, such as cottages or cluster housing, and for townhouses. Demand for owner-occupied multifamily housing, such as garden apartments or urban condominiums, may increase, especially in walkable areas with access to services. These types of more affordable owner-occupied units are the types likely to be preferred by some downsizing Baby Boomers and Millennials, especially as the first houses for Millennials.

- **Bend has a substantial level of demand for rental housing affordable to low- and moderate-income households.** The share of renter households paying $1,000 or more in rent per month increased from 9% of households in 2000 to 42% in 2013. Cost burden for renters increased from 42% in 2000 to 49% of owners in 2013.

  The increase in rent costs, combined with expected growth of households who will need affordable rental housing, such as young Millennials and some Hispanic and Latino households, suggest that Bend will have increased need for affordable types of housing such as townhouses, duplexes, garden apartments, urban apartments, and other multifamily housing types.

Step 5 – Estimate the number of additional needed units by structure type and Step 6 – Determine the needed density ranges for each plan designation and the average needed net density for all structure types

This section summarizes the most important facts and conclusions presented in previous sections, focusing on the specific requirements of ORS 197.296. Cities are required to determine the average density and mix of *needed* housing over the 20-year planning period (ORS 197.296(5)). The statute requires the determination of the Housing Needs Projection (e.g., needed density and mix) consider the following factors that may affect future housing need:

A. The number, density and average mix of housing types of urban residential development that have actually occurred;

B. Trends in density and average mix of housing types of urban residential development;

C. Demographic and population trends;

D. Economic trends and cycles; and

E. The number, density and average mix of housing types that have occurred on the buildable lands.

Thus, the HNA must consider a range of factors, and they do not lend themselves to an empirical formula. The data and analysis are intended to inform the community's discussion of what types of housing will be needed. The remainder of this section presents the estimate of additional needed units by structure type and the rationale for the estimate.

The needed housing density and mix for the 2008 to 2028 period in Bend is different than actual housing density and mix, based on the following factors:

Housing mix (ORS 197.296(5)(A) and (E)). The most common type of housing developed in Bend was single-family housing types.

- While the mix of housing types in Bend has varied over time, single-family detached housing has historically accounted for the majority of housing in Bend. In 2013, about 71% of Bend's total housing stock was single-family detached, 4% was single-family attached, and 25% was multifamily.

- Bend permitted an average of about 1,200 units per year between 1999 and 2014, 78% of which were single-family detached units.

- Fifty-five percent of housing in Bend was owner-occupied in 2013, a changed from 63% in 2000 and 54% in 1990.

Housing Density (ORS 197.296(5)(A), (B) and (E)). The average density of single-family housing was 4.7 dwelling units per net acre and for multi-family housing was 15.8 dwelling units per acre over the 1998 to 2008 period.[73]

- The average density for residential development in Bend was 5.7 dwelling units per net acre during the 1998 to 2008 period, compared to an average for Bend's housing stock before 1998 of 3.7 dwelling units per net acre.

- The average density by zone during the 1998 to 2008 period was: 2.1 dwelling units per net acre (du/net acre) in RL, 4.9 du/net acre in RS, 13.4 du/net acre in RM, and 16.9 du/net acre in RH.

- The average density for single-family detached housing developed over the 1998 to 2008 period was 4.7 du/net acre and 5.1 du/net acre for manufactured homes on lots.

- The average density for single-family attached housing developed over the 1998 to 2008 period was 9.5 du/net acre and 16.0 du/net acre for manufactured homes on lots.

Regional Growth (ORS 197.296(5)(C). Bend's existing mix of housing is a result of a range of historical factors, related to both local and regional growth.

- The City grew rapidly from a small city in 1990 to a city of more than 78,000 people by 2013. The largest source of pressure for housing over this period was the Baby Boomers (especially younger Baby Boomers), who needed housing to accommodate children.

- Between 1990 and 20013, Bend's growth accounted for two-thirds of population growth in Deschutes County. Population and economic growth in Bend drives regional growth in Deschutes County and Central Oregon.

- The predominant type of housing built in many of Oregon's communities during the 1990's and early 2000's was single-family housing. In particular, single-family housing types dominated residential development during the high growth "boom" period from 2004 to 2007.[74]

- Between 1990 and 2013, about 85% of Deschutes County's population growth was from positive net migration (in-migration exceeded out migration) from other parts of Oregon or from outside of Oregon. Interviews with real estate professionals suggest Bend attracts in-migrants who have sufficient capital and income to afford higher-cost housing in Bend. In addition, Bend is attracting Millennials, many of whom prefer to live in an area with easy access to outdoor recreation.

- Bend annexed more than 17,000 people between 1990 and 1999. The majority of areas annexed were developed with relatively low-density single-family housing. All of Bend's population growth since 2000 has been due to natural increase (# births > # deaths) and positive net migration.

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[73] The analysis about historical housing density used the density analysis from the 2008 housing needs analysis, for the 1998 to 2008 period, because the majority of residential development took place over that period and the majority of new housing developed between 2009 and 2013 was single-family detached. There was no reason to expect that development densities over the 2009 to 2013 period would have been substantially different from the 1998 to 2008 period, given the fact that Bend's development policies did not change over that period.

[74] This statement is based on ECONorthwest's experience developing housing needs analysis since 2007 for cities across Oregon, such as Salem, Eugene, Madras, Newport, Harrisburg, as well as other cities.

Economic Trends (ORS 197.296(5)(D). The economy in Bend grew over the last two decades. A separate analysis of economic opportunities shows that employment in Bend will continue to grow over the 20-year period.

- Between 2001 and 2013, Deschutes County added nearly 10,800 jobs. The majority of new jobs were in commercial sectors, such as health care and professional services, accommodations and food services, and administrative support.

- The per capita income (accounting for inflation), in Deschutes County increased by about 20% ($7,100 in 2014 dollars) between 1990 and 2013.

- Between 2008 and 2028, Bend is forecast to add 22,891 jobs, mostly in office and service sectors. While the economy and the housing market recently experienced a severe downturn in growth, Bend can expect to experience one to two complete economic cycles (from faster growth to little or no growth) over the planning period.

Demographic trends (ORS 197.296(5)(C). The population is aging and household sizes are generally decreasing within the region, with small increase in the share of single-person households.

- Future housing demand will be driven by in-migration, changes in age-demographics, and changes in household composition, with an increase in single-person households. New households and existing households are likely to undergo similar changes in age-demographics.

- Baby Boomers are the fastest growing segment of Deschutes County's population. People over 65 years old are projected to grow from 13% of the County's population in 2000 to 24% in 2030. These households will make a variety of housing choices. The major impact of the aging of the Baby-Boomers on demand for new housing will be through demand for housing types specific to seniors, such as assisted living facilities.

  In 2013, about 36% of householders over 65 years old in Bend had incomes of $25,000 or below. While people over 65 years old may have financial reserves (beyond income) or may own their home outright, the large share of households with incomes below $25,000 suggest that many older households will need access housing costing about $600 per month or less. About 28% of householders over 65 years old had incomes between $25,000 to $50,000 (near or below the median family income), suggesting that this group will need access to housing costing between $600 and $1,200 per month.

  Implications for Housing Product Types. Baby Boomers will make a range of housing choices as they age, from continuing to remain in their homes as long as possible, to downsizing to smaller dwellings, to moving into group housing (e.g., assisted living facilities or nursing homes) as their health fails. The aging of the Baby Boomers will increase need for: small single-family dwellings, cottages, accessory dwelling units, townhomes, apartments, and condominiums. Baby Boomers who move are likely to choose housing in areas with nearby shopping, health care and other services, such as neighborhoods with integrated services or in downtown Bend.

- Millennials are the second fastest growing segment of Deschutes County population. People aged 25 to 49 years old are projected grow by nearly 27,500 people between 2000 and 2030, an increase of 64%. This will result in between 2,200 to 2,600 more households in Bend with a head of household who is between 30 and 45 years old.

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In 2013, about 17% of householders 25 to 45 years old in Bend had incomes of $25,000 or below and could afford $600 in housing costs per month. About 23% of householders in this age grouping had incomes between $25,000 to $50,000 (near or below the median family income), and could afford housing costing between $600 and $1,200 per month. About 16% of households in this age group had incomes of $50,000 to $75,000 and could afford monthly housing costs of about $1,200 to $1,900, which is the range when homeownership begins to be financially feasible in Bend. As Millennials age, the amount that they can afford to spend on housing may be lower than people in this age range in 2013 because of increases in debt, as discussed in the prior section about demographic characteristics and trends affecting housing demand in Bend.

Implications for Housing Product Types. Growth in Millennials will increase need for affordable housing for renters and homeowners such as: small single-family dwellings, cottages, accessory dwelling units, duplexes, townhomes, garden apartments, and apartments. The size of dwelling units will vary depending on household size, from single-person households to households with children. Millennials who move are likely to choose housing in areas closer to services and activities, such as downtown Bend and nearby neighborhoods, as discussed previously.

- Hispanic and Latino population grew by more than 200% in Bend between 2000 and 2013, growing from about 2,400 people to about 8,400 people. The U.S. Census projects that Hispanic and Latino population will grow from about 16% of the nation's population in 2010 to 22% of the population in 2030, with growth fastest in the western U.S., as discussed in the prior section about demographic characteristics and trends affecting housing demand in Bend. This will result in between 2,000 to 3,000 new households in Bend with a Hispanic or Latino head of household.

  In the previous period from 2009 to 2013, 28% of Hispanic and Latino households in Bend had incomes of $25,000 or below and could afford rents of $600 or less. About 30% of Hispanic and Latino households had incomes between $25,000 and $50,000, (near or below the median family income), and could afford housing costing between $600 and $1,200 per month. About 15% of Hispanic and Latino households had incomes of $50,000 to $75,000 and could afford monthly housing costs of about $1,200 to $1,900, which is within the range of when homeownership begins to be financially feasible in Bend.

  Implications for Housing Product Types. Hispanic and Latino households will need affordable housing that can accommodate larger households, including multi-generational households. Growth in Hispanic and Latino households will increase need for affordable housing for renters and homeowners such as: single-family dwellings (both smaller and larger sized dwellings), duplexes, larger townhomes, garden apartments, and apartments. Ownership opportunities for Hispanic and Latino households will focus on moderate-cost ownership opportunities, such as single-family dwellings on a small lot or in a more suburban location, duplexes, and townhomes.

- In addition to these large-scale demographic changes affecting Bend, development of the OSU Cascades Campus will impact housing need in Bend. OSU projects that the campus will grow to 5,000 students by 2025. The City recently approved a site plan for

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development of 10 acres of OSU's campus. This approval included some on-site student housing in a dormitory for 300 students.[75]

Some students may live on campus in dormitories, may already live in Bend, or may commute to the campus from a nearby community. Some students, however, will move to Bend specifically to attend the University and will need student housing. Demand for off-campus student housing may significantly affect Bend's housing market, depending on how many students need off-campus housing and how soon they need it.[76] This analysis assumes that dormitory-style student housing will be accommodated on OSU's campus and is not accounted for in the land need estimate. Demand for off-campus student housing is not accounted for in the projection of population growth. As the timing of OSU's growth becomes more certain, the City should update its policies to address this need.

Housing Affordability (ORS 197.296(5)(C) and (D)). Bend's housing became less affordable for both renting and owning over the last decade.

- Between 1999 and 2013, growth in homeownership costs outpaced growth in income. In Bend, median owner value increased by 81% between 1999 and 2013, while median household income grew by 18%.

- Between 2000 and 2014, average sales price more than doubled, increasing from $137,000 to $288,000.

- Forty percent of Bend's households were cost burdened in 2013, with renters cost burdened more frequently than owners (49% compared to 33%). In comparison, 40% of households in Deschutes County and 38% of State households were cost burdened in 2013.

- In 2013, Bend had a gap in affordable housing for households that earn less $25,000.

  o Bend had a deficit of about 5,200 dwelling units that would be affordable to households earning $25,000 or less based on the U.S. Department of Housing and Urban Development's (HUD) affordability guidelines.

  o More than 13% of Bend's households could not afford a studio apartment at HUD's fair market rent level of $557, and just under one-third of households could not afford a two-bedroom apartment at HUD's fair market rent level of $803.

  o A household earning median family income ($59,700) could afford a home valued up to about $149,250, about half of the median sales price in Bend in 2014.

- Continued increases in housing costs may increase demand for denser housing (e.g., multifamily housing or smaller single-family housing) or locating outside of Bend. To the extent that denser housing types are more affordable than larger housing types, continued increases in regional housing cost will increase demand for denser housing.

When the balance of factors required by ORS 197.296(5) are considered, we conclude that the needed density and mix for the 20-year planning period is different than the actual density and

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[75] See Final Decision of the City of Bend Hearings Officer on PZ-14-0210.

[76] Final Recommendations (2014) OSU Cascades Housing Task Force

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mix achieved between 1999 and 2013. This is in part because the analysis period largely covers the housing boom period between 2004 and 2007—a period when an extraordinary number of higher cost single-family detached dwellings were built. It is also reflective of the fact that the data suggest the region has a significant affordability gap. This gap suggests that the region needs more lower cost housing, which in turn may be addressed through higher densities of certain types of housing and smaller housing types. The large increase in multifamily building permits issued since 2013 (Figure 5) supports this conclusion.

Table 17 presents the assessment of needed mix for housing built in Bend over the 2008 to 2028 period. The analysis in Table 17 is based on the following information and assumptions:

- The number of new dwelling units is based on the forecast for new dwelling units in Table 6.[77]

- The majority of new housing will continue to be single-family detached housing. The type of single-family detached dwellings may change, with more emphasis on smaller and more affordable new single-family detached housing and a decrease in demand for large-lot single-family detached housing.

- Bend's housing need will change, with an increase in demand for single-family attached housing and multifamily housing. The forecast concludes that the needed mix of new housing is different from the mix of existing housing stock (Figure 1) and the mix of housing produced over the last decade (Table 3). The following demographic trends will result in an increase in demand for multifamily and single-family attached housing:

  o Growth in Baby Boomers. Households over 65 typically have lower income than younger households. Those without accumulated wealth (e.g., housing equity or investments) may choose lower-cost multifamily housing. Some Baby Boomers may choose to downsize their housing, resulting in greater demand for small single-family dwellings, cottages, accessory dwelling units, townhomes, apartments, and condominiums.

  o Growth Millennials. Younger Millennials typically have lower income and may have higher debt. Growth in Millennials will increase need for affordable housing for renters and homeowners such as: small single-family dwellings, cottages, accessory dwelling units, duplexes, townhomes, garden apartments, and apartments.

  o Growth in Hispanic and Latino population. To the extent that in-migrating Hispanic and Latino households have lower than average income, then in-migration of ethnic groups will increase demand for housing affordable to low- and moderate-income households relative to demand for other types of housing. Growth in Hispanic and Latino households will increase need for affordable housing for renters and homeowners such as: single-family dwellings (both smaller and larger sized dwellings), duplexes, larger

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[77] The population forecast that is the basis of the forecast of new dwelling units in Table 6 was developed before OSU's plans for 5,000 students in Bend. However, when compared with the new population forecast for Bend by Portland State University in 2015, the forecast used as the basis of Table 6 and the new forecast (which includes OSU's plans) show very similar rates of growth. In this analysis, we assume substantial growth in Millennials as a result of OSU expansion, with the implications for housing need described above. As a result, it is reasonable to conclude that the population and housing forecast in this analysis account for housing needs of new students at OSU.

townhomes, garden apartments, and apartments. Ownership opportunities for Hispanic and Latino households will focus on moderate-cost ownership opportunities, such as single-family dwellings on a small lot or in a more suburban location, duplexes, and townhomes.

- o The growing need for affordable housing in the Bend, much of which is likely to be located in Bend, the largest metropolitan area in the region.

- o The current deficit of housing units (5,244) affordable to households earning $25,000 or less a year (See Table 14).

Table 17. Needed mix for housing built in Bend, 2008 to 2028

	Units	Percent of New Units
Single-family detached	9,175	55%
Single-family attached	1,668	10%
Multi-family	5,838	35%
Total	16,681	100%

Source: ECONorthwest

Table 18 shows that, between 2009 and the end of June 2014, 2,912 new units were developed in Bend. The City is considering policy options to achieve the needed mix shown in Table 17. Those policies were not in place between 2008 and 2014. Because the City had not adopted any policies to help achieve the needed mix, the mix of housing developed between 2009 and July 2014 did not show substantial changes in the development pattern from housing developed in Bend between 1999 and 2008.

As a result, Table 18 applies the needed mix (Table 17) to the remaining need. Table 18 shows that Bend has a need for 13,770 additional dwellings for the remainder of the 2008-2028 forecast period, between 2014 and 2028[78].

Table 18. Needed housing by needed mix, Bend, 2014-2028

	Needed Units (2008 - 2014)	Units permitted 2009 to end of July 2014	Remaining Need (Mix applied to remaining total)	
			Units	Percent of New Units
Single-family detached	9,175	2,411	7,574	55%
Single-family attached	1,668	112	1,377	10%
Multi-family	5,838	389	4,819	35%
Total	16,681	2,912	13,770	100%

Source: ECONorthwest

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[78] See meeting packets for the Residential TAC dated August 25, 2014 and January 26, 2015

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Note: The numbers do not balance going across because the needed mix was applied to the first and third columns, while the units permitted column reflects the actual percentage of what was permitted from 2009-2014.

Based on the analysis above, we come to the following conclusions about Bend's needed densities:

- **Average development densities increased over time in most zones.** The densities in the RS, RM, and RH zones increased for development over the 1998-2008 period, when compared with the densities before 1998 (Table 5). Density in the RL zone did not change over the 1998-2008 period, compared to densities before 1998. The reasons for this increase in density include the historically high levels of residential development during the 1998-2008 period, with an emphasis on high demand for single-family detached housing.

- **Bend's average development density will change with a shift in the type of housing developed in Bend over the 2014-2028 period.** The conclusion of the housing needs analysis is that Bend will have increased demand for a wider range of housing types, especially more affordable housing types. These housing types include: small lot single-family detached, smaller single-family detached units such as cottages, townhouses (aka rowhouses), duplexes, tri-plexes and quad-plexes, garden apartments, and urban apartments and condominiums. Development of these housing types will generally be at higher densities than Bend's historical densities. These housing types will be developed primarily in the RS and RM zones, with some denser multifamily housing in the RH zone.

The starting point for discussion of needed future densities in Bend is the historical development densities for the 1998-2008 period (Table 5). These densities serve as the basis for the base case capacity analysis, presented in the *Bend Urbanization Report*.

Bend's needed density for development over the 2014-2028 period was determined through additional analysis of future development patterns. The *Bend Urbanization Report* (in Chapter 4 of the Report) provides information and analysis of efficiency measures that will increase housing density in Bend over the 2014-2028 period. **Bend's needed density on residential land for the 2014-2028 period is 7.2 dwelling units per net acre, just over a 25% increase over Bend's historical residential densities over the 1998-2008 period of 5.7 dwelling units per acre (Table 5).**

Bend's future housing densities will increase, in part, as a result of an increase in the percentage of single-family attached and multifamily housing developed over the 2014-2028 period. These are higher density residential housing types, which will increase overall average housing density. However, Bend will need to increase densities developed in the RL and RH zones. The historical densities in the RL zone (2.1 dwelling units per net acre) were low for residential development in an urban area. In addition, the historical density of development in the RH zone (16.9 dwelling units per net acre) was low for the densities that Bend currently allows in the RH zones. The *Bend Urbanization Report* describes the efficiency measures that the City is proposing that will increase development densities in the RL zone and in the RH zones.

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In addition, an increase in housing in commercial and mixed use zones at high densities (close to 50 units per net residential acre, including land developed with vertical mixed use buildings) will increase future housing densities overall. The *Bend Urbanization Report* describes the areas where new mixed use zones, plan designations, and special plan districts are proposed as part of the set of efficiency measures proposed for adoption with the UGB.

The next step in estimating units by structure type is to evaluate income as it relates to housing affordability. Table 19 shows an estimate of needed dwelling units by income level for the 2014-2028 period. The analysis uses market segments consistent with HUD income level categories, based on the income distribution in Bend in 2013 (See Table 15).

The analysis shows that about 50% of households in Bend could be considered high or upper-middle income in 2013 and that about half of the housing need in the 2014-2028 period will derive from households in these categories. These households can afford to live in any of Bend's needed housing types: single-family detached housing, townhouse, and multifamily housing. Their choice of what type of housing will depend on their preference. Some, perhaps most, will choose to live in single-family detached housing. However, as discussed previously, some of these households may prefer to live in single-family attached or multifamily housing (e.g., a household that prefers to have little or no yard or a household that prefers to live close to services).

The analysis also shows that 50% of Bend's households could be considered lower-middle, low, or very low income in 2013 and that about half of the housing need in the 2014-2028 period will derive from households in these categories. Housing that is affordable to these households will generally be existing housing. While many households may prefer to live in single-family detached housing, they may be able to afford to live in single-family attached or multifamily housing.

While the housing needs analysis focuses on housing that will be built in the future, many households in Bend (as in other Oregon cities) will be able to afford existing housing and newly built housing will be too expensive. In most cities, the stock of housing affordable to low-income households increases through the addition of new subsidized units, smaller market rate units, and older market rate units that become more affordable over time. Most new market rate development is affordable to moderate and high income households. Through the market filtering process, these stocks become affordable to lower-income households over time, as the housing stock ages.[79]

As a result, we conclude that Bend will continue to have demand for single-family detached housing and increased demand for single-family attached and multifamily housing. These conclusions support for needed mix shown in Table 17 and shift from the historical mix in Bend (Table 3). The large increase in multifamily building permits issued since 2013 (Figure 5) supports this conclusion.

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[79] Based on analysis presented in the ECONorthwest report "Seattle Housing Affordability Policy Framework and Recommendations," March 2015.

Table 19. Estimate of needed dwelling units by income level, Bend, 2014-2028

Market Segment by Income	Income Range	New Households 2014-2028		Financially Attainable Products		
		Number of households	Percent of Households	Owner-occupied	Renter-occupied	
High (120% or more of MFI)	$71,640 or more	4,809	35%	All housing types; higher prices	All housing types; higher prices	
Upper Middle (80%-120% of MFI)	$71,640 to $47,760	2,092	15%	All housing types; lower values	All housing types; lower values	Primarily New Housing
Lower Middle (50%-80% of MFI)	$47,760 to $29,850	2,181	16%	Manufactured on lots; single-family attached; duplexes	Single-family attached; detatched; manufactured on lots; apartments	Primarily Existing Housing
Lower (30%-50% of less of MFI)	$29,850 to $17,910	2,295	17%	Manufactured in parks	Apartments; manufactured in parks; duplexes	
Very Low (Less than 30% of MFI)	Less than $17,910	2,393	17%	None	Apartments; new and used government assisted housing	

Source: Analysis by ECONorthwest;
Number of households by income range from the 2011-2013 American Community Survey, Table B19001
Income range based on HUD's 2013 Median Family Income of $59,700 for the Bend MSA

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Additional Residential Housing Needs

This section presents estimates of residential land needs for: (1) second homes; (2) persons in group quarters; (3) government assisted housing, and; (4) manufactured housing.

Second Homes

The 2008 Housing Needs Analysis identified a land need of 500 acres for second homes.[80] In a 2011 memorandum to the Remand Task Force, staff summarized the issue as follows:

> "Findings adopted with the 2009 UGB amendment estimated that second homes could be expected to absorb 500 acres of residential land during the 2008-28 planning period. This estimate was based on evidence in the record that the number of second homes forecasted to develop in the future could be expressed as a proportion of total housing units for permanent residents. Specifically, the City estimated that new second homes, equivalent to 18% of needed housing units, could be expected to be built in Bend during 2008-28. This would amount to slightly over 3,000 units. Based on an average density assumption of 6 units per acre, these second homes would occupy 500 residential acres that would otherwise be available for permanent residents (see Record p. 7692). The total amount of residential acres needed for the planning period was adjusted to include these 500 acres (see Record p. 1058)."

In summary, LCDC accepted the City's findings on this issue, and the factual base which supports them. LCDC added:

> "If during the remand process the density assumption of 6 units/acre for second homes is revised, the 500-acre estimate adopted in 2009 will be revised upward or downward accordingly."

Second homes can be any type of housing, such as single-family detached housing, townhouses, or condominiums in a multifamily structure. The mix of housing types for second homes is similar to the mix of housing for needed units, with 55% of secondary housing in single-family detached, 10% in single-family attached, and 35% in multifamily housing types[81].

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[80] The memorandum titled *Rationale for Second Homes Land Absorption Estimate*, April 24, 2008, documented the analysis for second homes.

[81] See meeting packet for January 26, 2015 Residential TAC meeting – http://bendoregon.gov/Modules/ShowDocument.aspx?documentid=20303.

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Persons in Group Quarters

The forecast of new housing (Table 6) assumes that the percentage of persons in group quarters in Bend would remain the same as reported in the 2000 Census (2.3%), resulting in 886 persons who would require group housing for the 2008-2028 period. People in group quarters will need housing, beyond the forecast for new housing (Table 6). This housing will be located in group quarters, such as assisted living facilities, nursing homes, or jails and will require land.

For the purposes of determining land needs, we will assume that group quarters are similar to multifamily housing with a similar amount of space per individual. In 2000, Bend had an average of 1.92 persons per household in multifamily dwellings.[82] Based on this analysis, Bend will need the equivalent of 461 additional multifamily units to provide adequate capacity for group quarters.

Government assisted housing

ORS 197.303 requires cities to plan for government-assisted housing. Government-subsidies can apply to all housing types (e.g., single family detached, apartments, etc.). Bend allows development of government-assisted housing in all residential plan designations, with the same development standards for market-rate housing. This analysis assumes that Bend will continue to allow government housing in all of its residential plan designations. Because government assisted housing is similar in character to other housing (with the exception the subsidies), it is not necessary to develop separate estimates of land needed for government-assisted housing.

The City has taken several actions to encourage the development of needed government assisted housing. In June 2006, the City Council passed Ordinance NS 2012 through which the City established a fee to provide funding for affordable housing and dedicating that fee to the development of affordable housing units within the City of Bend. The fee is one-third of 1% of permit valuation for all building permits, and assessed at the time of application of a building permit. In addition to the affordable housing fee, the City has established an incentives program for developers of affordable housing, including: expedited review and permitting and systems development charges (SDCs) exemptions for affordable housing projects. Since the start of the program in 2006, the City has used the revenues from the building permit fee to fund the construction of over 600 units of affordable housing.

In addition to the Affordable Housing Program, the City is an entitlement community under the Federal Community Development Block Grant (CDBG) program. One of the requirements for participating is the development and approval of a Consolidated Plan. The most recent Consolidated Plan for Bend was adopted in 2014 for the 2014-2019 period[83]. One of the purposes of developing the plan is to demonstrate where CDBG funds will be spent and what outcomes will be pursed with these funds. In the current Consolidated Plan (See Pages 98, 121), the City established a goal of the construction of 200 rental units and 50 ownership units of housing.

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[82] 2000 Decennial Census

[83] Official Notice – 2014-2019 City of Bend Consolidated Plan, available online through this link: http://www.bendoregon.gov/modules/showdocument.aspx?documentid=16442.

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Manufactured housing

ORS 197.303 also requires cities to plan for manufactured housing on lots and manufactured housing in parks.

Bend allows manufactured housing on lots as a permitted use in the following zones: Urban Area Reserve (UAR10, Suburban Low Density Residential (SR 2 ½), Low Density Residential (RL), Standard Density Residential (RS), Medium-10 Density Residential (RM-10), and Medium Density Residential (RM)[84]. These zones allow for a range of densities, from 1 to 2.5 dwelling units per gross acre in SR 2 ½ to 7.3 to 21.7 dwelling units per gross acre in in RM. As a result, Bend is not required to estimate the need for manufactured dwellings on individual lots per OAR 660-024-0040(8)(c).

OAR 197.480(4) requires cities to inventory the mobile home or manufactured dwelling parks sited in areas planned and zoned or generally used for commercial, industrial or high density residential development. Bend allows manufactured home parks in Medium-10 Density Residential (RM-10), and Medium Density Residential (RM), and the High Density Residential (RH) zones. According to the Oregon Housing and Community Services' Manufactured Dwelling Park Directory,[85] Bend has 12 manufactured home parks with 1,349 spaces and 27 vacant spaces (Table 16). These parks are either located within the city or adjacent to it.

ORS 197.480(2) requires Bend to project need for mobile home or manufactured dwelling parks based on: (1) population projections, (2) household income levels, (3) housing market trends, and (4) an inventory of manufactured dwelling parks sited in areas planned and zoned or generally used for commercial, industrial or high density residential.

- Table 18 shows that the Bend planning area will need another 16,681 dwelling units over the 2008 to 2028 period to house the forecasted growth in population of 38,512 new people. Between 2014 and 2028, an additional 13,770 dwelling units will be needed to house the forecasted growth in population.

- Analysis of housing affordability (in Table 15) shows that about 34% of Bend's existing households are low income, earning 50% or less of the region's median family income. One type of housing affordable to these households is manufactured housing.

- Manufactured housing in parks accounts for about 4% (about 1,349 dwelling units) of Bend's current housing stock.

- National, state, and regional trends during the 2000 to 2010 period showed that manufactured housing parks were closing, rather than being created. For example, between 2003 and 2010, Oregon had a statewide decrease of 25% in the number of manufactured home parks. Before the housing market crash in 2008, there were discussions in Bend about the potential closing of several manufactured home parks.

- The longer-term trend for closing manufactured home parks is the result of manufactured home park landowners selling or redeveloping their land for uses with

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[84] See Bend Development Code (BDC) Table 2.1.200 – Permitted Land Uses

[85] Oregon Housing and Community Services, Oregon Manufactured Dwelling Park Directory, http://o.hcs.state.or.us/MDPCRParks/ParkDirQuery.jsp

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higher rates of return, rather than lack of demand for spaces in manufactured home parks. Manufactured home parks contribute to the supply of lower-cost affordable housing options, especially for affordable homeownership. The concurrent trends of manufactured home parks closing and no development new of manufactured home parks will exacerbate the shortage of affordable manufactured home park spaces. . Without some form of public investment to encourage continued operation of existing manufactured home parks and construction of new manufactured home parks, this shortage will continue.

The households most likely to live in manufactured homes in parks (shown in Table 15) are those with incomes between $18,000 and $30,000 (30% to 50% of median family income).

Assuming that about 5% of Bend's new single-family detached households (13,770 new dwellings) choose to live in manufactured housing parks, the City may need about 690 new manufactured home spaces. The City allows development of manufactured housing parks in residential zones, except the RH. This need for land for manufactured home parks is included in the projection of need for land for single-family detached housing.

However, development of a new manufactured home park in Bend over the planning period may be unlikely, given the trend towards closing manufactured home parks. If manufactured home parks are not developed in Bend in the future, demand will increase for other types of smaller, affordable owner-occupied housing, such as affordable cottage housing or single-family attached housing. Development of new manufactured parks and denser affordable housing are supported by Bend's existing development policies. [86]

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[86] The density bonus program for redevelopment in manufactured homes in parks is part of Bend Development Code in section 2.7.900. Bend's General Plan includes a policy in the Housing Chapter (number 3) that says "Density bonuses may be considered as an incentive to providing affordable housing."

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Summary of All New Housing Units

Table 20 builds from Table 18 to show all new housing units forecast in Bend, including needed housing, units for group quarters, and second homes. Table 20 shows housing demand for the following types of housing:

- Needed housing for 2014-2028 (Table 18)

- Second homes (assumed the needed housing mix of 55% single-family detached, 10% single-family attached, and 35% multifamily).

- Group quarters, all of which is assumed to be accommodated through additional equivalent multifamily units

Table 20. Summary of All New Housing Units by Type and Category, Bend, 2014-2028

	2014-2028 Needed Housing Units		2014-2028 Needed Group Quarter Units	2014-2028 Second Homes	2014-2028 Total New Housing Units	
	Units	Mix	Units	Units	Units	% of Total Units
Single-family detached (including mobile homes)	7,574	55%		1,652	9,225	54%
Single-family attached	1,377	10%		300	1,677	10%
Multi-family	4,819	35%	461	1,051	6,331	37%
Total	**13,770**	**100%**	461	3,003	17,234	**100%**

Source: ECONorthwest

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CHAPTER 5. RESIDENTIAL LAND SUFFICIENCY AND CONCLUSIONS

This chapter provides a brief summary of the implications of the housing needs analysis for Bend. This chapter begins with an estimate of Bend's residential capacity within the current UGB. This chapter includes a general comparison of land supply and demand for housing, including second homes and group quarters.

Residential Land Capacity

Pre-policy Base Case Capacity

The *Bend Urbanization Report* provides an explanation of the assumptions used in the Base Case analysis. Table 21 presents the "Base Case" housing capacity estimate before changes to housing policies (referred to as land use efficiency measures) are applied. Refer to the *Bend Urbanization Report* for more detail on the analysis of residential land capacity.

The "Base Case" is a spatial projection of housing and employment growth through 2028 within the current UGB based on past trends and current policies. The Base Case represents the current UGB's remaining capacity **prior** to applying assumptions regarding new residential efficiency measures. It does not identify housing need; rather, it provides an estimate of how much of the identified need can be met within the current UGB if no policy changes are made. The Base Case generally assumes development builds out according to current plan designations and uses the results of the *Bend Buildable Lands Inventory Report*, applying the historical densities observed for development over the 1998-2008 period (Table 4).

Table 21. Base Case Housing Capacity

Housing Type	New Units	Mix Based on Capacity
Single-family detached	6,496	65%
Single-family attached	498	5%
Multi-family	3,045	30%
	10,039	100%

Source: "Draft Analysis of Current Urban Growth Boundary – Base Case and Scenarios" memorandum to the Residential and Employment Technical Advisory Committees, dated January 21, 2015. Table 3.

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Residential Land Sufficiency

Table 22 compares the Base Case capacity with demand for housing. Table 22 shows:

- Capacity of Bend's residential land under the Base Case scenario (Table 21)

- Housing demand for the following types of housing:

    o Needed housing for 2014-2028 (Table 18)

    o Second homes (assumed the needed housing mix of 55% single-family detached, 10% single-family attached, and 35% multifamily).

    o Group quarters, all of which is assumed to be accommodated through additional equivalent multifamily units

- Comparison of the Base Case capacity and the total demand.

Under the Base Case capacity estimate, Bend has a deficit for land to accommodate 7,194 new dwelling units. Each category of housing shows a deficit in the Base Case capacity estimate.

Table 22. Base Case Residential Land Sufficiency, Bend, 2014-2028

	Net New Housing Units Capacity (Base Case)	Total Housing Demand	Comparison (Capacity *minus* Total Demand)	
			Residual Housing Need	% of Housing Need Met
Single-family detached	6,496	9,225	2,729	70%
Single-family attached	498	1,677	1,179	30%
Multi-family	3,045	6,331	3,286	48%
Total	**10,039**	**17,233**	**7,194**	**58%**

Source: ECONorthwest

Efficiency Measures (Post-Policy Capacity)

The Bend Urbanization Report provides an overview of amendments to the Bend Development Code that are being updated as part of the Bend UGB process to ensure efficient use of land within the current UGB prior to expanding the boundary. The package of land use efficiency measures that will be adopted with the HNA include: increasing the maximum density in the RL zone and increasing the minimum density in the RS zone, allowing a wider range of housing types in the RS zone, reducing minimum lot sizes for some housing types in certain zones, providing new mixed-use zones, targeted revisions to parking standards, and other policy changes.

Table 23 shows the increase in housing capacity as a result of the efficiency measures. Even with this additional capacity, Bend has a residual housing need that cannot reasonably be met within the UGB.

Table 23. Housing Capacity with Efficiency Measures Compared to Housing Needs by Housing Type, Bend, 2014-2028

Housing Type	Housing Unit Capacity			Total Housing Need	Residual Housing Need	Percent of Housing Need Met
	New Housing Units (Base Case)	New Housing from Efficiency Measures	Total New Housing Units			
Single Family Detached	6,496	103	6,599	9,225	2,626	72%
Single Family Attached	498	541	1,039	1,677	638	62%
Multi-Family	3,045	1,267	4,312	6,331	2,019	68%
Total	10,039	1,911	11,950	17,233	5,283	69%

Source: ECONorthwest

Employment Land Needs in Residential Areas

The *Bend Urbanization Report* provides details about employment land needs in residential areas. In the Base Case, approximately 98 jobs are expected to be accommodated in the following zones: RS, RM, and RH. See the *Bend Urbanization Report* for more information.

Conclusions

The conclusions of the housing needs analysis are:

- **Bend's needed housing mix shows an increase in need for denser housing types, such as single-family attached and multifamily housing.** The type of housing that is affordable (currently and in the future) to about half of Bend's households is single-family attached or multifamily housing types, with some households able to afford lower-cost single-family detached housing types.

- **Bend's current policies result in a housing mix (in the Base Case scenario) that is not consistent with needed mix.** Bend's land base, under current policies, would result in a mix of housing similar to the historical mix, with 70% of new housing in single-family housing types.

- **Bend's needed density is higher than historical densities.** Bend's needed residential density for the 2014-2028 period is 7.2 dwelling units per net acre, a 26% increase over Bend's historical densities over the 1998-2008 period of 5.7 dwelling units per acre. The increase in average density is partially the result of change in the mix of housing, with an increase in the share of denser housing types, and partially the result of policy changes to increase development densities.

- **With efficiency measures, nearly 70% of the total housing growth can be accommodated inside the existing UGB.** With efficiency measures, the housing mix inside the UGB is closely aligned with the overall needed housing mix.

- **Even with efficiency measures, Bend has a residual need for land to accommodate 5,201 housing units outside the UGB.** The proposed UGB expansion has been calibrated to accommodate the needed housing units and housing mix to 2028.

APPENDIX A. RESEARCH ABOUT DEMOGRAPHIC CHANGES AND IMPLICATIONS FOR FUTURE HOUSING MIX

This appendix provides greater detail on the research conducted on the demographic trends that are summarized in the Table 7 through Table 9 in the HNA. This appendix is extracted from the memorandum to the Residential Lands Technical Advisory Committee called "Demographic Characteristics and Trends that will Affect Housing Demand in Bend for the 2008-2028 period" and dated July 23, 2014.

Key Findings by Topic

Aging Boomers

Question: Are aging Baby Boomers downsizing or staying put?

- **Some are downsizing.** "Thirty-two percent of Americans have moved in the past five years. More than half of the gen Yers report moving, and 31 percent of gen Xers have moved. Baby boomers and the oldest Americans are the least likely to have moved…Baby boomers and war babies/members of the silent generation are the most likely to have downsized in their most recent move. In fact, 50 percent of the oldest Americans report that their new home is smaller than their old one. One-third of baby boomers report moving into a smaller home, and 44 percent say they have moved into a larger home."[87]

Table A-24. Recent Movers Change in Home Size

	Recently moved?		Recent Change in Home Size			Expected Homeownership Status	
	Yes	No	Larger	Smaller	Same	Own	Rent
All Adults	32%	**67%**	**48%**	**27%**	**25%**	**73%**	**25%**
Gen Y	53%	47%	48%	25%	27%	69%	31%
Gen X	31%	69%	59%	20%	20%	81%	16%
Baby Boomers	20%	80%	44%	33%	22%	79%	20%
War babies/silent generation	19%	80%	24%	50%	25%	55%	36%

Source: ULI America in 2013, Leland Consulting Group

- **Preference for staying put increases with age.** The AARP conducted a housing preference survey of people age 45 or older and found that 73 percent of them strongly agreed with the statement, *"what I'd really like to do is stay in my current residence for as long as possible"*. This preference increases with age. Seventy-eight percent of the respondents over 65 strongly agreed with the statement, whereas only 72 percent of those 50-64 and 60 percent of those age 45-49 strongly agreed with the statement.[88]

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[87] American in 2013 Focus on Housing and Community, Urban Land Institute

[88] "Home and Community Preferences of the 45+ Population" November 2010, AARP, Keenan Teresa A.

"The aging of the population poses a different policy challenge. Most seniors prefer to age in place. While many of these households are currently well housed, their needs will change over time. Meeting those needs will require modifications to existing homes, the expansion of transportation networks and supportive services, and additions to the housing stock aimed specifically at the senior population. Many older Americans are also heading into their retirement years with little financial cushion and may find it difficult to find suitable housing that fits within their budgets. Expanding the range of housing options available to the country's growing senior population will require concerted efforts from both the public and private sectors."[89]

"Despite their shrinking households and declining labor force participation, Boomers do not appear to be altering their housing consumption by abandoning their detached single-family homes…In fact, contrary to the downsizing perception, the percent of Baby Boomers residing in single-family detached homes was at least as high in 2012 as at any time since the onset of the housing crisis. Even the oldest members of the Boomer generation, who have largely exited the childrearing stage and begun to retire in large numbers, show no major shift away from single-family residency….One likely mobility constraint is the substantial decline in Boomers' home values during the housing bust. Between 2006 and 2012, the average value of an owner-occupied single-family detached home with a Boomer householder declined by 13 percent."[90]

- **Being near friends, family, and social organizations grows increasingly important with age.** An AARP Housing Preference survey of householders 45 years and older, found that "Roughly two-thirds of respondents agreed that they want to stay in their home because *I like what my community has to offer me."* In contrast, roughly one-quarter agreed with the statement that they want to stay in their home because *"I cannot afford to move."…*When asked about seven different community aspects and the level of importance they have for them, two-thirds of respondents said that being near friends/and or family and being near where one wants to go (i.e., grocery stores, doctor's offices, the library) is *extremely* or *very important* to them. Roughly half noted that being near church or social organizations or being somewhere where it's easy to walk are *extremely* or *very important* to them, while somewhat fewer said the same thing about being near good schools or being near work. Only about one-fifth of respondents report that being near transit (bus or rail) was *extremely* or *very important* to them."[91]

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[89] Joint Center for Housing Studies of Harvard University, The State of the Nation's Housing, 2013

[90] "Are Aging Baby Boomers Abandoning the Single-Family Nest?" June 12, 2014. Fannie Mae Housing Insights, Volume 4, Issue 3.

[91] "Home and Community Preferences of the 45+ Population," Keenan Teresa A. November 2010, AARP

Table A-25. Importance of Community Aspects for Staying in One's Community

Extremely or Very Important	Age		
	45-49	50-64	65+
Being near friends and/or family	60%	64%	71%
Being near where you want to go	68%	62%	70%
Being near church or social organizations	42%	43%	57%
It's easy to walk	46%	43%	51%
Being near good schools	64%	38%	31%
Being near work	43%	36%	21%
Being near transit	16%	22%	21%

Source: AARP

- **Retiring later.** "To put these trends in perspective, incomes among households under age 35 are back to 1990s levels. The recession had an even bigger impact on households between the ages of 35 and 54, whose incomes are now lower than those of similarly aged households in 1971. Now in what are typically the peak earning years, 45–54 year-olds have instead seen their real median incomes fall 6.0 percent from what they made ten years earlier (when they were aged 35–44). Over the next ten years, these households will be approaching typical retirement age, but the loss of income at such a critical point in their careers will make it difficult for many to save enough to stop working."[92]

- **Affordability for seniors.** "Affordability is a serious problem for seniors, especially for renters. According to a U.S. Department of Housing and Urban Development (HUD) report to Congress earlier this year, 1.33 million elderly renters (where the householder or spouse is age 62 or over, with no children under 18 present) had "worst case" housing needs in 2009. This meant that they earned less than half their metropolitan area's median income, received no government housing assistance and either paid more than half their income for rent, lived in severely inadequate housing, or both. Compared to 2007, the number of older renters in this category had increased by 120,000 (10 percent) – a change that the HUD report attributes to fallout from the foreclosure crisis and recession, as shrinking incomes drove increased competition for already scarce affordable housing. Seventy percent of senior renters spend at least 30 percent of their income on housing costs. Senior homeowners are not immune from affordability problems either: about three in 10 senior homeowners spend at least 30 percent of their income on housing and 17 percent pay at least half their income. Even seniors who own their houses free and clear face rising energy costs and, in some locations, rising property taxes."[93]

- **Housing released by seniors.** "Some seniors occupy newly constructed housing (so the total release of housing exceeds the net release). In 2009, for example, housing built since 2000 accounted for about seven percent of owner-occupied dwellings occupied by seniors

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[92] Joint Center for Housing Studies of Harvard University, The State of the Nation's Housing, 2013

[93] Demographic Challenges and Opportunities for U.S. Housing Markets, March 2012, Bipartisan Policy Center

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and 10 percent of rentals. Seniors' consumption of new housing may rise in the next two decades as Baby Boomers – whose wealth and income are higher than that of today's retirees and who are entering retirement in vastly larger numbers – seek new options to downsize, accommodate disabilities or live in different types of neighborhoods. Just as demand created by Baby Boomers spurred new apartment construction in the 1970s, the sheer size of the Baby Boom generation could cause a dramatic increase in the construction of senior-accessible housing over the coming decades. Baby Boomers' ability to move into new housing, however, will depend on where, when and for how much they will seek to sell their current residences…..Despite potential increases in new construction, most of the houses that seniors will release in coming years were built when energy was inexpensive, nuclear families were the rule, incomes were increasing for most Americans, and mortgages were generally predictable and easy to obtain. Most observers expect the next 20 to 30 years to depart from this historic picture, with more expensive energy, growing diversity in race, ethnicity and in household structure, and more intense international economic competition. All of these factors will likely reduce demand for large single-family homes on large lots far away from established centers of employment and entertainment."[94]

- **Fewer elderly living alone in multifamily buildings.** The percent of people 70 years or older that head households in multifamily buildings has been in decline since 1979.[95]

Table A-26. Aging Alone
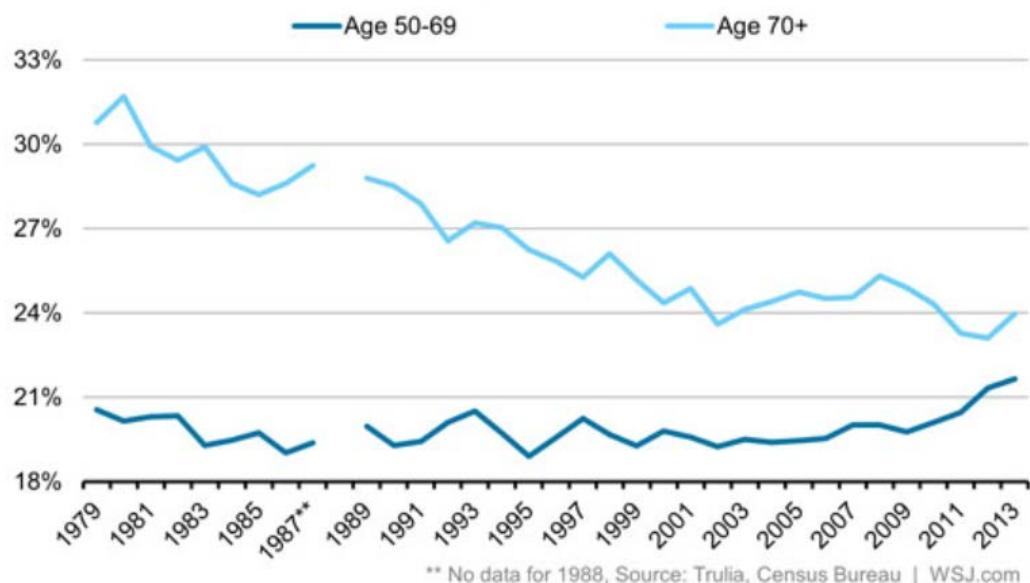
Source: The Wall Street Journal, Trulia, Census Bureau

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[94] Demographic Challenges and Opportunities for U.S. Housing Markets, March 2012, Bipartisan Policy Center

[95] "Baby Boomers Aren't (Yet) Downsizing in Droves", Nick Timiraos, June 27, 2014, The Wall Street Journal

Delayed Millennial Household Formation

Are Millennials putting off housing formation as a short-term response to the recession or are there other underlying factors that will impact their housing decisions much farther into the future?

- **Student debt.** "For today's younger households, student loan debt may make the transition to homeownership more difficult. According to the Federal Reserve Bank of New York, the number of young adults under age 30 with student loan debt outstanding increased by 39 percent between the start of 2005 and the end of 2012, with the average amount rising from $13,300 to $21,400. However, concerns over rising student loan debt often overlook the fact that the trend also affects older households. The increase was even larger among adults in their 30s, with the number of borrowers up 76 percent and average debt climbing from $20,000 to $29,400. Moreover, of the $600 billion increase in student loans outstanding in 2005–12, fully 38 percent was among households over age 40. Since many of these older households already own homes, the sharp rise in student loan debt could affect their ability to meet their mortgage obligations."[96]

- **Diversity and household formation.** "To estimate the magnitude of the demand that Millennials may (or may not) bring to housing markets in the next 20 years, we developed three scenarios. We began with the 1990, 2000 and 2010 Census results and the Census Bureau's national population projections assuming a constant net rate of immigration at 975,000 people per year. Using the observed and projected population series, we computed national rates of household formation and homeownership for people grouped by age cohort (10-year groups starting at age 15) and by race/ethnicity (white non-Hispanic, black non-Hispanic, other non-Hispanic and Hispanic)…The range of estimates in these scenarios can be attributed to different rates of household formation for Millennials. Under the low scenario, people between 15 and 34 years old in 2010 (a span that includes Millennials plus five years of the Baby Bust generation) would form 15.6 million new households between 2010 and 2020. Other cohorts would account for the formation of an additional 5.4 million households over the same time period. The medium scenario would result in 17.1 million new Echo Boomer households and 6.1 million other households. The high scenario, finally, yields 18.8 million new Echo Boomer households and 6.7 million new households from other generations. Because changes in the number of older households are less sensitive to differences in economic assumptions, the decline in older households is more consistent across the three scenarios, ranging from 10.6 million fewer old households in the high scenario to 11.6 million fewer old households in the low scenario."[97]

- **Education.** "Compared to previous generations at the same age, Millennials are more likely to have completed high school, and more than half (54 percent) have at least some college education, compared to 49 percent of people in the Baby Bust generation and 36 percent of Baby Boomers when they were 18 to 28 years old. In terms of educational achievement, women of the Echo Boom generation have vaulted far above women of previous generations; in fact, among Millennials, more women than men and more women than in

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[96] Joint Center for Housing Studies of Harvard University, The State of the Nation's Housing, 2013

[97] Demographic Challenges and Opportunities for U.S. Housing Markets, March 2012, Bipartisan Policy Center

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any previous generation have attained a college education…The growth in female educational attainment may also portend higher levels of household formation if it results in greater gender equity and gives women more financial independence. Other factors, however, could inhibit household formation and homeownership. Young adults carry high levels of credit card and student loan debt; even young people who already had formed households had higher debt loads in 2009 than people of the same age 10 years earlier.31 Rates of marriage declined in the 2000s from 8.2 per thousand to 6.8 per thousand.32 Finally, while all households lost wealth during the recession, average household wealth fell well below $10,000 for Hispanic and black households. Considering the diversity of the young population, this reduction in wealth among older adults will reduce the purchasing power of a significant fraction of young people who can no longer count on their parents' housing wealth."[98]

- **Household formation.** "At a basic level, changes in the number of adults and the rates at which adults head independent households determine household growth. On the plus side, the number of adults aged 18 and older rose by 18.1 million from 2005 to 2012 and fully 2.4 million in the past year alone. The echo-boom generation (born after 1985) fueled much of this growth, helping to boost the number of adults in their mid-20s—the group most likely to form new households. But while the young adult population has been growing, the rate at which members of this age group head their own households has declined. As a result, household growth has not kept pace with population growth. Going forward, though, even if today's low household formation rates persist, the aging of the large echo-boom cohort into their 30s will raise household headship rates because of lifecycle effects. Indeed, one out of every two 30–34 year-olds heads an independent household, compared with just one in four 20–24 year-olds. Since household headship rates continue to rise (albeit more slowly) through older adulthood, the rates for the Millennials will likely increase for years to come."[99]

- **Mobility and homeownership.** "While mobility rates have fallen for nearly all household types, the decline was particularly steep for homeowners that have mortgages. Mobility rates for this group fell from 7.1 percent in 2007 to only 4.9 percent in 2011. The reasons for this short-term drop are numerous and include the lock-in effect of home price declines, falling incomes, fewer new employment opportunities, and tightened credit standards making it more difficult to qualify for a new mortgage Mobility rates are highest among renters and young adults. In 2011, fully 28.8 percent of renter households changed residences, compared with just 4.4 percent of homeowners. Young householders are also more mobile, with rates at 52.7 percent for those under age 25—significantly higher than the 19.7 percent for household heads in the next older age group…The oldest Millennials are just beginning to swell the ranks of young adult movers. Having more young adults in the population may thus change the composition of housing demand in the coming years, given that younger households are more likely than older households to move into rentals (82

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[98] Demographic Challenges and Opportunities for U.S. Housing Markets, March 2012, Bipartisan Policy Center

[99] Joint Center for Housing Studies of Harvard University, The State of the Nation's Housing, 2013

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percent vs. 67 percent) and less likely to move into single-family homes (42 percent vs. 50 percent)."[100]

- **Gen Y has more urban community characteristic preferences.** "Gen Y expresses preferences that differ from those of the other generations in interesting ways. Gen Y is the least likely to value neighborhood safety or space between neighbors, but the most likely to want high-quality public schools, a short distance to work or school, walkability, and proximity to amenities like shopping and transit...Among gen Yers, 54 percent—representing nearly 39 million people—would trade a larger home for a shorter commute. Among all generations, gen Y is the most attracted to living in a neighborhood close to a mix of shops, restaurants, and offices. Sixty-two percent of gen Yers (representing more than 44 million people) prefer this type of mixed-use community over one where shops, restaurants, and offices are farther away. Gen Y is also the only age cohort that shows a preference for living in a neighborhood where there is a mix of housing types. Fifty-nine percent of gen Yers— representing more than 42 million people—would like to live in a community where there is a range of housing. Similarly, 52 percent of gen Yers (representing more than 37 million people) would like to live in a community where there is a range of incomes."[101]

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[100] Joint Center for Housing Studies of Harvard University, The State of the Nation's Housing, 2013

[101] American in 2013 Focus on Housing and Community, Urban Land Institute

Table A-27. Community Characteristics

Importance of Community Characteristics Percentage ranking each characteristic 6 or higher in importance on a scale of 1 to 10	Homeownership status		By Generation				
	Owners	Renters	All Adults	Gen Y	Gen X	Baby boomers	War babies/ silent generation
Neighborhood safety	94%	88%	**92%**	88%	97%	92%	92%
Quality of local public schools	77%	83%	**79%**	87%	82%	74%	68%
Space between neighbors	75%	68%	**72%**	69%	79%	70%	70%
Short distance to work or school	66%	76%	**71%**	82%	71%	67%	57%
Distance to medical care	68%	65%	**71%**	73%	63%	72%	78%
Walkability	75%	79%	**70%**	76%	67%	67%	69%
Distance to shopping/entertainment	63%	71%	**66%**	71%	58%	67%	69%
Distance to family/friends	59%	70%	**63%**	69%	57%	60%	66%
Distance to parks/recreational areas	63%	64%	**64%**	68%	62%	63%	60%
Convenience of public transportation	44%	67%	**52%**	57%	45%	50%	56%

Source: Urban Land Institute

Housing choices of Hispanic and Latino households

Does the growing Hispanic population have different housing needs/preferences than the average household and how will this impact Bend's housing supply in the future?

- **Growth in home ownership.** "U.S. Census data over the past 12 years shows that despite suffering significant losses during the recent foreclosure crisis, Hispanics have achieved homeownership gains in all but two of those years. During the same 12-year period, the number of Hispanic homeowners grew from 4.24 million in 2000 to 6.69 million in 2012, a remarkable increase of 58 percent at a time when the rest of the U.S. population saw a net increase of only 5 percent. In 2012, home prices increased significantly in most markets across the country for the first time in half a decade. Hispanic household growth and home purchases were arguably the most important drivers of the housing recover."[102]

- **Recession and home value drop.** "Between 1995 and 2004, rates of homeownership among blacks rose by seven percentage points; among Hispanics, homeownership grew even more quickly – from about 40 percent in 1993 to 50 percent in 2005–2006. Between 2004–2006 and 2010, however, homeownership rates dropped sharply, and more so for Hispanic and black households than for white non-Hispanics. The overall homeownership rate of 65.1 percent in April 2010 was 1.1 percentage points lower than 10 years earlier. While the housing crisis has hurt people of all races and ethnicities, it has been devastating for many Hispanic and black families, reducing their median wealth by one half to two-thirds

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and significantly increasing the number of households with negative net worth."[103]

"The recession-induced drop in home values has been especially damaging to minority and low-income households. On average, real home values for Hispanic owners plummeted nearly $100,000 (35 percent) between 2007 and 2010, while the decline for black owners was nearly $69,000 (31 percent). By comparison, average values for white homeowners fell just 15 percent over this period…Moreover, white homeowners still had $166,800 in home equity on average in 2010—about twice the amount that blacks and Hispanics held…Over the next decade, minorities will make up an increasing share of young households and represent an important source of demand for both rental housing and starter homes. While their housing aspirations are similar to those of whites, minorities face greater constraints in pursuing those goals because of their lower incomes and wealth."[104]

- **Hispanic population is younger.** "Hispanics are also a much younger demographic averaging a full 10 years younger than the overall population…Every month 50,000 young Hispanics reach the age of 18…With a median age of 27, the Hispanic population is 10 years younger than the total U.S. median age of 37 years. In particular, Hispanics are heavily represented in the 26 to 46 age range involved in most home sales."[105]

- **Hispanic households are larger.** Hispanic households are typically larger than the households of non-Hispanic Whites….Sixty-one percent of all Hispanic households consist of a married couple with children younger than 18."[106]

- **Hispanics believe that home ownership is a good investment.** "Despite being hit hard by the housing market downturn, three-in-four (75%) Latinos agree that buying a home is the best long-term investment a person can make in the U.S. This compares with 81% of the general population who say the same….Fully 83% of Latino homeowners say owing a home is the best long-term investment, while 70% of renters say the same. All of these demographic and cultural characteristics make Hispanics ideal homebuyers in the housing market. In fact, Hispanics are expected to comprise half of all new homebuyers by 2020"[107]

- **First-time homebuyers.** "Forward thinking companies are already changing their strategy to reflect this shift. Case in point: D.R. Horton, the nation's largest residential homebuilder, achieved huge profits in 2012 by constructing low-priced homes. Rather than focus on the move-up market, Horton cornered the entry-level market—the market most heavily represented by minority Hispanic and Asian first-time homebuyers…By virtue of their

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[103] Demographic Challenges and Opportunities for U.S. Housing Markets, March 2012, Bipartisan Policy Center

[104] Joint Center for Housing Studies of Harvard University, The State of the Nation's Housing, 2013

[105] State of Hispanic Homeownership Report, National Association of Hispanic Real Estate Professionals (NAHREP), 2012

[106] State of Hispanic Homeownership Report, National Association of Hispanic Real Estate Professionals (NAHREP), 2012

[107] Pew Research Hispanic Trends Project, "III. Latinos and Homeownership", January 26, 2012.

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population growth, rate of household formation and purchasing power, Hispanics are expected to drive demand for small starter homes in vibrant, high-density communities."[108]

- **Multigenerational.** "Indeed, as the Hispanic share of the U.S. population continues to grow, a substantial increase in demand is being created for building new homes that meet the structural housing needs of large and multi-generational Hispanic families…Some builders are already creating products that meet the shifting demand and needs of these consumer segments who want home with enough space to accommodate parents, adult children or tenants. These new floor plans feature a second, self-contained unit with its own entrance, bathroom and kitchenette—a development that meets both the short- and long-term needs of many Hispanic households."[109]

- **Demand for smaller units.** "Hispanics, in particular, will stimulate demand for condominiums, smaller starter homes, first trade-up homes and the estimated 11 million housing units that will become available between 2010 and 2020 as baby boomers retire."[110]

- **Preference for walkable neighborhoods.** According to the Pew Research Center, Hispanics prefer to live in neighborhoods where houses are smaller and closer together, but schools/stores are within walking distance by 60 percent compared to 44 percent of non-Hispanic Whites.[111]

Opportunities to provide housing development through infill and redevelopment
Are Bend residents really willing to trade single-family homes on larger lots for urban walkable neighborhoods?

- **Shorter commute for a smaller home.** According to the ULI, "among older Americans, many of whom have spent substantial time in the workforce and may continue working beyond the traditional retirement age, the preference for a shorter commute is very strong, even if it means living in a smaller home. Seventy-two percent of baby boomers, or nearly 53 million people, would make that tradeoff. Similarly, 65 percent of war babies and members of the silent generation—nearly 23 million people—would trade a larger home for a shorter commute. Almost 51 percent of these older Americans (representing 18 million people) also show a slight preference for living in areas close to a mix of shops, restaurants, and offices, reinforcing their preference, particularly as they age, for walkable communities near amenities."[112]

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[108] State of Hispanic Homeownership Report, National Association of Hispanic Real Estate Professionals (NAHREP), 2012

[109] State of Hispanic Homeownership Report, National Association of Hispanic Real Estate Professionals (NAHREP), 2012

[110] State of Hispanic Homeownership Report, National Association of Hispanic Real Estate Professionals (NAHREP), 2012

[111] 2014 Political Polarization Survey, Table 3.1 Preferred Community, Pew Research Center for the People and the Press, June 12, 2014

[112] American in 2013 Focus on Housing and Community, Urban Land Institute

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Table A-28. Community Attribute Preferences

Community Attribute Preferences	Homeownership status		By Generation				
Percentage preferring listed attribute	Owners	Renters	All Adults	Gen Y	Gen X	Baby boomers	War babies/ silent generation
Shorter commute/smaller home	63%	56%	**61%**	54%	54%	72%	65%
Close to mix of shops, restaurants, and offices	49%	60%	**53%**	62%	50%	49%	51%
Mix of incomes	50%	53%	**52%**	52%	53%	53%	47%
Public transportation options	44%	62%	**51%**	55%	45%	52%	48%
Mix of homes	43%	57%	**48%**	59%	47%	42%	44%
Percentage choosing three or more of these compact development attributes	-	-	***54%***	*59%*	*49%*	*57%*	*51%*

Source: Urban Land Institute

- **Likelihood of moving and anticipated new housing.** "Many Americans report that they are likely to change homes during the next five years. *"America in 2013"* found that 42 percent of Americans—representing 98 million people—are likely movers. Making up that 42 percent are 25 percent who are very likely to move and 17 percent who are somewhat likely. Gen Yers are the most likely to move: 63 percent say they expect to move during the next five years. America's oldest generations are the least likely to move. Lower-income people are more likely to move than those with higher incomes. Fifty-one percent of the people making less than $25,000 report that they are likely to move in the next five years, compared with 43 percent of those making more than $75,000. Most movers—73 percent— believe they will own the primary residence they move into; one-quarter expect to rent. Gen Yers and the oldest Americans are the most likely to expect to rent their new home, and gen Xers are the least likely to expect to rent. Just 20 percent of the baby boomers expect to rent…Most movers in Generation X—87 percent—expect to live in a single-family home. For the oldest generations, 30 percent of movers expect to move to apartments or compact homes like townhouses or rowhouses."[113]

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[113] *American in 2013 Focus on Housing and Community, Urban Land Institute*

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Table A-29. Recently Moved and Change in Home Size

	Recently moved?		Recent Change in Home Size		
	Yes	No	Larger	Smaller	Same
All Adults	32%	**67%**	**48%**	**27%**	**25%**
Gen Y	53%	47%	48%	25%	27%
Gen X	31%	69%	59%	20%	20%
Baby Boomers	20%	80%	44%	33%	22%
War babies/silent generation	19%	80%	24%	50%	25%

Source: Urban Land Institute

Table A-30. Likelihood of Moving and Expected Type of New Home

	Likely to Move		Expected Homeownership Status		Movers' Expected Type of Home			
	Likely to move	Not likely to move	Expect to own	Expect to rent	Single-family	Apartment	Duplex, townhouse, rowhouse	Manufactured/ mobile home
All Adults	42%	**57%**	**73%**	**25%**	**65%**	**15%**	**14%**	**2%**
Gen Y	63%	36%	69%	31%	60%	21%	17%	1%
Gen X	41%	59%	81%	16%	87%	6%	4%	1%
Baby Boomers	31%	68%	79%	20%	65%	11%	16%	6%
War babies/silent generation	22%	76%	55%	36%	58%	17%	13%	0%

Source: Urban Land Institute

- **Community preference.** "Americans prefer walkable communities, but only to a point. In most comparisons tested, a majority prefers the community where it is easier to walk or the commute is shorter. But when comparing a detached single-family house to an apartment or townhouse, the detached home wins out—even with a longer commute and more driving.

    o A majority prefers houses with small yards and easy walks to schools, stores and restaurants over houses with large yards but where you have to drive to get to schools, stores and restaurants (55 percent to 40 percent).

    o An even larger majority prefers houses with smaller yards but a shorter commute to work over houses with larger yards but a longer commute to work (57 percent to 36 percent).

- o A neighborhood with a mix of houses, stores and businesses that are easy to walk to is preferred over a neighborhood with houses only that requires driving to stores and businesses (60 percent to 35 percent).

- o Nevertheless, when given a choice between a detached, single family house that requires driving to shops and a longer commute to work and an apartment or condominium with an easy walk to shops and a shorter commute to work, a strong majority prefers the single family home –even with the longer commute (57 percent to 39 percent)."[114]

Table A-31. Current Community Versus Preferred Community

	Where You Live Now	Where you Prefer to Live
City -Near mix of offices, apartments, and shops	16%	15%
City - Mostly residential neighborhood	19%	13%
Suburban neighborhood with a mix of houses, shops, and businesses	27%	30%
Suburban neighborhood with houses only	15%	11%
Small Town	11%	14%
Rural Area	11%	16%

Source: National Association of Realtors, 2013 Survey

- **Housing demand will shift.** According to the Director of the Metropolitan Research Center at the University of Utah, Arthur Nelson, housing demand is shifting from large lot homes to small lot, townhomes and attached housing and the current supply of housing will not meet future needs.[115]

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[114] National Association of Realtors, National Community Preference Survey, 2013

[115] "Reshaping America's Built Environment", Arthur C. Nelson

Table A-32. US Housing Demand Shift 2010-2030

House Type	2010 Supply 2030 Demand	2030 Demand	Difference
Attached/Other	26%	34%	8%
Townhome	6%	18%	12%
Small Lot	11%	50%	39%
Large Lot	69%	34%	-35%

Source: Arthur C. Nelson, Presidential Professor & Director, Metropolitan Research Center, University of Utah

- **Political influence on housing preference.** "Given the choice, three-quarters (75%) of consistent conservatives say they would opt to live in a community where "the houses are larger and farther apart, but schools, stores and restaurants are several miles away," and just 22% say they'd choose to live where "the houses are smaller and closer to each other, but schools, stores and restaurants are within walking distance." The preferences of consistent liberals are almost the exact inverse, with 77% preferring the smaller house closer to amenities, and just 21% opting for more square footage farther away."[116]

- **Fewer households with children.** "Currently, only one third of U.S. households have children, and over the next two decades only 12% of new households being formed will have children. Childfree households are prime candidates for locating in denser areas of cities, within walking range of commercial services and entertainment. Households with two working parents are also increasingly seeking to live in urban areas to simplify their lives, taking advantage of child-care services and after-school educational opportunities available in urban areas."[117]

- **Recent movers prefer walkable communities.** "There is a wider divide among those who have moved in the last three years or are planning to move in the next three years. Recent movers prefer the walkable community by 20 points (58 to 38 percent), almost identical to the walkable community preference expressed by those who plan to move in the next three years (+18 points, 57 to 39 percent)."[118]

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[116] Pew Research, Center for the People and the Press, Political Polarization in the American Public, Section 3: Political Polarization and Personal Life. June 12, 2014

[117] Business Performance in Walkable Shopping Areas, November 2013, Robert Wood Johnson Foundation.

[118] National Association of Realtors, National Community Preference Survey, 2013

Sources

The following list provides examples of key articles used in the research for this memorandum.

American Association of Retired Persons (AARP)

Multiple studies show that people over age 45 prefer to stay in their home or community as long as possible, including multiple surveys by AARP.

The AARP survey *Home and Community Preferences of the 45+ Population* shows that 85% of respondents want to stay in their current residence and community as long as possible.

The AARP survey *Approaching 65: A Survey of Baby Boomers Turning 65 Years Old* of people 65 years old shows that about 15% of responding households are planning to downsize to smaller homes over the next few years.

http://www.aarp.org/research/surveys

Bipartisan Policy Center

The *Demographic Challenges and Opportunities for U.S. Housing Markets* report discusses the housing implications of demographic trends and change including the growing senior population, the Millennials, the setbacks suffered by minorities during the recession, and the increasing demand for rental housing.

http://www.urban.org/UploadedPDF/412520-Demographic-Challenges-and-Opportunities-for-US-Housing-Markets.pdf

Fannie Mae

The report *Are Aging Baby Boomers Abandoning the Single-Family Nest?* by Fannie Mae notes that Baby Boomers are becoming empty-nesters, but they have not been giving up single family homes as once expected.

http://www.fanniemae.com/resources/file/research/datanotes/pdf/housing-insights-061214.pdf

Joint Center for Housing Studies of Harvard University

The State of the Nation's Housing is an annual report by Harvard University discussing national demographic trends, the housing recovery from the recession, mortgage markets and the implications for the ownership and rental housing.

http://www.jchs.harvard.edu/research/state_nations_housing

Metropolitan Research Center, University of Utah

Arthur C. Nelson, Presidential Professor & Director of the Metropolitan Research Center at the University of Utah, is well regarded for his research on the changing nature of housing in the US. He frequently posts research and presentations on his findings. The *"Reshaping America's Built Environment"* presentation in particular was referenced in this research.

http://faculty.utah.edu/u0621068-ARTHUR_C_NELSON/bibliography/index.hml

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National Association of Hispanic Real Estate Professionals (NAHREP)

The *State of Hispanic Homeownership Report*, delves into the demand and drivers behind Hispanic homeownership.

http://nahrep.org/downloads/state-of-homeownership.pdf

National Association of Realtors (NAR)

The *National Community Preference Survey* asks residents about specific housing preferences. According to their 2013 survey, 60 percent of respondents prefer to live in mixed-use, walkable communities, and are willing to trade a shorter commute for a smaller house.

http://www.realtor.org/reports/nar-2013-community-preference-survey

Pew Research Center

The Pew Research Center is well-known for producing surveys and reports on a variety of topics, one report researched in this effort includes the *Second-Generation Americans: A Portrait of the Adult Children of Immigrants,* which compares first generation immigrants to their children and to the general population.

http://www.pewsocialtrends.org/2013/02/07/second-generation-americans/

The Hispanic Trends Project produced a report *"Latinos and Homeownership"* which looked specifically at the growing Hispanic population and the implications for homeownership, and noted that Hispanics were particularly hard hit during the recession.

http://www.pewhispanic.org/2012/01/26/iii-latinos-and-homeownership/

Another report looks at the correlation between a person's political preferences and housing and community preferences. *Political Polarization in the American Public, Section 3: Political Polarization and Personal Life.* June 12, 2014

http://www.people-press.org/2014/06/12/political-polarization-detailed-tables/

Robert Wood Johnson Foundation

The report, *Business Performance in Walkable Shopping Areas,* quantifies the performance of walkable places compared to suburban locations in the same market area.

Urban Land Institute (ULI)

The ULI is well known for its expertise on land use issues. Examples of research include *Housing in America: The New Decade,* and the *Generation Y: America's New Housing Wave.* A national survey of Millennials in 2010 showing that: two-thirds of Millennials expect to own their home by 2015, that nearly two-thirds expect to live in a single-family home, one-quarter expects to live in an apartment or condominium. Another report, *America in 2013 Focus on Housing and Community,*

http://uli.org/wp-content/uploads/ULI-Documents/America-in-2013-Compendium_web.pdf

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APPENDIX B. REMAND DIRECTIVES AND STATUTORY REQUIREMENTS

Remand Directives

Table B-1 lists the directives to the City from the Remand. Each of the directives is addressed in the housing needs analysis. Other remand directives about land use efficiency measures are addressed in the *Bend Urbanization Report*.

Table B-1. Policy Direction on BLI Issues to Date

HNA Issue	Directives to City on Remand	Where the HNA addresses the issue
Categories of housing used in the Housing Needs Analysis Section 2.3, Pages 26-33	While the City is free to *separate* the three basic housing types required to be analyzed by statute into subcategories, it may not *combine* categories as this effectively makes it impossible to do the analysis required by statute.[119] Goal 10, the Goal 10 implementing rule, and the needed housing statutes also require that the City analyze needed housing types at particular price ranges and rent levels commensurate with the financial capabilities of present and future area residents. [120]	Table 6
Comply with the analysis required in ORS 197.296, ORS 197.303 Section 2.3, Pages 26-33	Revise the Housing Needs Analysis to comply with ORS 197.296, OAR 660-008-0020, and ORS 197.303. The Housing Needs Analysis must include an evaluation of the need for at least three housing types at particular price ranges (owner occupancy) and rent levels (renter occupancy), and commensurate with the financial capabilities of current and future residents. Those housing types include: (a) attached single family housing (common-wall dwellings or rowhouses where each dwelling unit occupies a separate lot pursuant to OAR 660-008-0005(1)); (b) detached single family housing (a housing unit that is free standing and separate from other housing units pursuant to OAR 660-008-0005(3); and (c) multiple family housing (attached housing where each dwelling unit is not located on a separate lot pursuant to OAR 660-008-0005(5));[121]	Table 6 Table 19

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[119] Remand and Partial Acknowledgment Order ACKNOW-001795, LCDC, November 2, 2010, Sub-Issue 2.3 d, p. 31

[120] Remand and Partial Acknowledgment Order ACKNOW-001795, LCDC, November 2, 2010, Sub-Issue 2.3 d, p. 31

[121] Report on Bend and Deschutes County's Amendment to the Bend Urban Growth Boundary, DLCD Order 001775, January 8, 2010, p. 46

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HNA Issue	Directives to City on Remand	Where the HNA addresses the issue
Future Housing Needs Section 2.3, Pages 26-33	…under Goals 10 and 14 the City also must consider the *future* housing needs of area residents during the (twenty-year) planning period. The purpose of the analysis of both past trends and future needs is that -- if there is a difference – the local government must show how it is planning to alter those past trends in order to meet the future needs. [122]	Table 19
Adequate supply of buildable lands for affordable housing Section 2.4, Pages 33-36	The City must (under Goal 10 and the needed housing statutes) plan for an adequate supply of buildable land for affordable housing, including workforce housing (whether that land is inside the prior UGB, on lands in a UGB expansion area, or both).[123]	Table 19
Future housing mix Section 2.4, Pages 33-36	The City must plan lands within its existing UGB and any expansion area so that there are sufficient buildable lands in each plan district to meet the city's anticipated needs for particular needed housing types. If the City continues to project a future housing mix of 65% single-family and 35% multi-family, it must explain why that housing mix will provide sufficient buildable lands to meet its projected future housing needs over the planning period, and that projection and explanation must be supported by an adequate factual base.[124]	The City is planning for a different housing mix, shown in Table 17.
HNA and Efficiency Measures		

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[122] Remand and Partial Acknowledgment Order ACKNOW-001795, LCDC, November 2, 2010, Sub-Issue 2.3 d, p. 32

[123] Remand and Partial Acknowledgment Order ACKNOW-001795, LCDC, November 2, 2010, Sub-Issue 2.3 d, p. 35

[124] Remand and Partial Acknowledgment Order ACKNOW-001795, LCDC, November 2, 2010, Sub-Issue 2.3 d, p. 35-36

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HNA Issue	Directives to City on Remand	Where the HNA addresses the issue
Residential development density assumptions Section 3.1, Pages 48-54	LCDC concluded that the City's densities for housing were, in their view, low, resulting in land use that is not sufficiently efficient to meet Bend's needed housing. Need to determine if raising the minimum densities of the residential zones is necessary to encourage the development of needed housing On remand, the City must address both prior trends (as required by ORS 197.296(5)) and recent existing steps it already has taken to increase density and meet its housing needs. The requirement of Goal 14 to reasonably accommodate future land needs within its UGB does not allow the city to use an unreasonably conservative projection of future development capacity Nevertheless, given the apparent market demand for increasing density relative to existing planning and zoning designations, the City must explain why increasing the density allowed, particularly for large blocks of vacant land outside of existing established neighborhoods, is not reasonable during the 20-year planning period.[125]	HNA Chapter 3, Step 5.
HNA and Employment Land Needs		
Using residentially designated land for employment uses Section 5.8 Pages 82-	The City identified 119 gross acres of land as being necessary to accommodate employment on residentially zoned land. The analysis was presented in the City's economic opportunities analysis (EOA), not HNA. LCDC required the City's revised HNA to include analysis of land needed for employment uses within residential zones.	HNA Chapter 5 and Urbanization Report.

[125] Remand and Partial Acknowledgment Order ACKNOW-001795, LCDC, November 2, 2010, Sub-Issue 3.1 d, p. 50-53

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Statutory Requirements

This section provides the full text of the key Oregon Revised Statutes that describe the requirements of a housing needs analysis.

ORS 197.296

(2) At periodic review pursuant to ORS 197.628 to 197.651 or at any other legislative review of the comprehensive plan or regional plan that concerns the urban growth boundary and requires the application of a statewide planning goal relating to buildable lands for residential use, a local government shall demonstrate that its comprehensive plan or regional plan provides sufficient buildable lands within the urban growth boundary established pursuant to statewide planning goals to accommodate estimated housing needs for 20 years. The 20-year period shall commence on the date initially scheduled for completion of the periodic or legislative review.

(3) In performing the duties under subsection (2) of this section, a local government shall:

(a) Inventory the supply of buildable lands within the urban growth boundary and determine the housing capacity of the buildable lands; and

(b) Conduct an analysis of housing need by type and density range, in accordance with ORS 197.303 and statewide planning goals and rules relating to housing, to determine the number of units and amount of land needed for each needed housing type for the next 20 years.

(4)(a) For the purpose of the inventory described in subsection (3)(a) of this section, "buildable lands" includes:

(A) Vacant lands planned or zoned for residential use;

(B) Partially vacant lands planned or zoned for residential use;

(C) Lands that may be used for a mix of residential and employment uses under the existing planning or zoning; and

(D) Lands that may be used for residential infill or redevelopment.

(b) For the purpose of the inventory and determination of housing capacity described in subsection (3)(a) of this section, the local government must demonstrate consideration of:

(A) The extent that residential development is prohibited or restricted by local regulation and ordinance, state law and rule or federal statute and regulation;

(B) A written long term contract or easement for radio, telecommunications or electrical facilities, if the written contract or easement is provided to the local government; and

(C) The presence of a single family dwelling or other structure on a lot or parcel.

(c) Except for land that may be used for residential infill or redevelopment, a local government shall create a map or document that may be used to verify and identify specific lots or parcels that have been determined to be buildable lands.

(5)(a) Except as provided in paragraphs (b) and (c) of this subsection, the determination of housing capacity and need pursuant to subsection (3) of this section must be based on data relating to land within the urban growth boundary that has been collected since the last periodic review or five years, whichever is greater. The data shall include:

> *(A) The number, density and average mix of housing types of urban residential development that have actually occurred;*

> *(B) Trends in density and average mix of housing types of urban residential development;*

> *(C) Demographic and population trends;*

> *(D) Economic trends and cycles; and*

> *(E) The number, density and average mix of housing types that have occurred on the buildable lands described in subsection (4)(a) of this section.*

(b) A local government shall make the determination described in paragraph (a) of this subsection using a shorter time period than the time period described in paragraph (a) of this subsection if the local government finds that the shorter time period will provide more accurate and reliable data related to housing capacity and need. The shorter time period may not be less than three years.

(c) A local government shall use data from a wider geographic area or use a time period for economic cycles and trends longer than the time period described in paragraph (a) of this subsection if the analysis of a wider geographic area or the use of a longer time period will provide more accurate, complete and reliable data relating to trends affecting housing need than an analysis performed pursuant to paragraph (a) of this subsection. The local government must clearly describe the geographic area, time frame and source of data used in a determination performed under this paragraph.

In addition, ORS 197.303 and 197.307 define needed housing and what actions a local government must take to ensure an adequate supply of land is available for the development of needed housing. The pertinent sections of these statutes are:

197.303 "Needed housing" defined. (1) As used in ORS 197.307, until the beginning of the first periodic review of a local government's acknowledged comprehensive plan, "needed housing" means housing types determined to meet the need shown for housing within an urban growth boundary at particular price ranges and rent levels. On and after the beginning of the first periodic review of a local government's acknowledged comprehensive plan, "needed housing" also means:

(a) Housing that includes, but is not limited to, attached and detached single-family housing and multiple family housing for both owner and renter occupancy;

(b) Government assisted housing;

(c) Mobile home or manufactured dwelling parks as provided in ORS 197.475 to 197.490; and

(d) Manufactured homes on individual lots planned and zoned for single-family

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residential use that are in addition to lots within designated manufactured dwelling subdivisions.

197.307 Effect of need for certain housing in urban growth areas; approval standards for certain residential development; placement standards for approval of manufactured dwellings.

***

(3)(a) When a need has been shown for housing within an urban growth boundary at particular price ranges and rent levels, needed housing, including housing for farmworkers, shall be permitted in one or more zoning districts or in zones described by some comprehensive plans as overlay zones with sufficient buildable land to satisfy that need.

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Section 9 of Ordinance 2271

Exhibit I

New Economic Opportunities Analysis, Appendix E of the Bend Comprehensive Plan

URBAN GROWTH BOUNDARY REMAND

MAKING BEND EVEN BETTER

Bend Economic Opportunities Analysis

Bend's Growth to 2028

August 31, 2016

ACKNOWLEDGEMENTS

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TABLE OF CONTENTS

EXECUTIVE SUMMARY

An Economic Opportunities Analysis (EOA) is a technical analysis that projects trends, but it is also an aspirational economic development tool that identifies the land needs to achieve the type of employment that the community desires. Thus, it is important to have a vision for what type of city Bend wants to be in the future.

Over the past decade, Bend has continued to fulfill its promise as a forward-looking community by developing several broad policies and visions that will guide growth in the city and region, including the General Plan and Bend 2030. These are complemented by planning documents such as the Juniper Ridge Concept Plan, Economic Sector Targeting report, and others. Key elements of the vision include:

- *Targeted Industries.* Identify "target industries" that match community attributes and provide job opportunities over the long term.
- *Living Wage Jobs.* Increase employment in its targeted industries, too many jobs may be in the retail services and other relatively low-paying sectors.
- *Available Industrial and Commercial Lands.* Ensure that there is enough land to accommodate future jobs and businesses.
- *Diversified Economy.* Continue to diversify from a wood products and tourism-oriented economy to a more resilient economy that provides professional service, high-skill manufacturing, high-tech, and other living wage jobs.
- *Sustainable Industries.* Attract and retain businesses that maintain the high-quality natural environment.
- *Establish a university and research center.* Such an institution could have a dramatic positive impact on the workforce by training the next generation of Central Oregonians and visiting students to participate in a diversified economy.

Bend's role as a social and cultural center is an important consideration as a driver of economic growth. Bend's high quality cultural and natural amenities are repeatedly cited by business owners and employees as reasons to relocate to or remain in Bend.

Bend forecasts that employment will grow by 22,891 employees (about 61%) over the 20 year period between 2008 and 2028, at an average annual growth rate of 2.4%. Employment in Bend increased by 948 between 2008 and 2013; thus, the City forecasts 21,943 new employees between 2013 and 2028. Based on site requirements of target employers, Bend will need 726 sites less than five acres and 32 sites greater than five acres to accommodate new employment forecast for the 2013-2028 period.

Bend has about 1,000 acres of vacant employment land (Bend Buildable Land Inventory, 2016). More than one-quarter of Bend's vacant employment land is in sites smaller than 5 acres, about one-third is on sites 5 to 50 acres, and more than one-third is in sites larger than 50 acres.

Bend has capacity to accommodate about 13,623 employees within the Urban Growth Boundary under existing policies. Under current policies, Bend needs land to accommodate an additional 8,317 employees on 267 sites smaller than five acres and 13 sites greater than five

acres. It also concludes that 25% of Bend's total employment land supply meets the Goal 9 definition of short-term supply.

The *Bend Urbanization Report* (2016) documents land use efficiency measures (e.g., policies that increase density or redevelopment) that the City plans to implement to reduce the deficit of employment land. Bend can accommodate an estimated 1,045 additional jobs through increases in land use efficiency.

Bend will need to accommodate 7,215 employees through expansion of the City's urban growth boundary. The *Bend Urbanization Report* concludes that 67% of Bend's employment growth will be accommodated within the UGB on vacant lands and through the efficiency measures.

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CHAPTER 1. INTRODUCTION

This report presents an update of the 2008 Economic Opportunities Analysis (EOA) for the City of Bend consistent with the requirements of statewide planning Goal 9 and the Goal 9 administrative rule (OAR 660-009). Goal 9 describes the EOA as "an analysis of the community's economic patterns, potentialities, strengths, and deficiencies as they relate to state and national trends" and states that "a principal determinant in planning for major industrial and commercial developments should be the competitive advantage of the region within which the developments would be located."

Role of the EOA

The EOA will be adopted as a supporting document of the Bend Comprehensive Plan. The EOA documents demographic trends, the projection of employment growth, identification of target industries, and evaluation of site characteristics needed to accommodate target industries. Based on this analysis, the EOA estimates the amount of employment that can be accommodated on land in the existing Urban Growth Boundary (UGB) and the amount of residual employment that will require new land. The EOA compares the employment forecast with the capacity of Bend's land base to accommodate new employment using the 2016 Buildable Lands Inventory (BLI). The BLI is one of four inter-related documents that are central in the City's planning related to the UGB. The Urbanization report identifies the amount of employment land that cannot be accommodated within the UGB, once land use efficiency measures are applied to the analysis and adopted. The major components of each document are summarized in Figure 1.

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Figure 1. Four Key Planning document for Bend's UGB Planning

Document	Buildable Land Inventory (BLI)	Housing Needs Analysis (HNA)	Economic Opportunities Analysis (EOA)	Urbanization Report (UR)
Purpose	Identify buildable residential & employment land by category	Address the requirements for planning for needed housing, including analysis of national, state, and local demographic and economic trends, and recommendations for a mix and density of needed housing types	Document historical housing and demographic trends, the projection of employment growth, identification of target industries, and evaluation of site characteristics needed to accommodate target industries	Analysis of where and how Bend's future growth will be accommodated, both inside the existing Urban Growth Boundary (UGB) and in expansion areas
Primary Legal Standards[1]	ORS 197.296 OAR 660, Divisions 8 and 9	Statewide Planning Goal 10: Housing ORS 197.296 and 197.303 OAR 660, Division 8	Statewide Planning Goal 9: Economic Development OAR 660, Division 9	Statewide Planning Goal 14: Urbanization ORS 197.298 OAR 660, Division 24
Key Subject Matter	Development status categories and definitions Methodology for assigning categories and conducting inventory Inventory results: acres by plan designation and development status	Projection of population and total housing growth Housing market and development trends Demographic characteristics and trends Analysis of affordability Estimate of needed housing (mix and density) Comparison of housing capacity to need	Existing policy and vision National, state, local trends Employment projections Target industries Site needs and characteristics Special site needs Redevelopment analysis Comparison of employment capacity to need and characteristics	Methodology for capacity estimates Pre-policy ("base case") capacity estimate for current UGB Efficiency measures (EMs) proposed Current UGB capacity with EMs UGB alternatives evaluation methodology and results Proposed UGB expansion and summary of Goal 14 evaluation results

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[1] OAR = Oregon Administrative Rules; ORS = Oregon Revised Statutes

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Framework for an Economic Opportunities Analysis

This EOA is built around the requirements contained in Oregon's Statewide Planning Goals 9 and 14 and Oregon Administrative Rules (OAR), Division 9.

> **Goal 9: Economic Development**, aspires to "provide adequate opportunities throughout the state for a variety of economic activities vital to the health, welfare, and prosperity of Oregon's citizens." It requires city comprehensive plans to "contribute to a stable and healthy economy" by analyzing economic "patterns, strengths, and weaknesses", contain economic development policies, and provide at least an adequate supply of economic lands.

> **Goal 14: Urbanization**, seeks to "provide for an orderly and efficient transition from rural to urban land use, to accommodate urban population and urban employment inside urban growth boundaries, to ensure efficient use of land, and to provide for livable communities." Goal 14 directs cities to establish urban growth boundaries which contain urban levels of development and prevent urbanization of nearby rural lands. Goal 14 requires cities to establish UGBs based on residential land needs to serve a 20-year population as well as provide opportunities for employment, parks, schools, public facilities, and necessary public infrastructure. Prior to expanding a UGB a city must demonstrate that "needs cannot reasonably be accommodated on land already inside the urban growth boundary."

The analysis in this report is designed to conform to the requirements for an Economic Opportunities Analysis in OAR 660-009 as amended.

1. **Economic Opportunities Analysis (OAR 660-009-0015)**. The Economic Opportunities Analysis requires communities to identify the major categories of industrial or other employment uses that could reasonably be expected to locate or expand in the planning area based on information about national, state, regional, county or local trends; identify the number of sites by type reasonably expected to be needed to accommodate projected employment growth based on the site characteristics typical of expected uses; include an inventory of vacant and developed lands within the planning area designated for industrial or other employment use; and estimate the types and amounts of industrial and other employment uses likely to occur in the planning area. Local governments are also encouraged to assess community economic development potential through a visioning or some other public input based process in conjunction with state agencies.

2. **Industrial and commercial development policies (OAR 660-009-0020)**. Cities with a population over 2,500 are required to develop commercial and industrial development policies based on the EOA. Local comprehensive plans must state the overall objectives for economic development in the planning area and identify categories or particular types of industrial and other employment uses desired by the community. Local comprehensive plans must also include policies that commit the city or county to designate an adequate number of employment sites of suitable

sizes, types and locations. The plan must also include policies to provide necessary public facilities and transportation facilities for the planning area.

3. **Designation of lands for industrial and commercial uses (OAR 660-009-0025)**. Cities and counties must adopt measures to implement policies adopted pursuant to OAR 660-009-0020. Appropriate implementation measures include amendments to plan and zone map designations, land use regulations, public facility plans, and transportation system plans. More specifically, plans must identify the approximate number, acreage and characteristics of sites needed to accommodate industrial and other employment uses to implement plan policies, and must designate serviceable land suitable to meet identified site needs.

This report is an Economic Opportunities Analysis, the first key element required by Goal 9. This EOA includes an analysis of national, state, regional, and county trends as well as an employment forecast that leads to identification of needed development sites. It also includes an inventory of buildable commercial and industrial land in the Bend UGB. It partially addresses the requirements of Goal 14 to determine if future needs can be accommodated on land already inside the UGB. Further evaluation of the capacity of lands within the UGB to accommodate employment and the impact of "land use efficiency" measures is presented in the *Bend Urbanization Report*.

This report primarily reflects a "pre-policy" evaluation of employment land need in Bend for the 2008-2028 period. In this context, pre-policy means that it reflects base conditions and assumptions and does not include evaluations of land use efficiency measures as required by OAR 660-024-0050 and the Remand. It provides an evidentiary basis for the analysis contained in this report. Chapter 6 identifies other analysis necessary to comply with OAR 660-024 and the Remand. This additional analysis is presented in *Bend Urbanization Report* (2016), which addresses Goal 14 requirements and other issues in the Remand that are not addressed in this report. This report presents key results from analysis in the *Bend Urbanization Report*, which accounts for the analysis of the impact on land use efficiency measures on employment land sufficiency.

Prior Economic Opportunities Analyses and Remand Tasks

This EOA examines Bend's recent employment and land development trends and projects future employment and employment land needs. This is an update of the 2008 EOA that (1) addresses issues identified in the Remand, (2) addresses economic activity that occurred between 2008 and 2013, and (3) reflects input received from the Bend Employment Technical Advisory Committee (Employment TAC) and the Urban Growth Boundary Steering Committee (USC).

The EOA update is a technical document compliant with Goal 9 and OAR 660-009 that supports the 2016 Urban Growth Boundary (UGB) expansion. This EOA uses the 2008 EOA adopted by the City of Bend as a foundation because the key findings of the 2008 EOA were found to meet Goal 9 by the Land Conservation and Development Commission (LCDC). The information and conclusions of the updated EOA are the basis for determination of employment land sufficiency for the 2008-2028 period. This EOA collects the most recent work on economic land need for

the City of Bend, addresses issues identified in the 2010 Remand Order, and incorporates direction from the Employment Technical Advisory Committee (TAC) and the Bend Urban Growth Boundary Steering Committee (USC). The issues identified as requiring changes in the 2008 EOA in the January 2010 Director's Report and Order are described in Appendix C.

An important consideration for the EOA update is that it must address issues identified in the Remand and partial acknowledgement of a decision made in December 2008. A key issue is the planning horizon for the project. The EOA uses the 2008-2028 timeframe, but updates key elements of the EOA to reflect changes that have occurred since 2008. The updated EOA relies on the 2008-2028 employment forecast and the 2008 buildable land inventory that was acknowledged by the Land Conservation and Development Commission's (LCDC) remand order. The EOA updates the 2008 buildable land inventory to 2014 to reflect development that occurred in Bend between 2008 and 2014. The EOA also analyzes changes in employment between 2008 and 2013 to deduct employment that already occurred from the 2008-2028 forecast.

Updates to the 2008 Economic Opportunities Analysis

This EOA incorporates key information from the 2008 adopted EOA, such as the forecast of new employment for the 2008-2028 period. This analysis addresses the Remand issues identified for the 2008 EOA, as described in Appendix C.

This EOA uses two periods of time for historical analysis and for the forecast of employment need:

- **Planning Period**. Goal 9 and OAR 660-009 requires the City to ensure a 20-year supply of buildable land for economic development and employment growth. For this EOA, the 20-year period begins in 2008 and ends in 2028.

- **Extended Trend Period**. The EOA was originally developed with data available up to 2008. This EOA extends the trend data to include data available between 2008 and 2013. This additional data provides information about changes in Bend's economy since 2008.

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CHAPTER 2. ECONOMIC DEVELOPMENT VISION AND SUPPORTING POLICIES

Sound economic development planning originates from a clear vision and is implemented through goals, strategies and actions. Goal 9 focuses on one element of an economic development strategy: land use. Specifically, one objective of Goal 9 is for cities 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 consistent with plan policies."

The EOA is not a statement of Bend's economic development vision or policies, it builds from and informs the vision and policy direction of the City. This chapter summarizes Bend's economic development vision and key policies related to economic development. It provides a comprehensive summary of community visioning efforts, including visioning efforts lead by the City of Bend and other efforts that were not lead by the City of Bend.

Vision for economic development

An EOA is a technical analysis that projects trends, but it is also an aspirational economic development tool that identifies the land needs to achieve the type of employment that the community desires. Thus, it is important to have a vision for what type of city Bend wants to be in the future. Bend has completed a number of visioning and planning exercises that clarify how it wants to grow. The following sections summarize the key points from these efforts and identify how they serve as guideposts in this EOA.

Over the past decade, Bend has continued to fulfill its promise as a forward-looking community by developing several broad policies and visions that will guide growth in the city and region, including the General Plan and Bend 2030. These are complemented by planning documents such as the Juniper Ridge Concept Plan, Economic Sector Targeting report, and others.

Bend 2030

The report "Bend 2030: A Visioning Project by and for the People of Bend Oregon," articulates a vision for the future of the community.[2] These goals do not represent formal policies or goals that have been adopted by the City of Bend; rather, they express the community's values based on a visioning process. Bend 2030 is being implemented by a nonprofit organization (called Bend 2030). This visioning was conducted in 2006. The vision identifies six primary goals:

- A Well-Planned City
- A Vibrant Economy
- A Quality Environment
- Safe, Healthy People
- A Strong Community
- A Creative, Learning Culture

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[2] See www.bend2030.org

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Within those six broad goals, Bend 2030 identifies more specific objectives. The following objectives identified in Bend 2030 are most relevant to the EOA:

- *Targeted Industries.* The city has identified a number of "target industries" in which it can excel and provide job opportunities over the long term.
- *Living Wage Jobs.* If Bend is unable to sufficiently increase employment in its targeted industries, too many jobs may be in the retail services and other relatively low-paying sectors.
- *Available Industrial and Commercial Lands.* This objective is perfectly aligned to the purpose of this report – to ensure that there is enough land to accommodate future jobs and businesses, and the buildings and land they will occupy.
- *Diversified Economy.* This objective overlaps considerably with "targeted industries." Bend must continue to diversity from a wood products and tourism-oriented economy to a more diversified one that provides professional service, high-skill manufacturing, high-tech, and other living wage jobs.
- *Sustainable Industries.* Bend seeks to attract and retain businesses that maintain the high-quality natural environment.
- *Establish a university and research center.* There is broad support in the community for a high-quality university in Bend. Such an institution could have a dramatic positive impact on the workforce by training the next generation of Central Oregonians and visiting students to participate in a diversified economy.

Bend's General Economic Objectives

State law requires a city to adopt policies stating Bend's community economic development objectives (OAR 660-009-0020). While this EOA does not, nor is it intended to, fully comply with the requirements of OAR 660-009-0020,[3] this EOA partially addresses this objective by bringing together concepts in Chapter 6 of the Bend Comprehensive Plan (Economic Development), statements in recent economic visioning projects, Bend's economic advantages, and Bend's recent economic growth trends.

The following expression of Bend's economic development objectives is from the "Bend 2030, A Visioning Project by and for the People of Bend, Oregon*".* This narrative is considered in the EOA, and is implemented through policies of the Comprehensive Plan, and represents the City's general economic development objectives.

> "Bend has a diversified economy that provides healthy work environments and sufficient living wage jobs to support our local population. Our economic vision has attracted people, resources, and investment focused on diverse industries that offer economic opportunity, longevity in the global market, and a clean and sustainable environment. Bend is a leader in 'green' building materials and technology, and sustainable energy. An established university and research center in Bend promote creativity, innovation, and entrepreneurship that empower and advance a skilled and competitive local

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[3] The policies adopted as part of the revised Economic Element of the Bend Comprehensive Plan will fully comply with the requirements of OAR 660-009-0020.

workforce. Our access to the global marketplace is efficient and viable due to enhancements of local and regional communications and transportation systems including air, rail, highways, and alternative modes of travel."

The city is required to identify particular types of desirable employment to develop during the planning period as part of the general economic objective. The following list reflects desirable employment uses identified in the "2030 Vision" as well as employment types Bend is well positioned to continue to grow into the future:

1. Employment in downtown Bend – opportunities for businesses, shops, restaurants, and housing should be expanded while preserving downtown's unique character.
2. Employment in targeted industries – the "2030 Vision" suggests expanding employment opportunities in industries identified as "target industries" by the "2005 Economic Sector Targeting" exercise. Target industries include:

   a. Leisure and hospitality uses
   b. Higher education
   c. Health care
   d. Secondary wood products
   e. Aviation-aerospace
   f. Renewable energy resources
   g. Recreation equipment
   h. Specialty manufacturing
   i. Information technologies

3. Employment in tourism – the "2030 Vision" supports building year-round tourism through developing a diverse mix of arts, entertainment, sports, and natural and cultural attractions. Projects to improve employment in the tourism industry include constructing a new performing arts center and museum of fine arts.
4. Employment in higher education – higher education enables and provides diverse employment options. The "2030 Vision" supports the Central Oregon Community college and a new University. The University should ideally provide an attractive learning environment, include a research emphasis, offer graduate programs and scholarship opportunities, and serve existing residents while attracting a diverse student body.
5. Small neighborhood centers – small service-oriented employment centers should be located so the city's residents can walk or bike to employment opportunities, public gathering places, parks, recreational facilities, and other services.
6. Mixed-use development – these uses should be located along key corridors and in designated centers, or as buffering uses.
7. Opportunity for all economic levels – the "2030 Vision" promotes economic and housing opportunities for all income levels so that all groups are able to live here.
8. In addition to economic uses stated in the "2030 Vision" and "2005 Economic Sector Targeting" work, the following economic uses are desirable and suitable to expand during the planning period based on the findings of the EOA:

   a. Regional employment centers for public agencies, health care providers, and retail uses

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b. Employment in professional office and service uses

c. Employment in leisure and hospitality uses

Related Plans and Documents

Several plans and studies inform the EOA and the City's economic development vision. This section summarizes key elements of those plans and studies.

General Plan

The Bend Area General Plan (the name will be changed to the Bend Comprehensive Plan with UGB adoption), as with the Bend 2030 Vision, is intended to guide the city's long-term land use and transportation planning. The narrative aspect of the General Plan – particularly Chapter 6, "The Economy and Lands for Economic Growth" - offers a perspective similar to both Bend 2030 and the Employment Land Study (ELS) on Bend's employment future.

The General Plan underwent a major update in 1998 and has since been revised periodically. The plan plays a major role in shaping Bend's "employment geography" by guiding the size and shape of the city's various employment districts, including commercial, industrial, and mixed-employment zones. The use and disposition of each zone is further detailed in the city's Development Code, which implements the General Plan. Amendments to the Bend Comprehensive Plan associated with the Remand contain specific policies related to the aforementioned vision statements, and key findings of this EOA.

Juniper Ridge Concept Plan

The Juniper Ridge Concept Plan represents an initial attempt by Bend to shape its vision for the 1,500-acre publicly owned parcel on the city's north border (495 acres of which, is included in the current UGB). Since the inception of the Juniper Ridge planning process, it has been clear that because of its size, location, and city ownership, the site had the potential to play a major role in Bend's economic future, by providing the area for future businesses to locate. The specifics contained in the Concept Plan will almost certainly undergo major and minor changes over its long implementation period, but the city hopes to stay true to the plan's underlying visions and aspirations. **The Concept Plan has not been officially adopted by the City, but provides a vision for the site. Because it has not been adopted, the EOA does not rely on any of the information for the land need and technical elements required by OAR 660-009-0015.**

Based on direction from the Bend City Council, the Plan proposes that the site's development be driven by several primary uses:

- Light-Industrial Research Park

- Educational Research and Technology Campus

- Mixed-use areas

- Residential areas

Primarily due to the first two uses listed above, Juniper Ridge is seen as a key part of Bend's economic development strategy, as it will provide land on which the city's targeted industries can grow.

Approximately one third of Juniper Ridge's total area – 494 acres called Juniper Ridge Phase 1 – is currently within Bend's UGB and designated light industrial in the General Plan. About 306 acres of this area is within the Juniper Ridge Employment Sub-District, which is intended to promote economical, sustainable, and reasonable growth by allowing a mix of light industrial uses, offices for research and development, corporate and regional headquarters and accessory uses to serve the needs of these primary uses. The types and placement of the employment uses allowed in the Employment Sub-District are generally consistent with the conceptual master plan. At this time there are two businesses located in Juniper Ridge: Les Schwab corporate office, and Suterra.

About 194 additional acres are within the UGB and long-range plans for this area have not yet been developed. The General Plan designation for this area is Light Industrial.

Infrastructure planning for the portion of Juniper Ridge within the UGB is underway.[4] The City has plans for infrastructure upgrades needed within the Employment Sub-District, for transportation, water, and sewer. Funding for some infrastructure improvements, especially the transportation improvements for the 194 additional acres within the UGB, has not yet been identified. The remaining 194 acres of land at Juniper Ridge is proposed to remain Light Industrial, including a large-lot industrial site, but may require more planning to determine an appropriate zone and develop infrastructure plans and identify funding sources for needed infrastructure.

Development at Juniper Ridge, however, is constrained by transportation and wastewater infrastructure. Key constraints include a trip cap imposed on the site by ODOT and lack of wastewater facilities. The City is actively working on both of these infrastructure constraints. With respect to wastewater capacity, development will be limited until the Northeast Interceptor is developed. The project is currently scheduled for years 11-20 in the recently adopted (December 2014) City of Bend Collection System Master Plan. Decisions on wastewater rates in 2016 and early 2017 may lead to advancing this project sooner than the adopted master plan.

The remaining approximately 1,000 acres is referred to in this document as Juniper Ridge Phase 2, despite the fact that the project may have many more phases before completion. The areas outside the UGB are not included in the buildable land inventory and are not considered suitable employment lands for the purpose of this EOA.

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[4] For more detail about Juniper Ridge planning and infrastructure, see the memorandum "Juniper Ridge: background, location, zoning, infrastructure, and related issues" dated April 24, 2015.

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Deschutes County Coordinated Population Forecast

The Deschutes County Coordinated Population Forecast was finalized in 2004 by county and city staff, project consultants, and a broad range of stakeholders.[5] The population projections identified in their findings are used in this report as a factor considered in the employment projections, the Residential Lands Study, and the other studies undertaken by Bend and Deschutes County referenced below.

Economic Sector Targeting

In 2005, city staff and a broad group of economic stakeholders took part in an Economic Sector Targeting process, which included several daylong workshops and ultimately a report. Through this analysis, the city identified nine different industry sectors in which it should concentrate its efforts to retain existing businesses and attract new ones. The sectors were chosen due to a number of different criteria, including an existing industry cluster already in Bend; significant growth opportunity; living wage job potential; and likelihood for sustainable business practices. The group developed a set of nine targeted industries, including industries such as higher education, health care, renewable energy resources, and aviation-aerospace. The full list of target industries is discussed in more detail in Chapter 4.

Due to the city's clear policy direction on targeted industries, and anticipated ongoing effort to attract them, the EOA's projections reflect greater employment increases within these sectors as reflected in the employment projections approved by the Remand.

The focus on targeted industries also has implications for the type of land and other public infrastructure that the city will need to supply in the future. For example, information technology firms will be more likely to locate in commercial, rather than industrial land.

Visit Bend Business Plan[6]

Bend receives 2.4 million visits annually. According to Visit Bend, this travel and tourism activity generated an estimated 8,500 jobs in the region and provided the City with $3.7 million in transient room tax revenue in 2014. The vast majority of this tourist activity occurs during the summer.

Visit Bend, a Bend-area tourism advocate, outlined a series of strategic objectives to support the tourism industry in their budget for the 2015 fiscal year. Among the most important issues to address, Visit Bend identified the seasonal variation in tourism and the decline in business that it causes during the off-season: "Despite the sustained growth in Bend's tourism industry, our destination continues to face an unhealthy drop in business during the shoulder seasons and winter months."

In order to reduce the industry's seasonality, and work to address other goals in support of Bend tourism, the report listed metrics to track how well the industry has improved, and identified multiple strategic actions for the upcoming year. For example, metrics included the rate of

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[5] http://www.deschutes.org/cd/page/coordinated-population-forecast-2025

[6] http://issuu.com/visitbendor/docs/visit-bend-business-plan-2015-webre

citywide lodging occupancy, the number of visitor guide requests, and volume of transient room tax collections, among others. The report also identified strategic actions, such as increased investment in Bend's brand, improved connections with news media, and more citywide events and conventions. Visit Bend is also working to increase the region's offerings of non-outdoor recreation attractions, with a focus on cultural amenities.

Supporting Studies

Other planning efforts inform the EOA, including planning for housing growth and infrastructure systems, such as:

- *Bend Housing Needs Analysis – 2016.* This report forecasts Bend's housing growth through 2028, describing likely changes in the types of housing needed in Bend.

- *Water System Master Plan - 2011 Update (Optimization Study).* This report covers level of service goals, present and future deficiencies, assessment of fire flow capacity in the system and the results of a comprehensive analysis using an optimized decision support process to evaluate alternatives that address system deficiencies now and in the future. The results of this study are a recommended set of system improvements to meet the needs of Bend's water system for at least 20 years.

- *Water Management and Conservation Plan – 2011.* The purpose of the Plan is to guide the development, financing, and implementation of water management and conservation programs and policies to ensure sustainable use of publicly owned water resources while the City plans for its future water needs.

- *Collection System Master Plan – 2014.* The Wastewater Collection System Master Plan (CSMP) is a 20-year critical planning document that establishes a clear vision for Bend's community's sewer collection system, a vital framework beneath the City. The CSMP identifies both short term and long-term system improvements that are needed to address existing condition, existing capacity, and future capacity issues.

- *Water Reclamation Facility Plan.* This plan outlines several cost-effective solutions for increasing the plant's ability to meet projected wastewater flows through the year 2030.

- *Stormwater Master Plan.* In 2014. Bend approved the City's first formal Stormwater Master Plan. The Stormwater Master Plan serves as the oversight plan for addressing stormwater quantity and quality issues. In addition to providing an overall strategy for addressing stormwater concerns, it provides a delineation of drainage areas and runoff quantities throughout Bend, and programmatic goals for addressing quantity and quality concerns.

- *Bend Urban Area Transportation Plan.* This plan guides development of Bend's transportation system to meet the forecast needs of the Bend community to 2032 and beyond. The plan provides a policy and plan framework to allow Bend to design a balanced transportation system over time.

CHAPTER 3. FACTORS AFFECTING FUTURE ECONOMIC GROWTH IN BEND

According to OAR 660-0009, "the intent of the Land Conservation and Development Commission is to provide an adequate land supply for economic development and employment growth in Oregon." The intent of OAR 660-009 is to link planning for an adequate land supply to infrastructure planning, community involvement and coordination among local governments and the state. To meet those objectives, OAR 660-009-0015(1) requires cities to consider national, state, regional, county and local trends; this chapter summarizes economic trends and factors that will affect future economic growth in Bend.

The 2008 EOA included an extensive evaluation of factors affecting future economic growth in Bend, including national, state and local trends. That analysis was based on pre-2008 data. Clearly, changes have occurred since 2008, in part due to the Great Recession, which had significant negative impacts on Bend's economy.

Bend's economy is recovering from the Great Recession. As the regional employment center of Central Oregon, growth in Bend drives regional employment and economic growth. Bend's growth is supported by availability of labor and resources available in Central Oregon, especially in Deschutes County. More than 60% of employment in Deschutes County is located in Bend.[7] Between 2013 and 2015 (the most recently available data), Deschutes County added more than 9,000 jobs, with the largest growth in construction, health and social assistance, and accommodations and food services. It is reasonable to assume that 60% (possibly more) of these jobs are located in Bend. About 48% of population in Deschutes County is located within Bend.[8] Half of employees at businesses located in Bend live outside of the city, in places like unincorporated Deschutes County, Redmond, unincorporated Crook County, or Prineville.[9] Continued growth in Bend will drive growth in Deschutes County and in Central Oregon, as illustrated by the rapid employment growth between 2013 and 2015.

This chapter summarizes key findings from: (1) Appendix A: National, State, County, and Local Economic Trends, and (2) Appendix B: Factors Affecting Future Economic Growth in Bend.

National, State, Regional, and Local Trends

The U.S. economy continues to recover from the deep recession brought about by instability of financial and housing markets that impacted Oregon in a variety of ways, most notably with the labor market showing high unemployment and the housing market's oversupply of homes.

Economic development in Bend over the next twenty years will occur in the context of long-run national trends. Appendix A provides more detailed information on trends affecting future

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[7] Oregon Employment Department, Quarterly Census of Employment and Wages, 2013.

[8] Portland State University, Population Research Center, 2013.

[9] U.S. Census, OnTheMap, 2011.

economic growth and is intended to support the analysis required by OAR 660-009-0015(1). The most important of these trends are summarized in Table 1 and include:

Table 1. Implications of national, state, and regional economic and demographic trends on economic growth in Bend

National, State, and Regional Economic Trends	Implications for economic growth in Bend
Moderate growth rates and recovery from the national recession According to the National Bureau of Economic Research, "The Great Recession" ended in 2009, but sluggish growth continued to affect businesses and workers alike for several years after. [10] Unemployment at the national level has gradually declined since the height of the recession.[11] Unemployment rates in Oregon and Deschutes County are typically higher than those of the nation as a whole. [12] The federal government's economic forecast projects a moderate pace of economic growth, with gradual increases in employment and real GDP (roughly 3% through the end of 2016). Economic growth in Oregon typically lags behind national growth. [13]	Economic growth in Bend – in measures such as employment growth, unemployment rates, and wage growth - will be markedly improved from previous years (i.e. since 2007). Between 2013 and 2015 employment in Deschutes County grew by more than 9,100 jobs, a 14% increase. The sectors with the largest growth were construction, health and social assistance, and accommodations and food services. Given that 60% of Deschutes County's jobs are located in Bend, it is reasonable to assume that percentage (possibly more) of new employment was in Bend. The rate of employment growth in Bend will depend, in part, on the rate of employment growth in Oregon and the nation. Bend's primary competitive advantages, location, access to regional transportation infrastructure, quality of life, and access to educated and skilled labor from within the region make Bend attractive to companies that want to grow, expand, or locate in the Central Oregon.

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[10] "US Business Cycle Expansions and Contractions," The National Bureau of Economic Research, http://www.nber.org/cycles.html.

[11] Nelson D. Schwartz, "US Economy Adds 223,000 Jobs; Unemployment at 5.3%," *The New York Times*, July 2, 2015, http://www.nytimes.com/2015/07/03/business/economy/jobs-report-hiring-unemployment-june.html?_r=0.

[12] "Local Area Unemployment Statistics," State of Oregon Employment Department, https://www.qualityinfo.org/ed-uesti/?at=1&t1=0000000000,4101000000~unemprate~y~2000~2015.

[13] "The Budget and Economic Outlook: 2015 to 2025," January 2015, Congressional Budget Office, https://www.cbo.gov/sites/default/files/cbofiles/attachments/49892-Outlook2015.pdf.

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National, State, and Regional Economic Trends	Implications for economic growth in Bend
Growth of service-oriented sectors Increased worker productivity and the international outsourcing of routine tasks led to declines in employment in the major goods-producing industries. Projections from the Bureau of Labor Statistics indicate that U.S. employment growth will continue to be strongest in healthcare and social assistance, professional and business services, and other service industries. Construction employment will grow with the economy, but manufacturing employment will decline. These trends are also expected to affect the composition of Oregon's economy, though Oregon's manufacturing employment may grow in the short-run. [14]	The changes in employment in Deschutes County have followed similar trends as changes in national and state employment. For example, since 2001, employment in Deschutes County Health Care and Social Assistance increased its share of total employment by 4.4%, while Manufacturing's share decreased by -3.8% as a result in decreases in wood products manufacturing. The Oregon Employment Department forecasts that the sectors likely to have the most employment growth in Deschutes County over the 2012 to 2022 period are: Construction, Health Care, Local and State Government, Retail Trade, Professional and Business Services, and Accommodation and Food Services. These sectors represent employment opportunities for Bend.
Lack of diversity in Oregon's economy Oregon's economy has diversified since the 1960's, but Oregon continues to rank low in economic diversity among states. These rankings suggest that Oregon is still heavily dependent on a limited number of industries. Relatively low economic diversity increases the risk of economic volatility as measured by changes in output or employment.	Data from the Bureau of Labor Statistics shows that employment in Deschutes County in 2013 was concentrated in a few sectors: Health Care and Social Assistance (15%), Retail Trade (15%), Accommodations and Food Services (13%), and Government (13%). Between 2013 and 2015, the sectors with the most growth in Deschutes County were: construction, health and social assistance, and accommodations and food services. Employment in the Government and Health Care sectors tends to be stable and pays above Bend's average wage of $37,755. Employment in Accommodations and Food Services and Retail Trade pays below Bend's average wage and employment may be volatile. Industries that have grown recently in Bend include bioscience, aviation and aerospace, outdoor recreation, software, specialty manufacturing, data center storage, and brewing. Each of these industries presents an opportunity for industrial growth in Bend.[15]

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[14] "Employment Projections – 2012-2022," Bureau of Labor Statistics, December 19, 2013, http://www.bls.gov/news.release/pdf/ecopro.pdf. and "Oregon Economic and Revenue Forecast," Office of Economic Analysis, May 2015, http://www.oregon.gov/DAS/OEA/docs/economic/forecast0515.pdf.

[15] Bureau of Labor Statistics, Quarterly Census of Employment and Wages, 2013, http://www.bls.gov/cew/datatoc.htm (Hereafter BLS, QCEW). and Economic Development Central Oregon, Business and Economic Data, https://www.edcoinfo.com/business-and-economic-data/.

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National, State, and Regional Economic Trends	Implications for economic growth in Bend
Importance of small businesses in Oregon's economy Small business, with 100 or fewer employees, account for 66% of private-sector employment in Oregon. Workers of small businesses typically have had lower wages than the state average.[16]	In 2013 average size for a private business in Deschutes County is 8.5 employees per business, compared to the State average of 11.2 employees per private business. [17] Growth of small businesses presents opportunities for economic growth in Bend.
Availability of trained and skilled labor Businesses in Oregon are generally able to fill jobs, either from available workers living within the State or by attracting skilled workers from outside of the State. Availability of labor depends, in part, on population growth and in-migration. Oregon added more than 980,000 new residents and about 475,000 new jobs between 1990 and 2008. The population-employment ratio for the State was about 1.6 residents per job over the 18-year period.[18] Availability of labor also depends on workers' willingness to commute. Workers in Oregon typically have a commute that is 30 minutes or shorter. [19] Availability of skilled workers depends, in part, on education attainment. About 30% of Oregon's workers have a Bachelor's degree or higher. [20]	Employment in Bend grew at about 1.6% annually over the 2001 to 2013 period, while population grew at about 3% annually from 2000 to 2013. [21] About 76% of workers at businesses located in Bend lived in Deschutes County, and 50% lived within Bend city limits. Firms in Bend attracted workers from as far away as Multnomah County.[22] Bend's residents who were 25 years and over were more likely to have a Bachelor's degree or higher (41%) than the county (34%) and state average (31%). Availability of these workers helps support the types of target industries that require a skilled, educated workforce discussed in Chapter 4. [23]

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[16] Bureau of Labor Statistics, Quarterly Census of Employment and Wages, 2014 Q1, http://www.bls.gov/cew/apps/data_views/data_views.htm#tab=Tables/.

[17] Bureau of Labor Statistics, Quarterly Census of Employment and Wages.

[18] Oregon Employment Department, Quarterly Census of Employment and Wages.

[19] US Census Bureau, 2013 American Community Survey, 1-Year Estimates, Table B08303.

[20] US Census Bureau, 2013 American Community Survey, 1-Year Estimates, Table B15003.

[21] Bureau of Labor Statistics, Quarterly Census of Employment and Wages.

[22] US Census Bureau, On the Map, 2011, http://onthemap.ces.census.gov.

[23] US Census Bureau, 2013 American Community Survey, 1-Year Estimates, Table B15003.

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National, State, and Regional Economic Trends	Implications for economic growth in Bend
Aging of the population The number of people age 65 and older will more than double between 2010 and 2050, while the number of people under age 65 will grow by only 30%. [24] The economic effects of this demographic change include a slowing of the growth of the labor force, an increase in the demand for healthcare services, and an increase in the percent of the federal budget dedicated to Social Security and Medicare. People are retiring later than previous generations and continuing to work past 65 years old. This trend is seen both at the national and State levels. [25] Even given this trend, the need for workers to replace retiring baby boomers will outpace job growth. Management occupations and teachers will have the greatest need for replacement workers because these occupations have older-than-average workforces.	The changes in the Bend's age structure are similar to those of the State, with the most growth observed in people 45 years and older. Bend's population is generally younger than the State's. The median age in Bend in 2013 was 36.6 years, compared to 42.3 in Deschutes County, and 39.1 in the state as a whole.[26] The State projects that the share of the population over the age of 60 in Deschutes County will increase by 10% between 2015 and 2035. [27] Firms in Bend will need to replace workers as they retire. Demand for replacement workers is likely to outpace job growth in Bend, consistent with State trends.
Increases in energy prices Although energy prices are currently low by historical standards, over the long-term, energy prices are forecast to return to relatively high levels, such as those seen in the 2006 to 2008 period, possibly increasing further over the planning period.[28]	In 2015, low energy prices have decreased the costs of commuting. Over the long-term, if energy prices increase, these higher prices will likely affect the mode of commuting before affecting workers' willingness to commute. For example, commuters may choose to purchase a more energy-efficient car, use the bus, or carpool. Very large increases in energy prices may affect workers' willingness to commute, especially workers living the furthest from Bend or workers with lower paying jobs.

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[24] "The Next Four Decades; The Older Population in the United States 2010 to 2050," US Census Bureau, May 2010, https://www.census.gov/prod/2010pubs/p25-1138.pdf.

[25] "Americans Settling on Older Retirement Age," Rebecca Riffkin, *Gallup*, April 29, 2015, http://www.gallup.com/poll/182939/americans-settling-older-retirement-age.aspx.

[26] U.S. Census Bureau, 2013 American Community Survey, 1-Year Estimates, Table B01002.

[27] Oregon Office of Economic Analysis, Demographic Forecast, "Long-term Oregon State's County Population Forecast (2010-2050)," http://www.oregon.gov/DAS/oea/Pages/demographic.aspx#Long_Term_County_Forecast"

[28] "Annual Energy Outlook 2015; With Projections to 2040," US Energy Information Administration, April 2015, http://www.eia.gov/forecasts/aeo/pdf/0383(2015).pdf.

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National, State, and Regional Economic Trends	Implications for economic growth in Bend
Comparatively low wages The income of a region affects the workforce and the types of businesses attracted to the region. Average income affects workers and businesses in different ways. Workers may be attracted to a region with higher average wage or high wage jobs. Businesses, however, may prefer to locate in regions with lower wages, where the cost of doing business may be lower. Since the early 1980's, Oregon's per capita personal income has been consistently lower than the U.S. average. In 2013, Oregon's per capita wage was 89% of the national average.[29]	Per capita personal income in Deschutes County ($40,245 in 2014 dollars) was lower than that of the Portland MSA ($44,603), Oregon ($40,645), and the Nation as a whole ($45,660) in 2014. [30] Income in Oregon has historically been below national averages. There are four basic reasons that income has been lower in Oregon and Deschutes County than in the U.S.: (1) wages for similar jobs are lower; (2) the occupational mix of employment is weighted towards lower paying occupations; (3) a higher proportion of the population has transfer payments (e.g. social security payments for retirees), which are typically lower than earnings; and (4) lower labor force participation among working age residents. To a certain degree, these factors are all true for both Oregon and Deschutes County, and result in lower income. The lower wages in Bend may be attractive to firms that typically pay lower wages, such as call centers or firms that outsource professional services such as accounting or technical support.
Education as a determinant of wages The majority of the fastest growing occupations will require an academic degree, and on average they will yield higher incomes than occupations that do not require an academic degree. The fastest growing occupations requiring an academic degree will be: computer software application engineers, elementary school teachers, and accountants and auditors. Occupations that do not require an academic degree (e.g., retail sales person, food preparation workers, and home care aides) will grow, accounting for about half of all jobs by 2018. These occupations typically have lower pay than occupations requiring an academic degree.[31]	Bend's residents who were 25 years and over were more likely to have a Bachelor's degree or higher (41%) than the county (34%) and state average (31%) in 2013. [32] Wages in Bend are relatively low compared to Oregon as a whole, and this is largely a result of the composition of the regional economy, rather than the availability of workers with an academic degree. Increasing the relatively low wages in the region is dependent on changing the composition of the regional economy, through growing or attracting businesses with higher paying occupations.

[29] Bureau of Economic Analysis, Regional Data, GDP & Personal Income, Local Area Personal Income and Employment, Table CA1-3.

[30] Bureau of Economic Analysis, Regional Data, GDP & Personal Income, Local Area Personal Income and Employment, Table CA1-3. Adjusted for inflation using the BLS CPI Calculator at http://www.bls.gov/data/inflation_calculator.htm.

[31] Bureau of Labor Statistics, "Employment Projections: 2008-2018 News Release," Thursday, December 10, 2009, http://www.bls.gov/news.release/archives/ecopro_12102009.htm.

[32] US Census Bureau, 2013 American Community Survey, 1-Year Estimates, Table B15003.

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National, State, and Regional Economic Trends	Implications for economic growth in Bend
Importance of high quality natural resources The relationship between natural resources and local economies has changed as the economy has shifted away from resource extraction. Increases in the population and in households' incomes, plus changes in tastes and preferences, have dramatically increased demands for outdoor recreation, scenic vistas, clean water, and other resource-related amenities. Such amenities contribute to a region's quality of life and play an important role in attracting both households and firms.	The region's high quality natural resources present economic growth opportunities for Bend, ranging from food and beverage production to the tourism industry.

Summary of Bend's Competitive Advantages

Bend's competitive advantages include a well-educated and growing population, a desirable location for employees—a scenic environment with unique access to outdoor recreation—and for businesses—proximity to major state highways and airports. Furthermore, Bend has competitive property tax rates and effective infrastructure systems and planning efforts that are on track to accommodate increasing usage.

As the economy and population of Central Oregon continue to grow, aspects of Bend's role as the "central city" or regional center within Central Oregon will intensify. For example, because of the existing business network and suppliers, firms' executive decision-making functions will be more likely to locate in the city.

This role will continue to be important to the quantity and types of jobs that Bend attracts. Downtown Bend is the cultural, culinary, and specialty retail hub of the region. Bend hosts the region's largest medical facility (St. Charles Medical Center and associated medical organizations), the largest news media organization (the Bend Bulletin), and numerous governmental agencies, from federal (U.S. Forest service), to regional (Deschutes County), to local (City of Bend) – all of which are major employers. Within the private sector, Bend is also the home address for many of the region's largest and most influential employers – either as the headquarters or the main employment location – including: Mt. Bachelor; Les Schwab; Bend Research; Nosler Inc.; GL Solutions; Navis; and IBEX.

The importance of Bend as a social and cultural center is an important consideration as a driver of economic growth. Bend's high quality cultural and natural amenities are repeatedly cited by business owners and employees as reasons to relocate to or remain in Bend. This will prove especially important in some industry sectors, such as Information-Technology, in which well-paid managers and their employers can choose between communities, and land and building space costs play a less significant factor in business success.

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CHAPTER 4. EMPLOYMENT GROWTH AND TARGET INDUSTRIES IN BEND

OAR 660-009 requires cities to maintain a 20-year inventory of sites designated for employment. To provide for at least a 20-year supply of commercial and industrial sites consistent with local community development objectives, Bend needs an estimate of the amount of commercial and industrial land that will be needed to accommodate forecast employment over the planning period. Demand for commercial and industrial land will be driven by development in target industries, the expansion and relocation of existing businesses, and new businesses locating in Bend.

Employment Forecast

Appendix B describes the methods and assumptions used to develop the 2008-2028 employment forecast. This section presents the 2008-2028 forecast and describes changes in employment that occurred between 2008 and 2013.[33]

Before presenting the updated information, it is important to note that the 2008 to 2028 employment forecast was upheld in the Remand. As such, the City is not required to revisit the 20-year forecast. The information provided in this section analyzes how much and what type of employment growth occurred in Bend between 2008 and 2013.

The foundation of the economic opportunities analysis (EOA) is the forecast of employment growth. In the Remand, Bend was found to have met the requirements of Goal 9, with the forecast of 22,891 new non-shift employees from 2008 to 2028. This serves as the foundation for the updated land need estimates.

Employment Changes in Bend

This section presents information about Bend's employment base in 2013[34], compared to 2008. Table 2 shows the forecast of growth by major employment categories for Bend for 2008 to 2028 that was originally developed for the 2008 EOA. The forecast shows that employment will grow by 22,891 employees (about 61%) over the 20 year period between 2008 and 2028, at an average annual growth rate of 2.4%.

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[33] 2013 is the most recent year that employment data is available upon which to base the updates.

[34] We use 2013 employment data, rather than 2014 employment data, because it is the best available data for Bend. The employment data used is the Oregon Employment Department's Quarterly Census of Employment and Wages.

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Table 2. Employment Forecast by Employment Category, total non-shift employment, Bend 2008 to 2028

Employment Categories	2008 Employment	2028 Employment Forecast	Change 2008 to 2028		
			2008 to 2028 Growth	Percent Change	Average Annual Growth Rate
Industrial					
Industrial Heavy	3,807	5,180	1,373	36%	1.6%
Industrial General	5,370	8,002	2,632	49%	2.0%
Retail			0		
Large Retail	3,474	5,849	2,375	68%	2.6%
General Retail	3,244	5,293	2,049	63%	2.5%
Office/Srv/Medical	13,979	23,593	9,614	69%	2.7%
Leisure and Hospitalit	3,306	5,532	2,226	67%	2.6%
Other / Misc	1,051	1,547	496	47%	2.0%
Government	3,485	5,611	2,126	61%	2.4%
Total	**37,716**	**60,607**	**22,891**	**61%**	**2.4%**

Source: Bend EOA, 2008, Table 26; 2028 Employment forecast: Bend EOA, 2008, Table 25.
2008 data based on Oregon Employment Department 2006 geo-coded data for City of Bend
Note: While the employment in this table is based on covered employment data from the Oregon Employment Department, the 2008 covered employment data was adjusted, using the methods described in the EOA, to show total employment for non-shiftworkers.

Since the forecast for the 2008 EOA was developed, Bend's economy has changed, in large part as a result of the recent recession. Table 3 shows change in employment in Bend between 2008 and 2013. Overall, employment grew by 948 employees, at an average annual growth rate of 0.5%. Industrial employment decreased by about 2,500 employees and retail employment decreased by more than 550 employees. The majority of employment growth was in Office, Services, and Medical, which added more than 2,400 jobs.

Table 3. Employment Forecast by Employment Category, total non-shift employment, Bend 2008 to 2013

Employment Categories	2008 Employment	2013 Employment	Change 2008 to 2013		
			2008 to 2013 Growth	Percent Change	Average Annual Growth Rate
Industrial					
Industrial Heavy	3,807	2,889	-918	-24%	-5.4%
Industrial General	5,370	3,771	-1,599	-30%	-6.8%
Retail					
Large Retail	3,474	3,057	-417	-12%	-2.5%
General Retail	3,244	3,096	-148	-5%	-0.9%
Office/Srv/Medical	13,979	16,435	2,456	18%	3.3%
Leisure and Hospitalit	3,306	4,017	711	22%	4.0%
Other / Misc	1,051	1,505	454	43%	7.4%
Government	3,485	3,894	409	12%	2.2%
Total	**37,716**	**38,664**	**948**	**3%**	**0.5%**

Source: Bend EOA, 2008, Table 26.
2008 data based on Oregon Employment Department 2006 geo-coded data for City of Bend
2013 data based on Oregon Employment Department 2013 Quarter 3 geo-coded data for City of Bend
Note: While the employment in this table is based on covered employment data from the Oregon Employment Department, the 2008 and 2013 covered employment data was adjusted, as using the methods described in the EOA, to show total employment for non-shiftworkers.

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Using the 2013 total non-shift employment figure of 38,664 and the 2028 acknowledged forecast of 60,607 yields an estimated increase of 21,943 new employees between 2013 and 2028. This equates to an average annual growth rate of 3.0% over that period. Table 2 shows that the acknowledged 2008 to 2028 forecast of 22,891 new employees resulted in an average annual growth rate of 2.4%. In short, employment growth between 2008 and 2013 occurred at a much slower pace than the average growth rate forecast by the City.

Table 4 compares employment in Bend in 2013 to the forecast for employment growth by 2028, from the 2008 EOA.

Table 4. Employment Forecast by Employment Category, non-shift workers, Bend 2013 to 2028

Employment Categories	2013 Employment	2028 Employment Forecast	Change 2013 to 2028		
			2013 to 2028 Growth	Percent Change	Average Annual Growth Rate
Industrial					
Industrial Heavy	2,889	5,180	2,291	79%	4.0%
Industrial General	3,771	8,002	4,231	112%	5.1%
Retail					
Large Retail	3,057	5,849	2,792	91%	4.4%
General Retail	3,096	5,293	2,197	71%	3.6%
Office/Srv/Medical	16,435	23,593	7,158	44%	2.4%
Leisure and Hospitalit	4,017	5,532	1,515	38%	2.2%
Other / Misc	1,505	1,547	42	3%	0.2%
Government	3,894	5,611	1,717	44%	2.5%
Total	**38,664**	**60,607**	**21,943**	**57%**	**3.0%**

Source: 2028 Employment forecast: Bend EOA, 2008, Table 25.
2013 data based on Oregon Employment Department 2013 Quarter 3 geo-coded data for City of Bend
Note: While the employment in this table is based on covered employment data from the Oregon Employment Department, the 2013 covered employment data was adjusted, as using the methods described in the EOA, to show total employment for non-shiftworkers.

Analysis of employment growth for Deschutes County between 2013 and 2015 shows that employment in the County grew by more than 9,000 employees over the two-year period, at an average annual growth rate of 7%. The sectors with the largest growth were: construction, health and social assistance, and accommodations and food services. If 60% of those employees located in Bend, consistent with historical trends, then Bend added 5,400 new employees between 2013 and 2015. This rapid employment growth supports the employment forecast in Table 4.

Figure 2 shows a comparison of total non-shift employment by employment category in 2008 and 2013 and the forecast of employment growth in Bend for 2028.

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Figure 2. Comparison of Changes in Employment by Employment Categories in 2008, 2013, and 2028 Forecast, non-shift workers, Bend
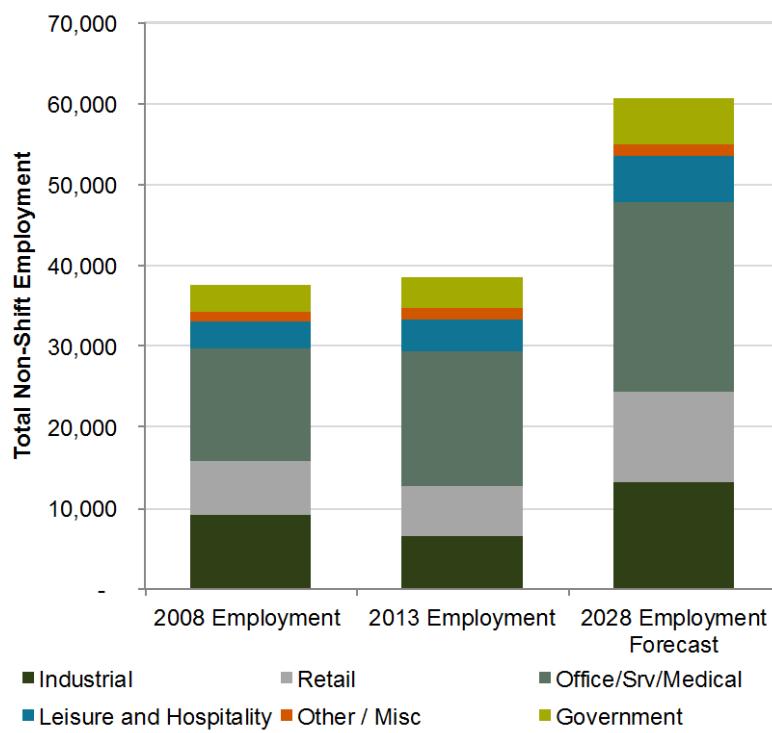
Source: Bend EOA, 2008, Table 26.
2008 data based on Oregon Employment Department 2006 geo-coded data for City of Bend
2013 data based on Oregon Employment Department 2013 Quarter 3 geo-coded data for City of Bend
Note: While the employment in this figure is based on covered employment data from the Oregon Employment Department, the 2008 and 2013 covered employment data was adjusted, as using the methods described in Appendix B, to show total employment for non-shiftworkers.

Employment Forecast by Site Size

OAR 660-009-0015(2) requires cities to identify "required site types." Specifically, the rule states:

> "The economic opportunities analysis must identify the number of sites by type reasonably expected to be needed to accommodate the expected employment growth based on the site characteristics typical of expected uses. Cities and counties are encouraged to examine existing firms in the planning area to identify the types of sites that may be needed for expansion. Industrial or other employment uses with compatible site characteristics may be grouped together into common site categories."

This section describes the process for identifying the number of sites needed by type in Bend. The estimate of site needs is based on the employment forecast and historical development patterns, to illustrate the rough number and type of sites of various sizes needed to accommodate the forecast of employment growth. The forecast of land needed to accommodate growth and ability to accommodate that growth within the UGB is completed with use of the Envision Tomorrow modeling tool, as discussed in Chapter 5.

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The process of identifying site needs based on historical development patterns builds from the employment forecast (Table 4) to the forecast of needed sites by size of site. Table 5 shows the distribution of existing employment (in 2013) by the employment categories and site size. To maintain consistency with the Envision Tomorrow model output and the Urbanization Report, the employment categories in Table 4 have been simplified and combined as follows:

- Retail & Leisure and Hospitality = Retail and Hospitality
- Office/Srv/Medical & Other/Misc = Office
- Heavy and General Industrial = Industrial
- Government = Public

Table 5. Distribution of existing employment by site size, Bend 2013

Employment Category	Smaller than 5 acres	5 to 49.99 acres	50.00 ac or more
Retail and Hospitality	71%	29%	0%
Office	75%	7%	18%
Industrial	83%	17%	0%
Public	73%	27%	0%
Total	75%	17%	8%

Source: Oregon Employment Department 2013 Quarter 3 geo-coded data for City of Bend and developed land in the Bend BLI, 2016

The next step in the process was to allocate employment growth by site size (Table 6). This allocation used the percentages in Table 5 to distribute employment growth in Table 4 to employment categories and site sizes.

Table 6. Forecast of employment growth by site size, Bend 2013-2028

Employment Category	Smaller than 5 acres	5 to 49.99 acres	50.00 ac or more
Retail and Hospitality	4,619	1,885	-
Office	5,412	481	1,307
Industrial	5,382	1,122	18
Public	1,253	464	-
Total	16,666	3,952	1,325

Source: Bend employment forecast in Table 5

Table 7 shows the average employees per site by site size for tax lots with employment in 2013 using data from the Quarterly Census of Employment and Wages (QCEW) and tax lot data. The results show that sites less than five acres averaged 23 employees and sites five to 50 acres averaged 134 employees. Average employment on sites of 50 acres or more cannot be disclosed for confidentiality reasons.

Table 7. Average employees per site, Bend 2013

	Smaller than 5 acres	5 to 49.99 acres	50.00 ac or more
Employees per site	23	134	(D)

Source: Oregon Employment Department 2013 Quarter 3 geo-coded data for City of Bend and developed land in the Bend BLI, 2016
Note: The average number of employees more than 50 acres cannot be disclosed for confidentiality purposes. The average number of employees on sites 50-acres or more is substantially more than the average number of employees on sites 5 to 49 acres in size.

The average employees per site in Table 7 are then used to estimate the number of needed sites by employment type and size to accommodate new employment between 2013 and 2028. Needed sites are estimated by dividing the employment by category and site size in Table 6 by the average employees per site in Table 7. Note that sites larger than 50 acres are not included in this analysis—the Remand approved the need for two large-lot industrial employment sites over fifty acres. Thus, analysis of special site needs over 50 acres is not necessary using this methodology.

Table 8 shows the number of sites needed to accommodate employment growth between 2013 and 2028 by site size. The results show that Bend will need 726 sites less than five acres and 32 sites greater than five acres for a total of 758 sites.

Table 8. Sites needed to accommodate employment growth by site size, Bend 2013-2028

Employment Category	Smaller than 5 acres	5 to 49.99 acres
Retail and Hospitality	201	15
Office	236	4
Industrial	234	9
Public	55	4
Total	726	32

Source: Bend employment forecast in Table 4, average employees per site in Table 7.

Table 9 allocates the needed sites in Table 8 to broad categories of plan designation based on the approximate percentage of employment for each employment category. For example, 89% of retail and hospitality employment in Bend is located in Commercial and Mixed Use plan designations. As a result, Table 9 allocates 89% of sites needed to Commercial and Mixed Use, with 179 sites smaller than 5 acres and 13 sites between 5 and 49.9 acres. The remaining 24 sites are allocated to Industrial and Mixed Employment, where about 11% of Bend's retail and hospitality employment is located.

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Table 9. Sites needed to accommodate employment growth by comprehensive plan designation category and site size, Bend 2013-2028

Employment Category	Commercial / Mixed Use			Industrial / Mixed Employment			Public Facilities			Total	
	% of Sites	< 5 ac	5-49.9 ac	% of Sites	< 5 ac	5-49.9 ac	% of Sites	< 5 ac	5-49.9 ac	% of Sites	Sites
Retail and Hospitality	89%	179	13	11%	22	2	0%	-	-	100%	216
Office	73%	173	3	26%	61	1	1%	2	-	100%	240
Industrial	17%	40	2	82%	192	7	1%	2	-	100%	243
Public	27%	15	1	16%	9	1	57%	31	2	100%	59
Total		**407**	**19**		**284**	**11**		**35**	**2**		**758**

Source: Site needs forecast in Table 8 and distribution of employment by plan designation from Oregon Employment Department 2006 Covered Employment and analysis by City of Bend.

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Target Industries

In 2005, spurred by the realization that Bend's economy was in the midst of an ongoing series of changes, the City Council and other city leaders convened an Economic Sector Targeting workshop. The nine primary targeted economic sectors identified by the workshop are shown in Table 10.

Table 10. Targeted Economic Sectors

Economic Base Sustain and Grow	Regional Targets	Bend Targets
Hospitality	Secondary Wood Products	Aviation - Aerospace
Higher Education		Recreation Equipment
Health Care	Renewable Energy Resources	Specialty Manufacturing
		Information Technologies

Source: City of Bend Economic Sector Targeting Report, 2005

Note that the industry groups identified by the Economic Sector Targeting work do not necessarily follow the NAICS categorization system. Economic development professionals refer to industry groups such as these, which can cross into numerous different NAICS sectors, as "clusters."

In determining which industries to target, the group gave preference to "traded-sector" industries. "Traded sector" refers to industries or businesses that sell their services or products beyond the local market area. Because of their regional or even global market areas, these types of industries have much greater potential and are less vulnerable to downswings in the local economy. For example, Bend's aviation companies sell airplanes and aviation parts to customers around the country and are thus traded-sector companies. Conversely, a chain of auto repair stores serves a very local market and will depend much more on local economic conditions for success. The Regional and Bend Target sectors are all traded sector industries, while the "Economic Base Sustain and Grow" sectors are more local.

Bend can be expected to continue to grow faster than the rest of the region within certain industries – particularly, industries identified by the Economic Sector Targeting and OED that are knowledge-based or have an existing base of operations in Bend.

Site Needs for Target Industries

Chapter 4 described target industries (described in this chapter as economic opportunities) for Bend, based on the city's economic advantages and evaluation of the types of industries that fit with Bend's vision for growth of traded-sector industries. These target industries focus on manufacturing, including secondary wood products, renewable energy, aviation – aerospace, recreation equipment, and specialty manufacturing, as well as information technology. This section focuses on the site needs for these target industries, as well as established industries, such as medical services. It also considers land needs from the broad range of commercial and industrial businesses, from small retail or service businesses to large-scale manufacturers.

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This section addresses the requirements of OAR 660-009-0015(2) on required site types:

> Identification of Required Site Types. The economic opportunities analysis must identify the number of sites by type reasonably expected to be needed to accommodate the expected employment growth based on the site characteristics typical of expected uses. Cities and counties are encouraged to examine existing firms in the planning area to identify the types of sites that may be needed for expansion. Industrial or other employment uses with compatible site characteristics may be grouped together into common site categories.

The analysis that follows aggregates employment that has compatible site characteristics into common site categories.

Typical site needs of larger employers

Businesses considering locating in Oregon and in Bend will consider many factors before selecting a location (e.g., access to markets, availability of skilled workers, and availability of suitable land).

One of the key factors that businesses consider when making decisions about where to locate is the availability of vacant, large, and flat parcels of land. Table 11 shows examples of traded-sector firms that considered locating in Oregon and Southern Washington since 1997. Table 11 shows that firms looking for office or flex space required sites from 30 acres up to more than 100 acres. Manufacturing firms required sites from 25 acres to 250 acres in size.

These firms worked with Business Oregon to find suitable sites in Oregon. Some of the firms chose to locate in Oregon and some chose to locate elsewhere. One of the key factors that influenced decisions to locate elsewhere was availability of large parcels of land with infrastructure services (e.g., transportation access, wastewater, etc.).

Table 11. Examples of firms that considered locating in Oregon and Southern Washington between 1997 and 2010

Type of business	General Location Considered	Site size (acres)	Building Size (square feet)	Located in Oregon ?
Office or Flex space				
Private technology firm	Northern Oregon I-5	100+	1 msf	
Facebook Data Center	Prineville	118	147,000 sf	Yes
Siltronics	Portland Harbor	35		
Nautilus	Vancouver	35	489,000	Yes
Google Data Center	The Dalles	30		Yes
Warehouse and Distribution				
Lowes	Lebanon	204	1.3 to 2.2 msf	Yes
NOAH-PepsiCo	Albany	204	2.5 msf	No
Wal-Mart	Hermiston	200	1.3 msf	Yes
Target	Albany	175	1.3 msf	Yes
Fed Ex	Troutdale	78	500,000 sf	Yes
Dollar-Tree	Ridgefield, Wa	75	800,000 sf	
Home Depot	Salem	50 to 100	400,000+	Yes
Manufacturing				
Apricus	Northern Oregon	250	Very large	No
Navitas	Oregon	150 to 200		No
Pacific Ethanol	Boardman	137		Yes
SolarWorld	Hillsboro	75	1 msf	Yes
Schott Solar	I-5 corridor	50+	up to 800,000 sf	No
Genentech	Hillsboro	50	500,000 sf	Yes
Amy's Kitchen	White City	50		Yes
Sanyo Solar	Salem	25	150,000 sf	Yes
Spectrawatt	Hillsboro	25	225,000 sf	No

Source: Business Oregon

Table 12 shows examples of manufacturers of clean energy technologies that announced plans to build new manufacturing plants in 2009 or 2010. More than one-third of these firms considered locating in Oregon. The site size requirements of these firms ranged from 50 to nearly 500 acres, with an average site size of around 100 acres. These firms are within one of the potential growth industries identified in Chapter 4, renewable energy manufacturing.

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Table 12. Examples of clean energy technologies that announced plans to build new manufacturing plants in 2009 or 2010

Company	Site Size (Acres)	Location	Industry
Tokuyama*	494	Malaysia	Solar
Vestas*	300	Colorado	Wind
US REG - A Power	150	Nevada	Wind
REC*	150	Singapore	Solar
Tindall	144	Kansas	Wind
Green2V	124	New Mexico	Solar
LG Chem Ltd.	120	Michigan	Batteries
Autoport/AC Propulsoin	102	Delaware	Electric Vehicles
Energy Composites Corps	94	Wisconsin	Wind
Tesla	90	California	Electric Cars
Mitsubishi Heavy Industries*	90	Arkansas	Wind
Schott Solar*	80	New Mexico	Solar
Enerdel	75	Indiana	Batteries
Energy Composites Corporation	54	Wisconsin	Wind
Proterra*	50	South Carolina	Electric Buses
Confluence	50	Tennessee	Solar

Source: Business Oregon
*Note: These firms considered locating in Oregon.

Table 13 shows the characteristics required to make a site competitive for businesses considering locating or expanding in Oregon, based on information from Business Oregon. Sites for most manufacturing uses are generally between 10 acres to 50 acres. Some large industrial uses, such as businesses in the renewable and clean energy sector, require sites of 100 acres. Industrial users need sites that are relatively flat, generally with a slope of 5% or less.

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Table 13. Site characteristics of common business types in Oregon

Industry Sector	Site size* (Acres)	Site Topography (Slope)	Site Access Max distance in miles to interstate or major arterial	Utilities (Min. line size in inches) Water / Sanitary Sewer
Regionally to Nationally Scaled Clean-Tech Manufacturer	50	0-5%	10	10 / 10
Globally Scaled Clean Technology Campus	100	0-5%	10	10 / 10
Heavy Industrial/ Manufacturing	25	0-5%	10	8 / 8
General Manufacturing	10	0-5%	20	8 / 8
Food Processing	20	0-5%	30	10 / 10
High-tech Manufacturing or Campus Industrial	25	0-7%	15	10 / 10
Regional (multistate) Distribution Center	200	0-5%	5 Only Interstate highway or equivalent	4 / 4
Warehouse/Distribution	25	0-5%	5 Only Interstate highway or equivalent	4 / 4
Call Center / Business Services	3	0 to 12%	Not applicable	4 / 4

Source: Business Oregon
*Note: Site size is the competitive acreage that would meet the site selection requirements of the majority of industries in this sector

Some industrial and large-scale commercial businesses may prefer to locate in an industrial or business park. Business parks are developments with multiple buildings, designed to accommodate a range of uses, from heavy industry to light industry to office uses. Most industrial parks, a subset of business parks, have large-scale manufacturing, distribution, and other industrial uses, with relatively little office space.

To provide context for business park type development, Table 14 shows examples of business park sites in the Portland Metro area. Business parks in the Portland area generally range in size from 25 acres to 75 or 100 acres in size. Some of the business parks are primarily industrial (e.g., Beaverton Creek, Columbia Commerce Park, or Southshore Corporate Park), some are primarily commercial (e.g., Creekside Corporate Park or Nimbus Corporate Center), and some are office and flex space (e.g., Cornell Oaks Corporate Center).

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Table 14. Examples of business park sites, Portland Metro area

Business Park	Site Acres	Building Square Feet
AmberGlen Business Center	72	572,685
AmberGlen East and West	44	536,000
Beaverton Creek	56	512,852
Columbia Commerce Park	31	562,888
Cornell Oaks Corporate Center	107	684,000
Creekside Corporate Park	50	615,113
Kruse Woods Corporate Center	76	1,652,105
Lincoln Center	22	728,770
Nimbus Corporate Park	47	688,632
Oregon Business Park 1	36	782,294
Oregon Business Park 3	35	501,029
PacTrust Business Center	40	570,539
Pacific Business Park (South)	26	340,864
Pacific Corporate Center	56	601,542
Parkside Business Center	52	687,829
Southshore Corporate Park	312	1,630,000
Tualatin Business Center I and II	33	383,305
Wilsonville Business Center	30	710,000
Woodside Corporate Park	37	579,845

Source: Metro UGR, Appendix 5 Multi-tenant (business park)/Large lot analysis

In addition, the Portland Metro area has identified the following types of major employment sites, ranging from 25 acres to more than 500 acres:[35]

- **General industrial.** The Portland region has 21 general industrial major employment sites, ranging in size from 25 acres to 164 acres and averaging 53 acres. Firms on these sites range from beverage manufacturers to construction product manufacturers to specialty manufacturing enterprises.
- **Warehouse and distribution.** The Portland region has 15 warehouse and distribution major employment sites, ranging in size from 25 acres to 452 acres and averaging 74 acres. Firms on these sites range from wholesalers to general warehouse and distribution to company-specific distributors.
- **Flex.** The Portland region has 14 flex major employment sites, ranging in size from 25 acres to 522 acres and averaging 112 acres. Firms on these sites include small and large semiconductor manufacturing and other high tech manufacturing.

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[35] These examples are documented in the Portland Metro 2009-2030 Urban Growth Report, Appendix 4

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Site Needs of Target Industries

OAR 660-009-0015(2) requires the EOA identify the number of sites, by type, reasonably expected to be needed for the 20-year planning period. Types of needed sites are based on the site characteristics typical of expected uses. The Goal 9 rule provides flexibility in how jurisdictions conduct and organize this analysis. The Administrative Rule defines site characteristics as follows in OAR 660-009-0005(11):

> (11) "Site Characteristics" means the attributes of a site necessary for a particular industrial or other employment use to operate. Site characteristics include, but are not limited to, a minimum acreage or site configuration including shape and topography, visibility, specific types or levels of public facilities, services or energy infrastructure, or proximity to a particular transportation or freight facility such as rail, marine ports and airports, multimodal freight or transshipment facilities, and major transportation routes.

Friends of Yamhill County v. City of Newberg, 62 Or LUBA 5 (2010), established a two-prong test for establishing relevant "site characteristics" as follows: (1) that the attribute be "typical of the industrial or employment use;" and (2) that it have "some meaningful connection with the operation of the industrial or employment use." The first of those prongs, that the attributes be "typical," appears expressly in OAR 660-009-0015(2), which refers to "site characteristics typical of expected uses." In upholding LUBA's two prong test, the Court of Appeals agreed, "[t]hat 'necessary' site characteristics are those attributes that are reasonably necessary to the successful operation of particular industrial or employment uses, in the sense that they bear some important relationship to that operation." Friends of Yamhill County v. City of Newberg, 240 Or App 738, 747 (2011).

Table 15 presents the site characteristics needed for the operation of major traded-sector industries, as well as for clusters of commercial and mixed-use development. Table 15 groups potential growth industries by site category (e.g., large industrial and flex). Any of the potential growth industries, however, may occur at a variety of sizes. For example, renewable energy companies could range from large solar panel manufacturers to small manufacturers of specialty renewable energy products and could use sites from five acres to over 250 acres. The opportunity sites in each potential growth industry will vary by size of the firms and the firm's activities.

Table 16 presents site infrastructure requirements necessary for the operations of potential growth industries. There are some common service requirements, regardless of the type of industry. For example, nearly all firms need access to roads, telecommunications, water and wastewater, and electricity. Some potential growth industries have specific service requirements for their operations. For example, food processors generally need access to large amounts of water and wastewater capacity or data centers need access to a large amount of electricity and redundant electricity sources.

Table 15. Summary of site characteristics for target industries and clusters of commercial development

Site Category	Example Industries (Target Industries in bold)	Typical Site Size (acres)	Topology	Parcel configuration	Land Use Buffers	Visibility
Large Industrial and Flex	**Renewable Energy** **Information Technology**	50 to 250	0% to 5% slope	Preference for single parcels or parcels with two owners	Compatible with industrial or agricultural uses	No
Medium Industrial and Flex	**Specialty Manufacturing** **Aviation - Aerospace** **Secondary Wood Products** **Recreation Equipment** **Renewable Energy** **Information Technology**	10 to 75	0% to 5% slope	Preference for single parcels or parcels with two owners	Compatible with industrial or agricultural uses	No
Small Industrial	**Specialty Manufacturing** **Aviation - Aerospace** **Secondary Wood Products** **Recreation Equipment** **Renewable Energy** **Information Technology**	Less than 10	Less than 10% slope	Preference for single parcels or parcels with two owners	Compatible with some commercial, industrial, or agricultural uses	No
Large Commercial /Office	Mixed use Regional and community retail Big box retail **Higher Education**	10 to 50	Less than 10% slope	Preference for single parcels or parcels with two owners	Compatible with commercial and mixed uses	Yes
Medium Commercial /Office	**Information Technology** **Large medical offices** Mixed use **Hospitality** **Higher Education** Neighborhood retail Other services	5 to 20	Less than 15% slope	Preference for single parcels or parcels with three owners	Compatible with commercial and mixed uses	Yes
Small Commercial /Office	**Small medical offices** Retail and services	Less than 2	Less than 15% slope	Preference for single parcels or parcels with three owners	Compatible with commercial, mixed uses, and residential	Yes

Source: ECONorthwest research, City of Bend analysis, and Business Oregon Industrial Development Competitiveness Matrix

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Table 16. Summary of site infrastructure needs for potential growth industries and clusters of commercial development

Site Category	Transportation	Rail	Transit, Ped, Bike	Water and Sewer Meter Size (inches)	Gas (annual therms)	Electrical Demand (annual KWhr)	Telecom
Large Industrial and Flex	Direct access to an arterial; less than 10 miles from Highway 97 or Highway 20	Preferred	Preferred	4 to 10 High Pressure Preferred	10,000 – 80,000	10,000 – 100,000 + Secondary system dependency may be required	High speed Internet and phones Higher capacity Internet access may be required
Medium Industrial and Flex	Direct access to an arterial; less than 10 miles from Highway 97 or Highway 20	Preferred	Preferred	3 to 6 High Pressure Preferred	10,000 – 80,000	10,000 – 100,000 + Secondary system dependency may be required	High speed Internet and phones Higher capacity Internet access may be required
Small Industrial	Access to a major collector	Not required	Preferred	0.75 to 2	10,000 – 30,000	10,000 to 30,000	High speed Internet and phones Higher capacity Internet access may be required
Large Commercial	Direct access to an arterial or major collector	Not required	Preferred	2 to 4	Standard commercial usage	10,000 – 100,000 + Secondary system dependency may be required	High speed Internet and phones Higher capacity Internet access may be required
Medium Commercial	Direct access to an arterial or major collector	Not required	Preferred	1 to 3	Standard commercial usage	Standard commercial usage	High speed Internet and phones
Small Commercial	Access to a major collector	Not required	Preferred	1.5 or smaller	Standard commercial usage	Standard commercial usage	High speed Internet and phones

Source: ECONorthwest research, City of Bend analysis, and Business Oregon Industrial Development Competitiveness Matrix

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Characteristics of sites needed for manufacturing

Bend's target industries are manufacturing. Bend's large-scale manufacturing target industries are renewable energy and information technology (large data centers). Bend's medium-scale manufacturing target industries are renewable energy, secondary wood products, aviation – aerospace, recreation equipment, specialty manufacturing, and information technology (mid-sized data centers), all of which are high-tech or general manufacturing. This section presents the needed characteristics for large-scale manufacturing and medium-scale manufacturing.

The following summarizes the site characteristics for manufacturing and provides an overview of the two-prong test established for site characteristics under *Friends of Yamhill County v. City of Newberg.*

Large-scale manufacturing

1. **Site size.** Sites for manufacturing firms range in size from 50 to 250 acres. Some medium-scale and smaller manufacturing firms may prefer to locate in a manufacturing or flex business park, which range in size from about 25 acres to several hundred acres.

    o Attribute is "typical of the industrial or employment use" - OAR 660-009-0005(11) specifically cites "a minimum acreage" as a site characteristic. Business Oregon finds that competitively-sized Regionally to Nationally Scaled Clean-Tech Manufacturers have sites 50 acres and larger. Large clean industry developments in 2010 occurred on sites ranging from 50 acres to nearly 500 acres. Data centers and other information technology businesses locating in Oregon located on sites ranging from 30 to more than 100 acres.

    Some businesses will prefer to locate in manufacturing to flex business parks. Business parks are typically at least 25 acres in size to allow for development of multiple buildings and associated parking. In the Portland area, these parks generally range in size from about 25 acres to 50 acres, with a few examples of parks around 75, 100, or 300 acres.

    o Attribute has "some meaningful connection with the operation of the industrial or employment use" – Site size is important to general industrial users. The site needs to be large enough to accommodate the needed built space, as well as to accommodate storage space or space for future expansion. In addition, the site needs to be large enough to accommodate not only the general industrial uses, but also parking, on-site circulation, connections to public transportation, rail connections, and other access to the transportation network.

2. **Land ownership.** Sites with two or fewer owners are necessary to reduce the cost and uncertainty of land assembly.

    o Attribute is "typical of the industrial or employment use" - OAR 660-009-0005(11) specifically cites the "site configuration" as a site characteristic. Developing an industrial building on a site with more than two owners requires negotiating land assembly and purchase from multiple owners. Land assembly is difficult and often costly for a number of reasons. People own land for a variety of reasons,

such as the desire to develop the land, keep the land undeveloped, or sell the land for a profit. Getting landowners to sell land can be difficult, especially if the ownership is legally disputed, as is the case with some inheritances. If a landowner is a willing seller, they may have an unrealistic expectation of their land's value, in the context of comparable land values. In addition, one parcel of land may have multiple owners, compounding the issues described above.

Developers attempting land assembly often have difficulty assembling a site at a cost that makes development economically viable. When assembling land, developers often find that owners of key sites are not willing sellers, have unrealistic expectations of the value of their land, or cannot get agreement among multiple owners to sell the land. As a result, developers of industrial buildings typically choose to develop sites with one or two owners.

   o Attribute has "some meaningful connection with the operation of the industrial or employment use" – The cost of land assembly, in financial terms and in terms of extra time needed for site assembly, can make developing an industrial site with multiple land owners financially infeasible.

3. **Automotive and freight access.** Manufacturing buildings generally are located on arterial or major collector streets. Traffic from the industrial development should not be routed through residential neighborhoods. Freight traffic should have unimpeded access to an arterial or state highway.

   o Attribute is "typical of the industrial or employment use" - OAR 660-009-0005(11) specifically cites the "proximity to a particular transportation or freight facility such as rail, marine ports and airports, multimodal freight or transshipment facilities, and major transportation routes" as a site characteristic. Business Oregon finds that manufacturing and industrial firms need to be located relatively close to an interstate highway or principal arterial road, generally within 20 miles or less.

   o Attribute has "some meaningful connection with the operation of the industrial or employment use" – This site characteristic helps to minimize the amount of traffic on local streets, minimize freight traffic in residential neighborhoods, improve mobility, minimize adverse effects on urban land use and travel patterns, and provide for efficient long distance travel, which are all necessary for effective industrial operations.

4. **Topography.** Manufacturing sites should be relatively flat, with slopes of not more than 5%.

   o Attribute is "typical of the industrial or employment use" - OAR 660-009-0005(11) specifically cites "site configuration including shape and topography" as a site characteristic. Business Oregon finds that competitive sites generally have a slope of 5% or less.

   o Attribute has "some meaningful connection with the operation of the industrial or employment use" – Industrial buildings require level floor plates to reduce costs

and offer maximum flexibility, as well as level areas to provide for freight access and pedestrian walkways that meet ADA standards. The real estate development literature describes the increases in development costs and other difficulties associated with industrial development on a sloped site.

5. **Access to services.** City services should be directly accessible to the site, including sanitary sewer, and municipal water.

   o Attribute is "typical of the industrial or employment use" - OAR 660-009-0005(11) specifically cites the "specific types or levels of public facilities, services or energy infrastructure" as a site characteristic. Business Oregon finds that competitive sites must have access to urban services, including water, wastewater, natural gas, electricity, and major telecommunications facilities.

   o Attribute has "some meaningful connection with the operation of the industrial or employment use" – Industrial buildings require access to municipal water, municipal sanitary sewer, and electricity/gas. Developing a site with direct access to municipal services is substantially more cost-effective than extending municipal services to an unserviced site.[36]

6. **Surrounding land uses.** Industrial buildings are directly compatible with other industrial uses, commercial uses, and agricultural uses. Bend's Development Code and other policies address issues of compatibility between uses, such as requirements for building setbacks, screening, fencing, visual buffering, and landscaping.

   o Attribute is "typical of the industrial or employment use" - OAR 660-009-0025(6) strongly encourages cities to manage encroachment and intrusion of incompatible uses with employment uses. Industrial uses are generally compatible with other industrial uses, commercial uses, and some public uses. Industrial uses may be compatible with agricultural uses, provided that the industrial use does not encroach on the agricultural uses.

   o Attribute has "some meaningful connection with the operation of the industrial or employment use" - Industrial uses are able to operate efficiency where they are not in conflicts with adjacent land uses that could disrupt industrial business activity. Noise or odor conflicts may make some industrial uses incompatible with nearby residential uses.

Commercial/Office and Industrial Flex

1. **Site size.** Sites for general manufacturing or high-tech manufacturing firms range in size from 10 to 25 acres. Some medium-scale and smaller manufacturing firms may prefer to locate in a manufacturing or flex business park, which range in size from about 25 acres or several hundred acres.

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[36] Miles, Mike E., Haney, Richard L., Bernes, Gayle, "Real Estate Development: Principles and Process," The Urban Land Institute, 1997.

- o Attribute is "typical of the industrial or employment use" - OAR 660-009-0005(11) specifically cites "a minimum acreage" as a site characteristic. Business Oregon finds that competitively-sized general manufacturing firms have sites 10 acres in size. Competitive sites for heavy manufacturing, high-tech manufacturing, or campus industrial manufacturing require 25-acre sites.

  Some businesses will prefer to locate in manufacturing to flex business parks. Business parks are typically at least 25 acres in size to allow for development of multiple buildings and associated parking. In the Portland area, these parks generally range in size from about 25 acres to 50 acres, with a few examples of parks around 75, 100, or 300 acres.

  Major employment sites with general industrial uses in the Portland Metro area range in size from 25 to 160 acres and average about 50 acres in size. Businesses parks will need to be at least 25 to 50 acres and possibly as large as 75 to 100 acres.

- o Attribute has "some meaningful connection with the operation of the industrial or employment use" – Site size is important to general industrial users. The site needs to be large enough to accommodate the needed built space, as well as to accommodate storage space or space for future expansion. In addition, the site needs to be large enough to accommodate not only the general industrial uses, but also parking, on-site circulation, connections to public transportation, rail connections, and other access to the transportation network.

2. **Land ownership.** Sites with two or fewer owners are necessary to reduce the cost and uncertainty of land assembly.

   - o Attribute is "typical of the industrial or employment use" - OAR 660-009-0005(11) specifically cites the "site configuration" as a site characteristic. Developing an industrial building on a site with more than two owners requires negotiating land assembly and purchase from multiple owners. Land assembly is difficult and often costly for a number of reasons. People own land for a variety of reasons, such as the desire to develop the land, keep the land undeveloped, or sell the land for a profit. Getting landowners to sell land can be difficult, especially if the ownership is legally disputed, as is the case with some inheritances. If a landowner is a willing seller, they may have an unrealistic expectation of their land's value, in the context of comparable land values. In addition, one parcel of land may have multiple owners, compounding the issues described above. As a result, developers of industrial buildings typically choose to develop sites with one or two owners.

   - o Attribute has "some meaningful connection with the operation of the industrial or employment use" – The cost of land assembly, in financial terms and in terms of extra time needed for site assembly, can make developing an industrial site with multiple land owners financially infeasible.

3. **Automotive access.** Manufacturing buildings generally are located on arterial or major collector streets. Traffic from the industrial development should not be routed through residential neighborhoods. The ideal site would have direct access to an arterial or state highway.

   - Attribute is "typical of the industrial or employment use" - OAR 660-009-0005(11) specifically cites the "proximity to a particular transportation or freight facility such as rail, marine ports and airports, multimodal freight or transshipment facilities, and major transportation routes" as a site characteristic. Business Oregon finds that manufacturing and industrial firms need to be located relatively close to an interstate highway or principle arterial road, generally within 20 miles or less.

   - Attribute has "some meaningful connection with the operation of the industrial or employment use" – This site characteristic helps to minimize the amount of traffic on local streets, minimize freight traffic in residential neighborhoods, improve mobility, minimize adverse effects on urban land use and travel patterns, and provide for efficient long distance travel, which are all necessary for effective industrial operations.

4. **Topography.** Manufacturing sites should be relatively flat, with slopes of not more than 5%.

   - Attribute is "typical of the industrial or employment use" - OAR 660-009-0005(11) specifically cites "site configuration including shape and topography" as a site characteristic. Business Oregon finds that competitive sites generally have a slope of 5% or less, except high tech manufacturing and campus industrial, which have a slope of 7% or less.

   - Attribute has "some meaningful connection with the operation of the industrial or employment use" – Industrial buildings require level floorplates to reduce costs and offer maximum flexibility, as well as level areas to provide for freight access and pedestrian walkways that meet ADA standards. The real estate development literature describes the increases in development costs and other difficulties associated with industrial development on a sloped site.

5. **Access to services.** City services should be directly accessible to the site, including sanitary sewer, and municipal water.

   - Attribute is "typical of the industrial or employment use" - OAR 660-009-0005(11) specifically cites the "specific types or levels of public facilities, services or energy infrastructure" as a site characteristic. Business Oregon finds that competitive sites must have access to urban services, including water, wastewater, natural gas, electricity, and major telecommunications facilities.

   - Attribute has "some meaningful connection with the operation of the industrial or employment use" – Industrial buildings require access to municipal water, municipal sanitary sewer, and electricity/gas. Developing a site with direct access

to municipal services is substantially more cost-effective than extending municipal services to an unserviced site.[37]

6. **Surrounding land uses.** Industrial buildings are directly compatible with other industrial uses, commercial uses, and agricultural uses. Bend's Development Code and other policies address issues of compatibility between uses, such as requirements for building setbacks, screening, fencing, visual buffering, and landscaping.

    o Attribute is "typical of the industrial or employment use" - OAR 660-009-0025(6) strongly encourages cities to manage encroachment and intrusion of incompatible uses with employment uses. Industrial uses are generally compatible with other industrial uses, commercial uses, and some public uses. Industrial uses may be compatible with agricultural uses, provided that the industrial use does not encroach on the agricultural uses.

    o Attribute has "some meaningful connection with the operation of the industrial or employment use" - Industrial uses are able to operate efficiency where they are not in conflicts with adjacent land uses that could disrupt industrial business activity. Noise or odor conflicts may make some industrial uses incompatible with nearby residential uses.

General Retail and Office Uses

1. **Site size.** Sites for general retail and office firms range in size from 0.1 to 10 acres.

    o Attribute is "typical of the industrial or employment use" - OAR 660-009-0005(11) specifically cites "a minimum acreage" as a site characteristic. General retail and office uses do not have a minimum acreage beyond what is dictated in local zoning codes.

    o Attribute has "some meaningful connection with the operation of the industrial or employment use" – The City needs to provide a range of small site sizes. Needed site size is contingent on the type of business.

2. **Land ownership.** Sites with two or fewer owners are necessary to reduce the cost and uncertainty of land assembly.

    o Attribute is "typical of the industrial or employment use" - OAR 660-009-0005(11) specifically cites the "site configuration" as a site characteristic. Developing a commercial building on a site with more than two owners requires negotiating land assembly and purchase from multiple owners. Land assembly is difficult and often costly for a number of reasons. People own land for a variety of reasons, such as the desire to develop the land, keep the land undeveloped, or sell the land for a profit. Getting landowners to sell land can be difficult, especially if the ownership is legally disputed, as is the case with some inheritances. If a

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[37] Miles, Mike E., Haney, Richard L., Bernes, Gayle, "Real Estate Development: Principles and Process," The Urban Land Institute, 1997.

landowner is a willing seller, they may have an unrealistic expectation of their land's value, in the context of comparable land values. In addition, one parcel of land may have multiple owners, compounding the issues described above. As a result, developers of retail and office buildings typically choose to develop sites with one to three owners.

o   Attribute has "some meaningful connection with the operation of the retail or office use" – The cost of land assembly, in financial terms and in terms of extra time needed for site assembly, can make developing a retail or office site with multiple land owners financially infeasible.

3. **Automotive access**. Retail and office buildings should be located on arterial or collector streets. The ideal site would have direct access to an arterial or collector.

o   Attribute is "typical of the industrial or employment use" - This site characteristic helps to minimize the amount of traffic on local streets, minimize commercial traffic in residential neighborhoods, improve mobility, minimize adverse effects on urban land use and travel patterns, and provide for efficient long distance travel, which are all necessary for effective commercial operations. A location with access to an arterial or state highway will have greater visibility, which is important to businesses that depend on in-person customer access.

o   Attribute has "some meaningful connection with the operation of the industrial or employment use" – Many retail and office uses depend on auto access and visibility for their business.

4. **Topography**. General retail and office sites should be relatively flat, with slopes of not more than 15%.

o   Attribute is "typical of the industrial or employment use" - OAR 660-009-0005(11) specifically cites "site configuration including shape and topography" as a site characteristic. Business Oregon finds that competitive sites retail sites generally have a slope of 15% or less.

o   Attribute has "some meaningful connection with the operation of the industrial or employment use" – commercial buildings require level floorplates to reduce costs and offer maximum flexibility, as well as level areas to provide for freight access and pedestrian walkways that meet ADA standards. The real estate development literature describes the increases in development costs and other difficulties associated with commercial development on a sloped site.

5. **Access to services.** City services should be directly accessible to the site, including sanitary sewer, and municipal water.

o   Attribute is "typical of the industrial or employment use" - OAR 660-009-0005(11) specifically cites the "specific types or levels of public facilities, services or energy infrastructure" as a site characteristic. Business Oregon finds that competitive

commercial sites must have access to urban services, including water, wastewater, natural gas, electricity, and major telecommunications facilities.

- o Attribute has "some meaningful connection with the operation of the industrial or employment use" – retail and office buildings require access to municipal water, municipal sanitary sewer, and electricity/gas. Developing a site with direct access to municipal services is substantially more cost-effective than extending municipal services to an unserviced site.

6. **Surrounding land uses**. General retail and office buildings are directly compatible with other commercial uses, mixed uses, and residential uses. Bend's Development Code and other policies address issues of compatibility between uses, such as requirements for building setbacks, screening, fencing, visual buffering, and landscaping.

- o Attribute is "typical of the industrial or employment use" - OAR 660-009-0025(6) strongly encourages cities to manage encroachment and intrusion of incompatible uses with employment uses. General retail and office uses are generally compatible with other commercial uses, mixed uses, and residential uses.

- o Attribute has "some meaningful connection with the operation of the industrial or employment use" - Commercial uses are able to operate efficiency where they are not in conflicts with adjacent land uses that could disrupt industrial business activity.

Special Site Needs: Aspirations for Bend's Economy and Corresponding Land Needs
The Goal 9 rule includes provisions for meeting unique site needs for industries that are an integral component of a city's economic development strategy. The uses and sites described below represent Bend's aspirations for employment above the anticipated employment described in the employment projections.

The State's rule encourages jurisdictions to accommodate special site uses for economic growth. OAR 660-009-0025(8) states "cities and counties that adopt objectives or policies providing for uses with special site needs must adopt policies and land use regulations providing for those special site needs. Special site needs include, but are not limited to large acreage sites, special site configurations, direct access to transportation facilities, prime industrial lands…" These sites must be identified and protected for those specific uses and from incompatible uses.

Through discussions with the Stakeholders, Planning Commission, and public testimony, the 2008 EOA identified the following uses for aspirational employment and special sites. (1) a site for a new hospital; (2) a university district; and (3) two large lot industrial sites. The following discussion revises the "special site needs" for Bend based on changes that have occurred since 2008.[38] The City is only proceeding with the large-lot industrial special site needs and university

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[38] The 2008 EOA identified a need for a hospital site and a new university campus. Because of recent events, the City has determined it no longer needs sites for these uses.

site need. The need for a university district is being met inside the current UGB because Oregon State University has selected a site within the UGB. The need for a new hospital site is not being carried forward because the St. Charles Medical Center has decided to expand the existing hospital within the UGB.

Large Industrial Sites

The 2008 EOA identified a need for two, 56-acre industrial sites: one for targeted economic sector uses, and another for a heavy industrial site user. The Remand acknowledged this need, which is included as a special site need for the 2015 EOA.[39]

This land is not included in the general estimate for land need presented above and is in addition to existing land needs. These sites are not included in Bend's employment projections because the industries Bend seeks for these sites are generally not present in Bend.

The Sector Targeting work calls for attracting secondary wood products, renewable energy resources, aviation, recreation equipment and specialty manufacturing, and information technologies. While the estimated needed economic lands may suit some of these sectors, two sites with a dedicated size of at least 50 acres each to be reserved for these uses are needed for large site users such as secondary wood products, aviation, renewable energy resources, and information technology. Stakeholders concluded that they have been approached by industries seeking large sites for these uses, but since none are in the current supply, the firms looked to other communities.

These sites are needed in addition to predicted industrial land needs because the total amount of industrial acreage is relatively small (at least 100 acres), and placing at least 100 acres to be held in two large lots would consume nearly all of the needed 20-year supply. These sites are also needed because they will create the land base needed to attract Bend's targeted sectors.

The specific location of these sites has been identified as part of the "Alternatives Analysis" required by OAR 660-024. The large lot sites are at Juniper Ridge, within the existing UGB, and at the Department of State Lands Site, in the UGB expansion area.

Policies to protect these special large-lot industrial sites for their intended uses are required and will be included in Chapter 6 (Economy) and Chapter 11 (Growth Management) of Bend's Comprehensive Plan. The policies require that any sites included in the UGB to meet the special large-lot industrial site need will be protected with specific plan and/or code provisions. The regulations will be consistent with the Regional Large Lot Industrial Land provisions for Crook, Deschutes and Jefferson Counties.

Juniper Ridge is the largest area designated for industrial uses in Bend. The base case assumes that all of Juniper Ridge will remain in an industrial plan designation and that it will accommodate future employment growth consistent with its designation. It can also

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[39] The Remand states "The Commission concludes that the City has made an adequate showing under ORS 197.298(3)(a) that there is a specific identified land need for a future university campus, a site for a future medical center, and for two 50-acre large lot industrial sites." Pg 131-132

accommodate one of the large lot industrial site needs due to its large size and the city ownership that allows it to be held to wait for a large lot user.

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CHAPTER 5. EMPLOYMENT LAND SUFFICIENCY AND SITE NEEDS

This chapter provides an evaluation of land sufficiency in Bend. The analysis compares the land supply (as reported in the 2016 Buildable Lands Inventory) expressed in terms of capacity to accommodate new employees, with the updated 2013-2028 employment forecast. The land sufficiency analysis is followed by a discussion of the characteristics of needed sites to accommodate targeted industries. The chapter concludes with a discussion of short-term land supply.

Buildable Employment Land Inventory and Land Capacity

The BLI is adopted as a supporting document of the Bend Comprehensive Plan. In simplest terms, the BLI documents the urban land supply of Bend, and estimates the growth capacity for housing and jobs. It is a key factual base for growth management policy in Bend. The BLI also serves a very specific role, required by law, in analyzing and documenting specific categories of buildable land, and, estimating capacity for growth that is ultimately used to determine how much land is needed within UGB.

The full methods and results of the BLI are presented as a separate document (*Bend Buildable Lands Inventory,* 2016) and include an inventory of all lands (residential, employment, etc.) in the Bend UGB.

Commercial and Industrial Buildable Land Inventory Results

Table 17 shows employment land by plan designation and lot size. In 2014, Bend had over 1,000 acres of vacant land designated for employment uses. About 29% acres of Bend's vacant land is in sites smaller than 5 acres, 36% is on sites 5 to 50 acres, and 35% is in four sites larger than 50 acres.

Map 1 shows the BLI status of employment land (vacant and developed) in Bend.

Table 17. Vacant Employment Land by Employment Category and Lot Size, Bend UGB 2016

Employment Category	Acres by Lot Size			Total	Percent of Total
	Smaller than 5 acres	5 to 49.99 acres	50.00 ac or more		
Commercial / Mixed Use	168	112	-	280	26%
Industrial / Mixed Employment	127	193	370	690	65%
Public Facilities	7	79	-	86	8%
Total	**302**	**384**	**370**	**1,056**	**100%**
Percent of Total	**29%**	**36%**	**35%**	**100%**	
Number of Tax Lots					
Commercial / Mixed Use	111	14	-	125	51%
Industrial / Mixed Employment	99	14	2	115	47%
Public Facilities	3	4	-	7	3%
Total	**213**	**32**	**2**	**247**	**100%**
Percent of Total	**86%**	**13%**	**1%**	**100%**	

Source: Bend Buildable Lands Inventory, 2015
Note: RM and RH lands are part of the Medical District Overlay Zone (MDOZ)

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Map 1. Employment BLI Status

Legend:
- Urban Growth Boundary
- Streams/Rivers
- Roads/Highways

Development Status of Employment Land
- Developed
- Vacant

OAR 660-009-0005 defines employment lands as follows:
"Vacant Land" is equal to or larger than 1/2 acre not currently containing permanent improvements, or; equal to or larger than 5 acres where less than 1/2 acre is occupied by permanent bildings or improvements.

URBAN GROWTH BOUNDARY REMAND • BEND

Prepared 7/18/2016

Service Layer Credits: Deschutes County GIS (2014)

Source: Bend Buildable Lands Inventory, 2016

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Capacity of Employment Land in the Bend UGB to Accommodate New Employment

This section combines work in the previous sections to calculate the sufficiency of employment lands in Bend to accommodate forecast employment growth for the 2013-2028 period. The issue of providing for a variety of locations, sizes, and types is addressed. Short-term demand and supply for economic lands is also discussed. For the purpose of this analysis, the term "demand" refers to land needs before being subtracted from existing supplies. The term "need" refers to land needs after subtracting out existing land supplies.

Methods used in the analysis

For the revised EOA, Bend used a scenario planning tool called "Envision Tomorrow" to estimate the capacity of employment land. This is a significant change from the methods used in the 2008 EOA. Envision Tomorrow can be used to project the impact of current policies and trends on capacity as well as a range of other metrics, and compare against alternative policy choices. A "base case" scenario was developed based on current plan designations and average employment densities discussed in this document. In short, on vacant land, "development types" representing plan designations and calibrated to match the employment densities listed in the following section, were applied to all buildable acres. A redevelopment rate calibrated to match the estimate of redevelopment potential was applied to developed land. The assumptions and methodologies used to translate buildable area into jobs in Envision Tomorrow are described in greater detail in the *Bend Urbanization Report (2016)*. This section summarizes the key assumptions and output used in Envision Tomorrow for the "base case", i.e. the pre-policy projection of current trends, and the results of the efficiency measures (post-policy capacity).

Employment land capacity and deficiency

As stated above, the Envision Tomorrow model estimates the capacity of vacant and redevelopable land to accommodate new employment. Table 18 shows the residual employment need for the 2013-2028 period by broad land use category. The results show that Bend does not have enough land in its UGB to accommodate all employment types with the exception of public employment. There is an overall deficit of land for 8,317 employees.

Table 18. Base Case Employment Capacity Compared to Employment Needs by Employment Category, Bend UGB 2014

Employment Category	Net New Jobs	Total Employment Need[1]	Residual Employment Need	Percent of Employment Need Met within the UGB
Retail & Hospitality	2,420	6,540	4,120	37%
Office	4,350	7,160	2,810	61%
Industrial	5,216	6,520	1,304	80%
Public	1,637	1,720	83	95%
Total	**13,623**	**21,940**	**8,317**	**62%**

Source: Bend Urbanization Report (2016)
Notes: [1] The employment need categories have been generalized for simplicity in comparing against capacity as measured in Envision Tomorrow.
[2] Public jobs do not include school-based employment in actual school facilities which tend to be located in residential areas. Schools are addressed as a separate land need. The surplus of capacity for public jobs inside the UGB does not subtract from the need for employment capacity of other types, since land designated Public Facilities (where most of the public employment capacity comes from) generally will not provide opportunities for private-sector retail, office, or industrial development.

Table 19 estimates the number of sites needed to accommodate the residual employment need from Table 18. The distribution (e.g., percentage) of employment by employment category and site size from Table 5 was used allocate residual employment need to employment categories and site sizes. The average employees per site from Table 7 was used to estimate the number of needed sites. For example, 2,926 Retail & Hospitality employees expected to locate on sites smaller than five acres divided by an average of 23 employees per site for sites smaller than five acres yields a need of 128 sites smaller than five acres for Retail & Hospitality employees.

The results show that Bend has a deficit of 267 sites smaller than five acres and 13 sites between 5 and 50 acres under the Base Case Scenario.

Table 19. Vacant Employment Land by General Plan Designation and lot size, Base Case Scenario, Bend UGB 2014

Employment Category	Residual Employment Need		Sites Needed	
	Smaller than 5 acres	5 to 49.99 acres	Smaller than 5 acres	5 to 49.99 acres
Retail & Hospitality	2,926	1,194	128	9
Office	2,112	188	92	2
Industrial	1,076	224	47	2
Public	None	None	None	None
Total	**6,114**	**1,606**	**267**	**13**

Source: Residual Employment Need from the Bend Urbanization Report (2016), Distribution of Employment in Bend (Table 5) and Average Employees per Site (Table 7)

Efficiency Measures (Post-Policy Capacity)

The Bend Urbanization Report presents an analysis of land use efficiency measures considered and agreed on through the project. The land use efficiency measures include policies, plan and zoning map amendments and code amendments that increase the efficient use of land within the Bend UGB.

The package of land use efficiency measures that will be adopted with the proposed UGB amendments related to the EOA include: new mixed-use zones, revisions to parking standards, allowing more intense development in the Mixed Employment zone, identifying commercial and industrial areas for zone or comprehensive plan map changes, and other policy changes.

Table 20 shows the change in jobs capacity as a result of the efficiency measures. Even with this additional capacity, Bend has a residual employment need that cannot be met within the UGB.

Table 20. Employment Capacity with Efficiency Measures Compared to Employment Needs by Employment Category, Bend, 2014-2028

Employment Category	Total Employment Capacity			Total Employment Need	Residual Employment Need	Percent of Employment Need Met
	Net New Jobs (Base Case)	New Jobs from Efficiency Measures	Total New Jobs			
Retail & Hospitality	2,420	803	3,223	6,540	3,317	49%
Office	4,350	975	5,325	7,160	1,835	74%
Industrial	5,216	(710)	4,506	6,520	2,014	69%
Public	1,637	34	1,671	1,720	49	97%
Total	**13,623**	**1,102**	**14,725**	**21,940**	**7,215**	**67%**

Source: ECONorthwest

Short-term land supply

Remand and State Requirements

The Remand requires the City provide more evidence to demonstrate that it complies with the requirement to maintain a short-term land supply as required by OAR 660-009-0015(3)(a)(C):

> "For cities and counties within a Metropolitan Planning Organization, the inventory must also include the approximate total acreage and percentage of sites within each plan or zoning district that comprise the short-term supply of land."

Bend is within a Metropolitan Planning Organization (MPO) and is therefore required to conduct the analysis. OAR 660-009-0005(10) defines short-term land supply as follows:

> "Short-term Supply of Land" means suitable land that is ready for construction within one year of an application for a building permit or request for service extension. Engineering feasibility is sufficient to qualify land for the short-term supply of land. Funding availability is not required. "Competitive Short-term Supply" means the short-term supply of land provides a range of site sizes and

locations to accommodate the market needs of a variety of industrial and other employment uses.

The Remand provides the following guidance with respect to meeting the requirements of OAR 660-009-0015(3)(a)(C):

> Under OAR 660-009-0015(3)(a)(C), the EOA Inventory of Industrial and Other Employment Lands for cities and counties within a Metropolitan Planning Organization, must include the approximate total acreage and percentage of sites within each plan or zoning district that comprise the short-term supply of land.

> This short-term supply analysis required for jurisdictions within MPOs is in addition to the EOA inventory requirements applicable to all comprehensive plans for areas within urban growth boundaries. OAR 660-009-0015(3)(a)

> Furthermore, division 9 requires that comprehensive plans for cities such as Bend "include detailed strategies for preparing the total land supply for development and for replacing the short-term supply of land as it is developed." OAR 660-009-0020(2).

> The Commission concludes that the Goal 9 rule requires the City to include policies for maintaining a short-term supply.

The City must plan for required infrastructure and have identified the funding mechanisms. State law requires the city to describe development constraints or infrastructure needs on vacant lands and determine the amount of vacant acreage by plan designation that qualifies as short-term supply. OAR 660-009-0005(9) establishes the definition of "serviceable" as:

> "the city or county has determined that public facilities and transportation facilities, as defined by OAR chapter 660, division 011 and division 012, currently have adequate capacity for development planned in the service area where the site is located or can be upgraded to have adequate capacity within the 20-year planning period."

Since all vacant land is theoretically "serviceable" because a city could state it "can be upgraded", Bend staff created a working definition so that a site is "serviceable" if adopted water, sewer, and transportation master plans are currently written to serve the property. That is, all land within the current UGB is considered serviceable in the Goal 9 context.

Operationalizing short term supply analysis

It is worth parsing the elements of the rule to better understand the requirements. The first issue is temporal in nature: "land that is ready for construction within one year of an application for a building permit or request for service extension." Thus, the definition establishes a one year threshold. The second is the concept of "engineering feasibility." The rule doesn't provide guidance on how to operationalize "engineering feasibility." For the purpose of this analysis, the consulting team defines engineering feasibility as the ability to provide the needed backbone infrastructure to the site within one year. On site infrastructure is not part of engineering

feasibility. The final issue is related to funding. The City is not required to demonstrate that it has the funds available to develop the infrastructure.

The analysis includes evaluation of water, wastewater, stormwater, and transportation infrastructure. Whether a specific site meets the standards for short term supply was determined by analysis of functional plans and capital improvement programs. For the purpose of this analysis, we used the end of 2017 in the evaluation.

City Functional Planning Efforts

The evaluation of short-term land supply is directly related to infrastructure plans (called "functional" plans). For the purpose of this analysis the relevant functional plans are water, wastewater, stormwater, and transportation.

Since the Remand was issued in 2010, the City has completed substantial of planning work for infrastructure. These plans include:

- *Water System Master Plan - 2011 Update (Optimization Study)*. This plan covers level of service goals, present and future deficiencies, assessment of fire flow capacity in the system and the results of a comprehensive analysis using an optimized decision support process to evaluate alternatives that address system deficiencies now and in the future. The results of this study are a recommended set of system improvements to meet water needs within Bend's water service area for at least 20 years.
- *Water Management and Conservation Plan – 2011*. The purpose of this Plan is to guide the development, financing, and implementation of water management and conservation programs and policies to ensure sustainable use of publicly owned water resources while the City plans for its future water needs.
- *Collection System Master Plan – 2014*. The Wastewater Collection System Master Plan (CSMP) is a 20-year critical planning document that establishes a clear vision for the City's sewer collection system. The CSMP identifies both short term and long-term system improvements that are needed to address existing condition, existing capacity, and future capacity issues.
- *Water Reclamation Facility Plan.* This plan outlines several cost-effective solutions for increasing the plant's ability to meet projected wastewater flows through the year 2030.
- *Stormwater Master Plan*. In 2014, the City Council approved the City's first formal Stormwater Master Plan that serves as the oversight plan for addressing stormwater quantity and quality issues. In addition, this Plan provides a delineation of drainage areas and runoff quantities throughout Bend, and programmatic goals for addressing quantity and quality concerns.
- Bend Urban Area Transportation Plan – 2011. The purpose of the Bend Urban Area TSP is to help guide the development of a transportation system that will meet the forecast needs of the Bend community. This plan provides a policy and plan framework that will continue to enable Bend to design a balanced transportation system for the near-term and the next twenty years.
- NE Bend Transportation Study – 2009. The NE Bend Transportation Study is an umbrella effort to coordinate transportation system planning, land use planning, and

project development work underway in the north-east part of the City of Bend. The study was initiated by specific direction given from the City of Bend City Council and the Oregon Transportation Commission (OTC) to investigate strategies that support better use of the local (i.e., non-highway) transportation system for shorter distance travel and decrease local trip reliance on the state highways.

Analysis and Findings

This section evaluates Bend's ability to provide a short-term supply of employment lands. It evaluates key services—water, wastewater, stormwater and transportation—and concludes with a summary of land by plan designation that meets the short-term supply standard as stated in OAR 660-009-0015(3)(a)(C).

Water

To better understand the extent to which water capacity and systems will support employment growth, the City commissioned Murray, Smith & Associates (MSA) to analyze whether the existing system would accommodate a 25% increase in employment given planned system enhancements. The analysis builds on the capacity analysis performed for the City of Bend's Water System Master Plan (WMP) completed in 2011. The updated hydraulic model developed for the WMP was used as a tool to identify capacity constraints and bottlenecks associated with a twenty-five (25) percent increase in employment above existing conditions. In summary, the analysis answers the question of whether 25% of Bend's land could be provided water service making it available as short-term supply with the assumption that 25% of the forecast employment growth would consume 25% of the land.

The City's water service area includes the City's current urban growth boundary (UGB), which includes most of the City of Bend, as well as the Tetherow Development and Juniper Ridge Development Phases 1 and 2. Two private water utilities, Avion Water Company and Roats Water System, Inc., serve the portions of the area within the UGB not served by the City's water system. Seventy-five to eighty percent of the UGB is served by the City of Bend.

As described above, the City has recently completed system plans for water distribution and conservation. The *Water System Master Plan Update Optimization Study* (February 2011) is a detailed analysis of water supply and demand and includes a 10-year capital improvement plan to accommodate expected growth and system improvements to accommodate forecast growth. The *Water Management and Conservation Plan* (June 2011) is intended to guide the development, financing, and implementation of water management and conservation programs and policies for Bend.

To forecast system demand, the City used data from the 2008 buildable lands inventory and other sources. The plan forecasts that average daily demand (ADD) will increase from 14.3 million gallons in 2010 to 29.1 in 2030. Maximum daily demand (MDD) is projected to increase from 32.2 million gallons to 65.1 million gallons. The plan concludes that the water supply provided by the City's existing water rights, however, currently can be relied upon only to provide approximately 51.8 mgd of supply during periods of high demand. Consequently, the City will need to fully exercise its existing water rights and may need additional water supply to meet its projected 2030 MDD.

According to the MSA analysis, the City's sources of supply include the surface water source, and ground water sources. The WMP considers the largest single source to be the surface water supply. With the largest source unavailable, the firm capacity supply was identified in the WMP as 32.2 MGD. The estimated MDD with 25-percent employment growth is estimated at 29.8 MGD. Therefore the existing firm capacity is adequate to meet MDD with 25-percent employment growth. MSA also concludes that the WMP indicates an overall storage deficiency based on data collected in 2008 and 2009; however, near-term improvements at the City's Outback Facility improve system-wide storage.

The results MSAs of hydraulic analysis for average daily demand (ADD), maximum daily demand (MDD), and peak hour demand (PHD) scenarios with 25% employment growth indicate that system performance meets pressure criteria. However, fire flow requirements are not met in all areas of employment growth. Area that may experience fire flow deficiencies are highlighted in Map 1.

The key deficiency in all areas is fire flow requirements. Most of the areas (with the exception of Juniper Ridge) have a fire flow requirement of 2,500 gallons per minute (gpm). All of the areas will require system improvements to meet fire flow requirements at 25% employment growth. Within the context of short-term supply, areas that do not have sufficient fire flows are assumed to meet the criteria of being ready for construction within one year of an application for a building permit or request for service extension because localized improvements associated with site development would typically provide sufficient fire flows. In short, these lands could be serviced within one year of an application.

Neither plan identifies system or capacity constraints that would prohibit the city from serving employment lands. In fact, the city modeled higher water use for the Juniper Ridge site to ensure that it would have capacity to serve water-intensive industries if they chose to locate at Juniper Ridge. The City concludes that water systems do not constrain employment growth and that all lands within the UGB meet the definition of short term supply for water.

Map 2. Water System Constraints Under a 25% Forecast Employment Growth Scenario

Legend:
- Storage Tank
- Existing Wells
- Pump Station
- Existing Control Valve
- Existing Pipeline
- UGB - Existing

500 - 9990

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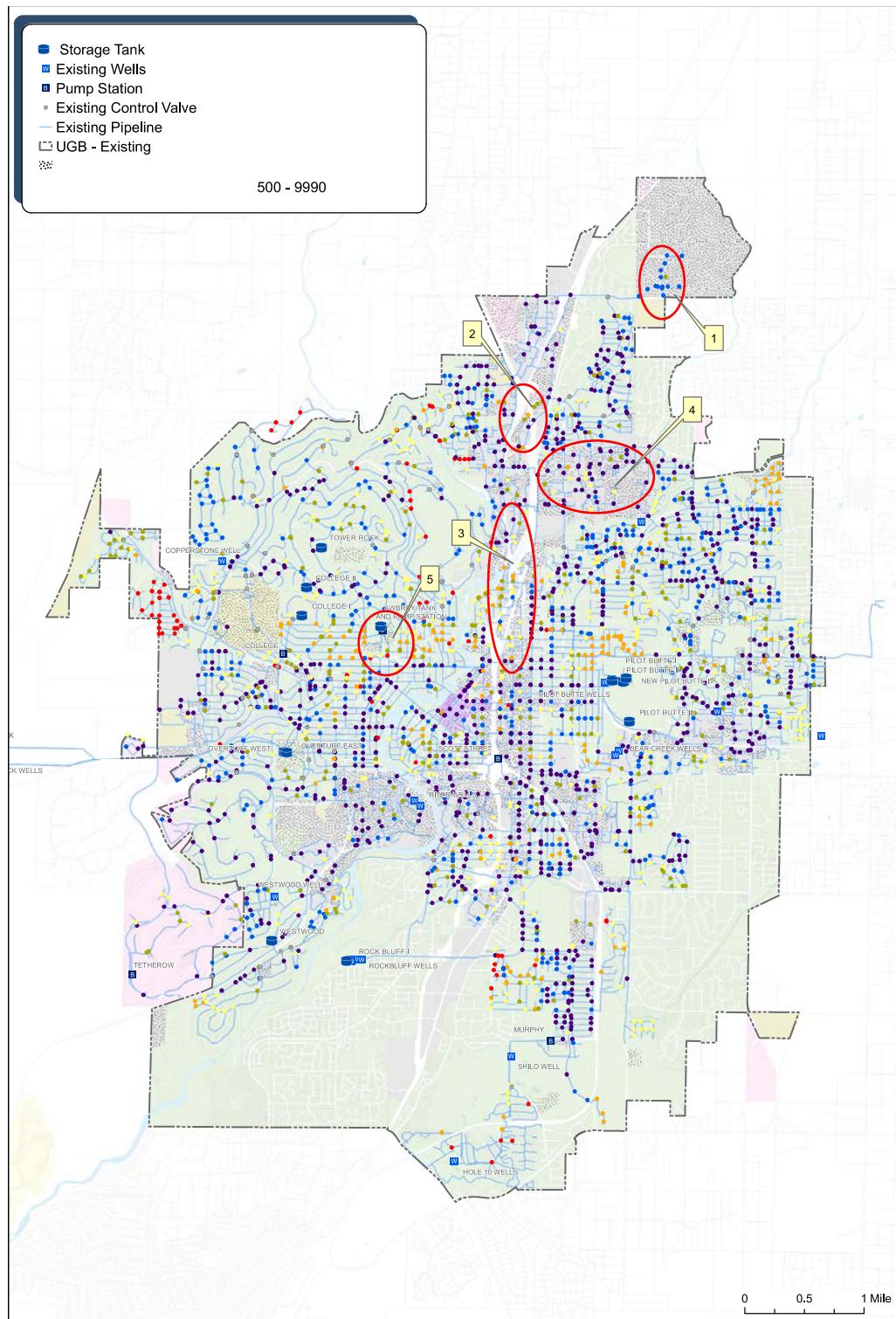
Wastewater

To better understand the extent to which wastewater capacity and systems will support employment growth, the City commissioned Murray, Smith & Associates to analyze whether the existing system would accommodate a 25% increase in employment given planned system enhancements. The analysis builds on the capacity analysis performed for the City of Bend's Collection System Master Plan (CSMP) completed in 2014. The hydraulic model developed for the CSMP was used as a tool to identify capacity constraints and bottlenecks associated with a twenty-five (25) percent increase in employment above existing conditions. In summary, the analysis answers the question of whether 25% of Bend's land could be provided wastewater service making it available as short-term supply with the assumption that 25% of the forecast employment growth would consume 25% of the land.

To reflect system improvements in progress and the anticipated timeframe for the UGB project, the analysis assumed that programmed improvements for 2016 and 2017 were in place. These improvements are identified in the capital improvement section of the CSMP and are scheduled for completion by December 31, 2017 (this includes three key improvements identified in the CIP – the North Area improvements, Colorado Lift Station, and Southeast Interceptor Phase I).

Table 20 shows the employment assumptions by zoning district used in the system modeling. The forecast figures are derived from Table 6, but do not include employment that will locate in residential zones (about 500 additional employees).

Table 20. 25% of Employment Forecast and Acres Serviced by Wastewater Collection Systems, by Zoning District, 2016-2036

| Zoning | 25% of forecast employment | |
	Employees	Acres
Central Business District	245	8
Convenience Commercial	71	17
General Commercial	282	84
General Industrial	36	18
Institutional	87	52
Light Industrial	790	162
Limited Commercial	236	40
Medical District	235	33
Mixed Employment	695	117
Mixed Use	279	39
Mixed Use Riverfront	156	49
Public Facilities	421	81
Total	**3,533**	**700**

Source: Murray Smith &Associates
Note: employment forecast does not include employment that is forecast to locate in non-employment zones

The key conclusion of the analysis is that the wastewater system generally has capacity for 25% employment growth without the risk of overflow. The analysis also identifies several critical

capacity constraints which are shown in Map 3. These are described in more detail in the following sections.

North Area

Constraints in the north area are related to available lift station capacity and gravity pipeline capacity prior to construction of the Northeast Interceptor. The area has capacity to serve near-term employment growth but has limitations with gravity sewer lines between Empire Avenue and Marsh Orchard Drive and between Town Drive and Wishing Well Lane.

The construction of the Northeast Interceptor (currently scheduled for approximately 2019) will address these constraints in the long-term.

Central Corridor

The central corridor has limited ability to serve long-term growth due to available trunk sewer capacity prior to construction of the Southeast Interceptor Phase 2 and flow diversions from the south and southwest sub-basins to the interceptor anticipated for construction in 2022. This area can accommodate some near-term growth, but capacity constraints exist at the following locations:

- Old Mill Lift Station
- Gravity lines between Studio Road and 6th Street and from Seward Avenue to Webster Avenue
- Gravity lines on Butler Market Road

South and Southeast

The south and southeast areas are limited to serve long-term growth due to available trunk sewer capacity prior to construction of the Southeast Interceptor Phase 2. This area can accommodate some near-term growth, but capacity constraints exist at the following locations:

- Gravity sewer downstream of Purcell Boulevard, parallel to Cliff Drive
- Shallow gravity sewer on Centennial Street between Paiute Way and Stratford Court.

To summarize, the conclusion that the system can generally accommodate growth indicates that the additional 25% employment growth creates some system deficiencies based on the City standards; however it does not cause system overflows. Note that the model results are dependent on distributed growth. If all or most the employment growth were concentrated in one location such as the north area, greater system deficiencies would occur.

Moreover, it is important to note that all three areas identified with capacity constraints will experience bottlenecks even without the 25% employment growth. The key findings from previous analyses relative to the bottlenecks are that growth may be limited prior to construction of the Southeast Interceptor Phase 2 in 2022 and the Northeast Interceptor in 2019.

Map 3. Wastewater System Constraints Under a 25% Forecast Employment Growth Scenario

Existing Infrastructure
- Gravity Main - Existing Trunk
- Gravity Main - Existing
- Vacuum Main - Existing
- Force Main - Existing
- Parcel
- UGB - Existing
- Employment Growth Area

Pipe Capacity
- Limited Capacity During DWF
- Limited Capacity During WWF

Lift Station Capacity
- OK (During DWF and WWF)
- Limited Lift Station Capacity

Note:
System was evaluated for reserve capacity during both dry weather (DWF) and wet weather (WWF) conditions. Under DWF conditions pipeline reserve capacity was based on a depth to diameter ratio of 0.8, while WWF capacity was based on a minimum of 2 feet of freeboard. For both DWF and WWF pump stations were evaluated by comparing inflow to the pump station and pump station firm capacity.

North Area -
Bottlenecks limit capacity for growth in the North area prior to completion of Northeast Interceptor.

Southeast Area -
Bottleneck limits capacity for growth in the Southeast Interceptor Basin prior to completion of Southeast Interceptor Phase 2.

Central Corridor -
Several bottlenecks limit growth capacity for the central corridor. The future connection of the Southwest basin to the Southeast Interceptor following completion of Phase 2 will reduce flow through the central corridor and increase the capacity for growth.

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Stormwater

The City recently updated its stormwater system plan (November 2014). The *Stormwater Public Facilities Plan (Stormwater PFP)* describes the City's existing stormwater facilities and plans for future facilities needed over a 20-year planning period.

The City relies mainly on a dispersed drainage system, relying on infiltrating and injecting stormwater close to the source of its creation using low impact development practices. This type of system relies less on "grey" infrastructure (e.g., pipes and canals) and more on so-called "low-impact development" methods that allow stormwater to be handled at or near the source. The City's stormwater facility system is composed mainly of dry wells and drill holes, both of which are underground injection controls. In the central portion of the City, however, the City maintains a separate piped system that carries stormwater to the Deschutes River.

The plan identifies future storm drainage projects which focus on achieving design standards of designing to a 25-year storm with safe passage for the 100-year 24-hour storm. As new areas develop, the City will continue its dispersed system of handling the design storm on site as part of the project through the use of surface, regional or underground injection control disposal. New outfalls to the Deschutes River are not consistent with the City's General Plan and are not anticipated.

The plan does not identify any major system deficiencies and the low-impact development standards suggest that stormwater improvements will not be a limitation on future employment growth.

Transportation

Bend has long maintained transportation system plans. The Bend Urban Area Transportation System Plan (TSP) was updated in 2011. A special study of the Northeastern area of Bend (the NE Bend Transportation Study) was completed in 2009. The purpose of these plans and studies is to help guide the development of a transportation system that will meet the forecast needs of Bend.

The TSP concludes that several roadways throughout the urban area will approach, or exceed, their capacities under the "no-build" conditions during the peak hour. Many of the collector and arterial streets in the Bend urban area will be modernized or widened during the twenty-year planning period. The TSP identifies about 300 miles of city maintained streets and identifies approximately 15 miles of streets will be near or over capacity by the end of the planning horizon.

A key issue is addressing mobility standards. This is affected by the fact that multiple jurisdictions manage the transportation system. With respect to city-maintained facilities, the Bend city code has provisions that allow the City Manager some discretion in altering mobility standards. While relaxed mobility standards have implications for the functioning of the overall system, the flexible standards suggest that transportation on the city-maintained system will not prohibit development. In short, the conclusion is that city transportation capacity is not a limiting factor due to the ability to relax mobility standards for City streets.

Management of State facilities is more complex—particularly for the Northeast area. The NE Bend Transportation Study was an effort aimed at better understanding system limitations and to develop strategies to reduce trip reliance on state highways. Key outcomes of the project are (1) a recommended list of system improvements, (2) alternative mobility standards for state facilities, and (3) recommended transportation demand and system management strategies.

Changes to mobility standards are subject to Oregon Transportation Commission (OTC) review, a requirement would preclude a classification of short term supply for affected lands. This affects the entire northern area of the city and one site on S 3rd Street. Moreover, this directly affects lands in the North Triangle and Juniper Ridge. Growth at Juniper Ridge will have a significant impact on the Cooley/97 intersection – enough to require that the intersection be completely redesigned and reconstructed – a $40 million project.[40]

To address transportation issues at Juniper Ridge, the City and ODOT entered into Intergovernmental Agreement (IGA) No. 27115 to link the need for transportation through the north end of Bend to the amount of trips that could result from development at Juniper Ridge over time. Table 21 outlines the mitigation improvements tied to PM peak hour trips for each phase of development. The agreement essentially places a cap on PM peak hour trips for the site based on specific improvements.

Table 21. Mitigation Improvements, from Table 2.7.2030.B of IGA between Bend and ODOT

PHASE	P.M. PEAK HOUR TRIPS	MITIGATION IMPROVEMENT
1	700	Empire Avenue/18th Street Roundabout
		Empire Avenue/US-97 Northbound Ramp Terminal
		Empire Avenue/US-97 Southbound Ramp Terminal Third Street to US-97
2	600	US-97 Improvements between Nels Anderson and Bowery Lane
3	580	18th Street Corridor Improvements Cooley Road to Empire Avenue
4	340	US-97 Southbound Improvements Empire Avenue to Butler Market Road
		Purcell Street Extension Cooley Road to Yeoman Road

At this time, Juniper Ridge has capacity for 700 additional PM peak hour trips. This could be increased by implementing Transportation Demand Management (TDM) measures, but for the purpose of this analysis we rely on the figures in Table 21. To estimate the amount of land that could be developed under high and low traffic employment uses at Juniper Ridge, an analysis of trip generation using the Institute of Transportation Engineers (ITE) Trip Generation Report was

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[40] More detail about Juniper Ridge can be found on the City website: http://www.bendoregon.gov/index.aspx?page=615. Details pertaining to the UGB review can be found in a memorandum from Brian Rankin to the UGB Steering Committee: http://www.bendoregon.gov/modules/showdocument.aspx?documentid=22403

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completed. The analysis tested various industrial uses (e.g., light, heavy, warehousing, distribution) and office uses (e.g., single tenant offices, corporate headquarters, R&D center). Depending on the use, and without TDM strategies, between 20 and 100 acres could develop at Juniper Ridge under the trip cap. For the purpose of the short-term supply analysis, 50 acres at Juniper Ridge are assumed meet the definition of short-term supply.

In summary, Bend can accommodate 25% employment growth with the existing transportation system. Limitations exist in some areas such as Juniper Ridge that could preclude full build out, but other options exist for siting employment.

Summary

Table 22 presents a summary of total land supply and short-term land supply by plan designation for the current Bend UGB. The results show that 62% of employment land meets the definition of short-term supply. Juniper Ridge is the key area where service deficiencies limit development, but these limitations may be mitigated through TDM strategies to reduce trip generation.

Table 22. Total and short-term land supply for employment, Bend UGB, 2016

Plan Designation	Total Land Supply	Short-Term Land Supply	Percent of Total Land Supply
Commercial / Mixed Use	**280**	**280**	100%
CB	-	-	-
CC	12	12	100%
CG	104	104	100%
CL	75	75	100%
MR	40	40	100%
PO	49	49	100%
Industrial / Mixed Employment	**690**	**267**	39%
IG	8	8	100%
IL	601	178	30%
ME	81	81	100%
Public Facilities	**86**	**86**	100%
PF	86	86	100%
Total	**1,056**	**634**	**60%**

Source: Analysis by ECONorthwest

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Based on this analysis, the City concludes that it meets the OAR 600-009-0025(3)(a) that the city provide at least 25 percent of the total land supply within the urban growth boundary designated for industrial and other employment uses as short-term supply. Additionally, the City will include policies in the Comprehensive Plan to monitor and maintain the acreage of employment lands that qualify as competitive short-term supply. The policy framework in Chapter 6 (Employment) includes:

- Identification of obstacles that prevent lands from qualifying as competitive short-term supply, and
- Efforts, plans, and potential funding mechanisms to prepare lands to qualify as competitive short-term supply.

Conclusions

The conclusions of the economic opportunities analysis for the Base Case (without Efficiency Measures) are:

- **Bend does not have sufficient employment land to accommodate forecast employment growth**. The analysis shows that Bend does not have enough land in its UGB to accommodate all employment types with the exception of public employment. There is an overall deficit of land for 8,317 employees.
- **Bend has a deficit of employment sites**. The analysis shows that Bend has a deficit of 267 sites smaller than five acres and 13 sites between 5 and 50 acres.
- **Bend meets the requirement to provide 25% of its total employment land supply as short-term supply**. The analysis shows that nearly 60% of employment land meets the definition of short term supply. Juniper Ridge is the key area where service deficiencies limit development.

The *Bend Urbanization Report* (2016) proposes efficiency measures to accommodate the deficit of land for 8,180 employees. These efficiency measures include:

- New mixed use zones to accommodate commercial and residential development
- Changes to existing mixed use zones, such as: reductions in parking requirements, changes to allow more intense development the Mixed Employment zone, and minimum residential density standards in some mixed use zones.
- Identification of key opportunity sites as areas to increase development density and capacity for employment, as well as residential, uses. Plan amendments and/or zone changes are proposed for specific opportunity sites.

Table 17 in the *Bend Urbanization Report* shows that the employment need decreases to a land deficit for 7,215 employees (down from a base case deficit of 8,317 employees) as a result of these efficiency measures. The *Bend Urbanization Report* concludes that 67% of Bend's employment growth will be accommodated within the UGB on vacant lands and through the efficiency measures.

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APPENDIX A. NATIONAL, STATE, REGIONAL, COUNTY, AND LOCAL TRENDS AFFECTING FUTURE ECONOMIC GROWTH

Economic development in Bend over the next twenty years will occur in the context of long-run national trends. Appendix A provides more detailed information on trends affective future economic growth and is intended to support the analysis required by OAR 660-009-0015(1). The most important of these trends include:

- At the largest scale, the effects of "globalization" – the increasingly free movement of jobs, capital, and products throughout the world – are being felt in communities across the United States. One effect of globalization is that low-skill manufacturing jobs will increasingly take place elsewhere, where wages are far lower. Thus, in order to compete and earn living-wage salaries, American workers must pursue higher-skilled jobs in "knowledge based" industries. While some of these jobs will continue to be in manufacturing industries, the largest job growth will take place in new industries such as information technology, professional services, and other sectors.
- Economic growth will continue at a moderate pace. Annual growth rates (in real GDP) are projected to be roughly 3 percent through 2017. The Congressional Budget Office (CBO) estimates that unemployment rates will continue to decline but remain above 6.0 percent until late 2016.
- The aging of the baby boom generation, accompanied by increases in life expectancy. The number of people age 65 and older will more than double by 2050. This trend can be seen in Oregon, where the share of workers 65 years and older grew 2.9 percent of the workforce in 2000 to 4.1 percent of the workforce in 2010, an increase of 41 percent.
- The need for workers to replace retiring baby boomers will outpace job growth. According to the Bureau of Labor Statistics, net replacement needs will be 33.7 million job openings over the 2010-2020 period, compared with growth in employment of 21.1 million jobs.
- Education will be an important determinant of wages and household income. According to the Bureau of Labor Statistics, a majority of the fastest growing occupations will require an academic degree, and on average they will yield higher incomes than occupations that do not require an academic degree.

State, Regional, and Local Trends

State, regional, and local trends will all affect economic development in Bend. This section presents data for Bend and the surrounding areas that will affect the city's growth over the planning period.

Overall Employment Growth

According to the Oregon Employment Department, Oregon's employment peaked in the first quarter of 2008 (at more than 1.74 million jobs) and hit its lowest point in the first quarter of 2010 (at about 1.59 million jobs), losing 146,000 jobs over the two-year period. However, Oregon added about 52,000 jobs between 2010 and December 2012. After hovering around

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1.5% in the early stages of the recovery, growth kicked into higher gear in late 2013. Since then, the state has added jobs to the tune of about 3% annually; similar to what Oregon experienced during the housing boom years preceding the Great Recession, and about a full percentage point faster than the nation.

The Oregon Office of Economic Analysis (OEA) points out that, in addition to job growth, other economic indicators have shown recent improvement. These trends point to a deeper, more robust economic recovery and a return to more normal labor market dynamics. For example, new business filings in Oregon are increasing. OEA sees firm creation as a positive sign, as entrepreneurs and start-ups often drive innovation and the development of new technology.

As in 2008, employment is still forecast to grow over the next decade. According to data from the Bureau of Labor Statistics and the Oregon Employment Department total employment in Deschutes County grew by about 21% from 2001 to 2013, and total covered employment throughout Central Oregon (Deschutes, Crook and Jefferson Counties) is forecast to grow by about 16% over the period from 2012 to 2022.

Labor Trends

Growing Population

Table A- 1 shows population change from 1990 to 2013 for Oregon, Deschutes County, and Bend. Bend's population grew at the fastest annual rate since 1990, increasing by an average of 6% per year, almost tripling over the 23-year period. In 2013, Bend's population was about 78,000 people, compared to 163,000 in the county as a whole and 3,919,000 throughout the state.

Table A- 1. Population, Oregon, Deschutes County, Bend, 1990-2013

| | 1990 | 2000 | 2013 | 1990 - 2013 Change | | |
				Change	% Change	Average Annual Growth Rate
Oregon	2,842,321	3,421,399	3,919,020	1,076,699	38%	1%
Deschutes County	74,958	115,367	162,525	87,567	117%	4%
Bend	20,469	52,029	78,280	57,811	282%	6%

Source: Population Research Center, Portland State University, http://www.pdx.edu/prc/.

Figure A- 1 compares the average annual growth rates for population, household size, and family size for the nation, Oregon, Deschutes County, and Bend, from 2000-2013. Population grew faster than household size for all geographies except for Oregon.

From 2000 to 2013, Bend's population grew at a 3.8% average annual growth rate, compared to 3.1% in Deschutes County, 1.2% in Oregon, and 1.0 percent in the nation as a whole. Oregon's

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household size increased at a 2.9% average annual growth rate, compared to 0.8% in Bend, 0.1% in Deschutes County, and 0.2% in the nation.

Figure A- 1. Average Annual Population Growth Rate, United States, Oregon, Deschutes County, Bend, 2000-2013
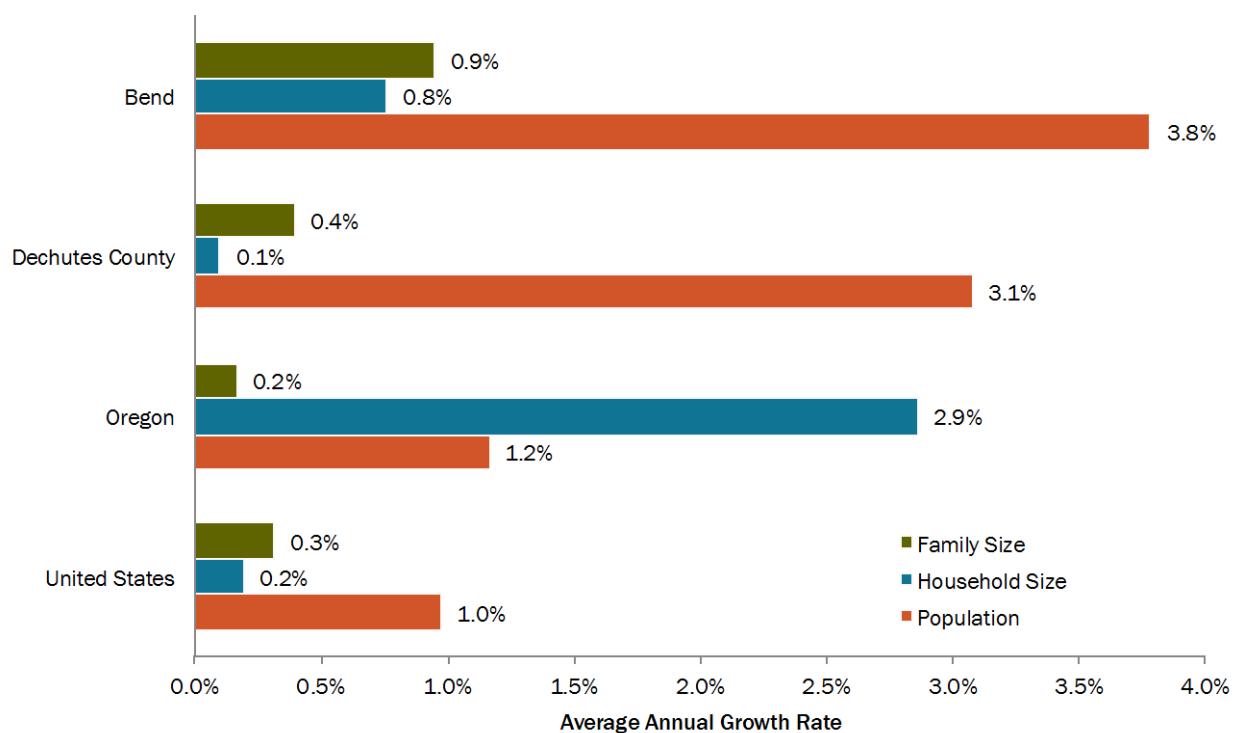
Source: US Census, Portland State University Population Research Center.

Aging Population

Figure A- 2 shows the distribution of age groups in Oregon, Deschutes County, and Bend in 2013. Bend has a larger share of 20 to 39 year olds, about 30% of the city's population, compared, to about 25% for Deschutes County as a whole, and about 27% in Oregon.

Since, 2000 60-to-69-year-old age group has grown the fastest, increasing by 138%, and increasing its share of the overall population by 15%. The next-fastest group was the 50-to-59-year-old group, who increased by 104%, and increasing their share of the population by 20%. People in these age groups will eventually retire, meaning they will both leave the workforce and require changes in their housing and care.

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Figure A- 2. Population by Age, Oregon, Deschutes County, Bend, 2013
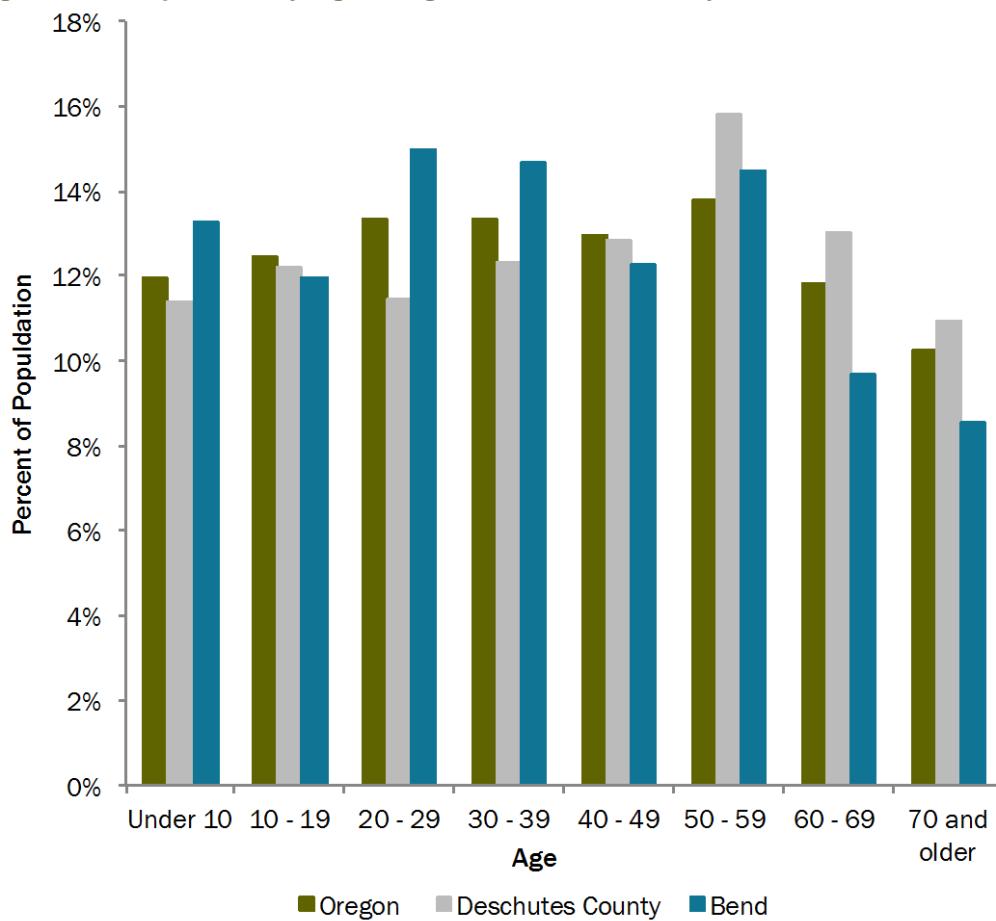
Source: Census Bureau, 2013 American Community Survey.

In-Migration

Continued in-migration from other states will drive growth in Oregon. Key trends are that:

- Population in the county and the Bend urban area will continue to grow at a higher rate than the rest of the state

- The majority of population growth will come from people moving into the area

- The baby-boomer generation's children and grandchildren will make up the biggest percentage of the population and the workforce"

These conclusions remain relevant. About 5.3 percent of Oregon's population lives in the Central Oregon counties of Crook, Deschutes, and Jefferson. OEA forecasts that Central Oregon's share of the population will increase to about 5.7 percent by the year 2040. The population in Deschutes County alone may grow by 45% over the period from 2014 to 2040, outpacing the rate of 31% for the state as a whole, according to data from OEA and Portland State University's Population Research Center.

According to a U.S. Census study, Oregon had net interstate in-migration (more people moved to Oregon than moved from Oregon) during the period 1990-2010. Oregon had an annual

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average of about 15,600 more in-migrants than out-migrants during the period 2010-2013. Net migration will lead to over 71,000 new residents between 2015 and 2040, while births alone will add only about 54,000.

Income

The 2008 EOA found that, while in general Bend's income composition was similar to that of the county, the state, and the nation, Bend's median income was slightly lower than the national level. "The 2006 American Community Survey shows the City of Bend is similar to the U.S., State of Oregon, and Deschutes County. 2006 median income for Bend is $58,225, which is slightly higher than the $55,414 for Deschutes County, $55,923 for Oregon, and slightly lower than $58,526 for the U.S. Per capita income for the City of Bend is $26,140, which is slightly higher than the county, state, and nation" (2008 EOA).

Since the 2008 EOA, Bend's average income has diminished slightly. In 2013, Bend's median income of $48,014, was above that of Deschutes County ($46,791), but below that of Oregon ($50,251), and the nation ($52,250). The decrease from 2008 to 2013 may indicate a lag in the post-recession recovery, rather than a permanent shift downward for Bend-area wages.

Statewide, wages fell during the recession, but increased after 2010. The Oregon Office of Economic Analysis in March 2015 had most recently observed a 7% annual increase in wages statewide, and per worker average wages increased 3% in 2015. OEA noted that growth in income, wages, and population picked up in 2014, and all grew more rapidly than the nation. However, after accounting for inflation, average wages had only increased less than half of one percent since 2000.

Personal income statewide is projected to grow by 5.1% in 2015, and 5.8% in 2016, according to the Oregon Employment Department. The Office of Economic Analysis also forecasts that wage growth will continue to increase as the labor market tightens, and it may tighten the fastest in Central Oregon, where employment growth is expected to occur faster than in any other metro area. In other words, the decrease in Bend's median household income since 2008 may illustrate its disproportionate shock from the recession; as the region's labor market continues to recover, so too will its typical wages. [41]

Figure A- 3 shows household income by income group for Bend from 1990 to 2013. In 2013, the largest household income group in Bend was the $50,000 to $74,999 group, which made up 16% of all households. About 26% of households earned less than $25,000, and about 20% of households earned more than $100,000.

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[41] "Oregon Economic and Revenue Forecast," Oregon Office of Economic Analysis, March 2015, http://www.oregon.gov/DAS/OEA/docs/economic/forecast0315.pdf.

Figure A- 3. Household income by income group, Bend, 2013
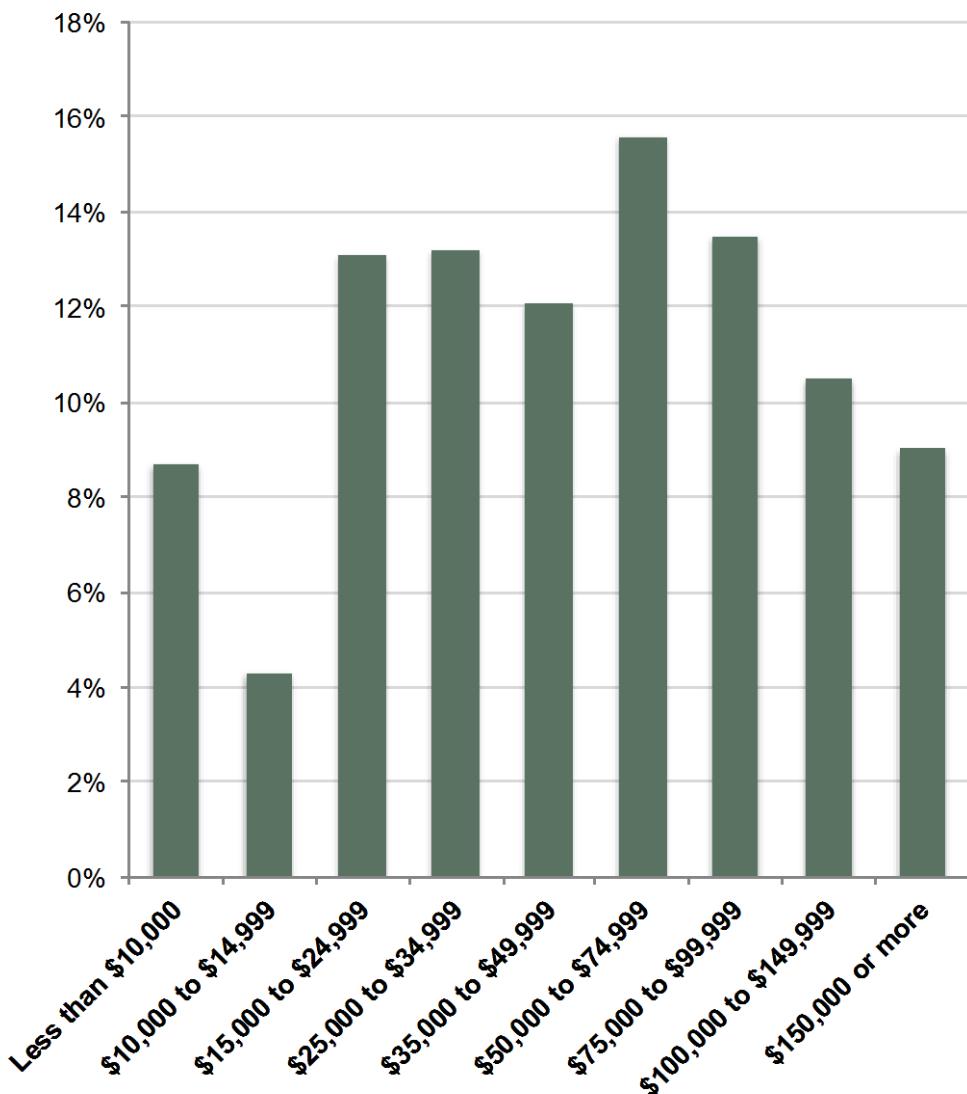
Source: Census Bureau, 2013 American Community Survey.

Figure A- 4 shows household income by income by income group for Bend in 2013. About 34% of households earn incomes that put them in the lower income category, 15% earn lower-middle incomes, 19% earn upper-middle incomes, and 33% earn higher incomes.

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Figure A- 4. Household income by income group, Bend, 2013

2013 Household Income Distribution

■ **Lower Income**   ■ **Lower Middle Income**

■ **Upper Middle Income** ■ **Higher Income**
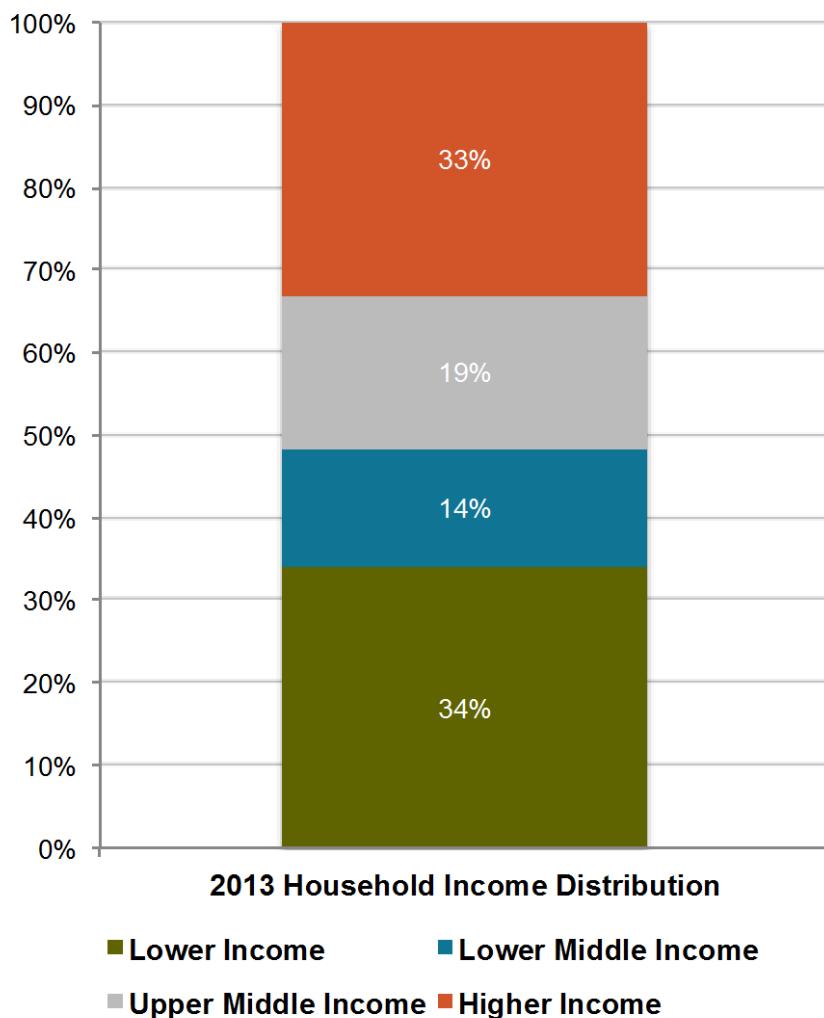
Source: Census Bureau, 2013 American Community Survey.

Figure A- 5 shows per capita personal income in the U.S., Oregon, and Deschutes County, from 1980 to 2013 in base 2014 dollars. Real per capita income increased for all geographies since 1980. In 2013, incomes in the U.S. as a whole ($45,660 in 2014 Dollars) were higher than in Oregon ($40,645), and Deschutes County ($40,245).

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Figure A- 5. Per Capita Personal Income, U.S., Oregon, and Deschutes County, 1980-2013, 2014 Dollars
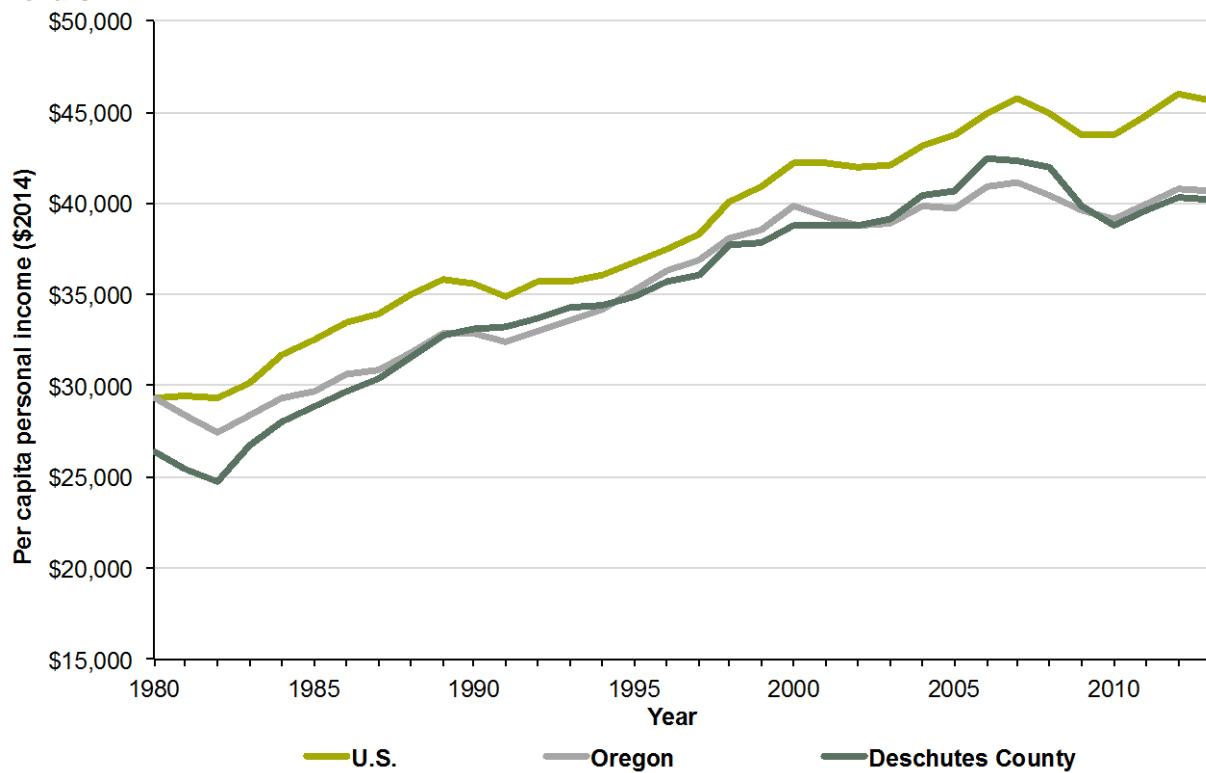
Source: Bureau of Economic Analysis, Regional Data, Table CA1-3, http://www.bea.gov/iTable/index_regional.cfm.

Table A- 2 and Figure A- 6 show average annual pay for covered employees in the U.S., Oregon, and Deschutes County from 2000 to 2013. Over the 13-year period, pay increased the fastest in Deschutes County where it grew by 5% or $1,657, compared to 3% and $1,999 in Oregon, and 4% and $1,999 in the U.S. Average annual pay in Deschutes County amounted to $37,755 in 2013.

Table A- 2. Average Annual Pay, U.S., Oregon, Deschutes County, 2001-2013

	2001	2013	Change 2000 to 2013	
			Amount	Percent
U.S.	$47,809	$49,808	$1,999	4%
Oregon	$43,829	$45,019	$1,190	3%
Deschutes County	$36,098	$37,755	$1,657	5%

Source: Bureau of Labor Statistics, Quarterly Census of Employment and Wages

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Figure A- 6. Average Annual Pay, U.S., Oregon, Deschutes County, 2001-2013, 2013 Dollars
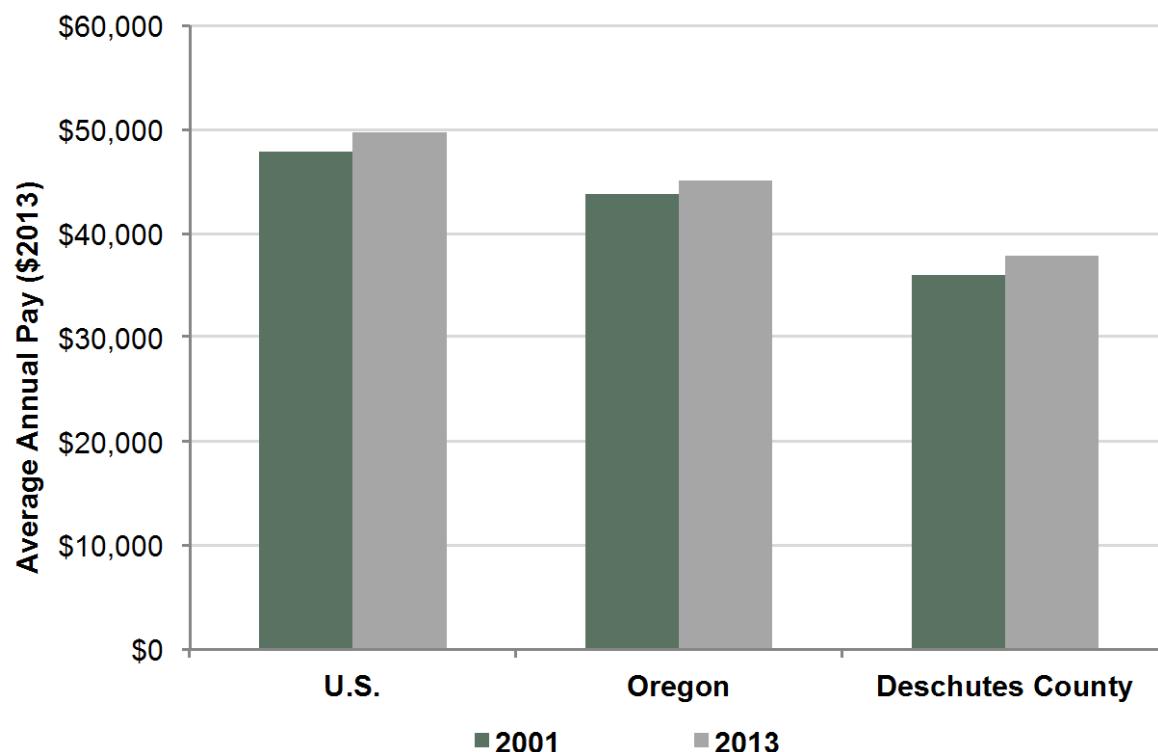
Source: Bureau of Labor Statistics, Quarterly Census of Employment and Wages.

Figure A- 7 shows wages by industry for Deschutes County from 2001 to 2013. The Private Non-Classified industries grew the fastest, increasing by about 74%. In 2013, the Natural Resources and Mining and Utilities industries were both more than double the average wage for covered employees overall. In contrast, wages for Arts Entertainment and Recreation and Accommodation and Food Services were about 50% below the average wage overall.

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Figure A- 7. Wages and number of employees by industry, Deschutes County, 2013
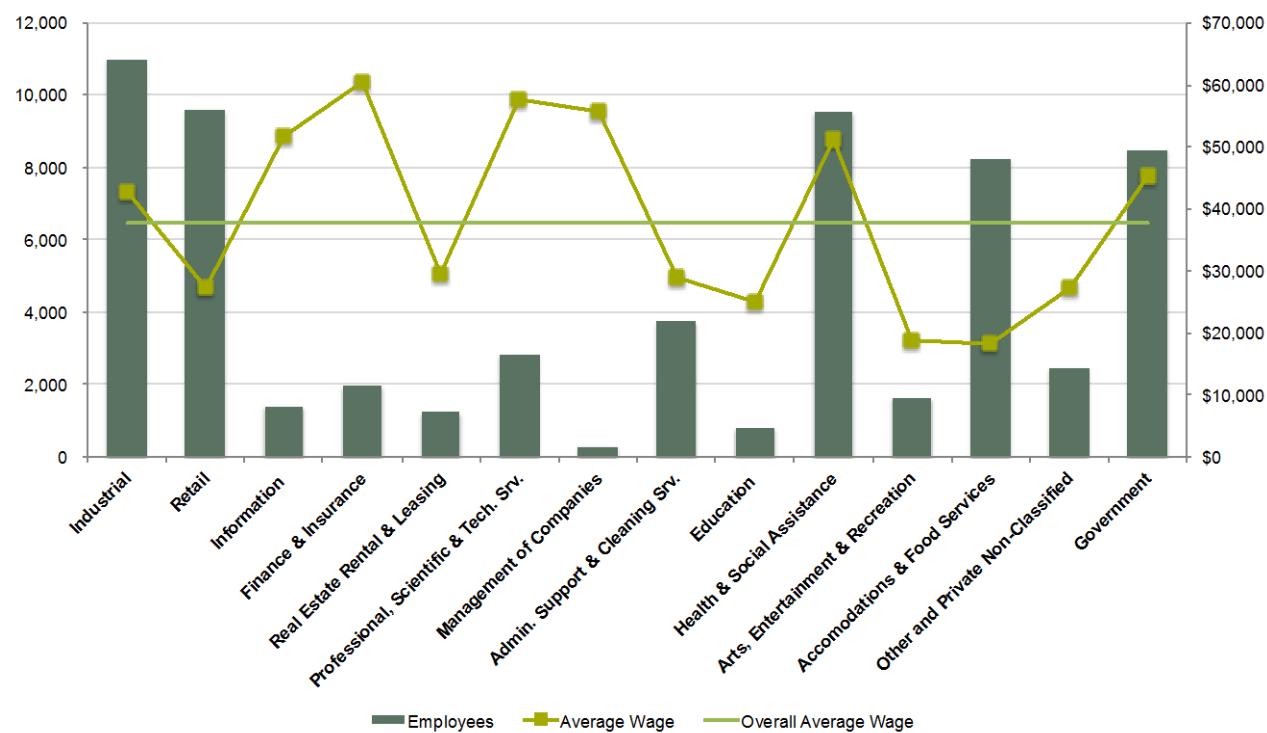
Source: Bureau of Labor Statistics, Quarterly Census of Employment and Wages.

Figure A- 8 shows the percent of residents in poverty for Oregon, Deschutes County, and Bend. Bend has the lowest share of impoverished residents (13.9%) compared to Deschutes County (16.0%), and the state as a whole (16.7%).

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Figure A- 8. Percent below poverty line, Oregon, Deschutes County, Bend, 2013
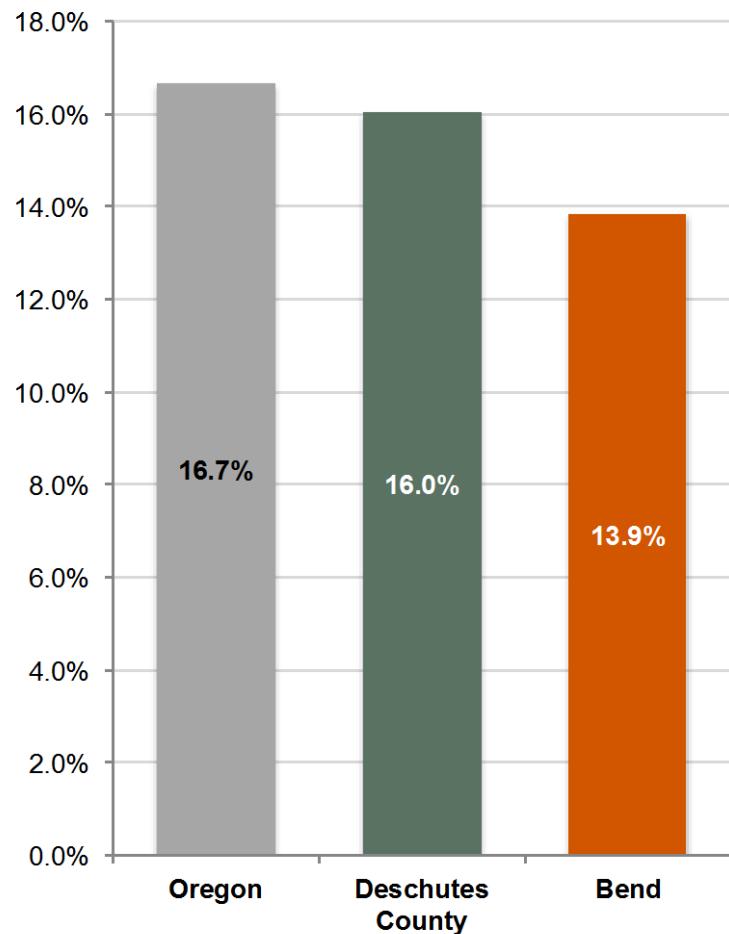
Source: Census Bureau, 2013 American Community Survey.

Educational Attainment

In 2008, the Bend EOA concluded that: "Bend's relatively high percentage of college educated workers will tend to generate high paying jobs, be more responsive to economic changes over time, increase average incomes of the entire workforce, and may generate positive social benefits like reduced crime rates and higher real estate prices." As in 2008, Bend in 2013 still has a higher share of college-educated residents than the county and the state. In 2009, Bend had more adults with a bachelor's degree or higher (about 40%) than Deschutes County (about 35%) and Oregon (about 30%). Furthermore, in line with the assessment from 2008, Bend also has a lower rate of poverty than the county and the state.

Figure A- 9 educational attainment for the population older than 25 years in Oregon, Deschutes County, and Bend in 2013. Bend has the highest share of adults with a bachelor's degree or higher (about 40%), compared to about 35% and 30% in Deschutes County and Oregon respectively.

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Figure A- 9. Educational attainment, Population Age 25 and Over, Oregon, Deschutes County, Bend, 2013

Source: Census Bureau, 2013 American Community Survey.

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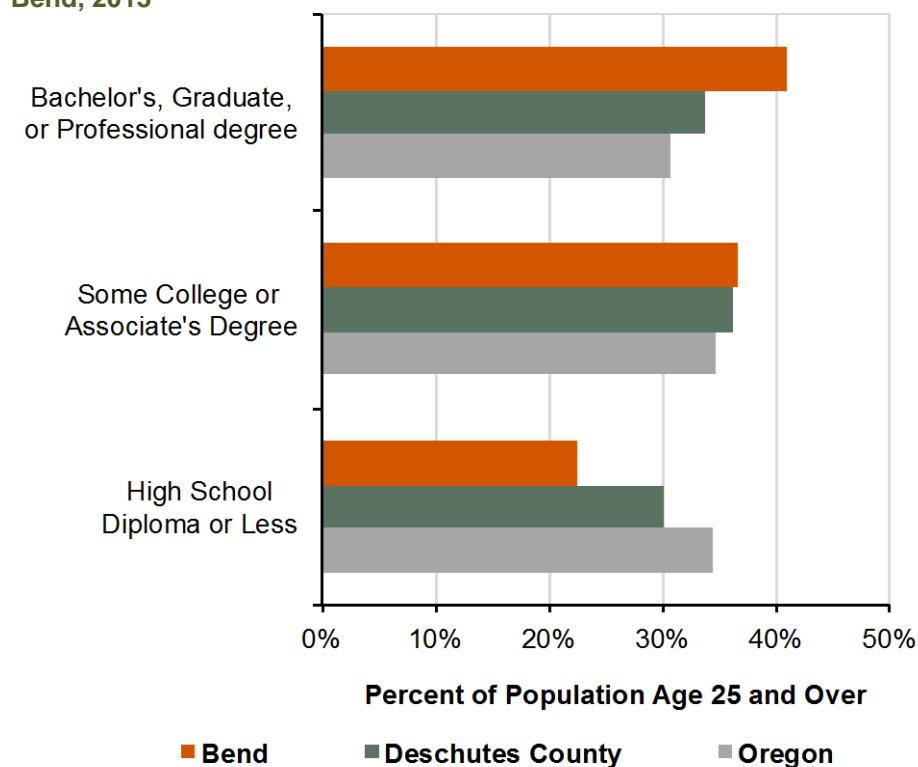
Unemployment and Workforce Participation

Oregon's labor force participation rate increased in 2014 after declining to record-low levels in the aftermath of the recession according to OEA. Strong job growth, especially in better-paying jobs, has lured people back into the workforce. This is welcome news since increasing participation helps reduce labor market slack and moves the economy closer towards full employment.

The 2008 EOA observed that:

- The increase in the area's labor force is expected to keep pace with the population increase….
- The in-migration of younger individuals combined with the baby boomer generation of workers will create a large potential labor force in the peak of its work and income producing years"

While our analysis has not focused on the relationship to Crook and Jefferson Counties, current data upholds some of the claims made in the 2008 EOA. Data from the Census Bureau's On the Map, shows that most people who are employed in Bend live in Deschutes County. Seventy-six percent of Bend employees come from Deschutes County. About 3% come from Crook County and about 2% from Jefferson County.

In 2013, Bend had a higher rate of labor force participation than Deschutes County and the state. Similarly, employment was forecast to grow by about 2% over the period from 2012 to 2022.

With respect to the unemployment rate, the 2008 EOA concluded that

- "Recent unemployment rates in Deschutes County tend to be higher than the U.S., and similar to the State of Oregon, suggesting Bend and Deschutes County unemployment rates may track with national and state trends in the future
- Unemployment rates in Deschutes County show more pronounced affects from changes in seasonal employment than in the U.S. and Oregon
- Structural unemployment does not appear to have been an issue in Deschutes County and Bend, suggesting no major disconnect between the capabilities of resident workers and economic changes and growth over the past decades"

Despite a sharp uptick in unemployment rates during the recession, unemployment rates today are trending towards levels similar to those at the time of the 2008 EOA. Unemployment rates in Deschutes County have remained higher than in the nation and the state. However, the size of the gap between the two has diminished since the recession. In December 2014, the unemployment rates in Bend (6.2%), were below that of Oregon (6.7%), and Deschutes County (7.5%), but still above that of the U.S. (5.6%).

Figure A- 10 shows the unemployment rate for the U.S., Oregon, Deschutes County, and Bend, from 2000 to 2014. The unemployment rates in Bend and Deschutes County exceeded those of

Oregon and the U.S. during the peak of the recession. The rates reached as high as about 15% in Bend and over 16% in Deschutes County. In December 2014, the unemployment rates in Bend (6.2%), were below that of Oregon (6.7%), and Deschutes County (7.5%), but above that of the U.S. (5.6%).

Figure A- 10. Unemployment Rate, United States, Oregon, Deschutes County, Bend, 2000-2014

Source: Bureau of Labor Statistics.

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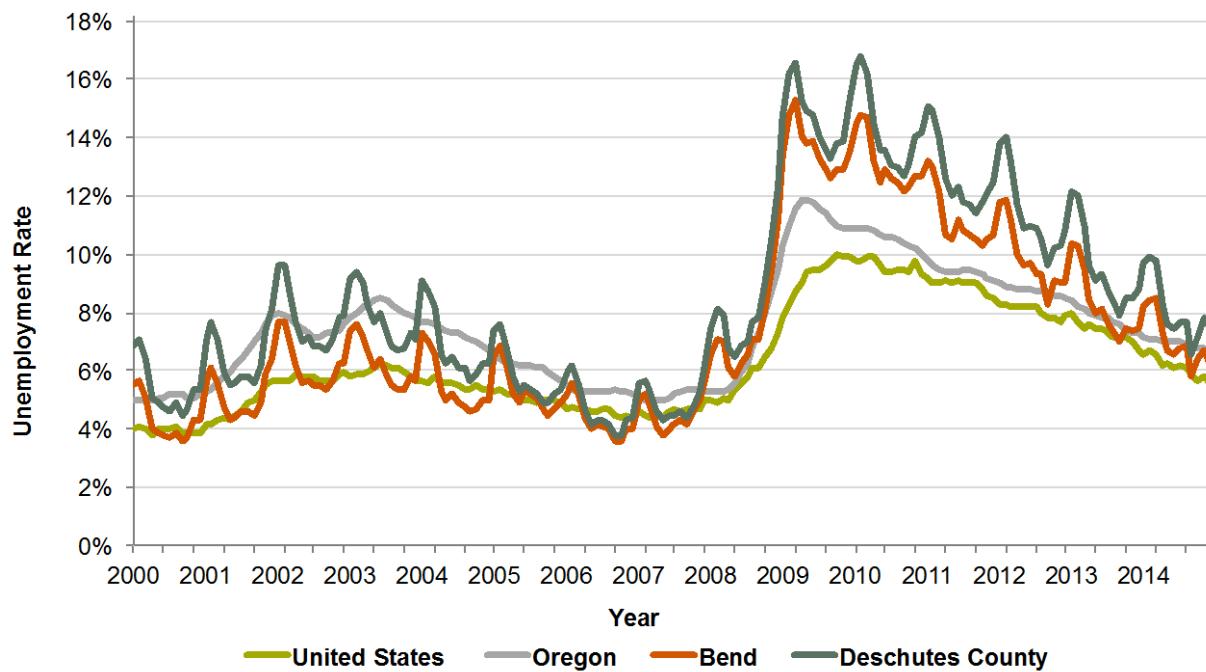
Figure A- 11 shows the rate of labor force participation for Oregon, Deschutes County, and Bend in the 2011-2013 period, for the population 16 years and older. Bend has a higher rate of participation (68%), compared to the county (61%) and state (62%) as a whole.

Figure A- 11 Labor force participation, population 16 years and older, Oregon, Deschutes County, Bend, 2011-2013
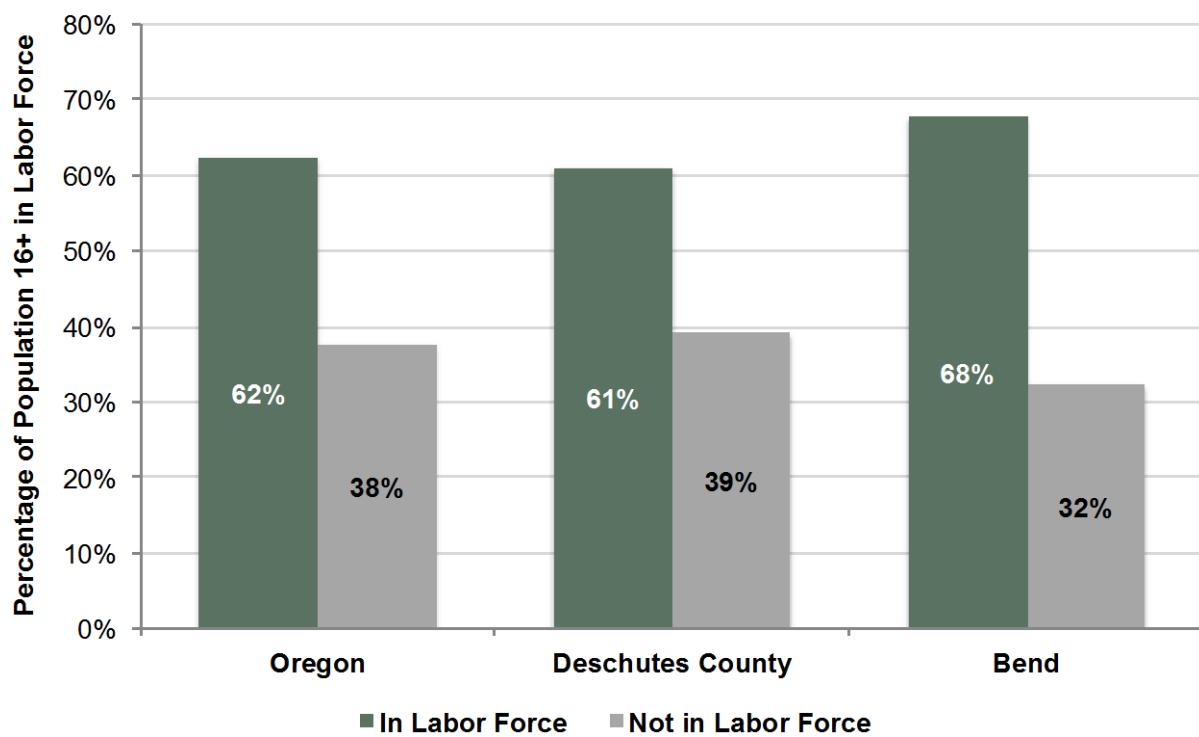
Source: Census Bureau, 2011-2013 American Community Survey, Table B23001.

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Commuting Patterns

Figure A- 12 shows commute times for workers in Oregon, Deschutes County, and Bend in 2013. More than half of bend residents (about 57%) have a commute of less than 15 minutes, compared to about 47% in Deschutes County, and about 33% in the state as a whole.

Figure A- 12. Commute Time, Oregon, Deschutes County, Bend, 2013

Percent of Population 16 years and older

■ **Bend**   ■ **Deschutes County**   ■ **Oregon**
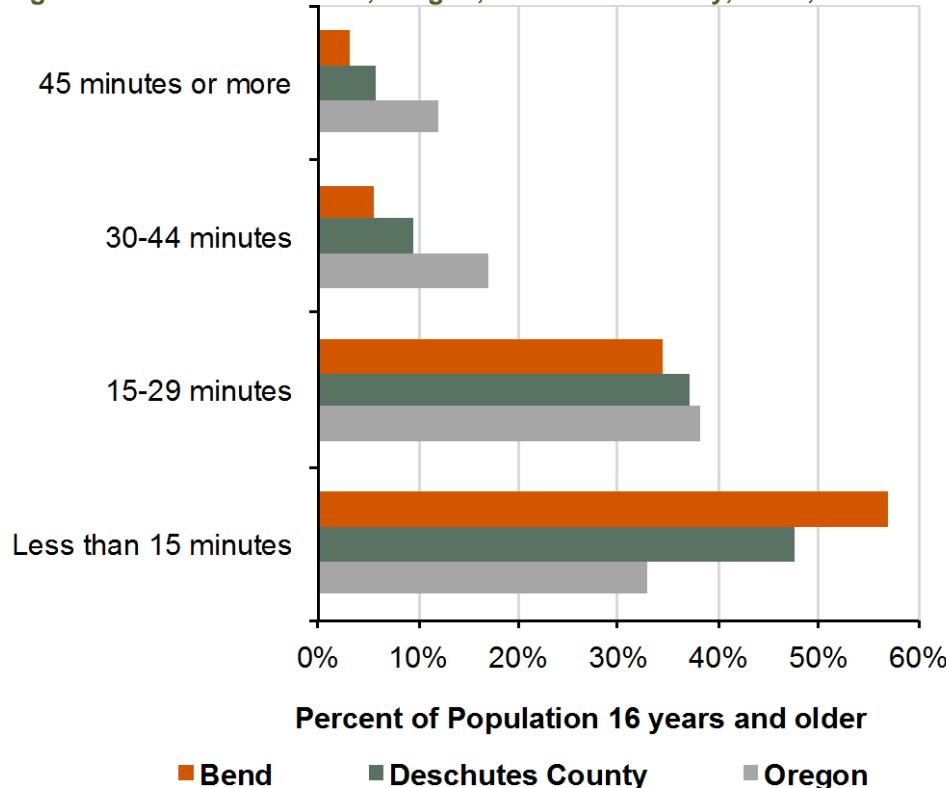
Source: Census Bureau, 2013 American Community Survey.

Map A- 1 shows the commute inflow and outflow for Bend in 2011. In 2011, about 18,800 people commuted from outside the city to work within it. About 7,900 resided within the city, but went outside for work, and about 19,000 both lived and worked in the city.

Map A- 1. Commute inflow and outflow, Bend, 2011

Source: U.S. Census OnTheMap http://onthemap.ces.census.gov

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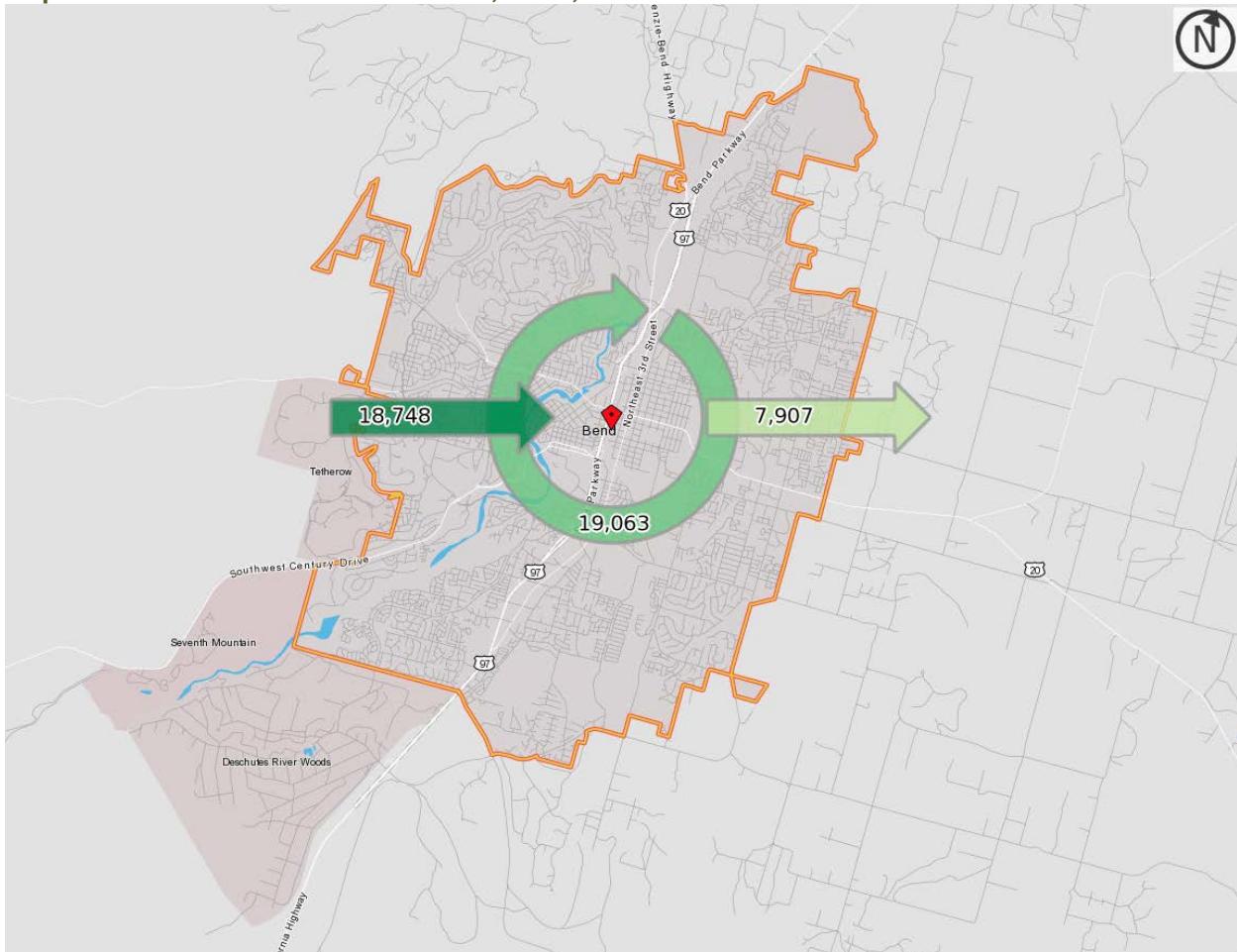
Table A- 3 shows where workers who have jobs in Bend live. About 76% of employees in Bend live within Deschutes County. About 50% of Bend employees also live in the city and 7% live in Redmond, the next-largest home destination.

Table A- 3. Home Destinations, Bend employees, 2011

Location	Number	Percent
Counties		
Deschutes County	28,912	76%
Crook County	989	3%
Multnomah County	852	2%
Lane County	755	2%
Klamath County	697	2%
Jefferson County	678	2%
Washington County	554	1%
Clackamas County	503	1%
Marion County	438	1%
Jackson County	348	1%
All Other Counties	3,085	8%
Cities		
Bend	19,063	50%
Redmond	2,562	7%
Deschutes River Woods	1,197	3%
Portland	770	2%
Prineville	423	1%
Eugene	380	1%
Three Rivers CDP	237	1%
Salem	201	1%
Eagle Crest CDP	194	1%
Hillsboro	190	1%
All Other Locations	12,594	33%
Total	**37,811**	**100%**

Source: U.S. Census OnTheMap http://onthemap.ces.census.gov

Table A- 4 shows where people who live in Bend go to work. About 84% of Bend residents work in Deschutes County. About 2% work in Lane County and about 2% work in Multnomah County. About 71% of Bend residents also work in the city and 6% work in Redmond.

Table A- 4. Employment destinations, Bend residents, 2011

Location	Number	Percent
Counties		
Deschutes	22,590	84%
Lane County	598	2%
Multnomah	563	2%
Crook County	359	1%
Washington	354	1%
Marion County	333	1%
Clackamas	215	1%
Jackson County	206	1%
Jefferson County	181	1%
Linn County	154	1%
All Other Counties	1,417	5%
Cities		
Bend	19,063	71%
Redmond	1,651	6%
Portland	503	2%
Eugene	371	1%
Prineville	326	1%
Salem	228	1%
Three Rivers CDP	222	1%
Sunriver CDP	180	1%
Sisters	172	1%
La Pine	170	1%
All Other	4,084	15%
Total	**26,970**	**82%**

Source: U.S. Census OnTheMap http://onthemap.ces.census.gov

Changes in employment

Over the past few decades, employment in the U.S. has shifted from manufacturing and resource-intensive industries to service-oriented sectors of the economy. Increased worker productivity and the international outsourcing of routine tasks have led to declines in employment in the major goods-producing industries.

In the 1970s, Oregon started to transition away from reliance on traditional resource-extraction industries. An important indicator of this transition is the shift within Oregon's manufacturing sector, with a decline in the level of employment in the Lumber & Wood Products industry[42] and concurrent growth of employment in high-technology manufacturing industries (Industrial Machinery, Electronic Equipment, and Instruments).[43]

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[42] Lumber and Wood Products manufacturing is in Standard Industrial Classification (SIC) 24

[43] SIC 35, 36, 38

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As Oregon has transitioned away from natural resource-based industries, the composition of Oregon's employment has shifted from natural resource based manufacturing and other industries to service industries. The share of Oregon's total employment in Service industries increased from its 1970s average of 19% to 30% in 2000, while employment in Manufacturing declined from an average of 18% of total employment in the 1970s to an average of 12% in 2000.

Table A- 5 and Table A- 6 present data that show changes in covered employment for the Deschutes County between 1980 and 2013. [44] The changes in sectors and industries are shown in two tables: (1) between 1980 and 2000 and (2) between 2001 and 2013. The analysis is divided in this way because of changes in industry and sector classification that made it difficult to compare information about employment collected after 2001 with information collected prior to 2000.

Employment data in this section is summarized by *sector*, each of which includes several individual *industries*. For example, the Retail Trade sector includes General Merchandise Stores, Motor Vehicle and Parts Dealers, Food and Beverage Stores, and other retail industries.

Table A- 5 shows employment by industry, using SIC industry classifications, in Deschutes County from 1980 to 2000. Over the analysis period, the Services Division grew at the fastest annual rate (14%), the Retail Trade Division grew at 11% per year on average, the Construction Division grew at 10%, and the Wholesale Trade Division grew at 8%. The share of total jobs in the Services Division increased by 2% and the share of jobs in the Manufacturing Division fell by 6%. In 2000 Services jobs made up 27% of all covered jobs, and Retail and Trade made up 24% of all area jobs.

Table A- 5. Covered employment by SIC industry categories, Deschutes County, 2001-2013

Sector	1980 Number	1980 Percent	1990 Number	1990 Percent	2000 Number	2000 Percent	Change 1980 to 2000 Difference	Change 1980 to 2000 Percent	Change 1980 to 2000 AAGR	Change 1980 to 2000 Share
Agriculture, Forestry, and Fishing	185	1%	413	1%	727	1%	542	293%	7%	0%
Mining	100	0%	0	0%	82	0%	-18	-18%	-2%	0%
Construction	1,651	8%	2,178	7%	4,265	8%	2,614	158%	10%	1%
Manufacturing	3,340	16%	5,451	17%	5,974	12%	2,634	79%	6%	-6%
Transportation and Public Utilities	1,174	6%	1,064	3%	1,903	4%	729	62%	5%	0%
Wholesale Trade	809	4%	1,040	3%	1,691	3%	882	109%	8%	0%
Retail Trade	4,461	22%	7,512	24%	12,689	24%	8,228	184%	11%	1%
Finance, Insurance, and Real Estate	1,503	7%	1,533	5%	3,128	6%	1,625	108%	8%	1%
Services	3,668	18%	7,960	25%	14,133	27%	10,465	285%	14%	2%
Unclassified	N/A	N/A	(D)	(D)	53	0%	-	-	-	-
Government	3,826	18%	4,665	15%	7,265	14%	3,439	90%	7%	-1%
Total	**20,717**	**100%**	**31,816**	**100%**	**51,910**	**100%**	**31,193**	**151%**	**9.6%**	**0%**

Source: Bureau of Labor Statistics, Quarterly Census of Employment and Wages.

Table A- 6 shows covered employment for NAICS industry classifications, in Deschutes County from 2001 to 2013. In 2013, 15% of all jobs were in Retail, 15% were in Health and Social Assistance, and 13% were in Accommodations and Food Services. Education and Health and Social Assistance grew at the fastest annual rates, growing at 5.3% and 4.6% respectively.

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[44] Covered employment refers to jobs covered by unemployment insurance, which includes most wage and salary jobs but does not include sole proprietors, seasonal farm workers, and other classes of employees.

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Table A- 6. Covered employment by NAICS industry, Deschutes County, 2001-2013

Sector	2001 Number	2001 Percent	2013 Number	2013 Percent	Change 2001 to 2013 Difference	Change 2001 to 2013 Percent	Change 2001 to 2013 AAGR	Change 2001 to 2013 Share
Natural Resources and Mining	384	1%	533	1%	149	39%	2.8%	0.1%
Utilities	313	1%	261	0%	-52	-17%	-1.5%	-0.2%
Construction	4,355	8%	3,514	6%	-841	-19%	-1.8%	-2.7%
Manufacturing	5,492	10%	4,209	7%	-1,283	-23%	-2.2%	-3.8%
Wholesale	1,126	2%	1,593	3%	467	41%	2.9%	0.4%
Retail	8,393	16%	9,605	15%	1,212	14%	1.1%	-0.8%
Transportation & Warehousing	927	2%	877	1%	-50	-5%	-0.5%	-0.4%
Information	1,437	3%	1,406	2%	-31	-2%	-0.2%	-0.5%
Finance & Insurance	1,576	3%	1,978	3%	402	26%	1.9%	0.1%
Real Estate Rental & Leasing	1,456	3%	1,228	2%	-228	-16%	-1.4%	-0.8%
Professional, Scientific & Tech. Srv.	1,882	4%	2,826	4%	944	50%	3.4%	0.9%
Management of Companies	332	1%	303	0%	-29	-9%	-0.8%	-0.2%
Admin. Support & Cleaning Srv.	2,594	5%	3,750	6%	1,156	45%	3.1%	1.0%
Education	434	1%	809	1%	375	86%	5.3%	0.5%
Health & Social Assistance	5,569	11%	9,524	15%	3,955	71%	4.6%	4.4%
Arts, Entertainment & Recreation	1,428	3%	1,643	3%	215	15%	1.2%	-0.1%
Accomodations & Food Services	6,156	12%	8,262	13%	2,106	34%	2.5%	1.3%
Other Services	1,706	3%	2,450	4%	744	44%	3.1%	0.6%
Private Non-Classified	21	0%	18	0%	-3	-14%	-1.3%	0.0%
Government	6,929	13%	8,494	13%	1,565	23%	1.7%	0.2%
Total	**52,510**	**100%**	**63,283**	**100%**	**10,773**	**21%**	**1.6%**	**0%**

Source: Bureau of Labor Statistics, Quarterly Census of Employment and Wages.

The composition of Oregon's employment has shifted from natural resource based manufacturing and other industries to service industries.

The 2008 EOA concluded that:

- "The construction industry makes up a significant portion of the county's jobs and payroll, and downturns broader housing industry will have a negative affect local construction jobs
- In the midst of the housing and construction slowdown, Deschutes County's diversified economy has continued to add jobs, albeit at a slower rate
- Continued diversification of the local economy will tend to create a more stable local economy as individual industries experience rapid gains or losses"
- The industrial sector in Bend is much more diverse than in the past
- The continued erosion of jobs in lumber and wood products will be replaced by other jobs in durable and non-durable manufacturing
- High technology manufacturing and research and development firms create a new trend for industrial space that function and look more like office development
- The growth in retail and service jobs will be driven by several factors: population increase, demographic mix, and tourism

Table A- 7 shows changes in covered employment in Deschutes County between 2007 and 2013. Deschutes County lost a total of 6,000 jobs during this period, with the largest losses in construction, manufacturing, retail, and administrative support. Jobs in Health Care and Social

assistance, Accommodations and Food Services had the largest growth over the six year period.

Table A- 7. Covered employment by industry, Deschutes County, 2007-2013

Sector	2007 Number	2007 Percent	2013 Number	2013 Percent	Change 2007 to 2013 Difference	Percent	AAGR	Share
Natural Resources and Mining	648	1%	533	1%	-115	-18%	-3.2%	-0.1%
Construction	7,713	11%	3,514	6%	-4,199	-54%	-12.3%	-5.6%
Manufacturing	5,649	8%	4,209	7%	-1,440	-25%	-4.8%	-1.5%
Wholesale	1,605	2%	1,593	3%	-12	-1%	-0.1%	0.2%
Retail	10,451	15%	9,605	15%	-846	-8%	-1.4%	0.1%
Transportation, Warehousing, and Utilities	1,304	2%	1,138	2%	-166	-13%	-2.2%	-0.1%
Information	1,709	2%	1,406	2%	-303	-18%	-3.2%	-0.2%
Finance & Insurance	2,361	3%	1,978	3%	-383	-16%	-2.9%	-0.3%
Real Estate Rental & Leasing	1,496	2%	1,228	2%	-268	-18%	-3.2%	-0.2%
Professional, Scientific & Tech. Srv.	2,736	4%	2,826	4%	90	3%	0.5%	0.5%
Management of Companies	257	0%	303	0%	46	18%	2.8%	0.1%
Admin. Support & Cleaning Srv.	4,513	7%	3,750	6%	-763	-17%	-3.0%	-0.6%
Education	698	1%	809	1%	111	16%	2.5%	0.3%
Health & Social Assistance	7,917	11%	9,524	15%	1,607	20%	3.1%	3.6%
Arts, Entertainment & Recreation	2,040	3%	1,643	3%	-397	-19%	-3.5%	-0.3%
Accomodations & Food Services	7,985	12%	8,262	13%	277	3%	0.6%	1.5%
Other Services	2,384	3%	2,450	4%	66	3%	0.5%	0.4%
Private Non-Classified	56	0%	18	0%	-38	-68%	-17.2%	-0.1%
Government	7,785	11%	8,494	13%	709	9%	1.5%	2.2%
Total	**69,307**	**100%**	**63,283**	**100%**	**-6,024**	**-9%**	**-1.5%**	**0%**

Source: Oregon Employment Department, City of Bend, in 2008 EOA; Bureau of Labor Statistics, Quarterly Census of Wages, 2013.

Table A- 8 shows the change in covered employment in Deschutes County between 2013 and 2015. Over this two-year period, the county added more than 9,100 additional jobs, a 14% increase. The sectors with the largest growth were construction, health and social assistance, and accommodations and food services. By 2015, Deschutes County had 3,100 more jobs than in 2007.

Table A- 8. Covered employment by NAICS industry, Deschutes County, 2013-2015

Sector	2013 Number	2013 Percent	2015 Number	2015 Percent	Change 2013 to 2015 Difference	Percent	AAGR	Share
Natural Resources and Mining	533	1%	532	1%	-1	0%	-0.1%	-0.1%
Construction	3,514	6%	5,138	7%	1,624	46%	20.9%	1.5%
Manufacturing	4,209	7%	4,888	7%	679	16%	7.8%	0.1%
Wholesale	1,593	3%	1,836	3%	243	15%	7.4%	0.0%
Retail	9,605	15%	10,410	14%	805	8%	4.1%	-0.8%
Transportation, Warehousing, and Utilities	1,138	2%	1,652	2%	514	45%	20.5%	0.5%
Information	1,406	2%	1,656	2%	250	18%	8.5%	0.1%
Finance & Insurance	1,978	3%	2,111	3%	133	7%	3.3%	-0.2%
Real Estate Rental & Leasing	1,228	2%	1,200	2%	-28	-2%	-1.1%	-0.3%
Professional, Scientific & Tech. Srv.	2,826	4%	3,262	5%	436	15%	7.4%	0.0%
Management of Companies	303	0%	293	0%	-10	-3%	-1.7%	-0.1%
Admin. Support & Cleaning Srv.	3,750	6%	4,570	6%	820	22%	10.4%	0.4%
Education	809	1%	872	1%	63	8%	3.8%	-0.1%
Health & Social Assistance	9,524	15%	10,819	15%	1,295	14%	6.6%	-0.1%
Arts, Entertainment & Recreation	1,643	3%	1,844	3%	201	12%	5.9%	-0.1%
Accomodations & Food Services	8,262	13%	9,551	13%	1,289	16%	7.5%	0.1%
Other Services	2,450	4%	2,903	4%	453	18%	8.9%	0.1%
Private Non-Classified	18	0%	(c)					
Government	8,494	13%	8,894	12%	400	5%	2.3%	-1.1%
Total	**63,283**	**100%**	**72,451**	**100%**	**9,168**	**14%**	**7.0%**	**0%**

Source: Bureau of Labor Statistics, Quarterly Census of Employment and Wages.

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Regional business clusters

Bend exists within the Central Oregon regional economy. Regional business activity and trends will affect the types of businesses that are attracted to the region and choose to locate in the city. This section presents information about regional employment clusters in Central Oregon.

One way to assess the types of businesses that are likely to have future growth in an area is to examine relative concentration and employment growth of existing businesses. This method of analysis can help determine relationships and linkages within industries, also called industrial clusters. Sectors that are highly concentrated (meaning there are more than the "average" number of businesses in a sector in a given area) and have had high employment growth are likely to be successful industrial clusters. Sectors with either high concentration of businesses or high employment growth may be part of an emerging cluster, with potential for future growth.

Error! Reference source not found. shows industries with strong employment clusters in Deschutes County in 2012—meaning that they rank in the top 25th percentile of counties with clusters of that industry. The largest cluster is that of Hospitality and Tourism, which includes accommodations and related services, tourist attractions, cultural education, and other tourist-related services. In Deschutes County, this industry accounts for more than 2,900 employees.

Other clusters with substantial employment in Deschutes County are: Communications Equipment and Services (about 830 employees), Wood Products (551 employees), Information Technology and Analytical Instruments (504 employees), Automotive (325 employees), and Lighting and Electrical Equipment (285 employees).

Natural Resources and Manufacturing

Since 1970, Oregon started to transition away from reliance on traditional resource-extraction industries. A significant indicator of this transition is the decline in the level of employment in the Lumber & Wood Products industry and concurrent growth of employment in other manufacturing industries. At the time of the 2008 EOA, job losses were forecast in manufacturing. The 2008 EOA wrote that "[m]anufacturing will likely rebound over the forecast period, but is not expected to return to its employment level prior to the recent recession. Job losses should continue in many resource-based manufacturing sectors, though at a decreasing rate."

However in 2012, the Oregon Employment Department forecast that employment in manufacturing would increase by 21% over the period from 2010 to 2020. Employment increases would occur at that rate in both durable and nondurable goods subsectors (Employment Projections by Industry & Occupation 2010-2020). Similarly manufacturing employment statewide will grow by about 15%.

In contrast to the conclusions in 2008, Wood Product manufacturing in Central Oregon is also forecast to grow by over 22% from 2012 to 2022, while manufacturing will grow by a total of 19%.

Professional Services, Education, and Health Care

As in 2008 the Oregon Employment Department still forecasts that the bulk (63%) of growth will come from sectors such as Education and Health Services (22% of total employment growth);

Trade, Transportation, and Utilities (17%); Leisure and Hospitality (13%); and Professional and Business Services (11%). Over the period from 2012 to 2022 in the Central Oregon counties of Crook, Deschutes, and Jefferson, employment in Private Education and Health Services and Professional and Business Service are both expected to increase by about 24% and increase their share of total employment by 1.0% and 0.6% respectively.

Employment levels in several industries are at all-time highs: private education, health care, food manufacturing – all of which emerged relatively unscathed from the recession – and professional and business services. The latter, combined with heath care and leisure and hospitality, account for more than half of the state's total jobs gains over the past year.

Retail

As the 2008 EOA found, population will drive increases in retail jobs. The Oregon Employment Department forecasts that Retail sector employment in Central Oregon will grow by about 1,210 employees, or 12% over the 2012-2022 period. However, because this pace falls below that of overall employment growth, the share of total jobs in retail will actually fall by about 0.6%.

Key summary and implications for economic development within Bend

In general the outlook for Bend in 2015 is similar to that of 2008. Bend still has a relatively well-educated workforce, an expectation for growth in population and employment in the future. Some small changes however, have occurred. For example, the construction and manufacturing industries have shrunk, while employment in health and social service industries increased. Despite changes in the levels of employment since 2007, forecasts for growth by industry will follow similar trends as those expected at the time of the 2008 EOA.

Bend's Competitive Advantages

Economic development opportunities in Bend will be affected by local conditions as well as the national, state, and regional economic conditions addressed above. Economic conditions in Bend relative to these conditions in other parts of the region form the city's competitive advantage for economic development, and these competitive advantages have implications for the types of firms most likely to locate and expand in the area.

There is little that cities can do to influence national and state conditions that affect economic development, but they can have some level of influence on the local factors that affect economic development. Bend's primary competitive advantages are: location, access to transportation, quality of life, and access to educated and skilled labor from within the region. These factors make Bend attractive to residents and businesses that want a high quality of life where they live and work.

The local factors that form Bend's competitive advantage are summarized below.

Location

Bend is located in Deschutes County at the intersection of Highways 97 and 20, roughly 3.25 hours southeast of Portland, and 2.5 hours southeast of Salem. Bend lies near the center of

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Oregon. Businesses in the city have access to natural resources from surrounding rural areas, including the Deschutes River, the Cascade Mountains and the Oregon High Desert.

Availability of transportation facilities

Businesses and residents in Bend have access to a variety of transportation modes and systems, but the most important are Highways 97 and 20. Highway 97 connects Bend with cities throughout Central Oregon. Highway 20 connects bend with the Willamette Valley and 1-5, which provides a route for Bend businesses to connect to markets in Portland, Seattle, San Francisco and Los Angeles. Through highway and rail routes to Portland, Bend provides access to the Port of Portland from which ships can transport cargo to international markets in Asia.

The Bend Municipal Airport is roughly 5 miles southwest, or about a 15-minute drive from downtown Bend. Less than 30 minutes north of Bend, the Redmond Municipal Airport which provides daily flights to international airports like those in Portland, Seattle, San Francisco, and Los Angeles. The nearest international airport, the Portland International Airport, is about a 3-hour drive away.

The BNSF Railway Company and Union Pacific provide freight service that connects Bend to the other cities in Central Oregon, Portland, and cities in the US interior. The Prineville Railway Freight Depot, which is about 40 miles away from Bend, provides large freight loading equipment, such as ramps and cranes and large amounts of warehouse and outdoor freight storage.

Existing Employment Base

In 2013, Deschutes County had nearly 6,600 employment establishments with a total of about 63,200 workers. The county's largest employment sectors were Retail (9,605 jobs), Health and Social Assistance (9,524), Government (8,494), Accommodations & Food Services (8,262) and Manufacturing (4,209).

The Oregon Employment Department projects that the industries that will grow the most from 2012 to 2022 in Deschutes County are: Health Care and Social Assistance, which is expected to add 2,460 jobs, Professional and Business Services (1,690), and Accommodation and Food Services (1,750).

Labor Market

The availability of labor is critical for economic development. Availability of labor depends not only on the number of workers, but their quality, skills, wages, and experience as well.

Businesses in Bend have access to highly educated skilled workers, nearby college students, and unskilled workers. About 41% of Bend residents over 25 years have a bachelor's degree or higher.

Roughly 50% of Bend's workers commute from outside the city. The commuting patterns show that businesses in Bend are able to attract skilled and unskilled workers living within the city as well as from the surrounding region.

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Outdoor Recreation

Bend provides a launching point for outdoor recreation destinations such as the Cascade Mountains and the Oregon High Desert. Bend is about a 30-minute drive from Mt. Bachelor, 2 hours from the John Day Fossil Beds National Monument, and 2 hours from Crater Lake National Park. The Deschutes River, which provides rafting and fishing opportunities, runs through the city.

Public facilities and services

The provision of public facilities and services can impact a firm's decision to locate within a region. Businesses also take into account factors such as the regional availability and cost of labor, transportation, raw materials, and capital. Once a business has chosen to locate within a region, they consider the factors that local governments can most directly affect: tax rates, the cost and quality of public services, and regulatory policies. Economists generally agree that these factors do affect economic development, but the effects on economic development have only a modest impact on the level and type of economic development in the community.

Tax Policy

The tax policy of a jurisdiction is a consideration in economic development policy. In Fiscal Year 2014 to 2015, the property tax rate in Bend for the City was $2.80 per $1,000 of assessed value. Bend's property tax rate was near the middle of the range for Deschutes County, lower than Redmond ($4.41), but above Sisters ($2.64), and La Pine ($1.98).[45]

Water

The City of Bend provides water to approximately 22,000 service connections. The City collects surface water from the Bridge Creek site, 13 miles outside of the city in the Cascade Mountains, and from 25 wells that pump water from the Deschutes Aquifer. Both these water sources provide water of excellent quality, which requires "very little" treatment before delivery.

The City's 2011 water plan update projected that the city's average daily water demand would increase by about 70% over the period from 2008 to 2018. To accommodate the increasing demand, the plan update recommended $197 million in improvements to the current water infrastructure, including the addition of more groundwater wells, more water storage capacity, pipe improvements, pumping station expansions, and increasing the surface water supply, among others.[46]

Wastewater

The City of Bend is the sole provider of wastewater services and no special districts within the city provide such services. The City's wastewater system includes nine primary sewer basins

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[45] http://www.deschutes.org/sites/default/files/fileattachments/assessor039s_office/page/676/sal_report_-_sal4a_detail_of_taxing_district_levies.pdf

[46] "Water System Master Plan Update," Murray, Smith, & Associates, Inc, and Optimatics, The City of Bend, February 2011, http://www.ci.bend.or.us/Modules/ShowDocument.aspx?documentID=3201.

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that cover about 35 square miles. The collection system includes a network of manholes, gravity pipes, lift stations, vacuum mains, and force mains that convey sewage to a centralized location.

The most-recent Collection System Master Plan (CSMP) projects that the average dry weather wastewater flow will nearly double over the next 20 years from 6.2 to about 11.5 million gallons per day. Wet weather flows will also increase, but by less, about 30%, from 8.9 to 12.0 million gallons per day.

Residential uses make up about 79% of the 6.2 million gallons per day average dry weather flow, while non-residential uses, including businesses and schools, make up about 21%. The Deschutes Brewery contributes a significant amount of the wastewater flow, making up about 12% of non-residential dry weather flow.

The wastewater master plan expects notable usage increases from four specific events: expansion of the Saint Charles Medical Center, the OSU-Cascades Campus, about 1,000 additional residential units in the Central Business District, and additional 1,200 residential units in the Transit Corridors.

Sewer infrastructure is expected to need expansive improvements over the 20-year period as Bend grows. In 2014, the CSMP recommended $90M investment in infrastructure improvements that will include additional lift stations, mechanical replacements, and increasing the overall hydraulic capacity, among others additions. [47]

Stormwater

Bend benefits from volcanic geography that provides absorptive ground. This porous ground has allowed Bend to rely primarily on dry wells and drill holes that drain runoff into the ground beneath the city. While a partial piped system does exist, which flows into the Deschutes River, much of the city's stormwater runoff goes into the ground, rather than entering a citywide piping system that redirects all stormwater to a central location. The city currently has about 4,600 dry wells and 1,000 drill holes in the city that receive stormwater in this way.

Bend's reliance on groundwater for drinking water means that stormwater infrastructure needs to protect the quality of residents' drinking water, as well as natural waterways. To this end, regulations prevent the injection of stormwater into the ground within 500 feet of a drinking water well.

Dispersed stormwater disposal through dry wells allows the city to avoid concentrating stormwater in one location, and provides a method of stormwater management that is less costly than a citywide piped system. However, Bend's increasing growth, and in particular its density, will place limits on the potential dispersion via dry wells and drill holes. For that reason, the 2014 Stormwater Master Plan has recommended various stormwater infrastructure upgrades including: expansion of a piped stormwater system with water-holding and treatment

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[47] "Collection System Master Plan," City of Bend, December 2014, http://www.ci.bend.or.us/modules/showdocument.aspx?documentid=18059.

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capacity, greater implementation of low impact development (LID), additional drainage facilities like bioswales, and more usage of GIS data to analyze stormwater conditions.[48]

Outlook for growth in Bend

Demand for commercial and industrial land will be driven by the expansion and relocation of existing businesses and new businesses locating in Bend. The level of this business expansion activity can be measured by employment growth in Bend. This section presents a projection of future employment levels in Central Oregon for the purpose of estimating demand for commercial and industrial land.

Table A- 9 shows the projected growth in employment by selected industrial sectors for the Central Oregon counties (Crook, Deschutes, and Jefferson). The Oregon Employment Department forecasts that employment in Central Oregon will increase by about 16% between 2012 and 2022, or by 12,140 employees. The construction industry will undergo the most rapid growth, increasing by 26% between 2012 and 2022, followed by Health Care and Social Assistance (25%), and Nondurable Goods manufacturing (25%).

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[48] "Stormwater Master Plan," City of Bend, July 2014,
http://www.ci.bend.or.us/modules/showdocument.aspx?documentid=17875.

Table A- 9. Industry Employment Forecast, Central Oregon Region (Crook, Deschutes, and Jefferson Counties), 2012-202

Industry Sector	2012	2022	Change 2012-2022		
			Number	Percent	AAGR
Natural Resources and Mining	1,330	1,590	260	20%	1.8%
Mining and Logging	270	320	50	19%	1.7%
Construction	3,250	4,100	850	26%	2.4%
Manufacturing	5,370	6,380	1,010	19%	1.7%
Durable Goods	4,320	5,080	760	18%	1.6%
Wood Product Manufacturing	1,890	2,310	420	22%	2.0%
Nondurable Goods	1,040	1,300	260	25%	2.3%
Trade, Transportation, and Utilities	14,260	15,920	1,660	12%	1.1%
Wholesale Trade	2,300	2,520	220	10%	0.9%
Retail Trade	10,300	11,510	1,210	12%	1.1%
Transporation, Warehousing and Utilities	1,660	1,890	230	14%	1.3%
Information	1,450	1,510	60	4%	0.4%
Financial Activities	4,490	5,110	620	14%	1.3%
Professional and Business Services	6,990	8,680	1,690	24%	2.2%
Private Educational and Health Services	10,780	13,400	2,620	24%	2.2%
Health Care and Social Assistance	9,990	12,450	2,460	25%	2.2%
Health Care	8,690	10,860	2,170	25%	2.3%
Leisure and Hospitality	10,660	12,810	2,150	20%	1.9%
Accomodation and Food Services	8,980	10,730	1,750	19%	1.8%
Other Services	2,600	2,930	330	13%	1.2%
Government	12,440	13,330	890	7%	0.7%
Federal Government	1,330	1,250	-80	-6%	-0.6%
State Government	1,780	1,990	210	12%	1.1%
Local Government	9,330	10,090	760	8%	0.8%
Local Education	4,170	4,560	390	9%	0.9%
Total payroll employment	**73,620**	**85,760**	**12,140**	**16%**	**2%**

Source: State of Oregon Employment Department, "Employment Projections by Industry and Occupation 2012-2022 Central Oregon (Crook, Deschutes, Jefferson)."

APPENDIX B. EMPLOYMENT PROJECTIONS

Appendix B summarizes the methodologies used to develop the employment projections and the 2008-2028 projection.

Methods

This Section contains an overview of the methodology used to generate the employment forecast. The methodology closely follows the approach prescribed by the Department of Land Conservation and Development in the EOA *Guidebook*. However, because economic development goals and the data available about each community vary throughout the state, there are several variations in the methodology. The DLCD recognizes that variation in methodology is appropriate.

1. Analyze existing policy and visions; national, state, county, and local trends; and other forces likely to have an impact on Bend's economic future
2. Forecast 20-year employment growth, 2008-2028:
   a. Begin with OED 2006 employment data for the City of Bend, disaggregated to detailed industry sectors
   b. Create 20-year projected growth rates for individual industry sectors:
      i. Begin with OED Deschutes County 2006-2016 projections

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    ii. Grow 2006 industry employment to 2008 by adding Bend's slightly accelerated population growth rates (0.11 percent faster than Deschutes County) to the ten-year industry growth rates predicted by OED)

    iii. Adjust employment upward (11.5 percent) to account for self-employed, contract workers, and "non-covered" employees not included in OED employment projections

    iv. For land need estimates, decrease employment projections by estimating the percentages of non-shift workers in each industry

    v. Grow employment from 2008 to 2015 at the 10-year adjusted employment growth rate by industry

    vi. Adjust targeted industry sectors upwards by 10 percent to reflect increased growth in these sectors

    vii. Grow employment from 2015 to 2025 by the City of Bend Coordinated Population Forecast Average Annual Rate of Growth at reduced rate to account for less predicted population and employment growth in this time period

    viii. Apply a 1.7 percent AARG to grow 2025 employment to 2028 end of the planning period

3. Inventory Current Employment Land Supply:
   a. Inventory all lands with a General Plan designation for economic use and public facility use
   b. Categorize all lots according to zoning designation and development category
      i. General Plan designations: A variety of commercial, industrial, professional office, mixed employment, public facilities zones, detailed later
      ii. Development category: Developed, Vacant, Unbuildable
   c. Generate inventories of Developed, Vacant and Unbuildable land within each General Plan designation

Employment Projections

The purpose of making employment projections is twofold: (1, to anticipate future employment patterns, and (2) to estimate future economic land needs. The following describes some of the technical approaches in making employment projections and the process of converting these into land need estimates.

This EOA groups NAICS sectors into broader categories to facilitate a conversion of employment forecasts to land need. These categories are as follows:

- Employment Category. This is a generalization and simplification of more specific NAICS sectors and specific industries. The categories include:
    - Industrial General and Industrial Heavy
    - Retail General and Large Retailers
    - Office/Services
    - Leisure and Hospitality
    - Other
    - Government
    - Medical (also called MDOZ referencing the city's Medical District Overlay Zone)
- These categories are composed of employment sectors described below. In some cases, employment categories split what would traditionally be "one" employment sector. For example, Retail Trade is one employment sector, but this EOA separates the sector into two employment categories based on the three-digit NAICS coding: Retail General and Large Retailers. This allows more specific land need estimates to be created; for example, to determine land needs for large retailers seeking large sites and smaller retailers requiring smaller sites. The three-digit NAICS descriptions are shown in the tables below to describe specific industries in each employment category.
- Employment Sector. These are smaller, specific categories that describe the two-digit NAICS categories show in Tables 19-23. These include:
    - Retail Trade
    - Agriculture, Forestry, Fishing and Hunting
    - Mining
    - Utilities
    - Construction
    - Manufacturing
    - Wholesale Trade
    - Transportation and Warehousing
    - Information
    - Finance and Insurance
    - Real Estate and Rental and Leasing
    - Professional, Scientific, and Technical Services
    - Management of Companies and Enterprises
    - Administrative and Support, Waste Management, and Remediation Services
    - Education Services
    - Health Care and Social Assistance

The following tables show:

- Employment categories above the employment sectors in the left-most column

- NAICS 2 Digit Code describing the employment sector. For example, the NAICS 2 Digit Codes for Large Retail and General Retail are 44-45
- NAICS 3 Digit Codes and their corresponding NAICS Title in the right-most column. These provide industry level detail so that a reader can easily examine the types of industries included in each employment category.

Table B- 1. Retail Employment Category, Sectors, and Industries

Employment Category	NAICS 2 Digit Code	NAICS 3 Digit Code	NAICS Title
Retail			
Large Retail - *retail trade*	*44-45*		
		441	Motor Vehicle and Parts Dealers
		444	Building Material & Garden Supply Stores
		447	Gasoline Stations
		452	General Merchandise Stores
General Retail - *retail trade*	*44-45*		
		442	Furniture and Home Furnishings Stores
		443	Electronics and Appliance Stores
		445	Food and Beverage Stores
		446	Health and Personal Care Stores
		448	Clothing and Clothing Accessories Stores
		451	Sporting Goods/Hobby/Book/Music Stores
		453	Miscellaneous Store Retailers
		454	Nonstore Retailers

Source: City of Bend.

Staff researched the spatial distribution of geo-coded employment data by 3 digit NAICS throughout the City of Bend to determine where large and general retailers tend to congregate. Staff found that in general, retailers engaging in motor vehicles, building materials, gasoline station, and general merchandise stores tend to concentrate in areas designated Commercial General by the City's General Plan. General Retail uses above tend to locate in the numerous other commercial General Plan designations. Staff then grouped retail employment into the two categories above to facilitate more fine-tuned land need estimates.

Table B- 2. Industrial Employment Category, Sectors, and Industries

Employment Category	NAICS 2 Digit Code	NAICS 3 Digit Code	NAICS Title
Industrial			
Industrial Heavy			
Agriculture, forestry, fishing and hunting	*11*		
		111	Crop Production
		112	Animal Production
		113	Forestry and Logging
		114	Fishing; Hunting and Trapping
		115	Agriculture & Forestry Support Activities
Mining	*21*		
		211	Oil and Gas Extraction
		212	Mining (except Oil and Gas)
Utilities	*22*		
		221	Utilities
Construction	*23*		
		237	Heavy and Civil Engineering Construction
Manufacturing	*31-33*		
		311	Food Manufacturing
		312	Beverage & Tobacco Product Manufacturing
		314	Textile Product Mills
		315	Apparel Manufacturing
		316	Leather and Allied Product Manufacturing
		321	Wood Product Manufacturing
		325	Chemical Manufacturing
		326	Plastics & Rubber Products Manufacturing
		327	Nonmetallic Mineral Product Manufacturing
		331	Primary Metal Manufacturing
		332	Fabricated Metal Product Manufacturing
		333	Machinery Manufacturing
		334	Computer and Electronic Product Manufacturing
		335	Electrical Equipment and Appliances
		336	Transportation Equipment Manufacturing
		337	Furniture and Related Product Manufacturing
		339	Miscellaneous Manufacturing
Industrial General			
Construction	*23*		
		236	Construction of Buildings
		238	Specialty Trade Contractors
Manufacturing	*31-33*		
		323	Printing and Related Support Activities
Wholesale Trade	*42*		
		423	Merchant Wholesalers; Durable Goods
		424	Merchant Wholesalers; Nondurable Goods
		425	Electronic Markets and Agents/Brokers
Transportation and warehousing	*48-49*		
		481	Air Transportation
		484	Truck Transportation
		485	Transit and Ground Passenger Transport
		488	Support Activities for Transportation
		491	Postal Service
		492	Couriers and Messengers
		493	Warehousing and Storage

Source: City of Bend

Staff performed a similar analysis of the spatial distribution of industrial uses to determine where more intensive or heavy industrial uses are located in Bend. These uses tend to be located in areas designated Industrial General by the Bend General Plan. Other industrial uses tend to be

located in the areas designated Industrial Light, Industrial Park, and Mixed Employment. It is noteworthy that these uses are distributed throughout commercial districts as well as industrial and mixed employment districts.

Table B- 3. Office/Services Employment Category, Sectors, and Industries

Employment Category	NAICS 2 Digit Code	NAICS 3 Digit Code	NAICS Title
Office/Services			
Information	*51*		
		511	Publishing Industries
		512	Motion Picture & Sound Recording Industries
		515	Broadcasting (except Internet)
		516	Internet Publishing and Broadcasting
		517	Telecommunications
		518	ISPs; Search Portals; & Data Processing
Finance and Insurance	*52*		
		522	Credit Intermediation & Related Activities
		523	Financial Investment & Related Activities
		524	Insurance Carriers & Related Activities
		525	Funds; Trusts & Other Financial Vehicles
Real Estate and Rental and Leasing	*53*		
		531	Real Estate
		532	Rental and Leasing Services
		533	Leasers; Nonfinancial Intangible Assets
Professional, Scientific, and Technical Services	*54*		
		541	Professional and Technical Services
Management of Companies and Enterprises	*55*		
		551	Management of Companies and Enterprises
Administrative and Support, Waste Management and Remediation Services	*56*		
		561	Administrative and Support Services
		562	Waste Management and Remediation Services
Education Services	*61*		
		611	Educational Services
Health Care and Social Assistance	*62*		
		621	Ambulatory Health Care Services
		622	Hospitals
		623	Nursing and Residential Care Facilities
		624	Social Assistance

The uses in Table B- 3 tend to be located in commercial areas, with fewer appearing in industrial and mixed use zones. Health care and social services are concentrated within the City's Medical District Overlay Zone, which is zoned Residential Urban Medium Density.

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Table B- 4. Government Employment Category, Sectors, and Industries

Employment Category	NAICS 2 Digit Code	NAICS 3 Digit Code	NAICS Title
Government			
Industrial Heavy			
	11, 21, 23	113	Forestry and Logging
		221	Utilities
		237	Heavy and Civil Engineering Construction
Industrial General			
	32, 49, 48	323	Printing and Related Support Activities
		1_49	Postal Service
		485	Transit and Ground Passenger Transport
		493	Warehousing and Storage
Office/Services	*51-62*		
		611	Educational Services
		624	Social Assistance
		519	Other Information Services
		524	Insurance Carriers & Related Activities
		561	Administrative and Support Services
		611	Educational Services
Leisure and Hospitality	*71*		
		712	Museums; Parks and Historical Sites
		713	Amusement; Gambling & Recreation Industries
Government	*92*		
		921	Executive; Legislative; & Gen Government
		922	Justice; Public Order; and Safety Act ivies
		923	Administration of Human Resource Programs
		924	Administration of Environmental Programs
		925	Community and Housing Program Administration
		926	Administration of Economic Programs
		928	National Security & International Affairs
		921	Executive; Legislative; & Gen Government
		922	Justice; Public Order; and Safety Act ivies
		924	Administration of Environmental Programs

The Government Employment category was created by isolating non-private ownership codes in the 2006 geo-coded employment data for Bend. Note Government includes a wide variety of employment types corresponding to the broad services provided by public entities. Industrial uses such as utilities and construction yards, the postal service, warehousing and similar uses require land zoned for industrial uses, while other governmental functions are well served in commercial centers. Employment in these sectors is classified as Government to estimate the full range of land needs for public uses later in this report.

Table B- 5 shows the Leisure and Hospitality Category and NAICS sectors included in this group. Employment in this category is generally described as Arts, Entertainment, and Recreation, Accommodation and Food Services by NAICS. The sectors illustrate the types of economic activities included in these NAICS categories. The Other category includes those uses that fall outside the NAICS sectors in previous tables.

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Table B- 5. Leisure and Hospitality, Other Employment Category, Sectors, and Industries

Employment Category	NAICS 2 Digit Code	NAICS 3 Digit Code	NAICS Title
Leisure and Hospitality			
Arts, Entertainment, and Recreation	*71*		
		711	Performing Arts and Spectator Sports
		712	Museums; Parks and Historical Sites
		713	Amusement; Gambling & Recreation Industries
Accommodation and Food services	*72*		
		721	Accommodation
		722	Food Services and Drinking Places
Other			
Other Services (except Public Administration)	*81*		
		811	Repair and Maintenance
		812	Personal and Laundry Services
		813	Membership Organizations & Associations
		814	Private Households
Miscellaneous/Unknown	*99*		
		999	Unclassified

Source: City of Bend

The employment forecasts in Table B- 6 estimate total employment for the 2008 through 2028 planning period. These estimates include non-covered employees which are typically excluded from OED projections. Total employment also includes shift workers. Employment projections contained in tables after Table B- 6 will not match employment in Table B- 8, and subsequent employment tables, because subsequent tables do not include shift workers. Shift workers are excluded from subsequent tables because land need estimates should be based on the day shift (typically the largest shift) instead of all employees working at a given business. Including all workers in land need estimates would overestimate land needs since not all workers in some businesses are present at one time. The methodology used to calculate total employment in Table B- 6 is the same as in the subsequent tables; except subsequent tables exclude shift workers.

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Table B- 6. Total Estimated 2008 and 2028 Employment: Simplified

Major Employment Categories	2008 Bend Employment	2028 Bend Employment	New Employees (2008-2028)
Industrial			
Industrial Heavy	4,587	6,231	1,644
Industrial General	5,849	8,709	2,860
Retail			
Large Retail	4,354	7,329	2,975
General Retail	4,065	6,633	2,568
Office/Services	11,210	18,799	7,590
Leisure and Hospitality	5,617	9,364	3,747
Medical (MDOZ)	5,021	8,617	3,596
Other/Miscellaneous	1,178	1,733	555
Government	3,960	6,374	2,414
Total	**45,840**	**73,789**	**27,950**

Source: OED geo-coded employment data for Bend with analysis by City of Bend

Note: Employment reflects additions of non-covered employees excluded from OED employment projections and include ALL EMPLOYEES. Subsequent tables estimating employment reflect only non-shift workers. Non-shift employment is less than total employment.

Table B- 6 illustrates a few broad trends that will emerge in the following analysis. First, the highest numbers of new employees are expected to be engaged in activities that will likely require commercial space versus industrial space. Note that Office/Services, Large and General Retail, and Leisure and Hospitality are the three employment categories that add the most employees during the planning period. Over 4,500 jobs in the Industrial category are expected to be added as well; followed by the addition of 3,596 jobs in the Medical category.

The following employment projections in Table B- 8 present a refinement of the projections in Table B- 6 by considering only employees working during the largest day shift. According to Thomas M Beers, an economist in the Division of Labor Force Statistics, Bureau of Labor Statistics, "the "9-to-5" workday does not appear to be in jeopardy of fading from its prominence in U.S. workplaces; yet the data do suggest that the rigidity of those hours continues to relax". His analysis suggests that approximately 16.8 percent of all full-time wage and salary workers worked alternative shifts; with different industries exhibiting wide variation in the levels of shift work (Beers).

Since subsequent land need estimates based on employment growth are derived by applying employment densities to employment estimates, it is essential to remove shift employees from gross employment figures and employment densities to calculate accurate land need estimates.

The EOA projects Bend's non-shift total employment using the following methodology, shown in the summary Table B- 7. Following is a summary of the process:

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- Begin with OED 2006 geo-coded employment data for the City of Bend, disaggregated to employment sectors. 2006 data is the most recent year available for which OED has detailed employment data for the City of Bend. More recent data is only tracked at the three-county regional level. The accuracy of the geo-coded (which means location specific, usually in the form of an address point representing employment) data from OED in 2006 is far superior to the accuracy of the 2004 data used in the 2007 Leland EOA. The accuracy of the OED data was enhanced by matching the address points to the City's GIS address files and by placing employment data based on field checks, phone calls to businesses, and by using local knowledge of employer locations.
- Produce 20-year projected growth rates for individual employment categories:
    o The baseline employment growth projections are OED Deschutes County 2006-2016 employment growth projections by sector. Reviewed in the Section above, these projections are adjusted to account for Bend's unique employment characteristics. The approach used in this EOA relies on employment growth rates for Deschutes County rather than the Region 10 employment growth rates. This is an improvement over the Leland EOA since the influence of Jefferson and Crook Counties is not included in the Deschutes County growth data. Also, since Bend represents the majority of employment in Deschutes County, using the Deschutes County employment growth projections will result in more accurate projections.
    o Factor 1. As was done in the 2007 Leland EOA, employment projections are slightly increased to account for Bend's slightly higher rate of population growth as compared with the County's. In the period 2006-2016, the Deschutes County Coordinated Population Forecast shows Bend's population is anticipated to grow at a rate 0.11 percent times faster than Deschutes County over this decade. This 0.11 percent factor is applied over the decade, not each year. This is appropriate since employment growth tracks with population growth as show in Section 3.
    o Grow employment at the sector specific average annual growth rates plus Factor 1 for two years to determine 2008 baseline employment.
    o Factor 2. Increase 2008 baseline employment by sector by 11.5 percent to account for non-covered employees excluded from OED employment forecasts. This increase is applied to all categories except Government, since most public sector employees are covered employees. See Appendix B for a more detailed discussion of how the 11.5 percent factor was determined. This figure was accepted by the City of Bend Planning Commission and UGB TAC for purposes of this analysis.
    o Factor 3. Reduce employment estimates by applying percentages of non-shift workers to total employment. These percentages were obtained from research by Thomas M. Beers in his article "Flexible schedules and shift work: replacing the '9-to-5' workday?". Note these factors were applied to specific sub-sectors and cannot be aggregated into the broader employment categories reported in this table. Generally, employment sectors such as leisure and hospitality have the highest rates of shift workers (approximately 40-50 percent shift workers), while other sectors such as office/services have between approximately 5-20 percent of employees working shifts.
    o Grow the 2008 non-shift total employment by the adjusted by sector growth rates for seven years to arrive at year 2015 employment by sector.
    o Factor 4. As the 2007 Leland EOA suggests, targeted sectors are increased upwards to reflect increased growth in these sectors. As discussed extensively above, Bend has created a set of Targeted Sectors, in which it hopes to encourage higher-than-average growth; existing trends suggest that this is a good strategy with reasonable chances for success. Thus, employment growth within the Retail, office/Services, and Leisure and Hospitality categories are accelerated by a factor of 1.10 (or 10

percent) over this decade –long time frame. Although Government is not a targeted sector, it is also adjusted upwards to reflect continued aggregation of government jobs in Bend (Leland, 39).

o Grow 2015 employment to 2025 by the 1.84 percent average annual rate of growth. This growth rate is the 2015-2025 Average Annual Rate of Growth (AARG) for Bend detailed in the Deschutes County Coordinated Population Forecast.

o Grow 2025 employment to 2028 by an AARG of 1.70 to match Bend's population growth. This rate is the same growth rate used to estimate Bend's population growth between 2025 and 2028 for the residential lands estimate.

Table B- 7. Bend Employment Projections and Methodology Overview: 2008-2028

Major Employment Categories	2006 Bend Emp.	10-year AARG[1]	Factor 1	2008 Covered Emp[1]	Factor 2	2008 Total Emp.	Factor 3. 2008 Non-shift Emp.[2]	2015 Emp.[1]	Factor 4	2015 Emp.	2025 Emp.	2028 Bend Emp.
Industrial												
Industrial Heavy	4,032	1.0%	0.11%	4,114	11.5%	4,587	3,807	4,104	NA	4,104	4,925	5,180
Industrial General	5,004	2.3%	0.11%	5,245	11.5%	5,849	5,370	6,340	NA	6,340	7,608	8,002
Retail												
Large Retail	3,698	2.6%	0.11%	3,905	11.5%	4,354	3,474	4,212	10%	4,633	5,560	5,849
General Retail	3,482	2.2%	0.11%	3,646	11.5%	4,065	3,244	3,812	10%	4,193	5,032	5,293
Office/Services	9,535	2.6%	0.11%	10,053	11.5%	11,210	9,879	11,925	10%	13,117	15,741	16,557
Leisure and Hospitality	4,783	2.8%	0.11%	5,038	11.5%	5,617	3,306	3,985	10%	4,383	5,260	5,532
Medical	4,240	2.3%	0.11%	4,503	11.5%	5,021	4,100	5,069	10%	5,574	6,689	7,036
Other/Misc.	1,011	2.0%	0.11%	1,056	11.5%	1,178	1,051	1,225	NA	1,225	1,470	1,547
Government	3,798	2.2%	0.11%	3,960	NA	3,960	3,485	4,041	10%	4,445	5,334	5,611
Total	**39,583**			**41,520**		**45,840**	**37,716**	**44,712**		**48,015**	**57,618**	**60,607**

Source: City of Bend based on OED 2006 Geo-coded data for City of Bend.

1 This table is for illustration purposes only. The "10-year AARG", "2008 Covered Emp", "2015 Emp." column totals are derived by totaling the employment growth of individual industries, not the employment categories shown above. See Appendix A for a table of industries and their totals.

2 Rates of "Non-shift Workers" were applied to industries, not employment categories. See Appendix A for specific rates of "Non-shift Workers" applied to each industry.

Table B- 6 shows some of the broad conclusions that can be drawn from this analysis of Bend's 20-year employment growth. In the New Employees (2008-2028) column, note that by far the largest amount of growth comes in the Office/Services category, as suggested by the trends reviewed earlier and the Economic Sector Targeting work. Retail, Leisure and Hospitality, and Medical categories have also added considerable numbers of employees. Note that heavy industrial uses are expected to employ fewer people than the general industrial uses.

Table B- 8 introduces an assumption that 10 percent of employees in the planning period will be employed on lands currently used for employment purposes. This infill/refill factor is consistent with DLCD guidelines as discussed in more detail in Section 8.

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Table B- 8. Employment Change & New Employees Requiring Land: 2008-2028

Major Employment Categories	2008 Non-shift Emp.	2028 Bend Non-shift Emp.	New Employees (2008-2028)	Infill/Refill Factor	New Employees Requiring New Land
Industrial					
Industrial Heavy	3,807	5,180	1,373	10%	1,236
Industrial General	5,370	8,002	2,632	10%	2,369
Retail					
Large Retail	3,474	5,849	2,374	10%	2,137
General Retail	3,244	5,293	2,049	10%	1,844
Office/Services	9,879	16,557	6,678	10%	6,010
Leisure and Hospitality	3,306	5,532	2,226	10%	2,004
Medical	4,100	7,036	2,936	10%	2,642
Other/Misc.	1,051	1,547	496	10%	446
Government	3,485	5,611	2,126	10%	1,913
Total	**37,716**	**60,607**	**22,891**		**20,602**

Source: City of Bend based on OED 2006 Geo-coded data for City of Bend.

The City of Bend should anticipate approximately 22,891 new non-shift employees during the planning period. After subtracting 10 percent with the assumption that 10 percent of new employees will be employed on existing "developed" or "redevelopable" employment lands, land needs should be calculated based on 20,602 future new non-shift employees.

Table B- 9 illustrates jobs to population ratios for the recent past and the planning period. Comparisons between the two tables should be made with caution since Table B- 7 does not include all workers and Table B- 8 includes all workers (both covered and uncovered worker), and because Table B- 7 is a county-wide ratio while Table B- 8 is only the City of Bend. Considering that total employment is estimated to be 11.5 percent higher than covered employment, projected jobs to population ratios are similar to job to population ratios in Deschutes County in the 1990s.

Table B- 9. Jobs to Population Ratios: 2008 and 2028

Year	Bend coordinated Population Forecasts	Bend Total Employment Forecasts	Ratio of Jobs to Population
2008	76,551	45,840	60%
2028	115,063	73,789	64%

Source: City of Bend employment forecasts and Deschutes County Coordinated Population Forecast for Bend

APPENDIX C. REMAND DIRECTIVES

Table 21 presents the complete list of Remand issues related to employment lands and where they are addressed in the EOA update. The numbering of directives in the second column starts with number 61 because this list is an excerpt of the larger Index of all directives to the City on Remand.

Table 21. Remand Directives Related to the Economic Opportunities Analysis and Employment Land Need

Remand Subissue	Directives to City on Remand	Sections/Pages in this EOA that address the directives
5.11 (Conclusion) Page 67	61. The submittal is remanded for the City to clarify in adequate findings that it is utilizing its 2008 EOA, scenario B, as the basis for estimating employment land needs	No longer using Scenario B methodology; EOA Ch 5 provides revised land estimate based on changes required by the Remand, such as vacancy rate, market choice, and redevelopment rate.
5.2 (Conclusion) Page 70	62. Commission remands the UGB decision to the City to provide an adequate factual base to support use of a 10 percent redevelopment factor, including an analysis of the amount of redevelopment that has occurred in the past and a reasoned extension of that analysis over the planning period 63. Alternatively, the City may satisfy Goal 9 and division 9 by other means, for example through a site-by-site redevelopment analysis. However, a site-by-site analysis is not required; the Commission determines that using a factor is acceptable where findings explain evidentiary basis and address the Goal 14 requirement to reasonably accommodate development within the existing UGB.	Base case redev is now 6%; see Appendix D.
5.4 (Analysis) Page 76	64. As a result, in this case (See 1000 Friends of Oregon v. LCDC, __ Or App __, __P3d __ (A135375)) to the extent that the city continues to base some portion of its employment land need on market choice, it must explain how doing so in the factual context provided by the record for the Bend UGB expansion is consistent with the requirements of Goal 9, OAR 660-009-0025, and the "need" factors of Goal 14	No market choice factor is used in the revised land need estimates.
5.4 (Conclusion) Pages 76-77	65. On remand, the City must make findings addressing applicable law, including addressing consistency with Goals 9 and 14 as required in 1000 Friends of Oregon v. LCDC, __ Or App __, __P3d __ (A135375) (September 8, 2010)	EOA addresses the Goal 9 requirements; the Urbanization Report, Goal 14; the findings address both.

Remand Subissue	Directives to City on Remand	Sections/Pages in this EOA that address the directives
5.5 (Analysis) Page 77	66. Under OAR 660-009-0015(3)(a)(C), the EOA Inventory of Industrial and Other Employment Lands for cities and counties within a Metropolitan Planning Organization, must include the approximate total acreage and percentage of sites within each plan or zoning district that comprise the short-term supply of land. 67. This short-term supply analysis required for jurisdictions within MPOs is in addition to the EOA inventory requirements applicable to all comprehensive plans for areas within urban growth boundaries. OAR 660-009-0015(3)(a) 68. Furthermore, division 9 requires that comprehensive plans for cities such as Bend "include detailed strategies for preparing the total land supply for development and for replacing the short-term supply of land as it is developed." OAR 660-009-0020(2).	Short-term supply is addressed in Chapter 5 of the EOA.
5.5 (Conclusion) Page 78	69. The Commission concludes that the Goal 9 rule requires the City to include policies for maintaining a short-term supply. 70. The City must plan for required infrastructure and have identified the funding mechanisms.	Short-term supply is addressed in Chapter 5 of the EOA.
5.6 (Analysis) Page 80	71. (t)he City must establish a basis in reason connecting the inference that the planning period will present higher vacancy rates for industrial and office than historic and current conditions to the trend data from which it is derived. 72. the City may pursue a mechanism to make industrial and commercial rents affordable under the competitive short-term supply, but not by inflating the long-term need beyond what may be supported by substantial evidence in trend data or reasoned inferences there from.	The revised EOA does not include a separate vacancy factor for employment lands. The EOA assumes that the 2006 employment densities are reflective of the vacancy rates at that time: 9% for office space and 2.9% for industrial space.
5.6 (Conclusion) Page 80	73. The Commission concluded that under division 9, the long-term vacancy factor should be based on past and projected future trends over the planning period.	The revised EOA does not include a separate vacancy factor for employment lands. The EOA assumes that the 2006 employment densities are reflective of the vacancy rates at that time: 9% for office space and 2.9% for industrial space.
5.8 (Analysis) Page 84	74. The City agreed that on remand it would move the analysis and calculation to the residential/other lands analysis and calculation.	See HNA

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Remand Subissue	Directives to City on Remand	Sections/Pages in this EOA that address the directives
5.8 (Conclusion) Page 84	75. The Commission remands the submittal to incorporate analysis of land needs for employment uses within residential zones in the City's housing needs analysis.	See HNA

APPENDIX D. METHODS FOR JUSTIFICATION OF A REDEVELOPMENT ASSUMPTION FOR EMPLOYMENT LANDS

The project team discussed redevelopment assumptions over the course of several meetings with the Employment Technical Advisory Committee (TAC) in the fall of 2014. That process involved a systematic analysis of redevelopment potential for study areas identified by the TAC using the Envision Tomorrow model. Because the methods were described in several memoranda to the Employment TAC, this Appendix documents the methods, analysis, and findings the project team used to develop an assumption for redevelopment of employment lands in Bend for the 2008-2028 period.

BACKGROUND

All developed employment land has the potential to redevelop, at some point in the future. Redevelopment potential can be thought of as a continuum—from more redevelopment potential to less redevelopment potential over the 2008 to 2028 period. The factors that affect redevelopment are complicated and include property location, surrounding uses, current use, land and improvement values and other factors. The analysis identifying potentially redevelopable land presented in this Appendix provides the factual basis for the base case redevelopment assumptions.

Broadly, two approaches exist to establish a redevelopment assumption. One approach is to address redevelopment from the demand side by making assumptions about the percentage of new employment that may locate in areas with existing development; the other approach is from the supply side by identifying parcels or districts with redevelopment potential.

The city used a demand-based approach in the 2008 Economic Opportunities Analysis (EOA), assuming that 10% of new employment would be accommodated on redevelopable land. Demand side approaches typically use historic redevelopment rates to support assumptions. While the Remand did not dispute the method, it did clearly state that the city did not provide enough evidence to support the 10% assumption. A supply side analysis looks at land and builds a redevelopment assumption based on land characteristics such as improvement-to-land value ratio.

Before discussing the remand requirements, it is useful to review the state guidance on redevelopment of employment lands. State administrative rules implementing Statewide Planning Goal 9 (OAR 660-009-0005(1)) provide the following definition for the purposes of conducting an EOA:

> (1) "Developed Land" means non-vacant land that is likely to be redeveloped during the planning period.

Thus "developed land" equates to land "likely to be redeveloped" when evaluating land supply for an EOA. The EOA update operationalizes this definition as land with existing development (i.e., land identified in the buildable lands inventory or BLI as "developed") but with the potential that existing development will be converted to more intensive uses during the planning period,

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as a result of present or expected market forces. Redevelopable land is a subset of developed land, which corresponds with the definition of "developed land" as stated in OAR 660-009-0005(1). Goal 9 does not provide explicit guidance on how to evaluate redevelopable lands beyond this definition.

WHAT DOES THE REMAND REQUIRE?

The Remand (Issue 5.2) articulated two potential approaches to addressing redevelopment:

> Commission remands the UGB decision to the City to provide an adequate factual base to support use of a 10 percent redevelopment factor, including an analysis of the amount of redevelopment that has occurred in the past and a reasoned extension of that analysis over the planning period.

> Alternatively, the City may satisfy Goal 9 and division 9 by other means, for example through a site-by-site redevelopment analysis. However, a site-by-site analysis is not required; the Commission determines that using a factor is acceptable where findings explain evidentiary basis and address the Goal 14 requirement to reasonably accommodate development within the existing UGB.

Data provided in the 2008 EOA suggest that Bend had not experienced a lot of redevelopment of employment lands. Analysis of development activity between 2008 and 2014 drew similar conclusions. To satisfy the Remand requirements, the 2015 update of the Bend EOA used the second approach—a site-by-site analysis that evaluates redevelopment potential using the Envision Tomorrow tool. While the site-by-site aggregated to "district" approach required more effort, it is a more appropriate approach for Bend. This approach allowed the city to approach redevelopment as more than just a legal mandate; it allowed consideration of urban form and infrastructure as a key determinant of city strategy on redevelopment. Moreover, the Envision Tomorrow model provided an opportunity to take a finer grained approach to assessing redevelopment potential—one that uses urban form as a guiding principle.

STUDY AREAS

At the September 2014 Employment TAC meeting, the TAC identified areas where redevelopment is likely over the 2008-2028 period. These study areas are shown on Map 1.[49] Note that while the areas identified in Map 1 represent specific districts identified as having redevelopment potential, redevelopment can occur on any land within the UGB. It is important to note these areas do not represent all economic lands in the UGB, rather areas which are mostly developed. In addition to the areas shown in Map D-1, the redevelopment analysis considered all other lands designated for employment uses in the Bend UGB.

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[49] The study areas are a more comprehensive set of areas that were subsequently refined into opportunity areas.

Map D-1. Areas to Evaluate for Redevelopment Potential

Legend

StudyArea

1. Bend River Plaza
2. Studio Rd. Industrial
3. Central 3rd
4. East Downtown
5. Central Hwy 20
6. Logsden St. Industrial
7. Reed Mkt Rd. Industrial
8. SW Century Drive
9. Mill District Industrial
10. Newport/Galveston Commercial
11. COCC Campus
12. Medical District
13. South 3th Commercial

Major Roads

**Redevelopment Analysis
Study Areas**

ECONorthwest
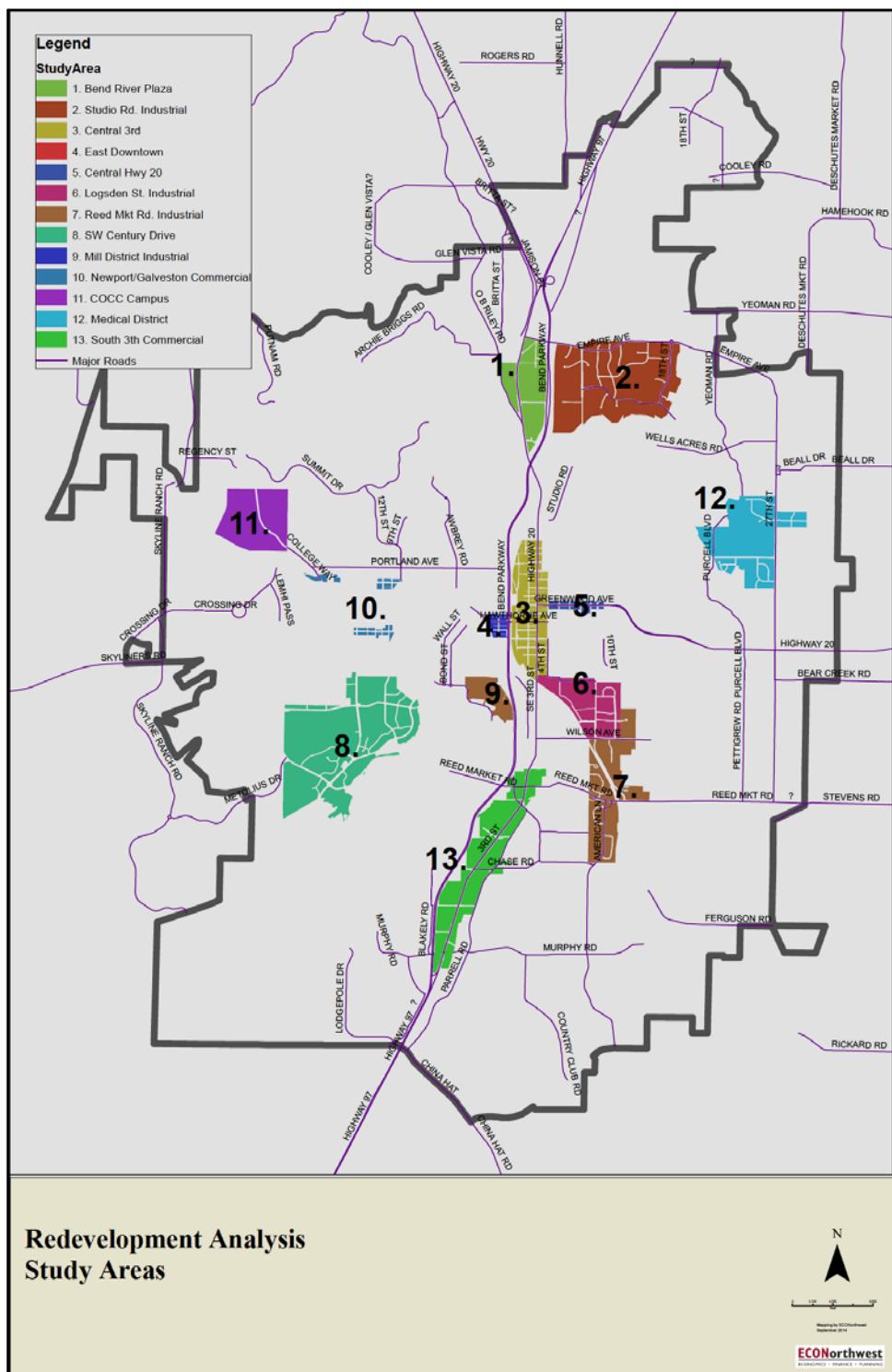
METHODS

Based on a literature review, there is no preferred model or method to identify redevelopment opportunities (or estimate a redevelopment rate). The EOA update used a multi-step approach to evaluating redevelopment potential. The approach was as follows:

Step 1: conduct initial assessment of redevelopment potential for study areas

Step 2: prioritize redevelopment study areas

Step 3: identify strategies to encourage redevelopment in high priority study areas

Step 4: use Envision Tomorrow tool to refine redevelopment rate assumption and provide documentation that supports the assumption used in the revised Economic Opportunities Analysis

Step 5: Ground truth Envision Tomorrow results

Step 6: refine strategies to encourage redevelopment, including plan map amendments, code amendments, incentives and other approaches (e.g., land use efficiency measures)

The remainder of this Appendix describes the Envision Tomorrow model, the model results, and the redevelopment assumptions applied in the EOA.

The Envision Tomorrow Model

This section summarizes the approach to developing a feasibility model to identify optimal uses, building forms, and price points for the 12 study areas as well as all land in employment designations outside the study areas.

The scenarios build on analyses completed by Leland Associates, ECONorthwest and Fregonese Associates to identify probable rates of redevelopment on currently developed non-residential lands based on development of building types currently allowed by city regulations and supported by the market.

Envision Tomorrow

Envision Tomorrow (ET) is an open-access scenario planning package that allows users to analyze how their community's current growth pattern and future decisions impacting growth will impact a range of measures from public health, fiscal resiliency and environmental sustainability. The Fregonese team used the Envision Tomorrow suite of tools to identify potential redevelopment locations, feasible building types, and potential funding tools to help leverage development in underutilized and emerging market areas. Fregonese staff modeled a series of development scenarios that tested the feasibility of different building types based on 2014 rent and construction levels to determine the residual land value, or the amount a developer could pay for a property while achieving an internal rate of return of 10%.

Approach

The analysis was implemented using Envision Tomorrow (ET) software, which begins with a set of prototypical buildings of various development types (office, retail, employment, etc.) and populates underutilized properties with new development based upon pro forma evaluation of each building's financial feasibility within employment study areas within Bend.

Study Areas

The twelve study areas selected for testing are identified in Map 1.

Prototype Buildings

Prototype buildings are the building blocks of Envision Tomorrow development scenarios and represent a range of existing and aspirational product types. Fregonese Associates developed a library of prototype buildings, customized to conform to City of Bend zoning standards and market conditions. These prototypes include detailed achievable rent and construction cost data and represent a range of existing and potential building types specific to the Bend real estate market. A list of the building prototypes used for this analysis can be found in Table D-1 below.

Table D-1. Building Prototype Library

Building Name	Lot Size (Sq Ft)	Building Lot Coverage	Landscaping Lot Coverage	Parking Lot Coverage	Height (Stories)	Floor Area Ratio (FAR)
Mixed-Use Office 5	40,000	28%	50%	22%	5	1.95
Office 5	40,000	25%	27%	48%	5	2.01
Office 5	40,000	48%	15%	37%	5	3.32
Office 3	40,000	48%	15%	37%	3	1.76
Suburban Office 3	40,000	33%	15%	52%	3	0.71
Office 1	20,000	43%	15%	42%	1	0.37
Flex/Tech Office 2	40,000	24%	15%	61%	2	0.43
Light Industrial / Warehousing 1	80,000	32%	19%	49%	1	0.25
Heavy Industrial 1	217,800	31%	15%	54%	1	0.27
Regional Retail / Mall	435,600	30%	15%	55%	1	0.27
Lifestyle Retail / Suburban Main Street Retail	217,800	35%	15%	50%	1	0.31
Arterial Commercial	80,000	33%	13%	53%	1	0.27
Traditional Main Street Retail	10,000	61%	4%	35%	1	0.55
Hotel 5	40,000	31%	15%	54%	5	2.4
Hotel 3	40,000	30%	15%	55%	3	1.46
Hotel 1	40,000	42%	15%	43%	1	0.38

The Tipping Point

When achievable rents do not cover purchase, construction and operating costs, lots remain underutilized. The difference between the cost of redevelopment and potential operating income determines whether or not projects are economically viable, or will "pencil."

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Achievable Rents

For each of the 12 study areas, the project team assembled current market rents for retail, office, and industrial product types from RS Means and the commercial real estate service Costar using data acquired during August 2014. Cost and rent assumptions were discussed with TAC member to validate their reasonableness.

1. Construction Cost (HARD COSTS ONLY):

All costs are listed on a per square foot basis (Table D-2).

Table D-2. Construction Costs

Retail	Urban	$135
	Suburban	$100
Office	Urban	$140
	Suburban	$130
Industrial	Urban Flex	$85
	Suburban Large Format	$80

For Retail and Office products there will be a tenant improvement (TI cost) that is likely to be $10 per square foot or more on top of the hard costs listed above. Costs are listed on a per square foot basis.

2. Rent assumptions (All product types based on a triple-net lease)

Rents listed in Table D-3 are annualized on a per square foot basis.

Table D-3. Achievable Rent Assumptions

Retail	Urban	$18
	Suburban	$12
Office	Urban	$21
	Suburban	$16
Industrial	Urban Flex	$11
	Suburban Large Format	$8

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Process

1. Assign Building Prototypes to Zone Districts

Table D-4 shows which building types are allowed by the regulations found in Bend's zoning ordinance.

Table D- 4. Building Types and Zones

Building Type	Commercial				Industrial		Mixed-Employment		
	CB	CC	CL	GC	IG	IL	ME	MR	PO
Mixed-Use Office 15	x								
Mixed-Use Office 5	X		x						
Office 5	x		x						
Office 5	x		x						
Office 3		x	x	x			x	x	x
Suburban Office 3		x	x	x			x	x	x
Office 1		x	x	x			x		
Flex/Tech Office 2		x				x			
Light Industrial / Warehousing 1					x	x			
Heavy Industrial 1						x			
Arterial Commercial		x		x					
Hotel 15	x								
Hotel 5	x								
Hotel 3		x	x	x			x	x	x
Hotel 1		x	x	x			x	x	x

2. Determine Residual Land Value

After inputting the cost and rent variables the goal seek function within MS Excel was utilized to set an IRR of 10% through adjustment of the acquisition cost. The resultant value then determines the residual land value. In many cases specific building types were shown to have a negative residual land value. In other words, it is not economically feasible to build them (e.g., redevelop the site) without financial subsidy worth at least as much as the market value of the land and improvements.

3. Identify Lands for Analysis

For building prototypes with a positive residual land value, the Envision Tomorrow tool was used to select and assign building types to parcels within GIS. Lands were first identified by testing for zoning and parcel size and then assigned with a building prototype that could "afford" the total land and improvement value of the property. In cases where multiple buildings were feasible, the team chose the prototype with the highest residual land value that could be utilized.

4. Summarize by Study Area

Using the spatial analysis functions within GIS and ET the redevelopment rates and representative numbers of employees were summarized and reported based on the previously identified study areas.

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FINDINGS

The Envision Tomorrow model results identified potential for 1,358 additional jobs through redevelopment under the Base Case assumptions (e.g., no policy changes or efficiency measures). Fifty-six percent of the redevelopment potential (763 jobs) exist within one of the 12 employment redevelopment study areas (North Studio Road).

The 2008 Economic Opportunities Analysis forecast a total increase of 22,891 non-shift employees for the 2008-2028 planning period. The model output suggests a base case potential for 1,359 new employees. This equates to 5.9% of total forecast employment. The 2008 EOA assumed 10%.

Based on these results the base case analysis used a redevelopment rate assumption of 6%. Note that this analysis did not model the potential impact of land use efficiency measures and new incentives designed to encourage redevelopment of employment lands—including the impact of strategies described in the Central 3rd Street Multimodal Mixed Use Area (MMA) and the Central Westside Plan area. That analysis is presented in the Urbanization Report.

This section summarizes findings from the analysis of redevelopment potential. It provides general data on employment lands (e.g., amount of employment, industry, acres, etc.) for all lands and specific redevelopment study areas. It also summarizes the results of the Envision Tomorrow residual land value modeling (see Tables 9, 10 and 11).

To provide context, the analysis started with brief overview of employment citywide. According to Quarterly Census of Employment and Wage (QCEW) data, Bend had 53,084 covered employees in 2013 (Table D-5). The data show that nearly half (48%) of employment is located in one of the study areas identified on Map 1.

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Table D-5. Covered employment by plan designation and location (2013)

Plan Designation	All Areas			Study Areas		
	Firms	Emp	% of Emp	Firms	Emp	% of Emp
Commercial						
CB - Central Business	272	3,206	6%			0%
CC	185	1,966	4%	165	1,766	7%
CG	564	8,169	15%	310	3,929	15%
CL	407	5,063	10%	223	2,763	11%
Subtotal	**1,428**	**18,404**	**35%**	**698**	**8,458**	**33%**
Industrial						
IG	113	1,639	3%	113	1,639	6%
IL	516	6,766	13%	435	5,555	22%
Subtotal	**629**	**8,405**	**16%**	**548**	**7,194**	**28%**
Mixed Employment						
ME	222	3,171	6%	74	614	2%
MR	261	3,131	6%	7	48	0%
Subtotal	**483**	**6,302**	**12%**	**81**	**662**	**3%**
Public Facilities (PF)	79	4,135	8%			0%
Residential						
RH	222	10,102	19%	114	9,242	36%
RL	127	286	1%			0%
RM	219	1,192	2%			0%
RS	954	4,232	8%	2	59	0%
Subtotal	**1,522**	**15,812**	**30%**	**116**	**9,301**	**36%**
TOTAL	**4,142**	**53,084**	**100%**	**1,443**	**25,615**	**100%**

Note: the high level of employment in the RH (residential high density) designation is due to the Medical District (MDOZ) overlay.

Map D-2 shows the location of employment plan designations and redevelopment study areas.

Map D-2 Employment plan designations and study areas

Redevelopment Analysis
Employment Designations and
Study Areas

13533
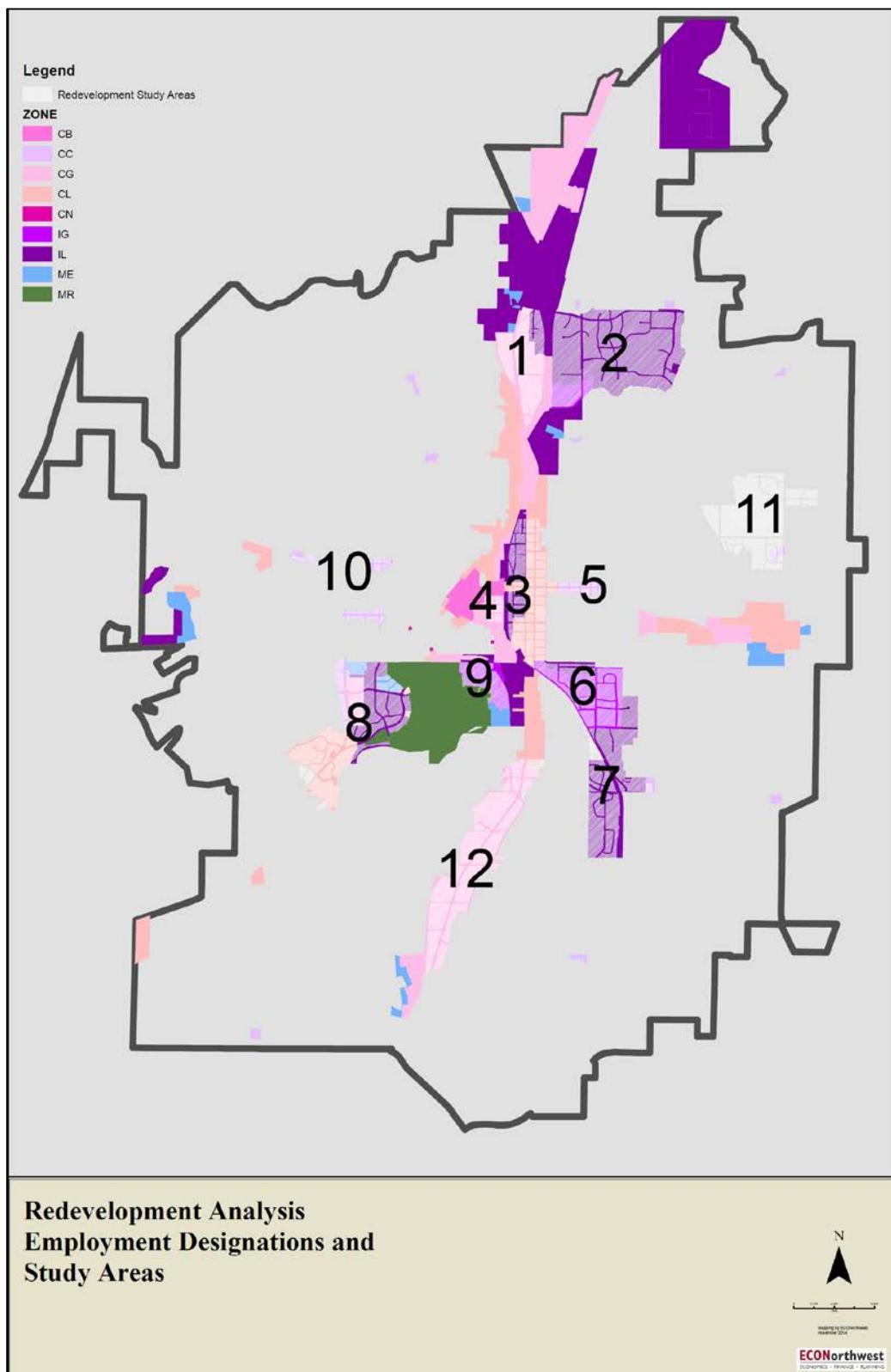
Table D-6 summarizes key characteristics of the 12 study areas shown in Map 2, including number of tax lots, total acres in the study area, acres in tax lots that have employment, total employment, and employment per acre (for tax lots that have employment).

Table D-6. Study Area Summary Data (2013)

Study Area	Name	Primary Use	Total Tax Lots	Total Ac	Acres w/Emp	Employment	Emp/Ac
1	Bend River Plaza	Commercial	79	115.2	78.7	1,557	19.8
2	N. Studio Road	Industrial	190	301.9	200.2	2,679	13.4
3	Central 3rd Street	Comm/Mixed Employment	326	128.4	69.5	2,229	32.1
4	East Downtown	Commercial	82	12.3	3.9	145	36.9
5	Central Hwy 20	Commercial	44	14.0	11.2	513	45.7
6	Logsden Street	Industrial	127	105.9	60.4	854	14.1
7	Reed Market	Industrial	193	164.0	100.6	1,195	11.9
8	SW Century Drive	Mixed	193	192.9	108.6	3,700	34.1
9	Mill District	Industrial	11	47.3	33.5	148	4.4
10	Newport/Galveston	Commercial	98	17.1	10.8	698	64.8
11	Medical District	Medical	95	154.5	118.2	9,579	81.0
12	S. 3rd Street	Commercial	187	206.8	134.9	2,318	17.2
	Total/Avg		1,625	1,460.3	930.6	25,615	27.5

The Employment TAC requested more information on the plan designations and employment in the study areas. Table D-7 shows acres and percent of acres by study area and plan designation. The figure below shows the titles for the abbreviations in Table D-7.

CB- Central Business District	PF- Public Facilities
CC- Commercial Convenience	PO- Professional Office
CG- Commercial General	PO/RM/RS
CL- Commercial Limited	RH- Residential Urban High Density
IG- Industrial General	RL- Residential Urban Low Density
IL- Industrial Light	RM- Residential Urban Medium Density
IP- Industrial Park	RS- Residential Urban Standard Density
ME- Mixed Employment	SM- Surface Mining
MR- Mixed Riverfront	UAR- Urban Area Reserve

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Table D-7. Acres by study area and plan designation (2013)

Study Area	CC	CG	CL	IG	IL	ME	MR	PF	RH	RM	RS	Total
Acres by Plan Designation												
1. Bend River Plaza		98			18							115
2. N. Studio Rd. Industrial				29	273				0			302
3. Central 3rd St.			82			47						128
4. East Downtown		12										12
5. Central Hwy 20	11		3									14
6. Logsden St. Industrial				106								106
7. Reed Market Industrial	2				156			3		3		164
8. SW Century Drive	15	16	61		72	19	1			3	3	190
9. Mill District Industrial				47								47
10. Newport/Galveston Commercial	17											17
12. Medical District	5								149			155
13. South 3rd Commercial		201								6		207
Total	51	326	145	182	519	66	1	3	150	12	3	1,457
Percent of Acres by Plan Designation												
1. Bend River Plaza		85%			15%							100%
2. N. Studio Rd. Industrial				10%	90%							100%
3. Central 3rd St.			64%			36%						100%
4. East Downtown		100%	0%									100%
5. Central Hwy 20	81%		19%									100%
6. Logsden St. Industrial				100%								100%
7. Reed Market Industrial	1%				95%	0%	0%	2%		2%		100%
8. SW Century Drive	8%	8%	32%		38%	10%	1%	0%		2%	2%	100%
9. Mill District Industrial	0%			100%								100%
10. Newport/Galveston Commercial	100%											100%
12. Medical District	3%								97%			100%
13. South 3rd Commercial	0%	97%								3%		100%
Total	3%	22%	10%	12%	36%	5%	0%	0%	10%	1%	0%	100%

Table D-8 shows covered employment by sector for each study area. The data suggest a high level of employment mixing by industry (e.g., by NAICS or North American Industrial Classification codes) in many of the study areas. This suggests that plan designations are not restrictive in the types of employment they allow, and that the types of buildings in many of the study areas can accommodate a broad range of employment categories.

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Table D-8. Covered employment by study area and sector (2013)

#	Study Area	Retail	Lodging and food	Services	Health care	Other commercial	Manufact uring	Industrial	Grand Total
Employment									
1	Bend River Plaza	616	317	484	39	86	15	-	**1,557**
2	Studio Road Industrial	67	115	547			405	1,068	477	**2,679**
3	Central 3rd Street	689	504	386	124	219	81	226	**2,229**
4	East Downtown			102	25	18			**145**
5	Central Hwy 20	72	60	64	306	11			**513**
6	Logsden St. Industrial	118	17	121	13	189	170	226	**854**
7	Reed Market Industrial	132	14	171	17	258	331	271	**1,194**
9	Core Pine			23		35	65	25	**148**
9	SW Century Drive	261	283	1,151	478	258	911	358	**3,700**
10	Newport/Galveston Commercial	236	276	61	87	10	28		**698**
11	Medical District	4	224	307	8,828	213	3		**9,579**
12	South 3rd Street Commercial	1,237	503	230	142	141	26	38	**2,317**
	Total	**3,432**	**2,313**	**3,647**	**10,059**	**1,843**	**2,698**	**1,621**	**25,613**
Percent of Employment by Sector									
1	Bend River Plaza	**40%**	20%	31%	3%	6%	1%	0%	100%
2	Studio Road Industrial	3%	4%	20%	0%	15%	**40%**	18%	100%
3	Central 3rd Street	**31%**	23%	17%	6%	10%	4%	10%	100%
4	East Downtown	0%	0%	**70%**	17%	12%	0%	0%	100%
5	Central Hwy 20	14%	12%	12%	**60%**	2%	0%	0%	100%
6	Logsden St. Industrial	14%	2%	14%	2%	22%	20%	**26%**	100%
7	Reed Market Industrial	11%	1%	14%	1%	22%	**28%**	23%	100%
9	Core Pine	0%	0%	16%	0%	24%	**44%**	17%	100%
9	SW Century Drive	7%	8%	**31%**	13%	7%	25%	10%	100%
10	Newport/Galveston Commercial	34%	**40%**	9%	12%	1%	4%	0%	100%
11	Medical District	0%	2%	3%	**92%**	2%	0%	0%	100%
12	South 3rd Street Commercial	**53%**	22%	10%	6%	6%	1%	2%	100%
	Total	**13%**	**9%**	**14%**	**39%**	**7%**	**11%**	**6%**	**100%**

Envision Tomorrow Results

This section presents results from the Envision Tomorrow model. The results represent a "base case" scenario that assumes that the city would take no specific measures to encourage redevelopment in employment zones.

After inputting the cost and rent variables, Envision Tomorrow modeled an IRR of 10% through adjustment of the acquisition cost. The resultant acquisition cost value then determines the residual land value. Negative residual land values suggest the parcel will not redevelop; positive residual land values indicate redevelopment potential.

The project team analyzed the 12 study areas as well as all other lands outside the study areas with employment plan designations. The model outputs are acres redeveloped and jobs. In the context of the statewide planning program, we are only interested in redevelopment that leads to additional employment capacity (e.g. has higher employee per acre ratios).

Table D-9 shows the results for the 12 study areas. The results suggest relatively low redevelopment potential overall—763 jobs, or a 3% increase from 2013 employment. The model output only resulted in redevelopment potential in three study areas: N. Studio Road, SW Century Drive, and S. 3rd Street.

Table D-9. Envision Tomorrow results for employment study area redevelopment

| Study Area | Name | Existing Conditions, 2013 | | | Envision Tomorrow Model Output | | | | |
		Total Acres	Covered Employment	Emp/Acre	Redeveloped Acres	Additional Employment Capacity	Total Emp w/Redev	Emp/Acre w/Redev	% Increase over 2013 Emp
1	Bend River Plaza	115.2	1,557	13.5	0.0	0	1,557	13.5	0.0%
2	N. Studio Road	301.9	2,679	8.9	10.5	484	3,163	10.5	18.1%
3	Central 3rd Stree	128.4	2,229	17.4	0.0	0	2,229	17.4	0.0%
4	East Downtown	12.3	145	11.8	0.0	0	145	11.8	0.0%
5	Central Hwy 20	14.0	513	36.7	0.0	0	513	36.7	0.0%
6	Logsden Street	105.9	854	8.1	0.0	0	854	8.1	0.0%
7	Reed Market	164.0	1,195	7.3	0.0	0	1,195	7.3	0.0%
8	SW Century Drive	190.0	3,700	19.5	5.4	250	3,950	20.8	6.8%
9	Mill District	47.3	148	3.1	0.0	0	148	3.1	0.0%
10	Newport/Galvest	17.1	698	40.9	0.0	0	698	40.9	0.0%
11	Medical District	154.5	9,579	62.0	0.0	0	9,579	62.0	0.0%
12	S. 3rd Street	206.8	2,318	11.2	0.6	29	2,347	11.3	1.3%
	Total/Avg	1457.4	25,615	17.6	16.6	763	26,378	18.1	3.0%

Table D-10 presents a summary of the Envision Model results for lands outside the 12 study areas. Consistent with the model output for the study areas, the results suggest relatively low redevelopment potential—596 jobs or a 3.5% increase over 2013 employment. The results suggest that the CG (general commercial) and ME (mixed-employment) designations have the most potential.

Table D-10. Envision Tomorrow results for redevelopment of employment lands outside study areas

| Plan Designation | Existing Conditions, 2013 | | | Envision Tomorrow Model Output | | | | |
	Total Acres	Covered Employment	Emp/Acre	Redeveloped Acres	Additional Employment Capacity	Total Emp w/Redev	Emp/Acre w/Redev	% Increase over 2013 Emp
CB	40	3,206	79.8	5.5	93	3,299	82.1	2.9%
CC	29	200	7.0	0.0	-	200	7.0	0.0%
CG	327	4,240	13.0	5.1	234	4,474	13.7	5.5%
CL	199	2,300	11.5	0.6	10	2,310	11.6	0.4%
IG	4	-	0.0	0.0	-	-	0.0	0.0%
IL	269	1,211	4.5	1.0	46	1,257	4.7	3.8%
ME	268	2,557	9.6	6.1	213	2,770	10.4	8.3%
MR	220	3,083	14.0	0.0	-	3,083	14.0	0.0%
Total	1,356	16,797	12.4	18.3	596	17,393	12.8	3.5%

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The results in Table D-9 and Table D-10 presented the employment increment over the base 2013 employment. For purpose of a redevelopment rate assumption the focus is on the percentage of new employment that would be accommodated through redevelopment. This is employment that would not require any new land and results in an overall reduction of land need for the 2008-2028 period due to redevelopment.

Table D-11 summarizes redevelopment potential for all employment lands in Bend (e.g., both lands inside study areas and lands outside study areas) by plan designation. Note that Bend had 53,084 covered employees in 2013; the approximately 20,000 employees not shown in Table D-11 were located in residential and public facility zones. About half of that employment was in the medical district.

Table D-11. Envision Tomorrow Results for redevelopment of employment lands

Plan Designation	Existing Conditions, 2013			Envision Tomorrow Model Output				
	Total Acres	Coverend Employment	Emp/Acre	Redeveloped Acres	Additional Employment Capacity	Total Emp w/Redev	Emp/Acre w/Redev	% Increase over 2013 Emp
CB	40	3,206	79.8	5.5	93.0	3,299	82.1	2.9%
CC	83	1,966	23.7	0.0	0.0	1,966	23.7	0.0%
CG	681	8,169	12.0	5.7	263.0	8,432	12.4	3.2%
CL	374	5,063	13.6	0.6	10.0	5,073	13.6	0.2%
IG	197	1,639	8.3	0.0	0.0	1,639	0.0	0.0%
IL	856	6,766	7.9	11.5	530.0	7,296	8.5	7.8%
ME	334	3,171	9.5	11.6	463.0	3,634	10.9	14.6%
MR	221	3,131	14.2	0.0	0.0	3,131	14.2	0.0%
Total	**2,786**	**33,111**	**11.9**	**34.8**	**1,359**	**34,470**	**12.4**	**4.1%**

The 2008 Economic Opportunities Analysis forecast a total increase of 22,891 non-shift employees for the 2008-2028 planning period and assumed a 10% redevelopment rate. The Envision Tomorrow model output suggests a base case potential for 1,359 new employees. **This equates to 5.9% of total forecast employment. The preceding analysis provides the factual basis to support a 6% redevelopment assumption for the base case analysis.**

Section 10 of Ordinance 2271

Exhibit J

New Urbanization Report, Appendix L of the Bend Comprehensive Plan

MAKING BEND EVEN BETTER
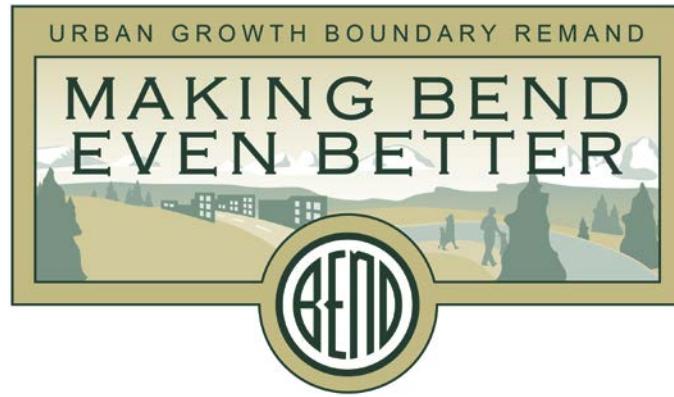
BEND

Bend Urbanization Report

Bend's Growth to 2028

August 31, 2016

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EXECUTIVE SUMMARY

Introduction

The Urbanization Report presents an analysis of where and how Bend's future growth will be accommodated, both inside the existing Urban Growth Boundary (UGB) and in expansion areas. The analysis addresses requirements pertaining to UGB expansions under Oregon state law and administrative rules. The Urbanization Report draws on information from the Housing Needs Analysis, the Economic Opportunities Analysis, and the Buildable Lands Inventory, as illustrated in Figure ES-1.

Figure ES-1: Relationship of Urbanization Report to other Technical Documents for UGB Planning

Four Key Documents for Bend's Urban Growth Boundary Planning

Buildable Lands Inventory — Identifies buildable residential & employment land

Housing Needs Analysis — Projects future housing needs by housing type

Economic Opportunities Analysis — Projects future employment growth by employment category

Urbanization Report — Analysis of where and how housing and employment growth will be accommodated

This Urbanization Report: summarizes the methodology used to determine land sufficiency and future UGB land need (illustrated in Figure ES-2); estimates the capacity of the existing UGB under current policies and with land use efficiency measures[1] applied; summarizes the remaining residual growth that cannot be accommodated within the existing UGB; documents the evaluation of UGB expansion alternatives; identifies proposed UGB expansion areas to

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[1] "Efficiency measures" are changes to plan designations, zoning designations, and development code standards to allow and encourage more efficient use of land within the existing UGB. State regulations require cities to consider efficiency measures prior to expanding the UGB.

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meet residual land needs; and documents the factual base for the inclusion of expansion areas in the UGB.

Figure ES-2: UGB Expansion Analysis Process Summary

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┌────────────────────────────────────────────────────────────────────────────┐
│                                                                            │
│   ┌──────────────────────┐                                                 │
│   │ Estimate base case   │                                                 │
│   │ capacity of existing │                                                 │
│   │ UGB for housing and  │                                                 │
│   │ jobs                 │                                                 │
│   └──────────┬───────────┘                                                 │
│              ↓                                                             │
│   ┌──────────────────────┐          ┌──────────────────────┐              │
│   │ Evaluate options for │          │ Evaluate land        │              │
│   │ efficiency measures  │          │ suitability for      │              │
│   │ inside the UGB       │          │ expansion            │              │
│   └──────────┬───────────┘          └──────────┬───────────┘              │
│              ↓                                 ↓                          │
│   ┌──────────────────────┐          ┌──────────────────────┐              │
│   │ Calculate residual   │   ⇒      │ Create UGB expansion │              │
│   │ housing and          │          │ scenarios (and       │              │
│   │ employment need      │          │ supplemental         │              │
│   └──────────┬───────────┘          │ analysis areas)      │              │
│              ↓                      └──────────┬───────────┘              │
│   ┌──────────────────────┐                    ↓                          │
│   │ Refine efficiency    │          ┌──────────────────────┐              │
│   │ measures             │          │ Evaluate UGB         │              │
│   └──────────┬───────────┘          │ expansion scenarios  │              │
│              ↓                      │ (and supplemental    │              │
│   ┌──────────────────────┐          │ analysis areas)      │              │
│   │ Estimate UGB         │   ⇒      └──────────┬───────────┘              │
│   │ capacity with        │                    ↓                          │
│   │ preferred package    │          ┌──────────────────────┐              │
│   │ of efficiency        │          │ Create & Evaluate    │              │
│   │ measures             │          │ Preferred UGB        │              │
│   └──────────────────────┘          │ Expansion Scenario   │              │
│                                     └──────────┬───────────┘              │
│                                                ↓                          │
│                                     ┌──────────────────────┐              │
│                                     │ Proposed UGB         │              │
│                                     │ Expansion            │              │
│                                     └──────────────────────┘              │
│                                                                            │
└────────────────────────────────────────────────────────────────────────────┘
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A scenario planning tool called "Envision Tomorrow"[2] was used to analyze capacity and options for future growth in Bend. Envision Tomorrow applies development assumptions spatially and provides a sketch-level analysis of the possible impacts of policies, development decisions and growth trajectories. Development assumptions within the model include: a mix of specific

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[2] Information and download available at http://www.envisiontomorrow.org/

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building prototypes, which are based on information including parking requirements, height limits, and lot coverage ratios; streets, open space, and other set-asides; net residential and job density; and rate of redevelopment (see Chapter 2, page 19 for more about how development assumptions work together in the model). All assumptions are calibrated to Bend's development and market conditions (see Chapter 3, page 23 for more about how assumptions were calibrated). The model summarizes total residential and employment growth, including providing information about the overall mix of units and jobs, and can be used to provide sub-area summaries. It also provides a comprehensive range of indicators relating to land use, housing, demographics, economic growth, environmental factors, and quality of life. To complement the indicators available in Envision Tomorrow, additional modeling and analysis tools were used to evaluate infrastructure needs and implications of UGB expansion scenarios, including a Travel Demand Model for transportation analysis and water and sewer optimization models.

Base Case UGB Capacity

The "Base Case" is a spatial projection of housing and employment growth through 2028 within the current UGB based on past trends and current policies, utilizing the Envision Tomorrow model. The Base Case represents the current UGB's remaining capacity prior to applying assumptions regarding new residential efficiency measures and measures to encourage additional redevelopment of employment areas.

In total, the base case shows that the current UGB (as of July 2014) can accommodate roughly 10,039 housing units and about 13,622 jobs under the current plan designations and policies and historic trends in development density. This represents roughly 60% of both the total housing and total employment need forecasts for 2028. The estimated capacity is not evenly distributed across all needed housing types and employment categories.

The mix of housing units projected under the base case is roughly 65% single family detached, 30% multifamily, and 5% single family attached, because most of the total housing capacity (nearly 60%) is in the Standard Residential (RS) plan designation. As a result, much of the total single family housing need can be met inside the UGB in the Base Case, but only about a third of the single family attached and half of the multifamily housing needs can be accommodated.

Nearly all of the public employment growth and about 80% of the industrial employment growth can be accommodated on land inside the UGB, but just a little over a third of the retail and hospitality needs can be met inside the UGB with current policies and trends.

These results indicate a need for land use efficiency measures to increase the likelihood that needed housing types will be built inside the UGB, and to make better use of both residential and employment land inside the current UGB.

Efficiency Measures

After a series of detailed discussions, the Residential Lands and Employment Lands Technical Advisory Committees (Residential and Employment TACs) for the project recommended a robust package of efficiency measures. These are summarized in brief below, followed by an

estimate of their impact on capacity (see Chapter 4, page 31 for more on the efficiency measures).

- Increase the maximum density in the RL zone.
- Increase the minimum density in the RS zone.
- In the RS zone, make additional housing types permitted rather than conditional.
- Prohibit new single family detached housing in the RH zone.
- In the RM zone, require a mix of housing types for all sites over 3 acres.
- Increase the minimum density for master planned neighborhoods in the RS zone.
- Set maximum percentages of housing units that may be single family detached (SFD) for new master planned neighborhoods in each zone.
- Reduce minimum lot sizes for certain housing types in RM and RH zones and remove minimum lot size for multifamily housing in those zones, letting the gross density standard control the allowed number of units.
- Offer density bonus for affordable housing (adopted in May 2015).
- Create two new mixed use zones that allow a mix of housing and employment uses and that support walkable, transit-supportive development.
- Reduce parking requirements for mixed use development and development adjacent to transit (regardless of zone) and for all residential and commercial uses in the new Mixed Use - Urban zone.
- Reduce parking requirements for 1-bedroom duplexes and triplexes and all affordable housing.
- Remove lot coverage limitations and front setback requirements in the Mixed Employment zone.
- Set minimum residential densities for housing along transit corridors in commercial and mixed use zones.
- Apply mixed use plan designations and/or zones to key opportunity areas, such as the Bend Central District, East Downtown, the Century Drive area, and the "Korpine" industrial area.
- Up-zone portions of the 15th Street Ward property– the largest piece of vacant residential land inside city limits - to RM and RH.

After accounting for the projected impact of efficiency measures, the current UGB can accommodate roughly 11,950 housing units (an increase of about 20% over the base case housing capacity) and roughly 14,720 jobs (an increase of about 8% over the base case employment capacity). The mix of housing units projected inside the current UGB with efficiency measures is roughly 55% single family detached, 36% multifamily, and 9% single family attached – much more closely aligned with the overall needed housing mix. The mix of employment is also better aligned with the employment forecast after accounting for efficiency measures.

2016 UGB Expansion
Creation and evaluation of UGB expansion alternatives was conducted in coordination with the Boundary Technical Advisory Committee (Boundary TAC). The evaluation process included:

- Study Area Creation and Screening: Establishment of a 2-mile study area, with a focus on exception lands, and elimination a few areas within the Deschutes County Wildlife Overlay and active surface mine sites.
- Initial Suitability Evaluation: Mapping of the best available information related to the four Goal 14 factors for exception land within the study area that was not screened out, and exclusion of the worst-performing lands from further analysis and consideration.
- Alternatives Analysis: Creation of six land use alternatives or "scenarios" to evaluate the best-performing lands in a variety of combinations and with a variety of land uses; and evaluation of scenarios for land use, transportation, environmental, and infrastructure impacts.
- Proposed UGB Expansion: Creation of a preferred scenario from the best-performing subareas and land from the alternatives analysis.
- Evaluation of Proposed UGB / Preferred Scenario: evaluation of Goal 14 factors for the hybrid scenario that was recommended as the proposed UGB expansion.

The scenario that performed the best in the initial evaluation (Scenario 2.1) provided complete communities in all quadrants of the city; focused growth primarily on large, vacant parcels; provided enhanced transportation connections; was fairly cost-effective for sewer infrastructure; avoided riparian areas; limited expansion in wildlife areas; avoided areas where topographic features prevent mitigation of wildfire risk; had good housing mix in nearly all subareas; and offered opportunities for relatively affordable housing with significant housing growth in the southeast.

Scenario 2.1 became the basis for the preferred scenario. Subsequent refinements included:

- removing small areas that performed poorly or would not be cost-effective to urbanize;
- refining the land uses within some sub-areas in order to address compatibility concerns and ensure an appropriate mix and intensity of uses in each area, given its context and the potential for additional future expansions that would build on the current expansion;
- distributing growth across more of the land in the west and northwest rather than relying on a single property owner in this area; and
- consolidating growth in the northeast to a single larger block of land where a new complete community is possible, rather than including multiple small expansion areas.

The Boundary TAC and UGB Steering Committee (USC) provided input at multiple meetings, and directed refinements based on public testimony in the context of balancing the four Goal 14 factors.

The proposed UGB expansion is for a total of 2,380 acres – 1,142 gross acres of residential land (including land for future schools and future parks not yet in BPRD or school district ownership); 815 gross acres of employment land; 285 acres of land for public facilities currently in BPRD or school district ownership; and 138 acres of existing right-of-way within and fronting UGB expansion areas, needed to provide urban street improvements to support growth in the expansion areas. The proposed future UGB is shown on Figure ES-3.

Preferred Urban Growth Boundary Expansion: Scenario 2.1G

UGB EXPANSION AREAS

- Residential/Employment
- Park

URBAN GROWTH BOUNDARY REMAND

North "Triangle" 188 Acres

OB Riley 147 Acres

Rock Ridge Park

Northeast 465 Acres

Shevlin 68 Acres

Pine Nursery Park

West 344 Acres

East Hwy 20 2 Acres

DSL Property 362 Acres

Alpine Park

The "Elbow" 474 Acres

Southwest 57 Acres

High Desert Park

The "Thumb" 222 Acres

Rev. 5/27/2016

0   0.5   1   2 Miles   NORTH

The preferred scenario offers a balance of:

- strong focus on complete communities to improve access to schools, parks and commercial areas within existing neighborhoods as well as in expansion areas;
- area planning policies to support complete communities and efficient development;
- highly efficient land use in areas with few constraints, and an overall increase in residential density relative to existing conditions;

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- a sensitive approach to development in areas adjacent to natural resources to improve environmental consequences and reduce natural hazard risk;
- expansion areas that provide a mix of housing types and costs and that will leverage voluntary affordable housing commitments from property owners in order to improve social consequences and ensure that housing is available to meet the needs of residents at all income levels;
- new employment land focused in suitable areas where it will contribute to Bend's economic growth;
- cost-effective use of recent and future sewer investments;
- an orderly and connected network of new roads that will support efficient travel by all modes; and
- minimal concerns for farm and forest compatibility.

The proposed UGB expansion accommodates the projected land needs through 2028, and complies with Goal 14, relevant state statutes, and administrative rules.

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CHAPTER 1. INTRODUCTION

1.1 Role of the Urbanization Report

The Urbanization Report presents an analysis of where and how Bend's future growth will be accommodated, both inside the existing Urban Growth Boundary (UGB) and in expansion areas. The purpose of this report is to address requirements pertaining to UGB expansions under Oregon's Statewide Planning Goal 14 (Urbanization) and Oregon Administrative Rule (OAR) 660, Division 24 (these are summarized in the following section). The Urbanization Report is a supporting document (Appendix L) of the City of Bend General Plan, referred to as the Bend Comprehensive Plan in this report.[3] The Urbanization Report:

- documents current UGB capacity under existing policies and based on historic development trends and current land supply from the Buildable Lands Inventory, including documentation of the capacity analysis methodology, assumptions and results;
- documents the land use efficiency measures considered, those applied, and their impact on capacity;
- translates growth projections from needed housing units and jobs by type (based on projections in the Housing Needs Analysis (HNA) and Economic Opportunities Analysis (EOA) to needed acres by plan designation;
- summarizes the remaining residual growth that cannot reasonably be accommodated within the existing UGB, documents the evaluation of alternative boundary location alternatives; and
- identifies proposed UGB expansion areas to meet residual land needs documented by a factual base for their inclusion in the UGB.

The Urbanization Report is one of four related technical reports that contain the City's analysis related to growth (see Table 1). The documentation of housing and employment need projections is contained in the HNA and the EOA; this report will include only the final need numbers. Existing land supply is documented in the Buildable Lands Inventory (BLI); this report will include only brief references and results. The policies that implement the conclusions from this report and the other supporting reports are found in the City's Comprehensive Plan.

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[3] The Bend General Plan is the official title of the city's comprehensive plan as of the writing of the first public review draft of this report. The City anticipates amending the title to be Bend Comprehensive Plan when the plan is amended in 2016.

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Table 1: Four Key Documents for Bend's Urban Growth Boundary Planning

Document	Buildable Land Inventory (BLI)	Housing Needs Analysis (HNA)	Economic Opportunities Analysis (EOA)	Urbanization Report (UR)
Purpose	Identify buildable residential & employment land by category	Address the requirements for planning for needed housing, including analysis of national, state, and local demographic and economic trends, and recommendations for a mix and density of needed housing types	Document historical employment and demographic trends, the projection of employment growth, identification of target industries, and evaluation of site characteristics needed to accommodate target industries	Analysis of where and how Bend's future growth will be accommodated, both inside the existing Urban Growth Boundary (UGB) and in expansion areas
Primary Legal Standards [4]	ORS 197.296 OAR 660, Divisions 8 and 9	Statewide Planning Goal 10: Housing ORS 197.296 and 197.303 OAR 660, Division 8	Statewide Planning Goal 9: Economic Development OAR 660, Division 9	Statewide Planning Goal 14: Urbanization ORS 197.298 OAR 660, Division 24
Key Subject Matter	Development status categories and definitions Methodology for assigning categories and conducting inventory Inventory results: acres by plan designation and development status	Projection of population and total housing growth Housing market and development trends Demographic characteristics and trends Analysis of affordability Estimate of needed housing (mix and density) Comparison of housing capacity to need	Existing policy and vision National, state, local trends Employment projections Target industries Site needs and characteristics Special site needs Redevelopment analysis Comparison of employment capacity to need and characteristics	Methodology for capacity estimates Pre-policy ("base case") capacity estimate for current UGB Efficiency measures (EMs) proposed Current UGB capacity with EMs UGB alternatives evaluation methodology and results Proposed UGB expansion and summary of Goal 14 evaluation results

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[4] OAR = Oregon Administrative Rules; ORS = Oregon Revised Statutes

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1.2 Framework for the Urbanization Report

State Statutes and Administrative Rules

Overview

Statewide Planning Goal 14 requires that cities establish and maintain UGBs to provide land for urban development needs and to identify and separate urban and urbanizable land from rural land. Goal 14 and Oregon Revised Statutes (ORS) 197.296 and 197.298 contain requirements for how local governments identify how much land is required to meet urban development needs, how they establish the capacity of the existing UGB, and how to identify and evaluate land for UGB expansion if needed. These requirements are summarized in brief below.

Establishing Land Needs

Establishment and change of the UGB must be based on the demonstrated need for housing, employment opportunities, and/or other urban land uses such as public facilities, streets and roads, schools, parks or open space over a 20-year period.[5] Housing needs must be established consistent with a coordinated 20-year population forecast, the requirements for determining housing needs in Goals 10 and 14, and related rules and statutes (see Bend Housing Needs Analysis for a summary of these requirements).[6] Employment needs must comply with applicable requirements of Goal 9 and related administrative rules (see EOA for a summary of these requirements). [7]

Inventory and Land Sufficiency

Local governments "must inventory land inside the UGB to determine whether there is adequate development capacity to accommodate 20-year needs". Inventories must comply with requirements in OAR 660-024 and other statutes and rules (see Bend Buildable Lands Inventory for a summary of these requirements).[8]

"If the inventory demonstrates that the development capacity of land inside the UGB is inadequate to accommodate the estimated 20-year needs ..., the local government must amend the plan to satisfy the need deficiency, either by increasing the development capacity of land already inside the city or by expanding the UGB, or both".[9] Local governments may adopt new measures that increase the housing capacity of the existing UGB as part of meeting demonstrated housing needs (referred to in this report as "efficiency measures").[10] Local governments must demonstrate that needs cannot reasonably be accommodated on land already inside the urban growth boundary prior to expanding the UGB. [11]

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[5] Goal 14: OAR 660-015-0000(14)

[6] OAR 660-024-0040(4), in effect 6/30/13.

[7] OAR 660-024-0040(5), in effect 6/30/13.

[8] OAR 660-024-0050(1), in effect 6/30/13.

[9] OAR 660-024-0050(4), in effect 6/30/13.

[10] ORS 197.296(6) through (9).

[11] Goal 14: OAR 660-015-0000(14).

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In considering locations for UGB expansions, local governments must determine which land to add by evaluating alternative boundary locations.[12] State statute classifies rural land into priority categories for purposes of evaluating potential UGB expansions, with the intent of protecting high-value agricultural and forest land for those uses. Local governments must begin by evaluating the highest priority of land available, and determine whether land in that priority category is suitable and sufficient to meet the identified land needs before moving on to consider land in lower priority categories.[13] If there is more land in a given priority category than needed to satisfy the deficiency, local governments must consider and balance four factors in Goal 14 to choose which land from that priority category to include in the UGB:

1. Efficient accommodation of identified land needs;
2. Orderly and economic provision of public facilities and services;
3. Comparative environmental, energy, economic and social consequences; and
4. Compatibility of the proposed urban uses with nearby agricultural and forest activities occurring on farm and forest land outside the UGB.[14]

The "relative costs, advantages and disadvantages of alternative UGB expansion areas with respect to the provision of public facilities and services" must also be evaluated and compared.[15] The local government may specify certain characteristics that are necessary for land to be suitable for specific types of identified land needs, and may consider only land that has those characteristics.[16]

1.3 Prior Work and Remand Issues

UGB Expansion History

The City's process for demonstrating a need for UGB expansion began in 2004, and included the development and adoption of a coordinated population forecast with Deschutes County, followed by three years of technical work on buildable lands inventories, housing needs analysis, economic opportunities analysis, forecasting additional residential and employment lands, and public facilities (water, sewer, transportation) planning. The City and county conducted extensive public outreach, including work sessions and hearings, on the UGB expansion in 2007 and 2008. The Bend City Council and Deschutes County Board of County Commissioners' approved the UGB expansion proposal in 2009. These local adoptions were followed by a number of appeals to the Land Use Board of Appeals (LUBA) and Land Conservation and Development Commission (LCDC).[17] The Oregon Department of Land Conservation and Development (DLCD) Director's Report in January 2010 remanded the proposal back to the City for further work; the City of Bend and 11 other parties filed appeals of

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[12] Goal 14: OAR 660-015-0000(14).

[13] ORS 197.298, in effect 6/30/2013.

[14] ORS 197.298, in effect 6/30/2013.

[15] OAR 660-024-0060(8), in effect 6/30/2013.

[16] ORS 197.298, in effect 6/30/2013.

[17] LUBA dismissed the appeals after the City showed the matter was before LCDC.

this decision to LCDC. In November 2010, LCDC issued an order that partially acknowledged and partially remanded Bend's proposed UGB expansion. Certain elements of the City's proposal were approved (acknowledged); the remaining elements required additional explanation and/or work (remand). The Commission's final order became final on January 3, 2011. That order is referred to as the Remand.

From January 2011 to the present, the City established a special Task Force and then three Technical Advisory Committees supported by city staff and a team of consultants working to address the issues raised in the Remand.

Remand Issues Addressed

This report provides updated analysis related to a number of issues raised in the Remand. These are summarized in brief below, with references to their number in the Remand Scope Index, which was prepared by City staff to compile all Remand directives to the city (see Appendix A for the index of relevant Remand directives; details of how each Remand issue has been addressed will be in the Findings Report).

- Determining current UGB capacity based on past trends and current policies (see Remand Directives 2, 12 through 14, 58, 59 and 75);
- Consideration of land use efficiency measures (see Remand Directives 26 and 30 through 50);
- Documentation or re-evaluation of the employment land redevelopment rate (see Remand Directives 62 and 63); and
- Evaluation of alternative expansion areas (see Remand Directives 22, 91, 93 through 101, 105 through 110).

1.4   Time Periods and Data used in the Urbanization Report

State statute and rules requires the use of a 20-year planning horizon for UGB expansion. OAR 660, Division 24, clarifies that the 20-year period must begin on the date initially scheduled for completion or adoption of the amendment.[18] Because this report is completing work required under the Remand of the 2009 UGB expansion proposal, the 20-year planning period begins in 2008 and runs through 2028. However, this report is being completed in 2016 based on analysis that began in 2014. Despite the economic recession that affected most of the intervening years, development did occur in Bend between 2008 and 2014 (and continues as this report is being prepared). To provide the most current data possible of remaining capacity inside the current UGB and how much of the projected 20-year housing and employment growth has already occurred, the buildable lands inventory was updated in 2014 and housing and employment growth through 2014[19] has been estimated and deducted from the projected 2028 needs. This report focuses on the remaining capacity and growth needs from 2014 to 2028.

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[18] OAR 660-024-0040(2), in effect 6/30/2013.

[19] Employment data uses 2013 as the base year, as this was the most recent available data available at a spatially disaggregated level when the housing and employment growth numbers were updated to account for changes since 2008.

1.5 Forecasts and Land Needs

Housing and Employment

The methodology and details of the population, housing unit, and employment forecasts summarized in this section can be found in the HNA and EOA, respectively. The tables below summarize the remaining need within the planning period (2013/14 to 2028) by housing type and employment category for reference only. The translation of these housing and employment needs (units and jobs) to land needs in terms of acres by plan designation is presented in Chapter 5.

Table 2: Summary of New Housing Units by Type and Category, Bend UGB, 2014-2028 [20]

Needed Housing Types	2014-2028 Needed Housing Units		2014-2028 Needed Group Quarters Units	2014-2028 Second Homes	2014-2028 Total New Housing Units	
	Units	Mix	Units	Units	Units	% of Total Units
Single-family detached (including mobile homes)	7,574	55%		1,652	9,225	54%
Single-family attached	1,377	10%		300	1,677	10%
Multifamily	4,819	35%	461	1,051	6,331	37%
Total	**13,770**	**100%**	**461**	**3,003**	**17,234**	**100%**

Source: Bend Housing Needs Analysis, June 2016.

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[20] Based on the definitions in OAR 660-008-0005 and in the Bend Development Code, the needed housing types are defined as follows:

- "Attached Single Family Housing" means common-wall dwellings or rowhouses where each dwelling unit occupies a separate lot.

- "Detached Single Family Housing" means a housing unit that is free standing and separate from other housing units (includes courtyard housing, detached single family dwellings, accessory dwelling units, manufactured homes on individual lots, and manufactured homes in parks).

- "Multiple Family Housing" means attached housing where each dwelling unit is not located on a separate lot (includes condominium, duplex, triplex, and multi-family housing with more than 3 units).

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Table 3: Employment Forecast by Employment Category, non-shift workers, Bend 2013 to 2028 [21]

Employment Categories	2013 Employment	2028 Employment Forecast	2013 to 2028 Growth
Industrial			
Industrial Heavy	2,889	5,180	2,291
Industrial General	3,771	8,002	4,231
Retail			
Large Retail	3,057	5,849	2,792
General Retail	3,096	5,293	2,197
Office/Srv/Medical	16,435	23,593	7,158
Leisure and Hospitality	4,017	5,532	1,515
Other / Misc	1,505	1,547	42
Government	3,894	5,611	1,717
Total	38,664	60,607	21,943

Source: Bend Economic Opportunities Analysis, June 2016.

Other Urban Land Needs

In addition to housing and employment needs, the City has identified several other land needs, including public parks, public schools, and other uses (e.g. churches and fraternal organizations). These are summarized in brief below.

Parks

BPRD adopted a Parks and Recreation Master Plan in 2012 that identified needs for additional neighborhood and community parks from 2012 to 2020 in order to meet adopted Level of Service (LOS) standards. The additional park land need from 2020 to 2028 can be estimated by extending the park need projection out to 2028 using the population forecast that is the basis for the UGB expansion and the Park District's adopted LOS standards. After accounting for parks developed since the publication of the Master Plan in 2012, the total need for additional parks to be developed from 2014 to 2028 is estimated to be 65.6 acres of neighborhood parks and 161.8 acres of community parks, for a total of 227.4 acres of parks (see Table 4).

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[21] Source: 2028 Employment forecast: Bend EOA, 2008, Table 25. 2013 data based on Oregon Employment Department 2013 Quarter 3 geo-coded data for City of Bend.

Note: While the employment in this table is based on covered employment data from the Oregon Employment Department, the 2013 covered employment data was adjusted, as using the methods described in the EOA, to show total employment for non-shiftworkers.

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Table 4: Park Land Need Projections

	Neighborhood Parks	Community Parks	Total
2012 to 2020 need for additional developed park land from BPRD Master Plan	31.6	96	127.6
Additional acres to be developed to 2028 @ current LOS[22]	34.0	113.3	147.3
Total acres to be developed 2012 to 2028	65.6	209.3	274.9
Acres developed since 2012	0.0	47.5	47.5
Acres remaining to be developed to 2028	**65.6**	**161.8**	**227.3**

Source: Bend Park and Recreation District, Parks and Recreation Master Plan, 2012; Angelo Planning Group analysis.

Note that some or all of this need may be met through development of existing undeveloped park land in BPRD ownership. How this need is accommodated is addressed in the following chapters.

Schools

The Bend-La Pine Schools (BLPS) 2010 School Facility Plan identifies a need for three to four new elementary schools, one new middle school, and one new high school between 2014 and 2028 based on population and enrollment projections and capacity at existing schools. While updates to the plan will be needed in response to the proposed UGB expansion, the population projection that underlies this total need has not changed. Therefore, in order to maintain the preferred school sizes (in terms of enrollment per school), the total number of schools needed is likely to remain approximately the same regardless of where the growth occurs. In addition, the BLPS 2016 Site and Facilities Phase 1 Report, the first step in updating the School Facility Plan, confirms the same total school needs through 2028.[23] New elementary school sites are generally 10 to 15 acres; new middle school sites are generally 20 to 30 acres; new high school sites are generally 40 to 50 acres. The total land need for schools is estimated to be between 90 and 140 acres, depending on the size of sites and the number of elementary schools.

Table 5: School Land Need Projections

School Type	Number Needed	Acres Per School	Acres Needed
Elementary School	3 to 4	10 to 15	30 to 60
Middle School	1	20 to 30	20 to 30
High School	1	40 to 50	40 to 50
Total	**5 to 6**		**90 to 140**

Source: Angelo Planning Group summary based on BLPS 2010 School Facility Plan.

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[22] 2020 population forecast for need projections in BPRD Master Plan = 92,408

2028 population projection = 115,063

Additional population growth 2020-2028 = 22,655

Adopted level of service for neighborhood parks = 1.5 acres / 1000 population

Adopted level of service for community parks = 5.0 acres / 1000 population

[23] Bend-La Pine Schools Sites and Facilities Committee, Report of Work Completed, June 2016. Available at https://www.bend.k12.or.us/district/organization/sites-and-facilities.

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Note that some of this need may be met through additional development on existing undeveloped school district property. How this need is accommodated is addressed in the following chapters.

Special Site Needs

The City has identified special site needs for two large-lot industrial sites (56 acres each) and a University, as documented in the EOA. How this need is accommodated is addressed in the following chapters.

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CHAPTER 2. METHODOLOGY

2.1 Analysis Steps

The process of determining land sufficiency and UGB expansion need is summarized in Figure 1. Each step of the process outlined in Figure 1 is summarized in this report. In addition to the process described in Figure 1, three different Technical Advisory Committees (TACs) and a UGB Steering Committee (USC) were used to guide the technical work and make recommendations and decisions prior to formal adoption by the governing bodies. The TACs and USC provided guidance and feedback on each step of the process described in Figure 1 through more than 40 meetings taking place over nearly two years.

Figure 1: UGB Expansion Analysis Process Summary
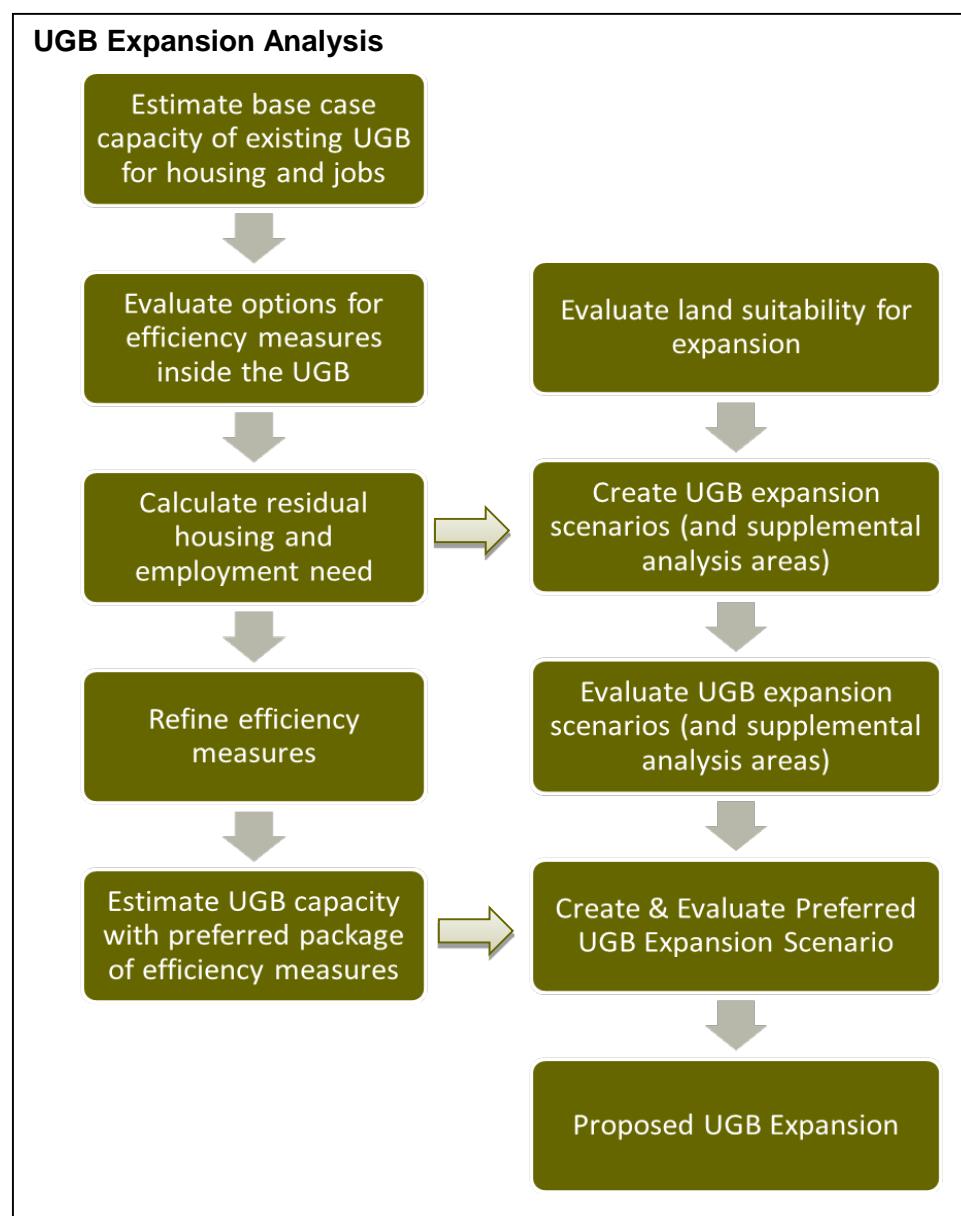
2.2 Analysis Tools

Overview

A scenario planning tool called "Envision Tomorrow"[24] was used to analyze capacity and options for future growth patterns in Bend. Envision Tomorrow applies development assumptions spatially and provides a sketch-level analysis of the possible impacts of policies, development decisions and growth trajectories. Scenario comparison measures include a comprehensive range of indicators relating to land use, housing, demographics, economic growth, environmental factors, and quality of life. (See next section for more on this model and how it works.)

To complement the indicators available in Envision Tomorrow, additional modeling and analysis tools were used to evaluate infrastructure needs and implications of UGB expansion scenarios, including a Travel Demand Model for transportation analysis (to supplement a transportation analysis tool that is part of Envision Tomorrow's suite of planning tools) and water and sewer optimization models. These tools and their role in this analysis are discussed in more detail in Chapter 5.

About the Envision Tomorrow model

Envision Tomorrow applies a set of assumptions about future development spatially to land with development or redevelopment potential. These assumptions are organized into "development types" that reflect different types of residential and employment development. The model does not predict exactly how or when a given parcel will develop; rather, it applies a mix of different types of development and land set-asides (using percentages of available acres) across multiple parcels. Results are calculated at the parcel level, but, because they represent blended averages for future development rather than site-specific assumptions, they are only appropriate to report at a summary level. It is also worth noting that the results represent a projection of future development in the horizon year – they do not predict at what point development occur within the planning horizon.

The development types generally represent Bend's Comprehensive Plan designations. Assumptions within the development types were calibrated to Bend by the project team with the best available information and with Technical Advisory Committee (TAC) direction at various stages. Development type assumptions include:

- A mix of specific building prototypes, which are based on information including parking requirements, height limits, and lot coverage ratios from the current Development Code (and as modified through specific "Efficiency Measures");[25]
- Streets, neighborhood parks, and other set-asides;
- Net residential density and net job density; and
- Rate of redevelopment.

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[24] Information and download available at http://www.envisiontomorrow.org/

[25] Prototype buildings were reviewed by the Residential and Employment TACs in August, 2014.

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Each of these assumptions is discussed in Chapter 3, beginning on page 20.

Development types are assigned to lands through "painting" tax lots, or portions of tax lots.[26] Each buildable acre of land where a development type is applied is assigned a percentage of each of the building types as well as the specified percentage set asides that comprise the development type. The identification of buildable land is described in detail in the BLI. That report should be consulted for details, but, in brief:

- Development constraints, such as floodplains and steep slopes, are identified as "constrained" in the model, and no development or redevelopment is assigned to them.
- Existing development is identified as "developed" in the model;[27] growth on "developed" land is controlled through the redevelopment rate in each development type. The redevelopment rate specifies what percentage of the developed land should have the development assumptions of the development type applied to it. It does not specify which land exactly is redeveloped, only how much of it is redeveloped overall.
- Unconstrained and undeveloped land is identified as "vacant" in the model; growth is projected on vacant land using the assumptions built into the development type.

The model summarizes total residential and employment growth, including providing information about the overall mix of units and jobs, for the scenario as a whole. The model can also be used to provide sub-area summaries for a variety of different geographic areas. In addition, because the model incorporates financial information (including locally-calibrated construction costs) for each of the building prototypes, the model can provide information about the affordability of future development.

Envision Tomorrow also includes a specialized tool for analyzing vehicle miles traveled and mode split based on the future land use and household characteristics. This tool is discussed further in Chapter 5 with regard to evaluation of UGB expansion alternatives.

2.3   Creating Development Types

Overview

As noted previously, the development types generally match existing Comprehensive Plan categories. Multiple variations were created for certain development types to capture differing regulations. For example, a version of certain residential development types was created to capture the increased minimum density requirements that apply on large master planned sites. New versions of development types were created to reflect proposed changes to regulations to be adopted with the UGB decision. In addition, a few specialized development types were created to address specific situations, such as:

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[26] Inside the UGB, large tax lots (over 14 acres) were split into 14-acre grid squares in order to allow assigning multiple development types to a single large parcel. Outside the UGB, tax lots were divided into 3.5-acre grid squares.

[27] See Step 4 of the BLI for how vacant and developed acres were determined for lots that have some development but also have remaining development potential.

- The Medical District Overlay Zone (MDOZ), an area with primarily residential plan designations but subject to an overlay that allows and encourages development of medical and office uses;[28]
- Identified locations for future schools and parks (see page 21);
- Institutional uses such as Central Oregon Community College (COCC) and the planned site of Oregon State University's Cascades Campus (OSU Cascades);
- Properties with approved development applications that made them more closely resemble a different development type; and
- Vacant platted lots and vacant lots subject to Covenants, Conditions and Restrictions (CC&Rs).[29]

Appendix D provides additional information about each of the development types (such as residential and employment mix and density), including those used in the base case as well as those developed to incorporate efficiency measures (the changes to plan and zoning designations and amendments to the development code intended to allow and encourage more efficient use of land within the existing UGB).

Redevelopment

Redevelopment rates in Envision Tomorrow are set as a percentage of the developed acres identified as having potential for redevelopment (those that are "painted" in the model). The model accounts for housing and employment on developed land that is lost through redevelopment as well. The total amount of net new housing and employment growth through redevelopment generated in the model is a result of the redevelopment percentage, the number of developed acres that are "painted", and the existing housing and employment on the "painted" land. Additional information about how redevelopment rates were set is provided in Chapter 3 beginning on page 23.

Set-Asides

In order to account for right of way, open space, and "other uses" such as churches, golf courses, etc. that may occupy land in a variety of plan designations but are not employment or housing uses, the development types also include set-asides that convert from gross vacant buildable acres to net residential and employment acres. The approach and general assumptions for these set-asides are documented below. The total amount of land for each set-aside inside the UGB under the Base Case is documented as part of the "Base Case Capacity Estimate" section.

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[28] The MDOZ development type assumes a mix of uses consistent with the observed employment and housing densities and mix from the same 2006 and 2008 data sets described above.

[29] These development types includes exclusively or nearly exclusively single family housing and do not include set-asides for other uses or right of way. The density was calibrated to generate approximately one housing unit per lot. The development type for platted lots without CC&Rs includes some accessory dwelling units.

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Right of Way

As part of the analysis for the 2009 UGB proposal, the City of Bend calculated the amount of land used for right of way city-wide, across all plan designations, at 21%.[30] The "development types" in Envision Tomorrow include some variation in right of way set asides based on the city's block size and street standards for different plan designations, and are also calibrated to result in the overall amount of right of way calculated in 2008.

Parks and Trails

Parks are accounted for in two different ways in Envision Tomorrow. Future parks whose locations are known or can be approximated are identified with their own development type and an approximate location and size.[31] Most neighborhood parks and trails are provided for through open space requirements in new master-planned neighborhoods. This was reflected through a 10% open space / parks set-aside for large development sites using a "master plan" development type. The assumption is that, in many cases, the developer will transfer a neighborhood park (or, for very large developments, a community park) to the Park District, which will account for the majority of the required open space. Some additional private open space may be used to make up the rest of the required 10% set-aside.

Schools

Future public K-12 schools are accounted for in Envision Tomorrow with their own development type. Future school locations were identified based on information provided by city staff and the Bend-La Pine School District. [32]

Other Lands

In the 2009 proposal, and as modified on remand, the City of Bend calculated the amount of land used for "other lands" city-wide, including uses such as churches, fraternal organizations, golf courses and other uses that are neither housing nor employment[33] (schools and parks are addressed separately as discussed above). Overall, 12.8% of the city's land area was found to be dedicated to these uses.[34] This percentage set aside is applied to development types representing all plan designations in Envision Tomorrow.

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[30] See Rights of Way Methodology from Brian Rankin; Rights-of-way for roadways variable: final memorandum post DLCD Comments (12/4/2008).

[31] Future park locations identified in the model are not necessarily under Park District ownership; the locations identified are based on available information and professional judgement about possible future park needs, but are approximate and subject to change.

[32] Future school locations identified in the model are not necessarily under School District ownership; the locations identified are based on available information but are approximate and subject to change. Plan policies require coordination with the school district and siting in some expansion areas based on coordination with the school district.

[33] As documented in Bend's EOA, employment associated with such uses was excluded from employment projections and employment densities.

[34] The following uses are included in "Other (non-employment) Land" uses : benevolent/fraternal; church; utilities and unclassified and unbuildable uses related to utility uses; and private, public, and open spaces other than those owned by BPRD in the form of canals, cemeteries, common areas, golf courses, land owned by irrigation districts, RV parks, Oregon State Parks, and a small amount of acreage considered unbuildable or unclassified. A total of 2,265 net acres in "Other (non-employment) Land" uses was

2.4 Applying Development Types

As noted previously, the development types were applied to residential land with development potential, as indicated by having some vacant acres on the parcel (see BLI for an explanation of how vacant acres were identified). For employment land, as noted previously, development types were also applied to developed land with redevelopment potential. The development type applied was generally consistent with the existing plan designations, except for the special situations identified on page 19 and where changes to plan designations are proposed as part of the UGB adoption package.

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divided by a total of 17,695 total net acres of developed and vacant land in the prior UGB (excluding private and public rights-of-way) resulting in a ratio of these uses of 12.8 percent.

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CHAPTER 3. BASE CASE UGB CAPACITY

3.1 About the Base Case

The "Base Case" is a spatial projection of housing and employment growth through 2028 within the current UGB based on past trends and current policies, using the Envision Tomorrow model. The Base Case represents the current UGB's remaining capacity **prior** to applying assumptions regarding new residential efficiency measures and measures to encourage additional redevelopment of employment areas.

The reason to create a Base Case is two-fold: first, to understand the remaining UGB capacity as of 2014 if no policy changes were made, and, second, to compare the impacts of alternatives that incorporate efficiency measures for how they change UGB capacity. The following sub-sections describe how the assumptions for the development types were established for the Base Case.

Residential Land – Base Case Assumptions & Calibration

For residential development types, the densities and mix of housing types were set to match the observed trends from 1998 to 2008 by plan designation, documented in Appendix B.[35] The city is required to base capacity analysis on data since the last periodic review, in 1998.[36] The city's continued reliance on the 1998-2008 data analysis is justified because the residential development in the city from 2008 to 2014 was largely limited to building individual homes on lots created before 2008, due to the economic downturn.[37] This means that the density for the development was set prior to 2008 for nearly all recent residential building activity.

Residential land may be considered redevelopable only if there exists "the strong likelihood that existing development will be converted to more intensive residential uses during the planning period."[38]

City staff, in 2011, performed a detailed analysis of residential development activity in the city from 1999 through 2008 by BLI status. The analysis found:

- Land classified as "partially vacant" (land planned or zoned for residential use that contains fewer dwelling units than permitted in the zone, but the lot is not large enough

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[35] There is one exception: the observed average density in the RH zone between 1998 and 2008 falls below the current minimum density for the zone (which was adopted in 2006). Based on guidance from the Remand, the base case uses the minimum density for the RH zone rather than the observed average.

[36] ORS 197.296(5)(a) requires determination of housing capacity and need to be based on data relating to land within the City's UGB that has been collected since the last periodic review or five years, whichever is greater. In Bend's situation, the last periodic review ended in 1998 with the adoption of the City of Bend Comprehensive Plan.

[37] Land use permit data indicates roughly a dozen residential subdivisions and two multi-family development projects approved (but not necessarily built) since 2008, all in 2013 and 2014, compared to between 600 and 700 single family homes built since 2008 on platted lots.

[38] OAR 660-008-0005(7).

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to divide under current zoning) had very low levels of building permit activity – only 80 permits over 10 years.

- Under 6% of lots (and 26% of acres) classified as "developed with infill potential" (land planned or zoned for residential use that is currently developed, but where the lot is large enough to further divide consistent with its current zoning) in 1999 received building permits for residential infill by 2008: 4% of the lots under one acre (4.5% of the acres in this category) and 36% of the lots over one acre (51% of the acres in this category).
- There was virtually no redevelopment activity – where an existing structure was demolished and additional units were built – on fully developed land during 1999-2008.[39]

The Envision Tomorrow model was calibrated to be roughly consistent with these observations. Because of the way developed and vacant land were identified for lots classified as "partially vacant" and "developed with infill potential" (see Step 4 of the BLI), developed land for the purposes of this analysis is essentially only the portions of those properties where demolition of existing structures would be required in order to allow for redevelopment. For example, within tax lots identified as "developed with infill potential" and under 1 acre, a total of 152 acres were identified as vacant out of 1,440 (11%), with the remainder identified as developed. For larger sites identified as "developed with infill potential", a total of 746 acres were identified as vacant out of 1,130 (66%). On properties classified as "partially vacant," all 93 acres were identified as developed.[40] Thus, the estimation of vacant and developed acres on lots that are "developed with infill potential" or "partially vacant" accounts for an amount of further development that is roughly consistent with, but slightly higher than, the amount that has been seen historically. There is very little evidence of residential redevelopment through demolition in Bend to date. Thus the redevelopment rate for the developed portion of residential properties classified as "partially vacant" and "developed with infill" (which also applies to land that is fully developed) is set at zero.

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[39] There were a total of 50 permits issued on lands classified as developed where there was an existing unit AND where the existing unit was demolished; however, only 2 of them resulted in more units than had existed prior to the demolition. In both of these cases, duplexes were built after a single family home was demolished. The rest of the 50 permits resulted in the same number of units (e.g., a single family home was demolished and replaced with another single family home). Therefore, we can assume that only 2 permits were the result of redevelopment; the other 48 were merely replacements of existing units. This is not unexpected, given that for land to be classified as developed it does not have the potential to add dwelling units under the existing zoning regulations.

[40] The "partially vacant" lands are all less than a half-acre in size. Few have the right to add more than two additional units under current zoning, and none have the right to add more than four additional units. Nearly all are developed with an existing single-family home, and nearly half of the existing homes have been built since 1990.

Employment Land – Base Case Assumptions and Calibration

Employment development types were calibrated to the observed employment mix and density as of 2006, documented in Appendix C.[41]

ECONorthwest prepared an evaluation of redevelopment potential on employment land that took into consideration the ratio of improvement to land value, total value per square foot, employment density, and residual land value (given assumptions about building type and rent). A residual land value analysis modeled the financial feasibility of developing prototypical buildings based on achievable rents and current land values. Areas with positive residual land values after redevelopment (i.e. areas where property values are below the amount that a given type of development can afford to pay based on projected rents and costs) are areas where redevelopment is most likely to be financially feasible under current conditions without public investment. The details of the redevelopment analysis can be found in Appendix D of the EOA.

In short, it found potential for roughly 1,360 new employees, or 6.6% of total forecast employment, to be accommodated through redevelopment on already developed employment land under the base case. As a percent of developed acres, this redevelopment is equivalent to roughly 1.5% of developed acres overall, with higher percentages in the Central Business District (CB), Industrial Limited (IL), and Mixed Employment (ME) plan designations.

In addition, because of the economic recession, the city lost roughly 2,500 industrial jobs between 2008 and 2013. Vacancy rates for industrial property at the end of 2013 were over 12% - much higher than usual.[42] These facts suggest that existing industrial areas within the city have capacity to re-absorb at least a portion of the jobs that were lost during the recession without tearing down existing buildings or building new ones. Because there is no way to directly account for this sort of re-absorption in Envision Tomorrow, it was captured as additional "redevelopment" / refill.[43] Redevelopment rates for the development types (as a percent of developed acres) were calibrated to the results of the redevelopment potential analysis and adjusted to account for the "refill" potential in industrial areas. Redevelopment rates for employment designations vary as follows:

- 6-10% for Community Commercial (CC), Commercial Limited (CL), General Commercial (CG), ME, Mixed Riverfront (MR) and MDOZ
- 20% for Central Business District (CB)

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[41] The densities and mix in Appendix D were calculated based on City of Bend GIS analysis using Oregon Employment Department (OED) 2006 geo-coded Quarterly Census of Employment and Wages (QCEW) data for City of Bend. They have been adjusted to represent covered employment without shift-workers, employees in public schools, on institutional/recreational lands, and employees working in their own homes. These densities were approved as part of the 2008 EOA by LCDC in the Remand.

[42] Documented trends in the Remand record identify an average industrial vacancy rate between 1993 and 2008 of roughly 6.5%.

[43] Specifically, the redevelopment rate for industrial land was increased and additional land was identified "redevelopable" where the current (2013) job density is below the average projected for new development. This simulates the effect of industrial jobs going back into already-developed industrial areas.

- 40% for the industrial designations (due to the expectation of refill into existing buildings, rather than true redevelopment)

Only employment parcels with some likelihood of development or redevelopment were painted with a development type in Envision Tomorrow. Development types were generally not "painted" on developed land unless the existing employment density was less than one-third of the average employment density of the development type in question (except in existing industrial areas where all parcels with employment densities below the employment density of the development type were "painted").[44]

3.2 Base Case Capacity Estimate

This section provides an estimate of the residential and employment capacity of the current UGB stated in terms of housing units and jobs, as required by OAR 660-024-0050.

Housing Capacity

The following tables and figures describe the residential capacity estimated in the base case scenario. Note that the number of new housing units reported is net of any existing units that may be lost through redevelopment in non-residential districts. Loss of units through redevelopment is shown in parentheses.

In total, the base case shows that the current UGB can accommodate roughly 10,039 housing units under the current plan designations and policies and historic trends in development density. The mix of units projected under the base case is roughly 65% single family detached, 30% multifamily, and 5% single family attached. Most of the total housing capacity (nearly 60%) is in the RS plan designation. Just under 6% of the total housing capacity is in the RH zone, the city's only high-density residential plan designation. The RH plan designation and the MDOZ collectively provide roughly a third of the total multifamily housing capacity in the city, and are geographically concentrated in a few areas.

Table 6: Base Case Housing Capacity

Housing Type	Net New Housing Units	Percent of new housing units
Single Family Detached	6,496	65%
Single Family Attached	498	5%
Multi-Family	3,045	30%
Total	**10,039**	**100%**

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[44] "Painting" only those parcels with relatively low existing employment densities ensures that the model does not project excessive job loss through redevelopment in locations with thriving businesses that are unlikely to redevelop.

Table 7: Base Case Housing Capacity by Existing Plan Designation*

Plan Designation*	Single Family Detached Units	Single Family Attached Units	Multi-Family Units	Total New Housing Units
RL	152	-	-	152
RS	5,574	179	221	5,974
RM*	753	225	1,569	2,547
RH*	30	46	508	583
MDOZ*	-	-	490	490
MR	12	49	51	111
Other**	(25)	-	206	181
Total	**6,496**	**498**	**3,045**	**10,039**

* Development capacity in the MDOZ is counted there rather than by plan designation.
** Other includes COCC on-campus student housing in the PF zone and incremental housing loss through redevelopment in commercial zones.

Employment Capacity

The following tables and figures describe the employment capacity estimated in the base case scenario. Note that the number of new jobs reported is net of any existing jobs that may be lost through redevelopment in non-residential districts. In total, the base case shows that the current UGB can accommodate about 13,622 jobs under the current plan designations and policies and historic trends in development density. The mix of jobs that can be accommodated inside the UGB under the base case is weighted towards office and industrial jobs.

Table 8: Base Case Employment Capacity by Category

Employment Category	Net New Jobs	Percent of new jobs
Industrial	5,216	38%
Retail & Hospitality	2,420	18%
Office	4,350	32%
Public	1,637	12%
Total	**13,622**	**100%**

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Table 9: Base Case Employment Capacity by Plan Designation and Category

Plan Designation*	Net New Retail & Hospitality Jobs	Net New Office Jobs	Net New Industrial Jobs	Net New Public Jobs	Total Net New Jobs
RS	7	-	-	-	7
RM*	49	35	-	-	84
RH	4	3	-	-	7
MDOZ*	15	744	90	1	850
CC	109	30	-	-	145
CL*	609	514	94	75	1,291
CG	1,122	224	24	1	1,371
CB	92	201	-	19	312
IL**	82	1,856	4,211	133	6,282
IG	9	130	408	-	548
MR	185	246	55	-	487
ME	115	360	334	1	809
PF***	22	-	-	1,406	1,428
Total	2,420	4,350	5,216	1,637	13,622

* Development capacity in the MDOZ is counted there rather than by plan designation.
** Juniper Ridge capacity counted with the IL plan designation.
*** PF plan designation includes COCC.

Employment growth through redevelopment and "refill" in the Base Case is estimated at 1,803 jobs. This is 444 jobs more than the amount of redevelopment potential estimated in the EOA, which is accounted for by the inclusion of "refill" in existing industrial areas as companies rehire lost employees without redeveloping their site.

Land for Parks, Schools, and Other Uses

The Base Case includes 705 acres for right-of-way (19% of acres developed or redeveloped). This percentage is lower than the overall percentage for the city as a whole because so much of the vacant residential land is in platted lots where right-of-way has already been dedicated. When vacant platted lots are excluded, the total acreage of new right-of-way represents just over 21% of land developed or redeveloped.

Two new school sites are identified inside the existing UGB – one middle school and one high school. Both are on land owned by the School District. Together, these sites represent roughly 75 acres of land for future schools.

BPRD owns 29.1 acres of undeveloped land slated for neighborhood parks, plus an additional 43.8 acres of undeveloped land for future community parks inside the existing UGB. In addition, the open space set-asides yield a total of 52 acres of land inside the UGB that is not currently under BPRD ownership that may be dedicated for public parks under the Base Case.

The "other uses" set aside yields a total of 405 acres of land for these uses under the Base Case. This represents a little under 11% of the total acres developed or redeveloped under the

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Base Case. After excluding vacant platted lots, it accounts for roughly 12% of the total land area developed (including redevelopment).

3.3 Comparison to Need

The housing and employment need projections to 2028 are documented and explained in the HNA and EOA, respectively. For more information about what they include and how they were generated, please see those documents. This section compares those needs, in summary form, against the estimated capacity of the current UGB in the Base Case.

As shown in Table 10, the Base Case is estimated to accommodate roughly 60% of both the total housing and total employment needs forecasts for 2028.   However, comparing at the housing type and employment category level, it is clear that the capacity is not evenly distributed across all needed types and categories. For housing, much of the total single family housing need can be met inside the UGB in the Base Case, but less than a third of the single family attached and less than half of the multifamily housing needs can be accommodated with current policies and trends (see Table 10). For employment, nearly all of the public employment growth and about 80% of the industrial employment growth can be accommodated on land inside the UGB, but a little over a third of the retail and hospitality needs can be met inside the UGB with current policies and trends (see Table 11).

Table 10: Base Case Housing Capacity Compared to Housing Needs by Housing Type

Housing Type	Net New Housing Units	Total Housing Need[45]	Residual Housing Need	Percent of Housing Need Met
Single Family Detached	6,496	9,225	2,728	70%
Single Family Attached	498	1,677	1,179	30%
Multi-Family	3,045	6,331	3,286	48%
Total	**10,039**	**17,233**	**7,193**	**58%**

Table 11: Base Case Employment Capacity Compared to Employment Needs by Employment Category

Employment Category	Net New Jobs	Total Employment Need[46]	Residual Employment Need	Percent of Employment Need Met
Industrial	5,216	6,522	1,306	80%
Retail & Hospitality	2,420	6,546	4,126	37%
Office	4,350	7,158	2,808	61%
Public[47]	1,637	1,717	80	95%
Total	**13,622**	**21,943**	**8,321**	**62%**

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[45] The total housing need listed includes housing units needed to meet projected growth in households, second homes, and equivalent dwelling units to meet group housing needs. See HNA for details.

[46] The employment need categories have been generalized for simplicity in comparing against capacity as measured in Envision Tomorrow. See EOA for details.

[47] Public jobs do not include school-based employment in actual school facilities which tend to be located in residential areas. Schools are addressed as a separate land need.

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CHAPTER 4. EFFICIENCY MEASURES

4.1 Overview & Evaluation Process

The Residential and Employment TACs considered and discussed a robust package of efficiency measures[48] over a series of meetings. The efficiency measure concepts were approved by the USC in the Phase 1 package. The Residential and Employment TACs focused on efficiency measures that are proposed to be implemented through code text amendments packaged with the adoption of the UGB. Additional measures have been or will be implemented through other processes, including code amendment work by the Community Development Department (CDD) with the Planning Commission and the Parking Study, which are both underway.

The Residential and Employment TAC recommendations on new efficiency measures reflect a recognition that Bend's UGB expansion proposal and package of amendments are taking place in a time of transition. Vertical mixed use is relatively uncommon in Bend. There are concerns in existing neighborhoods about infill and redevelopment, as well as the scale and uses in neighboring commercial areas. Topics like ADUs are controversial. At the same time, there is a need for more affordable housing, housing supply in general, and a greater mix of housing types. These are hot topics, and elicit many different perspectives. Operating in this environment, the Residential and Employment TACs have taken clear steps to encourage a greater diversity and density of housing and mixed use development, described below, but care was taken to balance these efforts with the concerns of residents in existing neighborhoods. This balance is reflected in the efficiency measures that apply city-wide. The Residential and Employment TAC recommendations focused more drastic change in opportunity areas, which tend to be in the core of the city, and which also tend to not be adjacent to existing neighborhoods. These recommendations focus on good urban form with more intensive development in more central locations in the city. They recognize the opportunities provided by larger vacant sites to be master planned in the future, as well as the need to provide modest code changes to remove barriers to slightly higher intensity and a greater mix of housing in existing residential areas. Together, these measures support and guide Bend's transition from a small town to a city.

Estimating the Impact of Efficiency Measures

The anticipated impacts of the efficiency measures inside the existing UGB were evaluated using the Envision Tomorrow model by making adjustments to the mix and density of housing projected in certain plan designations to reflect the removal of barriers, creation of incentives, and adjustments to minimum standards in the development code. Proposed changes to plan designations for opportunity areas, including application of new mixed use zones, were also evaluated using Envision Tomorrow by applying a development type that reflects the proposed plan designation rather than the existing one. The model does not provide a mechanism to quantify the magnitude of the impact to capacity for each individual efficiency measure; rather, a

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[48] "Efficiency measures" are changes to plan designations, zoning designations, and development code standards to allow and encourage more efficient use of land within the existing UGB. State regulations require cities to consider efficiency measures prior to expanding the UGB.

cumulative impact of all proposed efficiency measures relative to the base case is provided in this chapter.

4.2 Proposed Package of Efficiency Measures & Nature of Anticipated Impact

Changes to Broadly-Applicable Development Code

Approach to Minimum Density

The Residential TAC reviewed existing minimum densities in the residential zones and made the following recommendations:

- increase the maximum density in the RL zone from 2.2 to 4.0 units per gross acre;
- increase the minimum density in the RS zone from 2.0 to 4.0 units per gross acre; and
- retain the existing range of 7.3 to 21.7 units per gross acre in the RM zone.

The Residential TAC did not support the idea of creating an additional zone, and was uncomfortable with having a density gap between the maximum density in the RS zone and the minimum density in the RM zone. Instead of increasing the minimum density in the RM zone, the Residential TAC recommended removing barriers to development of a broader range of housing types in the RS and RM zones (see below). These changes are intended to create a greater mix of housing types generally within the currently allowed density ranges. The overall set of changes focus on requiring more mixing of units rather than dramatic increases to density levels.

Given that the average net density of new housing built in the RS zone between 1998 and 2008 was 4.9 units per net acre, which is roughly 3.9 units per gross acre, the increase in the minimum density for the RS zone is expected to cause an increase in overall gross densities for new development in that zone. However, given the history of housing development tending towards the lower end of the allowed density range in Bend, housing densities in RS are not expected to increase significantly above the new minimum through the 2028 planning horizon.

The code amendments also revise some aspects of how the density standards apply:

- Replacement of existing housing in any zone (provided the number of units does not change) and development on a vacant platted lot consistent with an approved land division are exempt from density standards. These are tighter and clearer exceptions than in the existing code, which excludes "redevelopment within a residential neighborhood with an existing pattern of development" and "infill development on a vacant platted lot consistent with the adjacent existing pattern of development".

  Sensitive lands (wetlands, significant trees, steep slopes, floodplains and other natural resource areas designated for protection or conservation) as well as fire breaks (as defined in the code) and canal easements are excluded from minimum, but not maximum, density calculation. This will mean that constrained sites will have greater flexibility to shift development or not, depending on the site and the market.

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Sites with heavier constraints are less likely to achieve the full density transfer from those constrained lands.

Ensuring Housing Mix

In order to ensure that housing mix targets are met without increasing the minimum density in RM, additional code amendments are targeted at facilitating the needed housing mix in the RS zone and ensuring the needed housing mix in the RM zone.

In the RS zone, the Residential TAC recommended making additional housing types permitted rather than conditional, including: 1) single family attached townhomes; 2) courtyard housing (detached housing with modified side setbacks); and 3) duplexes and triplexes. These proposed amendments build on work that has already been done by the Community Development Department and Planning Commission to allow a greater housing mix in the RS Zone (including allowing ADUs, cottage homes, and duplexes on corner lots outright subject to special standards).[49]

It is worth noting that a development site generally would need to be over 10,000 square feet[50] in order to add a unit (other than an ADU) or partition due to the maximum density standard for the RS zone, regardless of the changes proposed. As a result, townhomes and duplexes are less likely to be an attractive option for small infill projects, except in the case where the lot is large enough to add units, but the siting of the existing home makes it difficult to partition lots large enough for a detached home. The option to retain the existing home on a larger lot and still add a few units may enable small infill projects in some circumstances where layout is a barrier (rather than land area), but making duplexes, triplexes, and townhomes permitted instead of conditional will have minimal impact on infill on small lots. It will, however, make it easier for developers to incorporate a few townhomes or duplexes into mid-size subdivision projects where they can use lot size averaging to provide a variety of housing types.

In the RM zone, the Residential TAC supported the proposal to require at least half of the units in developments between 3 and 20 acres (large enough for a mix of housing, but smaller than the master plan threshold) to be townhomes, duplex/triplex, or multifamily. This is intended to help that zone achieve the needed mix of housing units without changing the minimum density. There are exceptions for affordable housing projects that meet City standards, mobile homes parks, and cottage homes, all of which provide other ways to achieve affordable housing.

Between 1998 and 2008, single family detached housing comprised only about 24% of the new housing units in the RM zone overall, so this provision may not significantly shift the balance of housing types in that zone. It does, however, provide an additional back-stop to housing mix to

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[49] The code amendments related to ADUs, cottage homes, and duplexes on corner lots are all included as efficiency measures, despite the fact that they were adopted prior to the UGB adoption package, because they have been done since 2008, in response to the Remand.

[50] There are over 8,000 properties with the RS plan designation and/or zone that are over 10,000 square feet (including public land, open space, etc.); however, this is less than a third of all properties in the RS plan designation / zone.

avoid relying solely on market forces to produce the mix and to ensure that nearly all housing development in the RM zone (other than small infill projects) provides a mix of housing types.

In addition, efficiency measure code amendments prohibit new single family detached housing in the RH zone, in order to preserve that zone for attached housing types.

Master Plan Density and Mix Requirements

The current code requires a flat minimum percentage of the maximum density (60%) for master planned sites. The efficiency measure code amendments tailor the requirements to each of the residential zones in order to ensure that the standard is realistic for all zones while still making efficient use of land in the RS zone. This is important not only for land inside the UGB, but for sites in UGB expansion areas that are large enough to trigger the master planning requirements (20 acres or greater). The Residential TAC recommended the following minimum density for master planned sites in each zone:

- RL: 50% of maximum (2.0)
- RS: 70% of maximum (5.11)
- RM: 60% of maximum (13.02)
- RH: base zone minimum (21.7)

In addition to a higher minimum density standard for master plan sites, the efficiency measure code amendments include the following minimum percentages of housing units that must be townhomes, duplex/triplex, or multifamily:

- RL and RS: at least 10% of units
- RM: at least 67% of units
- RH: Single Family Detached not permitted

Observed past development trends indicate that without minimum mixing requirements, developments tend to be built at near minimum densities with higher percentages of single-family detached dwellings than the needed mix going forward. The newly proposed mix requirements have been calibrated based on the assumptions built into the development types within the Envision Tomorrow model so that they help ensure that the needed housing mix can be met.

To support achieving the required mix of housing types, townhomes, duplex/triplex, and multifamily housing are all permitted outright when part of a masterplan in the RL and RS zones.

Minimum Lot Size Requirements

Reductions to minimum lot sizes for certain housing types in the higher-density residential zones are proposed in order to allow more opportunities to build at the higher end of the allowed density range. Proposed changes to minimum lot area include:

- Single Family Detached Housing in the RL zone: from 15,000 square feet (sf) to 10,000 sf
- Single Family Detached Housing in the RM zone: from 3,000 sf to 2,500 sf

- Duplex/triplex in the RL zone: from 30,000 sf to 20,000 sf
- Duplex/triplex in the RM & RH zones: remove minimum lot size, and allow gross density, minimum open space requirements, and other development standards to control
- Townhomes in the RH zone: from 2,000 sf per unit to 1,200 sf per unit
- Townhomes in the RM zone: from 2,000 sf per unit to 1,600 sf per unit
- Multifamily housing in the RM & RH zones: remove minimum lot size, and allow gross density and other development standards to control the allowed number of units

Because the gross density standards control the number of units allowed on a given property, these changes primarily provide greater flexibility to achieve the upper ranges of the gross density standard for the zone on constrained sites and sites with more right-of-way and/or open space dedication.

Density Bonuses and other Affordable Housing Incentives

In May 2015, the City adopted an affordable housing density bonus provision in the development code that allows development at up to 1.5 times the maximum gross density of the zone where some or all of the units are affordable (in conformance with City standards addressing target income levels and maintaining affordability[51]) – the greater the percentage of affordable units, the greater the density bonus. The City also has other affordable housing incentives, including a height bonus (10'), an allowance for more lot coverage, expedited review and permit processing, planning and building fee exemptions, and system development charge deferrals. These are considered efficiency measures and are important tools to encourage production of affordable housing and reduce costs for developers of affordable housing, but will have limited impact on capacity overall since affordable housing represents a relatively small portion of housing growth.

New Mixed Use Zones

The proposed code amendments include two new mixed use plan designations and corresponding implementing zones: urban-scale ("Mixed Use – Urban" or MU) and neighborhood-scale ("Mixed Use – Neighborhood" or MN). The new zones are intended to accommodate a range of residential and commercial uses in pedestrian-oriented mixed use centers and corridors. The scale of uses in the MN zone (primarily building heights) is less intense than the MU zone. The Employment TAC recommended including the new mixed use zones in the Development Code and designating specific opportunity sites with the new Mixed Use plan designations and, in some cases, zones (see "Changes to Plan Designations for Opportunity Sites" on page 35).

The mixed use zones allow residential uses outright as well as when part of mixed use development. There are no maximum density standards for residential uses other than the height and setback standards. They are subject to the RM zone minimum density (7.3 units per acre) on the portion of the site used for ground-floor residential, though there is no minimum density for vertical mixed use. They also allow for an urban style of development with no minimum landscaping requirement (aside from parking lot and setback landscaping); reduced

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[51] BDC 3.6.200(C)

minimum parking standards for the MU zone (similar to the CBD rather than the standard for the rest of the city – see next section for details); no minimum front setback and a 10' maximum front setback.

The impact of the new mixed use zones is discussed under "Changes to Plan Designations for Opportunity Sites" on page 35.

Revisions to Parking Standards

Targeted revisions to parking standards are proposed as part of the draft package of code amendments adopted with the UGB.

- Reductions to parking requirements for residential and commercial uses in the MU zone, similar to those in place for the CBD (e.g. 1 space per housing unit, regardless of size and type; 1 space per 500 square feet of commercial for all commercial uses).
- Allow on-street parking along the property frontage to count for up to 100% of required parking in the MU and MN zones.
- Allow on-street parking along the property frontage to count even if parking is only allowed on one side of the street.
- Provide automatic 5% reduction to minimum parking requirements for mixed use development.
- Provide automatic 10% reduction to minimum parking requirements for development adjacent to transit.
- Apply existing parking reduction for affordable housing (1 space per housing unit) regardless of location, rather than limiting it to locations within 660 feet of transit.
- Reductions to parking for 1-bedroom duplexes and triplexes (from 2 to 1 space per unit)

More comprehensive revisions to parking standards will be considered through the Parking Study, which is currently underway.

Allowing More Intense Development in the Mixed Employment Zone

The Mixed Employment (ME) zone allows for a wide range of uses. Currently, it is subject to a 50% maximum lot coverage limitation and a 10-foot minimum front setback that make it difficult to build more intense development. The package of code amendments includes removing both of those limitations. It also includes a height bonus of 10 feet for vertical mixed use or affordable housing in the ME zone.

Amendments to the ME zone also ensure that housing is built as part of a mixed use development. Housing that is part of horizontal mixed use must meet RM zone minimum densities where there is only a small non-residential component to the development or where the site is adjacent to transit.

Several auto-oriented commercial uses are also proposed to become conditional, rather than permitted uses, in order to encourage more walkable, pedestrian-friendly development.

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Combined with modest reductions to parking requirements, these adjustments will allow and encourage more intensive and efficient development, though parking requirements will still limit the ability to build urban-scale development in this zone.

Residential Density in Commercial and Mixed Use Zones

Currently, there are no minimum or maximum density standards for residential uses developed in commercial or mixed use zones. In commercial zones, residential uses are only permitted as part of a mixed use development, but this can include "horizontal" mixed use where the uses are in separate buildings and the residential uses are on the ground floor. In mixed use zones, residential uses are allowed (outright or conditionally) as stand-alone uses as well as through mixed use developments.

In order to ensure that land for housing in the commercial and mixed use zones is used efficiently, the package of code amendments includes minimum density standards for targeted areas. Minimum residential density standards apply to:

- all horizontal mixed use development adjacent to transit in commercial and mixed use zones;
- horizontal mixed use development in which residential uses are primary in the ME and PO zones; and
- all residential development (except vertical mixed use) in the MU and MN zones.

The minimum density for such sites is the same as in the RM zone (7.3 units per acre), measured only on the portion of the site dedicated to residential uses on the ground-floor.

There continues to be no maximum density standard (except through the height and lot coverage limitations) for residential in the commercial or mixed use zones, and no minimum or maximum for "vertical" mixed use, where the housing is above commercial.

Impact of Changes to the Development Code

The impact of proposed changes to the development code was estimated through changes to density and building mix in certain development types. A brief summary of key adjustments to the assumptions for certain development types is provided below, along with rough estimates of the magnitude of the impact, considering only land inside the existing UGB, and excluding the impact of changes to plan designations (discussed separately). For residential land, the assumptions only affect vacant land and land with infill potential that does not have a current land use approval under the existing rules. The redevelopment rate for residential land remains at zero, except for a token (1%) redevelopment rate for properties with some infill potential in the RH zone where removing barriers may allow a trivial amount of redevelopment (less than one acre of redevelopment is assumed in the RH zone in total). For employment land, the assumptions affect all vacant land and land that was already identified as having redevelopment potential under the Base Case. The exception is in opportunity areas, where redevelopment potential was assessed more specifically due to significant changes in land use regulations in those areas (see next section).

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RL:
- **Adjustments in Model:** increased average density of single family detached homes slightly, and added a small amount of ADU development.
- **Approximate Yield:** 10-20 additional units inside UGB (mostly on larger properties that are developed with infill potential – spread across over 100 acres).

RS:
- **Adjustments in Model:** increased proportion of duplex/triplex and townhome, added a small amount of ADU and cottage home development, and increased average density of single family detached homes so that overall average density is just above the new required minimum density. Increased average density and housing mix further for the RS development type applied to master plan sites to meet new minimum density and mix standards.
- **Approximate Yield:** 450-500 additional units inside UGB on RS land under 20 acres (vacant parcels and larger properties that are developed with infill potential – spread across close to 800 acres); plus 150-200 additional units inside UGB on vacant RS land over 20 acres.

RM:
- **Adjustments in Model:** introduced a small amount of cottage home development and a small amount of single family detached housing on 2,500 sf lots. In the RM development type used for master plan sites, incorporated some higher-density multifamily to reflect the removal of the minimum lot size (which was linked to the number of units) for multifamily.
- **Approximate Yield:** 50-100 additional units inside UGB on RM land under 20 acres (vacant parcels and larger properties that are developed with infill potential – spread across over 250 acres); plus 10-20 additional units inside UGB on vacant RM land over 20 acres.

RH:
- **Adjustments in Model:** eliminated single family detached homes from the mix; increased density of single family attached housing (townhomes); and slightly increased the average density of multifamily housing to reflect the removal of the minimum lot size for multifamily
- **Approximate Yield:** 30-40 additional units inside UGB (spread across over 50 vacant acres of RH land).

ME:
- **Adjustments in Model:** shifted to slightly more urban building types and incorporated a small amount of live/work use and multifamily housing.
- **Approximate Yield:** 250-300 additional jobs inside UGB; 20-30 housing units inside UGB (spread across over 100 acres of vacant and redevelopable land).

In addition, new development types were created to reflect the allowed mix of uses, building heights and development standards for the new mixed use zones.

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Details of the development types before and after accounting for efficiency measures can be found in Appendix E.

Changes to Plan Designations for Opportunity Sites

The Residential and Employment TACs identified a number of opportunity sites within the existing UGB to consider site-specific efficiency measures. A map of the opportunity sites is provided in Figure 2. Some opportunity areas were identified as having redevelopment potential, while others are large vacant sites where the TACs considered enabling or requiring a broader range of uses or housing types than is permitted under existing zoning. After much discussion, the following opportunity areas are identified for comprehensive plan map amendments and/or zone changes as efficiency measures:

Bend Central District

- **Recommendation:** Apply the Bend Central District (BCD) Special Plan District and rezone areas currently zoned IL that have an ME plan designation to ME. No change to plan designations.
- **Impact:** The Bend Central District area is expected to generate capacity for roughly 240 housing units and greater employment density, primarily through redevelopment of the areas along 1st and 2nd streets.

East Downtown

- **Recommendation:** Change General Commercial (CG) plan designations to MU. No change to zoning at this time (defer to property owner initiative).
- **Impact:** There is minimal redevelopment potential in this area in the 2028 planning horizon, though it presents a longer-term opportunity to extend the downtown.

Century Drive area

- **Recommendation:** Change IL, CC, CG, and CL plan designations to MU. Change the plan designation on the strip of Deschutes County-owned property north of Simpson from PF to RM. No changes to zoning at this time (defer to Phase 2 of the Central Westside Plan or property owner initiative).
- **Impact:** This area is expected to have capacity for roughly 490 dwelling units and greater employment density by 2028 through a mix of redevelopment and development on remaining vacant land.

KorPine

- **Recommendation:** Change plan designation and zone from IG to MU.
- **Impact:** This area could have substantial redevelopment potential within the planning horizon, with capacity for roughly 150 dwelling units and greater employment density.

Juniper Ridge (eastern portion)

- **Recommendation:** Consider extending the Employment Sub-District overlay as a future action. No change to plan designation or zoning at this time.

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- **Impact:** This large, vacant area can accommodate a wider variety of employment than the base Light Industrial plan designation would allow. It is also targeted to accommodate one of the two large lot industrial sites.

15th Street Ward property

- **Recommendation:** Adopt plan and zone amendments to portions of the site, which is currently zoned entirely RS (about 204 acres) - change roughly 8.3 acres to RM, 6.4 acres to RH, 10.2 acres to ME, 5 acres to Community Commercial (CC), and 11 acres to Limited Commercial (CL).
- **Impact:** Changing some residential land to employment designations reduces the potential for housing on that land, but helps create a complete community in this area and increases employment capacity inside the UGB. Housing mix is increased due to the change in residential zones, and total housing capacity is increased on the portions rezoned to RM and RH by a minimum of about 170 housing units relative to the RS zoning. Note that the changes to the master plan standards, increasing minimum density for the RS portion and setting housing mix requirements, also increase minimum housing capacity and expected housing mix on this site.

COID property

- **Recommendation:** Change comprehensive plan designation from PF to RS on the portion of the site that is outside the river canyon and not constrained by steep slopes or Areas of Special Interest (RS zone already in place).
- **Impact:** This 130-acre area is currently in public ownership by the Central Oregon Irrigation District (COID), which submitted testimony requesting to make the land available for residential development. It is encumbered by a view easement through 2035, but over the longer-term future may provide an opportunity for housing.

River Rim

- **Recommendation:** Keep the current RS comprehensive plan designation in place; but do not include the zone change for the property (from RL to RS) with the UGB adoption package. The property owner will be required to develop consistent with plan designation due to City regulations, and the code amendments include measures to streamline zone changes consistent with the comprehensive plan designation.
- **Impact:** The property has always been assumed to develop consistent with the RS plan designation; however, the changes to the RS master plan standards, increasing minimum density and setting housing mix requirements, will increase minimum housing capacity and expected housing mix on this site.

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Figure 2: Opportunity Areas Reference Map
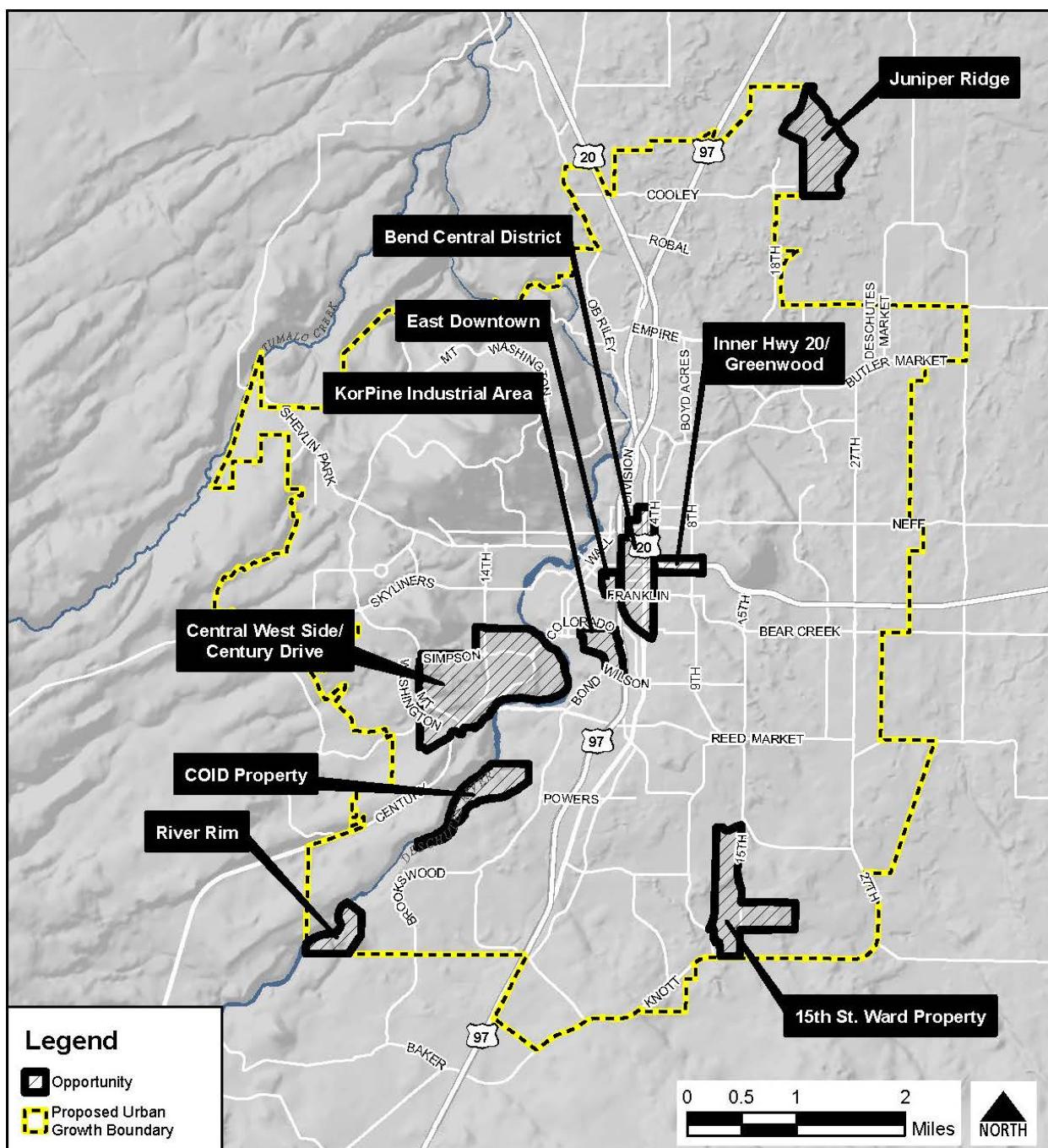
Legend

Opportunity

Proposed Urban
Growth Boundary

URBAN GROWTH
BOUNDARY REMAND

Service Layer Credits: Deschutes County GIS (2014)

Streams/Rivers
Roads/Highways
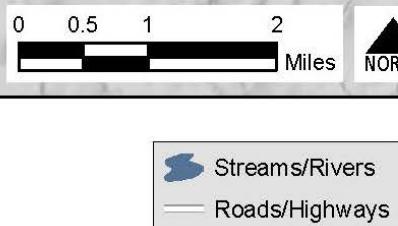
Redevelopment Potential in Opportunity Areas

Changing the allowed uses and intensity in several of the opportunity areas creates the potential for additional redevelopment, beyond what was estimated under the Base Case.[52] Redevelopment potential in opportunity areas was estimated by comparing the acquisition cost of property in the opportunity area against the land cost that new development in the new mixed use zones and special plan district would be able to afford. Acquisition cost was based on total property value per square foot in the tax assessor's database. The land cost that new development can afford was estimated based on an assumed return on investment, approximate construction costs, and market rents for the applicable uses. This analysis assumed that, on average, new development in opportunity areas could afford to pay roughly $18 per square foot of land. Properties with total values below this threshold were generally identified as having redevelopment potential, and "painted" with the appropriate development type. Properties that are "painted" are assumed to have some probability of redevelopment; that probability is set in the redevelopment rate. For the new mixed use zones, the redevelopment rate was set at 10-15% of "painted" acres within the planning horizon, accounting for the fact that not all properties that *could* redevelop *will* redevelop. Properties above $18 per square foot were generally not considered to have a strong likelihood of redeveloping within the planning horizon and were not "painted."

4.3 Capacity Estimate with Efficiency Measures

Housing Capacity

The following tables and figures describe the residential capacity estimated within the existing UGB with the efficiency measures described above in place. Note that the number of new housing units reported is net of any existing units that may be lost through redevelopment in non-residential districts.

In total, the current UGB can accommodate roughly 11,950 housing units after accounting for the projected impact of efficiency measures. The mix of units projected with efficiency measures is roughly 55% single family detached, 36% multifamily, and 9% single family attached. This is an increase of roughly 20% relative to the Base Case. Most of that increase comes from growth in single family attached and multifamily housing. The increase in single family detached and single family attached housing mostly comes from changes to the residential zones, while the increase in multifamily housing capacity comes both from changes to the residential zones and the use of the new mixed use zones in key opportunity areas.

Table 12: Housing Capacity with Efficiency Measures

Housing Type	Net New Housing Units	Percent of new housing units
Single Family Detached	6,599	55%
Single Family Attached	1,039	9%
Multi-Family	4,313	36%
Total	**11,950**	**100%**

[52] Analysis of redevelopment potential under the Base Case is described in Appendix D of the EOA. A summary of how redevelopment rates were integrated into Envision Tomorrow in the Base Case is provided on page 28 of this report.

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Table 13: Housing Capacity with Efficiency Measures by Proposed Plan Designation*

Plan Designation*	Single Family Detached Units	Single Family Attached Units	Multi-Family Units	Total New Housing Units
RL**	177	2	8	187
RS	5,726	253	385	6,364
RM*	698	494	1,598	2,790
RH*	-	139	838	978
MDOZ*	-	-	490	490
ME	(1)	17	9	26
MR	9	38	38	85
MN	12	78	332	422
MU	-	10	142	152
BCD*	(6)	3	242	239
Other***	(14)	4	231	221
Total	**6,599**	**1,039**	**4,313**	**11,950**

Development capacity in the MDOZ and the Bend Central District is counted under the relevant overlay zone rather than by plan designation.

*** RL includes a small area north of Shevlin Park Road that is proposed to be developed as part of a master plan with land outside the UGB.*

**** Other zones include commercial zones (with trace amounts of housing lost through redevelopment) and the PF zone, where student housing associated with COCC is projected.*

Table 14 shows the increase in housing capacity over the Base Case as a result of the efficiency measures.

Table 14: Housing Capacity with Efficiency Measures by Housing Type Compared to Base Case

Housing Type	Base case	Increase from Efficiency Measures	With Efficiency Measures
Single Family Detached	6,496	103	6,599
Single Family Attached	498	541	1,039
Multi-Family	3,045	1,267	4,313
Total	**10,039**	**1,911**	**11,950**

Employment Capacity

The following tables and figures describe the employment capacity estimated with efficiency measures. Note that the number of new jobs reported is net of any existing jobs that may be lost through redevelopment in non-residential districts. In total, the current UGB can accommodate just over 14,720 jobs after accounting for the projected impact of efficiency measures for employment lands described on pages 34-36. This is an increase of close to 8% relative to the Base Case. The additional employment capacity relative to the Base Case is primarily due to the designation of additional employment land on the 15th Street opportunity site, which is currently all designated RS. Changes to opportunity sites primarily have the effect of changing

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the type of jobs projected to be gained in those areas, with minimal impact on the total number of jobs expected through redevelopment (this is in part because some of the land is expected to be developed with housing instead).

Table 15: Employment Capacity by Category with Efficiency Measures

Employment Category	Net New Jobs	Percent of new jobs
Retail & Hospitality	3,223	22%
Office	5,324	36%
Industrial	4,506	31%
Public	1,671	11%
Total	14,723	100%

Table 16: Employment Capacity by Plan Designation and Category with Efficiency Measures

Plan Designation*	Net New Retail & Hospitality Jobs	Net New Office Jobs	Net New Industrial Jobs	Net New Public Jobs	Total Net New Jobs
RS	37	23	-	-	60
RM*	48	35	-	-	83
RH*	7	5	-	-	12
MDOZ*	15	744	90	1	850
CC	206	139	12	1	357
CL*	446	383	69	56	955
CG	1,073	214	23	1	1,311
CB	92	201	-	19	312
IL**	4	297	1,724	-	2,025
IG	4	88	293	-	385
MR	143	190	43	1	377
ME	483	397	369	14	1,263
MN	367	488	(27)	(9)	820
MU	158	55	(14)	1	200
BCD*	67	200	(10)	5	262
PF***	23	-	-	1,394	1,416
Juniper Ridge**	49	1,865	1,934	187	4,034
Total	3,223	5,324	4,506	1,671	14,723

Development capacity in the MDOZ and the Bend Central District is counted under the relevant overlay zone rather than by plan designation.

*** Juniper Ridge employment capacity is calculated separately from the rest of the IL plan designation.*

**** PF plan designation includes COCC.*

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Table 17 shows the change in jobs capacity as a result of the efficiency measures.

Table 17: Employment Capacity with Efficiency Measures Compared to Base Case

Employment Category	Base case	Increase (Decrease) from Efficiency Measures	With Efficiency Measures
Retail & Hospitality	5,216	(710)	4,506
Office	2,420	803	3,223
Industrial	4,350	975	5,324
Public	1,637	34	1,671
Total	**13,622**	**1,102**	**14,723**

With the proposed efficiency measures, employment growth through redevelopment and "refill" is estimated at 1,841 jobs. Because some industrial land is proposed to be converted to mixed use designations, the efficiency measures are projected to result in a net increase of 161 jobs through redevelopment in opportunity areas, but a decrease of 124 jobs through refill in existing industrial areas, for a small total difference in job capacity (roughly 38 jobs) due to redevelopment and refill combined. The remaining increase in job capacity due to efficiency measures comes from more intense use of vacant land.

Land for Parks, Schools, and Other Uses

The existing UGB capacity estimates, after accounting for efficiency measures, include the following amounts of new land for other urban uses:

- 699 acres of land for right-of-way (19% of acres developed, but 21% of acres developed after excluding vacant platted lots);
- the same 73 acres of park land already in BPRD ownership as identified in the Base Case, plus a total of 60 acres of open space set-asides that may be dedicated for public parks where appropriate;
- the same middle school and high school site identified in the Base Case, plus a proposed elementary school on vacant, privately-owned land on 15th Street for a total of roughly 90 acres of land for schools; and
- 405 acres of land for other uses (11% of total acres developed or redeveloped, but 12% of land developed after excluding vacant platted lots), such as churches, benevolent/fraternal organizations, utilities, canals, cemeteries, golf courses, properties owned by irrigation districts, and RV parks.

4.4 Comparison to Need

With efficiency measures, roughly 70% of the total housing and employment growth can be accommodated inside the existing UGB, as shown in Table 18 and Table 19, respectively. Compared to the Base Case, the biggest increases in capacity are in multifamily housing and retail and office employment. With efficiency measures, the housing mix inside the UGB is much more closely aligned with the overall needed housing mix and the employment mix is better aligned with the employment forecast.

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Table 18: Housing Capacity with Efficiency Measures Compared to Housing Needs by Housing Type

Housing Type	Net New Housing Units	Total Housing Need[53]	Residual Housing Need	Percent of Housing Need Met
Single Family Detached	6,599	9,225	2,626	72%
Single Family Attached	1,039	1,677	638	62%
Multi-Family	4,313	6,331	2,018	68%
Total	**11,950**	**17,233**	**5,282**	**69%**

Table 19: Employment Capacity with Efficiency Measures Compared to Employment Needs by Employment Category

Employment Category	Net New Jobs	Total Employment Need[54]	Residual Employment Need	Percent of Employment Need Met
Industrial	4,506	6,522	2,016	69%
Retail & Hospitality	3,223	6,546	3,323	49%
Office	5,324	7,158	1,834	74%
Public[55]	1,671	1,717	46	97%
Total	**14,723**	**21,943**	**6,791**	**67%**

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[53] The total housing need listed includes housing units needed to meet projected growth in households, second homes, and equivalent dwelling units to meet group housing needs. See HNA for details.

[54] The employment need categories have been generalized for simplicity in comparing against capacity as measured in Envision Tomorrow. See EOA for details.

[55] Public jobs do not include school-based employment in actual school facilities which tend to be located in residential areas. Schools are addressed as a separate land need.

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CHAPTER 5. 2016 UGB EXPANSION

5.1 Overview & Evaluation Process

Creation and evaluation of UGB expansion alternatives was conducted in coordination with the Boundary and Growth Scenarios Technical Advisory Committee (Boundary TAC). The Boundary TAC's members spent almost a year narrowing the pool of available land outside the UGB and deciding on an evaluation methodology, followed by an extensive evaluation and UGB refinement process.

The evaluation process was divided into the following stages, described in detail in the following sections and illustrated on Figure 3:

- Initial Suitability Evaluation: (Stage 1 and Stage 2) Mapping of the best available information related to the four Goal 14 factors and exclusion of the worst-performing lands for further analysis.
- Alternatives Analysis: (Stage 3 and Stage 4) Creation of six land use alternatives or "scenarios" to evaluate the best-performing lands in a variety of combinations and with a variety of land uses; and evaluation of scenarios for land use, transportation, environmental, and infrastructure impacts.
- Proposed UGB Expansion (Stage 5) Creation of a preferred scenario from the best-performing subareas and land under Stage 4.

UGB Expansion Alternatives Analysis Process
rev. 2/16/2016

URBAN GROWTH BOUNDARY REMAND
MAKING BEND EVEN BETTER

Initial Recommendations[1]
- Land needs
- Efficiency Measures Assumptions
- Boundary Methodology
- Study Area

Stage 1 Screening[2]
- Exclude lands for further analysis (e.g. unbuildable lands)

Stage 2
Base Mapping
- Map indicators of Goal 14 factors 1-4

Stage 3
Scenario Development[3]
Iterative steps:
- Prepare sketch level scenarios and test with Envision
- Refine
- Scenarios

Stage 4
Scenario Evaluation[4]
Conduct:
- Envision Testing
- Goal 14 Evaluation
- Water/Sewer Optimization
- Transportation Modeling
- Team review of results

Stage 5
Preferred Scenario[4]
- Prepare evaluation conclusions
- Prepare proposed boundary, land uses, and urban form
- Draft policies, map designations, Urbanization Report, and findings

Approval of UGB Expansion Scenarios for Evaluation

Approval of Preferred Scenario

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5.2 Stage 1: Screening of lands for further analysis

Approach

The identification of suitable land began with defining an initial study area: a two-mile buffer from the existing UGB. Within this study area, evaluation was based on a tiered approach, in which higher priority lands (i.e. exception lands) were evaluated first for each identified land need, as required under OAR 660 Division 24. The starting pool of exception lands within the two-mile buffer was approximately 18,000 acres (see Figure 4).

Figure 4: UGB Two-Mile Study Area by Priority Class

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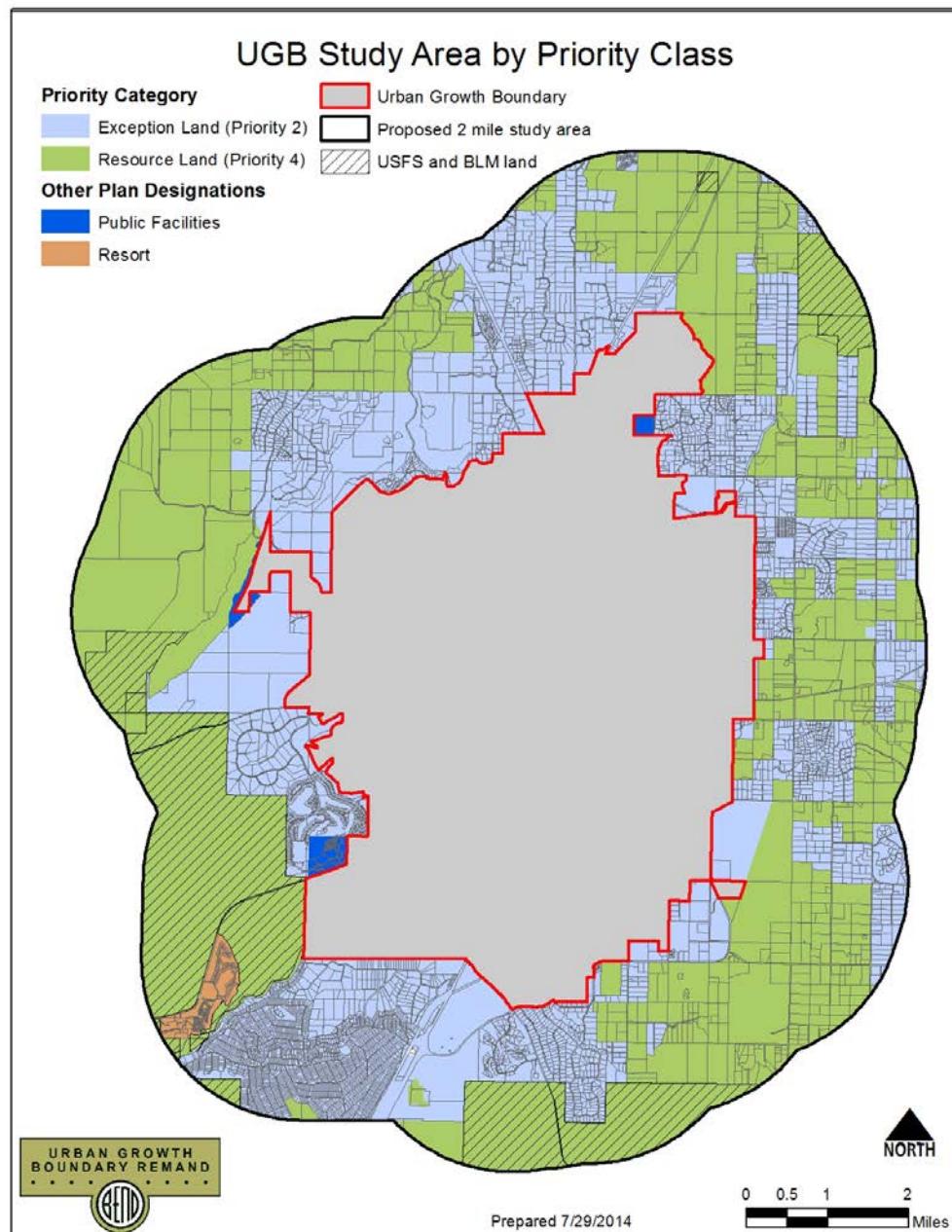
The City's approach to screening land from further consideration prior to applying the Goal 14 evaluation is summarized below.

Exclude lands that are not buildable[56]

The following lands were identified as unbuildable:

- 100-year floodplain
- Steep slopes (25% and greater)
- Upper Deschutes River State & Federal Scenic River Overlays (100 feet from OHW)
- Middle Deschutes State Scenic Waterway (100 feet from OHW)
- Deschutes River & Tumalo Creek Riparian Corridors (100 feet from OHW)
- Significant aggregate sites in Deschutes County Goal 5 inventory with Surface Mining plan designation

Figure 5: Unbuildable land in UGB Expansion Study Area
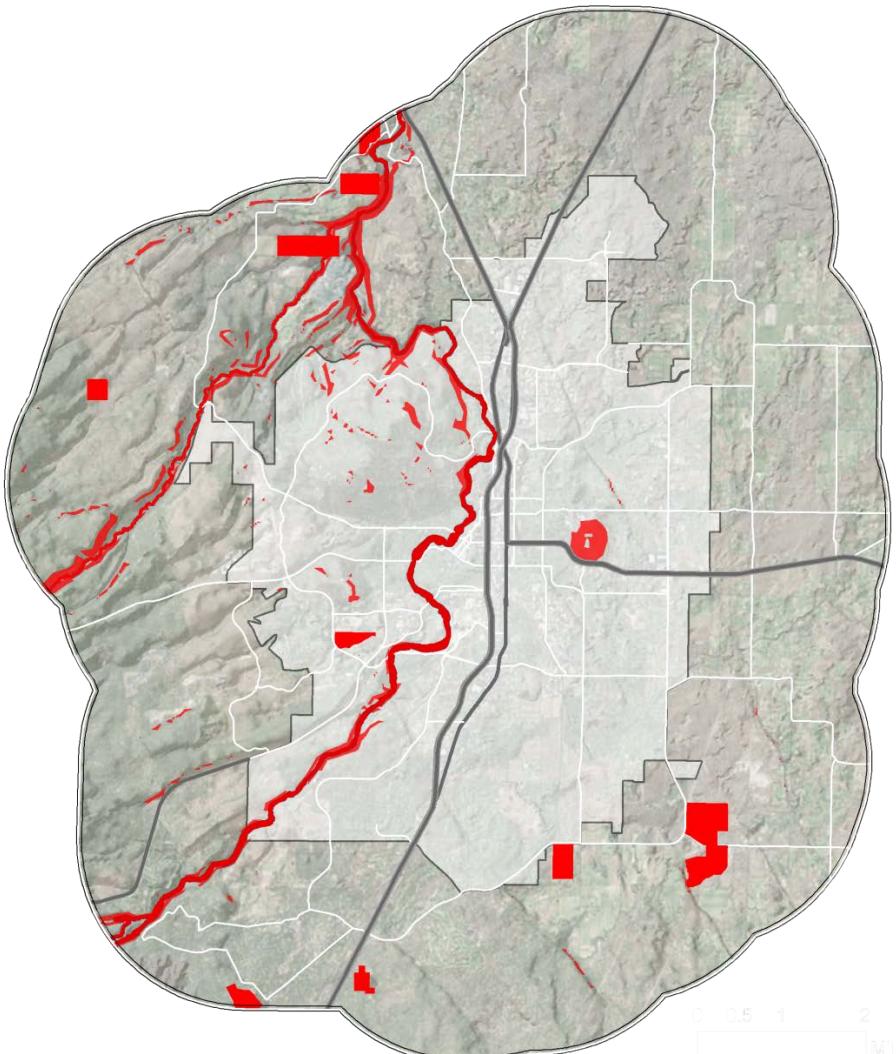
Identifying lands that are unbuildable doesn't necessarily mean that these lands can't be included in the UGB; however, if they are included, they aren't counted as developable in the BLI. The lands identified as unbuildable in the expansion areas are shown in red on Figure 5.

Exclude lands that are incompatible with urbanization

Exception lands within the acknowledged Deschutes County Wildlife Overlay (deer winter range) were screened from further analysis. These areas are considered significant habitat by ODFW. The Goal 5 "program" to protect the big game winter range is based in large part on

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[56] OAR 660, Division 8 defines buildable land. See Bend's BLI for more information.

restricting densities, requiring clustering and requiring protection of open space (50% of site). Potential urbanization of these lands would inherently conflict with protection of the big game winter range.

Figure 6: Land screened from consideration for UGB expansion

In addition, the Shevlin Sand and Gravel (SSG) site located in the northwest quadrant of the City on Shevlin Park Road was screened from further analysis. Based on testimony from the property owner representative stating that the aggregate resources at the Shevlin Sand & Gravel site are not expected to be exhausted and the site reclaimed during the planning period (2008-2028), the portion of the site under DOGAMI Permit 09-0018 was excluded from consideration for UGB scenarios. This did not affect consideration of the remainder of the property.

The lands excluded are shown in red (wildlife overlay) and orange (aggregate site) on Figure 6.

Results

After excluding the lands listed above, the total acreage of exception land that was advanced for further consideration and evaluation in Stage 2 was roughly 16,200 acres.

5.3 Stage 2: Base Mapping

Approach

Because the pool of available exception lands within the study area is so large relative to the land need, additional information was needed in order to identify better performing lands to consider for the UGB expansion alternatives analysis. It would not have been possible to develop alternatives to encompass all of the exception lands for evaluation. In the Base

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Mapping stage, the Boundary TAC recommended using a few key indicators of the Goal 14 factors to help identify the best land to include in boundary scenarios. This stage of analysis helped to narrow the scope of the study area to focus on the areas that ranked higher and also informed the development of scenarios in Stage 3.

Using available GIS and other data, a series of maps were prepared to illustrate the relative ranking of parcels based on the key indicators associated with each of the four factors of Goal 14. The Boundary TAC reviewed and suggested refinements to the base maps over a series of meetings, and ultimately approved roughly 25 Stage 2 maps. The project team then prepared one composite map for each of the four Goal 14 factors and a composite map combining indicators for all four factors. The approach was to prepare "un-weighted" composite maps, so the information was displayed without value judgments about what factors are more important than others. In addition, areas within the 2-mile study area that have low suitability for urbanization and were "annotated" or highlighted on the maps, including: (a) rural subdivisions with CC&Rs; (b) "islands" that are either completely or mostly surrounded by resource lands; and (c) edge parcels that are relatively small and very irregularly shaped, making them difficult to serve with infrastructure and develop as complete communities.

The indicators included in Stage 2 Base Mapping for each of the goal 14 factors are listed below.

Factor 1: Efficient accommodation of identified land needs
- Parcel size
- Improvement to land value ratio
- Proximity to existing UGB – adjacency more efficient than edge of study area
- Topography (25% slopes or greater)
- Existing that CC&Rs prohibit or limit additional development

Factor 2: Orderly and economic provision of public facilities and services

Transportation
- **Barriers**: Consideration of physical barriers to connectivity (new river crossings, railroad crossings, steep slopes, etc.).

- **Reliance on Congested Corridors:**   Consideration of key congested highway corridors based on the recently completed Bend MPO MTP. Using the Bend 2040 travel demand model, identify which exception lands have a higher reliance on a congested corridor.

- **System Connectivity**: Consideration of whether the existing major roadway network meets ideal grid-spacing (e.g., one-mile spacing for arterials and half-mile spacing for collectors). Rank exception areas with a more subjective approach based on ability to extend collectors into the study area. Also consider if subareas in the study area are adjacent or near well connected streets inside the current UGB.

Water

- **Pressure system (City of Bend)**: Consideration of exception areas that could be served by existing pressure zones by City of Bend

Sewer

- **Gravity system**: Consideration of areas that can be served via gravity. This would be illustrated with a map showing areas in the study area that can be served with gravity sewer vs. areas requiring additional pumping.

- **Maximize existing/planned improvements**: Consideration of areas with capacity or planned short-term improvements. This would be illustrated with a map showing any areas in the study area outside the current UGB that could be served with sewer without major new investments in addition to planned facilities in the Collection System PFP.

Stormwater

- **Drinking water protection areas**: Consider proximity to drinking water protection areas (DWPA)

- **Surface geology**: Consider presence of surface geology (welded tuff) that limits on-site stormwater management.

Factor 3: Comparative environmental, social, economic and energy consequences (ESEE)

- Presence of significant Goal 5 resources or other resources (consider Greenprint mapping or other data sources)

- Relative wildfire risk and presence of other natural hazards (floodplains)

- Proximity to existing or planned parks, trails, elementary schools

- Proximity to irrigation districts, irrigated lands and canals in study area

- Presence of water quality limited streams (303d) in study area

Factor 4: Compatibility of proposed urban uses with nearby agricultural and forest activities occurring on farm and forest land outside the UGB

- Proximity to designated forest land

- Proximity to designated high-value agricultural land (irrigated)

Results

The combined results of the Stage 2 Base Mapping, with annotations as described above, are shown on Figure 7. The Stage 2 Base Mapping revealed certain exception lands that were highly problematic based on one or more of the Goal 14 factors, and that, on balance, were not suitable for inclusion in the alternatives analysis:

- Properties with recorded CC&Rs that preclude land divisions and additional dwellings (based on Factor 1 considerations and inability to accommodate identified land needs)

- Heavily parcelized areas with smaller parcels (less than 2 acres) and numerous dwellings that severely limit capacity for new development (based on Factor 1 considerations and inability to efficiently accommodate identified land needs)

- Rural residential subdivisions (generally less than 5 acre lots) with higher improvement to land value ratios that severely limit capacity for new development within the 2028 planning horizon (based on Factor 1 considerations and inability to efficiently accommodate identified land needs)

- Lands that are separated from the existing UGB by resource lands (based on Factor 4 considerations and impact to resource lands)

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Bend UGB Land Suitability Composite (Annotated)

☐ 2 Miles from UGB	**Combined Factor Score**	▨ Heavily Parcelized (Deschutes River Woods)	
☐ Urban Growth Boundary	▨ Lowest Quartile	▨ Land Separated from UGB by Resource Lands	
▨ Streams/Rivers	▨ 2nd Quartile	▨ Restrictive CCR's	
▨ Steep slopes (over 25%)	▨ 3rd Quartile	▤ Parks & Rec / School District Ownership	
— Roads/Highways	▨ Highest Quartile		

URBAN GROWTH BOUNDARY REMAND

Service Layer Credits: Deschutes County GIS (2014)
Disclaimer: This map represents an equally-weighted sum of the four Bend UGB Goal 14 Factors. For informational purposes only.

Prepared 4/10/2015

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Further consideration of the Stage 2 Base Mapping results in Phase 2 of the project highlighted additional areas that were, on balance, less appropriate to bring forward for further evaluation. The brief summaries below are keyed to specific locations on the map on Figure 8: Further Narrowing of Exception Lands.

1. A large rural residential exception area (just under 1,600 acres) located north of Cooley Road generally between Hwy 97 and Hwy 20A relatively large rural residential subdivision (about 220 acres) with restrictive CC&R's is located at the southerly boundary that represent a barrier to efficient expansion to the north.
2. Several small subdivisions in the northeast - the portion west of Hamby Road is subdivided into small lots (average lot size is a half-acre) with a relatively high improvement to land value ratio. The portion east of Hamby is separated from the UGB by a mix of land with restrictive CC&Rs and resource land.
3. An area located between Hwy 20 and Stevens Road surrounding Hamby Road that is relatively far from the UGB and would further surround zoned resource land.
4. Several large rural residential exception areas that overall did not score well based on the balancing of the Goal 14 factors.
5. A small area associated with common open space tracts for Cascade Highlands and Tetherow destination resort that should not be considered buildable or suitable for urbanization.
6. The portion of the Miller Tree Farm rural cluster subdivision property that was not screened out based on the County's wildlife overlay zone.

This left 5,400 remaining acres of exception land for further evaluation.

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Figure 8: Further Narrowing of Exception Lands

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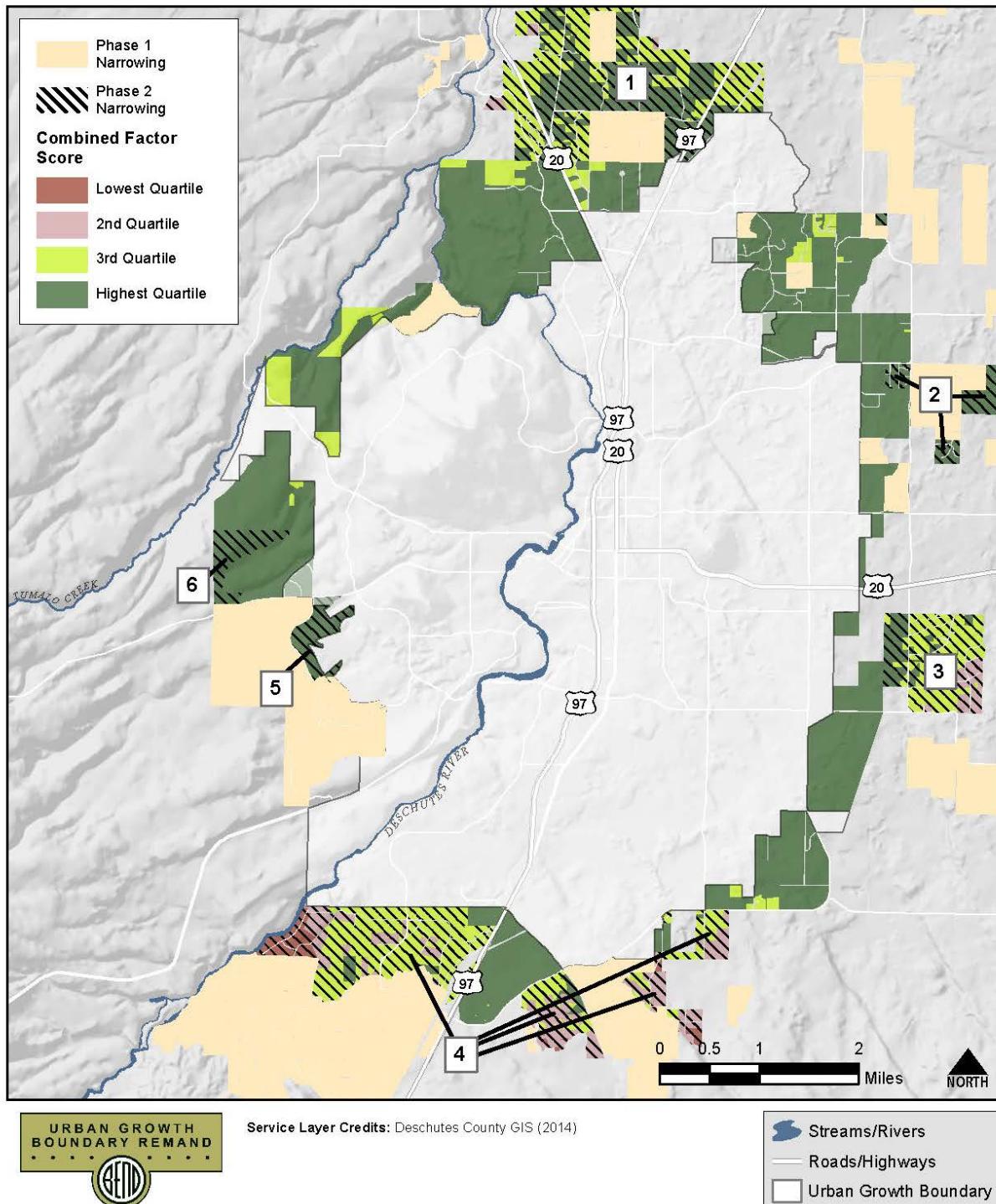
5.4 Stage 3: Scenario Development

Approach

Initially, three geographically specific UGB expansion scenarios to meet anticipated land needs were created based on input from all three TACs and the USC in a workshop. These scenarios were brought to the Boundary TAC and USC for review and refinement. The Boundary TAC recommended and USC approved three specific UGB Expansion Scenarios for evaluation, but also asked the project team to evaluate all land that had been given the top rating (i.e. scored in the top quartile when all indicators were combined) during the "Stage 2" evaluation of exception land within the two-mile study area and had not been excluded by subsequent refinements and narrowing. The areas that met those tests and were not included in one of the three UGB Expansion Scenarios were identified as "Supplemental Analysis Areas".

Some of the models used for scenario evaluation (such as the transportation model) require "budgeted" land use assumptions in order to do a full evaluation and an "apples to apples" comparison against land included in the three UGB Expansion Scenarios. In order to respond to the direction for equal evaluation, the team created three Supplemental Analysis Area Maps ("SAAMs") that collectively incorporate all the land in the Supplemental Analysis Areas in packages with roughly the same total levels of employment and residential growth and the same assumptions about the amount and type of development that can be accommodated inside the UGB as the UGB Expansion Scenarios. The SAAMs were intended to test full utilization of certain geographic areas rather than distributed growth across a variety of potential expansion areas. The level of analysis for the SAAMs was identical to that done for the Scenarios.

The Scenarios and SAAMs are organized around eight general geographic areas that were identified as the most suitable to meet the identified land needs:

- West Area
- Shevlin Area
- OB Riley/Gopher Gulch Area
- North "Triangle"
- Northeast Edge
- DSL Property
- "The Elbow"
- "The Thumb"

These subareas are shown on Figure 9. Figure 9 also identifies the portions that were included in scenarios and those that were part of the Supplemental Analysis Areas.

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Supplemental Analysis Area Map
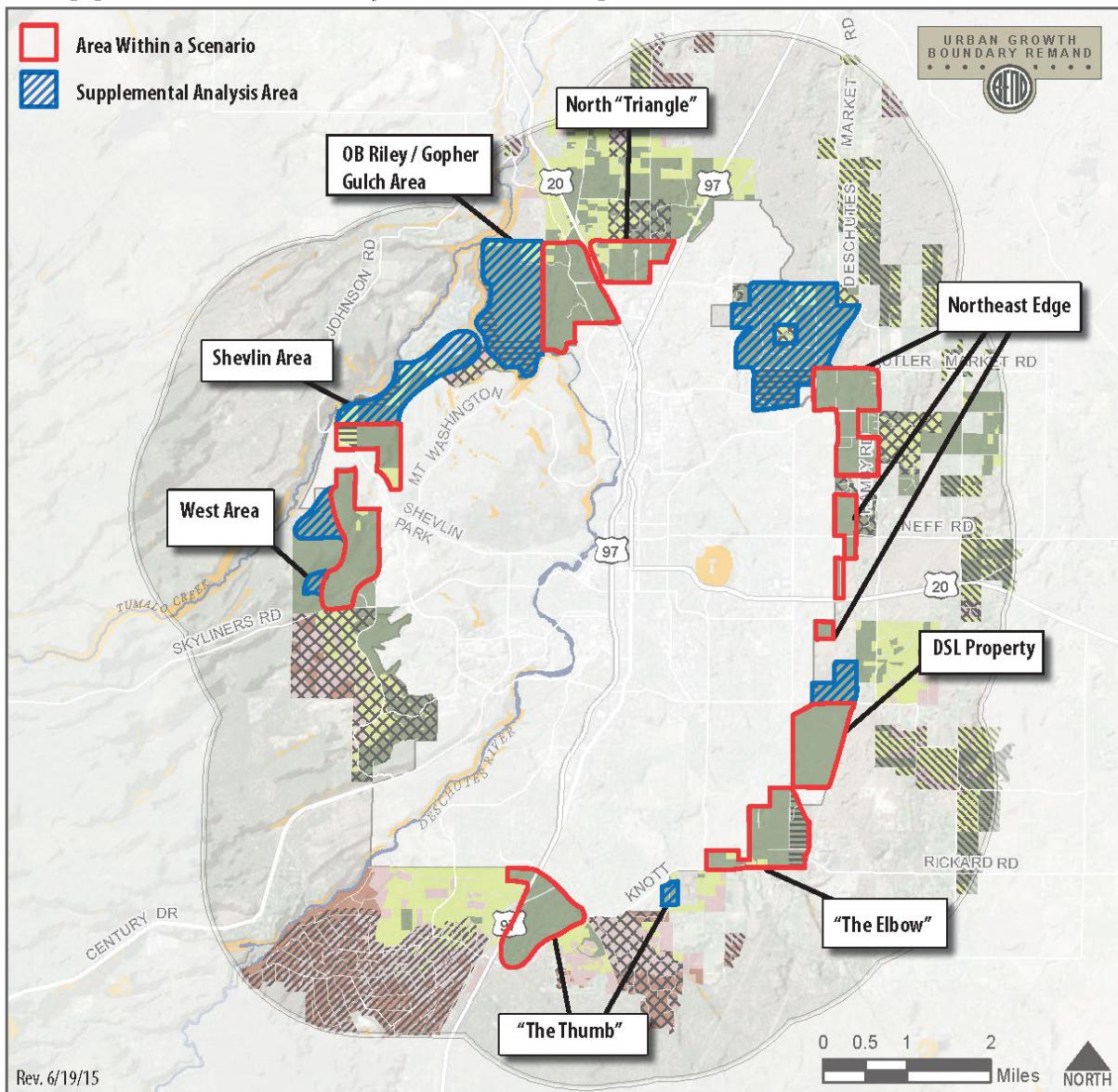
Summary of Alternatives Considered

The UGB Expansion Scenarios and SAAMs are described and illustrated below. The categories shown on the generalized scenario maps are as follows:

- _Residential area with locally-serving employment_: Predominately residential uses, with supportive uses such as parks, schools, and local commercial centers.

- _Residential area with significant employment_: A full mix with residential uses, parks and/or schools, and commercial and employment areas.

- *Employment area*: Employment-focused area providing for a mix of jobs (retail, office, and/or industrial) with little or no residential use.

Note that these categories reflect the combination of the many development types applied to the expansion areas to match the need for employment and housing by types. They are used for communication purposes only, and are not official land use plan designations that would be applied to expansion areas.

Figure 10 illustrates the six alternatives, while Table 20 summarizes the land use concept in each subarea for each of the three scenarios and three SAAMs.

Figure 10: UGB Expansion Scenarios and SAAMs

Legend:
- Residential Area with Locally-Serving Employment
- Residential Area with Significant Employment
- Employment Area
- Supplemental Area

Scenario 1.2 | Scenario 2.1 | Scenario 3.1
Supplemental Areas Map 1 | Supplemental Areas Map 2 | Supplemental Areas Map 3
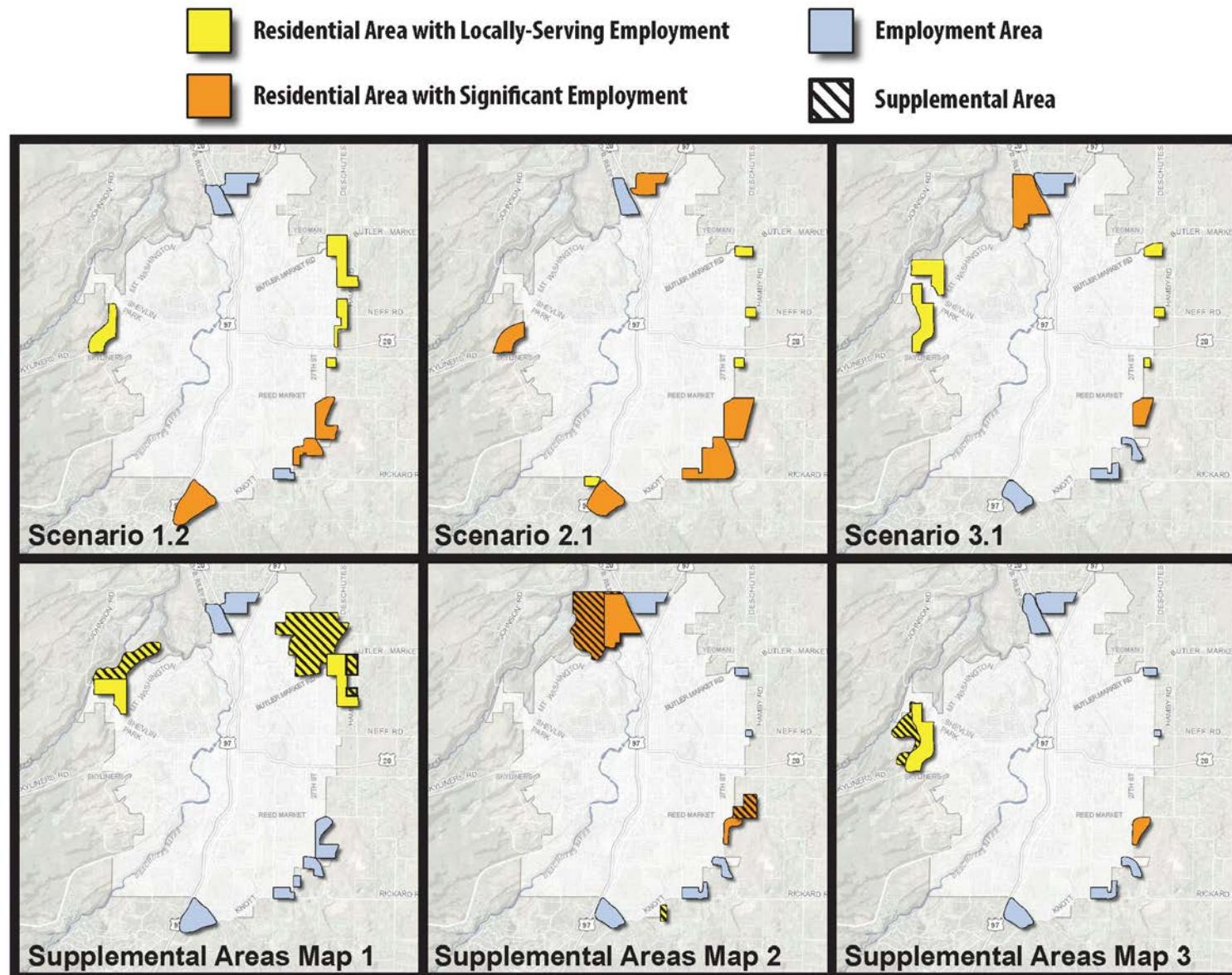
Table 20: Land Use Concepts by Subarea for UGB Expansion Scenarios and SAAMs

Subarea	Scenario 1.2	Scenario 2.1	Scenario 3.1	SAAM-1	SAAM-2	SAAM-3
OB Riley / Gopher Gulch	Limited to area east of OB Riley; employment-focused	Limited to area east of OB Riley; employment-focused	Both sides of OB Riley, but not large Gopher Gulch ownership; mix of housing & employment	Limited to area east of OB Riley; employment-focused	Both sides of OB Riley, and large Gopher Gulch ownership; mix of housing & employment	Limited to area east of OB Riley; employment-focused
North Triangle	Excludes parcelized area on the western edge adjacent to Hwy 20; employment-focused	Excludes parcelized area on the western edge adjacent to Hwy 20; mix of housing & employment	Full subarea included; employment-focused	Excludes parcelized area on the western edge adjacent to Hwy 20; employment-focused	Full subarea included; employment-focused	Full subarea included; employment-focused
Northeast Edge	Several large blocks of land contiguous to the UGB included; residential focus with commercial nodes	Small commercial nodes at Neff & Butler Market roads with small residential areas adjacent to each and small residential node at Bear Creek Road	Small commercial nodes at Neff & Butler Market roads with small residential areas adjacent to each and small residential node at Bear Creek Road	Large block of land between Eagle Road and Hamby Road, plus rural subdivision between Juniper Ridge and Yeoman Road	Small commercial nodes at Neff & Butler Market roads	Small commercial nodes at Neff & Butler Market roads
DSL Property & Darnell Estates	Roughly two-thirds of area included; mix of housing and employment uses	Full area included; mix of housing and employment uses	Roughly one-third of area included; mix of housing and employment uses	Roughly half of area included; employment-focused	Small sliver of DSL included plus Darnell Estates to the north; mix of housing and employment uses	Small node included; mix of housing and employment uses

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Subarea	Scenario 1.2	Scenario 2.1	Scenario 3.1	SAAM-1	SAAM-2	SAAM-3
"The Elbow"	Two blocks of land contiguous to existing UGB; mix of housing and employment uses	Full area included; mix of housing and employment uses	Two small fragments included; employment-focused	Three small fragments included; employment-focused	Two small fragments included; employment-focused	Two small fragments included; employment-focused
"The Thumb"	Full area included; mix of housing and employment uses	Roughly two-thirds of area included plus Baney property; mix of housing and employment uses	Roughly one-third of area included; employment focused	Roughly two-thirds of area included; employment focused	Roughly one-third of area included plus Woodside Road area; employment focused except residential in Woodside Road area	Roughly one-third of area included; employment focused
West Area	Narrow expansion hugging existing UGB; residential focus with small commercial node	Node on Miller property, focused around schools; mix of housing and employment uses	Roughly half of area included; residential focus with small commercial node	Not included	Not included	Full area included; residential focus with commercial nodes
Shevlin Area	Not included	Not included	Southern area included; residential focus with small commercial node	Full area included; residential focus with commercial node	Not included	Not included

5.5 Stage 4: Scenario Evaluation / Alternatives Analysis

Approach

The comparison, evaluation and balancing of Bend's UGB expansion alternatives was based on the following hierarchy of considerations:

- **Goal 14 Factors** – The legal requirements for what must be considered and balanced.
- **Community Outcomes** – Eight intended outcomes that reflect the city's goals for the project, articulate what the Goal 14 factors mean for Bend, and provide a way to summarize results for performance measures.
- **Performance Measures** – Detailed measures for each Goal 14 factor: the factual base for the evaluation. Some performance measures are quantitative and others are qualitative.

The Community Outcomes **(bold type)** and a summary of the performance measures under each Goal 14 Factor are listed below.

Factor 1: Efficient accommodation of identified land needs
- **Complete Communities and Great Neighborhoods**: walkability to schools, parks, and businesses; jobs/housing balance, and opportunities for master planning
- **Efficient, Timely Growth:** total expansion, density, land contiguous to existing UGB, and vacant vs. developed land included

Factor 2: Orderly and economic provision of public facilities and services
- **Balanced Transportation System**: reliance on the automobile (vehicle miles traveled per capita or VMT, trip length, mode split, walk trips), congestion, safety and connectivity, proximity to transit, and intersection density
- **Cost Effective Infrastructure**: total cost and cost per acre of transportation and sewer improvements, new miles of local roads, water system improvements in city water service area, impervious surface area, and development in welded tuff geology and Drinking Water Protection Areas

Factor 3: Comparative environmental, social, economic and energy consequences (ESEE)
- **Quality Natural Environment** (Environmental and Energy Consequences): development in wildlife areas, development adjacent to riparian areas, wildfire hazard, greenhouse gas emissions, energy use, and water consumption
- **Housing Options and Affordability** (Social Consequences): cost and mix of new housing
- **Strong Diverse Economy** (Economic Consequences): site suitability for commercial and industrial uses and for the large lot special site need

Factor 4: Compatibility of proposed urban uses with nearby agricultural and forest activities occurring on farm and forest land outside the UGB
- **Compatibility with Farms and Forests**: farm practices on high value farm land adjacent to expansion areas, impact to irrigation districts, and proximity to forest land

In Stage 2, the Boundary TAC and USC directed the team to use an "unweighted" (or, more precisely, an equally-weighted) approach to combining results from different indicators to identify overall performance of different areas. For the Stage 4 scenario evaluation, neither the Boundary TAC nor the USC provided specific guidance on how the performance measures should be weighed and balanced against one another. However, not all performance measures identify equally important advantages or disadvantages. Table 1 identifies which performance measures the project team identified as most and least important (relative to others within the same Community Outcome) and a rationale for why the team recommended they be given greater consideration in reaching a decision on the preferred UGB.

In addition, there are a handful of performance measures that identify truly significant differences between the alternatives – differences that will meaningfully affect the community in 2028 and/or that are critical to meeting the legal requirements for this UGB expansion. These "difference makers" are identified as "Very High" relative importance in Table 21, indicating their importance beyond a single community outcome. Additional performance measures are especially important at the subarea level, such as development in wildlife areas and adjacent to riparian areas, wildfire hazard, proximity to farms and forests, irrigation district impacts, suitability for commercial and industrial uses, and per acre costs for needed infrastructure extensions (framework roads and sewer lines).

The project team evaluated overall results using both an equally-weighted and an unequally-weighted approach, including several variations of weighting. The different approaches to weighting were presented and considered by the Boundary TAC as well. Using or not using weighting and the degree of weighting had minimal impact on the overall results: the top performing scenarios were found to rank in the same order regardless of whether and how the performance measures are weighted (see Scenario Evaluation Report for details).

Table 21: Goal 14 Factors, Community Outcomes, and Performance Measures

Goal 14 Factor	Community Outcome	Performance Measures	Relative Importance[57]	Rationale
Factor 1: Efficient accommodation of identified land needs	Complete Communities and Great Neighborhoods	Housing units within walking distance of schools	Moderate	Some differentiation among scenarios, but relatively easy to refine potential future school locations to improve walk access to schools (and also better match the School District's input on where they hope to provide future schools).
		Housing units within walking distance of parks and trails	Low	Little differentiation among the alternatives. Most of the existing city and most of the expansion areas have excellent access to parks; there are few residential or mixed use areas that do not have at least one park or trail within walking distance.
		Housing units within walking distance of commercial services	High	The hardest performance measure of this group to improve through refinement of land uses. This measure showed meaningful variations among the scenarios.
		Jobs/housing balance (by subarea)	Moderate	No meaningful variation at the scenario / SAAM level because all alternatives have roughly the same total housing and jobs. When evaluated by subarea, a greater degree of jobs/housing balance may make it possible for people to live and work in the same neighborhood, potentially reducing VMT.
		Opportunities for master planning	Moderate	Large properties that will be required to undergo master planning offer the potential for greater input from the city in the ultimate design of the new development; however, the master planning process does add time and expense to development.

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[57] Relative importance is relative to other performance measures within a given Community Outcome. Weighting of Community Outcomes against one another may be assigned at a later time based on community, TAC and/or USC input, but has not been applied at this time. However, performance measures identified as "Very High" importance are considered "difference makers" with importance beyond a single community outcome.

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Goal 14 Factor	Community Outcome	Performance Measures	Relative Importance[57]	Rationale
	Efficient, Timely Growth	Total acres of expansion	Low	Some of the variation among alternatives is attributable to the efficiency of the land included (based on topography and existing development patterns) and is not easy to change for a given area, but some of the variability is a function of the number of schools or parks included or the need to include an entire area for testing and are not indicative of efficiency of the land.
		Gross density for new housing	Very High	Gross residential densities vary among the alternatives, and factor in land with existing development that is assumed not to redevelop, making this measure a good indicator of residential efficiency, a key issue for compliance with state law and a key indicator of Bend's existing density of housing development.
		Net density for new jobs	Low	Little to no variation among the alternatives. More a function of nuances in the type of employment uses assumed than the efficiency of the land itself.
		Parcels under 20 acres and contiguous to the existing UGB	Moderate	Some variation among alternatives. Not a perfect measure of development readiness, but the best available measure of this.
		Vacant vs. developed land included	Low	Development on vacant land may be more likely to occur in a shorter amount of time because there are no existing land uses generating income or providing value for the property owner, but this is not always the case.
Factor 2: Orderly and economic provision of public facilities and services	Balanced Transportation System	Total VMT per capita	Very High	Used for determining compliance with a key provision of the Transportation Planning Rule (TPR).[58] Shows meaningful variation among the alternatives.
		Average trip length	Moderate	Shows meaningful variation among the alternatives; highly correlated with VMT, but informative at the subarea level.
		Household VMT per capita	Moderate	Highly correlated with Total VMT per capita; captures only travel to and from home.

[58] Oregon Administrative Rule 660, Division 12, Section 0065.

13608

Goal 14 Factor	Community Outcome	Performance Measures	Relative Importance[57]	Rationale
		Congestion	High	Some areas rely heavily on congested corridors where increases in capacity are either costly or are difficult or inappropriate. Increasing congestion on state highways is a primary issue both because of the impacts it can cause those who rely on the highways and because of regulations that require mitigation (which may be expensive, unlikely to be funded, and/or complex) if a change in land use will worsen congestion on a road that already does not meet standards.
		Walk/bike safety and connectivity	Moderate	Certain subareas have connectivity issues for integrating with the surrounding system that are difficult to overcome.
		System connectivity & progression of system hierarchy	Moderate	Certain subareas have connectivity and/or access issues that are difficult to overcome.
		Mode split	Moderate	Little variation at the full Scenario / SAAM level, though small differences in percentages can have a relatively large impact on the transportation system. Also informative at the subarea level.
		Average weekly walk trips per capita	Low	Correlated with mode split. Little variation at the Scenario / SAAM level. More informative at a subarea level.
		Proximity to transit corridors	Low	Minimal variation at the Scenario / SAAM level; more informative at the subarea level.
		Housing & jobs within ¼ mile of transit corridors	Low	Minimal variation at the Scenario / SAAM level, and since transit routing can and should be modified to respond to the final proposed UGB expansion, there is some ability to improve transit access for alternatives that scored lower.
		Intersection density	Moderate	Intersection density is an influential predictor of walking, and impacts VMT and bicycling as well. This performance measure is based on both existing intersection density and projected future intersection density (based on assumptions built into the development types), which makes it more hypothetical and somewhat less robust in the expansion areas.

13609

Goal 14 Factor	Community Outcome	Performance Measures	Relative Importance[57]	Rationale
	Cost-Effective Infrastructure	Total cost of transportation improvements required	Very High	Transportation costs are generally the single biggest expense associated with new development. Funding sources to cover anything not eligible for System Development Charges (SDCs) are limited and uncertain unless born directly by developers.
		Cost per acre of transportation improvements	Moderate	Rewards larger, less efficient expansions at the full scenario / SAAM level; more useful at the subarea level.
		New linear miles of local streets	Low	Based on assumptions built into the development types; city regulations and topography will influence what is ultimately built beyond what is captured in the development type assumptions.
		Efficiency of additional sewer system improvements required	Very High	Captures how well each alternative makes use of infrastructure that will be needed to serve growth inside the UGB and/or that can serve multiple expansion areas and how many improvements are needed that are not aligned with the preferred long-range system identified through optimization.
		Initial capital cost of sewer system improvements required	Moderate	A financing strategy for sewer has not been established yet; however, some or all of the capital costs identified may affect rate-payers. The city has recently increased rates to pay for upgrades needed to serve the existing UGB, so rate-payers will be sensitive to additional increases in rates, which makes keeping costs low important. Long-term improvement strategies typically are the most cost-effective, but this measure does not include life-cycle or operations and maintenance costs.
		Initial capital cost of sewer system improvements per acre of development	Moderate	Primarily relevant at the subarea level. Certain sub-areas have fixed costs to extend service, so when smaller areas are identified for development, the costs can become disproportionate to the area served.
		Water system improvements required in city water service area	Low	This measure addresses only areas within the city's water service area. Some areas are more challenging to upgrade capacity than others, but differences are fairly minor and no major issues were discovered.

Goal 14 Factor	Community Outcome	Performance Measures	Relative Importance[57]	Rationale
		Capacity of Avion Water system	Low	Avion did not identify any concerns with providing future water service to any of the expansion areas.
		Total impervious area for new development	Low	Little meaningful variation at the full Scenario / SAAM level. Stormwater costs are not significant relative to other types of infrastructure.
		Acres of new development within Drinking Water Protection Areas (DWPA)	Low	DWPA can be protected through regulations; the primary concern is industrial uses.
		Acres of new development with welded tuff geology	Low	While geology is an important factor in the cost of building new infrastructure, the available spatial data is not at a detailed enough resolution to allow for accurate prediction of where excavation costs will be affected.
Factor 3: Comparative environmental, social, economic and energy consequences (ESEE)	Quality Natural Environment (Environmental and Energy Consequences)	Development in wildlife areas	Moderate	The ODFW mapped wildlife winter range is broad and includes the existing city. The areas where ODFW indicated that elk and deer are more likely to congregate are, by their nature, imprecise; however, they are important to consider.
		Linear distance of riparian areas adjacent to development	Moderate	Riparian areas will be protected with buffers / setbacks and other regulations (such as Waterway Overlay Zone) that will limit impacts from adjacent development.
		Wildfire hazard	High	Wildfire risk is an important issue for the Bend area. Vegetation management can reduce wildfire hazard, and construction mitigation measures are possible in most areas. However, there are limited areas where steep slopes make certain types of mitigation infeasible.
		Greenhouse gas emissions	Low	Highly correlated with VMT and housing mix. The majority of variation among scenarios / SAAMs is due to transportation emissions.
		Energy Use	Low	Little variation among Scenarios / SAAMs; highly correlated with housing mix and patterns match closely with greenhouse gas emissions. Some variation at the Scenario / SAAM level may be due to nuances in the type of land uses assumed rather than the characteristics of the area itself.

Goal 14 Factor	Community Outcome	Performance Measures	Relative Importance[57]	Rationale
		Average Water Consumption per Household	Low	Little variation among Scenarios / SAAMs; highly correlated with housing mix. Some variation at the Scenario / SAAM level may be due to nuances in the type of land uses assumed rather than the characteristics of the area itself.
	Housing Options and Affordability (Social Consequences)	Average cost of new single family housing	Very High	Affordability is a key issue for Bend and for this UGB expansion. Enough variation at the scenario level for meaningful distinctions.
		Housing mix of new housing (subarea balance)	Low	Having a balanced mix of housing in most or all subareas helps prevent income segregation at the neighborhood level, but can fairly easily be adjusted through adjustments to land use assumptions.
	Strong Diverse Economy (Economic Consequences)	Site suitability for large lot industrial use	Low	Identifying an appropriate site for a large lot industrial use is important; however, the large lot site can fairly easily be incorporated into any of the scenarios, so it is not a differentiating measure.
		Site suitability for areas identified for industrial uses	High	This is important at a subarea level and for the creation of the preferred scenario.
		Site suitability for areas identified for commercial uses	High	This is important at a subarea level and for the creation of the preferred scenario.
Factor 4: Compatibility of proposed urban uses with nearby agricultural and forest activities occurring on farm and forest land outside the UGB	Compatibility with Farms and Forests	Farm practices & high value farm land adjacent to expansion areas	High	Protection of farms from impacts of development is a key tenet of the Oregon land use system, and greater distances betwee urbanizing areas and farms and forests reduces legal risk due to fewer or no compatibility issues. Some variation at the Scenario / SAAM level; more relevant at the subarea level.
		Impact to irrigation districts	Moderate	Meaningful variation among alternatives, particularly at the subarea level. Irrigation districts are important to the agricultural economy of Central Oregon. Loss of water rights due to development will have a financial impact on the Irrigation Districts and possibly impact the delivery of water to agricultural operations that are not directly affected by the boundary expansion.

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Goal 14 Factor	Community Outcome	Performance Measures	Relative Importance[57]	Rationale
		Designated forest land adjacent to expansion areas	Moderate	Greater distances beween urbanizing landuses and forest operations helps reduce concerns about compatibility and associated legal rise. However, very little area is proximate to designated forest land (several subareas are located more than one mile from the closest forest lands). Adjacent forest land is generally managed for recreation rather than timber harvest, so there are fewer compatibility concerns with adjacent development.

Summary of Scenario Evaluation Results

The following evaluation summary rolls up the results from each of the performance measures to conclusions at the community outcome level, answering the question: How well does this Scenario (or SAAM) achieve this Community Outcome? This section offers a summary and synthesis of the evaluation results. The detailed evaluation results were published in the "Bend Urban Growth Boundary Expansion Scenarios Evaluation Report", reissued October 20, 2015.

Factor 1: Efficient accommodation of identified land needs

Complete Communities and Great Neighborhoods

Top Tier

Scenario 2.1 performed the best overall on this Community Outcome, particularly on access to schools and commercial services, because it was created with the intention of providing for complete communities (neighborhoods with a mix of housing, jobs, commercial services, parks, and schools) in all quadrants of the city.

Middle Tier

Scenario 3.1 and, to a lesser extent, **Scenario 1.2** and **SAAM-2**, also performed well. These alternatives all had some subareas that are fairly complete, and others that were less so. Scenario 3.1 performed well on walk access to both schools and commercial; nearly all new residential expansion areas in each included at least a small commercial center and many included a school. Scenario 3.1 did the best at increasing the walk access of housing inside the existing UGB to commercial services. This appears to have been due to the placement of commercial areas in a few key locations. For example, within "The Thumb", placing commercial adjacent to China Hat Road provided walkable access to neighborhoods at the southern edge of the city that currently lack it. In the Shevlin Area, placing commercial along Shevlin Park Road provided walk access to portions of Awbrey Butte.

Bottom Tier

SAAM-1 and **SAAM-3** had mixed results on this Community Outcome, with performance below that of the other alternatives. In part, this is because they included one or two large, primarily residential expansion areas and fragmented employment areas elsewhere. SAAM-1 was the only alternative that did not perform well on park/trail access, because the northernmost extent of the Northeast Edge would not have walkable park/trail access. SAAM-3 performed poorly on school and commercial access, because of the large amount of new housing in the outer portion of the west area, away from existing and future commercial uses and schools. Because of the nature of the areas included in SAAM-1 and SAAM-3, it would be difficult to improve their performance on these measures – there are few or no suitable locations for additional schools, parks, or commercial areas in either one.

Efficient, Timely Growth

Top Tier

Scenario 1.2 performed the best overall on this Community Outcome, with high ratings across the board, because it provided a mix of large, vacant properties and smaller parcels contiguous

to the existing UGB. **Scenarios 2.1** and **SAAM-3** also performed well on this Community Outcome. Both did well on measures of density and efficiency because of their reliance on larger, vacant parcels, but both had a lower percentage of land under 20 acres and contiguous to the existing UGB.

Middle Tier

SAAM-2 and **Scenario 3.1** performed moderately well, though not as well as the others mentioned above. This is in part because lower residential densities were assumed in parts of the West Area and the Shevlin Area due to topography and the possible need for cluster development in order to allow for natural resource/wildlife habitat protection. Both also include a number of developed parcels between OB Riley Road and Gopher Gulch, which are less efficient to develop than vacant parcels.

Bottom Tier

SAAM-1 performed the worst on this Community Outcome, because the outer Northeast Edge and the Shevlin area both had lower residential densities; the outer Northeast edge includes quite a few developed properties, particularly in the subdivisions south of Juniper Ridge; and, while the parcels are smaller in the Northeast Edge, the outer portion is not contiguous to the current UGB.

Factor 2: Orderly and economic provision of public facilities and services

<u>Balanced Transportation System</u>

Top Tier

Across the various performance measures included in this Community Outcome, **Scenario 2.1** performed the best overall, with the lowest VMT per capita, the best overall walk/bike safety and connectivity, and the best system connectivity and progression of system hierarchy.

Middle Tier

Scenario 1.2, **Scenario 3.1**, **SAAM-1** and **SAAM-3** all performed moderately well – the relative ranking among these depended on which measures were given most importance, although differences were subtle. Scenario 1.2, SAAM-1 and SAAM-3 did fairly well on congestion, with relatively low overall congestion; they also did fairly well on walk/bike safety and connectivity, with no major barriers identified. It is worth nothing that SAAM-1 did poorly on VMT, but well on congestion (because there is relatively little existing congestion near the Shevlin area) and walk/bike safety and connectivity (because including the full extent of the Shevlin area provides for better connections to the existing road and trail system).

Bottom Tier

SAAM-2 did the worst on this Community Outcome overall, with poor performance on VMT, mode split, average trip length, and a number of other factors. It also performed less well on walk/bike safety and connectivity because the river forms a barrier with connections to the west.

Top Tier

Scenario 2.1 performed the best overall on this Community Outcome, in particular because of the low cost of transportation improvements required (low cost for connecting growth areas and low cost for projects to increase capacity). It also performed fair to well on measures of sewer system cost-effectiveness as well as new linear miles of local streets, water system improvements within the Bend water service area, and total impervious area for new development. It had only one negative rating, on new development within a Drinking Water Protection Area, because of the amount of development in The Thumb.

Middle Tier

SAAM-2 performed somewhat poorly on sewer, though it was not the worst performer; it takes advantage of major trunk infrastructure to the north but the DSL property and The Elbow are not cost-effective due to small area included and fixed costs to serve those areas. It had moderate transportation costs, with low costs for connecting growth areas but high costs for required capacity improvements (including the need to widen US 20 from Robal Rd to 3rd Street). It's only other drawback was having a relatively high proportion of development in areas with potentially challenging geology (welded tuff).

Bottom Tier

Scenarios 1.2 and **3.1, SAAM-1** and **SAAM-3** all had at least one significant drawback on transportation and/or sewer infrastructure, though most had mixed results overall. **Scenario 3.1** performed acceptably across most performance measures in this group, but had high transportation costs relative to the other scenarios due to high cost for connecting growth areas and the need to widen US 20 from Robal Rd to 3rd Street. **Scenario 1.2** also performed poorly on transportation infrastructure, due to high cost for connecting expansion areas and high cost for capacity improvements, but performed the best on sewer infrastructure, because it focused more growth on the Northeast edge, which is efficient for sewer service. **SAAM-3** had high costs for sewer improvements because of the need for a new regional pump station to serve the northwest portion of the West Area, but low costs for transportation improvements due to low cost for connecting growth areas and moderate cost for congestion mitigations (including the need to widen US 20 from Robal Rd to 3rd Street). SAAM-3 also had the greatest amount of development in areas with welded tuff geology, which can add to the cost of excavation. **SAAM-1** had high costs for sewer because of the need for a new regional pump station to serve the Shevlin Area (though it did take advantage of cost-effective sewer in the Northeast edge), and also had relatively high transportation costs due to high costs for connecting expansion areas as well as high costs for intersection improvements.

Factor 3: Comparative environmental, social, economic and energy consequences (ESEE)

Quality Natural Environment (Environmental and Energy Consequences)

Top Tier

Scenario 1.2 and **Scenario 2.1** rated fair to very good across all performance measures under this Community Outcome. Neither had development adjacent to riparian areas, and both had

limited total expansion in elk and deer range, with no expansion into ODFW areas of potential concern. Neither had features that prevent mitigation of wildfire hazard in any expansion areas. Both had reasonably good performance on energy consumption, greenhouse gas, and water consumption measures as well.

Middle Tier

Scenario 3.1, **SAAM-2** and **SAAM-3** had mixed results. SAAM-2 performed fair to well on all measures except greenhouse gas emissions and energy use. Scenario 3.1 rated poorly on development in wildlife areas and wildfire hazard due to the inclusion of roughly half of the Shevlin area, which is both an ODFW area of potential concern and has topographic features that make it difficult to fully mitigate wildfire risk. SAAM-3 rated poorly on development in wildlife areas because so much growth was focused in the West area, but performed fairly or well on other performance measures.

Bottom Tier

SAAM-1 performed poorly on many of the performance measures, and did not perform well on any. It rated very low on development in wildlife areas and lower also on wildfire hazard because it included the full Shevlin area (see reasons noted above). It also rated lower than other scenarios on development adjacent to riparian areas because of the inclusion of the upper portion of the Shevlin Area.

Housing Options and Affordability (Social Consequences)

Top Tier

Scenario 2.1 and **SAAM-1** performed the best on this Community Outcome, though there were only two performance measures. Scenario 2.1 had good housing mix in nearly all subareas and good housing affordability with significant housing growth in the southeast. SAAM-1 had good housing mix in both primary residential expansion areas and had moderately affordable housing due to the heavy expansion in the Northeast Edge.

Middle Tier

Scenario 1.2 performed well on affordability, but less well on housing mix, with most subareas somewhat imbalanced (too much single family or too little). **SAAM-2** performed well on housing mix, but less well on affordability, with growth focused on the northwestern side of the city.

Bottom Tier

Scenario 3.1 and **SAAM-3** performed poorly on affordability due to the heavy focus on the west side of the city. SAAM-3 also did not perform well on housing mix because there were small residual areas of almost exclusively multifamily housing.

Strong Diverse Economy (Economic Consequences)

Top Tier

Nearly all alternatives – **Scenario 1.2**, **Scenario 3.1**, **SAAM-1**, **SAAM-2**, and **SAAM-3** -- performed well or very well across all performance measures in this Community Outcome.

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Scenario 2.1 rated somewhat lower, because it placed employment and commercial uses in more of the expansion areas (e.g. the West Area) where they are somewhat less well suited.

Factor 4: Compatibility of proposed urban uses with nearby agricultural and forest activities occurring on farm and forest land outside the UGB

<u>*Compatibility with Farms and Forests*</u>

Top Tier

Scenario 1.2 rated the highest on farm and forest compatibility because it affected the fewest irrigation district customers and has no forest land within a mile of any expansion area.

Middle Tier

Scenario 2.1, **SAAM-3**, and, to a lesser extent, **SAAM-1** also rated fair to good on this Community Outcome. SAAM-3 had less farm impacts but more forest adjacency than other alternatives. Scenario 2.1 and SAAM-1 both had moderate levels of farm impacts, moderate impacts to irrigation districts, and little to no forest land adjacency.

Bottom Tier

Scenario 3.1 and **SAAM-2** rated the lowest on farm and forest compatibility because they were proximate to the greatest number of working farms and also affect the greatest number of irrigation district customers.   Scenario 3.1 also had some forest land between a mile and a quarter-mile away from the expansion in the West Area.

Best-Performing Alternative

Based on the full alternatives evaluation, in considering and balancing the four Goal 14 Factors, Scenario 2.1 performed the best of the alternatives overall, regardless of whether and to what degree weighting is applied to distinguish between the more and less important performance measures. Scenario 2.1 was in the "top tier" relative to other alternatives on nearly all community outcomes, including:

(1) Complete Communities and Great Neighborhoods (because it was created with the intention of providing for complete communities in all quadrants of the city);

(2) Efficient, Timely Growth (because of its efficient use of residential land and reliance on some large, vacant parcels balanced with some areas with more parcelization);

(3) Balanced Transportation System (because of the above advantages plus enhanced connectivity due to the extension of Murphy Road to 27th / Knott and keeping growth in the northeast focused to nodes along major east-west corridors);

(4) Cost-Effective Infrastructure (because of relatively low cost for both connectivity- and capacity-related transportation improvements and reasonable costs for sewer improvements);

(5) Quality Natural Environment (because it avoided riparian areas, limited expansion in wildlife areas, did not have any features that prevent mitigation of wildfire risk in any expansion areas, and had fairly low energy and water consumption and greenhouse gas emissions); and

(6)   Housing Options and Affordability (because it had good housing mix in nearly all subareas and good housing affordability with significant housing growth in the southeast[59]).

The two Community Outcomes where Scenario 2.1 was not in the Top Tier were Strong Diverse Economy (because it placed employment and commercial uses in some areas, such as the West Area, where they are somewhat less well suited) and Compatibility with Farms and Forests (because it had relatively more impact to Arnold Irrigation District from inclusion of full Elbow area and development adjacent to several commercial farms, including the greatest amount of development next to a feed lot south of Knott Road).

No other alternative had as strong a performance on as many community outcomes, and each of the other alternatives has at least one important weakness identified through the evaluation, as documented in the Scenario Evaluation Report. These weaknesses often related to one or more specific subareas. Subarea-level results are summarized below.

Subarea Advantages, Disadvantages and Trade-Offs
This section provides a summary of findings from the evaluation on the key advantages and disadvantages of each subarea (those that are either inherent to the geography or that do not vary appreciably between the alternatives).

North Triangle
Key Advantages
- Cost-effective sewer
- Fairly close to existing transit
- Well-suited to commercial uses
- No commercial farms or forest lands nearby

Key Disadvantages
- Contributes to congestion on 97 & 20
- Canals create barriers
- Industrial / rural residential compatibility concerns
- Large format retail reduces attractiveness for housing
- Impacts Swalley Irrigation District
- New collector roads relatively costly

OB Riley / Gopher Gulch
Key Advantages
- Master planning opportunities (Gopher Gulch)
- Proximity to planned parks on west
- Eastern portion generally well-suited to industrial & commercial uses
- Close to transit on SE corner

Key Disadvantages
- Many developed parcels in south
- Connectivity limited in west
- Requires extension of major sewer line
- Wildfire hazard difficult to mitigate adjacent to river
- Impacts Swalley Irrigation District

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[59] Housing costs for new construction were found to be roughly 30% lower in neighborhoods on the outer east side of the city relative to neighborhoods on the outer west side of the city. Housing in expansion areas is assumed to follow this trend.

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Northeast Edge

Key Advantages

- Cost-effective sewer
- Well-suited to commercial uses adjacent to major roads
- Mid-size parcels, possibility for near-term development
- Housing affordability

Key Disadvantages

- Limited connectivity
- Canals create barriers
- Not near transit
- Some commercial farms nearby

DSL Property (& Darnell Estates)

Key Advantages

- Master-planning opportunity (DSL)
- No irrigation district impacts (DSL)
- Housing affordability
- Relatively close to transit
- Well-suited for commercial & employment uses along major roads (DSL)

Key Disadvantages

- Potential impacts to bat caves on DSL property
- Darnell Estates requires additional sewer extension – not cost-effective

The "Elbow"

Key Advantages

- Existing school & possible future park site
- Housing affordability
- Fairly well-suited to commercial and employment along 27th / Knott Rd.

Key Disadvantages

- Connectivity limited unless connection built from Rickard to 15th near Murphy
- New collector roads relatively costly
- Requires interim pump station for sewer
- Partially in Elk/Deer Range
- Farm adjacency, including feed lot along Knott Rd.
- Not near transit
- Impacts Arnold Irrigation District

The "Thumb" (& southern area)

Key Advantages

- Master planning opportunities
- Housing affordability
- Well-suited to a wide range of uses (Ward)
- South end of US 97 relatively uncongested

Key Disadvantages

- Connectivity limited unless full collector system built from China Hat to Knott (highway & railroad barriers)
- Canal creates barriers
- Reliant on US 97
- Long average trip lengths
- Fully in Elk/Deer Range
- Impacts Arnold Irrigation District
- Drinking Water Protection Areas – concern for certain industrial uses

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West Area

Key Advantages
- Master planning opportunities
- Relatively close to transit on eastern edge
- No irrigation district impacts

Key Disadvantages
- Largely welded tuff geology
- Entirely within Deer & Elk Winter Range
- Housing likely to be more expensive
- Limited suitability for industrial & commercial uses

Shevlin Area

Key Advantages
- Master planning opportunities
- Includes planned school site
- Relatively close to transit at SE corner
- Minimal congestion
- Proximity to existing/planned parks & trails
- No irrigation district impacts

Key Disadvantages
- Long trip lengths
- Difficult to build connected local streets
- Entirely within Deer & Elk Winter Range, largely within ODFW Areas of Potential Concern
- Housing likely to be more expensive
- Limited suitability for industrial & commercial uses
- NW edge adjacent to Tumalo Creek
- Outer portions may be difficult to reduce fire hazard
- Proximity to forest land in western corner

5.6 Stage 5: Refining the Preferred Scenario

Scenario 2.1 was selected as the starting point for creating a preferred scenario due to its performance in the alternatives evaluation. The USC chose Scenario 2.1, in brief, to balance growth on both the east and the west, reduce the traffic impact on the west, include the area referred to as the "Perfect Rectangle," and reduce the risk of wildfire on the west. The USC discussion also noted survey results where Scenario 2.1 rated well in an online survey.

The refinement process addressed arrangement of land uses and changes to boundary location in certain subareas. It also included adjustments to assumptions about yield from efficiency measures and capacity of land inside the current UGB in order to ensure that these assumptions were "reasonably likely". The refinements included:

- removing small areas that performed poorly or would not be cost-effective to urbanize (e.g. area south of Bear Creek Road);
- refining the land uses within some sub-areas in order to address compatibility concerns and ensure an appropriate mix and intensity of uses in each area, given its context and the potential for additional future expansions that would build on the current expansion (e.g. rearranging land uses in the North Triangle, Thumb, and the Elbow);
- distributing growth across more of the land in the west and northwest (adding the Anderson Ranch property and portions of the Rio Lobo property, plus the southernmost

portion of the Shevlin area) rather than relying on a single property owner in this area, which also facilitates creating a new north/south transportation connection (Skyline Ranch Road);

- consolidating growth in the northeast to a single larger block of land (around Butler Market Road) where a new complete community is possible rather than multiple small expansion areas (eliminated the small node at Neff Road);
- inclusion of park land as requested by the Park District in their testimony (Alpine Park in Southwest, Rock Ridge Park and Pine Nursery Park in Northeast); and
- including specific properties that offered commitments to provide affordable housing (e.g. a portion of the PacWest /Porter/Kelly Burns property south of Highway 20 and a portion of the Rio Lobo property in the West), in order to ensure that housing will be available to meet the needs of residents at all income levels.

The Boundary TAC and USC provided input at multiple meetings, and directed refinements based on public testimony in the context of balancing the four Goal 14 factors. In considering whether to add land that was not included in Scenario 2.1, the USC, city staff, and consultant team considered whether scenario evaluation provided evidence that a certain area performed better with the land in question included, and any public testimony providing new evidence of a compelling advantage from including the land. The USC, city staff, and consultant team also ensured that components of Scenario 2.1 that were essential to its strong performance in the scenario evaluation (e.g. emphasis on complete communities, strong growth in the southeast area of the city, and moderate amounts of expansion in the south, west/northwest) were retained throughout the refinement process.

5.7 Proposed 2016 UGB Expansion

Summary of Proposal
The proposed 2016 UGB expansion (the "preferred scenario") is for a total of 2,380 acres:

- 1,142 gross acres of residential land (including land for future schools and future parks not yet in BPRD or school district ownership);
- 815 gross acres of employment land;
- 285 acres of land for public facilities currently in BPRD or school district ownership; and,
- 138 acres of existing right-of-way within and fronting UGB expansion areas, needed to provide urban street improvements to support growth in the expansion areas.

Like previous expansion scenarios, the preferred scenario focuses future growth in opportunity areas within the existing UGB and in new complete communities in expansion areas. Nearly all expansion areas include a mix of housing, employment areas, shopping/services, and schools and parks. A "transect" concept[60] in the West Area reduces the density of development near the west edge of the city in recognition of the natural resources and open spaces to the west.

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[60] An urban to rural transect is a urban planning model created by New Urbanist Andres Duany, in which development intensity transitions from sparse settlement to a dense urban core through a series of zones. For more information: http://www.dpz.com/Initiatives/Transect.

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A summary map of the preferred scenario is provided below (Figure 11) followed by a map of proposed Comprehensive Plan designations (Figure 12). Tables summarizing key metrics for the preferred scenario begin on page 83.

Figure 11: Preferred UGB Expansion Scenario

Preferred Urban Growth Boundary Expansion: Scenario 2.1G

13623
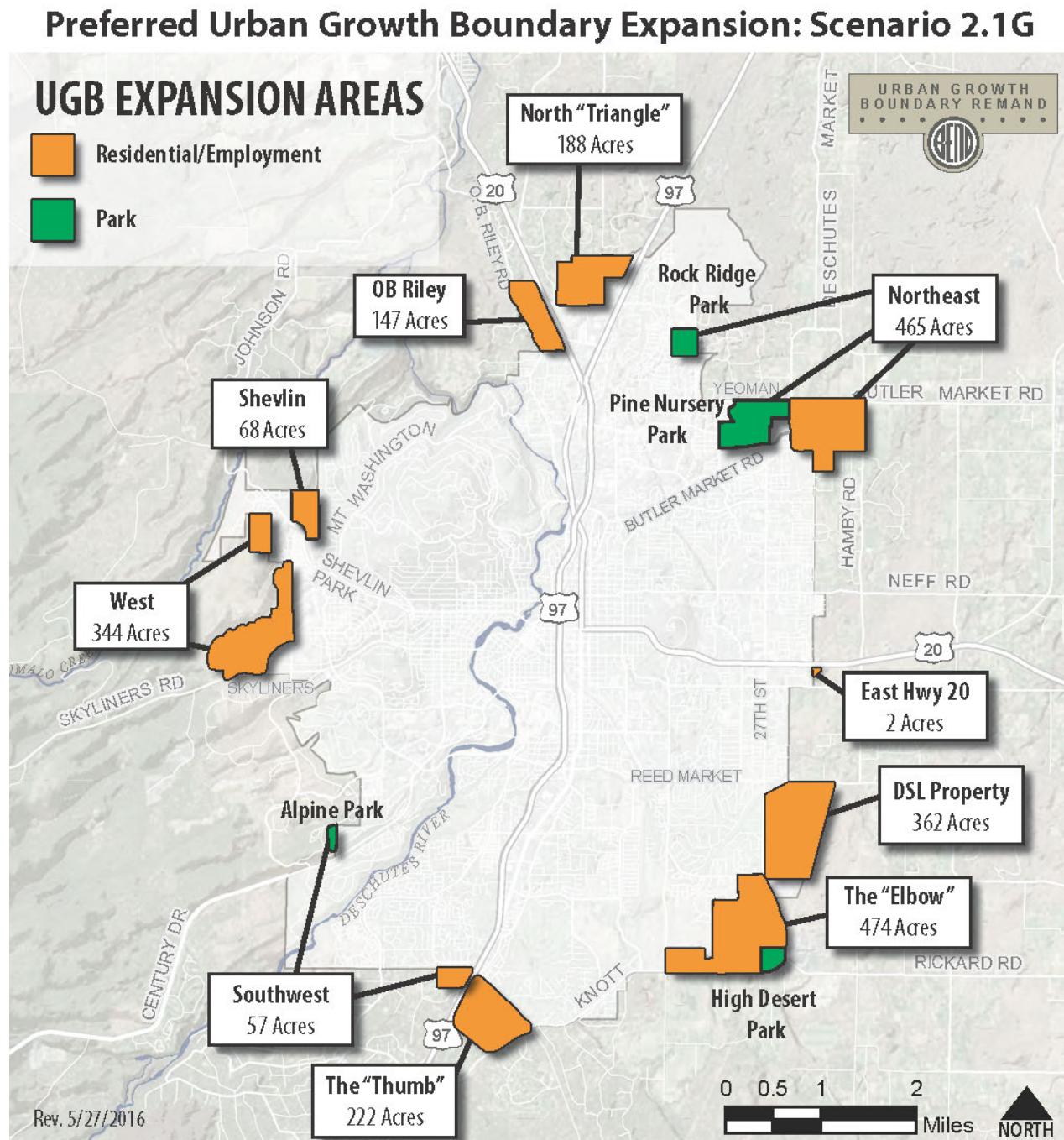
Figure 12: Proposed Comprehensive Plan Designations

Comprehensive Plan Designations
- CB
- CC
- CG
- CL
- IG
- IL
- ME
- MR
- MU
- MN
- PO
- PO/RM/RS
- RH
- RL
- RM
- RS
- PF

Disclaimer: Land uses are subject to refinement during master planning and City-initiated area planning.

Service Layer Credits: Deschutes County GIS (2014)

URBAN GROWTH BOUNDARY REMAND
BEND

Streams/Rivers
Roads/Highways

Urban Growth Boundary
Proposed
Current

13624
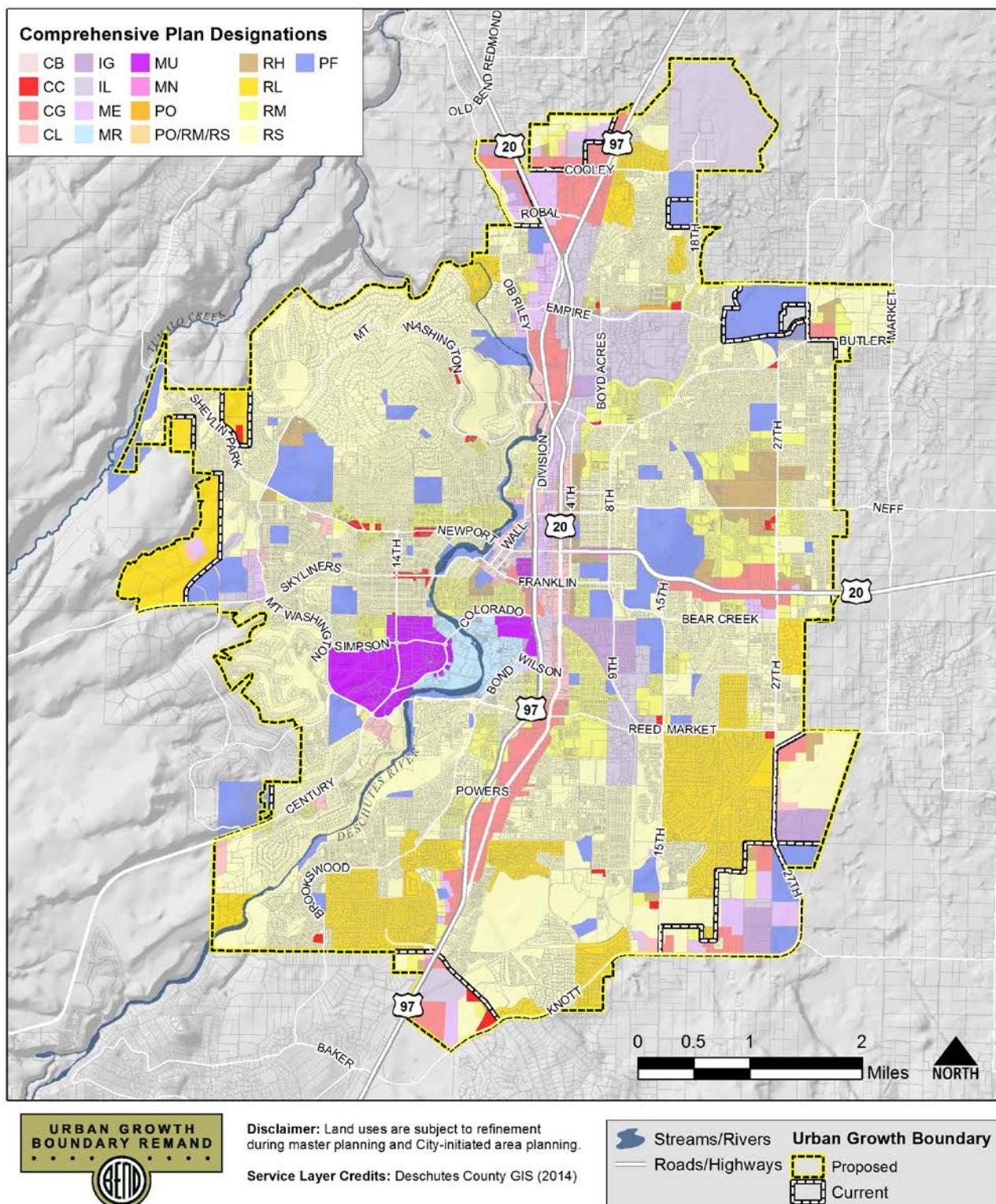
Key Metrics and Land Needs in Proposed UGB Expansion Areas

Table 22, below, summarizes key facts about the proposed UGB expansion by subarea, including acreage by land use and housing and employment estimates for each area.

Table 22: Preferred UGB Expansion - Key Metrics

Expansion Area	Total Acres	Resid-ential Land (ac)[61]	Employ-ment Land (ac)[62]	Public Facilities Land (ac)[63]	Existing Right of Way (ac)	Housing Units[64]	Housing Mix[65]			Est. Jobs
							SFD	SFA	MF	
North "Triangle"	188	86	88	0	14	505	44%	13%	42%	835
Northeast	471	222	22	196	31	1,099	50%	10%	40%	214
East Hwy 20	2	2	0	0	0	70	0%	14%	86%	0
DSL Property	368	223	139	0	6	1,001	49%	11%	41%	880
"The Elbow"	479	122	246	75	36	819	36%	17%	47%	2,274
"The Thumb"	245	44	177	0	24	266	49%	15%	37%	1,573
Southwest	57	34	5	14	4	240	24%	16%	60%	80
West	347	321	21	0	5	983	69%	10%	21%	261
Shevlin	68	60	8	0	0	174	69%	10%	21%	74
OB Riley	154	28	109	0	17	125	70%	10%	20%	990
Expansion Total	**2,380**	**1,142**	**815**	**285**	**138**	**5,282**	**50%**	**12%**	**38%**	**7,181**

The total residential, employment and park and school land need in the UGB expansion includes within it small amounts of buildable land and developed land that is unlikely to redevelop within the planning horizon located on parcels that have other vacant, buildable land. It also includes land for things like future parks and open space, future schools, future right-of-way, and other future urban uses. A breakdown of the land need is provided in Table 23.

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[61] Residential Land identifies total acres of residential plan designations on tax lots.

[62] Employment Land identifies total acres of employment plan designations on tax lots.

[63] Public Facilities land indicates land owned by the park or school district to which the PF plan designation is being applied; land for additional parks & schools is provided within residential land acreage.

[64] Housing units are modeled capacity estimates. Policies in the new Growth Management chapter of the Comprehensive Plan specify minimum and/or maximum housing capacities for each expansion area that are based on the modeled capacity estimates, but may be rounded slightly or incorporate slight refinements based on negotiated agreements.

[65] SFD = Single Family Detached; SFA = Single Family Attached; MF = Multifamily (includes duplex & triplex). Housing mix reflects policy requirements for the expansion area in total; individual properties may vary.

Table 23: Components of Land Need

	Residential Land	Employment Land	Public Facilities
Total expansion acres on parcels by plan designation	1,142	815	285
Unbuildable Land[66]	11	2	3
Developed Land Not Expected to Redevelop[67]	13	13	152
Vacant and Redevelopable Buildable Acres	1,119	800	130
Land for future right of way, future parks & open space, future schools, and other urban uses	475	255	130
Net Buildable Residential / Employment Acres	**644**	**545**	**0**

Accommodating Projected Growth: Summary of Proposed UGB Capacity

A summary of the how the total need for housing units, jobs, and land for schools, parks, and other urban uses is met in the UGB proposal as a whole (including the existing UGB plus the proposed UGB expansion) is provided on the pages that follow.

Housing Capacity

The following tables summarize how housing need is met within the existing UGB and in the proposed UGB expansion. Note that the number of new housing units reported is net of any existing units that may be lost through redevelopment in non-residential districts.

Table 24: Full Proposed UGB Housing Capacity by Type

Housing Type	Total Housing Need[68]	Net New Housing Units Inside Current UGB	New Housing Units in UGB Expansion Areas	Total New Housing Units
Single Family Detached	9,225	6,599	2,628	9,227
Single Family Attached	1,667	1,039	636	1,675
Multi-Family	6,331	4,313	2,018	6,331
Total	**17,233**	**11,950**	**5,282**	**17,233**

While there are very minor differences between the number of units by type needed and the number estimated to be provided through the proposed UGB expansion and efficiency measures inside the existing UGB, they are so slight as to be attributable to rounding errors and the precision of the Envision Tomorrow model. In total, the UGB expansion proposal meets the City's identified housing needs as well as accommodating the projected number of second homes and group quarters.

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[66] See page 46 for an explanation of lands identified as unbuildable.

[67] A quarter acre of land on each property with an existing home(s) was assumed to be developed. Redevelopment assumptions are the same as those for developed land inside the UGB (based on the plan designation / development type). For existing schools and parks, the area developed with existing uses was estimated based on aerial photography.

[68] The total housing need listed includes housing units needed to meet projected growth in households, second homes, and equivalent dwelling units to meet group housing needs. See HNA for details.

Residential Density

Overall housing density for new housing throughout the proposed UGB averages roughly 8 units per net residential acre (including land developed with vertical mixed use buildings). The net density of residential uses in commercial and mixed use plan designations is much higher: close to 50 units per net residential acre (including land developed with vertical mixed use buildings). Looking only at residential plan designations, the net density is roughly 7 units per net residential acre. This is an increase in residential density relative to historic trends and relative to the Base Case, and represents efficient use of residential land.

Employment Capacity

The following tables summarize how projected employment growth is accommodated within the existing UGB and in the proposed UGB expansion. Note that the number of new jobs reported is net of any existing jobs that may be lost through redevelopment in non-residential districts.

Table 25: Full Proposed UGB Employment Capacity by Category

Employment Category	Total Employment Need[69]	Net New Jobs Inside Current UGB	New Jobs in UGB Expansion Areas	Total New Jobs
Industrial	6,522	4,506	2,018	6,524
Retail & Hospitality	6,546	3,223	3,313	6,536
Office	7,158	5,324	1,797	7,121
Public	1,717	1,671	53	1,724
Total	**21,943**	**14,723**	**7,181**	**21,901**

While there are very minor differences between the number of jobs by category projected and the number estimated to be provided through the proposed UGB expansion and efficiency measures inside the existing UGB, they are so slight as to be attributable to rounding errors and the precision of the Envision Tomorrow model. In total, the UGB expansion proposal provides adequate land for employment, consistent with the employment projections in the EOA.

Land for Parks

The proposed UGB includes the following land for parks:

- 73 acres of undeveloped park land already in BPRD ownership inside the UGB;
- 70 acres of undeveloped community park land already in BPRD ownership in UGB expansion areas (Rock Ridge Park and High Desert Park);
- 14 acres of undeveloped neighborhood park land already in BPRD ownership in UGB expansion areas (Alpine Park);
- 147 acres of developed park land in UGB expansion areas (Pine Nursery Park);[70] and

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[69] The employment need categories have been generalized for simplicity in comparing against capacity as measured in Envision Tomorrow. See EOA for details.

[70] As of the 2012 Master Plan, the Pine Nursery Community Park had already been developed, and had been used to close the gap in identified needs for community parks based on growth inside the UGB since 2008. Since it is already serving urban residents, it should be managed as an urban park and brought into the UGB so that it can be more effectively and efficiently managed.

- 170 acres of open space set-asides that may be dedicated for public parks where appropriate.

In total, the 227 acres of park land need identified in Chapter 1 (see page 14) is met by the proposed future UGB, as shown in Table 26. Since only about 70 acres of the 170 provided for by all open space set-asides in the future UGB are expected to be needed for public parks, the remainder (about 100 acres) is assumed to be private open space.

Table 26: How Park Land Needs are Met

	Neighborhood Parks	Community Parks	Total
Available undeveloped BPRD land inside existing UGB	29.1	43.8	72.9
Undeveloped BPRD land outside current UGB and proposed for inclusion in future UGB	14.3	69.7	84.0
Additional acres provided through master plans or other dedication / acquisition in UGB expansion areas and large vacant opportunity sites within the current UGB	22.1	48.3	70.4
Total Park Acreage to be developed 2014 to 2028 [71]	**65.6**	**161.8**	**227.3**

Land for Schools

For schools, two new elementary schools are identified in UGB expansion areas, in addition to the new elementary school location identified inside the UGB (along 15th Street). Combined with the existing School District land for a middle school and a high school inside the UGB, this meets the identified needs for three to four elementary schools, one middle school and one high school based on the School District's master plan (see page 15). The total amount of land provided for new school sites in the proposed UGB is roughly 125 acres. In addition, the existing school site at High Desert Middle School is proposed to be included in the UGB. This site is a total of 74 acres; however, a portion of the site is assumed to be made available for other development. The amount of land assumed to be dedicated to school use on that site is roughly 40 acres.

Land for Other Urban Uses

Land for other urban uses inside the existing UGB and in expansion areas is summarized in Table 27.

Table 27: Summary of Other Urban Land Uses

	Current UGB (Ac)	Expansion Areas (Ac)	Total (Ac)	Percent of Vacant & Redeveloped Acres	Percent of Vacant & Redeveloped acres, excluding platted lots
Future Right of Way	699	416	1,116	19.6%	21.1%
Other Uses	405	242	648	11.3%	12.3%

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[71] See Table 4 on page 14 for an explanation of the park land need estimate.

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The proposed future UGB provides for 21% right of way (after excluding vacant platted lots). This meets the total need for new right of way, and is consistent with the right of way need established by the City.

The proposed future UGB provides a total of 648 acres of land for other land needs (such as churches, benevolent/fraternal organizations, utilities, canals, cemeteries, golf courses, properties owned by irrigation districts, and RV parks). When the 100 acres of private open space (the open space set-asides above and beyond the need for public parks) are included, the total is 673 acres. This represents 11% of total acres of development / redevelopment, and 12% of acres developed after excluding vacant platted lots. This meets the total need for new other land uses, and is consistent with the land need for other urban uses established by the City.

Preferred Scenario Goal 14 Evaluation

Overview

The purpose of this section is to summarize the evaluation of the Preferred UGB Expansion Scenario relative to the four Goal 14 factors. This summary draws on technical memoranda prepared by Angelo Planning Group, Fregonese Associates, DKS Associates, and Murray Smith Associates addressing specific topics and provides a summary of key findings from those evaluations.

The evaluation of the preferred scenario was based on the same "Community Outcomes" and largely the same set of "Performance Measures" used to evaluate the original scenarios and SAAMs (see page 63). The methodology used to evaluate each performance measure was generally similar to previous evaluations for the initial scenarios and SAAMs. Some refinements to land use and transportation assumptions have been applied in order to more accurately reflect elements such as current and proposed development code regulations, updates to the BLI, street and block size standards, and housing cost factors. In addition, the details of the methodology were refined for a few of the performance measures in order to make the results more informative. This is noted in the summary below where applicable. In some cases, these refinements, while more accurately capturing the performance of Scenario 2.1G, cannot be directly compared to the results of the original scenarios and SAAMs because the differences are not a result of the alternative boundary locations. In cases where results are not comparable to the original scenarios and SAAMS, other reference points (e.g. existing conditions, or an average for the current UGB) have been provided where possible.

Factor 1: Efficient accommodation of identified land needs

Complete Communities and Great Neighborhoods
Scenario 2.1G efficiently accommodates the land need through a focus on complete communities and using expansion areas to complete existing neighborhoods inside the UGB. Access to schools, parks, and commercial services is among the highest of all scenarios considered:

- 62% of all future housing units (existing plus new, throughout the existing UGB and expansion areas) in Scenario 2.1G are within a half-mile of existing or future school sites.
- 99% of all future housing units in Scenario 2.1G are within a half-mile of existing or future parks.
- 86% of all future housing units are projected to be within a half-mile of commercial services in the preferred scenario.

Nearly all subareas have a mix of residential and employment land. Only the small East Hwy 20 expansion area is exclusively residential, and it is very small and adjacent to existing commercial areas. The OB Riley area has a high ratio of jobs to housing, due to its good transportation access (Hwy 20, Cooley Road, Hwy 97, OB Riley Road), generally flat topography, and larger parcel sizes.

The efficient accommodation of land needs in Scenario 2.1G is supported by new proposed policies that require area planning (see "Specific Expansion Area Policies" in the draft Growth Management Chapter of the Comprehensive Plan). The proposed area planning policies require that all expansion areas will be subject to either new City-initiated area plans or property-owner led master planning under the Bend Development Code, Chapter 4.5. The policies and code will regulate new development to implement, through adopted area plans and master plans, the identified land needs, specifically: the amounts, types, and mix of housing; the amounts and types of employment; and lands for parks, schools and other needs. Area planning and master planning will coordinate the land use with needed transportation facilities, natural resource protection, and compatibility with adjacent uses. Taken together, the area planning policies will support complete communities which will efficiently accommodate identified land needs.

A significant expansion in the West area and expansions on other large sites make this scenario mostly (over 75%) large property owners. This is among the highest shares of growth that will be subject to master planning requirements of all the alternatives considered.

Efficient, Timely Growth
Scenario 2.1G achieves a distribution of residential density across many subareas. East Hwy 20 has a very high housing density (estimated at over 23 units per gross acre), because it is small (just over two acres) and dedicated to providing affordable housing. The West and Shevlin areas have wildlife and wildfire considerations that make high densities inappropriate. A "transect" concept was applied in these areas to address transitions to natural resource areas; the transect reduces density at the western edge in order to reduce environmental impacts as compared to medium- and high-density development. As a result, the gross density for these areas is a little over 3 units per gross acre of residential land. Other subareas range from 4.3 to 8.7 units per gross acre of land in residential and mixed use plan designations.

Net densities for new residential development are much higher – close to 10 units per net residential acre on average for the UGB expansion area. The difference is due to land needed for right of way, parks and open space, and other non-residential uses within residential plan

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designations. This is substantially higher net density than the existing UGB, which had an overall average net residential density of 4.4 units per net acre as of 2008 (see Appendix C).

Overall residential densities are somewhat lower than for the initial set of scenarios and SAAMs due to refinements to assumptions about the yield for efficiency measures inside the UGB and refinements to the recommended minimum density threshold for master plans in the RS zone. These refinements result in more "reasonably likely" assumptions about density, market response to efficiency measures, and redevelopment rates in opportunity areas.

The proposed recommendations and assumptions about efficiency measures inside the UGB, as well as the inclusion of additional land to meet the need for future parks and the inclusion of adjacent right of way abutting UGB expansion areas, translates to a larger total expansion than the initial set of scenarios and SAAMs (2,380 acres in total). The additional land is needed to meet identified land needs.

Scenario 2.1G includes very little land in expansion areas that is currently developed (only 5% of acres, primarily located in the Northeast Edge and the Elbow). It includes a greater proportion of development on vacant land than nearly all previous scenarios/SAAMs.

Factor 2: Orderly and economic provision of public facilities and services

<u>Balanced Transportation System</u>
Scenario 2.1G retains a focus on walkable mixed use redevelopment in the core and complete communities in expansion areas, which are important elements of reducing reliance on the automobile.

Vehicle Miles Traveled Per Capita
As measured with the regional travel demand model, Scenario 2.1G performs better than the prior scenarios and SAAMs, with 9.76 daily VMT per capita versus 9.92 to 10.13 daily VMT per capita for the initial scenarios. This is attributable mostly to refinements to demographic and land use inputs, with some influence of land use patterns and improved connectivity in expansion areas. Projected VMT growth in Scenario 2.1G results in a 1.2% increase over 2010 and 4.1% increase over 2003 (after accounting for all of the nuances of the TPR requirements).[72] This meets the requirement that VMT is unlikely to increase by more than 5% over the planning horizon.[73] However, Scenario 2.1G generated a higher average daily round trip length than the prior scenarios. This is due to additional growth in non-centralized areas, including the West and Thumb areas. This impact is compounded by The Thumb having the highest average trip distance of the subareas.

Looking solely at household VMT (only trips that begin or end at home, as measured using the Envision "7D" travel behavior model), the preferred scenario has an overall average of 9.41 household vehicle miles traveled per capita in 2028. Because there were several minor

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[72] Percent change relative to 2003 incorporates credit for connectivity improvements since 1990. See Attachment 6 of Bend's Integrated Land Use and Transportation Plan for details.

[73] See Bend's Integrated Land Use and Transportation Plan for additional discussion of VMT growth relative to requirements in the TPR.

adjustments to the methodology (including the calculation of activity density and fine-tuning household income assumptions) between the analysis of the original scenarios and SAAMs and Scenario 2.1, the results are not directly comparable to previous results. As in the previous analysis, the expansion areas and areas on the fringe of the city generally are projected to generate more vehicle miles traveled per capita than areas closer to the city's existing major activity centers, even with the emphasis on complete communities in the expansion areas.

Mode Split, Walk Trips, and Transit Access

The preferred scenario is projected to result in an 8% non-auto share and a 92% auto share for all household trips. Despite the minor changes to methodology mentioned previously, this is nearly indistinguishable from the previous scenarios at the full future UGB scale. There was little variation in mode split at that level for the original scenarios and SAAMs, and the preferred scenario continues to show the same pattern. The estimate for Scenario 2.1G is also essentially unchanged from the ET model estimate of existing conditions (using 2014 built environment and demographic data and 2016 transit service), which estimates an 8.5% non-auto share and a 91.5% auto share for all household trips UGB-wide (including existing population in proposed UGB expansion areas). However, these results do not capture additional strategies and policies that the City has committed to through its Integrated Land Use and Transportation Plan, which would be expected to improve mode split beyond what is reflected in the model.

Weekly walk trips per capita are down slightly from the original scenarios and SAAMs, but the variation is minimal at the full future UGB scale. Walk trips are also slightly below the existing (2014) average. However, analysis of walk trip frequencies at a smaller geographic scale reveals that the complete communities approach to UGB expansion will encourage greater walking, biking, and transit usage in many peripheral areas inside the current UGB and adjacent to UGB expansion areas. These areas will have new opportunities to walk and bike to parks, schools, and commercial services.

An estimated 49% of all future housing units and 65% of all future jobs (existing and new, throughout the existing UGB and expansion areas) are projected to be within a quarter mile of transit in Scenario 2.1G. While this is a decrease relative to 2014 (due to the expansion areas being mostly outside of transit corridors), this is a higher proportion of housing and employment than in any of the other scenarios and SAAMs. This level of transit access does not depend on expansions to the current transit network, which would further increase access.

Safety and Connectivity

As in all prior scenarios, the primary connections from the expansion areas to the rest of the city will be via collector and arterial roads. Scenario 2.1G provides enhanced connectivity in west and northeast relative to Scenario 2.1 due to the inclusion of Skyline Ranch Road and Yeoman Road extensions. It also retains and enhances the important new connections in the southeast that were part of Scenario 2.1. In the North Triangle, fewer collector roads are proposed than in Scenario 2.1, which somewhat reduces connectivity in this area, but key connections remain. East Highway 20 is a very small expansion area with access directly onto Highway 20; making

other connections to the east will depend on coordination with undeveloped land inside the UGB.   Most other subareas are similar to Scenario 2.1.

Congestion

Overall, Scenario 2.1G would include 12.14 peak hour miles of congested network, which is a ten percent decrease from the prior lowest scenario. While Scenario 2.1G was shown to generate longer trips in some growth areas, there are two primary reasons for the reduction in congested corridors:

- Growth was emphasized in some UGB expansion subareas that were less reliant on congested corridors. These areas made use of existing under-utilized capacity in the transportation system.
- The mix of uses (including employment uses in non-centralized areas) created a reverse commute in some cases that would take advantage of remaining roadway capacity on routes that experience congestion in one direction.

Cost-Effective Infrastructure

Transportation

Capital costs for transportation infrastructure for Scenario 2.1G are lower than the preliminary estimates for the initial scenarios and SAAMs reported as part of the scenario evaluation in October 2015. This is due to more detailed consideration of and refined assumptions about railroad and canal crossing needs, and functional classifications and alignments for new roads. Scenario 2.1G includes additional connectivity improvements relative to Scenario 2.1, including Skyline Ranch Road and Yeoman Road. The transportation improvements needed to support Scenario 2.1G, beyond those already planned for and funded as part of the City's existing Transportation System Plan (TSP), include:

- $119 million for close to 12 miles of new collector roadways to serve and link expansion areas as well as the large vacant opportunity area in southeast Bend; and
- $2.4 million for intersection improvements (at two intersections) and $2.5 million for capacity improvements (on one road segment), based on increased traffic volumes.

This results in a total cost estimate, using consistent methodology with the analysis of the original scenarios and SAAMs, of $126.3 million.

In addition to repeating the scenario evaluation methodology originally used for the initial scenarios and SAAMs[74], which focused on identifying roads where volumes are projected to exceed roadway capacity,[75] a more detailed analysis (sometimes referred to as "TPR analysis" because it is required by OAR 660-012-0060, a section of the Transportation Planning Rule or TPR) was done for Scenario 2.1G. TPR analysis is required to identify whether any parts of the

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[74] See "Scenario Evaluation: Transportation Analysis Technical Memorandum" from DKS Associates to the Urban Growth Boundary and Growth Scenarios Technical Advisory Committee, dated October 7, 2015, for a detailed explanation of the methodology used for the scenario evaluation.

[75] On the state highway system, if corridor demand was forecasted to exceed capacity, but the volumes were less than those in the Bend MPO MTP, additional mitigations were not recommended.

state highway system in Bend would both exceed ODOT's adopted mobility standards (which are generally below the physical capacity of the roadway) and experience more traffic volume based on Scenario 2.1G than based on the City's current UGB and current adopted comprehensive plan designations.[76] TPR analysis was not done for the six initial scenarios and SAAMs because of the level of effort and detail involved and because identifying appropriate mitigation for impacts to the state highway system can require negotiations with ODOT that are more appropriately focused on the preferred alternative.

The TPR analysis for Scenario 2.1G identified only one additional project, a roughly $4.8 million widening of US 20 from Robal Road to about Empire Avenue. This project is already planned as part of the Bend Metropolitan Planning Organization's 2040 Metropolitan Transportation Plan (MTP) but is not expected to be funded and built prior to 2028 in the absence of the UGB expansion and the related efficiency measures. (Three of the six alternatives initially considered in the scenario evaluation would have resulted in volumes exceeding capacity in that segment of US 20, and were identified as needing the same mitigation project even without the finer-grained TPR analysis.)

Another type of roadway improvement that has been considered in greater detail since the initial scenario evaluation is urban upgrades to existing rural roads. Roughly 9 miles of rural roads will need some level of improvement, ranging from the addition of sidewalks on one side to full street improvements with sidewalks, bike lanes and curbs on both sides. The estimated cost for these improvements is roughly $25.8 million. As with the TPR analysis, this is a more detailed evaluation that goes beyond what was identified in the costs for the original scenarios and SAAMs. Rural to urban upgrades are common in the current UGB, and are typically installed and funded by developers during the site development process in order for developments to demonstrate they have adequate and safe transportation systems.

Scenario 2.1G is also expected to result in a greater amount of local road lane-miles than Scenario 2.1 in the expansion areas due to the increased overall acreage of development. (The Envision Tomorrow model was also calibrated with more precise roadway assumptions for Scenario 2.1G, which may account for some of the difference.)

Sanitary Sewer

In terms of total initial capital costs for sanitary sewer, Scenario 2.1G falls between the least-cost and highest-cost initial alternatives, and is more expensive than Scenario 2.1. Comparing cost per acre, it is slightly higher than Scenario 2.1 and other low-cost initial alternatives.

The main reason for the increased cost is a larger expansion in the West area, especially the northern portions, and the inclusion of a portion of the Shevlin area. These areas contribute to additional improvements beyond those identified in Scenario 2.1, including a lengthy gravity line to convey wastewater from the northern West area to the Awbrey Glen pump station, and capacity improvements of the Awbrey Glen pump station. These areas also rely on pumping

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[76] The methodology and assumptions for the TPR analysis are documented in in a memo titled "Bend UGB Expansion – TPR Evaluation For Changes Within the Current UGB" from DKS Associates, dated July 14, 2016.

rather than gravity conveyance, which is less efficient in the long run than other expansion subareas. However, Scenario 2.1G avoids an expensive new pump station in the northwest plus constructing the extension of the Northeast Interceptor from the north of the city, across the Deschutes River, and southward by keeping growth in that area within the capacity of the existing Awbrey Glen force main.

Scenario 2.1G continues to make efficient use of the Hamby alignment with growth in the northeast and southeast; avoids an additional pump station to serve the Bear Creek Road area; and is otherwise largely comparable to Scenario 2.1 in those areas. The Northeast Edge relies on the Hamby alignment, as in Scenario 2.1. Growth in this area is focused around Butler Market Road, so it does not need to contribute to the cost of the portion of the Hamby alignment south of Butler Market Road. This reduces the costs assigned to the subarea slightly (there is no change to the total cost of the Hamby alignment). The Thumb, Elbow, and DSL all require similar improvements to Scenario 2.1 – contributions to the Southeast Interceptor and the Hamby alignment as well as gravity line extensions to connect to existing lines. As in Scenario 2.1, the eastern portion of The Elbow requires an interim lift station and force main to connect to the Southeast Interceptor. The East Highway 20 area can be served by short connections to existing gravity sewer lines and does not require an interim lift station.

As in Scenario 2.1, the Southwest area requires extension of a new gravity line, which may also provide service to adjacent areas inside the UGB that are on septic currently. In addition, the Southwest service area requires up-sizing of existing gravity lines above the sizing recommended in the CSMP and increased sizing of unconstructed portions of the Southeast Interceptor. This would require modifying the design of the most upstream segment of the Southeast Interceptor between Highway 97 and Parrell Rd.

The North Triangle and OB Riley also require the same improvements as Scenario 2.1 which include contributions to the Northeast Interceptor east of Highway 97 to the Wastewater Treatment Plant (including increasing sizing relative to the CSMP) and extension of the Northeast Interceptor to the west to serve these areas.

Drinking Water
Because few distinctions were identified between the initial scenarios and SAAMs, a detailed analysis of the water system was not conducted for Scenario 2.1G. However, interpolating based on how the land use in Scenario 2.1G compares to prior scenarios, minimal concerns are anticipated for the drinking water storage or distribution system assuming implementation of the WMP capital improvement program including a major perimeter transmission pipeline in the northwest and additional system storage. The one exception includes the highest elevations of the West subarea, which may experience pressures below 40 psi during peak hour demands. These higher elevation water customers may require individual booster pumps to improve system pressure.

Like all of the six initial scenarios and SAAMs, Scenario 2.1G includes development within Drinking Water Protection Areas (DWPA). The Thumb, Southwest, portions of the West area, and portions of the existing UGB lie within the DWPA. The total acreage of development within

DWPA in Scenario 2.1G is less than any of the initial scenarios and SAAMs (partly due to modifications to BLI assumptions inside the UGB).

Stormwater and Geology
Scenario 2.1G has a greater amount of total impervious area than Scenario 2.1 in the expansion areas due to the increased overall acreage of development, but less impervious area within the existing UGB because the COID property is not expected to develop within the planning horizon and larger portions of the River Rim area are expected to be preserved for open space than previously assumed.

Expansion areas in Scenario 2.1G contain somewhat greater development in Welded Tuff areas than Scenario 2.1 – primarily in the West Area. However, there is less development in Welded Tuff areas overall due to changes in development assumptions within the existing UGB, specifically the COID property and areas in the southwestern part of the city. In such areas, on-site retention and treatment are required rather than a community stormwater system.

Factor 3: Comparative environmental, social, economic and energy consequences (ESEE)

Quality Natural Environment (Environmental and Energy Consequences)

Development in Wildlife Areas
Scenario 2.1G strikes a balance between urban development and protection of wildlife habitat on the outskirts of Bend. Protected areas within the Deschutes County "Wildlife Combining Zone" were not part of any growth scenario analyzed, but Scenario 2.1G does include land labeled by the Oregon Department of Fish and Wildlife (ODFW) as big game winter range in the Shevlin Area, the West Area, the Southwest Area, the "Thumb," and the "Elbow." In addition to the winter range areas, an ODFW biologist identified general areas that the agency believes may be particularly important for wintering elk and deer, which have been identified as "Potential Elk/Deer Range."

The original six scenarios evaluated contained between 325 and 1,400 acres of mapped big game winter range in the expansion areas. Scenario 2.1G includes about 820 acres of mapped big game winter range in the expansion areas, roughly at the midpoint of other scenarios evaluated. Scenario 2.1G also includes a small portion of the Shevlin area, which is partially included in the "Potential Elk/Deer Range" identified by ODFW biologists. The portion of the Shevlin area included in Scenario 2.1G is smaller than the portion included in Scenario 3.1 and SAAM-1, the original alternatives that included that area, and is surrounded on three sides by urban development. It is also only partially within the general area identified as Potential Elk/Deer Range. Currently, this portion of the site has numerous buildings which are associated with the surface mining operation to the north. These uses will be replaced with lower density housing. The City has provided a Goal 5 ESEE report describing the included areas in detail and recommending a protection program for these areas. Many areas included in the proposed expansion are generally adjacent to urbanized areas and roadways, or disturbed by existing industrial activity. The West neighborhood will be developed at a low density, using the "transect" concept to transition to the lowest density at the western edge, and is expected to provide habitat corridors and other features that will be as friendly to wildlife as possible. It is

also important to note the presence of a large (400+ ft.) rural buffer between the existing UGB (Shevlin Commons) and the 40 acre expansion on the west just south of Shevlin Road, which provides a natural corridor in this area to facilitate north/south movement of large game.

Development along Riparian Corridors

Scenario 2.1G does not include any proposed development adjacent to identified Goal 5 riparian areas of Tumalo Creek. This is the same as Scenario 2.1, and better than the scenarios that included the full extent of the Shevlin Area and the Gopher Gulch area.

Wildfire Hazard

The City conducted analysis of wildfire hazard for each potential expansion subarea using a mix of aerial photography and on-the-ground evaluation by wildfire experts. Wildfire risk was evaluated as high to extreme around the entire UGB. However, the evaluation concluded that proper vegetation management and imposition of mitigation measures (e.g. special building codes) could minimize risk in nearly all areas. The combination of topography and adjacent vegetation bordering Tumalo Creek in the Shevlin area creates a mitigation challenge. Scenario 2.1G avoids development along steep slopes adjacent to Tumalo Creek. In addition, areas of particular concern to some TAC and community members – the West Area and Shevlin Area – will use the Rural-Urban Transect to provide better wildfire hazard mitigation and development under the "Firewise" standards on the edge of the City. The lower density in conjunction with fuel reduction and fire resistant building practices plus enhanced road access (Skyline Ranch Road) and access to municipal water sources further reduce the threat from wildfire in the West and Shevlin Areas. In addition, the City is adopting a policy addressing wildfire into both the new Growth Management chapter of the Comprehensive Plan and Chapter 10 (Natural Forces):

> *The City will adopt strategies to reduce wildfire hazard on lands inside the City and included in the Urban Growth Boundary. These strategies may include the application of the International Wildland-Urban Interface Code with modifications to allow buffers of aggregated defensible space, or similar tools, as appropriate.*

Water Use, Energy Use, and Greenhouse Gas Emissions

The household carbon emissions, energy use, and water consumption showed little variation between the original scenarios because they are strongly correlated with housing mix. As a result they can be expected to be roughly the same as Scenario 2.1 and the other scenarios and SAAMs.

Greenhouse gas emissions are linked to VMT, but these also showed little variation among the original scenarios and SAAMs. Scenario 2.1G falls within the range of the original scenarios and SAAMs.

Housing Options and Affordability (Social Consequences)

Housing Mix

Scenario 2.1G continues to provide a mix of housing types in all subareas, even the relatively low-density West Area and Shevlin Area. East Highway 20 and the Southwest Area contain a high percentage of multifamily housing, but they are small properties that are expected to help

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"complete" nearby single-family neighborhoods. By providing a mix of housing types in each subarea, and increasing the housing mix in opportunity areas within the existing UGB, Scenario 2.1G distributes new housing opportunities to all areas of the city.

Housing Cost

Due to the complexity of the housing affordability analysis done for the original scenarios and SAAMs, and the fact that changes to building assumptions would have meant that results were not directly comparable to prior scenarios, this evaluation was not repeated for Scenario 2.1G. Based on the areas where growth is focused in Scenario 2.1G relative to Scenario 2.1, there are several hundred more housing units in the expansion areas west and northwest of the City that are likely to have relatively higher costs. However, there are also more housing units that will be built in relatively lower cost areas in the north, northeast, southeast, and south.

A comparison of projected housing costs to Bend income levels (not done for the original scenarios and SAAMs, but useful as an absolute indicator of affordability) shows that roughly 29% of new housing units in Scenario 2.1G as a whole are projected to be affordable to households making at or below the median family income for Bend ($59,400). Under the Base Case, only about 20% of new housing units within the current UGB would be projected to be affordable at or below the MFI. In addition, affordable housing commitments by several property owners in UGB expansion areas will provide income-restricted housing units affordable to those below the area median income, which will further contribute to housing affordability in Scenario 2.1G.

Strong Diverse Economy (Economic Consequences)

<u>*Site Suitability for Large Lot Industrial*</u>

Scenario 2.1G includes Industrial Large Lot sites at Juniper Ridge and at the southern portion of the DSL property. An ideal site for this use is large and under a single ownership, flat, and with good transportation access. Each scenario included one site at Juniper Ridge and one additional site elsewhere within the UGB expansion areas. The Employment TAC recommended the DSL site as the preferred location of the Large Lot Industrial site outside of the existing UGB (as originally evaluated in Scenario 1.2, and incorporated into Scenario 2.1G) due primarily to its public ownership. Thus, the two sites identified in Scenario 2.1G are the best performing sites evaluated.

<u>*Site Suitability for Other Industrial and Mixed Employment Land*</u>

Other industrial sites have similar needs to the Large Lot Industrial sites, but are less reliant on large tracts of land in single ownerships.[77] Scenario 2.1G is performs very similarly to Scenario 2.1 in this evaluation, but arrangement of land uses and creation of urbanization of policies aim to address the compatibility issues of industrial land adjacent to existing and planned residential development. Scenario 2.1G has intentionally provided better buffers between industrial areas and residential areas in the North Area. Sizing of other industrial areas (i.e. Mixed Employment in the West area) refined to be more context-sensitive.

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[77] See Bend EOA, Table 15.

<u>*Site Suitability for Commercial Land*</u>
Commercial sites have similar needs to industrial sites, but can tolerate somewhat greater topography and site-preparation costs, and have more need of visibility from pass-by traffic.[78] Scenario 2.1G is very similar to Scenario 2.1. Commercial uses are generally supported by surrounding land uses and transportation network. The West area and Shevlin Area lack a large amount of pass-by traffic, so commercial uses will likely be locally-serving.

Factor 4: Compatibility of proposed urban uses with nearby agricultural and forest activities occurring on farm and forest land outside the UGB

<u>*Compatibility with Farms and Forests*</u>

Impact to Farms
Scenario 2.1G is similar to Scenario 2.1 in the amount of development near high value farm lands. The Northeast Edge properties, East Highway 20, DSL Property, and the "Elbow" include development within ¼ mile of EFU land. The Northeast Edge and DSL properties are within ¼ mile of commercial farms and low-impact hay fields. The "Elbow" properties are within ¼ mile of two commercial farms, one of which is an active operation that includes a feed lot for beef along Knott Rd. To aid in compatibility, Scenario 2.1G limits residential uses near the feed lot.

Impact to Irrigation Districts
Scenario 2.1G is similar to Scenario 2.1 in the amount of development that may impact irrigation district lands. Scenario 2.1G contains somewhat more development in the OB Riley area and the Northeast Edge than Scenario 2.1, but less development in impacted areas than other scenarios evaluated. By not including any highly-parcelized areas served by these irrigation districts, Scenario 2.1G lessens its overall impact to irrigation districts.

Impact to Forest Land
Scenario 2.1G continues to avoid development in close proximity to designated forest land. Only a very small portion of the West Area is within ¼ mile of designated forest land (see map), and this area is expected to implement a "transect" concept, providing an appropriate transition to natural areas West of the city.

Preferred Scenario Evaluation Conclusion
The preferred scenario offers a balance of:

- strong focus on complete communities to improve access to schools, parks and commercial areas within existing neighborhoods as well as in expansion areas;
- area planning policies to support complete communities and efficient development;
- highly efficient land use in areas with few constraints, and an overall increase in residential density relative to existing conditions;
- a sensitive approach to development in areas adjacent to natural resources to improve environmental consequences and reduce natural hazard risk;

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[78] See Bend EOA, Table 15.

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- expansion areas that provide a mix of housing types and costs and that will leverage voluntary affordable housing commitments from property owners in order to improve social consequences and ensure that housing is available to meet the needs of residents at all income levels;
- new employment land focused in suitable areas where it will contribute to Bend's economic growth;
- cost-effective use of recent and future sewer investments;
- an orderly and connected network of new roads that will support efficient travel by all modes; and
- minimal concerns for farm and forest compatibility.

This demonstrates consideration and balancing of the required Goal 14 location factors, consistent with the requirements of Statewide Planning Goal 14 and OAR 660 Division 24.

CHAPTER 6. CONCLUSION

As demonstrated in the previous chapters of this report, Bend has:

- established land needs for needed housing, employment, and other urban uses based on the coordinated 20-year population forecast established in the pre-Remand analysis;
- inventoried land inside the UGB to determine whether there is adequate development capacity for 20-year needs;
- increased the development potential of land inside the city through efficiency measures;
- demonstrated that, even with reasonably likely increases to development potential as a result of efficiency measures, estimated needs cannot reasonably be accommodated on land already inside the UGB;
- evaluated alternative boundary locations consistent with state law and the Goal 14 Boundary Location Factors; and
- assigned appropriate urban plan designations to the added land, consistent with identified land needs.

The proposed UGB expansion accommodates the projected land needs through 2028, and complies with Goal 14, relevant state statutes, and administrative rules.

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APPENDICES

Appendix A   Index of relevant Remand directives

Appendix B   Observed mix and density of housing by residential plan designation *(from 2011 BLI memo)*

Appendix C   Observed mix and density of employment by employment plan designation *(from 2008 EOA)*

Appendix D   Envision Tomorrow scenario and development type details

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APPENDIX A   INDEX OF RELEVANT REMAND DIRECTIVES

Remand Subissue	Directives to City on Remand
	Buildable Lands Inventory
2.2 (Analysis) Page 24	1. Additional findings also are necessary to clarify how the City considered "redevelopable" lands. 2. **On remand, the City must analyze the development capacity of the vacant and redevelopment lands in light of the actual trends in redevelopment of developed properties and infill of vacant properties.** 3. While the Commission understands that this development may have utilized much of the vacant and redevelopable land within the prior UGB, to the extent the City projects that it will deviate from those past trends significantly in the future, the City needs to explain why in its findings
2.2 (Conclusion) Page 26	4. The city's findings must explain what criteria it uses (based on ORS 197.296, OAR 660-024 and 660-008) to determine whether particular lands are vacant or redevelopable, examine the amount and type of development that has occurred on the vacant and redevelopable lands since its last periodic review, and project the capacity of the city's buildable lands (prior to additional measures being implemented) based on that analysis (and as further detailed in connection with Goal 14, below). 5. If the amount of redevelopment and infill within the city's UGB is projected to differ significantly from past trends, the City must explain why, and provide an adequate factual and policy basis to support that change 6. The city's buildable lands inventory may not exclude lots and parcels smaller than 0.5 acres with no improvements without specific findings consistent with OAR 660-008-0005. 7. City may not exclude lots and parcels subject to CC&Rs unless it adopts specific findings, supported by an adequate factual base, that show why the lands are not available for development or redevelopment during the planning period. 8. City has agreed to reexamine lands it identified as "constrained" to determine whether the lands are buildable under OAR 660-008-0005.
2.2 (Director's Report) Page 45	9. Include a map of buildable lands, as required by ORS 197.296(4)(c), as well as a zoning map and a comprehensive plan map for the lands within the prior UGB; 10. Include as its inventory of buildable lands, an analysis for each residential plan district of those lands that are "vacant," and of those lands that are "redevelopable" as those terms are used in ORS 197.296(4)-(5) and OAR 660-008-005(6). As part of this inventory, include an analysis of what amount of redevelopment and infill has occurred, and the density of that development, by plan district, since 1998. The inventory must include the UAR and SR 2 ½ plan districts,

Remand Subissue	Directives to City on Remand
	as well as the RL, RS, RM and RH district
	11. If the city excludes lands on the basis that there is not a strong likelihood that existing development will be converted to more intense residential uses during the planning period, include an analysis of lands within all districts showing the extent to which infill and redevelopment has or has not occurred since 1998
	12. **For each zoning district, analyze the number of units, density and average mix of housing types of urban residential development that has actually occurred since 1998 (including through rezoning) and how much of this occurred on vacant lands, and how much occurred through redevelopment**
	13. **For each zoning district, analyze whether future trends over the 20-year planning period are reasonably expected to alter the amount, density and mix of housing types that has actually occurred since 1998**
	14. **For each zoning district, adopt findings and conclusions regarding the number of units, the density, and the mix of housing types that the city concludes is likely to occur over the planning period, and identify how much is expected to occur on vacant lands, and how much is expected to occur through redevelopment**
Housing Needs Analysis – Goal 10	
2.3 (Analysis) Pages 31-32	15. While the City is free to *separate* the three basic housing types required to be analyzed by statute into subcategories, it may not *combine* categories as this effectively makes it impossible to do the analysis required by statute
	16. Goal 10, the Goal 10 implementing rule, and the needed housing statutes also require that the City analyze needed housing types at particular price ranges and rent levels commensurate with the financial capabilities of present and future residents of area residents.
	17. …under Goals 10 and 14 the City also must consider the *future* housing needs of area residents during the (twenty-year) planning period. The purpose of the analysis of both past trends and future needs is that -- if there is a difference – the local government must show how it is planning to alter those past trends in order to meet the future needs.
	18. if the *future* needs require a different density or mix of housing types than has occurred in the past, then ORS 197.296(7) requires the local government to show how new measures demonstrably increase the likelihood that the needed density and/or mix will be achieved.
2.3 (Conclusion)	19. remands the city's decision for it to revise its findings and chapter 5 of its comprehensive plan consistent with the preceding analysis

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Remand Subissue	Directives to City on Remand
Pages 32-33	
2.3 (Director's Report) Pages 45-46	20. Revise the Housing Needs Analysis to comply with ORS 197.296, OAR 660-008-0020, and ORS 197.303. The Housing Needs Analysis must include an evaluation of the need for at least three housing types at particular price ranges (owner occupancy) and rent levels (renter occupancy), and commensurate with the financial capabilities of current and future residents. Those housing types include: (a) attached single family housing (common-wall dwellings or rowhouses where each dwelling unit occupies a separate lot pursuant to OAR 660-008-0005(1)); (b) detached single family housing (a housing unit that is free standing and separate from other housing units pursuant to OAR 660-008-0005(3); and (c) multiple family housing (attached housing where each dwelling unit is not located on a separate lot pursuant to OAR 660-008-0005(5)); 21. Adopt the revised Housing Needs Analysis as an element of the comprehensive plan, along with findings that demonstrate how the revised Housing Needs Analysis complies with the applicable statutory, goal and rule requirements described above; **22. Analyze what the mix of plan designations should be in the UGB expansion area in direct relation to the city's projected housing needs, and consider the adoption of new residential plan districts that encourage more multi-family, higher density single family housing, and other needed housing types for a greater proportion of the expansion area, in order to meet the city's and the region's demonstrated housing needs;**
2.4 (Analysis) Page 35-	23. The City must (under Goal 10 and the needed housing statutes) plan for an adequate supply of buildable land for affordable housing, including workforce housing (whether that land is inside the prior UGB, on lands in a UGB expansion area, or both). 24. On remand, the City also must explain why it believes particular areas planned to meet the future housing needs of residents are appropriate for the expected housing types.
2.4 (Conclusions) Page 35	25. The City must plan lands within its existing UGB and any expansion area so that there are sufficient buildable lands in each plan district to meet the city's anticipated needs for particular needed housing types. **26. To the extent that the City continues to determine that there is a current and projected future shortage of land for affordable housing that translates into a need for more multi-family housing, the City must show how it's planning for lands within the exiting UGB and lands in any expansion area will provide sufficient buildable lands in plan districts that are designed to meet that need.** 27. If the City continues to project a future housing mix of 65% single-

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Remand Subissue	Directives to City on Remand
	family and 35% multi-family, it must explain why that housing mix will provide sufficient buildable lands to meet its projected future housing needs over the planning period, and that projection and explanation must be supported by an adequate factual base.
2.8 (Analysis) Page 47	28. The City agreed to adopt findings clarifying why its decision is consistent, and the Commission concurs that this issue can be resolved by the adoption of findings explaining why the city's decision is consistent with its plan policies.
2.8 (Conclusion) Page 47	29. The Commission denies the city's appeal for the reasons stated above, but also clarifies that its remand is solely for the lack of adequate findings by the City.
	HNA and Efficiency Measures
3.1 (Analysis) Pages 50-53	**30. LCDC concluded that the City's densities for housing were, in their view, low**
	31. Need to determine if raising the minimum densities of the residential zones is necessary to encourage the development of needed housing
	32. On remand, the City must address both prior trends (as required by ORS 197.296(5)) and recent existing steps it already has taken to increase density and meet its housing needs. The requirement of Goal 14 to reasonably accommodate future land needs within its UGB does not allow the city to use an unreasonably conservative projection of future development capacity
	33. Nevertheless, given the apparent market demand for increasing density relative to existing planning and zoning designations, the City must explain why increasing the density allowed, particularly for large blocks of vacant land outside of existing established neighborhoods, is not reasonable during the 20-year planning period.
	34. The Director's Decision identifies a number of other efficiency measures that the City should consider (drawn from the city's own Residential Lands Study), but that list is not intended to be exclusive or directive; it is up to the City to determine in the first instance what is reasonable to accommodate its future housing needs within its UGB (See Director's Decision 45-46)
3.1 (Conclusion) Pages 53-54	**35. The City must reconsider the projected capacity of lands within its prior UGB for residential development during the planning period in light of its revised BLI, recent development trends, and existing and potential new measures to increase that capacity.**
	36. The measures the City considers must include, but are not limited to, evaluating the infill capacity (including plan and zone

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Remand Subissue	Directives to City on Remand
	changes) of residential lands with more than five acres that are vacant or partially vacant.
	37. The City also should consider the measures as listed in the Director's Decision, at 45-46, that are related to efficiency measures.
3.1 (Director's Report)	**38. Consider measures to encourage needed housing types within additional areas of the city, including rezoning of areas along transit corridors and in neighborhood centers;**
	39. Consider splitting the existing RS zone, which covers most of the residential areas of the city, into two or more zones in order to encourage redevelopment in some areas while protecting development patterns in well-established neighborhoods;
	40. In areas where the city is planning significant public investments, consider upzoning as a means to help spread the costs of such investments;
	41. Consider strengthening the minimum density provisions in the existing UAR and SR 2½ zones by eliminating PUDs and other clustering tools; and
	42. Consider strengthening the minimum density provisions in the existing RS and RM zones to encourage development of needed housing types, rather than relying on low density residential development.
3.2 (Analysis) Pages 55-56	**43. Under Goal 10 and ORS 197.296 the City must adopt definitive measures and find, based on an adequate factual base, that those measures demonstrably increase the likelihood that residential development will occur at the housing types and density and at the mix of housing types required to meet housing needs over the next 20 years.**
	44. The City agreed, on remand, to include provisions in the General Plan requiring adoption and implementation of the Central Area Plan and rezoning of lands along transit corridor as described in its findings.
3.2 (Conclusion) Page 56	**45. …directs the City on remand to address the requirements of ORS 197.296(7) and (9) with respect to any new efficiency measures that it relies on.**
	46. The City may do this by adopting specific timelines for initiation and completion of efficiency measures, including detail about the outcomes that will be achieved as part of the Housing Element of its comprehensive plan.
	47. The City also must adopt findings that show why those outcomes are more likely to occur as a result of the measure(s), and how they relate to needed housing types and locations.

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	48. In addition, in coordination with its Work Plan for Outstanding Metropolitan Transportation Planning Work (issue area 8), if the City continues to rely on these two particular measures, it must:
	49. Within two years following acknowledgement, complete and adopt the Central Area Plan. The Plan must include provisions that plan for at least 500 additional medium-density and high-density housing units over the planning period.
	50. Within two years following acknowledgement, complete and adopt provisions of its comprehensive plan that authorize at least 600 additional medium-density and high-density housing units on lands abutting or within ¼ mile of existing or planned transit routes.
Other Land Needs	
4.1 (Analysis) Page 58	51. Absent the safe-harbor, the City must demonstrate that the identified need for institutional, private open space and private rights-of-way is an urban need that must be accommodated within the expansion area.
	52. …the City's findings must explain why the City believes that the increase from 12.8 percent to fifteen percent is justified
4.1 (Conclusion) Page 59	53. (a)dopt findings that explain why an increase in the amount of land required for these uses from 12.8 percent to fifteen percent is justified. To the extent the City is basing its estimate on the need for stormwater facilities, it should explain why such facilities can't be located within open space and right-of way areas.
	54. …the city's findings should not be based only on past trends, but should include consideration of future conditions and needs (and explain why the trend will continue or change over the future planning period).
Park & School Land Needs	
4.2 (Analysis) Pages 60-61	55. The City's findings need to be revised to explain clearly what evidence the city relied on for types of projected school and parks needs and siting criteria and the relation to the districts plans.
	56. In addition, to satisfy the requirements of ORS 197.296(6)(a), the city's findings should explain how the City has coordinated with the Bend-La Pine School District.
4.2 (Conclusion) Page 61	57. Adopt revised findings explaining what evidence it relied on in determining the amount of land needed for parks and schools, and how that evidence relates to the districts plans and analyses.
4.3 (Analysis)	**58. Given that much of the city's future housing and population growth is projected within its prior UGB, the city's findings should explain how it will meet its future needs for these uses.**

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Remand Subissue	Directives to City on Remand
Page 63	
4.3 (Conclusion) Page 63	**59. The Commission concludes that the City must make findings to address OAR 660-024-0050(4), regarding the extent to which the estimated need for future parks and schools can reasonably be accommodated inside the existing UGB.** 60. The required findings must address how the needs analysis accounts for lands already owned by the districts that are outside of the prior UGB, particularly if those lands were determined to not be suitable for urbanization.
Economic Opportunities Analysis – Goal 9	
5.1 (Conclusion) Page 67	61. The submittal is remanded for the City to clarify in adequate findings that it is utilizing its 2008 EOA, scenario B, as the basis for estimating employment land needs
5.2 (Conclusion) Page 70	**62. Commission remands the UGB decision to the City to provide an adequate factual base to support use of a 10 percent redevelopment factor, including an analysis of the amount of redevelopment that has occurred in the past and a reasoned extension of that analysis over the planning period** **63. Alternatively, the City may satisfy Goal 9 and division 9 by other means, for example through a site-by-site redevelopment analysis. However, a site-by-site analysis is not required; the Commission determines that using a factor is acceptable where findings explain evidentiary basis and address the Goal 14 requirement to reasonably accommodate development within the existing UGB.**
5.4 (Analysis) Page 76	64. As a result, in this case (See 1000 Friends of Oregon v. LCDC, __ Or App __, __P3d __ (A135375)) to the extent that the city continues to base some portion of its employment land need on market choice, it must explain how doing so in the factual context provided by the record for the Bend UGB expansion is consistent with the requirements of Goal 9, OAR 660-009-0025, and the "need" factors of Goal 14
5.4 (Conclusion) Pages 76-77	65. On remand, the City must make findings addressing applicable law, including addressing consistency with Goals 9 and 14 as required in *1000 Friends of Oregon v. LCDC,* __ Or App __, __P3d __ (A135375) (September 8, 2010)
5.5 (Analysis) Page 77	66. Under OAR 660-009-0015(3)(a)(C), the EOA Inventory of Industrial and Other Employment Lands for cities and counties within a Metropolitan Planning Organization, must include the approximate total acreage and percentage of sites within each plan or zoning district that comprise the short-term supply of land. 67. This short-term supply analysis required for jurisdictions within MPOs

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	is in addition to the EOA inventory requirements applicable to all comprehensive plans for areas within urban growth boundaries. OAR 660-009-0015(3)(a)
	68. Furthermore, division 9 requires that comprehensive plans for cities such as Bend "include detailed strategies for preparing the total land supply for development and for replacing the short-term supply of land as it is developed." OAR 660-009-0020(2).
5.5 (Conclusion) Page 78	69. The Commission concludes that the Goal 9 rule requires the City to include policies for maintaining a short-term supply.
	70. The City must plan for required infrastructure and have identified the funding mechanisms.
5.6 (Analysis) Page 80	71. (t)he City must establish a basis in reason connecting the inference that the planning period will present higher vacancy rates for industrial and office than historic and current conditions to the trend data from which it is derived.
	72. The City may pursue a mechanism to make industrial and commercial rents affordable under the competitive short-term supply, but not by inflating the long-term need beyond what may be supported by substantial evidence in trend data or reasoned inferences there from.
5.6 (Conclusion) Page 80	73. The Commission concluded that under division 9, the long-term vacancy factor should be based on past and projected future trends over the planning period.
5.8 (Analysis) Page 84	74. The City agreed that on remand it would move the analysis and calculation to the residential/other lands analysis and calculation.
5.8 (Conclusion) Page 84	**75. The Commission remands the submittal to incorporate analysis of land needs for employment uses within residential zones in the City's housing needs analysis.**
5.9 (Analysis) Page 85	76. The City designated a substantial amount of land as Commercial General along Highway 20 in the expansion area. The City concedes that it did not make findings related to the General Plan policies cited by appellant, but agrees to develop findings addressing the policies on remand.
5.9 (Conclusion) Page 85	77. The Commission remands the submittal to the City to allow it to address Commercial Development Policy 27 and 28 contained in Chapter 6 of the Bend Area Plan
Natural Resources – Goal 5	
6.1	78. The rule requires the city to evaluate the expansion area where

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Remand Subissue	Directives to City on Remand
(Analysis) Pages 90-91	resources are identified and evaluate them for significance and possible protection. 79. The city may use the county's inventory as a starting point, but it must also evaluate other information and make its own determination of significance.
6.1 (Conclusion) Page 91	80. State scenic waterway – Should a revised UGB expansion area include any areas within the Middle Deschutes River Scenic Waterway as described in OAR 736-040-0072, the city must adopt local requirements to implement the state plan for protecting the Middle Deschutes Scenic Waterway, including a setback from the canyon rim for structures. 81. Riparian protection – Should a revised UGB expansion area include areas along the Deschutes River, Tumalo Creek, or both, the city must prepare and adopt an inventory of the significant riparian area that either: 1) finds that the topography along the river does not restrict the use of the safe harbor inventory under OAR 660-023-0090(5)(d) and apply the 75 feet upland from top of each bank safe harbor width provided in OAR 660-023-0090(5)(a); or 2) apply the standard inventory methodology, used within the current UGB, to the expansion area. In either case, the significant riparian area will fall within the canyon walls. For a protection program the city will adopt the county measures that serve to protect the scenic waterway and add restrictions for vegetation removal within the significant riparian area. The City must develop the protection program to meet the safe harbor protection measure standards. 82. Wildlife habitat – Should a revised UGB expansion area include areas along the Deschutes River, Tumalo Creek, or both, the city must apply OAR 660-023-0110, the Goal 5 wildlife habitat rule, by conducting a safe harbor inventory under OAR 660-023-0110(4). The rule allows the city to limit consideration of significant habitat to the five habitat categories specified in subsections (a)-(e). The Commission understands that the City anticipates that ODFW will provide the City a letter stating that the agency does not have information that any of the five habitat categories are documented, identified or mapped within the portion of the Deschutes River or Tumalo Creek corridors that pass through the expansion area. 83. Tumalo Creek – Should a revised UGB expansion area include Tumalo Creek in the final expansion area, the city must apply the Goal 5 safe harbor inventory and protection measures for riparian areas along the creek. 84. ..the Commission concludes that the City may not exclude identified ASIs from its BLI (if they are already inside the prior UGB), or excluded ASIs from inclusion in the expansion area.
6.3 (Conclusion)	85. On remand, if the City includes the property in the revised UGB expansion area, the City should only plan for surface mining that

Remand Subissue	Directives to City on Remand
Page 95	portion of the property within the DOGAMI permit 09-0018 area, as the site is not on the county's acknowledged surface mining inventory.
Wildlife Risk – Goal 7	
6.2 (Conclusion) Page 93	86. It is entirely appropriate and permissible for the City to consider relative risk of wildfire in alternate UGB expansion candidate areas in considering the environmental, energy, economic and social consequences of the alternatives under locational factor 3 of Goal 14.
Public Facilities – Goal 11	
7.1 (Conclusion) Page 101	87. The City may adopt public facilities plans as needed for acknowledged land uses within its prior, acknowledged UGB on remand.
	88. The city may then, subsequently, adopt revisions to its public facilities plans for any revised UGB expansion proposal and any other related amendments to its acknowledged comprehensive plan.
7.7 (Conclusion) Page 110	89. On remand, the City must address the entire expansion area under Goal 11 and Goal 14, locational factor 2. The City is not required to do so through amendments to its public facilities plan, although it may do so.
	90. If the City elects to carry out the analysis(es) of the feasibility of serving the expansion area independently of its public facilities plan, it should nevertheless formally adopt the analysis and incorporate it into the city's comprehensive plan (and the analysis must not conflict with existing provisions of the public facilities plan).
Transportation – Goal 12	
8.1 (Analysis) Pages 114-115	**91. The city is required to compare lands in the same priority classes under ORS 197.298, Goal 14 and OAR 660-024-0060 (except when lower priority lands are included as necessary to serve higher priority lands under ORS 197.298(3)(b)).**
	92. The city may aggregate its underlying data, by TAZs and priority category, and address the results in revised findings
8.1 (Conclusion) Page 115	**93. On remand, the city must analyze the relative costs of lands in the same priority category, rather than aggregating its analysis into subareas without regard to the priorities under ORS 197.298.**
8.1 (Director's Report) Page 89	**94. Identify and assign costs of individual UGB expansion areas, rather than combinations of different areas;**
	95. Provide additional information regarding the costs of providing transportation facilities to serve individual areas, including any extraordinary costs related to overcoming topographic barriers or rights of way;

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Remand Subissue	Directives to City on Remand
	96. **Provide more detailed analysis of the extent to which the costs of improvements for major roadway improvements in north area (including proposed improvements to Highways 20 and 97) are a result of and should be assigned to development in the north area rather than the city as a whole. (That is, the city's analysis and evaluation should assess whether the extent of improvements in north area might be avoided or reduced in scale or cost if the UGB was not expanded in this area, or if the extent of the UGB expansion was reduced.); and**
	97. **Provide comparable estimates for providing needed roadway capacity for areas that, because of topographic constraints, may need to be served by different types of road networks. For example, growth on the east side can apparently be served by a fairly complete grid of streets, while topographic barriers limit potential for a full street grid in this area.**
8.2 (Conclusion) Page 116	98. **On remand, the city must revise its findings to address this issue. If the city chooses to rely on existing analysis that there is no cost differential between alternate lands in the same priority category, that decision must be supported by substantial evidence in the record as a whole.**
	99. **While no specific method or outcome is required, the city must explain its basis(es) for assigning the costs of extraordinary improvements to expansion areas in the same priority category, and consider whether changes in the extent or location of the UGB expansion would reduce the need for major improvements in this area.**
8.3 (Conclusion) Pages 117-118	100. **On remand, the city must revise its findings to address this issue including not only the relative cost of required transportation improvements, but the relative advantages and disadvantages as well. OAR 660-024-0060(8) (which may include the relative amount of development capacity the city can support for a particular unit of cost).**
	101. **On appeal, at oral argument, the city agreed to strengthen its findings in this area to the extent that lands on the west of the city are included in the UGB expansion area on remand.**
8.6 (Conclusion) Pages 120-121	102. The City is required to comply with OAR 660-012-0035 before it may complete its UGB expansion.
	103. The City has agreed to prepare analyses of its baseline VMT per capita in 2003 (with VMT as defined in OAR 660-012-0005), along with an analysis of projected VMT per capita over the planning period with proposed "packages" of land use and transportation measures to reduce VMT per capita.
	104. If the City demonstrates that its revised UGB expansion, along with proposed land use and transportation measures, results in an

Remand Subissue	Directives to City on Remand
	estimated change in VMT per capita:
	a. of a decline of 5% or more per capita, then the City is in compliance with this aspect of the TPR under 0035(6);
	b. of a decline of between 0% and 4.99 percent per capita, then the City may proceed by preparing for DLCD/LCDC review and approval concurrently with the revised UGB, a work program/plan to achieve a reduction of 5% or more over the planning period; or
	c. of an increase in VMT per capita, then the city must prepare, submit and obtain DLCD/LCDC approval of an integrated land use and transportation plan as provided in OAR 660-012-0035(5) prior to approval of a revised UGB.
UGB Methodology & Boundary Analysis (Goal 14)	
9.1 (Conclusion) Pages 129-130	In evaluating which lands to include within its UGB expansion on remand, the City must follow the following steps:
	105. Establish suitability criteria for general housing, employment, and related land needs. These criteria must be consistent with (in the sense of implementing, or being in harmony with) the definitions in OAR 660-008-0005(2) (for lands planned for future general residential uses), and 660-009-0005(9) and (12) and 660-009-0025(1) and (2) (for lands planned for future general employment uses) as well as other provisions of law applicable in determining whether the land will meet the city's general land needs.
	106. Document the criteria used to locate lands required to meet any "specific identified needs" as allowed by ORS 197.298(3)(a). The identified land needs include a future university site, a medical center, and two large-lot industrial uses.
	107. Document (through existing or supplemental findings) that the sites identified by the City for a university, a medical center, and two large-lot industrial uses. The Commission agrees with the City that these identified future uses are justified under 197.298(3)(a). The City must demonstrate, however, through additional findings, that these future uses cannot reasonably be accommodated within the prior UGB.
	108. Apply the suitability criteria (from step 1, above) for general housing, employment and related land needs to exception lands within the expansion study area. In this step, the City must identify exception lands (including lands designated by the City as urban area reserve) that will not accommodate any of its general land needs during the planning period. These lands may be "screened out" from further analysis.
	109. For its remaining (general) future land needs over the planning

Remand Subissue	Directives to City on Remand
	period, the City must compare the remaining (after the screening described above for suitability) exception lands using the Goal 14 locational factors to determine which of those lands are best to include in its UGB expansion area.42 In this step, the City may rely on ORS 197.298(3)(c) (maximum efficiency of land uses *** requires inclusion of [resource lands] *** to include or to provide services to [the exception lands]") to include resource lands, particularly resource lands interspersed with exception lands, within its UGB expansion area. Resource lands included under ORS 197.298(3)(c) need not be evaluated for soil capability, as called for under ORS 197.298(2).
	110. **If the City is unable to accommodate its need for additional lands during the planning period after undertaking the preceding steps, it may then evaluate lands in the next priority category under ORS 197.298(1) (e.g., resource lands) for its general land needs. If the City does so, it must consider resource lands with lower soil capability first, as specified in ORS 197.298(2). To the extent that resource lands are needed to meet remaining (general) future land needs over the planning period, the City must apply the general suitability criteria used in Step 1 (above) and then compare suitable resource lands using the Goal 14 location factors to determine which of those lands are the best to include in its UGB expansion area.**
9.2 (Analysis) Page 131	111. The remaining work for the City on remand is simply to show, using those criteria, that the uses "cannot reasonably be accommodated" within the prior UGB.
9.2 (Conclusion) Pages 131-132	112. The City must, however, analyze whether these needs could reasonably be accommodated within the prior UGB using its site suitability criteria and buildable lands inventory, and adopt findings explaining its reasoning.
9.3 (Analysis) Page 132	113. The City will need to work through the particular application of ORS 197.298(3)(c) to the facts on remand, and that application may depend, in part, on what the City does with its public facilities plans.
9.3 (Conclusion) Page 133	114. ORS 197.298(3)(c) may be used, as described above under issue 9.1., where resource lands are interspersed with exception lands, and in order to urbanize (provide public services to) exception lands that couldn't otherwise be served.
Implementation – Plan & Zoning Designations	
10.2 (Conclusion) Pages 141-	On remand, the city and county must: 115. Clearly designate on the appropriate comprehensive plan map, the areas planned for the specific identified land needs described in the

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Remand Subissue	Directives to City on Remand
142	city's analysis under 197.298(3)(a), and include policies to assure that the lands are, in fact, used for their intended purpose;
	116. Either maintain the former county zoning districts until areas added to the UGB are ready to urbanize, or specifically determine that interim zoning designations maintain the likelihood that the land will develop for the uses and at the intensity that the city's underlying analysis of the capacity of the lands is based on;
	117. If the County or City adopt interim zoning for the UGB expansion area, they must determine that the assigned interim zoning in each area will not generate more vehicle trips than development allowed by the zoning designations in place before the UGB expansion; and
	118. The City and County must coordinate, and clarify the applicability of the city's plan map and plan policies, including its Framework Plan map, within the UGB expansion area.

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APPENDIX B   OBSERVED MIX AND DENSITY OF HOUSING BY RESIDENTIAL PLAN DESIGNATION

Observed Housing Mix and Density, through 2008

HOUSING UNITS BY TYPE AND PLAN DESIGNATION

PRE-1998 [1]

	RL		RS		RM		RH		ALL RESIDENTIAL ZONES			Pre-1998 Units - % of Total	
	TOTAL UNITS[2]	AVE DENSITY[3]	TOTAL UNITS[2]	AVE DENSITY[3]	TOTAL UNITS[2]	AVE DENSITY[3]	TOTAL UNITS[2]	AVE DENSITY[3]	TOTAL UNITS[2]	AVE DENSITY[3]			
Single Family - Detached[4]	2,146	1.9	8,846	3.1	1,606	4.7	145	6.6	12,743	2.9		66%	SFD
Single Family - Attached[5]	0	0.0	26	5.1	22	21.5	0	0.0	48	7.8		0%	SFDA
Multiple Family Housing[6]	57	8.8	500	9.7	3,314	16.6	539	20.9	4,410	15.5		23%	Multifamily
Manufactured Homes - In Parks[7]	148	2.7	557	3.4	593	6.5	0	0.0	1,298	4.1		7%	Manuf in Parks
Manufactured Homes - On Lots[8]	382	2.9	241	3.2	73	5.8	0	0.0	696	3.1		4%	Manuf on Lots
TOTAL	2,733	2.1	10,170	3.2	5,608	8.5	684	14.4	19,195	3.7		100%	TOTAL

1998-2008

	RL		RS		RM		RH		ALL RESIDENTIAL ZONES			New Units - % of Total	
	TOTAL UNITS[2]	AVE DENSITY[3]	TOTAL UNITS[2]	AVE DENSITY[3]	TOTAL UNITS[2]	AVE DENSITY[3]	TOTAL UNITS[2]	AVE DENSITY[3]	TOTAL UNITS[2]	AVE DENSITY[3]			
Single Family - Detached[4]	210	2.0	10,306	4.6	828	8.7	27	13.4	11,371	4.7		72%	SFD
Single Family - Attached[5]	0	0.0	435	8.7	175	12.5	0	0.0	610	9.5		4%	SFDA
Multiple Family Housing[6]	0	0.0	514	14.2	2,547	16.1	535	17.1	3,596	16.0		23%	Multifamily
Manufactured Homes - In Parks[7]	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0		0%	Manuf in Parks
Manufactured Homes - On Lots[8]	43	3.1	71	6.6	43	7.0	0	0.0	157	5.1		1%	Manuf on Lots
TOTAL	253	2.1	11,326	4.9	3,593	13.4	562	16.9	15,734	5.7		100%	TOTAL

ALL YEARS

	RL		RS		RM		RH		ALL RESIDENTIAL ZONES			All Units - % of Total	
	TOTAL UNITS[2]	AVE DENSITY[3]	TOTAL UNITS[2]	AVE DENSITY[3]	TOTAL UNITS[2]	AVE DENSITY[3]	TOTAL UNITS[2]	AVE DENSITY[3]	TOTAL UNITS[2]	AVE DENSITY[3]			
Single Family - Detached[4]	2,356	1.9	19,152	3.8	2,434	5.6	172	7.2	24,114	3.6		69%	SFD
Single Family - Attached[5]	0	0.0	461	8.4	197	13.1	0	0.0	658	9.4		2%	SFDA
Multiple Family Housing[6]	57	8.8	1,014	11.3	5,861	16.6	1,074	18.8	8,006	15.8		23%	Multifamily
Manufactured Homes - In Parks[7]	148	2.7	557	3.4	593	6.5	0	0.0	1,298	4.1		4%	Manuf in Parks
Manufactured Homes - On Lots[8]	425	2.9	312	3.6	116	6.2	0	0.0	853	3.4		2%	Manuf on Lots
TOTAL	2,986	2.1	21,496	3.9	9,201	9.9	1,246	15.5	34,929	4.4		100%	TOTAL

Summary data prepared 12/28/2010 by C. Miller from February 2008 Buildable Lands Inventory

[1] Pre-1998 data includes all properties, and the dwelling units on those properties, that are in the current Urban Growth Boundary. Some properties were outside of Bend's current UGB at the time they were constructed.

[2] Total units includes all built and permitted units, including units in the MDOZ, by general plan designation.

[3] Average density is the total number of built and permitted units (WHERE ONLY ONE TYPE OF HOUSING UNIT WAS ON A PROPERTY), divided by the total acres of those properties, by housing unit type and general plan designation.

[4] "Single Family - Detached" means a housing unit that is free standing and separate from other housing units. OAR 660-008-0005(3)

[5] "Single Family - Attached" means common-wall dwellings or row houses where each dwelling unit occupies a separate lot. OAR 660-008-0005(1)

[6] "Multiple Family Housing" means attached housing where each dwelling unit is not located on a separate lot. OAR 660-008-0005(5)   This category includes duplexes, triplexes, fourplexes, buildings with five or more dwelling units, and condominiums.

[7] "Manufactured Homes - In Parks" are those in designated manufactured home parks.

[8] "Manufactured Homes - On Lots" are manufactured homes located on a separate lot, including those in designated manufactured home subdivisions.

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APPENDIX C OBSERVED MIX AND DENSITY OF EMPLOYMENT BY EMPLOYMENT PLAN DESIGNATION

Table 37 presents employment densities used in this EOA. These densities were calculated through a GIS analysis of employment lands and geo-coded employment data from the OED. Densities were calculated by tallying the acreage of all land considered "developed" by each General Plan designation in the city's Buildable Lands Inventory. Then, total non-shift employees on these lands were calculated by General Plan designation. Excluded from the analysis were developed acres and employment on split-zoned lands, residential structures, public schools, and institutional/recreational uses for which land needs were calculated separately. Employment densities considered the adjustment for non-covered employees (additional 11.5 percent employees to account for those not included in employment projections), and removed shift-workers. Data was further refined to remove land and employment for businesses classified as multi-employment reporting units where employment at multiple locations is reported at one location. Employment densities in the Medical District Overlay Zone (MDOZ) were calculated separately since the General Plan designation in the MDOZ is Residential Multi-family.

Table 37. Net Employment Densities

General Plan Designation	Net Employment Density
CB	74.4
CC	16.2
CG	13.0
CL	19.6
IG	14.9
IL	10.7
IP	21.3
ME	11.6
MR	14.8
PF	14.5
RH	36.0
RM	13.2
RS	4.8
Medical (MDOZ)	19.1

Note: employment densities are for total non-shift workers after making adjustments for non-covered and shift-workers.

The 2007 Leland EOA explains employment densities in detail:

> EOAs completed by other Oregon jurisdictions, including Metro, Salem, and McMinnville, have identified employment densities ranging from 10 employees per acre or more for industrial land, up to approximately 22 for commercial land. The DLCD EOA *Guidebook* cites typical industrial densities of between 8 and 12 employees per acre and commercial densities between 14 and 20 (54).

Employment densities on economic lands in Bend range from 10.7 employees per acre in the Light Industrial zone to over 74 employees per ace in the Central Business zone.   Employment densities are higher for commercial and office zones than industrial zones. Employment densities for the RS, RM, RH General Plan designations refer to employment in non-residential structures located in the

city's residential areas. The RH employment density is high because many offices are located in the RH zone. MDOZ employment densities pertain only to the area within the Medical District Overlay Zone, where employment is focused on medical and health related services.

APPENDIX D ENVISION TOMORROW SCENARIO AND DEVELOPMENT TYPE DETAILS

Memorandum

July 18, 2016
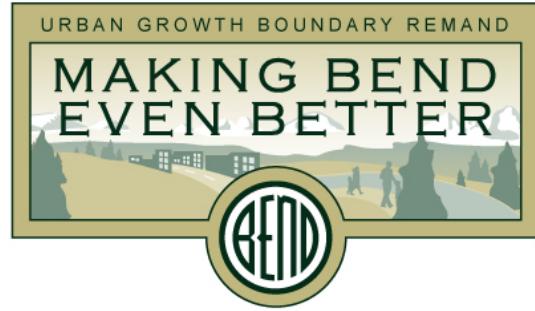
To:	Project Management Team
Cc:	
From:	Angelo Planning Group
Re:	Envision Tomorrow Model Details – Scenario 2.1G and Base Case

INTRODUCTION

The purpose of this memorandum is to provide an overview of the following detailed maps and tables (attached):

- Figure 1: Map of Base Case Development Types
- Figure 2: Map of Scenario 2.1G Development Types
- Table 1: Development Type Attributes
- Table 2: Summary of Acreages, Units, and Employment for Base Case
- Table 3: Summary of Acreages, Units, and Employment for Scenario 2.1G (Inside Current UGB Only)
- Table 4: Summary of Acreages, Units, and Employment for Scenario 2.1G (UGB Expansion Areas Only)
- Table 5: Summary of Acreages, Units, and Employment for Scenario 2.1G (Full Scenario)

The above-listed maps and tables document the assumptions used in Envision Tomorrow, the scenario planning tool, to project growth inside Bend's existing Urban Growth Boundary (UGB) and in proposed UGB expansion areas. As described in the Urbanization Report, Envision Tomorrow applies development assumptions spatially and provides the ability to compare the possible impacts of different policies, development decisions and growth trajectories.

ABOUT THE DEVELOPMENT TYPES

Overview

Future development assumptions are organized into "development types" that define different types of residential and employment development. Development assumptions that are built into the development types include:

- a mix of specific building prototypes, which are based on information including parking requirements, height limits, and lot coverage ratios;
- streets, open space, and other set-asides;

- net residential and job density; and
- rate of redevelopment.

The full list of development types used in Scenario 2.1G and the Base Case is provided below, along with a brief description of the purpose for each. The development types are associated with either an existing plan designation on the Bend Comprehensive Plan map or a new plan designation. However, for some plan designations there are a number of different development types to reflect different circumstances, such as platted lots versus large vacant tracts, areas that are likely to be more pedestrian-oriented than others, lots constrained with deed restrictions, and other unique situations.

Figure 1 illustrates where each development type was "painted" in the model. Table 1 provides the details of gross-to-net set asides, redevelopment rate, and housing and/or employment mix and density for each development type. Tables 2 through 5 summarize:

- the acreages of each development type;
- the new housing units and jobs generated through projected new development;
- the housing units and jobs projected to be lost through redevelopment of existing structures; and
- the net growth projected to result from all future development within the planning horizon.

Table 2 presents these numbers for the Base Case; Table 3 shows numbers for Scenario 2.1G inside the current UGB only; Table 4 shows Scenario 2.1G for the UGB expansion only; and Table 5 shows Scenario 2.1G for the full scenario (inside the current UGB plus expansion areas).

Commercial Development Types

- **CB**: represents the Central Business (CB) plan designation and zone; initially calibrated to observed mix and net employment density in the zone (as of 2006[1]) and the history of residential development in the zone (1998 to 2014), but employment mix adjusted to more closely reflect needed mix going forward.
- **CG**: represents the General Commercial (CG) plan designation and zone; initially calibrated to the observed mix and net employment density in the zone (as of 2006) and the history of residential development in the zone (1998 to 2014), but employment mix adjusted to more closely reflect needed mix going forward.
- **CL**: represents the Limited Commercial (CL) plan designation and zone; initially calibrated to the observed mix and net employment density in the zone (as of 2006) and

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[1] 2006 data on employment density and mix was used in order to maintain consistency with the starting assumptions underlying the 2008 Employment Opportunities Analysis, from which the employment projections originated. In addition, industrial, office, and commercial vacancy rates in 2013, the year for which updated employment data was obtained, were unusually high. (This affects calculations of employees per developed acre, because the space is still counted as developed but has no employees.)

the history of residential development in the zone (1998 to 2014), but employment mix adjusted to more closely reflect needed mix going forward.

- **CC:** represents the Convenience Commercial (CC) plan designation and zone; initially calibrated to the observed mix and net employment density in the zone (as of 2006) and the history of residential development in the zone (1998 to 2014), but employment mix adjusted to more closely reflect needed mix going forward.
- **CC2:** a modified version of the CC development type intended to reflect a more pedestrian-oriented commercial development style.

Mixed Use Development Types

- **MU2a:** represents the proposed new Mixed Use – Urban (MU) plan designation and zone; calibrated to match the type and intensity of uses allowed under the proposed zoning regulations.
- **MU1:** represents the proposed new Mixed Use – Neighborhood (MN) plan designation and zone; calibrated to match the type and intensity of uses allowed under the proposed zoning regulations.
- **MMA MU:** represents the proposed Bend Central District (BCD) special plan district;[2] calibrated to reflect the type and intensity of uses allowed under the proposed zoning regulations.
- **MR:** represents the Mixed Use Riverfront (MR) plan designation and zone; calibrated to match the observed mix and net employment density in the zone (as of 2006) and the history of residential development in the zone (1998 to 2014).
- **MDOZ**: represents the Medical District Overlay Zone (MDOZ), which allows certain medical offices and hospitals in addition to the residential uses allowed under the base residential zones; calibrated to match observed trends in this zone.
- **ME-BC**: represents the Mixed Employment (ME) zone and plan designation under the existing zoning regulations; calibrated to the observed mix and net employment density in the zone (as of 2006) and the history of residential development in the zone (1998 to 2014).
- **ME-EM:** represents the ME zone and plan designation under the proposed zoning regulations.

Industrial Development Types

- **IG:** reflects the General Industrial (IG) plan designation and zone; calibrated to match the observed mix and net employment density in the zone (as of 2006).
- **IL:** reflects the Light Industrial (IL) plan designation and zone; calibrated to match the observed mix and net employment density in the zone (as of 2006).

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[2] Note that the development type reflects a generalized version of the multiple sub-districts within the BCD special plan district. The CL development type was used to capture 3rd street development assumptions, because residential uses are not allowed outright in that subdistrict, making it more similar to the base CL zone than to the other subdistricts.

- **Large Lot Industrial:** a placeholder development type that identifies areas for a large lot industrial site; does not generate employment because the employment from these sites is outside the trend-based employment projection and because there is no available data to project employment density.
- **Juniper Ridge Employment:** represents the Juniper Ridge Employment district; calibrated to match the mix of uses allowed in the Employment Sub-District (ESD) of the overlay zone and the intensity of uses allowed within the ESD under an Inter-Governmental Agreement (IGA) with the Oregon Department of Transportation (ODOT) based on the transportation improvements identified as reasonably likely to be funded by 2028.[3]
- **Juniper Ridge East:** represents the eastern portion of Juniper Ridge that is inside the current UGB but not within the ESD; calibrated to match the type of uses allowed within the ESD and the intensity of employment assumed as background growth in the phasing study for Juniper Ridge through 2025.[4]

Public Facilities and Institutional Development Types

- **PF:** represents the Public Facilities (PF) plan designation and zone; calibrated based on the observed employment mix and net density in the zone (as of 2006). Used only where the PF plan designation is applied to sites that do not meet one of the other categories identified below.
- **Institutional:** represents the Central Oregon Community College (COCC) campus; calibrated to generate the employment and student housing projected by COCC representatives for 2028.
- **University:** represents the Oregon State University (OSU) Cascades campus; calibrated to generate the employment and student housing projected by OSU representatives for 2028.[5]
- **Park:** represents future neighborhood and community park placeholders; no employment or housing. Application to existing park sites is inconsistent (because it has

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[3] The Phasing Analysis conducted for Juniper Ridge in 2010 ("Juniper Ridge Transportation Study – Mitigation Phasing Analysis for Employment Sub-District (ESD)", from Chris Maciejewski and Garth Appanaitis of DKS Associates, dated September 1, 2010) projects a total of 1,075 industrial jobs and 2,736 office jobs in the ESD by 2025. This amount of growth corresponds to the improvements identified as reasonably likely to be funded by 2028.

[4] The Juniper Ridge Employment Sub-District Zone Change Transportation Study, prepared by DKS Associates, June 2010, documents the land use assumptions used for the full 500 acres of Juniper Ridge. Table 4 lists land use assumptions, including the employment for the east area (not the ESD), which is approximately 2,000 employees.

[5] Note that the employment and housing generated by OSU are not included in the housing and employment need projections (the university was identified as a special site need instead), but the housing and employment are significant enough to be important to transportation modeling and are included in the development type. The housing units and jobs were tracked separately in the model to ensure that the needed number of housing units and jobs was provided.

no effect on the model); application to potential future park sites is for capacity and land need purposes and is not intended to reflect a site-specific proposal.

- **School:** represents existing and future school site placeholders; no employment or housing because school employment was excluded from the employment projections in the Employment Opportunities Analysis. Application to existing school sites is inconsistent (because it has no effect on the model); application to potential future school sites is for capacity and land need purposes and is not intended to reflect a site-specific proposal.

Residential Development Types

- **RL-BC**: represents the Residential Low Density (RL) plan designation and zone under existing zoning regulations; calibrated to the observed housing mix and density in that zone (1998-2008).
- **RL-EM:** represents the RL plan designation and zone under proposed amendments to the zoning regulations and plan designation density range; calibrated based on expected changes to observed trends as a result of the proposed code amendments.
- **Westside Residential**: represents the "transect" concept for the West UGB expansion area (and proposed to be captured with the RL plan designation plus master plan regulations and special policies); calibrated to produce the number and mix of housing units approved by the UGB Steering Committee. Open space is not accounted for within the development type; rather, the "park" development type was used to generate placeholders for required open space dedications based on the transect concept.
- **RS-BC:** represents the Residential Standard (RS) plan designation and zone under existing zoning regulations; calibrated to the observed housing mix and density in that zone (1998-2008).
- **RS-EM:** represents the RS plan designation and zone under proposed amendments to the zoning regulations and plan designation density range; calibrated based on expected changes to observed trends as a result of the proposed code amendments, including achieving an average density[6] that is just above the proposed minimum density for the zone (4.0 units per acre).
- **RS-Platted**: represents vacant platted lots in the RS zone; calibrated to produce roughly one house per lot, with a small number of Accessory Dwelling Units (ADUs) and duplexes, and no set-asides.
- **RS-CCR**: represents vacant platted lots in the RS zone that are subject to Contracts, Covenants, and Restrictions (CC&Rs) that restrict land division and/or limit the number of dwelling units allowed on the lot; calibrated to produce one single family detached dwelling unit per lot.

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[6] Based on the proposed methodology for calculating density, densities for all residential development types that reflect the efficiency measures are calibrated using residential land only, excluding open space and other / civic land set-asides but including right-of-way set-asides. Densities are also calibrated excluding Accessory Dwelling Units, because these do not count towards meeting density or housing mix requirements under the proposed development code amendments.

- **RS-Hillside**: represents vacant land in the RS zone that has slopes that are great enough to push density toward the lower end of the allowed density range but are not over 25%.
- **RS Masterplan – BC**: represents vacant sites over 40 acres in the RS zone that are subject to existing master planning requirements; density and open space set asides are based on the current master plan requirements for the RS zone.
- **RS Masterplan – EM:** represents vacant sites over 20 acres in the RS zone that would be subject to the proposed master planning requirements. Calibrated based on the proposed master plan requirements for the RS zone, including achieving an average density[6] that is just above the proposed minimum density for the master plan sites in the RS zone (5.11 units per acre) and a housing mix that matches the required mix proposed for master plans in the RS zone (no more than 90% single family detached).
- **RM-BC**: represents the Residential Medium Density (RM) plan designation and zone under the existing zoning regulations; calibrated based on observed housing mix and density in that zone (1998-2008).
- **RM-EM:** represents the RM plan designation and zone under proposed amendments to the zoning regulations; calibrated based on expected changes to observed trends as a result of the proposed code amendments.
- **RM Masterplan – BC:** represents vacant sites over 40 acres in the RM zone that are subject to existing master planning requirements; density and open space set asides are based on the current master plan requirements for the RM zone.
- **RM Masterplan – EM:** represents vacant sites over 20 acres in the RM zone that would be subject to the proposed master planning requirements. Calibrated based on the proposed master plan requirements for the RM zone, including achieving an average density[6] that is just above the proposed minimum density for the master plan sites in the RM zone (13.02 units per acre) and a housing mix that matches the required mix proposed for master plans in the RM zone (no more than 33% single family detached).
- **RH-BC**: represents the Residential High Density (RH) plan designation and zone under the existing zoning regulations; calibrated based on the minimum density in the zone, which is above the observed housing mix and density in that zone (1998-2008).
- **RH-EM**: represents the RH plan designation and zone under proposed amendments to the zoning regulations; calibrated based on expected changes as a result of the proposed code amendments.

ABOUT THE MAPS

The attached maps illustrate the application of development types to parcels. As noted in the Urbanization Report, only those parcels with development or redevelopment potential have development types applied, resulting in a speckled appearance to the maps. Areas shown in grey were identified as not having development or redevelopment potential in the model. It is important to note that although development types are applied at the parcel level, the model does not predict exactly how or when a given parcel will develop. Rather, it applies a mix of different types of development and land set-asides (using percentages of available acres) across multiple parcels. Results are calculated at the parcel level, but, because they represent

blended averages for future development rather than site-specific assumptions, they are only appropriate to report at a summary level. Where land with existing development has a development type applied, the redevelopment rate specifies what percentage of the developed land should have the development assumptions of the development type applied to it. It does not specify which land exactly is redeveloped, only how much of it is redeveloped overall.

Note that large parcels were divided into a grid in order to allow for applying assumptions at a finer grain. Within the UGB, parcels over 14 acres were divided into 14-acre or less grid squares (only large parcels were divided, based on the assumption that most parcels would not be split-zoned inside the UGB unless they are quite large). Outside the UGB, a maximum size of 3.5 acres was selected in order to allow for more nuanced land use layouts, because split-zoning of parcels to be brought into the UGB is more likely. Despite the use of the grid for modeling purposes, on some large sites, the arrangement and shaping of land uses for proposed comprehensive plan designations was refined from the level of detail available in the grid cells. As a result, some areas (e.g. the West, DSL, and Shevlin UGB Expansion Areas; and the 15th Street Ward property opportunity area) show a somewhat different spatial configuration of development types than proposed on the comprehensive plan designation maps. The grid square system also affected the shape of the expansion area in "the Thumb" – a more "squared-off" UGB line is proposed than could be effectively modeled.

As discussed in the Urbanization Report, no redevelopment is assumed on fully-developed residential land (although sites with more than a half-acre of available land are assumed to experience infill). Redevelopment on employment land outside opportunity areas (and for all areas in the base case) is based on job density – parcels with an existing job density of less than three times the average job density projected for the development type were "painted", unless they were developed with multifamily housing or institutional uses. In industrial zones / plan designations, any parcel with an existing employment density below the average for the development type was "painted", in order to model "refill" of jobs into existing buildings. (Note that only a fraction of the developed employment land "painted" with a development type is assumed to redevelop. That redevelopment rate is specified for each development type as a percent of developed acres that are assumed to redevelop.)

Redevelopment within core opportunity areas was evaluated based on total land value (from the tax assessor's database) per square foot of parcel area. This analysis assumed that, on average, new development in opportunity areas could afford to pay roughly $18 per square foot of land, based on an assumed return on investment, approximate construction costs, and market rents for the applicable uses in the new mixed use zones. Properties with total values below this threshold were generally identified as having redevelopment potential, and "painted" with the appropriate development type (in addition to parcels with vacant land available). For the new mixed use zones, the redevelopment rate was set at 10-15% of "painted" acres within the planning horizon, accounting for the fact that not all properties that *could* redevelop *will* redevelop.

For properties with approved development applications (including subdivisions and master plans), the development type(s) that most closely match the proposed development on the site

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were applied. In some cases (e.g. portions of the Northwest Crossing Master Plan that are identified for future multifamily development), this is different than the base plan designation or zone.

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Bend UGB
Base Case Development Types

DESCHUTES RIVER

TUMALO CREEK

0   0.5   1   2 Miles

NORTH
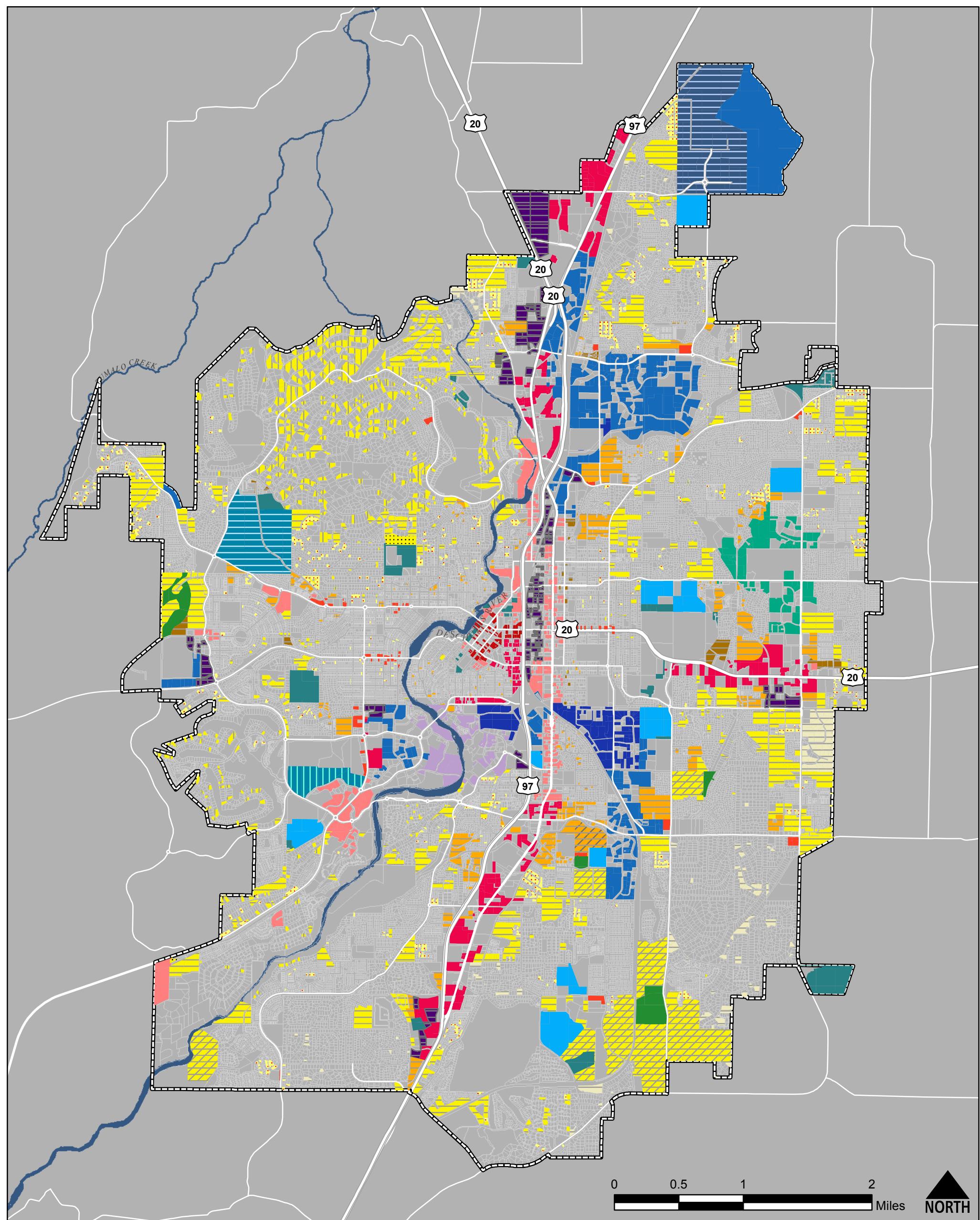
Legend

Base Case Development Types

- Juniper Ridge
- CB
- MDOZ
- MR
- ME-BC
- CL
- CC
- CG
- IG
- IL
- PF
- Park
- School
- University
- Institutional
- RL-BC
- RS Hillside
- RS Platted
- RS-CCR
- RS-BC
- Juniper Ridge Employment
- RS Masterplan - BC
- RM-BC
- RM Masterplan - BC
- RH-BC
- Current UGB
- Taxlots
- Streams/Rivers
- Roads/Highways

URBAN GROWTH BOUNDARY REMAND

BEND

Disclaimer: This map represents land use assumptions for modeling purposes only.

Service Layer Credits: Deschutes County GIS (2014)

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Bend UGB
Scenario 2.1G Development Types

0   0.5   1   2
Miles

NORTH

Legend

	Scenario 2.1 G					
Proposed UGB	CB	CL	PF	RS Platted	RM Masterplan - EM	
Current UGB	MU 2a	CC2	Park	RS-CCR	RH-EM	
Taxlots	MU 1	CC	School	RS-BC	Juniper Ridge Employment	
Streams/Rivers	MDOZ	CG	University	RS-EM	MMA MU	
Roads/Highways	MR	IG	Institutional	RS Masterplan - BC	Juniper Ridge East	
	ME-EM	IL	RL-EM	RS Masterplan - EM	West Side Residential	
		Large Lot Industrial	RS Hillside	RM-EM		

URBAN GROWTH
BOUNDARY REMAND
BEND

Disclaimer: This map represents land use assumptions for modeling purposes only.

Service Layer Credits: Deschutes County GIS (2014)

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Table 1: Development Type Attributes

Development Types	Net Land Reductions - % of vacant acres			Net Buildable Acre (out of 1)	Redev. Rate	Net Density		Gross Density		Land Use Mix (percent of net acres)			Housing Mix (percent of units)			Employment Mix (Percent of jobs)			
	Streets	Civic	Park			Housing Units / Net Acre	Jobs / Net Acre	Housing Units / Gross Acre	Jobs / Gross Acre	Empl-oyment	Mixed Use	Resid-ential	MF	SFA	SFD	Retail & Hospitality	Office	Industrial	Public / Civic & Edu.
Commercial Types																			
CB	0%	13%	0%	0.87	20%	2.71	79.72	2.36	69.52	81%	39%	0%	100%	0%	0%	29%	65%	0%	6%
CG	20%	13%	0%	0.67	10%	-	13.84	-	9.28	100%	0%	0%	0%	0%	0%	81%	17%	2%	0%
CL	20%	13%	0%	0.67	10%	0.47	20.36	0.32	13.66	100%	0%	0%	100%	0%	0%	47%	40%	7%	6%
CC	29%	13%	0%	0.58	10%	-	16.57	-	9.65	100%	0%	0%	0%	0%	0%	75%	25%	0%	0%
CC2	29%	13%	0%	0.58	10%	2.34	25.33	1.36	14.74	89%	11%	0%	81%	19%	0%	49%	46%	5%	0%
Mixed Use Types																			
MU 2a	29%	13%	0%	0.58	15%	21.45	31.15	12.48	18.13	68%	21%	10%	93%	7%	0%	72%	28%	0%	0%
MU 1	29%	13%	0%	0.58	10%	13.80	31.11	8.03	18.11	61%	12%	28%	79%	18%	3%	40%	59%	0%	0%
MMA MU	29%	13%	0%	0.58	15%	36.35	44.02	21.16	25.62	52%	27%	22%	99%	1%	0%	26%	71%	1%	2%
MR	29%	13%	0%	0.58	10%	5.35	22.53	3.11	13.11	96%	2%	2%	48%	42%	10%	38%	51%	11%	0%
ME-BC	20%	13%	0%	0.67	6%	-	12.54	-	8.39	100%	0%	0%	0%	0%	0%	14%	44%	41%	0%
ME-EM	20%	13%	0%	0.67	10%	0.34	16.77	0.23	11.22	100%	0%	0%	35%	65%	0%	38%	32%	29%	1%
MDOZ	25%	13%	0%	0.62	10%	13.02	20.56	8.12	12.82	64%	0%	36%	100%	0%	0%	2%	88%	10%	0%
Industrial Types																			
IG	20%	13%	0%	0.67	40%	-	12.17	-	8.17	100%	0%	0%	0%	0%	0%	3%	28%	70%	0%
IL	20%	13%	0%	0.67	40%	-	10.12	-	6.79	100%	0%	0%	0%	0%	0%	3%	17%	80%	0%
Large Lot Industrial	9%	0%	0%	0.91	0%	-	-	-	-	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Juniper Ridge	20%	13%	5%	0.62	0%	-	16.17	-	10.04	100%	0%	0%	0%	0%	0%	1%	49%	45%	5%
Juniper Ridge East	20%	13%	5%	0.62	0%	-	14.41	-	8.95	100%	0%	0%	0%	0%	0%	1%	41%	54%	4%
Public Facilities & Institutional Types																			
PF	19%	13%	0%	0.68	0%	-	17.86	-	12.14	100%	0%	0%	0%	0%	0%	0%	0%	0%	100%
Park	15%	0%	85%	-	0%	-	-	-	-	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
School	12%	88%	0%	-	0%	-	-	-	-	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
University	12%	0%	8%	0.80	0%	17.65	14.60	14.11	11.66	0%	100%	0%	100%	0%	0%	0%	0%	0%	100%
Institutional	12%	0%	25%	0.63	0%	3.66	14.53	2.30	9.14	98%	0%	2%	100%	0%	0%	3%	0%	0%	97%
Residential Types																			
RL-BC	23%	13%	0%	0.64	0%	2.11	-	1.35	-	0%	0%	100%	0%	0%	100%	0%	0%	0%	0%
RL-EM	23%	13%	0%	0.64	0%	2.35	-	1.51	-	0%	0%	100%	2%	0%	98%	0%	0%	0%	0%
West Side Residential	23%	2%	0%	0.75	100%	4.45	-	3.33	-	0%	0%	100%	21%	10%	69%	0%	0%	0%	0%
RS-BC	23%	13%	0%	0.64	0%	4.65	0.01	2.99	0.01	0%	0%	100%	4%	5%	92%	100%	0%	0%	0%
RS-EM	23%	13%	0%	0.64	0%	5.62	0.01	3.61	0.01	0%	0%	100%	8%	6%	87%	100%	0%	0%	0%
RS Platted	0%	0%	0%	1.00	0%	6.73	-	6.73	-	0%	0%	100%	4%	0%	96%	0%	0%	0%	0%
RS-CCR	0%	0%	0%	1.00	0%	1.91	-	1.91	-	0%	0%	100%	0%	0%	100%	0%	0%	0%	0%
RS Hillside	23%	13%	0%	0.64	0%	5.74	-	3.68	-	0%	0%	100%	2%	0%	98%	0%	0%	0%	0%
RS Masterplan - BC	23%	13%	10%	0.54	0%	6.36	0.01	3.45	-	0%	0%	100%	5%	3%	92%	100%	0%	0%	0%
RS Masterplan - EM	23%	13%	10%	0.54	0%	7.52	0.36	4.08	0.19	1%	0%	99%	8%	6%	86%	58%	42%	0%	0%
RM-BC	23%	13%	0%	0.64	0%	13.36	0.45	8.58	0.29	2%	0%	98%	61%	7%	32%	58%	42%	0%	0%
RM-EM	23%	13%	0%	0.64	0%	13.89	0.45	8.92	0.29	2%	0%	98%	56%	16%	28%	58%	42%	0%	0%
RM Masterplan - BC	23%	13%	10%	0.54	0%	18.67	0.45	10.12	0.25	1%	0%	99%	63%	28%	9%	58%	42%	0%	0%
RM Masterplan - EM	23%	13%	10%	0.54	0%	19.64	0.36	10.64	0.19	1%	0%	99%	64%	27%	10%	58%	42%	0%	0%
RH-BC	23%	13%	0%	0.64	0%	27.91	0.36	17.91	0.23	0%	0%	100%	87%	8%	5%	58%	42%	0%	0%
RH-EM	23%	13%	0%	0.64	1%	29.46	0.37	18.91	0.24	0%	0%	99%	86%	14%	0%	60%	40%	0%	0%

Table 2: Summary of Acreages, Units, and Employment for Base Case

Development Types	Vacant Acres Developed (gross)	Redev. Acres	Total Acres Developed (Gross)	Net Land Red. Streets (ac)	Net Land Red. Civic (ac)	Net Land Red. Park/OS (ac)	Net Acres Developed	Land Use: Employment	Land Use: Mixed Use	Land Use: Residential	New Housing Total	New Housing MF	New Housing SFA	New Housing SFD	Lost Total	Lost MF	Lost SFA	Lost SFD	Net New Housing Total	Net New Housing MF	Net New Housing SFA	Net New Housing SFD	New Jobs Total	New Jobs Retail & Hospitality	New Jobs Office	New Jobs Industrial	New Jobs Public/Civic & Edu.	Emp Lost Total	Emp Lost Retail & Hospitality	Emp Lost Office	Emp Lost Industrial	Emp Lost Public/Civic & Edu.	Net New Jobs Total	Net New Jobs Retail & Hospitality	Net New Jobs Office	Net New Jobs Industrial	Net New Jobs Public/Civic & Edu.
Commercial Type	**195.8**	**46.5**	**242.3**	**48.8**	**31.5**	**-**	**162.0**	**161.1**		**0.2**	**41**	**41**	**-**	**-**	**65**	**44**	**0**	**21**	**(24)**	**(2)**	**(0)**	**(21)**	**3,157**	**1,947**	**997**	**119**	**96**	**38**	**16**	**21**	**1**	**-**	**3,120**	**1,931**	**975**	**118**	**96**
CB	-	4.1	4.1	-	0.5	-	3.5	2.9	1.4	-	11	11	-	-	10	9	-	1	1	2	-	(1)	323	95	209	-	19	11	3	8	-	-	312	92	201	-	19
CG	113.7	23.9	137.6	27.5	17.9	-	92.2	92.2	-	-	-	-	-	-	17	8	-	8	(17)	(8)	-	(8)	1,386	1,129	232	24	1	15	7	8	1	-	1,371	1,122	224	24	1
CL	71.7	15.8	87.6	17.5	11.4	-	58.7	58.5	-	0.2	30	30	-	-	33	23	-	11	(3)	7	-	(11)	1,302	614	518	94	75	11	5	5	1	-	1,291	609	514	94	75
CC	10.4	2.7	13.2	3.8	1.7	-	7.6	7.6	-	-	-	-	-	-	5	3	0	2	(5)	(3)	(0)	(2)	146	109	37	-	0	1	0	1	-	-	145	109	36	-	0
CC2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Mixed Use Types	**173.9**	**18.4**	**192.3**	**44.7**	**25.0**	**-**	**122.6**	**107.9**	**0.5**	**14.2**	**662**	**601**	**49**	**12**	**61**	**60**	**0**	**1**	**601**	**541**	**49**	**11**	**2,178**	**318**	**1,371**	**484**	**4**	**32**	**4**	**21**	**5**	**2**	**2,146**	**315**	**1,350**	**479**	**2**
MU 2a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MU 1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MMA MU	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MR	30.8	3.8	34.6	10.0	4.5	-	20.1	19.2	0.5	0.4	116	55	49	12	5	4	0	0	111	51	49	12	489	185	248	55	1	3	-	1	-	1	487	185	246	55	0
ME-BC	88.0	7.1	95.1	19.0	12.4	-	63.7	63.7	-	-	-	-	-	-	1	-	-	1	(1)	-	-	(1)	827	118	368	339	2	18	4	8	5	1	809	115	360	334	1
ME-EM	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MDOZ	55.1	7.5	62.7	15.7	8.1	-	38.8	25.0	-	13.8	545	545	-	-	55	55	-	-	490	490	-	-	862	15	756	90	1	12	-	12	-	-	850	15	744	90	1
Industrial Types	**639.4**	**194.5**	**833.9**	**166.8**	**108.4**	**13.5**	**545.2**	**545.2**	**-**	**-**	**-**	**-**	**-**	**-**	**5**	**2**	**-**	**3**	**(5)**	**(2)**	**-**	**(3)**	**7,298**	**161**	**2,184**	**4,820**	**133**	**468**	**70**	**198**	**200**	**-**	**6,830**	**92**	**1,986**	**4,620**	**133**
IP	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
IG	7.8	48.0	55.8	11.2	7.2	-	37.4	37.4	-	-	-	-	-	-	2	2	-	0	(2)	(2)	-	(0)	648	19	178	450	-	100	10	48	42	-	548	9	130	408	-
IL	361.9	146.5	508.4	101.7	66.1	-	340.6	340.6	-	-	-	-	-	-	3	-	-	3	(3)	-	-	(3)	3,941	106	684	3,150	-	368	60	150	158	-	3,573	46	534	2,992	-
Large Lot Industrial	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Juniper Ridge Employment	269.8	-	269.8	54.0	35.1	13.5	167.3	167.3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2,709	36	1,322	1,219	133	-	-	-	-	-	2,709	36	1,322	1,219	133
Juniper Ridge East	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Public Facilities	**231.0**	**-**	**231.0**	**32.9**	**7.8**	**75.7**	**114.6**	**89.7**	**23.8**	**1.1**	**630**	**630**	**-**	**-**	**-**	**-**	**-**	**-**	**630**	**630**	**-**	**-**	**1,775**	**22**	**-**	**-**	**1,753**	**-**	**-**	**-**	**-**	**-**	**1,775**	**22**	**-**	**-**	**1,753**
PF	48.9	-	48.9	9.3	6.4	-	33.2	33.2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	593	-	-	-	593	-	-	-	-	-	593	-	-	-	593
Park	59.4	-	59.4	8.9	-	50.4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
School	1.7	-	1.7	0.2	1.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
University	29.8	-	29.8	3.6	-	2.4	23.8	-	23.8	-	420	420	-	-	-	-	-	-	420	420	-	-	347	-	-	-	347	-	-	-	-	-	347	-	-	-	347
Institutional	91.3	-	91.3	11.0	-	22.8	57.5	56.5	-	1.1	210	210	-	-	-	-	-	-	210	210	-	-	835	22	-	-	813	-	-	-	-	-	835	22	-	-	813
Residential Type	**2,216.5**	**-**	**2,216.5**	**411.4**	**232.6**	**43.7**	**1,528.8**	**3.5**	**-**	**1,525.3**	**9,256**	**2,298**	**450**	**6,509**	**-**	**-**	**-**	**-**	**9,256**	**2,298**	**450**	**6,509**	**98**	**60**	**38**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**98**	**60**	**38**	**-**	**-**
RL-BC	112.3	-	112.3	25.8	14.6	-	71.9	-	-	71.9	152	-	-	152	-	-	-	-	152	-	-	152	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
RL-EM	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
West Side Residential	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
RS-BC	935.6	-	935.6	215.2	121.6	-	598.8	0.1	-	598.7	2,795	98	131	2,566	-	-	-	-	2,795	98	131	2,566	5	5	-	-	-	-	-	-	-	-	5	5	-	-	-
RS-EM	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
RS Platted	191.8	-	191.8	-	-	-	191.8	-	-	191.8	1,290	54	-	1,236	-	-	-	-	1,290	54	-	1,236	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
RS-CCR	235.8	-	235.8	-	-	-	235.8	-	-	235.8	451	-	-	451	-	-	-	-	451	-	-	451	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
RS Hillside	6.3	-	6.3	1.4	0.8	-	4.0	-	-	4.0	23	0	-	23	-	-	-	-	23	0	-	23	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
RS Masterplan - BC	410.1	-	410.1	94.3	53.3	41.0	221.4	0.1	-	221.4	1,414	68	48	1,298	-	-	-	-	1,414	68	48	1,298	2	2	-	-	-	-	-	-	-	-	2	2	-	-	-
RS Masterplan - EM	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
RM-BC	265.0	-	265.0	61.0	34.5	-	169.6	3.0	-	166.6	2,273	1,398	148	727	-	-	-	-	2,273	1,398	148	727	77	45	32	-	-	-	-	-	-	-	77	45	32	-	-
RM-EM	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
RM Masterplan - BC	27.1	-	27.1	6.2	3.5	2.7	14.6	0.2	-	14.5	274	171	77	26	-	-	-	-	274	171	77	26	7	4	3	-	-	-	-	-	-	-	7	4	3	-	-
RM Masterplan - EM	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
RH-BC	32.6	-	32.6	7.5	4.2	-	20.8	0.1	-	20.7	583	508	46	30	-	-	-	-	583	508	46	30	7	4	3	-	-	-	-	-	-	-	7	4	3	-	-
RH-EM	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TOTAL	**3,456.7**	**259.4**	**3,716**	**704.7**	**405.3**	**132.9**	**2,473**	**907.5**	**25.7**	**1,540.8**	**10,589**	**3,570**	**499**	**6,521**	**130**	**105**	**0**	**25**	**10,459**	**3,465**	**498**	**6,496**	**14,506**	**2,508**	**4,590**	**5,422**	**1,985**	**537**	**89**	**240**	**206**	**2**	**13,969**	**2,420**	**4,350**	**5,216**	**1,984**

Bend Urbanization Report, Appendix D

Table 3 - Summary of Acreages, Units, and Employment for 2.1G (Inside Current UGB Only)

Development Types	Vacant Acres Developed (gross)	Redev. Acres	Total Acres Developed (Gross)	Streets (ac)	Civic (ac)	Park / OS (ac)	Net Acres Developed	Employment	Mixed Use	Residential	New Housing Total	MF	SFA	SFD	Lost Total	MF	SFA	SFD	Net New Total	MF	SFA	SFD	New Jobs Total	Retail & Hosp.	Office	Industrial	Public/Civic & Edu.	Emp Lost Total	Retail & Hosp.	Office	Industrial	Public/Civic & Edu.	Net New Jobs Total	Retail & Hosp.	Office	Industrial	Public/Civic & Edu.
Commercial Type	184.5	44.2	228.7	47.4	29.7	-	151.6	149.8	2.4	0.1	56	52	4	-	55	40	0	12	2	12	4	(14)	3,009	1,854	969	107	79	73	36	31	4	1	2,936	1,818	937	104	78
CB	-	4.1	4.1	-	0.5	-	3.5	2.9	1.4	-	11	11	-	-	10	9	-	1	1	2	-	(1)	323	95	209	-	19	11	3	8	-	-	312	92	201	-	19
CG	107.0	24.0	131.1	26.2	17.0	-	87.8	87.8	-	-	-	-	-	-	12	6	-	5	(12)	(6)	-	(6)	1,326	1,080	222	23	1	15	7	8	1	-	1,311	1,073	214	23	1
CL	52.3	14.1	66.4	13.3	8.6	-	44.5	44.3	-	0.1	23	23	-	-	28	22	-	5	(5)	1	-	(6)	1,001	472	399	73	58	46	26	15	3	1	955	446	383	69	56
CC	9.0	2.0	11.0	3.2	1.4	-	6.4	6.4	-	-	-	-	-	-	4	3	0	2	(4)	(3)	(0)	(2)	120	90	30	-	0	1	0	0	-	-	119	89	30	-	0
CC2	16.2	-	16.2	4.7	2.1	-	9.4	8.4	1.0	-	22	18	4	-	-	-	-	-	22	18	4	-	238	117	109	12	1	-	-	-	-	-	238	117	109	12	1
Mixed Use Types	224.8	38.3	263.1	63.8	34.2	-	165.1	136.3	5.7	23.2	1,484	1,317	146	22	70	63	0	3	1,414	1,253	146	15	4,010	1,268	2,202	513	26	238	35	89	62	14	3,771	1,233	2,074	452	13
MU 2a	1.3	6.3	7.6	2.2	1.0	-	4.4	3.0	0.9	0.5	152	142	10	-	0	-	-	0	152	142	10	(0)	220	158	62	-	1	21	-	3	14	-	200	158	55	(14)	1
MU 1	40.0	7.5	47.6	13.8	6.2	-	27.6	16.7	3.2	7.6	426	335	78	12	4	4	-	0	422	332	78	12	960	386	570	-	3	140	19	48	27	13	820	367	488	(27)	(9)
MMA MU	-	6.7	6.7	2.0	0.9	-	3.9	2.0	1.0	0.9	245	242	3	-	6	-	-	2	239	242	3	(6)	297	77	211	3	5	35	11	11	13	-	262	67	200	(10)	5
MR	25.2	2.1	27.4	7.9	3.6	-	15.9	15.2	0.4	0.3	90	43	38	9	5	4	0	0	85	38	38	9	379	143	192	43	1	2	-	2	-	-	377	143	190	43	1
ME-BC	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ME-EM	103.1	8.0	111.2	22.2	14.5	-	74.5	74.3	0.1	0.1	26	9	17	-	1	-	-	1	26	9	17	(1)	1,292	488	411	378	15	29	6	13	8	1	1,263	483	397	369	14
MDOZ	55.1	7.5	62.7	15.7	8.1	-	38.8	25.0	-	13.8	545	545	-	-	55	55	-	-	490	490	-	-	862	15	756	90	1	12	-	12	-	-	850	15	744	90	1
Industrial Types	622.6	169.1	792.0	152.4	95.8	20.9	522.9	473.0	-	-	-	-	-	-	4	2	-	3	(4)	(2)	-	(3)	6,843	125	2,399	4,132	187	399	70	107	181	-	6,444	56	2,250	3,951	187
IP	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
IG	6.4	33.1	39.6	7.9	5.1	-	26.5	26.5	-	-	-	-	-	-	2	2	-	-	(2)	(2)	-	-	456	13	125	317	-	71	10	30	24	-	385	4	88	293	-
IL	143.8	136.0	279.8	56.0	36.4	-	187.5	187.5	-	-	-	-	-	-	3	-	-	3	(3)	-	-	(3)	2,353	64	408	1,881	-	328	60	77	157	-	2,025	4	297	1,724	-
Large Lot Industrial	54.8	-	54.8	4.9	-	-	49.9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Juniper Ridge Employment	270.1	-	270.1	54.0	35.1	13.5	167.4	167.4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2,712	36	1,323	1,220	133	-	-	-	-	-	2,712	36	1,323	1,220	133
Juniper Ridge East	147.7	-	147.7	29.5	19.2	7.4	91.6	91.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1,322	13	542	714	54	-	-	-	-	-	1,322	13	542	714	54
Public Facilities	244.2	-	244.2	34.2	19.0	76.6	114.4	89.5	23.8	1.1	639	639	-	-	-	-	-	-	639	639	-	-	1,764	23	-	-	1,741	-	-	-	-	-	1,764	23	-	-	1,741
PF	45.0	-	45.0	8.6	5.9	-	30.6	30.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	547	-	-	-	547	-	-	-	-	-	547	-	-	-	547
Park	59.4	-	59.4	8.9	-	50.4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
School	14.9	-	14.9	1.8	13.2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
University	29.8	-	29.8	3.6	-	2.4	23.8	-	23.8	-	420	420	-	-	-	-	-	-	420	420	-	-	347	-	-	-	347	-	-	-	-	-	347	-	-	-	347
Institutional	95.1	-	95.1	11.4	-	23.8	59.9	58.8	-	1.1	219	219	-	-	-	-	-	-	219	219	-	-	869	23	-	-	847	-	-	-	-	-	869	23	-	-	847
Residential Type	2,172.5	0.1	2,172.6	401.5	226.3	38.7	1,506.1	5.5	0.1	1,500.4	10,323	2,833	889	6,601	3	2	-	0	10,320	2,830	889	6,601	156	93	63	-	-	0	-	0	-	-	156	93	62	-	-
RL-BC	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
RL-EM	112.3	-	112.3	25.8	14.6	-	71.9	-	-	71.9	169	4	-	166	-	-	-	-	169	4	-	166	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
West Side Residential	5.1	-	5.1	1.2	0.1	-	3.8	-	-	3.8	17	4	2	12	-	-	-	-	17	4	2	12	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
RS-BC	146.1	-	146.1	33.6	19.0	-	93.5	0.0	-	93.5	437	15	20	401	-	-	-	-	437	15	20	401	1	1	-	-	-	-	-	-	-	-	1	1	-	-	-
RS-EM	782.0	-	782.0	179.9	101.7	-	500.5	0.1	-	500.3	2,820	213	160	2,446	-	-	-	-	2,820	213	160	2,446	4	4	-	-	-	-	-	-	-	-	4	4	-	-	-
RS Platted	192.0	-	192.0	-	-	-	192.0	-	-	192.0	1,292	54	-	1,237	-	-	-	-	1,292	54	-	1,237	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
RS-CCR	235.1	-	235.1	-	-	-	235.1	-	-	235.1	450	-	-	450	-	-	-	-	450	-	-	450	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
RS Hillside	6.3	-	6.3	1.4	0.8	-	4.0	-	-	4.0	23	0	-	23	-	-	-	-	23	0	-	23	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
RS Masterplan - BC	55.0	-	55.0	12.7	7.2	5.5	29.7	0.0	-	29.7	190	9	6	174	-	-	-	-	190	9	6	174	0	0	-	-	-	-	-	-	-	-	0	0	-	-	-
RS Masterplan - EM	283.3	-	283.3	65.2	36.8	28.3	153.0	2.1	-	150.9	1,155	94	67	995	-	-	-	-	1,155	94	67	995	55	32	23	-	-	-	-	-	-	-	55	32	23	-	-
RM-BC	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
RM-EM	255.1	-	255.1	58.7	33.2	-	163.2	2.9	-	160.3	2,274	1,270	357	647	-	-	-	-	2,274	1,270	357	647	74	43	31	-	-	-	-	-	-	-	74	43	31	-	-
RM Masterplan - BC	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
RM Masterplan - EM	48.5	-	48.5	11.2	6.3	4.8	26.2	0.2	-	26.0	516	328	137	51	-	-	-	-	516	328	137	51	9	5	4	-	-	-	-	-	-	-	9	5	4	-	-
RH-BC	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
RH-EM	51.7	0.1	51.8	11.9	6.7	-	33.1	0.2	0.1	32.9	980	841	139	-	3	2	-	0	978	838	139	(0)	12	7	5	-	-	0	-	0	-	-	12	7	5	-	-
TOTAL	3,448.9	251.7	3,700.6	699.2	405.1	136.2	2,460.0	854.0	32.0	1,524.9	12,502	4,840	1,039	6,622	132	108	0	17	12,370	4,732	1,039	6,599	15,781	3,363	5,632	4,753	2,033	710	141	227	247	15	15,070	3,223	5,324	4,506	2,018

Table 4 - Summary of Acreages, Units, and Employment for 2.1G (UGB Expansion Areas Only)

Development Types	Vacant Acres Developed (gross)	Redev. Acres	Total Acres Developed (Gross)	Net Land Reductions - Streets (ac)	Net Land Reductions - Civic (ac)	Net Land Reductions - Park / OS (ac)	Net Acres Developed	Net Acres by Land Use - Employment	Net Acres by Land Use - Mixed Use	Net Acres by Land Use - Residential	New Housing Units Total	New Housing Units MF	New Housing Units SFA	New Housing Units SFD	Housing Units Lost Total	HUL MF	HUL SFA	HUL SFD	Net New Housing Units Total	NNHU MF	NNHU SFA	NNHU SFD	New Jobs Total	NJ Retail & Hospitality	NJ Office	NJ Industrial	NJ Public / Civic & Edu.	Emp Lost Total	ELR Retail & Hospitality	ELR Office	ELR Industrial	ELR Public / Civic & Edu.	Net New Jobs Total	NNJ Retail & Hospitality	NNJ Office	NNJ Industrial	NNJ Public / Civic & Edu.
Commercial Type	**324.2**	**0.3**	**324.5**	**67.3**	**42.2**	**-**	**215.0**	**215.0**	**-**	**0.1**	**11**	**11**	**-**	**-**	**1**	**-**	**-**	**1**	**10**	**11**	**-**	**(1)**	**3,176**	**2,405**	**663**	**77**	**30**	**1**	**-**	**0**	**-**	**0**	**3,175**	**2,405**	**662**	**77**	**30**
CB	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CG	263.1	0.3	263.3	52.7	34.2	-	176.4	176.4	-	-	-	-	-	-	1	-	-	1	(1)	-	-	(1)	2,446	1,991	409	43	3	1	-	0	-	-	2,446	1,991	409	43	3
CL	34.9	-	34.9	7.0	4.5	-	23.4	23.3	-	0.1	11	11	-	-	-	-	-	-	11	11	-	-	476	225	190	35	27	0	-	-	-	0	476	225	190	35	27
CC	26.3	-	26.3	7.6	3.4	-	15.3	15.3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	254	189	64	-	0	-	-	-	-	-	254	189	64	-	0
CC2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Mixed Use Types	**186.3**	**1.1**	**187.4**	**37.6**	**24.4**	**-**	**125.4**	**124.8**	**0.2**	**0.4**	**55**	**25**	**30**	**0**	**1**	**0**	**-**	**1**	**55**	**25**	**30**	**(0)**	**2,120**	**802**	**682**	**611**	**25**	**2**	**0**	**0**	**-**	**2**	**2,118**	**802**	**682**	**611**	**23**
MU 2a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MU 1	1.6	-	1.6	0.5	0.2	-	1.0	0.6	0.1	0.3	13	10	2	0	-	-	-	-	13	10	2	0	30	12	18	-	0	0	-	-	-	0	30	12	18	-	0
MMA MU	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MR	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ME-BC	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ME-EM	184.7	1.1	185.7	37.1	24.1	-	124.4	124.2	0.1	0.1	42	15	27	-	1	0	-	1	41	15	27	(1)	2,090	790	664	611	25	2	0	0	-	2	2,088	790	664	611	23
MDOZ	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Industrial Types	**287.4**	**0.6**	**288.0**	**52.1**	**31.0**	**-**	**204.9**	**159.6**	**-**	**-**	**-**	**-**	**-**	**-**	**2**	**0**	**-**	**2**	**(2)**	**(0)**	**-**	**(2)**	**1,809**	**51**	**428**	**1,330**	**-**	**12**	**-**	**12**	**-**	**-**	**1,797**	**51**	**416**	**1,330**	**-**
IP	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
IG	136.2	0.5	136.7	27.3	17.8	-	91.6	91.6	-	-	-	-	-	-	2	-	-	2	(2)	-	-	(2)	1,119	33	308	778	-	12	-	12	-	-	1,107	33	296	778	-
IL	101.5	0.1	101.5	20.3	13.2	-	68.0	68.0	-	-	-	-	-	-	0	0	-	0	(0)	(0)	-	(0)	690	19	120	551	-	-	-	-	-	-	690	19	120	551	-
Large Lot Industrial	49.7	-	49.7	4.5	-	-	45.2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Juniper Ridge Employment	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Juniper Ridge East	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Public Facilities	**201.9**	**-**	**201.9**	**28.5**	**52.2**	**121.1**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
PF	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Park	142.5	-	142.5	21.4	-	121.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
School	59.4	-	59.4	7.1	52.2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
University	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Institutional	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Residential Type	**998.5**	**5.7**	**1,004.2**	**231.0**	**92.7**	**32.0**	**648.5**	**3.0**	**0.1**	**645.4**	**5,219**	**1,982**	**606**	**2,631**	**0**	**-**	**-**	**0**	**5,219**	**1,982**	**606**	**2,631**	**91**	**54**	**37**	**-**	**-**	**0**	**-**	**-**	**-**	**0**	**91**	**54**	**37**	**-**	**(0)**
RL-BC	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
RL-EM	2.4	-	2.4	0.5	0.3	-	1.5	-	-	1.5	4	0	-	3	-	-	-	-	4	0	-	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
West Side Residential	338.1	5.7	343.7	79.1	6.9	-	257.8	-	-	257.8	1,152	240	113	799	-	-	-	-	1,152	240	113	799	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
RS-BC	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
RS-EM	230.1	-	230.1	52.9	29.9	-	147.2	0.0	-	147.2	830	63	47	720	-	-	-	-	830	63	47	720	1	1	-	-	-	-	-	-	-	-	1	1	-	-	-
RS Platted	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
RS-CCR	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
RS Hillside	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
RS Masterplan - BC	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
RS Masterplan - EM	266.0	-	266.0	61.2	34.6	26.6	143.6	2.0	-	141.7	1,084	88	63	934	-	-	-	-	1,084	88	63	934	51	30	21	-	-	-	-	-	-	-	51	30	21	-	-
RM-BC	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
RM-EM	46.7	-	46.7	10.7	6.1	-	29.9	0.5	-	29.4	417	233	65	119	-	-	-	-	417	233	65	119	14	8	6	-	-	-	-	-	-	-	14	8	6	-	-
RM Masterplan - BC	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
RM Masterplan - EM	54.1	-	54.1	12.5	7.0	5.4	29.2	0.2	-	29.0	576	367	153	56	-	-	-	-	576	367	153	56	10	6	4	-	-	-	-	-	-	-	10	6	4	-	-
RH-BC	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
RH-EM	61.2	0.0	61.2	14.1	8.0	-	39.1	0.2	0.1	38.8	1,157	992	165	-	0	-	-	0	1,157	992	165	(0)	15	9	6	-	-	0	-	-	-	0	15	9	6	-	(0)
TOTAL	**1,998.3**	**7.6**	**2,005.8**	**416.5**	**242.5**	**153.1**	**1,193.8**	**502.3**	**0.4**	**645.8**	**5,286**	**2,018**	**636**	**2,632**	**4**	**0**	**-**	**4**	**5,282**	**2,018**	**636**	**2,628**	**7,195**	**3,313**	**1,809**	**2,018**	**55**	**14**	**0**	**12**	**-**	**2**	**7,181**	**3,313**	**1,797**	**2,018**	**53**

Bend Urbanization Report, Appendix D

Table 5 - Summary of Acreages, Units, and Employment for 2.1G (Full Scenario)

Development Types	Vacant Acres Developed (gross)	Redev. Acres	Total Acres Developed (Gross)	Net Land Reductions - acres Streets (ac)	Civic (ac)	Park / OS (ac)	Net Acres Developed	Net Acres by Land Use Employment	Mixed Use	Residential	New Housing Units Total	MF	SFA	SFD	Housing Units Lost through Redevelopment Total	MF	SFA	SFD	Net New Housing Units Total	MF	SFA	SFD	New Jobs Total	Retail & Hospitality	Office	Industrial	Public / Civic & Edu.	Employment Lost through Redevelopment Total	Retail & Hospitality	Office	Industrial	Public / Civic & Edu.	Net New Jobs Total	Retail & Hospitality	Office	Industrial	Public / Civic & Edu.
Commercial Types	508.7	44.4	553.2	114.6	71.9	-	366.6	364.7	2.4	0.2	67	63	4	-	56	40	0	13	12	23	4	(15)	6,185	4,259	1,632	185	109	73	36	31	4	-	6,111	4,223	1,599	181	108
CB	-	4.1	4.1	-	0.5	-	3.5	2.9	1.4	-	11	11	-	-	10	9	-	1	1	2	-	(1)	323	95	209	-	19	11	3	8	-	-	312	92	201	-	19
CG	370.1	24.3	394.4	78.9	51.3	-	264.2	264.2	-	-	-	-	-	-	14	6	-	6	(14)	(6)	-	(7)	3,772	3,071	631	66	4	15	7	8	1	-	3,757	3,064	623	66	4
CL	87.1	14.1	101.2	20.2	13.2	-	67.8	67.6	-	0.2	34	34	-	-	28	22	-	5	6	12	-	(6)	1,477	697	588	107	85	46	26	15	3	-	1,431	671	572	104	84
CC	35.3	2.0	37.3	10.8	4.9	-	21.6	21.6	-	-	-	-	-	-	4	3	0	2	(4)	(3)	(0)	(2)	374	279	94	-	1	1	0	0	-	-	373	279	94	-	1
CC2	16.2	-	16.2	4.7	2.1	-	9.4	8.4	1.0	-	22	18	4	-	-	-	-	-	22	18	4	-	238	117	109	12	1	-	-	-	-	-	238	117	109	12	1
Mixed Use Types	411.1	39.4	450.5	101.4	58.6	-	290.5	261.1	5.9	23.6	1,539	1,342	176	22	71	63	0	3	1,468	1,278	175	15	6,129	2,070	2,884	1,124	51	240	35	89	62	14	5,889	2,035	2,756	1,062	36
MU 2a	1.3	6.3	7.6	2.2	1.0	-	4.4	3.0	0.9	0.5	152	142	10	-	0	-	-	0	152	142	10	(0)	220	158	62	-	1	21	-	3	14	-	200	158	55	(14)	1
MU 1	41.7	7.5	49.2	14.3	6.4	-	28.5	17.3	3.4	7.9	439	346	80	13	4	4	-	0	435	342	80	13	989	398	588	-	4	140	19	48	27	13	849	379	506	(27)	(9)
MMA MU	-	6.7	6.7	2.0	0.9	-	3.9	2.0	1.0	0.9	245	242	3	-	6	-	-	2	239	242	3	(6)	297	77	211	3	5	35	11	11	13	-	262	67	200	(10)	5
MR	25.2	2.1	27.4	7.9	3.6	-	15.9	15.2	0.4	0.3	90	43	38	9	5	4	0	0	85	38	38	9	379	143	192	43	1	2	-	2	-	-	377	143	190	43	1
ME-BC	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ME-EM	287.8	9.1	296.9	59.4	38.6	-	198.9	198.5	0.2	0.2	68	24	44	-	1	0	-	1	67	24	44	(1)	3,382	1,279	1,075	988	40	31	6	13	8	1	3,351	1,273	1,061	980	37
MDOZ	55.1	7.5	62.7	15.7	8.1	-	38.8	25.0	-	13.8	545	545	-	-	55	55	-	-	490	490	-	-	862	15	756	90	1	12	-	12	-	-	850	15	744	90	1
Industrial Types	910.3	169.7	1,079.5	204.5	126.8	20.9	727.7	632.6	-	-	-	-	-	-	7	2	-	5	(7)	(2)	-	(5)	8,651	177	2,826	5,462	187	411	70	118	181	-	8,241	107	2,666	5,281	187
IP	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
IG	142.7	33.6	176.3	35.3	22.9	-	118.1	118.1	-	-	-	-	-	-	4	2	-	2	(4)	(2)	-	(2)	1,575	46	433	1,095	-	83	10	41	24	-	1,492	36	384	1,071	-
IL	245.3	136.1	381.3	76.3	49.6	-	255.5	255.5	-	-	-	-	-	-	3	0	-	3	(3)	(0)	-	(3)	3,043	82	528	2,433	-	328	60	77	157	-	2,715	22	417	2,276	-
Large Lot Industrial	104.5	-	104.5	9.4	-	-	95.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Juniper Ridge Employment	270.1	-	270.1	54.0	35.1	13.5	167.4	167.4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2,712	36	1,323	1,220	133	-	-	-	-	-	2,712	36	1,323	1,220	133
Juniper Ridge East	147.7	-	147.7	29.5	19.2	7.4	91.6	91.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1,322	13	542	714	54	-	-	-	-	-	1,322	13	542	714	54
Public Facilities	446.1	-	446.1	62.7	71.2	197.7	114.4	89.5	23.8	1.1	639	639	-	-	-	-	-	-	639	639	-	-	1,764	23	-	-	1,741	-	-	-	-	-	1,764	23	-	-	1,741
PF	45.0	-	45.0	8.6	5.9	-	30.6	30.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	547	-	-	-	547	-	-	-	-	-	547	-	-	-	547
Park	201.8	-	201.8	30.3	-	171.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
School	74.3	-	74.3	8.9	65.4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
University	29.8	-	29.8	3.6	-	2.4	23.8	-	23.8	-	420	420	-	-	-	-	-	-	420	420	-	-	347	-	-	-	347	-	-	-	-	-	347	-	-	-	347
Institutional	95.1	-	95.1	11.4	-	23.8	59.9	58.8	-	1.1	219	219	-	-	-	-	-	-	219	219	-	-	869	23	-	-	847	-	-	-	-	-	869	23	-	-	847
Residential Types	3,171.0	5.8	3,176.7	632.4	319.1	70.7	2,154.5	8.5	0.3	2,145.8	15,542	4,815	1,495	9,232	3	2	-	0	15,540	4,812	1,495	9,232	247	147	100	-	-	0	-	0	-	-	247	147	100	-	(0)
RL-BC	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
RL-EM	114.6	-	114.6	26.4	14.9	-	73.4	-	-	73.4	173	4	-	169	-	-	-	-	173	4	-	169	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
West Side Residential	343.2	5.7	348.9	80.2	7.0	-	261.6	-	-	261.6	1,169	243	115	811	-	-	-	-	1,169	243	115	811	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
RS-BC	146.1	-	146.1	33.6	19.0	-	93.5	0.0	-	93.5	437	15	20	401	-	-	-	-	437	15	20	401	1	1	-	-	-	-	-	-	-	-	1	1	-	-	-
RS-EM	1,012.0	-	1,012.0	232.8	131.6	-	647.7	0.2	-	647.5	3,649	276	208	3,166	-	-	-	-	3,649	276	208	3,166	5	5	-	-	-	-	-	-	-	-	5	5	-	-	-
RS Platted	192.0	-	192.0	-	-	-	192.0	-	-	192.0	1,292	54	-	1,237	-	-	-	-	1,292	54	-	1,237	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
RS-CCR	235.1	-	235.1	-	-	-	235.1	-	-	235.1	450	-	-	450	-	-	-	-	450	-	-	450	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
RS Hillside	6.3	-	6.3	1.4	0.8	-	4.0	-	-	4.0	23	0	-	23	-	-	-	-	23	0	-	23	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
RS Masterplan - BC	55.0	-	55.0	12.7	7.2	5.5	29.7	0.0	-	29.7	190	9	6	174	-	-	-	-	190	9	6	174	0	0	-	-	-	-	-	-	-	-	0	0	-	-	-
RS Masterplan - EM	549.3	-	549.3	126.3	71.4	54.9	296.6	4.1	-	292.6	2,240	182	130	1,928	-	-	-	-	2,240	182	130	1,928	106	62	44	-	-	-	-	-	-	-	106	62	44	-	-
RM-BC	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
RM-EM	301.8	-	301.8	69.4	39.2	-	193.1	3.4	-	189.7	2,691	1,503	422	766	-	-	-	-	2,691	1,503	422	766	88	51	37	-	-	-	-	-	-	-	88	51	37	-	-
RM Masterplan - BC	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
RM Masterplan - EM	102.6	-	102.6	23.6	13.3	10.3	55.4	0.4	-	55.0	1,092	695	291	107	-	-	-	-	1,092	695	291	107	20	12	8	-	-	-	-	-	-	-	20	12	8	-	-
RH-BC	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
RH-EM	112.9	0.1	113.0	26.0	14.7	-	72.3	0.3	0.3	71.7	2,137	1,833	304	-	3	2	-	0	2,135	1,831	304	(0)	27	16	11	-	-	0	-	0	-	-	27	16	11	-	(0)
TOTAL	5,447.2	259.2	5,706.4	1,115.7	647.6	289.3	3,653.8	1,356.4	32.4	2,170.7	17,787	6,858	1,675	9,254	136	108	0	21	17,651	6,750	1,675	9,226	22,976	6,676	7,441	6,771	2,088	725	141	239	247	14	22,252	6,535	7,121	6,524	2,071