AVION WATER CO INC.

60813 Parrell Rd • Bend, OR 97702•
Ph: 541-382-5342 • fax: 541-382-5390 • Email: avion@avionwater.com

To: Damian Syrnyk
City of Bend

From: Jason Wick, PE
President
Avion Water Company, Inc.

Re: Avion's UGB map

Dear Damian,

Attached is Avion's map for the Urban Growth Boundary expansion. There are no areas where Avion is currently not able to accommodate expansion in our territory, but there are areas where the system is more efficient. The attached map shows those areas. The most desirable areas, in green, are served by gravity flow year round. The yellow areas have gravity flow in the winter but require booster pumps during the summer. The red areas require booster pumps to be used year round due to their elevation being too close to our main reservoirs. All of Avion's water comes from ground water and has to be pumped from depths ranging from 500ft to 600ft below the surface so any additional boosting required is not very significant in regards to Avion's total power usage.

Thank you,

Jason Wick, PE
President
Avion Water Company, Inc

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Ph: 541-382-5342 • fax: 541-382-5390 • Email: avion@avionwater.com

To: Damian Syrnyk
City of Bend

From: Jason Wick, PE
President
Avion Water Company, Inc.

Re: Avion's UGB map update

Dear Damian,

This is a follow up to Avion's initial territory grading explanation submittal. I did break our territory into three different categories but I need to emphasize that the differences in territory, based on power usage, is miniscule. All of the areas in question are provided from ground water which is pumped from depths varying from 500ft to 600ft deep. I feel the small added power usage of boosting an areas pressure an additional 10 or 20 psi is not sufficient reason to classify a property as red or yellow on your desirability map. I apologize for not stating my intentions clear enough.

Thank you,

Jason Wick, PE
President
Avion Water Company, Inc

URBAN GROWTH BOUNDARY REMAND

Sign in Sheet

Meeting: RESIDENTIAL TAC #6.1

Date: 2/11/2015

Location: BARNES/SAWYER

Name	Organization	Email Address
DON SENECAL	AT-Large	donse@bendbroadband.com
Andy High		
Kurt Petrina	—	—
Laura Fritz		
Stacy Stemas		
Tom Kemper		
MIKE O'NEIL		
Mike Tiller		
Lynne McConnell		
Todd Dunkelberger		
DAVID FORD		
GARY EVERETT		
Kirk Schueler		
Jade Mayer		
Sid Snyder		
Scott Edelman	OLCD	
Al Johnson		

Meeting Agenda

Residential Technical Advisory Committee – Meeting 6.1
Wednesday, February 11, 2015 9 AM – 12:30 PM
Please note the 9 AM start time
City Council Chambers, Bend City Hall

Meeting Purpose and What is Needed from the TAC

The purposes of this meeting are to:

- Review and approve residential efficiency measures for use in capacity estimates for the current UGB
- Review and approve assumptions for the Buildable Lands Inventory (BLI) and Base Case

Discussion of residential efficiency measures (EMs) is a carry-over item from the TAC 6 meeting held on January 26, 2015. The EMs previously discussed by the TAC have been "operationalized" for use in the modelling of housing and employment capacity within the current UGB. Staff will present information on how the various EMs affect capacity and urban form within the City. The TAC is asked to determine if any changes are needed to the packages of EMs, and then approve those packages for use in UGB capacity estimates that will frame "bookend" conclusions for Phase 1 of the project.

The purpose of the BLI item is to provide the TAC with an opportunity to understand and approve the assumptions used in the analysis. Many of the assumptions have been previously discussed by the TAC. The BLI provides the outcomes of the application of the assumptions, specifically: calculation of the buildable land supply in each BLI category; and, an estimate of the capacity for housing and job growth on the City's buildable lands. The capacity estimate is also referred to as the Base Case scenario for Bend's growth within the current UGB.

There are no employment lands assumptions within the BLI that require further discussion. The Employment TAC has been invited to attend the meeting so they can track along with the residential land discussions.

For additional project information, visit the project website at http://bend.or.us or contact Brian Rankin, City of Bend, at brankin@bendoregon.gov or 541-388-5584

Accessible Meeting/Alternate Format Notification
This meeting/event location is accessible. Sign and other language interpreter service, assistive listening devices, materials in alternate format such as Braille, large print, electronic formats, language translations or any other accommodations are available upon advance request at no cost. Please contact the City Recorder no later than 24 hours in advance of the meeting at rchristie@ci.bend.or.us, or fax 385-6676. Providing at least 2 days notice prior to the event will help ensure availability.

Agenda

1. Welcome and Introductions — 9:00 AM

Tom Kemper, Joe Dills, Brian Rankin

a. Welcome and convene
b. Where we are in the process – a brief look back and look forward

2. Residential Efficiency Measures — 9:15 AM

Information and action

Alex Joyce, Fregonese Associates

Please see the attached efficiency measures table that has been excerpted from the Residential TAC 6 packet.

a. Presentation: Key findings from the Envision Tomorrow modelling.

b. TAC discussion and action:

- What EMs, if any, should be modified or deleted from the packages?
- As (if) amended, does the TAC support the use of the EM packages in the next scenarios and capacity estimates for the current UGB?

3. Break — 10:15 AM

4. Buildable Lands Inventory — 10:25 AM

Information and action

Andrew Parish, APG

a. Presentation: Highlights from the BLI and Base Case

b. TAC discussion and action:

- Are there any changes to the assumptions used in the BLI and Base Case?
- As (if) amended, does the TAC support the use of the BLI and Base Case in the capacity estimates for the current UGB?

5. Public Comment — 12:15 PM

6. Project News and Adjourn — 12:25 PM

Appendix D: Operationalization of Efficiency Measures

The table below describes the efficiency measures (EM) that were tested through Envision Tomorrow's Building Prototypes and Development Types. For Package B and C, separate sets of building types and development types were developed. The values were applied to the scenario maps using the Scenario Builder tool within Envision Tomorrow.

Number	Efficiency Measure (EM)	Package A – Existing Code	Package B – Revised Code EM	Package C – Revised Code & Additional EM
1	Increase minimum gross density for RS from 2.0 to 4-5 DU/acre	RS = 3.1 DU/ac	RS = 3.1 DU/ac	RS = 4.6 Du/cC
2	Increase minimum gross density for RM from 7.3 to 10-12 DU/acre	RM = 7.4 DU/ac	RM = 7.4 DU/ac	RM = 11.2 DU/ac
3	Allow Accessory Dwelling Units (ADUs) in all single-family zones	NA	Added SFR building type with ADU type. Categorized it as MFR with 2 units on each site. 1 bedroom at around 750 feet and house with a mix of 3 and 4 bedrooms. Density is 17.7 Du/AC net	Added SFR building type with ADU type. Categorized it as MFR with 2 units on each site. 1 bedroom at around 750 feet and house with a mix of 3 and 4 bedrooms. Density is 17.7 Du/AC net
4	Allow cluster / cottage housing development	No Cottage units in RS or RM	Set of cottage homes to comprise 5% of the RS and RM Development Types	Set of cottage homes to comprise 5% of the RS and RM Development Types

Number	Efficiency Measure (EM)	Package A – Existing Code	Package B – Revised Code EM	Package C – Revised Code & Additional EM
5	Allow duplexes and triplexes in SFR zones outright	Duplex set to 3% of RS and RM Triplex set to 7% of RM	Duplex set to 7% of RS and RM Triplex set to 7% of RM	Duplex set to 7% of RS and RM Triplex set to 7% of RM
6	Prohibit SFR detached from the RH zone	SFR detached = 5%	SFR detached = 5%	SFR detached = 0%
7	Decrease minimum lot sizes for SFR detached in RM zone		Reduced 3,000 sf building type to 2,500 sf	Reduced 3,000 sf building type to 2,500 sf
8	Decrease minimum lot sizes for SFR detached in RM zone		Reduced 2,500 sf building type to 2,000 sf	Reduced 2,500 sf building type to 2,000 sf
9	Decrease minimum lot sizes for SFR detached in RM zone		Reduced 2,000 sf building type to 1,500 sf	Reduced 2,000 sf building type to 1,500 sf
10	Reduce minimum lot dimensions for SFR Attached in RH zone		Reduced width from 20 feet to 18’ and depth to 75 feet	Reduced width from 20 feet to 18’ and depth to 75 feet
11	Reduce setbacks in RH and RM zones for SFR Detached		Reduced setbacks for detached building types: 1,500, 2000, 2,500, 4,000, 5,000 s.f. in RM and RH zones In some cases the maximum lot size coverage is exceeded.	Reduced setbacks for detached building types: 1,500, 2000, 2,500, 4,000, 5,000 s.f. in RM zones (No SFR detached was included in RH) In some cases the maximum lot size coverage is exceeded.
12	Increase maximum lot coverage for SFR Attached in RS zones to 50%		Set building coverage to 50%	Set building coverage to 50%
13	Increase maximum lot coverage in RM zones to 60%		Reduced parking spaces to 1.5 per unit in order to reach 60% coverage	Reduced parking spaces to 1.5 per unit in order to reach 60% coverage
14	In the RH zone – allow greater lot coverage. Potential actions: eliminate maximum lot coverage		For Building types used by the RH, reduced parking As follows,	For Building types used by the RH, reduced parking As follows,

Number	Efficiency Measure (EM)	Package A – Existing Code	Package B – Revised Code EM	Package C – Revised Code & Additional EM
	requirements; allow minimum parking and minimum landscaping requirements to set upper limit on lot coverage		existing>new Residential, listed as spaces per unit 2.5 > 1.5 1.75 > 1 1.5 > 1 Retail (listed as spaces per 1,000 sf) 3 > 1.5 Office (listed as spaces per 1,000 sf) 3 > 1.85 3>1.5 for 4-story bldgs 2.85 > 1.5 2 > 1.5 Landscaping standards did not need changing to reach or exceed max FAR	existing>new Residential, listed as spaces per unit 2.5 > 1.5 1.75 > 1 1.5 > 1 Retail (listed as spaces per 1,000 sf) 3 > 1.5 Office (listed as spaces per 1,000 sf) 3 > 1.85 3>1.5 for 4-story bldgs 2.85 > 1.5 2 > 1.5 Landscaping standards did not need changing to reach or exceed max FAR
15	ADUs – waive off street parking requirement	NA	SFR/ADU building type only included parking for the main house	SFR/ADU building type only included parking for the main house
16	Duplex and Triplex – reduce parking from 2 to 1.5 per unit	Parking set to 2 spaces per unit	Set to 1.5	Set to 1.5
17	Reduce parking requirements for multi-family housing	Varies by building types	For MFR Building types reduced parking As follows, existing>new Residential, listed as spaces per unit 2.5 > 1.5 1.75 > 1 1.5 > 1	For MFR Building types reduced parking As follows, existing>new Residential, listed as spaces per unit 2.5 > 1.5 1.75 > 1 1.5 > 1
18	Increase minimum required density for master planned developments form 60% to 80% of maximum zone	60%	No change	Created RS and RM Masterplan Development Type set to 80% of

Number	Efficiency Measure (EM)	Package A – Existing Code	Package B – Revised Code EM	Package C – Revised Code & Additional EM
	density, and reduce requirement threshold from 40 to 20 acres			max. Applied to vacant sites of 20 acres or more
19	Increase building height for higher intensity areas	Varies by building types and zone	20% of the Urban Mixed Use development types contains buildings of 5, 8 and 15 stories	20% of the Urban Mixed Use development types contains buildings of 5, 8 and 15 stories
20	Expand lot coverage in ME zone from 60% to 80%	60%	Parking requirements for 1 and 2 story office were reduced. Could not reach 80% threshold without employing structured parking, which doesn't match economic profile of ME areas	Parking requirements for 1 and 2 story office were reduced. Could not reach 80% threshold without employing structured parking, which doesn't match economic profile of ME areas

Memorandum

February 6, 2015

To: Residential & Employment Technical Advisory Committees
Cc: Bend Staff
From: APG Consulting Team
Re: Draft Bend UGB Buildable Lands Inventory

INTRODUCTION

Purpose

The purpose of this memorandum is to serve as the City of Bend's Buildable Land Inventory (BLI), as defined and required by OAR 660-024-0050, the Bend Remand[1], and other relevant law. This memorandum provides information pertaining to the background, process, and results of the Bend UGB Remand Buildable Lands Inventory. Detailed maps and methodology are provided as appendices to this memorandum.

This draft is intended for review of key BLI content by the Residential and Employment Technical Advisory Committees. The format is preliminary and may be revised prior to finalization and adoption of the BLI.

Role of the BLI

The BLI is a supporting document of the Bend General Plan. In simplest terms, the BLI documents the urban land supply of Bend, and estimates the growth capacity for housing and jobs within the existing UGB. 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 Urban Growth Boundary (UGB) over the 2008-2028 planning period. 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 Figure 1.

[1] Remand and Partial Acknowledgement Order 10-Remand-Partial Acknow-001795, November 2, 2010.

Figure 1. Four key planning documents for Bend's UGB planning

Buildable Land Inventory	Housing Needs Analysis	Economic Opportunities Analysis	Urbanization Report
Purpose, definitions, legal requirements	Projection of growth	Existing policy and vision	Pre-policy summary of capacity
Policy (TAC) direction on BLI issues	Demographic trends	National, state, local trends	Efficiency measures (EMs) analysis, including EMs which have been/will be adopted prior to the UGB adoption.
Methodology and use of Envision	Analysis of affordability	Employment projections (redevelopment analysis, land sufficiency, special site needs)	UGB alternatives analysis
Inventory results	Estimate of needed housing (mix and density)	Estimate of needed employment land	Goal 14 compliance
Capacity: residential and employment	Comparison of capacity (from BLI) to need	Comparison of capacity (from BLI) to need	

State Statute and Administrative Rules

Residential Land

Oregon state statute and administrative rules require local governments to produce a local buildable lands inventory as part of preparation of a Housing Needs Analysis. That BLI "must document the amount of buildable land in each residential plan designation."[2]

State statute identifies the following categories of buildable lands:[3]

> *(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.*

[2] OAR 660-008-0010

[3] ORS 197.296(4)(a)

It further requires that the local government "demonstrate consideration of:"[4]

> *(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.*

The state further defines buildable land in the context of a Residential BLI as follows:[5]

> *(2) "Buildable Land" means residentially designated land within the urban growth boundary, including both vacant and developed land likely to be redeveloped, that is suitable, available and necessary for residential uses. Publicly owned land is generally not considered available for residential uses. Land is generally considered "suitable and available" unless it:*
>
> > *(a) Is severely constrained by natural hazards as determined under Statewide Planning Goal 7;*
> >
> > *(b) Is subject to natural resource protection measures determined under Statewide Planning Goals 5, 6, 15, 16, 17 or 18;*
> >
> > *(c) Has slopes of 25 percent or greater;*
> >
> > *(d) Is within the 100-year flood plain; or*
> >
> > *(e) Cannot be provided with public facilities.*
>
> *(6) "Redevelopable Land" means land zoned for residential use on which development has already occurred but on which, due to present or expected market forces, there exists the strong likelihood that existing development will be converted to more intensive residential uses during the planning period.*

Employment Land

A similar inventory is required for employment land as part of the preparation of an Economic Opportunities Analysis (EOA). The categories used in the EOA inventory differ from those used for residential lands, and are as follows:[6]

> *660-009-0005*
>
> *(1) "Developed Land" means non-vacant land that is likely to be redeveloped during the planning period.*
>
> *(14) "Vacant Land" means a lot or parcel:*

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[4] ORS 197.296(4)(b)

[5] OAR 660-008-0005(2)

[6] OAR 660 Division 9, approved by LCDC

(a) Equal to or larger than one half-acre not currently containing permanent buildings or improvements; or

(b) Equal to or larger than five acres where less than one half-acre is occupied by permanent buildings or improvements.

(3) Inventory of Industrial and Other Employment Lands. Comprehensive plans for all areas within urban growth boundaries must include an inventory of vacant and developed lands within the planning area designated for industrial or other employment use.

Remand Issues and Past Work

The Bend Urban Growth Boundary Remand (Remand) required the City to make a number of changes to the way residential land was classified for the purposes of the buildable land inventory (BLI) and the way the capacity of that land was estimated (Sub-issue 2.2). The City has done a significant amount of work to address the issues raised in the remand related to the BLI. That work is summarized in a memorandum to the Urban Growth Boundary (UGB) Remand Task Force from August 2011, updated in January 2014. That memorandum is included in Appendix B as a reference. Key points are summarized below.

Definitions and Categories

DLCD provided the following definitions to conduct a GIS parcel-based analysis of every acre of residentially planned or zoned land in the Bend UGB.[7] Where definitions were not provided in rule or statute, the Department provided one consistent with the terms outlined in ORS 197.294(4)(a).

- **Vacant** – Land planned or zoned for residential use that shows no improvement value in the assessor's data.
- **Developed** – Land planned or zoned for residential use that is currently developed with the maximum number of dwelling units allowed in the zone, and the size of the lot does not allow for further division.
- **Lots Large Enough for an Additional Unit under Current Zoning** ("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 to divide under current zoning.
- **Lots Large Enough to Divide Under Current Zoning** ("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.

[7] E-mail from Gloria Gardiner, DLCD, to Damian Syrnyk, October 21, 2010 and e-mail response from Gloria Gardiner, DLCD, to Karen Swirsky, dated June 9, 2011.

- **Redevelopable Land -** In addition to the four categories above, the city must consider whether developed land may be redevelopable within the planning horizon. 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." Note that the planning period in this UGB Remand process is between 2008 and 2028.

These definitions and their operationalization within the BLI are further detailed in "Step 2 – Defining Residential Land" later in this document.

Exclusions

In 2008, the city identified certain categories of tax lots as unbuildable in the BLI, including:

- lots and parcels smaller than 0.5 acres with no improvements;
- lots and parcels subject to private, Covenants, Conditions and Restrictions (CC&Rs); and
- lots and parcels with physical constraints over 50 percent or more of the lot.

The Remand required the city to include vacant lots and parcels under 0.5 acres, to include land 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," and to reexamine the land identified as "constrained" to determine whether the remainder of the lot is buildable.[8]

This update of the BLI complies with the above requirements. The City has agreed to include vacant lots and parcels under 0.5 acres and to exclude only the portion of a lot that has physical constraints on it, leaving the remainder. The City has also conducted research on CC&Rs in effect on subdivisions within the UGB to determine whether and to what extent they restrict further development and infill. Restrictive CC&Rs have been addressed specifically in the BLI and Envision Tomorrow model.[9] A description of how CC&R have been addressed can be found in Step 2 – Defining Residential Land.

Updates to the 2008 BLI

When the UGB Remand Task Force began work on the Remand issues, it was initially decided to continue to rely on 2008 data wherever possible, including using 2008 data as the basis for the revised BLI. Thus, when the City began work to reclassify land according to the categories identified above, it did so using the original 2008 tax lot database.

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[8] LCDC Remand Order, page 26.

[9] Envision Tomorrow is a scenario planning tool used to model growth and redevelopment. It has been used extensively in the Bend UGB Remand work to evaluate growth scenarios and identify land capacity. See Appendix D for additional description.

However, given the amount of time that has elapsed since then, the City through the advice of the Technical Advisory Committees, has decided to update the BLI to rely on 2014 data in order to more accurately reflect conditions on the ground. The City has completed the initial steps of this update, identifying the following characteristics for all tax lots within the existing UGB based on July 2014 tax lot data from Deschutes County:

- current zoning and general plan designation, including special plan districts;
- current property use information (based on a combination of property class and structure codes from the County Assessor's Office data, City building permit data, aerial photography, and existing City tax lot inventory data);
- size and value of existing improvements;
- number of existing housing units;
- area subject to physical constraints (25% or greater slopes and 100-year floodplain)[10];
- whether the lot size is more than double the minimum lot size for the zone;
- maximum number of units allowed by current zoning based on lot size and maximum density for the applicable zone/plan designation; and
- public agency ownership (City, County, State, Federal, College District, Irrigation District, Parks District, School District, and Other Special District).

POLICY DIRECTION ON BLI ISSUES

The categories of land used in the BLI are applied to every tax lot within the UGB. This is referred to as assigning a development status to each lot. Doing so required the resolution of a number of issues on which the TAC provided policy direction. These issues are described in the table below. Some of these issues also are discussed in more detail in subsequent sections of this memo.

Table 1. Policy Direction on BLI Issues To Date

BLI Issue	Date Addressed by TAC	Resolution
CC&Rs	(10/13/14)	Categorize as fully developed all lots with CC&Rs identified as restrictive of infill potential and containing a dwelling, even where minimum lot sizes are large enough to allow land division under the current zoning. On vacant lots, assume only one dwelling per lot. (See map in Appendix A for locations of identified residential CC&Rs)
Conflicts between plan designation and zone	(11/10/14)	Consider all land with residential plan or zone designations to be part of residential BLI, excepting: - Rely on plan designation with UAR land - Exclude Surface Mining (SM) land (plan or zone) unless specific information indicates that the land will be available

[10] See OAR 660-008-0005(2)(c) and (2)(d).

BLI Issue	Date Addressed by TAC	Resolution
		for residential uses
Commercial and Mixed Use Zones and Designations	(11/10/14)	Assume that Mixed Employment (ME), Professional Office (PO), Community Commercial (CC), and General Commercial (CG) designations are solely employment land and do not provide housing capacity. Assume mix of uses in Mixed Riverfront (MR) zone. For base case, rely on historical trends to establish estimate for housing development. In Central Business (CB) and Limited Commercial (CL) zones where there has been at least some residential development, assume potential for some additional residential development. For the base case, rely on historical trends to establish estimate for housing development in each zone. See Appendix F for tables related to the calibration of the BLI.
Medical District Overlay Zone (MDOZ)	(11/10/14)	Treat land in MDOZ as employment land. Estimate the potential for housing development on the High Density Residential (RH) and Medium Density Residential (RM) zones within the MDOZ based on historical trends for the "base case". See Appendix F for tables related to the calibration of the BLI.
Definition of public land	(10/13/14)	Consider land owned by all entities identified as meeting the test of public land, including irrigation districts. Do not consider the other entities as "public". (Given the small amount of land involved for most of the questionable entities, the impact to the BLI either way is small.) Make exceptions for land where specific information indicates that the land is likely to be converted to residential uses within the planning horizon on a case-by-case basis.
Common Areas & Private Open Space	(10/13/14 and 11/10/14)	Treat canals, cemeteries, and private roads as fully developed. Treat golf courses and RV parks as developed unless specific information suggests that they are likely to be converted to residential uses. For common areas, assume that those owned by a Homeowners Association (HOA) or similar organization and those that are part of an approved subdivision are developed. Assume other private open space is vacant in the absence of specific information indicating that it is not available for residential use.
Golf Courses	(11/10/14)	Undeveloped portion of Back Nine golf course at Mountain High is considered vacant; all other golf courses considered developed.

BLI METHODOLOGY, THE ENVISION MODEL, AND INVENTORY RESULTS

Following is a summary of the methodology used to evaluate the BLI and estimate the capacity of land within it for future development using the Envision Tomorrow model. The summary describes data sources, steps used to define residential and employment land, steps used to assign buildable acreage to both types of land and the process for estimating capacity for all land within the BLI. The Envision Tomorrow model is a scenario planning tool that is being used to help estimate the capacity of land in the BLI and to evaluate the impacts of different growth scenarios both inside and outside the UGB. It is described in more detail in Appendix D.

Source Data

Following is a brief summary of the types of information that are incorporated in the BLI and ultimately help serve as the basis for the capacity assessment, along with the assumptions and processes described in this memo.

Tax lots. Deschutes County GIS tax lot data dated July 27, 2014 was used to create a base layer of all properties inside and within 3 miles of the existing Bend UGB. General property information from the Deschutes County Assessor's Office was included, containing attributes such as ownership information, property classification, structure information, and improvement value.

Physical Constraints. County data for areas with 25% or greater slopes and within the FEMA 100-year floodplain were used to determine the constrained acreage of Bend tax lots. Bend's Areas of Special Interest (ASIs) are not allowed to be excluded as unbuildable as they are not acknowledged Goal 5 resources.

Zoning and General Plan Designation. These designations were applied to each tax lot. If the tax lot contained two or more zones, they were split into multiple polygons so they could be accounted for individually.

Property Use and Type. These attributes indicate the general property use (e.g. Single Family Residential, Employment, Open Space) and specific type (e.g. Duplex, Office, Golf Course) on the tax lot. These were identified through a combination of Assessor's Office data, City building permit data, aerial photography, and existing City tax lot inventory data.

2008 BLI data. Data from previous BLI work was used as a reference and to provide context for specific tax lots.

Steps in the Process

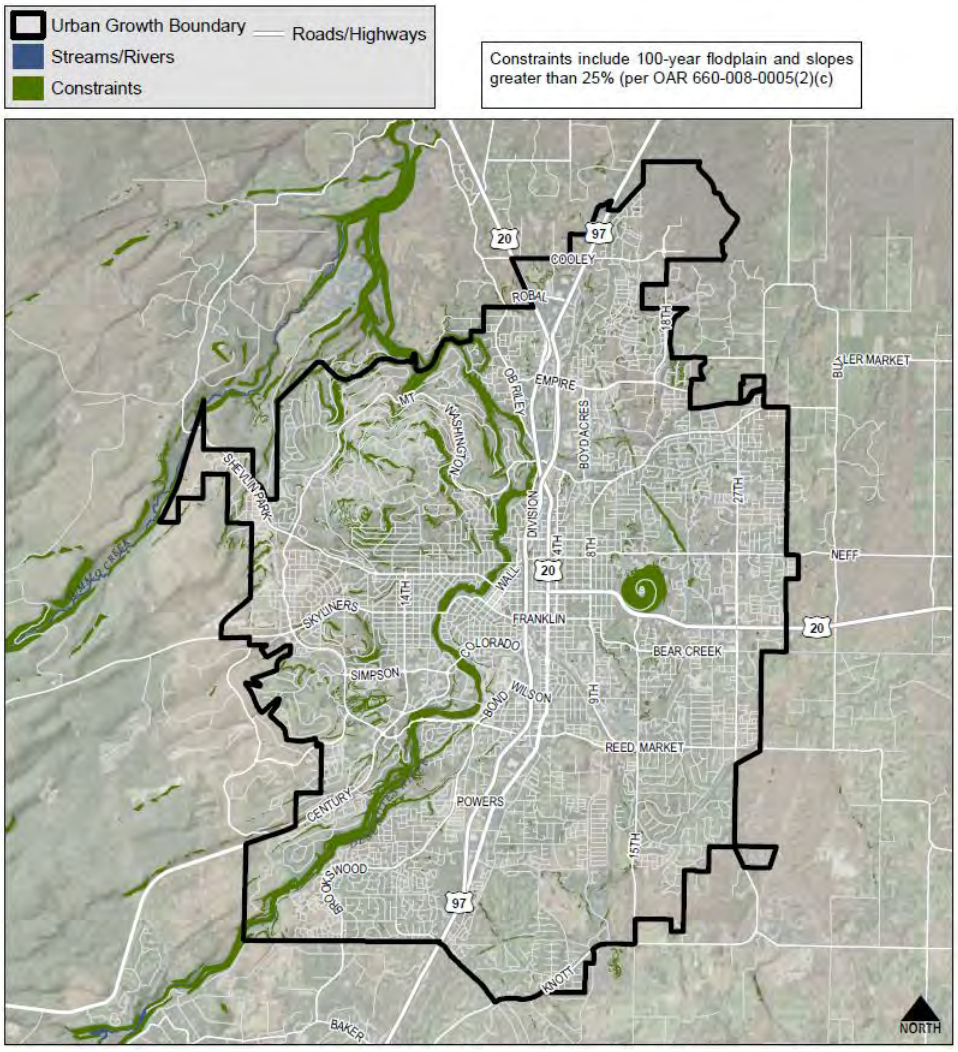
The methods used, and inventory results, are described below in the five steps used to prepare the BLI. The five steps are:

Step 1 – Calculate Physical Constraints
Step 2 – Define Residential Land
Step 3 – Define Employment Land
Step 4 – Assign Vacant and Developable Acreage
Step 5 – Project Capacity

Step 1 – Calculate Physical Constraints

Land that is physically constrained per state requirements and definitions is not assumed to be "buildable" for the purposes of this inventory. "Constrained Acres," or areas with 25% or greater slopes and areas within the FEMA 100-year floodplain, were calculated for each tax lot in Bend. Bend's Areas of Special Interest (ASIs) are not allowed to be excluded as unbuildable as they are not acknowledged Goal 5 resources. The total constrained acreage identified within tax lots inside the current UGB is 975.2 acres. A detailed map is provided in Appendix A.

Figure 2. Physical Constraints



Step 2 - Define Residential Land

Following is a detailed description of how different types of residential land were defined for purposes of the inventory and tables summarizing the total acres of land in different categories. It references and builds on assumptions described in the table found on pages 4-5 of this memo.

Definition

Lands with a Residential plan designation (RL, RS, RM, RH), and lands with a residential zone category (RL, RS, RM, RH, SR2.5), are categorized as Residential Land, except for lands identified as "Special Cases". See explanation below.

BLI Status

Pursuant to the statues and administrative rules, the BLI status was assigned to the following categories:

Vacant – Land planned or zoned for residential use that has $0 in improvement value. Tax lots that are planned or zoned for residential use, but are dedicated for other uses such as parks, common areas, rights of way or utilities are excluded. Publicly owned land is also excluded.

Lots Large Enough for an Additional Unit under Current Zoning ("Partially Vacant") – Land planned or zoned for residential use that has an improvements value greater than $0, but contains fewer dwelling units than permitted in the zone. Based solely on lot size (not considering limiting factors such as setback and frontage requirements, lot coverage, or location of existing structures), additional units could be built on the site, but the lot is not large enough to further divide.[11]

Developed – Land planned or zoned for residential use that is currently developed with the maximum number of dwelling units allowed in the zone, and the size of the lot does not allow for further division. (Residentially zoned land that is currently developed with employment uses is also categorized as Developed.)

Lots Large Enough to Divide Under Current Zoning ("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, based on the minimum lot size of

[11] To identify partially vacant lands, city staff calculated the maximum number of units that could be built on each developed tax lot that was not large enough to divide, based on the maximum density allowed per the development code and the tax lot size. The number of existing units was then subtracted from the maximum number of units allowed. If one or more new units could be accommodated, the tax lot was categorized as partially vacant. (Considerations such as setback and frontage requirements, lot coverage, or location of the existing unit on the lot were not considered, although those will be limiting factors in many cases.)

the applicable zone. As with Partially Vacant land, this category does not consider limiting factors such as setback and frontage requirements, lot coverage, or location of the existing unit on the lot.

Redevelopable Land - In addition to the four categories above, the city must consider whether developed land may be redevelopable within the planning horizon. 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." This land cannot be pre-selected using GIS, and the question of redevelopment has been addressed in the BLI and scenarios work in the following ways:

- The Envision Tomorrow tool projects capacity using a "Redevelopment Rate" for each development type. These rates were calibrated to past trends[12], and using current best practice where data was unavailable. Details about the Envision Development Types are provided in Step 5 of this memorandum.
- "Opportunity areas" have been identified by the Residential and Employment TACs as places where increased development may occur. Some of these are vacant areas, and others are areas where significant redevelopment opportunities exist, given development patterns, parcel size and existing development conditions. However, these opportunity areas represent a change from current plan designations, and are not included in the base case.

Special Cases

- Public Land.[13] Publicly owned land was identified and designated "Public Land" and not considered vacant for residential purposes, unless information was available indicating otherwise.
- Private Open Space identified by the TAC as having development potential was considered vacant. All others identified as developed.
- Residential land with existing employment or institutional uses was considered developed.
- Properties with restrictive CC&R's were identified as developed. Vacant areas within these districts were assigned a "RS-CCR" development type calibrated to assign one housing unit on each vacant lot.
- Land in the Medical District Overlay Zone (MDOZ) with a residential plan category was identified as "Mixed Use" and treated as part of the Employment land supply, but with the ability to accommodate some housing. See Appendix F for tables related to the calibration of the BLI.

[12] See November 11, 2014 memorandum "Recommended Redevelopment Rate for Employment Lands," included, portions of which are included in Appendix F.

[13] As stated in ORS 660-008-005(2), publicly owned land is generally not considered available for residential uses.

- Other land in mixed-use zones and commercial zones that allow residential development were treated as part of the Employment land supply, but with the ability to accommodate some housing, based on past trends. See Appendix F for tables related to the calibration of the BLI.

A detailed explanation of how these lands and special cases were identified and categorized in GIS is in Appendix C – Detailed Methodology. Figure 3 shows the BLI status of residential lands. Detailed maps are provided in Appendix A.

Table 2. BLI Designation of Residential Tax Lots

BLI Designation of Residential Tax Lots	Number of Tax Lots	Total Acres
Developed	**25,845**	**7,733**
Lots Large Enough to Divide Under Current Zoning ("Developed with Infill Potential")	**4,572**	**2,555**
Lots Large Enough for Additional Units under Current Zoning ("Partially Vacant")	**827**	**93**
Publically Owned	**385**	**1,275**
Vacant	**2,854**	**1,842**
Other *(These are split-zoned tax lots, or tax lots partially outside UGB)*	**6**	**4**
TOTAL	**34,489**	**13,502**

Figure 3. Residential BLI Status

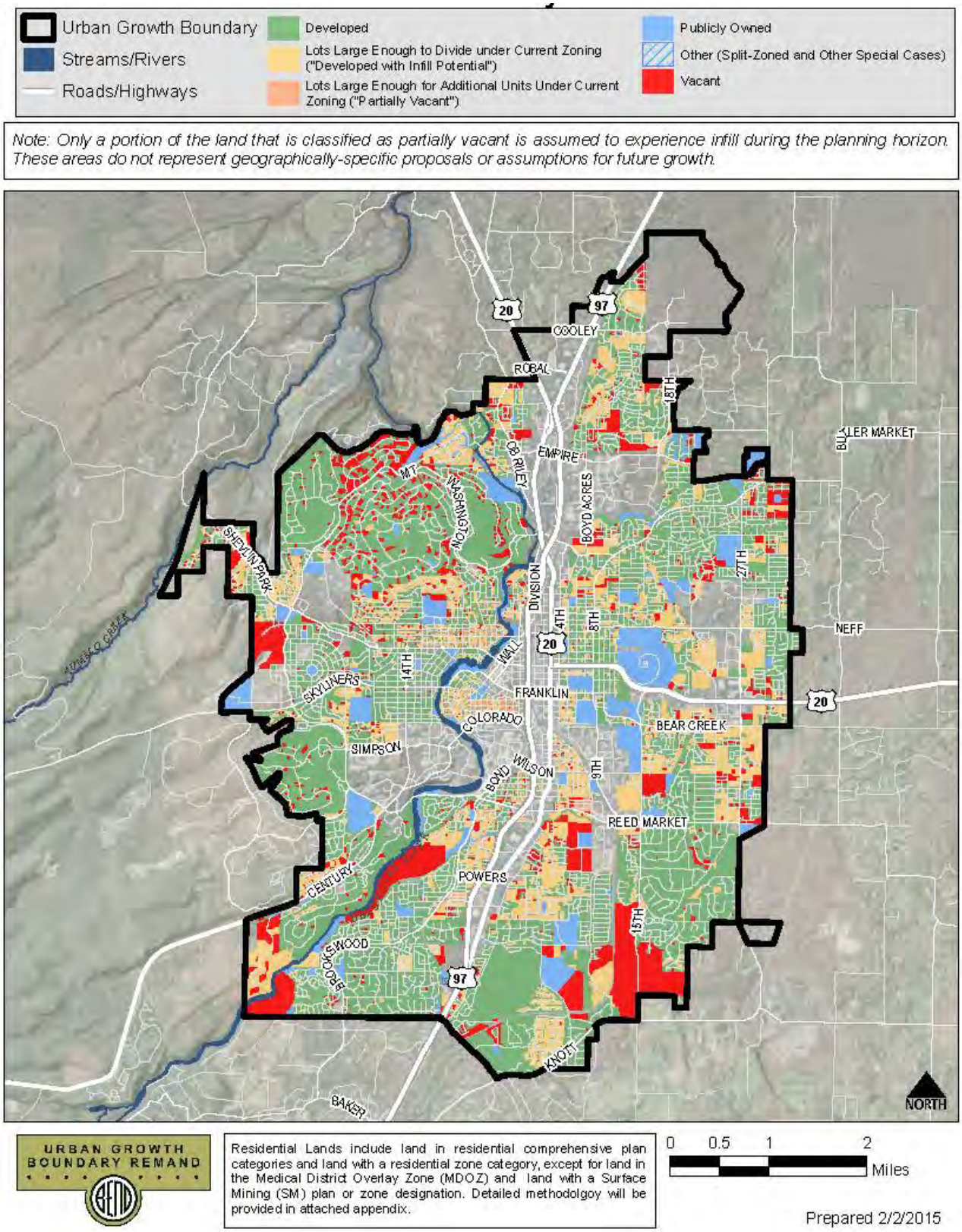


Figure 4. Size Distribution of Tax Lots by Residential BLI Status

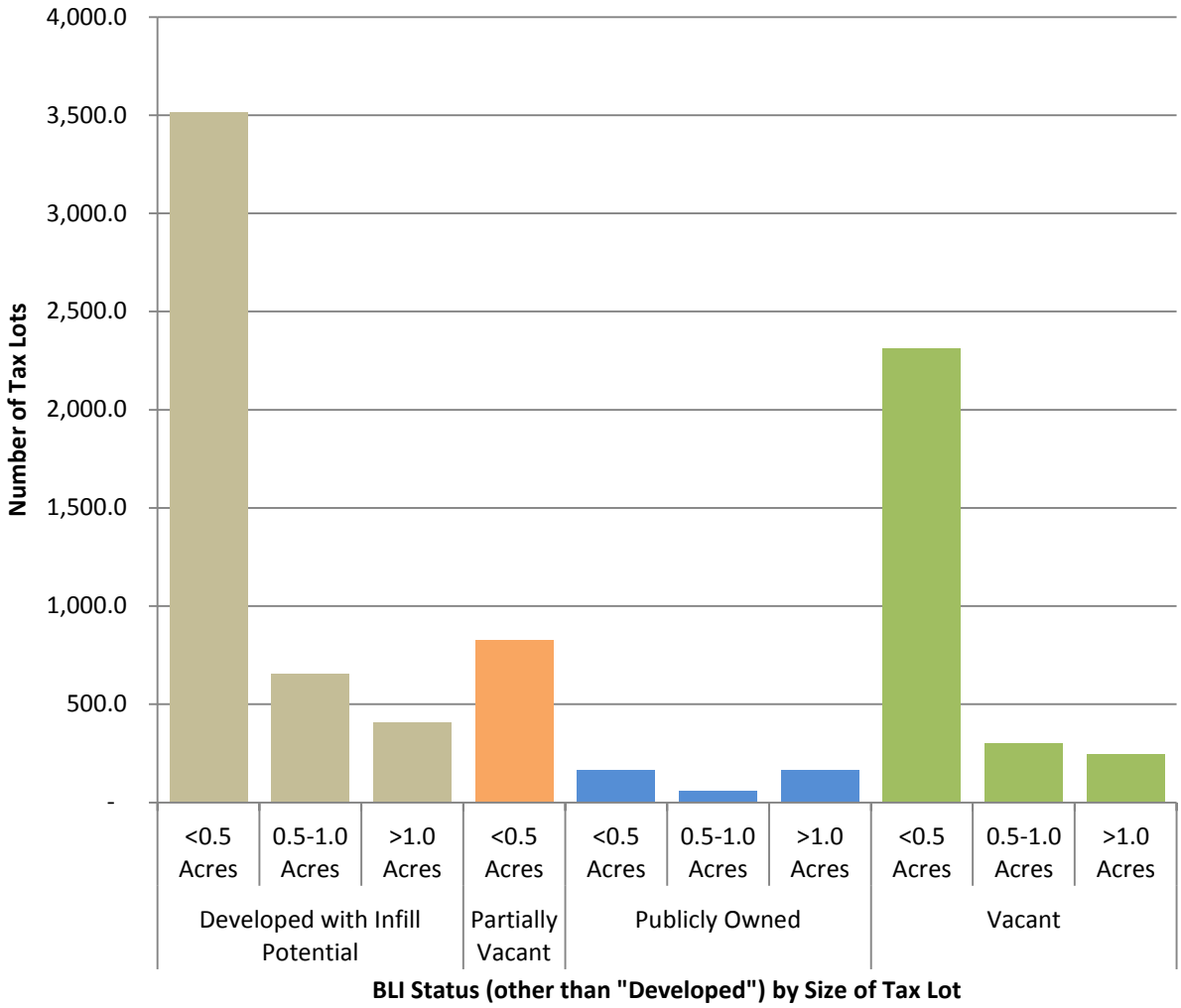


Table 3. BLI Status for Residential Land by General Plan Category

General Plan Designation	BLI Status	Number of Tax Lots	Total Acres
PF	Developed	68	47.2
	Developed with infill potential	2	0.6
	Vacant	69	153.3
	Publicly Owned	91	720.8
RH	Developed	200	45.6
	Developed with infill potential	164	46.2
	Partially Vacant	63	6.0
	Vacant	88	19.5
	Publicly Owned	12	20.7

General Plan Designation	BLI Status	Number of Tax Lots	Total Acres
RL	Developed	2,835	1,366.7
	Developed with infill potential	98	184.9
	Partially Vacant	1	0.5
	Vacant	69	53.7
	Publicly Owned	15	6.9
RM	Developed	1,977	336.8
	Developed with infill potential	1,614	597.0
	Partially Vacant	750	85.1
	Vacant	517	182.5
	Publicly Owned	43	65.4
RS	Developed	20,702	5,909.1
	Developed with infill potential	2,694	1,726.1
	Partially Vacant	13	1.6
	Vacant	2,109	1,433.0
	Publicly Owned	220	363.8
URA	Developed	10	20.7
	Vacant	2	0.1
	Publicly Owned	3	95.9
Total		**34,429.0**	**13,489.8**

Step 3 – Define Employment Land

Following is a detailed description of how different types of employment land were defined for purposes of the inventory and tables summarizing the total acres of land in different categories. It references and builds on assumptions described in the table found on pages 4-5 of this memo

Definitions

The BLI status for all land planned or zoned for employment use (including mixed use designations & zones) was assigned using the statutory definitions for employment land.[14]

- Vacant - a lot or parcel equal to or larger than one half-acre not currently containing permanent buildings or improvements; or equal to or larger than five acres where less than one half-acre is occupied by permanent buildings or improvements.
- Developed - All other employment land is identified in the BLI map as developed, although only a subset of this will meet the state definition of "developed" land that may be part of the inventory of available employment land ("Developed Land" means non-vacant land that is likely to be redeveloped during the planning period).

[14] OAR 660-009-0005(1) and (14)

Special Cases

Land with a level of existing employment density three times greater than the average for the plan designation was screened out, indicating that it is unlikely to redevelop into less-dense employment land.

A map of BLI status of employment lands is shown in Figure 6. Detailed maps are provided in Appendix A.

Table 4. Tax Lots and Acres by Employment BLI Status

Employment BLI Status	Number of Tax Lots	Total Acres
Developed	3,472	2,996.1
Vacant	245	1,012.7
Other*	3	48.3
Grand Total	**3,720**	**4,057.1**

** "Other" designations are addressed in Special Cases in Step 5. These taxlots are related to OSU and one parcel partially within the UGB.*

Figure 5. Developed and Vacant Employment Land by Number of Tax Lots

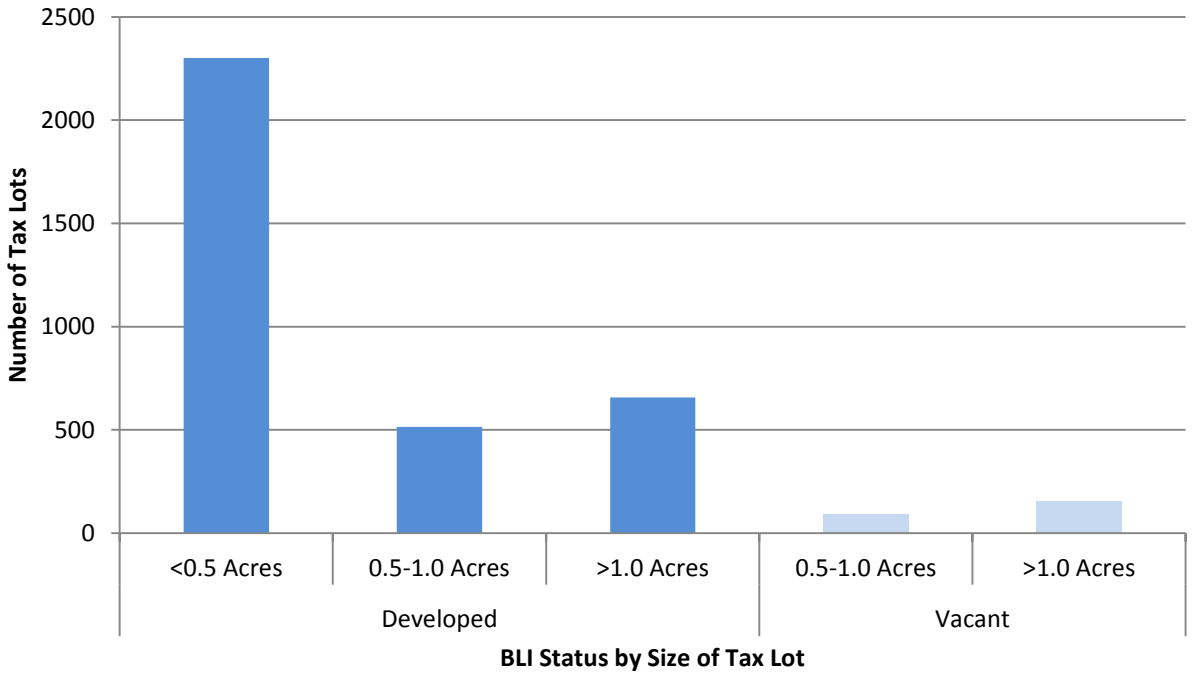


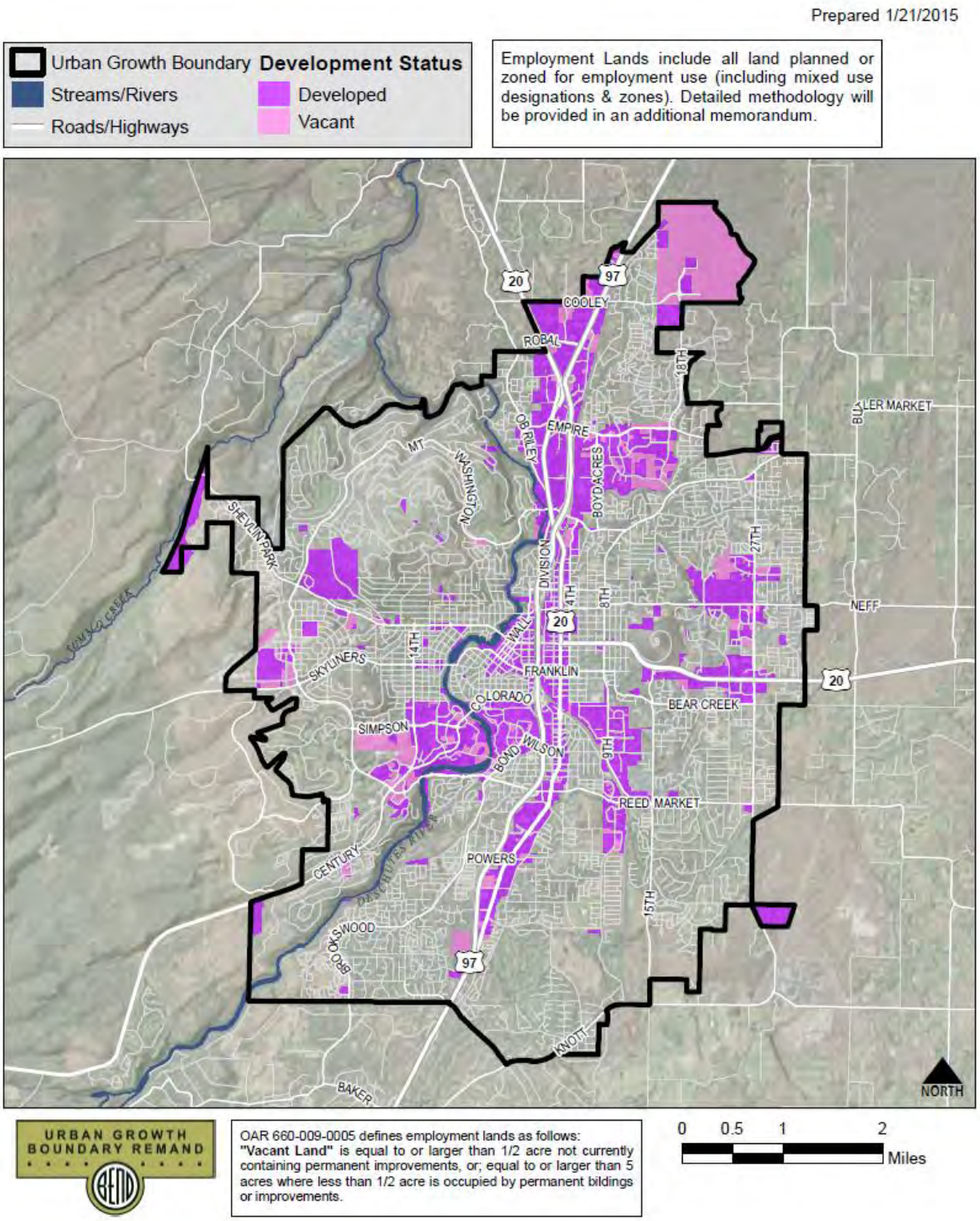
Table 5. Employment Land by General Plan Designation

	Plan Designation	Number of Tax Lots	Total Acres
CB	Developed	323	40.2
CC	Developed	177	70.9
	Vacant	7	12.0
CG	Developed	515	627.8
	Vacant	49	97.0
CL	Developed	735	305.4
	Vacant	29	69.0
IG	Developed	149	188.2
	Vacant	6	8.4
IL	Developed	581	658.8
	Vacant	90	600.5
ME	Developed	321	270.0
	Vacant	17	38.1
MR	Developed	439	180.8
	Vacant	18	40.3
PF	Developed	45	457.8
	Vacant	7	86.0
PO	Vacant	2	6.1
PO/RM/RS	Developed	25	5.8
RH*	Developed	105	152.9
	Vacant	16	31.5
RM*	Developed	57	37.5
	Vacant	4	23.8
RS*	Other**	1	5.3
SM	Other**	2	43.1
Grand Total		**3,720**	**4,057.1**

** These are residentially-designated parcels with existing employment uses, or within the MDOZ*

*** "Other" designations are addressed in Special Cases in Step 5. These taxlots are related to OSU and one parcel partially within the UGB.*

Figure 6. Employment BLI Status Map



Step 4 – Assign Vacant and Developable Acreage

The Envision Tomorrow model uses "Vacant Acres" and "Developed Acres" to calculate capacity in terms of acres of land. Each of the BLI categories described in the previous sections were translated into these terms for use in the model, as follows. Capacity is then translated from acres to housing units and jobs in Step 5.

Residential Land

- **Vacant –** All unconstrained acreage was coded as vacant. Developed acreage was set to zero.
- **Developed** – All unconstrained acreage was coded as developed. Vacant acreage was set to zero.
- **Lots Large Enough for an Additional Unit under Current Zoning** ("Partially Vacant") and **Lots Large Enough to Divide Under Current Zoning** ("Developed with Infill Potential") – There is little information available about the physical location of buildings on a given tax lot, so the calculations were performed to determine whether the theoretical amount of available land on the tax lot was greater than ½ acre.[15] Where there was less than ½ acre available, the unconstrained portion of the tax lot was coded as Developed. Where there was greater than ½ acre available, the estimated remaining available amount was coded as Vacant.

[15] Methodology for "Partially Vacant" and "Developed with Infill Potential" is as follows:

1. Calculate Zoning Required Acres - Methodology was based on Table 2.1.500 from Bend's Zoning Code. The overall assumption is that a lot in this category is made up by developed and vacant land. The acres that are "committed" based on the existing zoning is the number of units times the minimum lot size or the area required for each unit. The remaining acreage that is "available" under the existing zoning is than subtracted from the constrained land.
2. Calculate Building Footprint Area - Using a 2004 building footprint layer plus a 10-foot buffer from all mapped buildings, summed the total square feet of building footprint and buffer by taxlot. For tax lots with development but no building footprint information, used average building footprint + buffer area square footages for the same number of units (1 unit: 5000sf, 2 units: 5500 sf, 3-4 units: 6650 sf). For the two lots with >4 units and no building footprint info, used aerial photo and/or comparable adjacent lot to approximately measure area around existing buildings
3. Calculate Vacant and Developed Area
    a. Where either acres available under zoning or acres remaining after subtracting building footprints & buffers are less than a half-acre, code the unconstrained portion of the lot as developed.
    b. Where both acres available under zoning and acres remaining after subtracting building footprints & buffers are more than a half-acre, code the greater of the two as the developed acres, with the remainder coded as vacant.

Table 6. Developed and Vacant Acres on Residential Land

Residential BLI Designation	Number of Tax Lots	Vacant Acres	Developed Acres
Developed	25,845	16.1	7,533.0
Lots Large Enough to Divide Under Current Zoning ("Developed with Infill Potential")*	4,572	889.7	1,543.1
Lots Large Enough for Additional Units under Current Zoning ("Partially Vacant")*	827	0.0	92.4
Other **	6	0.0	0.0
Vacant	2,854	1,714.2	0.0
Grand Total	**34,104**	**2,620.0**	**9,168.6**

** These categories were assigned vacant acreage if the amount of available land (described in footnote 15) was greater than ½ acre.*
*** "Other" tax lots addressed in Outstanding Issues in Step 5. These tax lots are split-zoned or partially within the UGB.*

As Table 6 shows, there were no tax lots identified as "Lots Large Enough for Additional Units under Current Zoning (Partially Vacant)" that received any vacant acreage. This is because there were no tax lots with this designation that passed the screen detailed in footnote 15. Furthermore, there were no tax lots with this designation greater than ½ acre in total, as shown in Figure 2.

Publicly owned land

These areas were generally considered developed since they are considered unavailable for residential development or redevelopment. If the public owner has indicated to the City that the land is available for development, it has been classified that way, such as the property owned by the Central Oregon Irrigation District in SW Bend.

Table 7. Developed and Vacant Acres on Publically Owned Land

Residential BLI Designation	Number of Tax Lots	Vacant Acres	Developed Acres
Publicly Owned	565	666.9	925.6

Employment Land

All unconstrained land was considered vacant per the State's definitions, except where the extent of physical development showed otherwise (estimated based on aerial photography for parcels over five acres with some improvements).

Table 8. Developed and Vacant Acres on Employment Land

	Number of Parcels	Vacant Acres	Developed Acres
Developed	3,472	280.5	2,590.0
Vacant	245	987.2	10.9
Other*	3	18.8	0.0
Grand Total	**3,720**	**1,286.5**	**2,600.9**
** "Other" tax lots addressed in Outstanding Issues in Step 5. These tax lots are split-zoned or partially within the UGB.*			

Step 5 – Project Capacity

This section describes the process of projecting housing and employment capacity using "Development Types" in Envision Tomorrow, i.e., the assumptions and methodologies used to translate buildable area into housing units and jobs.

Development Types

In the Envision Tomorrow model, development types act as the "paint" with which scenario maps are "colored". They correspond largely to General Plan designations, and contain assumptions about various aspects of development, calibrated by the project team with the best available information and consistent with the definitions and assumptions described in the previous sections of this memo. Development type assumptions include:

- A mix of specific building types (prepared using the TAC input received in the August, 2014 meetings)
- Parking requirements
- Streets and other set-asides (such as parks and civic uses)
- Net residential density and net job density

For residential zones, the densities and mix of product type were set to match the observed trends from 1998 to 2008 as described in the Housing Needs Analysis (HNA). Employment zones were calibrated to the observed employment mix and density detailed in the Employment Opportunities Analysis (EOA, employment building types were discussed by the Employment TAC in the August, 2014 meetings). Detailed descriptions of development types are provided in Appendix E.

A few special development types were created to capture specific situations, such as:

- **RS-CCR -** Vacant, platted lots with CC&Rs (to ensure just one unit per lot, not average density for the plan designation)
- **RS – Hillside -** "Hillside" version of RS to reflect areas where topography or other conditions may limit density to the lower end of the allowed range, rather than the average
- **MDOZ -** "Medical District Overlay Zone", to capture different mix of uses in that area
- **Institutional -** for existing and planned college / university campuses (COCC, OSU)

Redevelopment Rates

Each development type in Envision Tomorrow has a redevelopment rate which determines the amount of painted developed land that is assumed to redevelop over the planning horizon.

Residential Land

Permit data from the City of Bend shows almost no history of residential redevelopment through demolition. (See Residential Building Permits by Land Category table in Appendix F). The base case redevelopment rate for all residential development types (RL, RS, RM, RH, SR2.5, UAR, RS-CCR, RS Hillside, and RM Hillside) was therefore set to zero.

Employment Land

The Employment TAC reviewed and discussed an approach to estimate redevelopment for employment lands (see November 17, 2014 Employment TAC materials, particularly Table 8 and the following discussion included in Appendix F). Based on these results, the recommended redevelopment rate was roughly 6-7%, and the project team calibrated the redevelopment rate for employment development types accordingly. Development types used in areas expected to have a greater likelihood of redevelopment (such as CB in the central city) were given higher rates, and other designations with less expected redevelopment were given lower rates.

Table 9. Employment Redevelopment Rates used in Base Case

Employment Development Type	Redevelopment Rate
SM	4%
MDOZ	10%
CC	4%
CL	6%
CG	5%
CB	25%
IP	4%
IL	4%
IG	5%
MR	8%
ME	6%
PF	4%
Institutional	4%

Outstanding Issues

There are a small number of outstanding issues regarding the operationalization of special land uses and other items within the BLI. The following list describes the issues and provides a recommendation from the project team on how to proceed.

Committed or Pending Land Uses. The City conducted a review of pending and approved land uses by the end of June 2014 to include in the BLI. These lands uses are shown on Figure 7 (a more detailed map is provided in Appendix A). There are four ways to incorporate this information into the BLI:

(A) Change the BLI status of these parcels to "Developed" and remove any calculated "vacant acreage."
(B) Retain existing BLI designation but do not assign any "vacant acres" – similar to lots that fit the definition of "Large enough to divide under current zoning" but had little available unconstrained acreage after our calculations.
(C) Retain existing BLI designation and vacant acres but do not assign a "Development Type" in Envision Tomorrow.
(D) Retain existing BLI designation and ensure the "Development Type" assigned in Envision Tomorrow matches the identified approved land uses, to the extent possible. *(**Recommended** – this is the simplest solution. We have identified a handful of tax lots that do not match their pending land use - e.g. a parcel painted "CC" with an approved 12-lot subdivision.)*

Properties within Bend's Historic Districts. Much like CC&Rs, the regulations of the historic district make redevelopment and infill less likely in historic areas. There are 444 residential and commercial parcels within the Old Town and Drake Park districts, in RS, RM, RH and CG zones. Many of these parcels fit the definition of "Lots large enough to divide under current zoning" and "Lots which can add additional units under current zoning," however very little actual development is projected by the model. There is a total of 1.18 acres of vacant acreage used in the model in this area, shown in Figure 8 (a more detailed map is shown in Appendix A). As above, these districts can be addressed in three ways.

(A) Change BLI status of all non-vacant parcels in these districts to "developed."
(B) Assign zero vacant acreage to parcels.
(C) Only paint parcels with a significant amount of vacant acreage in Envision Tomorrow. *(**Recommended** – this is essentially what has been done. Only vacant parcels and one large parcel with significant vacant area have any received a Development Type in Envision – See Figure 8 Below.)*

Figure 7. Map of Pending Land Uses

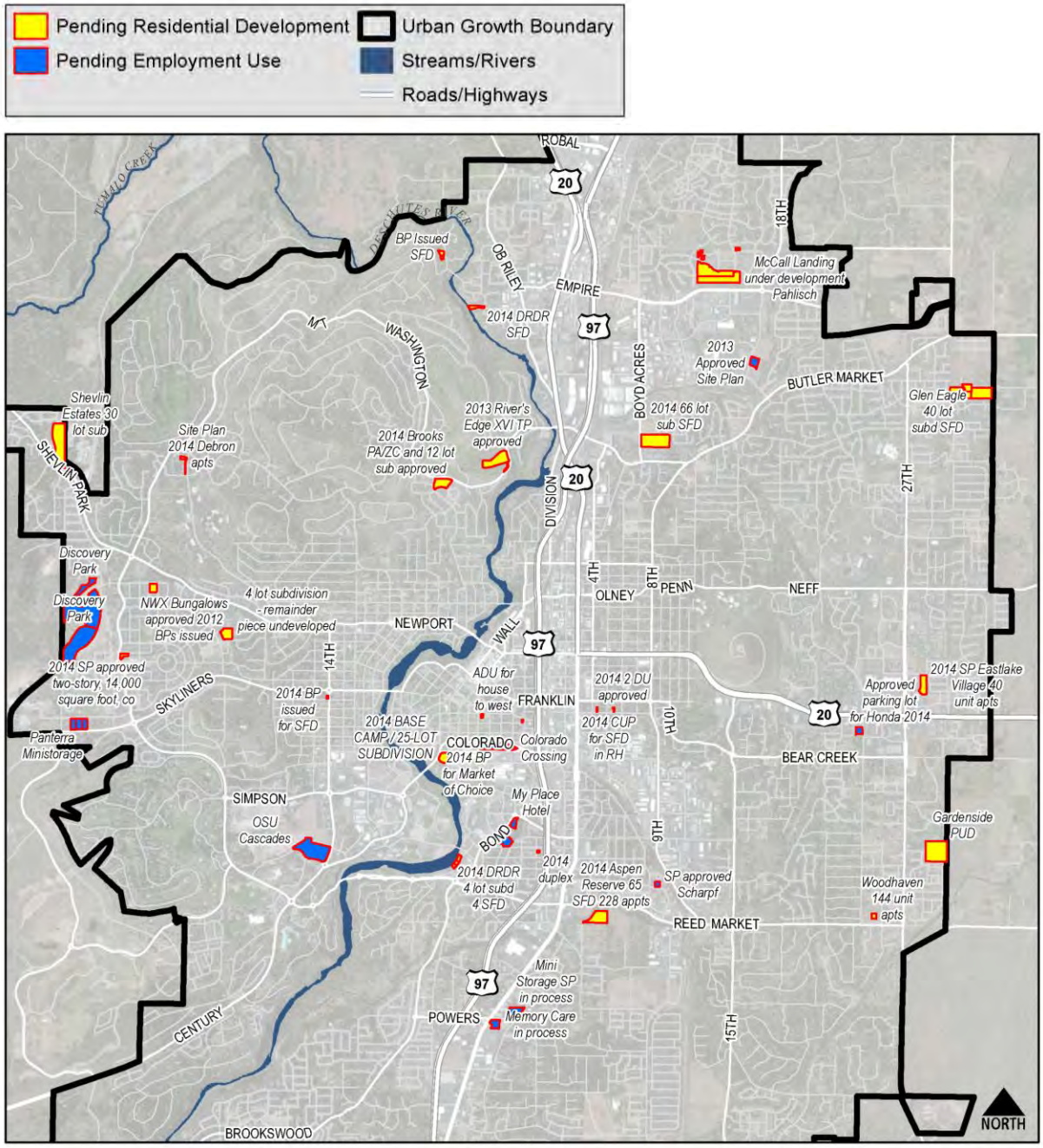
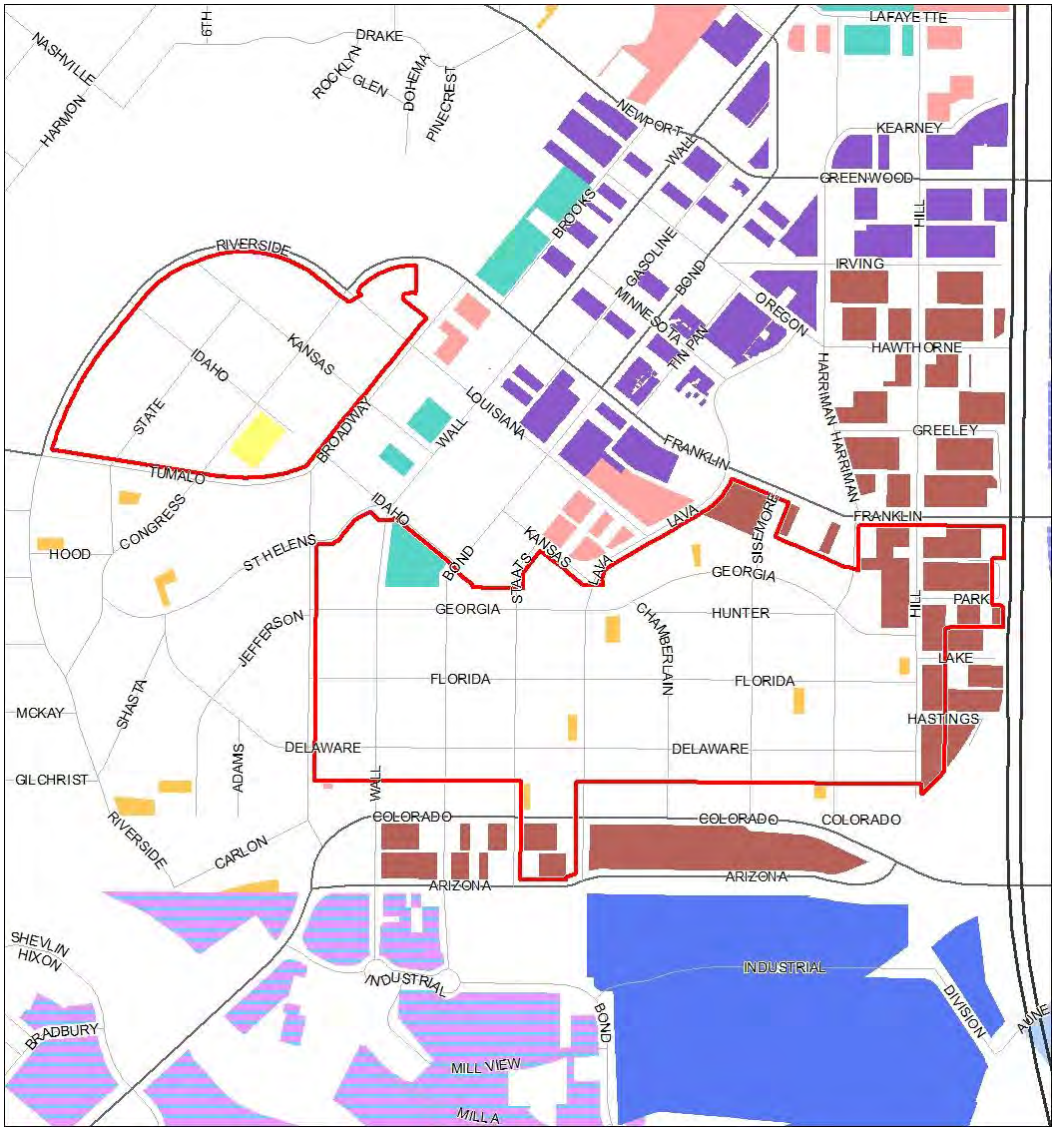


Figure 8. Map of Tax Lots with Painted Development Types in Historic Districts



Historic Districts
Urban Growth Boundary
State Route

Scenario 1 - Existing Policies

Mixed Use
- CB - Central Business District
- MR - Mixed Riverfront
- ME - Mixed Employment

Commercial
- CL - Commercial Limited
- CG - Commercial General

Industrial
- IG - Industrial General
- IL - Industrial Light

Residential
- RM - Residential Urban Medium Density
- RS - Residential Urban Standard Density

Other
- PF - Public Facilities

Parcels with a BLI designation of "Other". There are a small number of parcels whose BLI status has not yet been assigned. See Table 10 below for a summary of issues and recommendations.

Table 10. Tax lots with a BLI designation of "Other"

Property In Question	Description	Recommendation
63285 Skyline Ranch Rd	Half of parcel is in UGB. Zoned SM. Proximate to housing.	Designate as vacant for employment uses.
445 NE PENN AVE	Split Zoned RH/RM, with portion of existing dwelling on lot. Proximate to other vacant RM land.	Calculate vacant acreage using aerial photography, categorize as large enough to divide under current zoning.
60957 S HWY 97	Split Zoned RS/RM with one existing unit.	Categorize as "Large enough to divide under current zoning" and assign vacant acreage.
20935 SCOTTSDALE DR	Partial lot in UGB, SFD on other portion of lot. Challenging site to build further housing.	Categorize as developed.
63277 SOUTH RD	Partial lot in UGB, SFD on other portion of lot. Challenging site to build further housing, lot is only .3 acres.	Categorize as developed.
OSU Campus	Currently lacking employment BLI status, painted with "Institutional" dev type.	Categorize as vacant. Apply Development Type consistent with that proposed by OSU at this time (i.e., employment, group quarters housing).

CAPACITY ESTIMATE FOR BEND'S CURRENT UGB - THE "BASE CASE" SCENARIO

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. In Bend's use of a scenario model, Envision Tomorrow, that estimate is referred to as the "Base Case".

The Base Case is the combination of the "Vacant Acres" and "Developed Acres" detailed in Step 4 with the Development Type assumptions described in Step 5. When a parcel is painted, its vacant acreage is assumed to be utilized by the development type, and its developed acreage experiences redevelopment at the assigned rate. The level of development is then translated into a total number of housing units and jobs using density assumptions based on past trends. Envision Tomorrow does not assign capacity figures to individual parcels – it applies the assumptions embodied within the development type to the total amount of vacant and developed acreage available.

Each parcel with any amount of vacant acreage (hence, assumed development capacity) was painted, with the exception of some employment land with a level of existing employment density three times greater than the average for the plan designation was screened out, indicating that it is unlikely to redevelop into less-dense employment land.

Figure 9 shows the Development Types painted for the Base Case scenario. Detailed maps are provided in Appendix A.

Housing

The following tables and figures describe the residential capacity estimated in the base case scenario.

Table 11. "Base Case" Housing Capacity

Total New Housing Units	**9,033**
Single Family Units	6,327
Large Lot	3,000
Standard Lot	1,857
Small Lot	1,469
Town- homes	470
Multi-Family	2,237
% Single Family Detached	70%
% Townhomes	5%
% Multifamily	25%

Figure 9. The "Base Case" Scenario

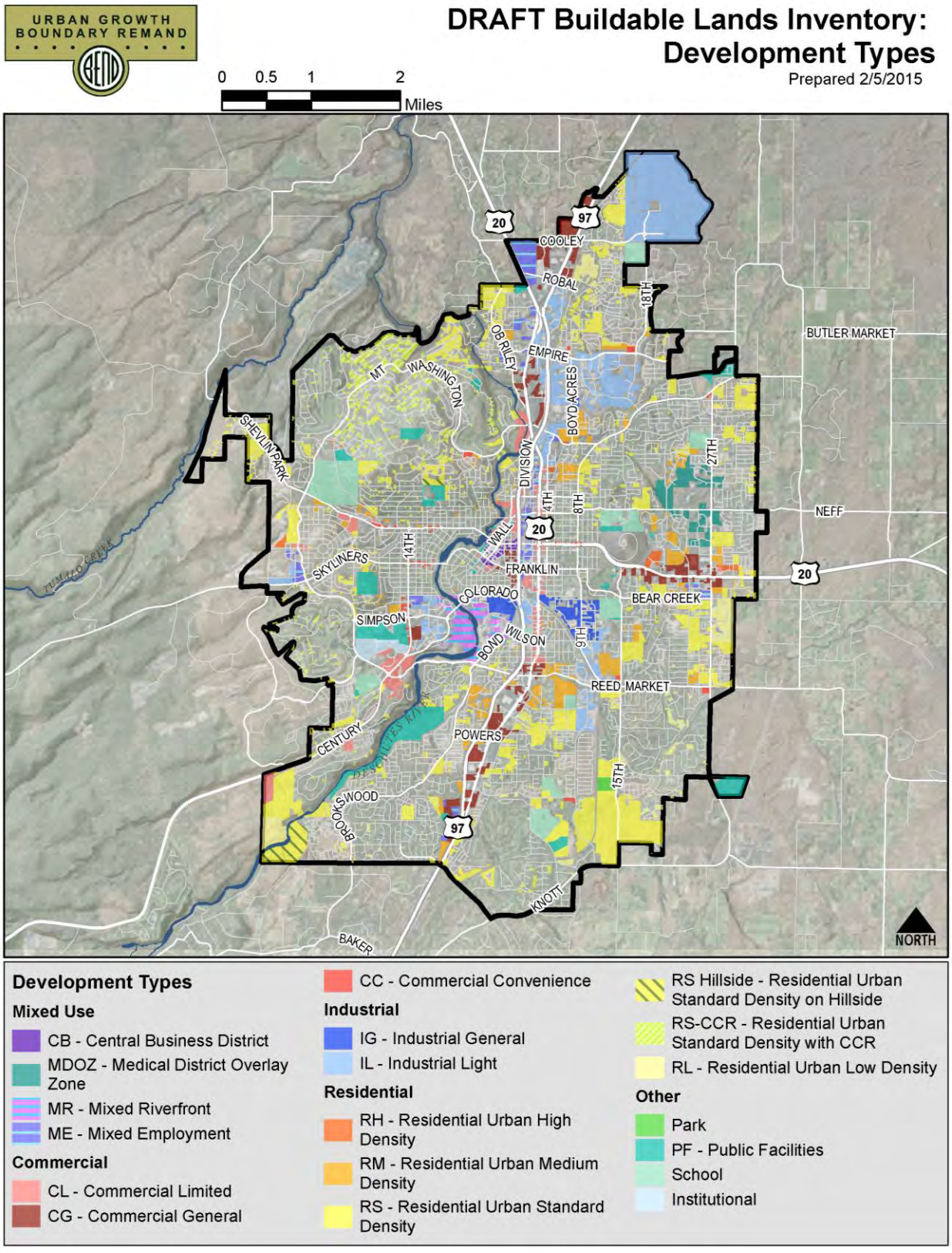
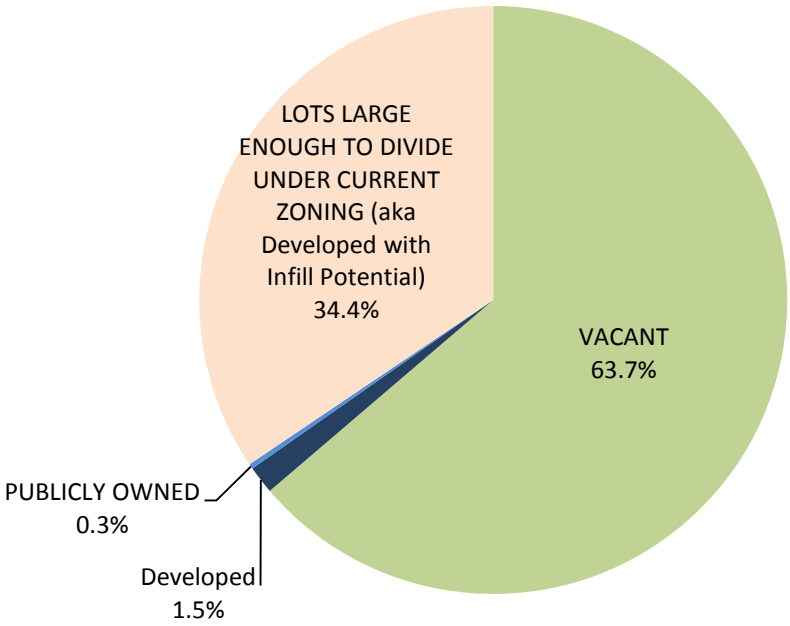


Figure 10. BLI Status of Additional Housing Units



As shown in Figure 10, nearly two-thirds of the housing growth in the base case is projected to occur on land that is currently vacant, and over one-third is projected to occur on lots large enough to divide under current zoning.

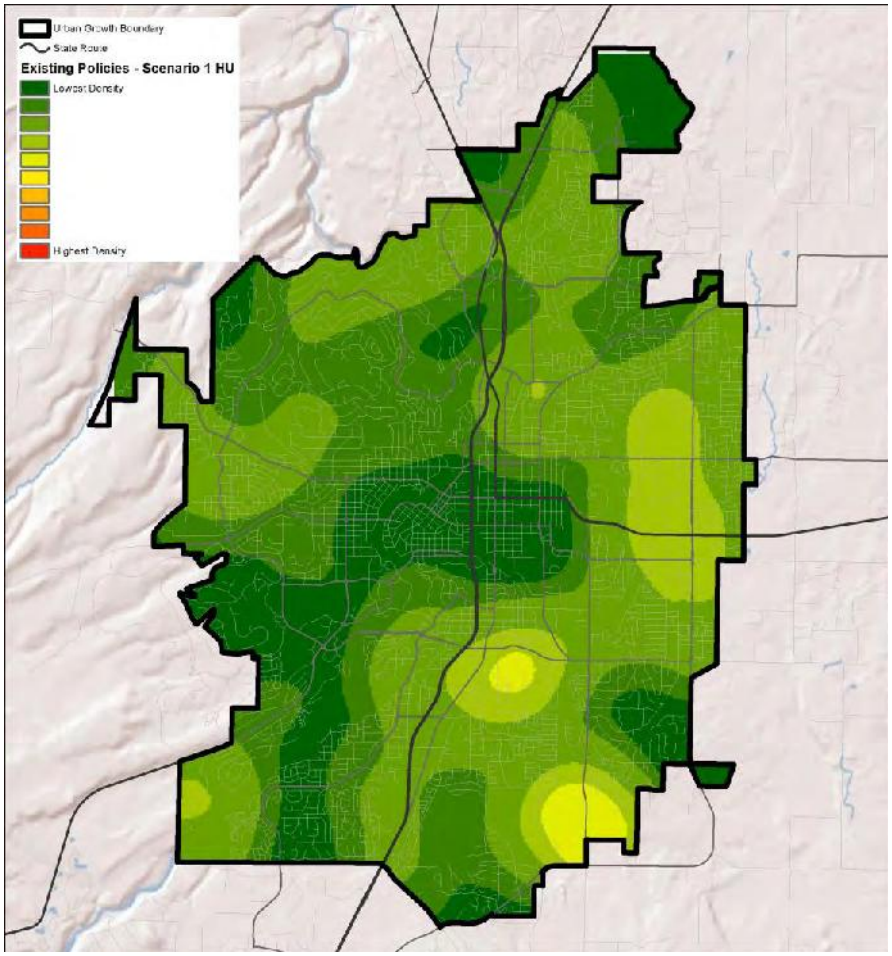
Table 12. Housing Capacity by General Plan Designation

General Plan Designation	Tax Lots	Total Acres	Vacant Acres	Developed Acres	New Housing Units
Residential Plan Designations					
RL	3019	1,613	178	1,404	234
RH	649	323	71	251	601
RM	4963	1,330	311	934	2,313
RS	25742	9,441	1,964	6,951	5,658
Non-Residential Plan Designations					
CB	323	40	-	39	10
CC	185	83	12	71	4
CG	599	728	117	614	57
CL	781	378	87	304	67
MR	457	221	36	162	91
Total	36,718	14,157	2,774	10,730	9,033

Table 13. Housing Capacity by Development Type

Development Type	Tax Lots	Total Acres	Vacant Acres	Developed Acres	New Housing Units
RL	157	221	178	32	234
RS	2,101	1,783	1,587	142	4,948
RM	584	377	290	81	2,132
RH	93	38	33	6	403
MDOZ	146	131	55	76	521
CL	568	240	74	180	67
CG	380	345	114	240	57
CB	235	21	-	21	10
MR	392	128	36	87	91
RS-CCR	445	289	237	-	445
RS Hillside	5	93	74	-	126
Total	**5,106**	**3,666**	**2,677**	**864**	**9,033**

Figure 11. Heatmap of Added Housing Capacity in the Envision Model



Employment

Table 14. "Base Case" Employment Capacity

New Jobs	13,090
Retail	1,757
Office	3,783
Industrial	3,256
Public	3,420
Education	383
Hospitality	492
New Jobs/Acre	14.0

Figure 12. New Jobs by Employment BLI Category

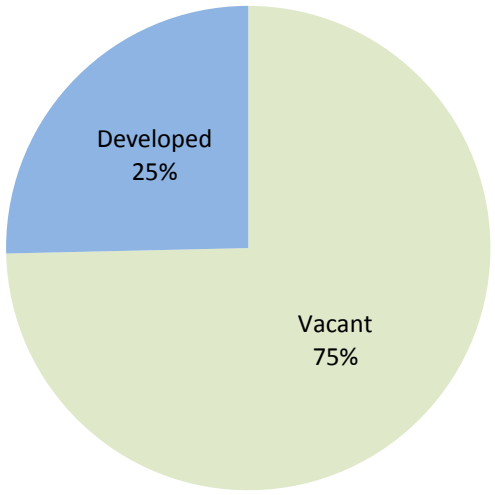


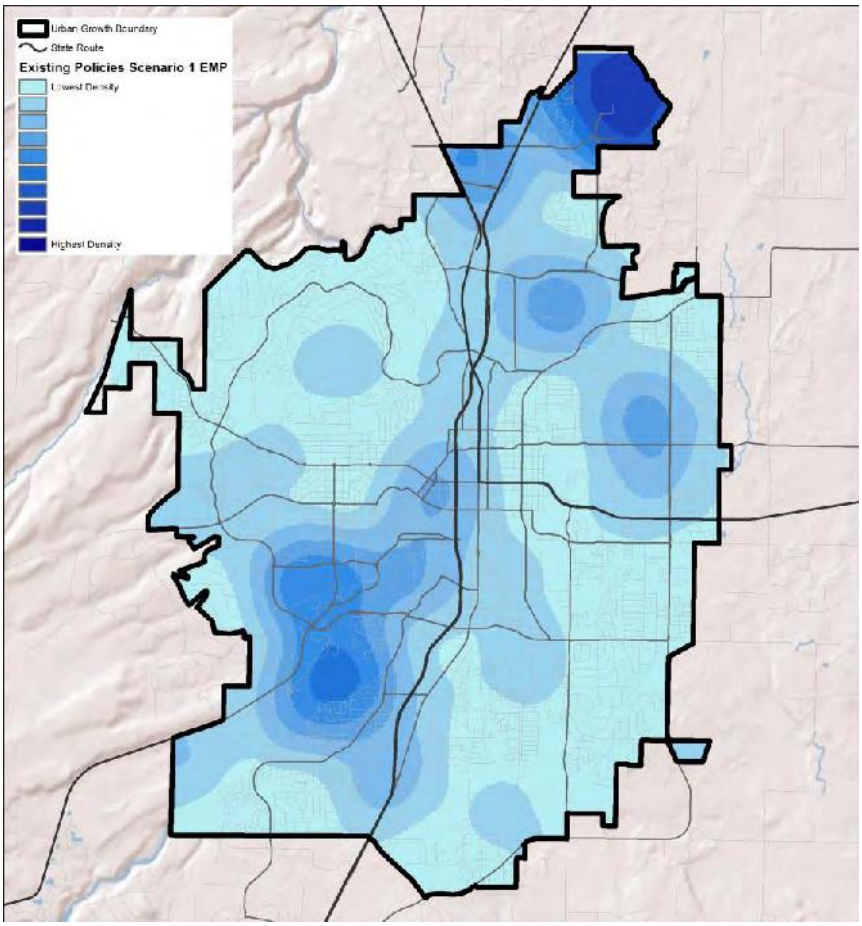
Table 15. Employment Capacity by General Plan Designation

General Plan Designation	Tax Lots	Total Acres	Vacant Acres	Developed Acres	New Jobs
Residential Plan Designations					
RH	649	323	71	251	528
RM	4963	1,330	311	934	356
RS	25742	9,441	1,964	6,951	58
Non-Residential Plan Designations					
CB	323	40	-	39	392
CC	185	83	12	71	161
CG	599	728	117	614	1,088
CL	781	378	87	304	1,328
IG	155	197	8	185	160
IL	672	1,260	643	606	4,635
ME	338	308	96	200	809
MR	457	221	36	162	477
PF	282	1,466	360	513	2,850
SM	2	43	19	-	248
Total	35,148	15,818	3,724	10,830	13,090

Table 16. Employment Capacity by Development Type

Development Type	Tax Lots	Total Acres	Vacant Acres	Developed Acres	New Jobs
RS	2101	1,783	1,587	142	27
RM	584	377	290	81	45
RH		38	33	6	109
MDOZ	146	131	55	76	765
CC	96	39	12	27	155
CL	568	240	74	180	1,193
CG	380	345	114	240	1,088
CB	235	21	-	21	392
IL	426	915	625	299	4,635
IG	99	113	8	105	160
MR	392	128	36	87	477
ME	235	178	91	87	809
PF	180	436	268	115	2,850
RS Hillside	5	93	74	-	1
Institutional	3	54	29	-	383
Total	**5,450**	**4,892**	**3,295**	**1,465**	**13,090**

Figure 13. Heatmap of Additional Employment Capacity under the Base Case Scenario



APPENDICES

The following items are provided as appendices:

Appendix A – Detailed Maps

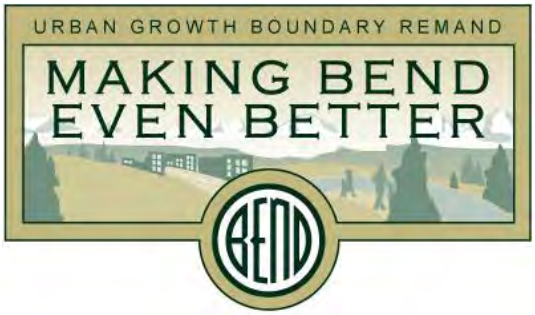
Appendix B – Draft Buildable Lands Inventory – Sub Issue 2.2 Memorandum

Appendix C – Detailed GIS Methodology

Appendix D – Envision Tomorrow Background & Description

Appendix E – Development Types Used in Envision Tomorrow Modeling

Appendix F – Tables for Calibration of the BLI and Base Case



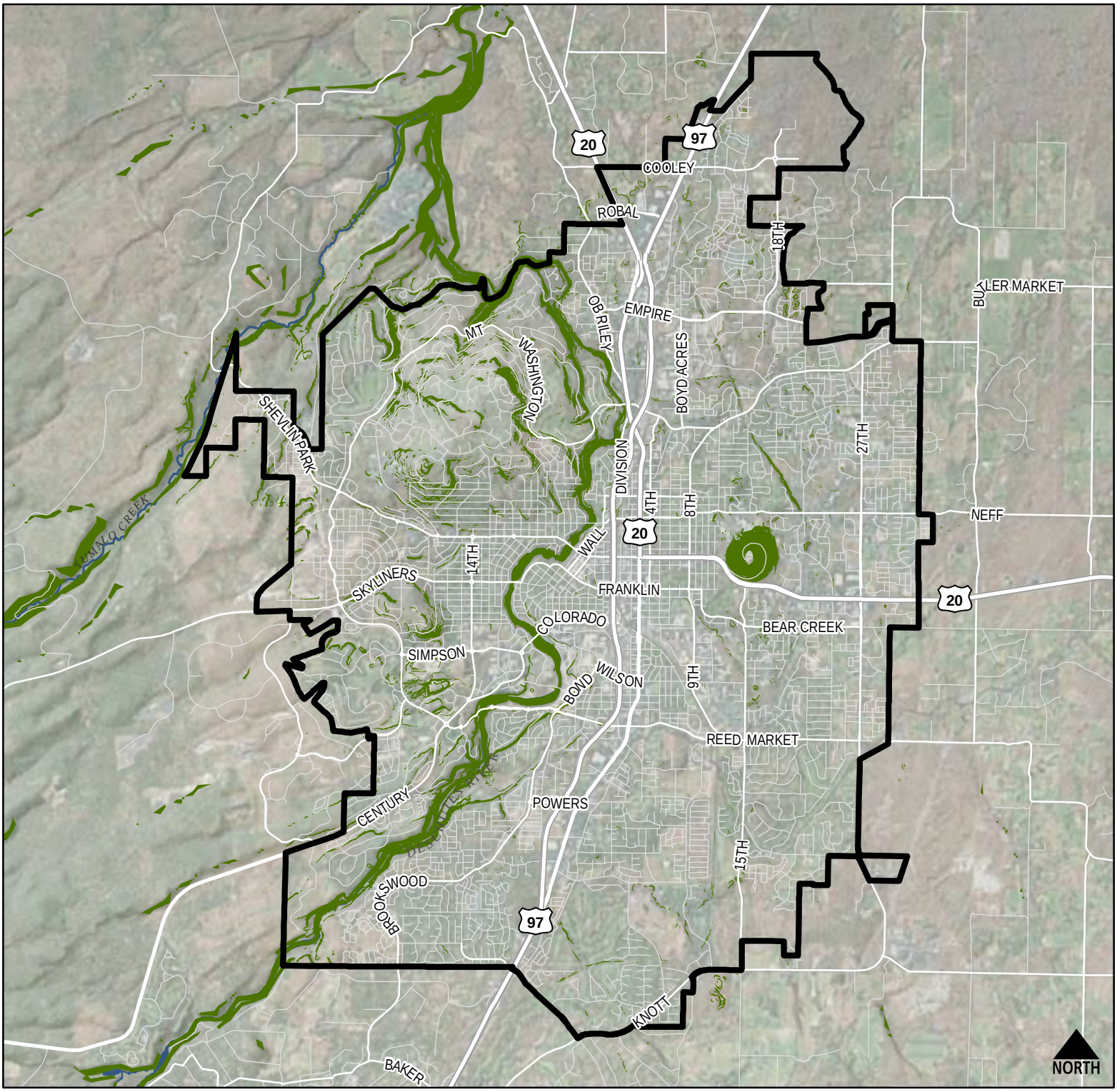
Appendix A: Detailed Maps related to the BLI

DRAFT Buildable Lands Inventory - Constraints

Prepared 1/21/2015

Urban Growth Boundary
Streams/Rivers
Constraints
Roads/Highways

Constraints include 100-year flodplain and slopes greater than 25% (per OAR 660-008-0005(2)(c)



URBAN GROWTH BOUNDARY REMAND

0 0.5 1 2
Miles

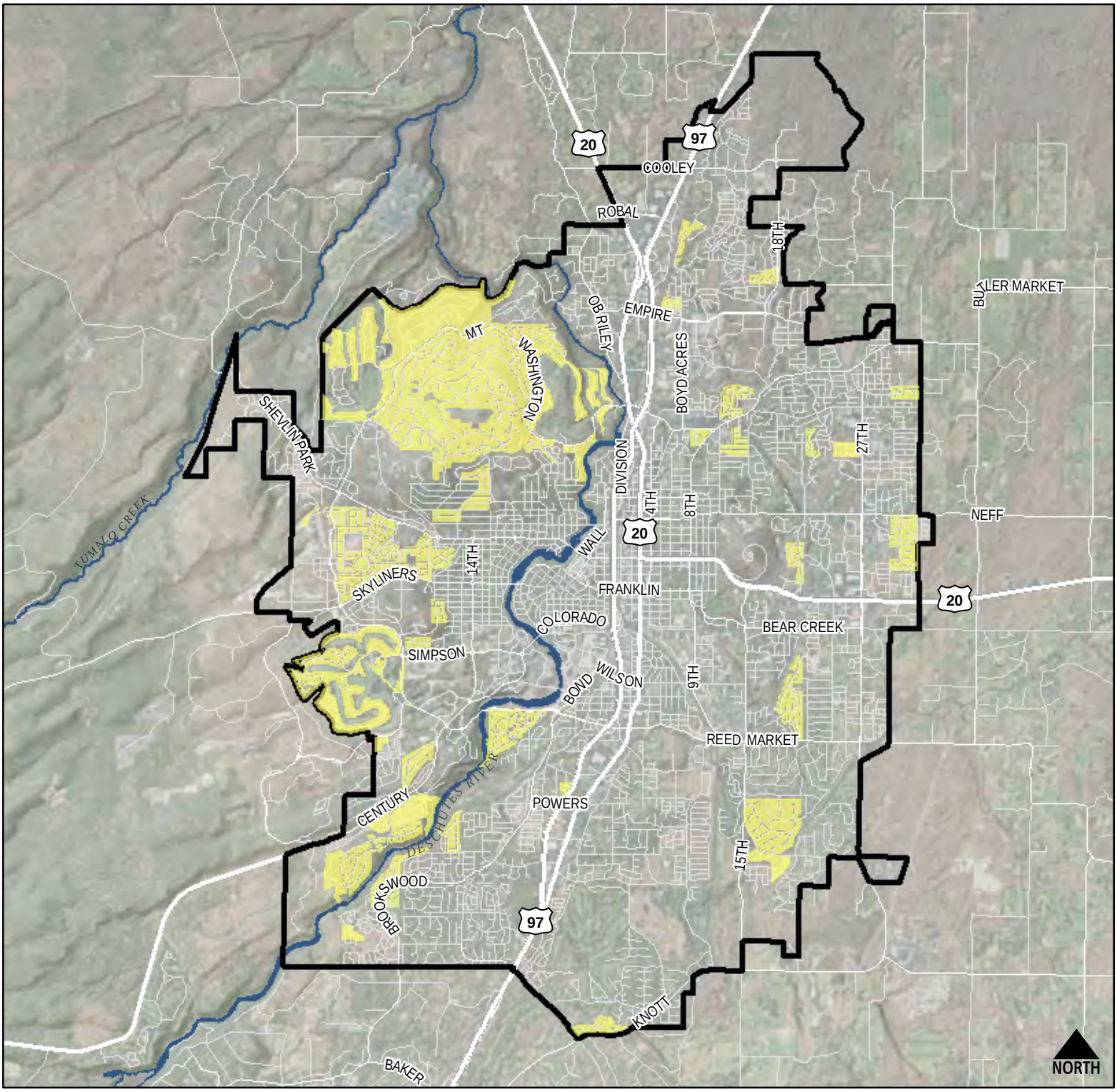
DRAFT Buildable Lands Inventory - Constraints

Prepared 1/21/2015

CCRS

- Land with Restrictive CC&Rs
- Urban Growth Boundary
- Streams/Rivers
- Roads/Highways

CC&Rs limit the development/redevelopment of land. This attribute was populated by APG based on information provided by the City of Bend regarding presence and restrictions in CC&Rs by subdivision. CC&Rs were assumed to apply to all phases of a given subdivision unless information to the contrary was available.

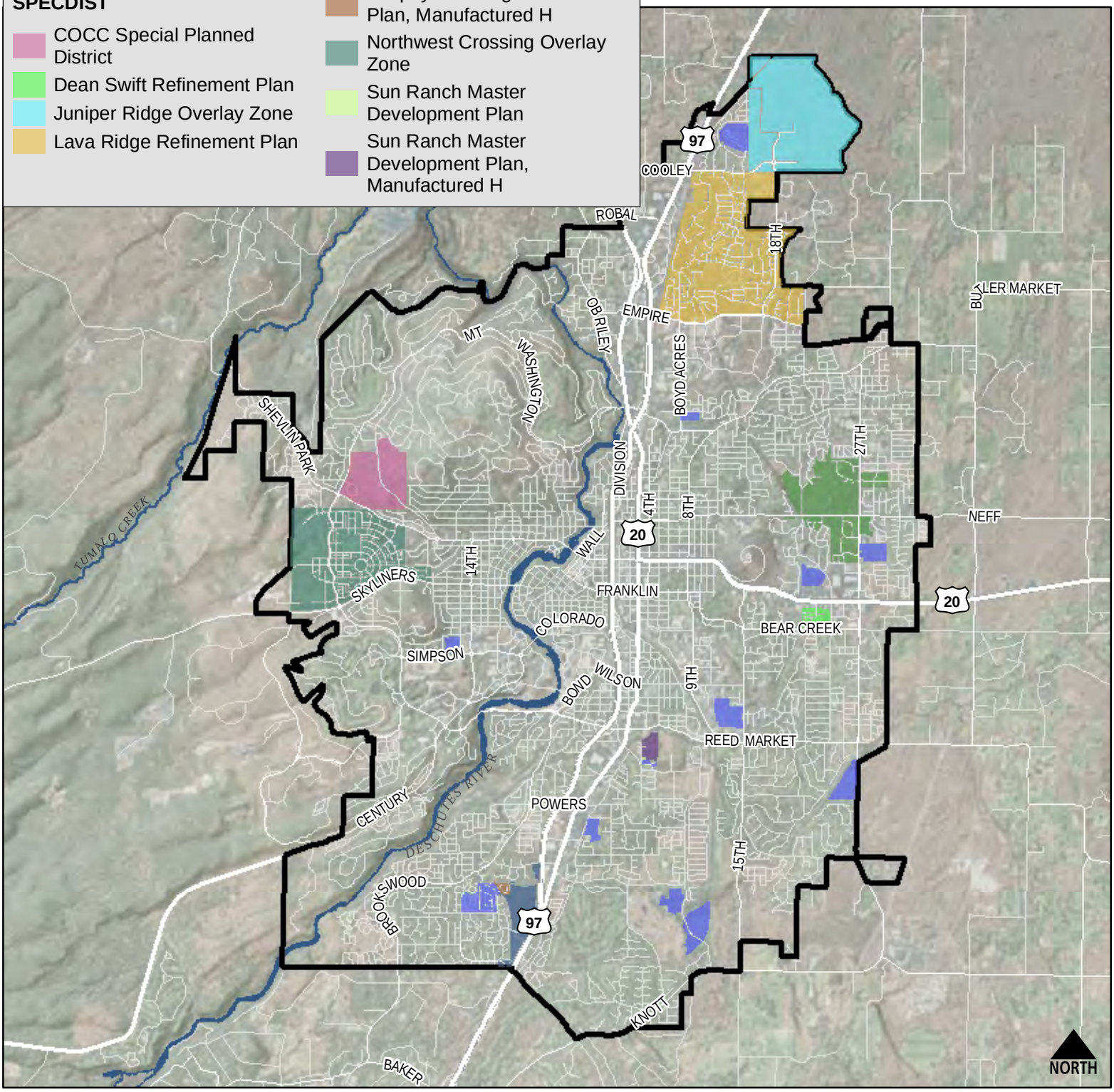


URBAN GROWTH BOUNDARY REMAND

0 0.5 1 2 Miles

DRAFT Buildable Lands Inventory - Special Districts

Prepared 1/21/2015



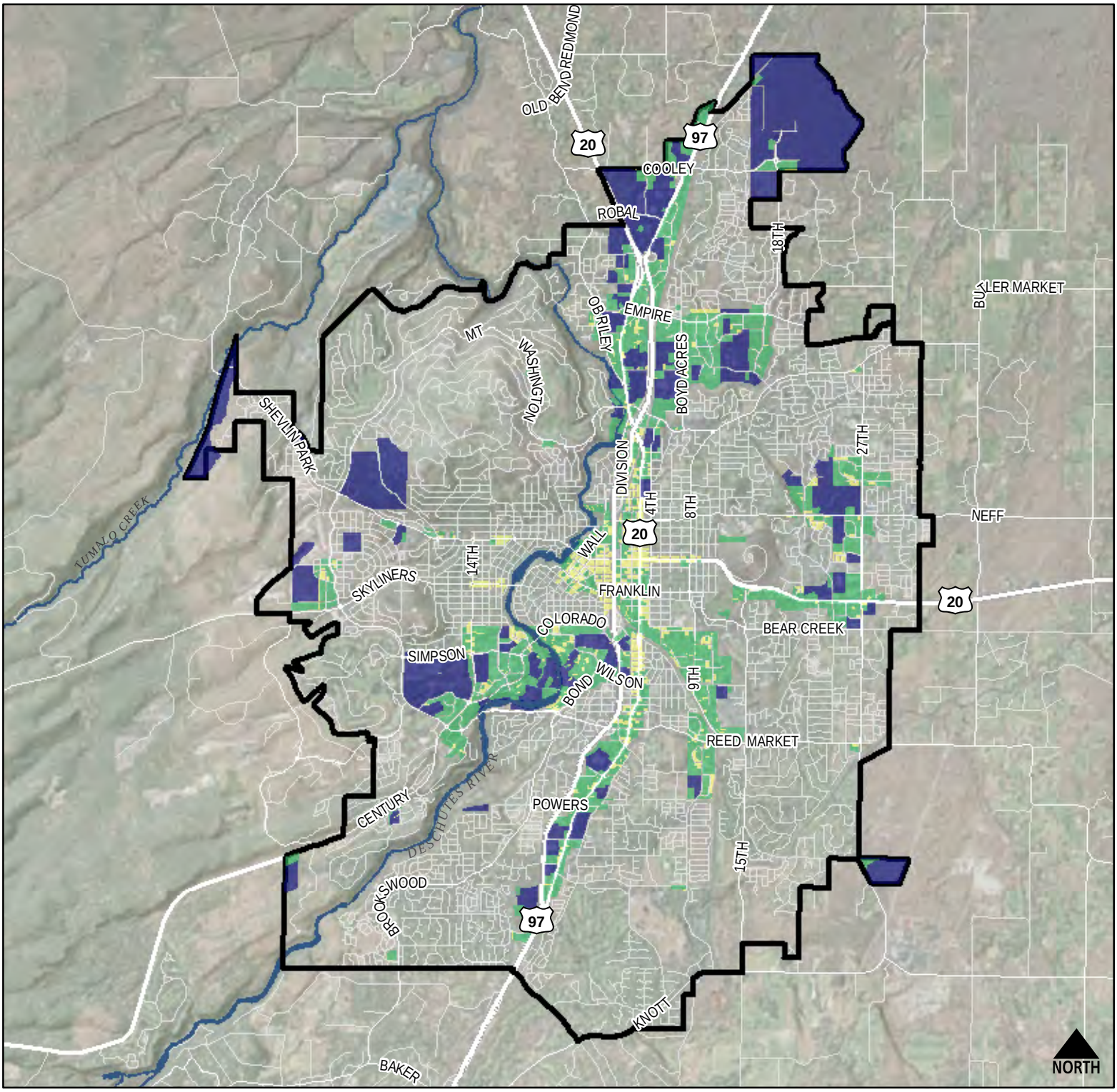
DRAFT Buildable Lands Inventory - Employment Parcel Size

Prepared 1/27/2015

Urban Growth Boundary
Streams/Rivers
Roads/Highways

ACRES
<.5 Acres
.5 Acres - 5 Acres
> 5 Acres

Employment Lands include all land planned or zoned for employment use (including mixed use designations & zones). Detailed methodology provided in attached appendix.



URBAN GROWTH BOUNDARY REMAND
BEND

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.

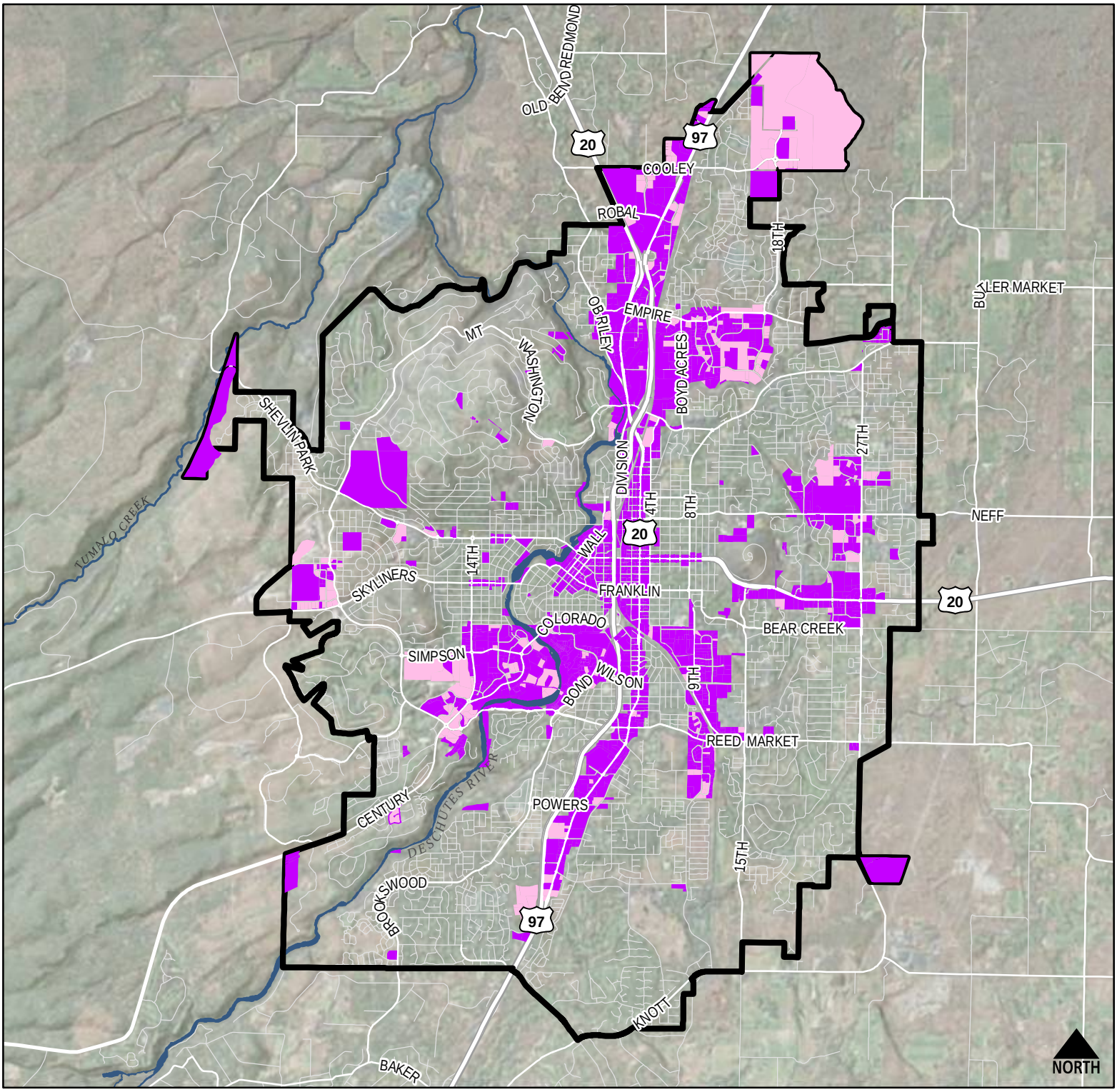
0 0.5 1 2
Miles

DRAFT Buildable Lands Inventory - Employment BLI Status

Prepared 2/2/2015

Urban Growth Boundary
Streams/Rivers
Roads/Highways
Developed
Vacant

Employment Lands include all land planned or zoned for employment use (including mixed use designations & zones). Detailed methodology provided in attached appendix.



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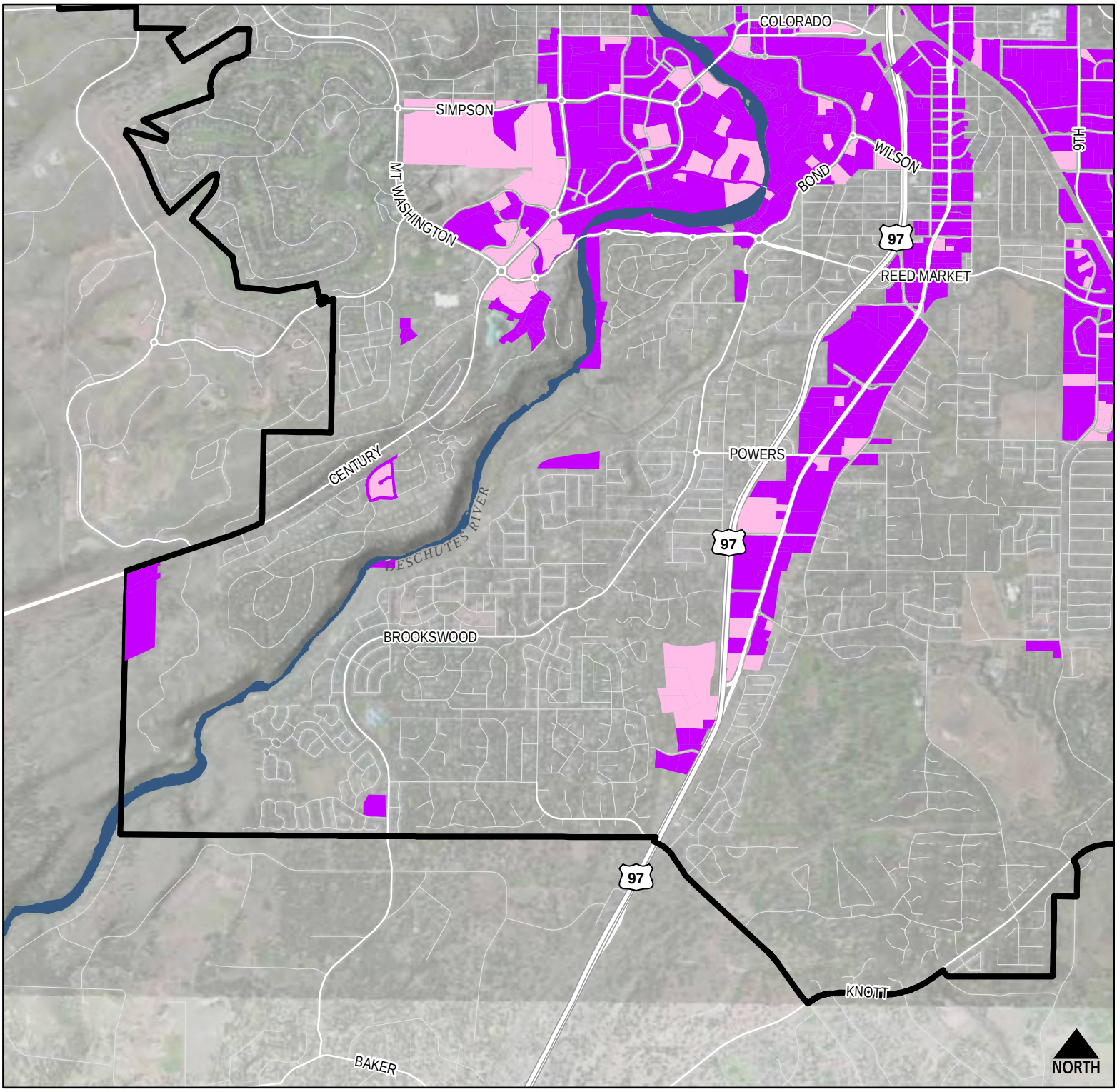
0 0.5 1 2 Miles

DRAFT Buildable Lands Inventory - Employment BLI Status

Prepared 2/2/2015

Urban Growth Boundary
Streams/Rivers
Roads/Highways
Developed
Vacant

Employment Lands include all land planned or zoned for employment use (including mixed use designations & zones). Detailed methodology provided in attached appendix.



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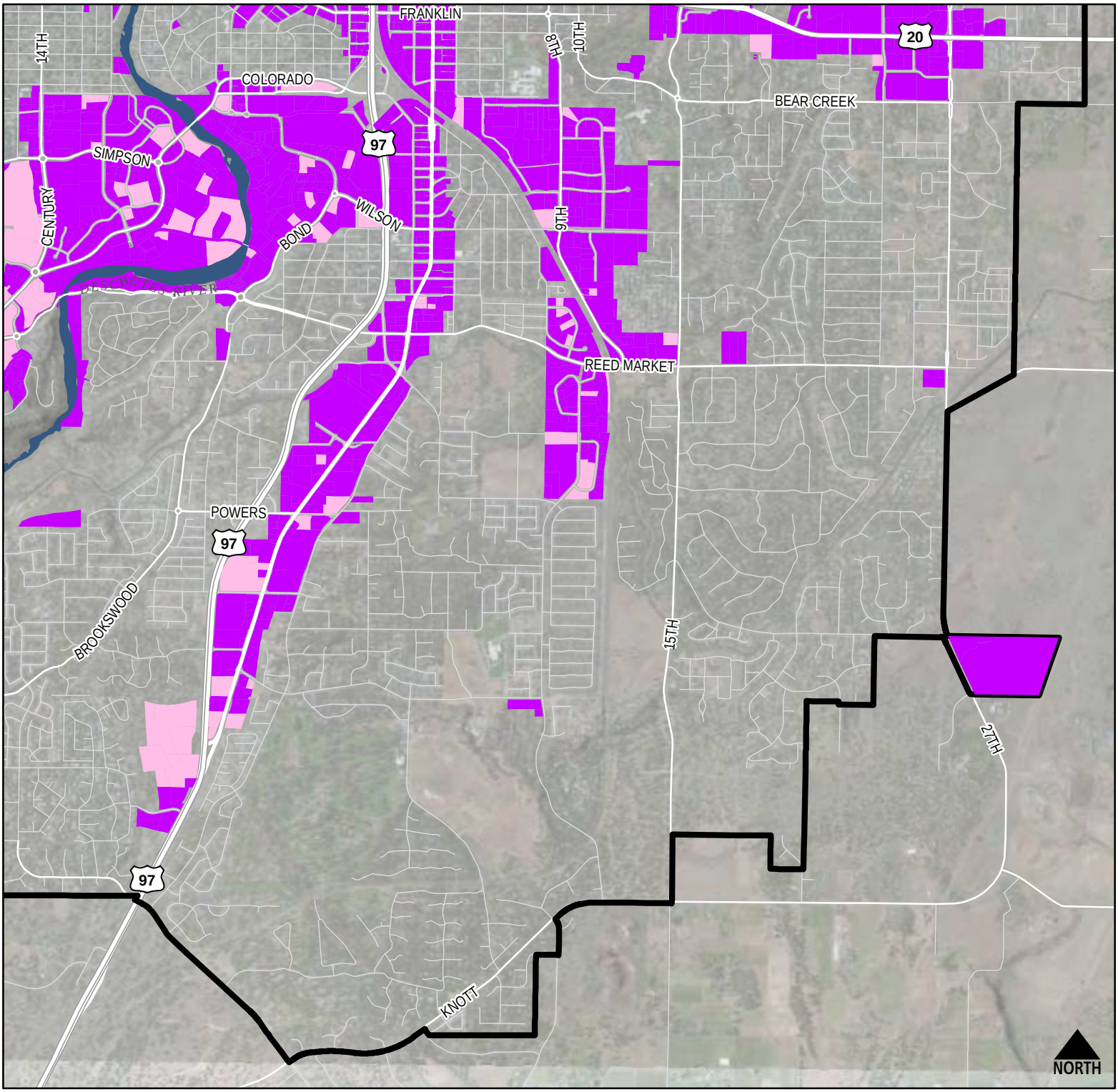
0 0.25 0.5 1 Miles

DRAFT Buildable Lands Inventory - Employment BLI Status

Prepared 2/2/2015

Urban Growth Boundary
Streams/Rivers
Roads/Highways
Developed
Vacant

Employment Lands include all land planned or zoned for employment use (including mixed use designations & zones). Detailed methodology provided in attached appendix.



URBAN GROWTH BOUNDARY REMAND

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"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.

0 0.25 0.5 1 Miles

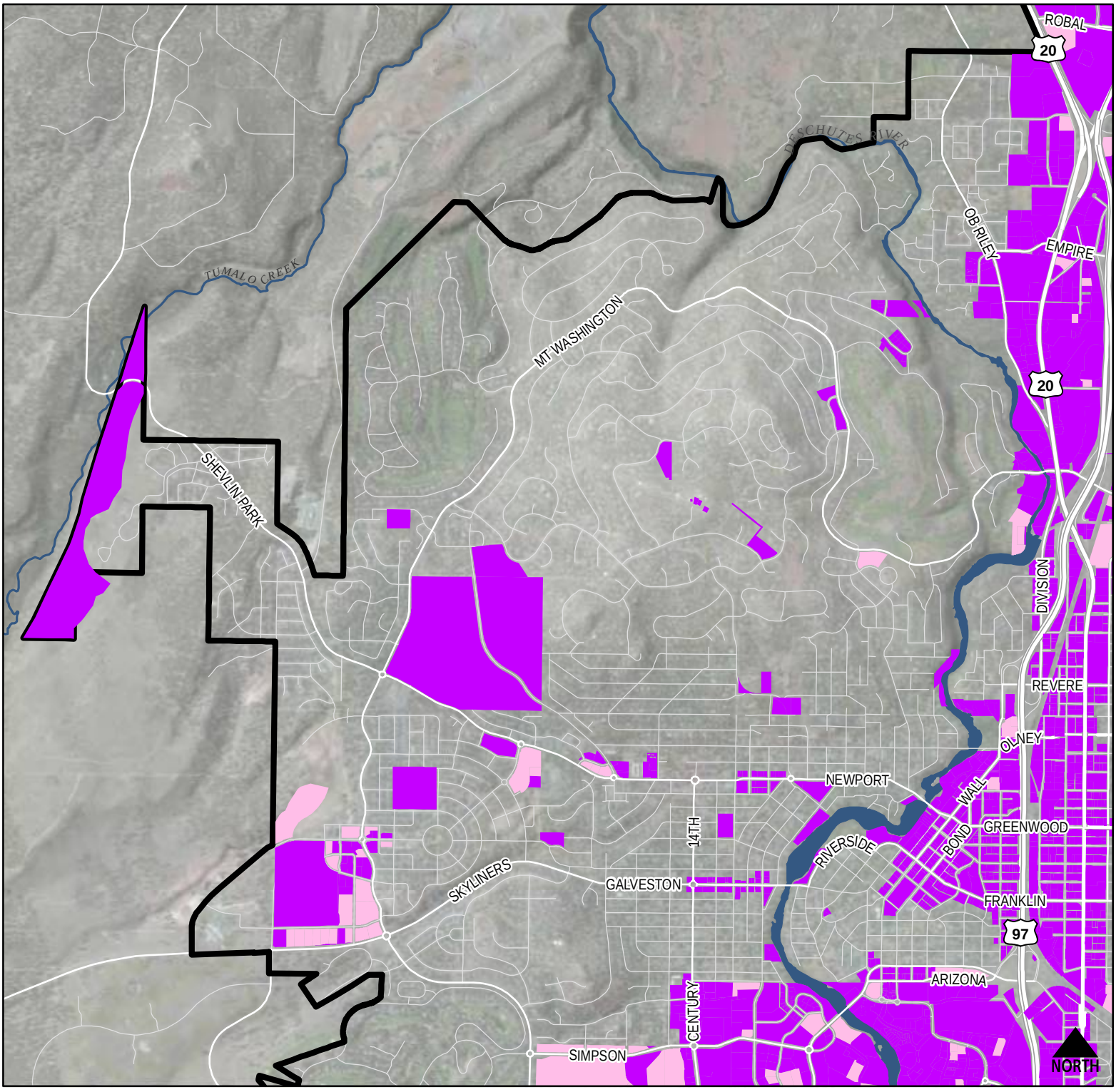
03308

DRAFT Buildable Lands Inventory - Employment BLI Status

Prepared 2/2/2015

Urban Growth Boundary
Streams/Rivers
Roads/Highways
Developed
Vacant

Employment Lands include all land planned or zoned for employment use (including mixed use designations & zones). Detailed methodology provided in attached appendix.



URBAN GROWTH BOUNDARY REMAND
BEND

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.

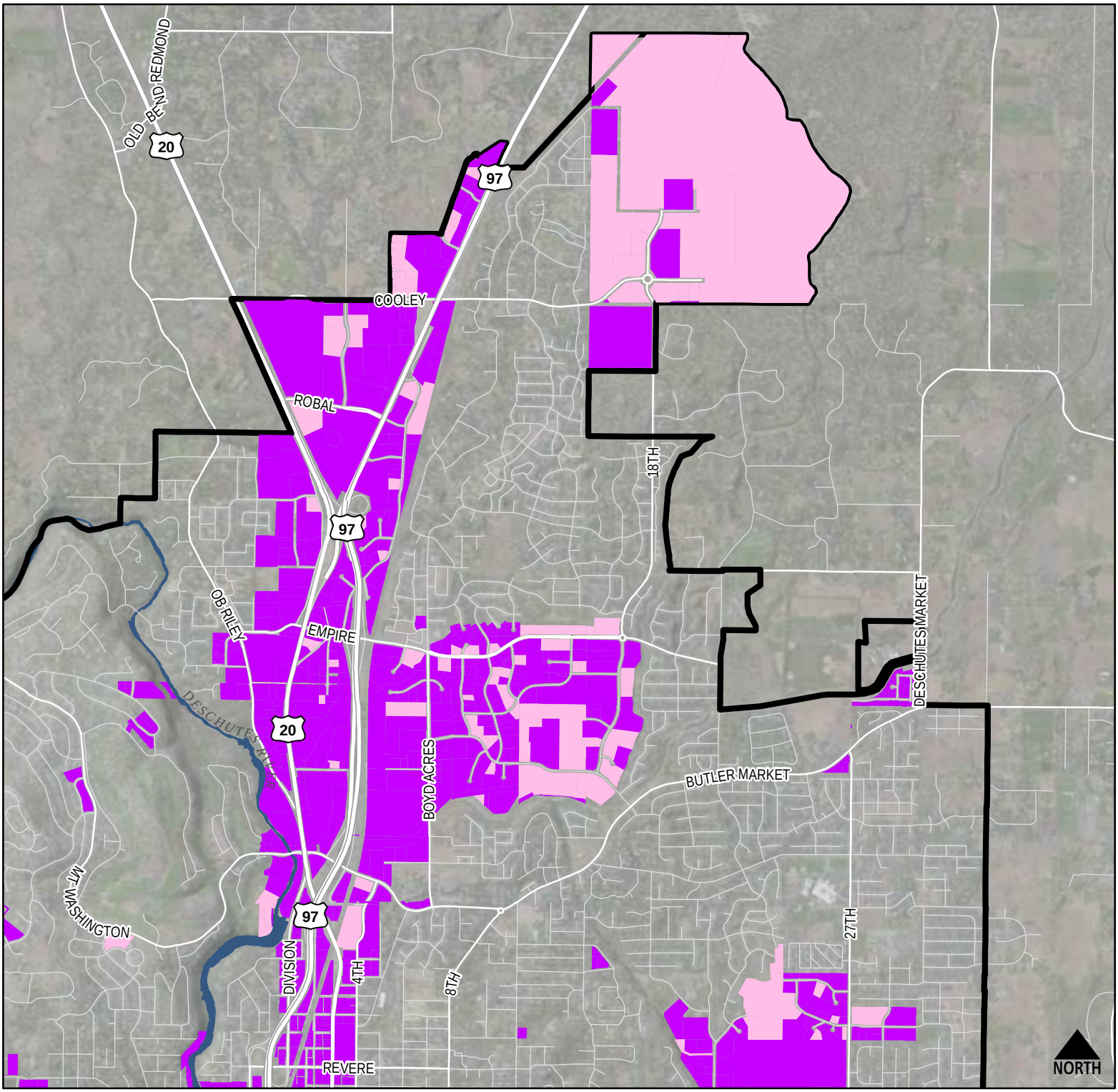
0 0.25 0.5 1 Miles

DRAFT Buildable Lands Inventory - Employment BLI Status

Prepared 2/2/2015

Urban Growth Boundary
Streams/Rivers
Roads/Highways
Developed
Vacant

Employment Lands include all land planned or zoned for employment use (including mixed use designations & zones). Detailed methodology provided in attached appendix.



URBAN GROWTH BOUNDARY REMAND
BEND

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.

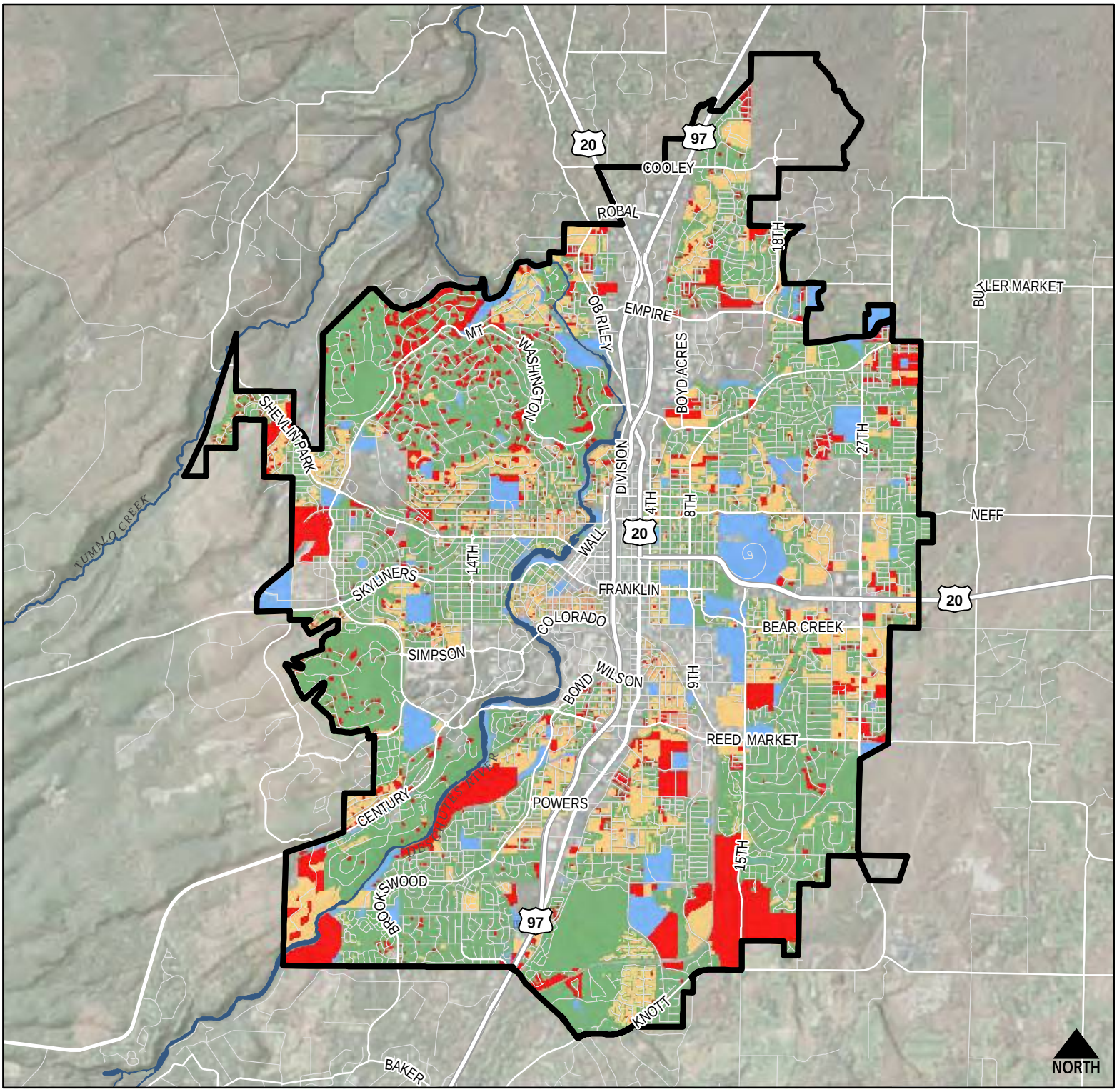
0 0.25 0.5 1
Miles

03310

DRAFT Buildable Lands Inventory - Residential BLI Status

- Urban Growth Boundary
- Streams/Rivers
- Roads/Highways
- Developed
- Lots Large Enough to Divide under Current Zoning ("Developed with Infill Potential")
- Lots Large Enough for Additional Units Under Current Zoning ("Partially Vacant")
- Publicly Owned
- Other (Split-Zoned and Other Special Cases)
- Vacant

Note: Only a portion of the land that is classified as partially vacant is assumed to experience infill during the planning horizon. These areas do not represent geographically-specific proposals or assumptions for future growth.



URBAN GROWTH BOUNDARY REMAND

Residential Lands include land in residential comprehensive plan categories and land with a residential zone category, except for land in the Medical District Overlay Zone (MDOZ) and land with a Surface Mining (SM) plan or zone designation. Detailed methodolgoy will be provided in attached appendix.

0 0.5 1 2 Miles

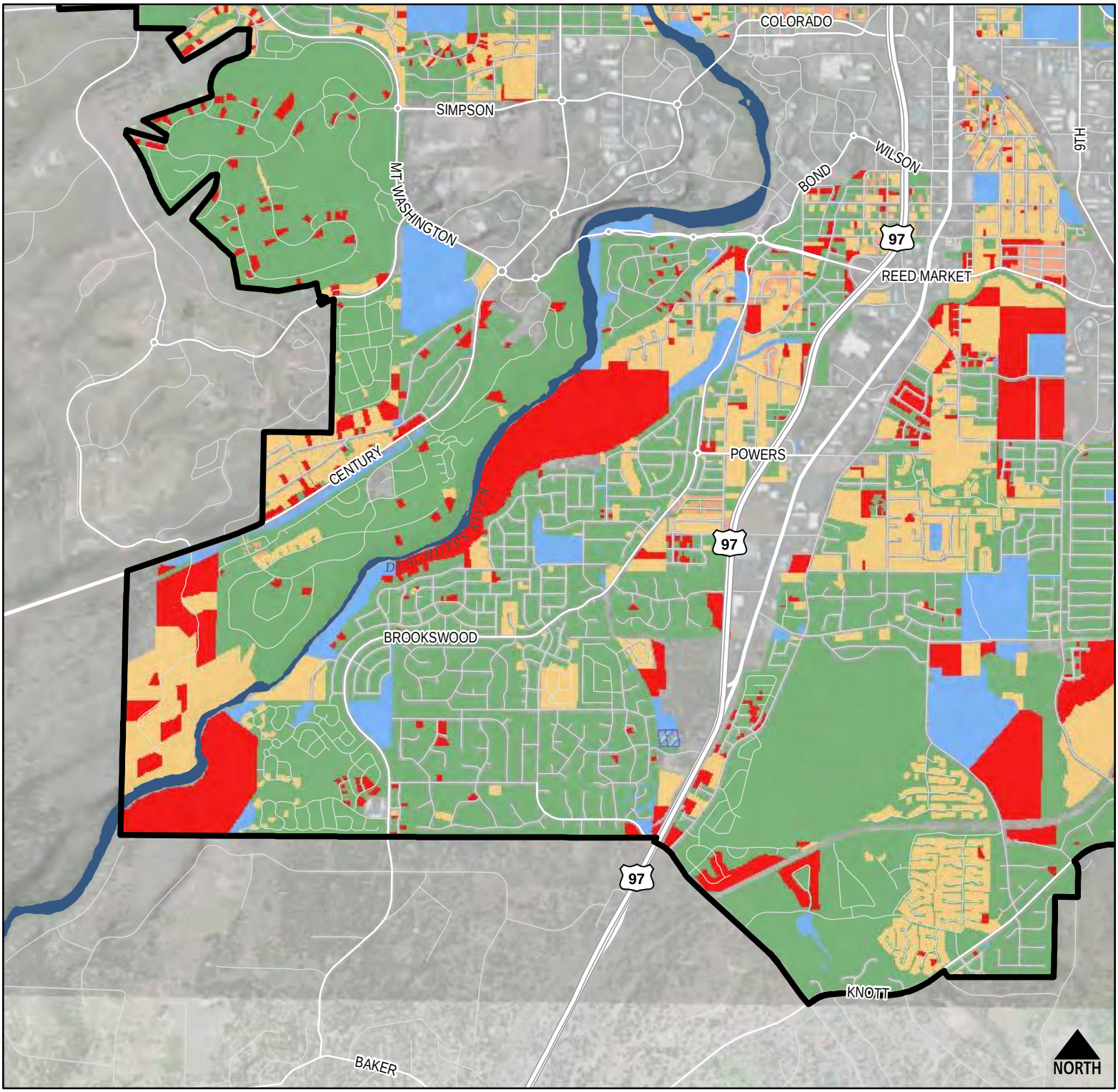
Prepared 2/2/2015

03311

DRAFT Buildable Lands Inventory - Residential BLI Status

- Urban Growth Boundary
- Streams/Rivers
- Roads/Highways
- Developed
- Lots Large Enough to Divide under Current Zoning ("Developed with Infill Potential")
- Lots Large Enough for Additional Units Under Current Zoning ("Partially Vacant")
- Publicly Owned
- Other (Split-Zoned and Other Special Cases)
- Vacant

Note: Only a portion of the land that is classified as partially vacant is assumed to experience infill during the planning horizon. These areas do not represent geographically-specific proposals or assumptions for future growth.



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0 0.25 0.5 1 Miles

Prepared 2/2/2015

03312

DRAFT Buildable Lands Inventory - Residential BLI Status

- Urban Growth Boundary
- Streams/Rivers
- Roads/Highways
- Developed
- Lots Large Enough to Divide under Current Zoning ("Developed with Infill Potential")
- Lots Large Enough for Additional Units Under Current Zoning ("Partially Vacant")
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- Other (Split-Zoned and Other Special Cases)
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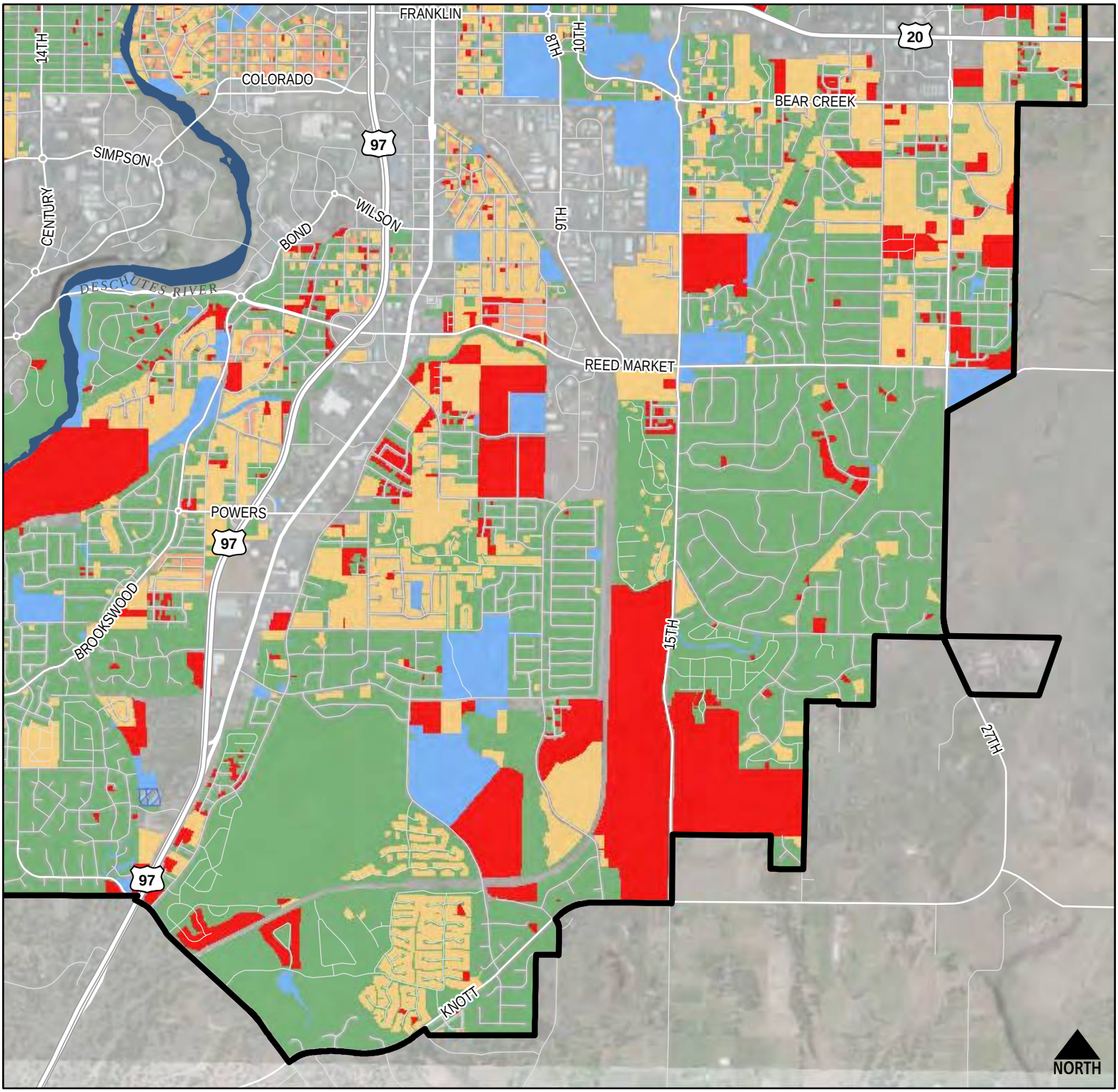

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0 0.25 0.5 1 Miles

Prepared 2/2/2015

03313

DRAFT Buildable Lands Inventory - Residential BLI Status

- Urban Growth Boundary
- Streams/Rivers
- Roads/Highways
- Developed
- Lots Large Enough to Divide under Current Zoning ("Developed with Infill Potential")
- Lots Large Enough for Additional Units Under Current Zoning ("Partially Vacant")
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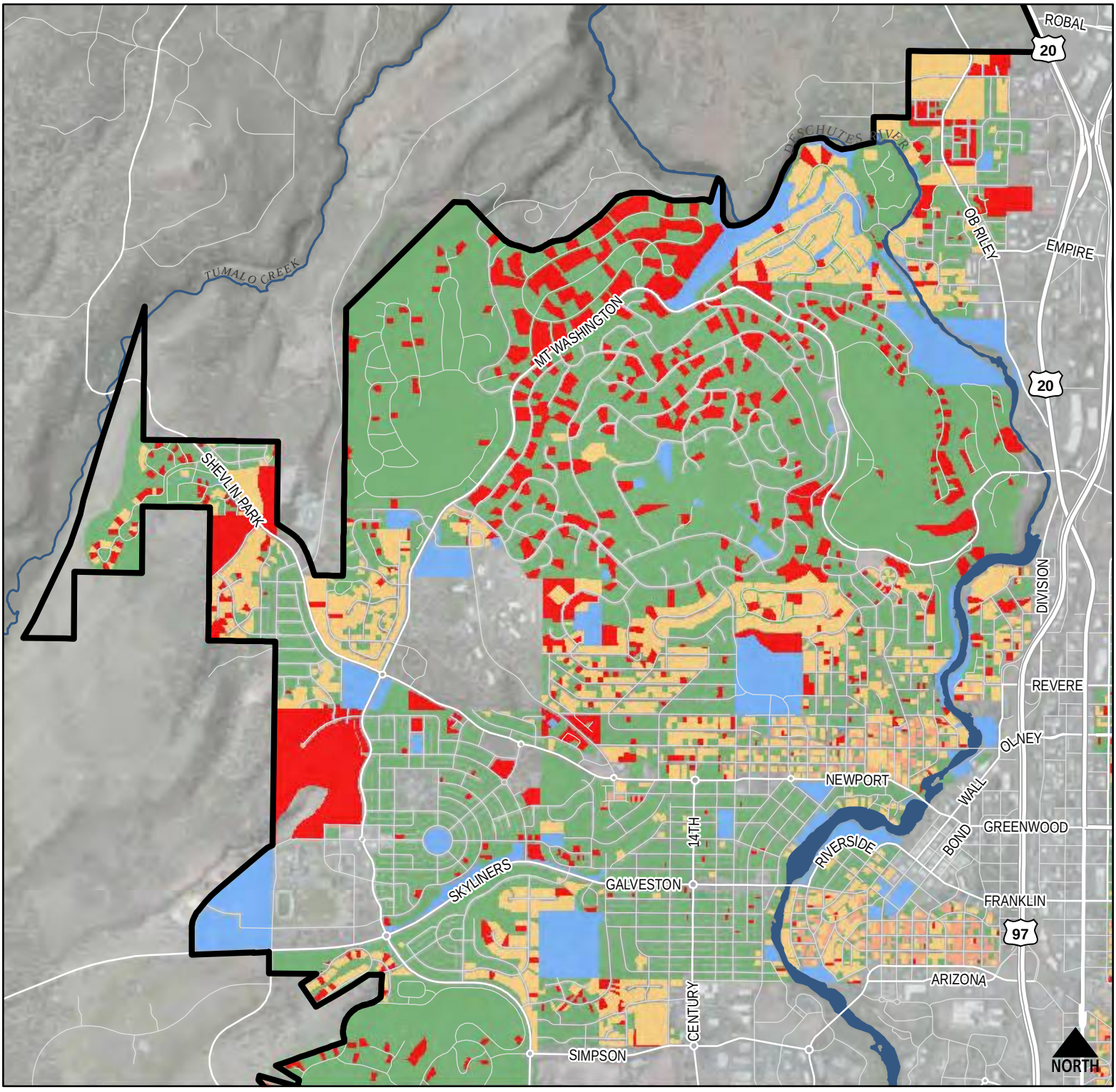

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0 0.25 0.5 1 Miles

Prepared 2/2/2015

DRAFT Buildable Lands Inventory - Residential BLI Status

- Urban Growth Boundary
- Streams/Rivers
- Roads/Highways
- Developed
- Lots Large Enough to Divide under Current Zoning ("Developed with Infill Potential")
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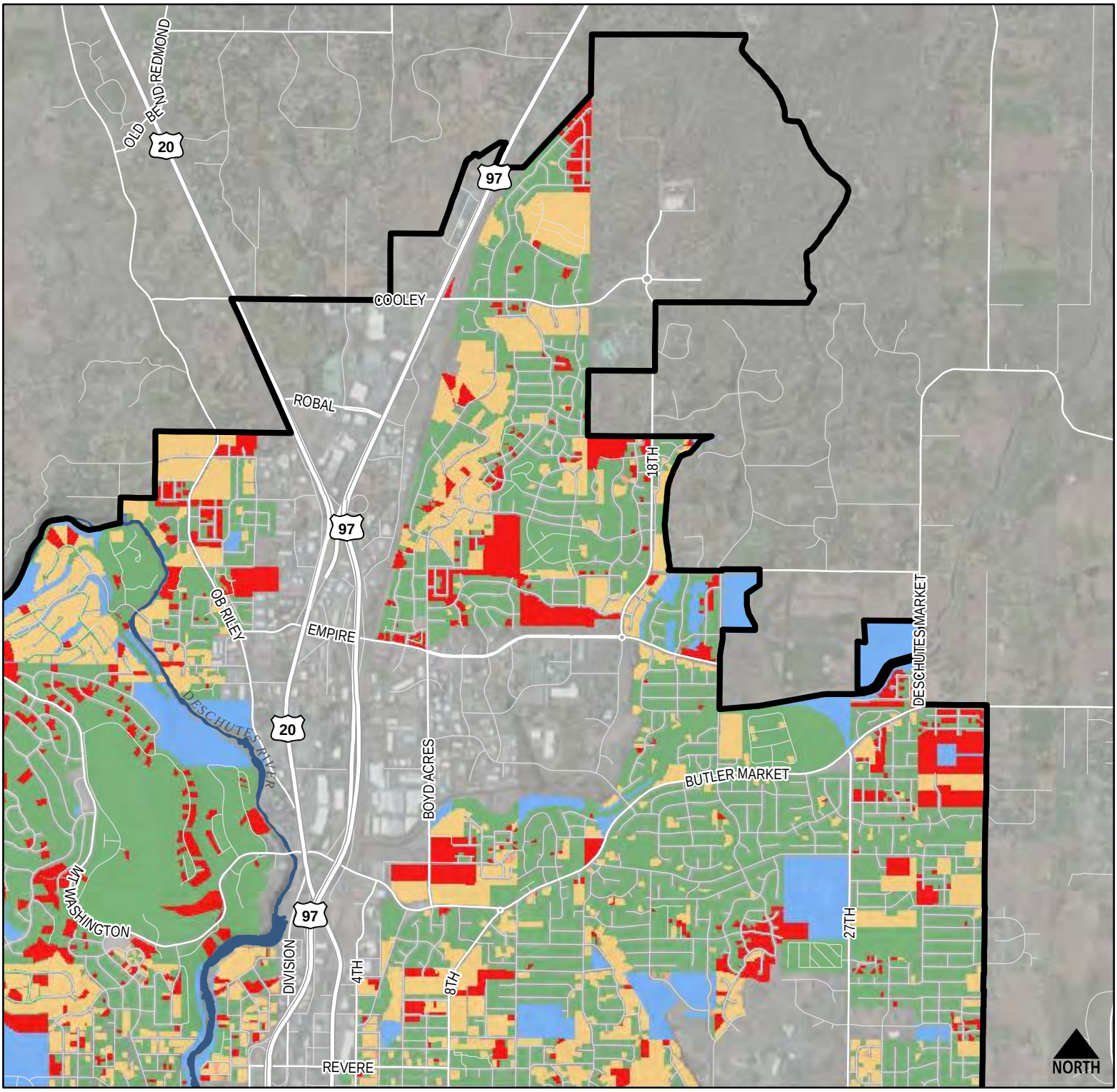

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0 0.25 0.5 1 Miles

Prepared 2/2/2015

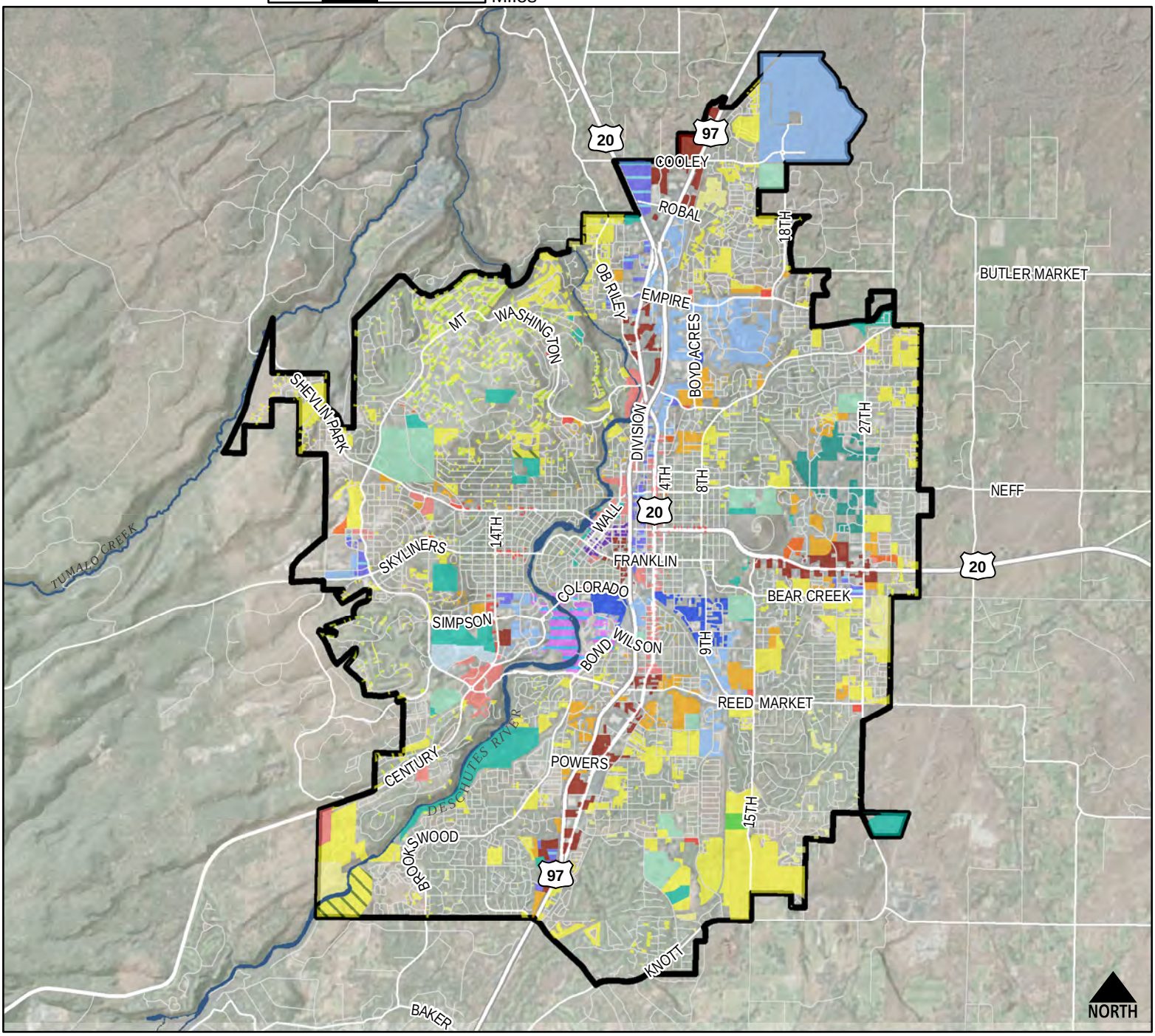
03315

URBAN GROWTH BOUNDARY REMAND

DRAFT Buildable Lands Inventory: Development Types

Prepared 2/5/2015

0 0.5 1 2 Miles



Development Types

Mixed Use

- CB - Central Business District
- MDOZ - Medical District Overlay Zone
- MR - Mixed Riverfront
- ME - Mixed Employment

Commercial

- CL - Commercial Limited
- CG - Commercial General
- CC - Commercial Convenience

Industrial

- IG - Industrial General
- IL - Industrial Light

Residential

- RH - Residential Urban High Density
- RM - Residential Urban Medium Density
- RS - Residential Urban Standard Density
- RS Hillside - Residential Urban Standard Density on Hillside
- RS-CCR - Residential Urban Standard Density with CCR
- RL - Residential Urban Low Density

Other

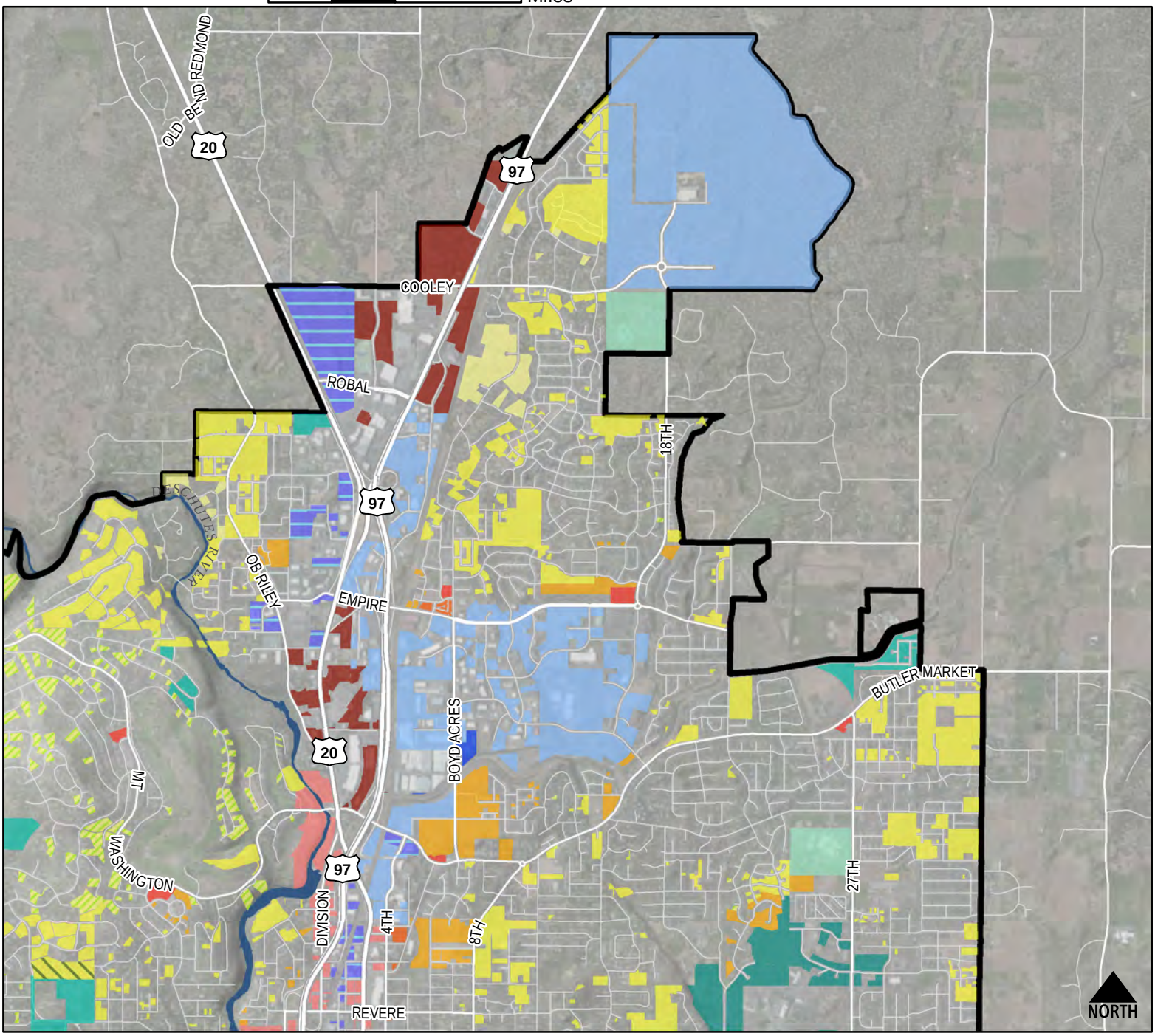
- Park
- PF - Public Facilities
- School
- Institutional

URBAN GROWTH BOUNDARY REMAND

DRAFT Buildable Lands Inventory: Development Types

Prepared 2/5/2015

0 0.25 0.5 1 Miles



Development Types

Mixed Use

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- ME - Mixed Employment

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- RL - Residential Urban Low Density

Other

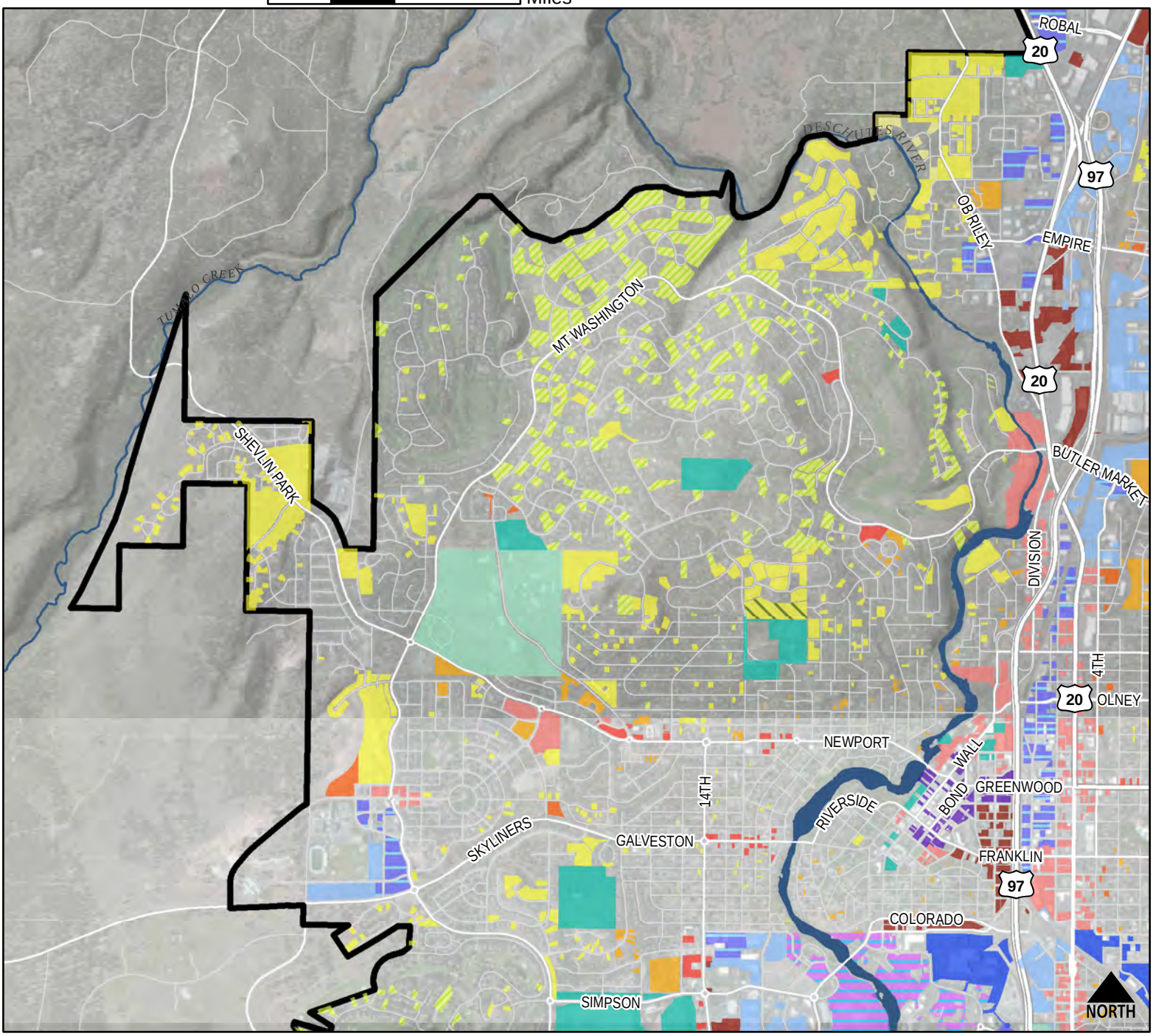
- PF - Public Facilities
- School

URBAN GROWTH BOUNDARY REMAND

DRAFT Buildable Lands Inventory: Development Types

Prepared 2/5/2015

0 0.25 0.5 1 Miles



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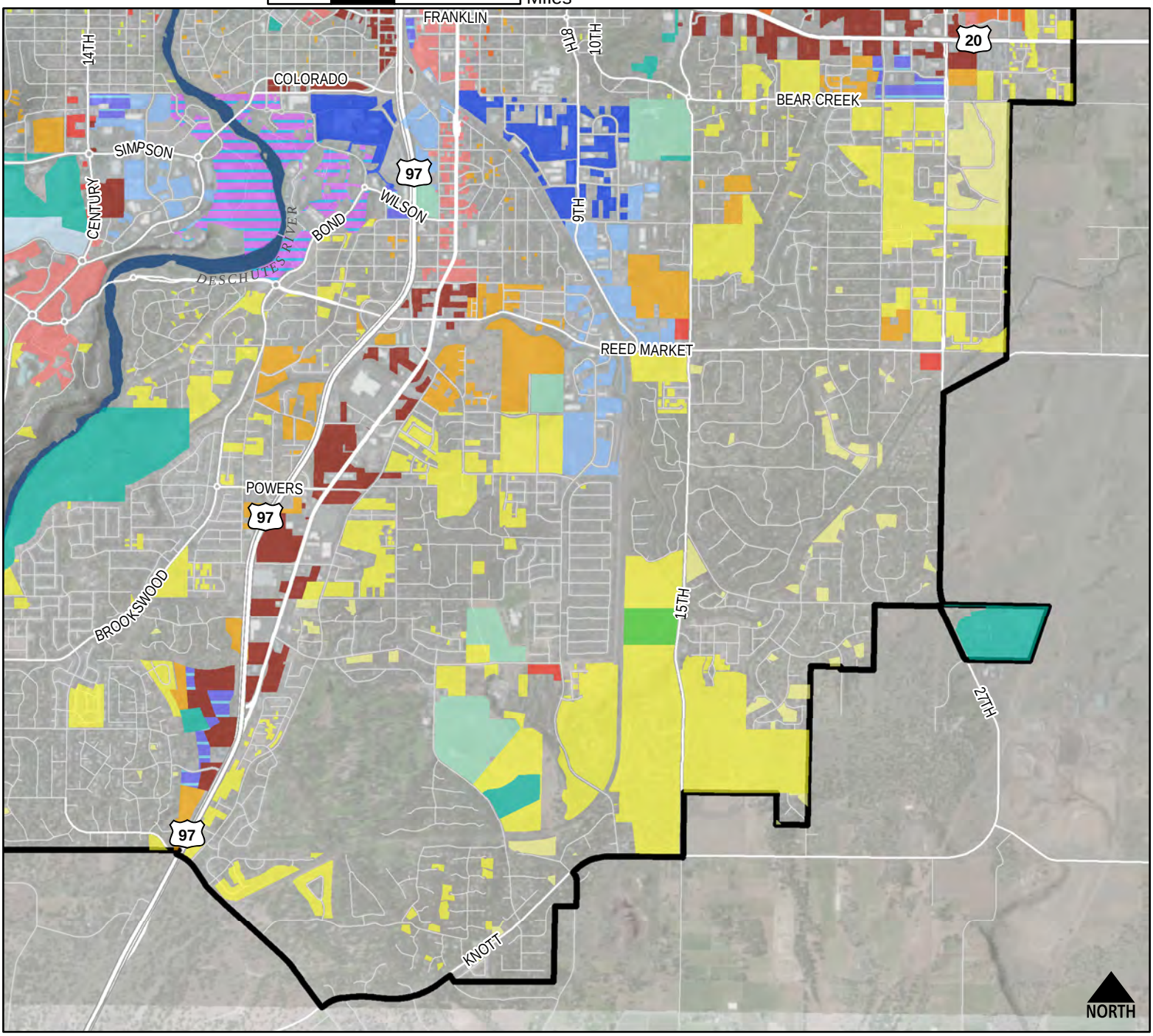
- School

URBAN GROWTH BOUNDARY REMAND

DRAFT Buildable Lands Inventory: Development Types

Prepared 2/5/2015

0 0.25 0.5 1 Miles



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- RL - Residential Urban Low Density

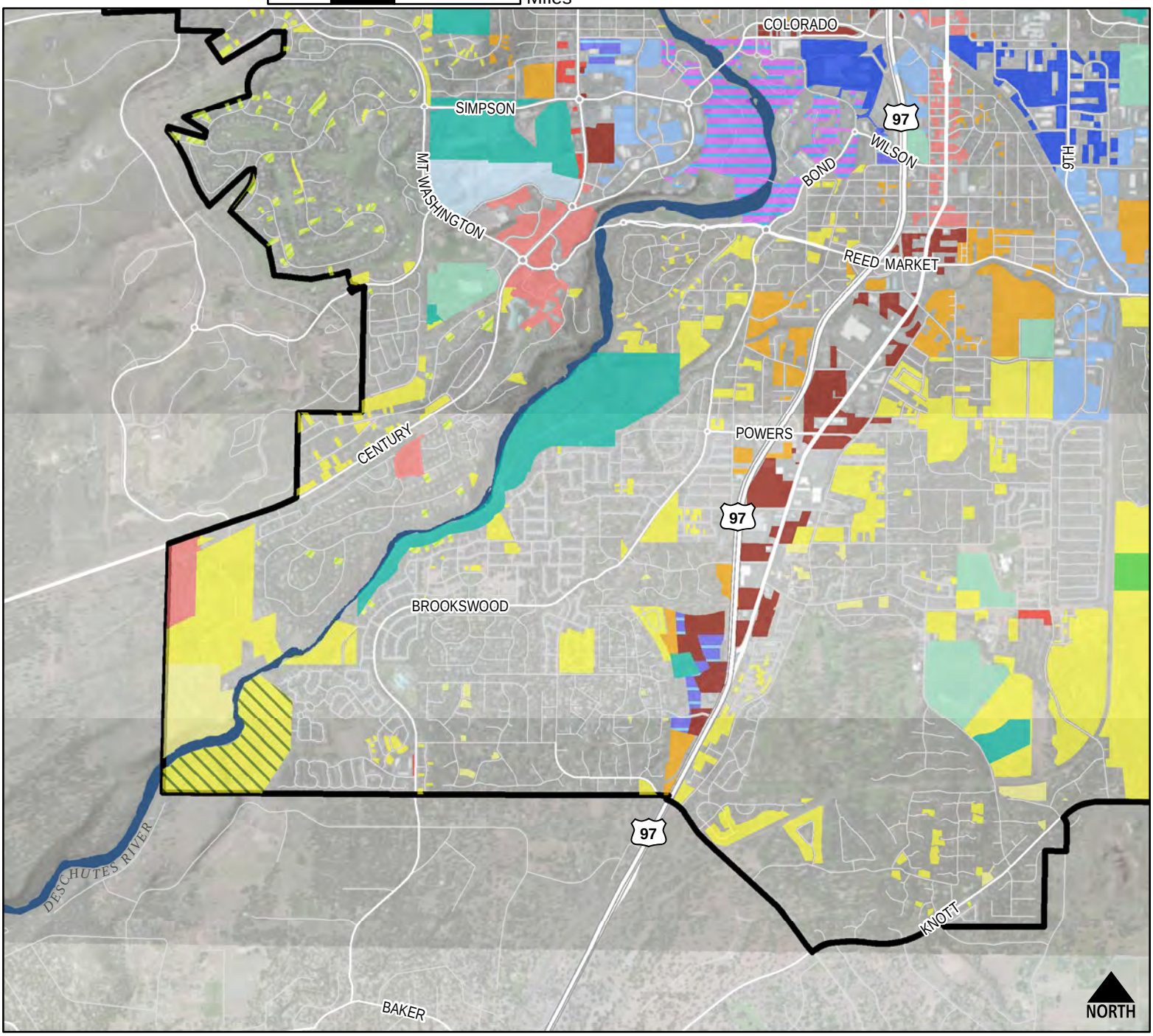
Other
- Park
- PF - Public Facilities
- School
- Institutional

URBAN GROWTH BOUNDARY REMAND

DRAFT Buildable Lands Inventory: Development Types

Prepared 2/5/2015

0 0.25 0.5 1 Miles



Development Types

Mixed Use
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- ME - Mixed Employment

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- PF - Public Facilities
- School
- Institutional

MEMORANDUM

710 WALL STREET
PO BOX 431
BEND, OR 97709
[541] 388-5505 TEL
[541] 388-5519 FAX
www.ci.bend.or.us

TO: **UGB REMAND TASK FORCE**

FROM: **LONG RANGE PLANNING STAFF, CITY OF BEND**

SUBJECT: **DRAFT BUILDABLE LANDS INVENTORY – SUB-ISSUE 2.2**

DATE: **AUGUST 31, 2011 (REVISED JANUARY 9, 2014)**

Introduction

This memo responds to Sub-issue 2.2 of the City of Bend Remand and Partial Acknowledgment 10-Remand-Partial Acknow-001795 (hereinafter referred to as Remand and Sub-Issue). This sub-issue is found on pages 18-26 of the Remand order. This version of the August 31, 2011 memorandum to the RTF incorporates edits that address comments from the Department of Land Conservation and Development.

This memo includes a discussion of the sub-issue and a staff recommendation. Because this memo includes only a partial BLI, draft findings that respond to all related remand issues will be prepared as remaining elements of the BLI are completed and submitted to DLCD for review. The contents of this memo and its preliminary estimates of housing capacity have been reviewed by DLCD staff. Based on discussions with DLCD staff, the City believes that the analysis contained in this memo, and its preliminary estimates of buildable lands and capacity, will be supported by DLCD staff as satisfactorily addressing the concerns expressed specifically under Sub-Issue 2.2. Both City and DLCD staff understand that these estimates will be subject to further revision based on a revised housing needs analysis (Sub-Issue 2.3) and any additional land use efficiency measures (Sub-Issues 3.1 and 3.2).

Remand Sub-issue 2.2

> *"Whether the City's Buildable Lands Inventory (BLI) is adequate for review. Whether the City correctly determined what lands are 'Vacant' and what lands are 'Redevelopable' Whether the City's estimate of the development capacity of those lands complied with the needed housing statutes and the Commission's rules"* [1]
>
> Conclusion:
>
> "The Commission denies the city's and Newland's appeals on this subissue, upholds the Director's Decision, including the director's disposition of objections (for the reasons set forth in the Director's

[1] Oregon Land Conservation and Development Commission, Remand and-Partial Acknowledgement Order 10-Remand-Partial Acnow-001795, November 2, 2011, p. 18.

> Decision) and remands the city's decision with instructions for it to develop a record and adopt a buildable lands inventory supported by findings that are consistent with state law. 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). 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.
>
> 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. Similarly, the 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. In addition, the City has agreed to reexamine lands it identified as "constrained" to determine whether the lands are buildable under OAR 660-008-0005.
>
> Finally, the Commission denies the objection of Newland for the reasons set forth in the Director's Decision, which are incorporated herein by this reference. Director's Decision, at 42-43." [2]

Discussion of Sub-Issue 2.2 Conclusion

In summary, the conclusion of Sub-Issue 2.2 directs the City to:

1) Explain the criteria used to determine whether lands are vacant or redevelopable, consistent with ORS 197.296, OAR 660-024 and 660-008.
2) Examine the amount and type of development that has occurred on vacant and redevelopable lands since the City's last periodic review.
3) Include vacant lots smaller than 0.5 acre in size in the inventory.
4) Project the capacity of the city's buildable lands (prior to implementing efficiency measures).
5) Reexamine lands defined as "constrained" to determine whether the lands are buildable under OAR 660-008-0005.

In order to comply with the mandates of this sub-issue, the previous BLI[3] has been completely revised, based on different categories of vacant and developed

[2] Ibid., p. 26.
[3] Pre-Remand Record p. 1288.

land, and new analyses of land use and development activity during the 1999-2008 period. Much of this information was in the record prior to the remand; however, the analysis of development trends is more extensive than in the previous BLI. In addition, land use and parcel data in the record for the previous BLI has been re-categorized, based on guidance from DLCD, to ensure consistency with state law. All of the data analyzed in the revised BLI existed and was available as of December 2008. The analyses which form the basis for the new BLI include no new data subsequent to December 2008.

Applicable Legal Standard

Following are provisions in state law that must be addressed in preparing a BLI for housing.

> ORS 197.296:
> * * *
> (2) At periodic review pursuant to ORS 197.628 to 197.650 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;
> * * *
> (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.
> * * *
> (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;
> * * *
> OAR 660-008-0005(2) and (6):

(2) "Buildable Land" means residentially designated land within the urban growth boundary, including both vacant and developed land likely to be redeveloped, that is suitable, available and necessary for residential uses. Publicly owned land is generally not considered available for residential uses. Land is generally considered "suitable and available" unless it:

a) Is severely constrained by natural hazards as determined under Statewide Planning Goal 7;
b) Is subject to natural resource protection measures determined under Statewide Planning Goals 5, 15, 16, 17, or 18;
c) Has slopes of 25% or greater;
d) Is within the 100-year flood plain; or
e) Cannot be provided with public facilities.

* * *

(6) "Redevelopable Land" means land zoned for residential use on which development has already occurred but on which, due to present or expected market forces, there exists the strong likelihood that existing development will be converted to more intensive residential uses during the planning period.

OAR 660-024-0050 (2007 Version):

(1) When evaluating or amending a UGB, a local government must inventory land inside the UGB to determine whether there is adequate development capacity to accommodate 20-year needs determined in OAR 660-024-0040. For residential land, the buildable land inventory must include vacant and redevelopable land, and be conducted in accordance with OAR 660-007-0045 or 660-008-0010, whichever is applicable, and ORS 197.296 for local governments subject to that statute. * * *

(2) As safe harbors, a local government, except a city with a population over 25,000 or a metropolitan service district described in ORS 197.015(14), may use the following assumptions in inventorying buildable lands to accommodate housing needs:

Substantial Evidence

The Conclusion section of Sub-Issue 2.2 summarizes the need for an adequate factual base and findings that are consistent with state law. The steps which make up the remainder of this memo provide the factual base serving as substantial evidence of compliance with state law in preparing a BLI:

- **Steps 1 & 2** - Explanation of criteria used to inventory vacant and redevelopable lands;
- **Steps 3 & 4** - Examination of the amount and type of development that has occurred since Bend's last periodic review;
- **Step 5** - Projected capacity of buildable lands;
- **Step 5** - Explanation with adequate factual and policy basis for projections that differ significantly from past trends;

- **Step 2** - Inclusion in the inventory of parcels smaller than 0.5 acre; and
- **Step 2** - Inclusion of parcels subject to CC&Rs, unless findings show why they are not available for development or redevelopment;
- **Step 2** - Inclusion of buildable acreage within parcels that are partially affected by "constrained" lands.

As required by ORS 197.296(5), the table provided as Attachment A summarizes the number, density, and average mix of housing types that have occurred since periodic review (1999-2008). This table also indicates trends in density and average mix of housing types during that period.

Explanation of Compliance

The remainder of this memo explains the steps that have been taken to ensure that the revised BLI will be fully compliant with state law. Step 1 outlines the definitions that have been used to classify residential land consistent with ORS 197.296, OAR 660-008, and OAR 660-024. Remaining steps describe in detail the methodologies used to estimate the amounts of acreage within these categories and the potential yield in housing units by category. The housing unit yield is the basis for preliminary estimates of capacity within the 2008 UGB. Those capacity estimates are also based in part on housing trends observed during 1999-2008. Those ten years correspond to the period since the last periodic review, consistent with ORS 197.296(5)(a).

Step 1: Criteria Used for Buildable Lands Inventory

In reviewing the BLI adopted in 2008, much of DLCD's concern centered on the City's interpretations of categories of land to be included in the inventory. In the remand order, LCDC ruled that the City's categories (vacant acreage, vacant platted lots, vacant with pending land use approvals, and redevelopable) were not consistent with state law. Except for "Redevelopable Land," the terms used in state law (above) for the categories of land to be included in a BLI are not defined. (Even the definition of "Redevelopable Land" is open to interpretation.) To ensure that on remand the correct categories would be used by the City in the revised BLI, we contacted DLCD staff for more specific guidance on how to define the categories of potentially buildable land within the UGB. This guidance was also needed to prevent double counting of some types of land, since several of the required categories could be considered to overlap, e.g. partially vacant and infill. Through a series of recent e-mail exchanges, DLCD staff provided their interpretations of state law in the form of definitions that could be used to conduct a GIS parcel-based analysis of every acre of residentially planned or zoned land in the Bend UGB as of 2008.[4] Those definitions as provided by DLCD, for land that is vacant, partially vacant, developed, redevelopable, or developed with infill potential, are shown below.

[4] E-mail from Gloria Gardiner, DLCD, to Damian Syrnyk, October 21, 2010. See also e-mail response from Gloria Gardiner, DLCD, to Karen Swirsky, dated June 9, 2011.

With clarity as to definitions, the revised BLI has been developed though a GIS database of all tax lots within the City. Information available in the database includes Deschutes County Assessor data such as real market land and improvement values, assessed values, property use information, and ownership information. The database also includes zoning and General Plan designation, property size, and the number and type of dwelling unit(s). Using this database, lots as of 2008 were assigned to the categories below:

Vacant (Completely) – Land planned or zoned for residential use that has $0 in improvements value. Properties that are planned or zoned for residential use, but are dedicated for other uses such as parks, common areas, rights of way or utilities are excluded. Publicly owned land is also excluded.

Partially Vacant – Land planned or zoned for residential use that has an improvements value greater than $0, but contains fewer dwelling units than permitted in the zone. Based solely on lot size, additional units could be built without removal of the existing structure, but the lot is not large enough to further divide. To identify partially vacant lands, we calculated the maximum number of units that could be built on each developed parcel that was not large enough to divide, based on the maximum density allowed per the development code and the parcel size. The number of existing units was then subtracted from the maximum number of units allowed. If one or more new units could be accommodated, the parcel was categorized as partially vacant. (Considerations such as setback and frontage requirements, lot coverage, or location of the existing unit on the lot were not considered, although those will be limiting factors in many cases.)

Developed – Land planned or zoned for residential use that is currently developed with the maximum number of dwelling units allowed in the zone, and the size of the lot does not allow for further division. (Residentially zoned land that is currently developed with employment uses is categorized as Developed.)

Redevelopable - 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." We have examined prior trends and examples of redevelopment to estimate the extent to which developed lots have redeveloped in the past, and the resulting housing yield. This work has focused on residentially zoned or designated lots that were completely developed, not large enough to further divide or to have additional units added without division, and where the existing unit(s) was demolished in order to develop at a higher density.[5] The City distinguished Redevelopable lands from those identified as Partially Vacant or with Infill Potential as these lands were not developed with the maximum number of units allowed by their respective zones and additional units could be developed on site.

Developed w/ 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 without the removal of the existing dwelling. As with Partially Vacant land, this category does not consider limiting factors such as

[5] E-mail from Gloria Gardiner to Damian Syrnyk, October 21, 2010.

setback and frontage requirements, lot coverage, or location of the existing unit on the lot.

Step 2: Classify the 2008 Parcel Database into Developed, Vacant, Partially Vacant, or Infillable Categories

Using criteria contained in the definitions above, every residentially designated or zoned lot/parcel within the current UGB as of 2008 has been placed into one of the following categories:

- Vacant (completely) land
- Partially vacant land
- Developed land
- Developed land with infill potential

State law also requires consideration of potentially redevelopable lands. Because potentially redevelopable lands also require a finding of a "strong likelihood" to redevelop, it is not possible to identify them in advance through a GIS-based analysis. The role of potentially redevelopable lands in this revised BLI is discussed in more detail under Step 6 as a sub-category of Developed lands.

For each of the other categories above we have analyzed total developable acres, as well as characteristics such as total number of lots/parcels, size of lots/parcels, zoning/plan designation, real market land and improvement values, assessed values, current property use, and ownership.

Within each of these categories, acres that are not buildable, based on criteria in OAR 660-008-0005(2), have been identified and tabulated, i.e. any land that:

a) Is severely constrained by natural hazards as determined under Statewide Planning Goal 7;
b) Is subject to natural resource protection measures determined under statewide Planning Goals 5, 15, 16, 17, or 18;
c) Has slopes of 25% or greater;
d) Is within the 100-year flood plain; or
e) Cannot be provided with public facilities.

At this point, the only criteria from OAR 660-008-0005(2) that have been used to exclude land as unsuitable are slopes in excess of 25% and land within the boundaries of the 100-year floodplain. All other residentially planned or zoned lands are considered buildable.

Results of this classification of 2008 residential parcels are summarized in Table 1. This summary indicates that as of 2008 there were a total of 7,210 acres of residentially zoned or designated land considered suitable and potentially available to accommodate needed housing units over the 2008-28 planning period. An additional 128 acres of potentially available land for housing were identified in two mixed-use zones, the Mixed-Use Riverfront (MR) Zone and the

Mixed Employment (ME) Zone. Note that for the RM and RH zones, Table 1 shows separate columns for a small amount of RM and RH acreage within the Medical District Overlay Zone (MDOZ). For purposes of estimating housing capacity, residential acres within the MDOZ are treated differently than RM and RH land elsewhere. Whereas the RM and RH zones in general permit housing as the primary use, within the boundaries of the MDOZ overlay the primary purpose is "to allow for the continuation and flexible expansion of the hospital, medical clinics, and associated uses in a planned and coordinated manner."[6] Housing is not precluded in the MDOZ, but medical and related uses are the highest priority. Residential acreage in the MDOZ is included in Table 1 because of its residential zoning, but is not treated as having capacity for new housing.[7] Instead, this land has been treated as employment land for Goal 9 purposes, and is expected to accommodate economic uses rather than housing.

Table 1
Preliminary BLI Acreage Summary - 2008

	PLAN DESIGNATED OR ZONED (NON-MDOZ)								MDOZ			
	RL	RS	RM	RH	PO/RM/RS	SR2 1/2	UAR10	TOTAL	RM	RH	MR[1]	ME[1]
Developed												
Lots	2590	11958	881	77	5	1	0	**15,512**	6	77	440	259
Existing Units	2537	10923	814	5	5	0	0	**14,284**	0	22	137	11
Total Acres	1152	3634	161	31	1	0	0	**4,979**	9	121	194	169
Constrained Acres	20	232	4	1	0	0	0	**257**	0	1	23	2
Total Potential Acres	0	0	0	0	0	0	0	**0**	0	0	0	0
Developed w/ Infill Potential												
Lots	307	9486	1962	171	6	0	0	**11,932**	8	16	n/a	n/a
Existing Units	448	10629	6524	1005	6	0	0	**18,612**	302	141	n/a	n/a
Total Acres	403	4201	751	59	2	0	0	**5,416**	16	23	n/a	n/a
Constrained Acres	14	238	12	0	0	0	0	**265**	0	1	n/a	n/a
Total Potential Acres	389	3963	739	59	2	0	0	**5,151**	16	21	n/a	n/a
Partially Vacant												
Lots	2	21	1292	59	0	0	0	**1,374**	31	0	n/a	n/a
Existing Units	0	0	1454	73	0	0	0	**1,527**	62	0	n/a	n/a
Total Acres	1	3	141	6	0	0	0	**151**	4	0	n/a	n/a
Constrained Acres	0	0	1	0	0	0	0	**1**	0	0	n/a	n/a
Total Potential Acres	1	3	140	6	0	0	0	**150**	4	0	n/a	n/a
Vacant												
Lots	92	2933	421	44	15	0	0	**3,505**	15	27	16	19
Existing Units	0	0	0	0	0	0	0	**0**	0	0	0	3
Total Acres	82	1778	183	22	3	0	0	**2,068**	34	32	30	105
Constrained Acres	6	144	8	0	0	0	0	**159**	0	0	1	5
Total Potential Acres	75	1634	175	22	3	0	0	**1,909**	34	32	28	100
Publicly Owned												
Lots	8	287	79	16	0	0	2	**392**	1	1	n/a	n/a
Existing Units	1	9	4	0	0	0	0	**14**	88	0	n/a	n/a
Total Acres	16	1089	100	25	0	0	506	**1,736**	5	3	n/a	n/a
Constrained Acres	0	186	7	0	0	0	0	**193**	0	0	n/a	n/a
Total Potential Acres	0	0	0	0	0	0	0	**0**	0	0	n/a	n/a
TOTAL												
Lots	2999	24685	4635	367	26	1	2	**32,715**	61	121	456	278
Existing Units	2986	21561	8796	1083	11	0	0	**34,437**	452	163	137	14
Total Acres	1654	10704	1337	143	6	0	506	**14,349**	68	179	224	274
Constrained Acres	40	801	31	1	0	0	0	**874**	0	2	24	7
Total Potential Acres	465	5599	1054	86	5	0	0	**7,210**	53	54	28	100

The majority of potentially developable residential acres (5,151) are in the Developed with Infill Potential (Infillable) category. The next largest category is completely Vacant land, with a total of 1,909 residential acres. For comparison, the previous BLI (submitted in 2009) had estimated a total of 3,260 vacant acres, when combining Vacant, Vacant–Pending Land Use, and Vacant–Platted Lots. Total Developed residential acres, with no further capacity, are estimated at

[6] Bend Development Code, Sec. 2.7.510.
[7] Since adoption of the MDOZ in 2004, only 5 housing units have been built within MDOZ boundaries. See also Director's Decision, Bend UGB Order 001775, January 8, 2010, p. 35.

4,979 acres (compared with 9,554 acres in the previous BLI). The BLI presented in this memorandum does not classify Vacant land by these previous categories.

Step 3: Determine the Amount and Types of Past Housing Development that Has Occurred on Residentially Designated or Zoned Lands

The City has examined all new residential construction that occurred from 1999 (start of last periodic review) through 2008 to determine the amount and type that has taken place on vacant lands, partially vacant lands, infill lands, and developed lands (redevelopment). As previously noted, we used a database of tax lots from 1999 that includes (for each property) characteristics such as the existing level of development, land and improvement values, zoning and general plan designation, whether it was large enough to divide, and whether a demolition permit has been issued. The City then examined the land divisions and building permit activity that took place on those properties for the 10-year period, 1999-2008.

The result of this work is a database of residential land divisions and new residential construction from 1999-2008, with each new division or building permit categorized as occurring on either vacant land, partially vacant land, developed infill land, or redeveloped land. The data also show the number of permits and resulting units by type of housing by year:

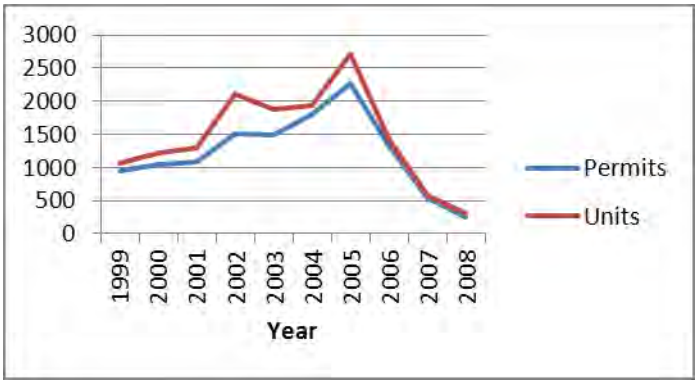
- Single-family dwelling
- Attached single-family dwelling
- Manufactured home on an individual lot
- Multi-family dwelling (two or more attached dwellings on a single lot).

Table 2 and Figure 1 summarize the total number of permits and new housing units built during 1999-2008:

Table 2

Year	Permits	Units
1999	945	1,057
2000	1,052	1,218
2001	1,085	1,305
2002	1,520	2,115
2003	1,484	1,879
2004	1,808	1,944
2005	2,263	2,720
2006	1,340	1,430
2007	543	583
2008	255	313
Total	**12,295**	**14,564**

Figure 1



Of interest in these summaries is the sharp spike in permits issued and housing units built during the middle portion of the period, and in particular during 2002-2005. These peaks coincided with the nationwide housing boom during this period. The steep decline from 2006-2008 suggests a more modest rate of construction activity that appears likely to continue in the near term, at least.

Step 4: Identify Trends of Development by Category of Lot/Parcel and Type of Housing

In this step, land divisions and building permits for new residential units in residentially planned or zoned areas were analyzed to estimate both the number and proportion of units built during the 1999-2008 period by the lot/parcel categories identified in Step 2. The result provides a compilation of total land divisions and units built by year and by:

- Vacant (completely) land
- Partially vacant land
- Developed land with infill potential
- Developed land (occurrences of redevelopment)

Table 3, below, summarizes the permits that were issued between 1999 and 2008 by land development status.

Table 3
Residential Building Permits by Land Category 1999-2008

Development Status	Building Permits	% of Total
Vacant	8,173	66.47 %
Redevelopment	2	0.002%
Developed (Replacement units)	48	0.39 %
Partially Vacant	80	0.65 %
Infill	3,724	30.29 %
Publicly Owned or Institutional/Open Space[8]	268	2.18%
Total	12,295	100.00%

[8] These are units that were built on land that is generally not available for housing. An example would be a portion of public park land that was sold off for housing, while acquiring additional residential land elsewhere for park expansion. During any given period, some small amount of publicly owned or open space land may be made available for housing. During the same period, some residential land is likely to be acquired for non-housing purposes, thus becoming unavailable for housing. This activity does not indicate a general trend toward housing development on publicly owned, institutional, or open space land; it simply reflects on-going real estate transactions that in the end have relatively little impact on land availability or housing production.

Table 3 indicates that roughly two-thirds of all permits issued were for development on vacant land, while approximately 30% took place on land categorized as infill. Based on the definition of "Redevelopment" cited in Step 1, there was virtually no redevelopment activity during 1999-2008. There were a total of 50 permits issued on lands where there was an existing unit AND where the existing unit was demolished. That might initially seem to indicate instances of redevelopment. However, when looking at these 50 permits, 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.

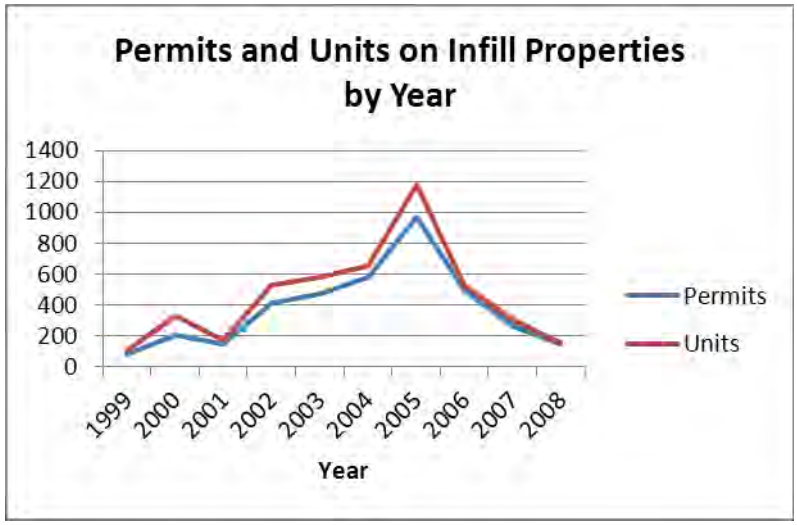
There were also very few permits issued for parcels categorized as partially vacant – less than 1% of the total. These were cases where housing units were built on parcels that had an existing dwelling(s), and there was enough area for additional dwellings to be built, but the parcel was not large enough to divide.

Because of the significant share of new housing built on lands classified as infillable during 1999-2008 we took a closer look at that category. As noted above, approximately 30% of all permits for new housing units during that period (3,724 permits) were issued for infill parcels. That resulted in 4,507 new housing units, out of a total of 14,564 new units built during that period. The distribution by year of infill units built between 1999-2008 is shown below in Table 4 and Figure 2:

Table 4

Year	Permits	Units
1999	97	120
2000	202	323
2001	128	154
2002	409	553
2003	474	586
2004	576	652
2005	943	1152
2006	488	518
2007	260	298
2008	147	151
Total	3,724	4,507

Figure 2



The spike shown in Figure 2 for units produced during 2004-06 on Infill lots is similar to that for construction of total units during that period, but even more pronounced for infill construction. This suggests that during the height of the housing boom, the owners of infill properties were much more motivated to

develop housing when compared to the housing market conditions that preceded and followed this housing boom. .

In 1999 there were 8,158 parcels that satisfied the criteria for a potential Infill lot, i.e. a developed residential lot large enough to divide further without removing the existing dwelling. Over 90% of those lots (91.4%) were less than one acre in size. Each of these infillable lots already had some improvement value greater than $0. Any of these potential Infill lots in theory might have been further developed with additional housing units, but most owners would have needed unusually strong motivation to do so. Conditions in the local housing market during 2004-06 were such that a reasonable person might have assumed more owners of potential Infill lots would act to divide their lots and sell them for new housing units. The trend data shows that only 5.7% of all infillable lots as of 1999 actually received building permits for residential infill development during the 1999-2008 period. By 2008 market conditions had changed significantly. At that time, a consensus was developing among economists and housing specialists that the boom conditions that existed during 2004-06 were unlikely to be repeated for the foreseeable future.

Step 5: Estimate Preliminary Capacity of Vacant Lands

Housing trends observed during the 1999-2008 period can be useful as a resource for estimating future housing capacity. Consideration of these trends is also required by ORS 197.296(5).

In Step 5 we consider the potential capacity of vacant lands, based on past trends and the amount of estimated suitable, available acreage. As discussed above, there are two sub-categories of vacant lands: Completely vacant and partially vacant. Table 5, below, summarizes the completely vacant acreage by zone as of 2008. Although not required by rule or statute, these completely vacant acres are further broken down in Table 5 into vacant platted lots, and raw, un-platted vacant acreage for the purpose of more accurately estimating the future capacity of these lands. As Table 5 indicates, as of 2008, there were 723 acres of buildable, completely vacant land in the form of platted lots; there were another 1,186 gross acres of completely vacant raw land.

Vacant Platted Lots

As part of the completely vacant category, Table 5 shows that in 2008 the 723 vacant, available, platted acres were made up of 2,965 individual lots (outside the MDOZ). The median size of these platted lots is .15 acre. Nearly all of these lots (90%) were in single-family residential zones (RL or RS), or were platted for single-family (attached) dwellings in other residential zones. Therefore, in terms of capacity, we assume that each of these vacant lots will be developed with one dwelling unit, for a total yield of 2,965 units.

Table 5
2008 Vacant Residential Lands Summary
And Potential Housing Unit Yield

	RESIDENTIAL PLAN DESIGNATED OR ZONED (NON-MDOZ)								MDOZ	
	RL	RS	RM	RH	PO/RM/RS	SR2 1/2	UAR10	TOTAL	RM	RH
Vacant - Platted Lots										
Lots	60	2601	266	23	15	0	0	**2,965**	8	9
Units	0	0	0	0	0	0	0	**0**	0	0
Acres	29	731	33	3	3	0	0	**800**	2	4
Constrained Acres	0	75	1	0	0	0	0	**77**	0	0
Total Available Acres	29	655	33	3	3	0	0	**723**	2	4
Potential Housing Yield	**60**	**2601**	**266**	**23**	**15**	**0**	**0**	**2,965**	**8**	**9**
Vacant - Non-Platted (Raw land)										
Lots	32	332	155	21	0	0	0	**540**	7	18
Units	0	0	0	0	0	0	0	**0**	0	0
Acres	52	1048	149	19	0	0	0	**1,268**	32	29
Constrained Acres	6	69	7	0	0	0	0	**82**	0	0
Total Available Acres (Gross)	46	979	142	18	0	0	0	**1,186**	32	28
Total Available Acres (Net)	37	773	112	15	0	0	0	**937**	NA	NA
Assumed Net Density[1]	2.10	4.90	13.40	27.47	0	0	0		NA	NA
Potential Housing Yield	**77**	**3790**	**1507**	**401**	**0**	**0**	**0**	**5,775**	**0**	**0**
Total Potential Housing Yield	**137**	**6391**	**1773**	**424**	**15**	**0**	**0**	**8,740**	**0**	**0**

[1] See Attachment A

Completely Vacant (Non-Platted) Land

Table 5 indicates a 2008 total of 1,186 gross buildable acres classified as completely vacant, non-platted (raw) land. Of this amount, 21% must be deducted for land for streets and utilities that will need to be dedicated, resulting in a net vacant acreage figure of 937 acres. Average net densities by zone for the 1999-2008 period have been calculated (see Attachment A of this memo), and are shown in Table 5 to estimate capacity for vacant raw land. Actual average densities for 1999-2008 range from 2.1 units/net acre in the RL zone to 16.9 units/net acre in the RH zone. (Because the 16.9 density figure for the RH zone, based on trends, is lower than the current minimum allowed density of 27.47, we assume that net buildable acres in the RH zone would be built out at 27.47 units/net acre, rather than the 16.9 actual average density observed during 1999-2008.) Applying the 1999-2008 densities to the available net acres in the completely vacant, raw land sub-category, (with an assumed density of 27.47 units/net acre for the RH zone), the resulting total yield in potential housing units is 5,775 units.[9] When combined with the estimated capacity of vacant platted lots, we estimate a total capacity of 8,740 housing units for completely vacant residential land.

[9] This estimate assumes development during the planning period of all vacant land within the UGB as of 2008. In reality this is extremely unlikely, since at any given time there is always some amount of vacant land in Bend or any other community. In 1999 there were 5,086 acres of vacant, raw (un-platted) land, and in 2008 there were 2,064 acres in that category. It would seem safe to assume that at the end of the 2008-28 planning period there will still be some amount of un-developed residential land, being held by owners who for various reasons have chosen not to make their buildable land available for housing. A capacity estimate that assumes build-out of every acre of vacant land is unavoidably inflated.

Partially Vacant Land

For the Partially Vacant category, Table 1 indicates a 2008 total of 150 acres of potentially available land. As defined above, these are parcels that are planned or zoned for residential use, that are currently developed, but contain fewer dwelling units than permitted in the zone; additional units can be built without the removal of the existing dwelling, but the lot is not large enough to further divide. Nearly all of these partially vacant lots (94%) are located in the RM zone. Analysis of all partially vacant lots during 1999-2008 shows that very few of them experienced further development that resulted in additional housing units. Of the 12,295 permits issued for new housing units during that period, only 80 (less than 1%) were issued for partially vacant lots. As with developed Infill lots, owners of partially vacant lots generally must be highly motivated to build additional units on these lots. As noted above, the market conditions that produced some new housing on partially vacant lots during 1999-2008 are not likely to be experienced again in the foreseeable future. There are also significant practical difficulties to building more units on partially vacant lots. Because the existing units are not removed, and because these partially vacant lots are not large enough to further divide, there is very little room left for adding units. What remaining area might be technically available for more housing units is likely to be in use for parking, open space, or landscaping. For these reasons, and because of the observed trend of very limited amounts of new housing built on partially vacant lots during 1999-2008, the City assumes only a negligible housing unit yield from partially vacant lands during the 2008-28 planning period.

When the estimated yield from buildable, available completely vacant platted lots (2,965 units) is combined with the estimated yield from completely vacant raw land (5,775) as of 2008, we estimate that these completely vacant lands within the current UGB have a theoretical capacity of approximately 8,740 units. Allowing for a very limited yield from potentially available partially vacant lands, this estimate for all vacant and partially vacant lands might reasonably be rounded up to 8,750 units for the 2008-28 planning period.

Step 6: Estimate Raw Capacity of Developed Lands

As discussed above, there are three categories of Developed residential lands to be considered in the BLI: Developed with no further opportunities for new development; developed with infill potential; and developed parcels that may be redeveloped with a larger number of housing units, assuming there is evidence of a “strong likelihood” to do so. Table 1 indicates that in the first category, as of 2008, there were 15,512 fully developed residential lots in the current UGB, comprising 4,979 acres that are fully built out with no additional capacity. Below, we estimate the capacity of the other two categories of Developed residential lands – those with infill potential and those that may be redeveloped.

Infill Land

Table 1 indicates that there are 11,932 residential lots totaling 5,151 acres (not including MDOZ; see Footnote 7) that are potentially available for additional infill development. Although there may appear to be considerable potential for additional capacity on these infill lands, the history of infill development during 1999-2008 shows that only a relatively small proportion of them actually yielded additional units. In 1999 there were 8,158 infillable lots within the UGB. Between 1999 and 2008, infill activity resulting in permits for new units occurred on only 5.7% (465) of those lots, comprising 26% of all potentially infillable acres. Looking at patterns of infill development during 1999-2008, we see that some amount of infill development occurred in all residential zones, although it was mostly concentrated in the RS zone:

Table 6
Proportion of Divided Acres on Infill Lots by Zone 1999-2008

Zone	Percentage of Divided Acres
RL	7.96%
RS	77.39%
RM	13.66%
RH	0.99%
Total	100%

As illustrated in Figure 2 above, the amount of infill development peaked dramatically during the 2004-06 period, coincident with the height of the housing boom. This strongly suggests that the volume of infill housing development is influenced by the perceived strength of the local housing market and the inclination of the owners of infillable lots to make them available for more development. As economic conditions favor or stimulate all types of housing development, owners of some infillable lots are increasingly motivated to sell parts of their land for new housing, or to develop new units themselves. As shown in Table 4, the 3-year period 2004-06 accounted for 52% of total infill units built during the ten years of 1999-2008; 2005 alone accounted for 26% of the 10-year total. As of 2008, a general consensus was emerging that those economic and housing market conditions that drove the spike in infill housing development during 2004-06 are unlikely to be repeated in the foreseeable future.

One way of realistically estimating capacity of infillable lands is to consider the pattern of previous infill activity based on the size of infillable parcels. Based on trends observed during 1999-2008 we can estimate the proportion of small lots (<1 acre) and the proportion of large lots (>1 acre) that will experience infill during the planning period. During the 1999-2008 period, 4% of infillable lots less than 1 acre divided (on 4.5% of the infillable acres of small lots), and 36% of infillable lots larger than 1 acre divided (on 51% of the infillable acres of large lots). Applying these same proportions to infillable land as of 2008 results in estimates of 452 lots (157 acres) smaller than 1 acre in size, and 231 lots (850 acres) larger than 1 acre in size that could be expected to see infill development during the planning period. Assuming these acres are distributed among residential zones and plan designations similar to observed patterns during 1999-2008 (Table 6), we can estimate that a total of 1,007 acres will experience infill, as shown in Table 7, below.

Table 7
Projected Potential Developed Infill Acres by Zone 2008-28

	Acres		
Zone	Small Lots	Large Lots	Total
RL	12.49	67.71	80.20
RS	121.33	657.96	779.29
RM	21.41	116.10	137.51
RH	1.55	8.41	9.96
Total	156.78	850.17	1006.95

The next step was to estimate the number of units that might be accommodated on these 1,007 acres. Actual average densities of infill properties for 1999-2008 were examined by zone and lot size, and by applying those densities to the estimated number of acres that would infill, a resulting raw unit yield of 4,893 was derived (Table 8).

Table 8
Projected Capacity of Infill Acres by Zone 2008-28

	Small Lots			Large Lots			Total
Zone	Acres	Density	Capacity (Units)	Acres	Density	Capacity (Units)	Capacity (Units)
RL	12.49	2.21	28	67.71	1.83	124	152
RS	121.33	7.57	918	657.96	3.36	2,211	3,129
RM	21.41	11.56	247	116.10	9.17	1,065	1,312
RH	1.55	18.50	29	8.41	32.35	272	301
Total	156.78	n/a	1,222	850.17	n/a	3,671	4,893

Next, the raw estimate of 4,893 was adjusted to deduct existing units that would be assumed to already exist on these infillable lots. The average number of existing housing units on lots less than 1 acre in size in 2008 was 1.2. The average number of existing units on lots larger than 1 acre was 8.03. By applying these figures to the estimated number infillable lots by lot size, it can be estimated that a total of 2,397 existing units should be deducted from the raw estimate of 4,893 total units on infillable acres. The result of this calculation is a final estimate of 2,496 new units on infillable land during the planning period.

Redevelopable

The final sub-category of the Developed lands category is redevelopment potential. The criterion for redevelopment, as provided in Step 1 with guidance from DLCD, is very narrow. Based on state law, DLCD considers that redevelopment occurs only on a completely developed lot, which is not large enough to further divide, where the existing unit(s) is demolished in order to develop at a higher density. In addition, state law requires evidence of a “strong

likelihood" of redevelopment in order to assume any amount of redevelopment activity.[10] Given these criteria, as discussed above, only two cases of residential redevelopment were identified for the entire 1999-2008 period. Potentially, any of the 1,355 developed lots in the partially vacant category or the 11,873 developed lots in the infill category might be considered a candidate for redevelopment. However, when the evidence indicates that redevelopment as defined here essentially did not occur during the extraordinary boom years of 1999-2008, the trend data does not suggest r a strong likelihood of redevelopment during the 2008-28 planning period. For the purpose of this analysis, the BLI does not include measurable yield from redevelopable lands. This conclusion will likely need to be reexamined after the conclusion of the housing needs analysis and further work on efficiency measures (See Tasks 3.1 and 3.2). The City may need to consider revising the estimate of "redevelopable" lands in the UGB if efficiency measures are proposed that would increase the likelihood that certain parcels would be redeveloped (e.g. rezoning to allow higher densities of housing.)

Total Residential Lands Capacity

Table 9, below, summarizes preliminary estimates of residentially zoned or designated lands capacity for the 2008-28 planning period:

Table 9

Residential Land Category	Potential Capacity (Units)
Vacant	8,740
Partially Vacant	10
Infill	2,496
Redevelopment	0
Total	**11,246**

Step 7: Housing Capacity of Mixed-Use Zones

ORS 197.296(4)(a) includes "Lands that may be used for a mix of residential and employment uses under the existing planning or zoning" among the types of lands that must be included in the buildable lands inventory. Bend has three mixed-use districts: the Mixed Employment District (ME), the Mixed Use Riverfront District (MR) and the Professional Office District (PO). Each of these allows some housing, as well as various combinations of retail, commercial, public/institutional, and light industrial uses. The PO zone applies to only a few very small parcels that are adjacent to each other (off of Empire Ave.), with a combined acreage of approximately 7.5 acres. There is no history of development of any kind on PO land. These parcels are currently included in the Bend Economic Opportunities Analysis inventory of employment land.

[10] OAR 660-008-0005(6): "'Redevelopable Land'" means land zoned for residential use on which development has already occurred but on which, due to present or expected market forces, there exists the strong likelihood that existing development will be converted to more intensive residential uses during the planning period."

As of 2008, the MR zone (Old Mill District) contains a total of 222 non-constrained acres, of which 28 acres are vacant.[11] Single-family and multi-family housing are listed as permitted uses in the Bend Development Code for the MR zone. During the 1999-2008 period permits were issued for a total of 115 housing units in this zone. The MR zone does not establish minimum or maximum densities for housing. The existing housing units in this zone occupy 7.74 acres, and have an average density (2008) of 15 units/acre. The 7.74 acres of housing represent 4% of total, developed MR zone acreage. Assuming this ratio of housing to non-housing acreage continues into the planning period, we could expect 1.12 acres of the remaining 28 acres of vacant MR land to accommodate new housing. Assuming also a continuation of the 2008 average density of 15 units/acre, another 17 housing units could be expected in the MR zone during the planning period.

Although it is a mixed-use zone, the ME zone has a stronger emphasis on employment uses. Its purpose is described in the Bend Development Code as follows:

> The Mixed Employment zone is intended to provide a broad mix of uses that offer a variety of employment opportunities. Where Mixed Employment Districts occur on the edge of the city, their function is more transitional in nature providing service commercial businesses and supporting residential uses in an aesthetic mixed environment. In this instance, when residential units are provided, the units shall be within easy walking distance to the commercial and employment uses.[12]

Both single family housing and multi-family housing are listed as conditional uses in the ME zone, rather than as outright permitted uses, as in the MR zone. As of 2008, there were 11 housing units in the ME zone, and a total of 100 vacant,[13] non-constrained acres in the ME zone. During the 1999-2008 period there were no permits issued for any housing units in the ME zone. These 100 acres are currently included in the Bend Economic Opportunities Analysis inventory of vacant, available employment land. Given the basic purpose of the ME zone, and the absence of any new housing production during the 1999-2008, we assume all remaining vacant acreage in this zone will be occupied by non-residential employment uses.

Step 8: Total Estimated Capacity 2008-28 by Category

Table 10 below summarizes estimates derived from the steps discussed above, including estimated capacity from mixed-use zones, to arrive at a raw, grand total capacity estimate by land category. Final capacity estimates will be revised

[11] Because acreage in the MR and ME zones was considered as available for employment uses, and is tallied in the Bend Economic Opportunities Analysis, vacant acres in these zones are defined as provided in OAR 660-009-0005.
[12] Bend Development Code, Chapter 2.3, Sec. 2.3.100.
[13] Because acreage in the MR and ME zones was considered as available for employment uses, and is tallied in the Bend Economic Opportunities Analysis, vacant acres in these zones are defined as provided in OAR 660-009-0005.

based on an updated Housing Needs Analysis and any additional land use efficiency measures that may be identified.

Table 10

Residential Land Category	Potential Capacity (Units)
Vacant	8,740
Partially Vacant	10
Infill	2,496
Redevelopment	0
Mixed-Use Capacity	17
Total	**11,263**

The preliminary capacity estimate of 11,263 units represents 67.5% of the 16,681 total needed housing units for the 2008-28 planning period. This estimate can be compared with an initial capacity estimate of 10,059 units (60% of needed units), prior to efficiency measures, from the previous BLI. Additional measures taken as a result of the updated Housing Needs Analysis and in compliance with Goal 14 may increase further the final capacity estimate for the current UGB.

Conclusion

It is important to emphasize that the contents of this memo do not make up a complete, final BLI. Because Bend is under remand, and because Sub-Issue 2.2 must be addressed specifically, this memo combines several of the most important steps in the process of compiling a BLI for housing. The next step in this process is for the City to complete revision the Housing Needs Analysis, as directed by Sub-Issues 2.3 and 2.4. One possible outcome of that step could be a revised estimate of acres needed for multi-family housing, with corresponding revisions to estimates of acres assumed to be available for that housing type. Finally, we will consider any additional land use efficiency measures that may be warranted, in response to Sub-Issue 3.1. To the extent additional measures are identified, capacity estimates contained in this memo will be further adjusted.

Recommendation

City staff recommends that the Remand Task Force accept this memo as a preliminary Buildable Lands Inventory satisfying Remand Sub-Issue 2.2.

Attachment A

HOUSING UNITS BY TYPE AND PLAN DESIGNATION

PRE-1998 [1]

	RL		RS		RM		RH		ALL RESIDENTIAL ZONES			
	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]	Pre-1998 Units - % of Total	
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			
	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]	New Units - % of Total	
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			
	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]	All Units - % of Total	
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.

Appendix C: BLI Update 2014 – Detailed Methodology

SOURCE DATA, ATTRIBUTES, AND METHODOLOGY

Source Geography Data: Deschutes County GIS tax lot data dated July 27, 2014 was used to create a base layer of all properties inside and within 3 miles of the existing Bend UGB. If a portion of the property was within the 3 mile buffer, the entire property was included.

General Property Info: Deschutes County Assessor's Office tabular data dated July 27, 2014 was joined to include attributes such as ownership information, situs address, subdivision name/block/lot. (Relationship with property is one-to-one).

Inside or Outside UGB: The attribute "IN_UGB" indicates whether the property is inside or outside the UGB. For properties only partially inside the UGB, they were split into two polygons so that they could be accounted for uniquely.

Zoning and General Plan Designation: The attributes "ZONING" and "GENPLAN" were populated with the current zoning and general plan designation of each property. If the property contained two or more zones, they were split into multiple polygons so that they could be accounted for uniquely.

Property Classification and Structure Info: Deschutes County Assessor's Office tabular data dated July 27, 2014 on property classification and structure information (one to many relationship between property and structures) was first summarized/flattened to identify the 1st, 2nd, 3rd, 4th, 5th, and 6th structures on the property (ordered by improvement value), then joined to the property record. Attributes include the property class clode (PROPCLAS), structure code (STATCLAS), building square footage (CLSxSQFT), real market improvement value (CLSxIMPV) and year built (CLSxYRBT) for each of up to 6 structures per property.

Total Improvement Value: Total improvement value was calculated as the sum of all 6 improvement value listings.

Property Use and Type: The attribute "PROPUSE" was populated to indicate the general property use, e.g., Single Family Residential, Multi-Family Residential, Employment, and Open Space. The attribute "USETYPE" was populated to indicate the specific type of use on the property, e.g., Single Family Dwelling, Duplex, Office, or Golf Course. These two attributes were populated using a combination of Assessor's Office data (property class and structure codes), City building permit data, aerial photography, and existing City parcel inventory data.

Dwelling Units: Attributes were added to summarize the number of dwelling units on each property by TYPE of dwelling unit. The attributes UNITSFD contains the number of Single Family Dwelling units on the property. UNITDUPX = Duplex. UNITTRI = Triplex. UNITFOUR = Fourplex. UNITAPT = Apartment Complex. UNITADU = NOT ADU, but Mobile Home Park

units (sorry…we don't have ADU counts, but I did need a place to store mobile home units after all the fields were already created). UNITCNDO = Condominium. UNITTOTL = Calculated field of the sum of all unit types.

Comments: A variety of comments were entered about property characteristics, planned development, or clarifications needed.

Old Development Status: If the tax lot number and geometry of the polygon did not change from the 2008 BLI, the development status indicated in that previous BLI was brought over for general reference in the OLDDEVST attribute.

New Development Status: This indicates the 2014 updated development status. This was populated for land planned or zoned for residential use and for land planned for a mix of residential and non-residential use.

For all land planned or zoned for residential use ("PLANCAT" = 'Residential' OR "ZONECAT" = 'Residential'), assign Residential BLI status as follows:

1. Public land ("GOVTOWND" <> ''): Publicly Owned
2. Private land ("GOVTOWND" =''):
    a. No improvement value ("CLS1IMPV" =0):
        i. No identified land use ("PROPUSE" = ' '): vacant
        ii. Right-of-way ("PROPUSE" = 'Rights of Way'): developed
    b. Open Space ("PROPUSE" = 'Open Space' OR "PROPUSE" = 'Public Park'): developed (unless otherwise indicated by specific information)
    c. Employment & institutional uses: ("PROPUSE" = 'Employment' OR "PROPUSE" = 'Institutional'): developed
    d. Residential use ("PROPUSE" = 'Single Family Residential' OR "PROPUSE" = 'Multi-Family Residential')
        i. no existing units ("UNITTOTL" =0):
            1. parking, storage, condo common areas, nursing homes, etc. ("USETYPE" <> ' ' AND "USETYPE" <> 'Mobile Home Park'): developed
        ii. existing units ("UNITTOTL" >0):
            1. Restrictive CC&Rs ("CCRS" = 'Yes'): developed
            2. No restrictive CC&Rs ("CCRS" = ''):
                a. No additional units allowed based on gross density ("AddUnitGr" =0): developed
                b. Additional units allowed based on gross density ("AddUnitGr" >0):
                    i. Large enough to further divide ("CANDIVIDE" = 'YES'): developed with infill potential
                    ii. Not large enough to further divide ("CANDIVIDE" = 'NO')

For land in mixed use zones and commercial zones

1. improvement value >0 or current land use identified: developed
2. improvement value = 0 and no current land use identified: vacant

2011 update of old development status: If the tax lot number and geometry of the polygon did not change from the 2008 BLI, the development status indicated in that previous BLI using the updated, 2011 categories, was brought over for general reference in the "2011DevSt" attribute.

Employment BLI Status: The BLI status for all land planned or zoned for employment use (including mixed use designations & zones) was assigned using the statutory definitions for employment land.

For all land planned or zoned for employment use (including mixed use designations & zones), assign Employment BLI status as follows:

1. <0.5 ac: developed
2. 0.5 ac to 5 ac:
    a. improvement value >0 or current land use identified: developed
    b. improvement value = 0 and no current land use identified: vacant
3. ≥5 ac:
    a. area occupied by permanent buildings or improvements per aerial photo review < 0.5 ac: vacant
    b. area occupied by permanent buildings or improvements per aerial photo review ≥ 0.5 ac: developed

Physical Constraints: Areas covered by 25% or greater slopes AND/OR within the 100 year floodplain are considered physically constrained. The City's Upland Areas of Special Interest (ASIs) were not included in the physical constraints analysis. Where 2ft elevation contour data existed from 2004 orthophotography, a detailed 25% slope dataset was used. For areas outside this spatial extent, the County's less detailed 25% slope data was used. FEMA floodplain data from Deschutes County was used. Those layers (slope and floodplain) were merged together to create the "constraints" layer. The acreage of constraints for each property was then calculated and that value was entered into the BLI attribute "CONSTRACR." (Merged slope and floodplain layers, dissolved polygons, intersect with BLI, calculated area for each polygon, summarized area by property, joined summary data to BLI, calculated field.) The inverse, unconstrained acres, was calculated as total acres minus constrained acres, and entered into the attribute "UNCST_ACR".

Zoning Discrepancies: ORS 197.296(4)(a) requires that lands be included in the inventory if they are planned OR zoned for residential use. The attribute "ZONEDISCRE" indicates whether a discrepancy exists. If a property has a non-residential general plan designation but is zoned for residential use, the attribute is populated with "YES." (This has only been completed for lots within the existing UGB.)

Infill Potential: To record whether or not there was infill potential on a developed lot, the attribute "CANDIVIDE" was added. Records were populated with "YES" or "NO" based on their General Plan designation and whether or not the lot was large enough to divide into two or more

new taxlots. The current development code was used (table 2.1.500) which lists the minimum lot area per zone. For taxlots that met the following criteria, the field was populated with “YES.” Other residentially-designated (RL, RS, RM, RH, and UAR) lots that did not meet his criteria received a “NO” in that field. Non-residentially designated lands received a “N/A” unless their current zoning was residential. (This has only been completed for lots within the existing UGB.)

“CANDIVIDE” = ‘YES’ IF

"GENPLAN" = 'RL' AND "AREA" >= 30000 (15,000 sqft minimum lots)
"GENPLAN" = 'RS' AND "AREA" >= 8000 (4,000 sqft minimum lots)
"GENPLAN" = 'RM' AND "AREA" >= 6000 (3,000 sqft minimum lots)
"GENPLAN" = 'RH' AND "AREA" >= 5000 (2,500 sqft minimum lots)
"GENPLAN" = 'UAR' AND "AREA" >= 871200 (10 acre minimum lots)
"GENPLAN" = 'PO/RM/RS' AND "Area" > 8000 (These lots were part of a subdivision decision for RS-designated lots)

For properties with the ZONEDISCRE flag of “YES” (those in residential zones but not plan-designated residential) the following criteria was used.

"ZONING" = 'RL' AND "AREA" >= 30000 (15,000 sqft minimum lots)
"ZONING" = 'RS' AND "AREA" >= 8000 (4,000 sqft minimum lots)
"ZONING" = 'RM' AND "AREA" >= 6000 (3,000 sqft minimum lots)
"ZONING" = 'RH' AND "AREA" >= 5000 (2,500 sqft minimum lots)
"ZONING" = 'UAR' AND "AREA" >= 871200 (10 acre minimum lots)
"ZONING" = 'SR2 1/2' AND "AREA" >= 217800 (2.5 acre minimum lots)

Maximum Units: To help identify partially vacant properties (those that can accommodate additional residential units but are not large enough to divide), the maximum number of units allowed on the property was calculated. The calculation was made by multiplying buildable acres (total acres minus physically constrained acres) by maximum net density allowed for the zone. Net density was used because we are working with small parcels (too small to further divide) and we have assumed that these lots will not require any additional rights of way. A gross to net conversion was used that factored a 21% ROW allowance.

If
"CANDIVIDE" = 'NO' AND (("GENPLAN" = 'RL') OR ("ZONEDISCRE" = 'YES' AND "ZONING" = 'RL'))
Then the MAXUNITS attribute was calculated as the integer
Int (([ACRES]- [CONSTACR]) * 2.8)

If
"CANDIVIDE" = 'NO' AND (("GENPLAN" = 'RS') OR ("ZONEDISCRE" = 'YES' AND "ZONING" = 'RS'))

Then the MAXUNITS attribute was calculated as the integer
Int (([ACRES]- [CONSTACR]) * 9.2)

If
"CANDIVIDE" = 'NO' AND (("GENPLAN" = 'RM') OR ("ZONEDISCRE" = 'YES' AND "ZONING" = 'RM'))
Then the MAXUNITS attribute was calculated as the integer
Int (([ACRES]- [CONSTACR]) * 27.5)

If
"CANDIVIDE" = 'NO' AND (("GENPLAN" = 'RH') OR ("ZONEDISCRE" = 'YES' AND "ZONING" = 'RH'))
Then the MAXUNITS attribute was calculated as the integer
Int (([ACRES]- [CONSTACR]) * 54.4)

Additional Units: To determine whether or not each lot could accommodate additional units, the attribute “ADTLUNIT” was populated by subtracting existing total units (UNITTOTL) from the maximum number of units (MAXUNTS). If the result was a negative number (i.e., there are more units existing than are allowed under the current density allowances), the AddtlUnits field was populated with a 0.

Special Districts: The attribute “SPECDIST” has been added to the BLI to indicate whether the property is within a special planned district, such as the Medical District Overlay Zone or Murphy Crossing Refinement Plan. These districts are described in Chapter 2.7 of Bend’s Development Code.

CC&Rs: The attribute “CCRS” has been added to the BLI to indicate whether there are CC&Rs in place that limit the development/redevelopment of the land. This attribute was populated by APG based in information provided by the City of Bend on presence and restrictions in CC&Rs by subdivision. CC&Rs were generally assumed to apply to all phases of a given subdivision unless information to the contrary was available.

Publicly Owned Lands: As stated in ORS 660-008-0005(2) and (6), publicly owned land is generally not considered available for residential uses. The attribute “GOVTOWND” was populated to indicate the type of public agency that owns the property. Possible values include City, County, State, Federal, College District, Irrigation District, Parks District, School District, and Other Special District (for owners such as the library district and fire district).

Plan Category: The attribute “PLANCAT” categorizes all parcels in the UGB into a broad category based on plan designation, consistent with the EOA and HNA:

a. Commercial / Mixed Use: Central Business District (CB), Convenience Commercial (CC), General Commercial (CG), Limited Commercial (CL), Mixed Riverfront (MR), Professional Office (PO and PO/RM/RS)

b. Industrial / Mixed Employment: General Industrial (IG), Light Industrial (IL), Mixed Employment (ME)*
c. Public Facilities: PF designation
d. Residential: RL, RS, RM, RH, SR2.5, UAR10/URA
e. Mining: SM designation

Zone Category: The attribute "ZONECAT" categorizes all parcels in the UGB into a broad category based on zoning, as follows:

a. Commercial / Mixed Use: Central Business District (CB), Convenience Commercial (CC), General Commercial (CG), Limited Commercial (CL), Mixed Riverfront (MR), Professional Office (PO and PO/RM/RS)
b. Industrial / Mixed Employment: General Industrial (IG), Light Industrial (IL), Mixed Employment (ME)*
c. Public Facilities: PF
d. Residential: RL, RS, RM, RH, SR2.5, UAR10/URA
e. Mining: SM

Land Type: The attribute "LANDTYPE" categorizes land into Employment, Mixed Use, Residential, or Mining land, as follows:

a. Land in the Residential plan category and land with a residential zone category, except for land in the MDOZ and land with a SM plan or zone: Residential
b. Land in the MDOZ with a residential plan category: Mixed Use
c. Land with SM plan or zone: Mining
d. Land in the Commercial / Mixed Use plan category that does not have a residential zone category (except UAR) or SM plan or zone: Mixed Use
e. Land in the Industrial / Mixed Employment and Public Facilities plan categories that do not have a residential zone category (except UAR) or SM plan or zone: Employment

Aerial Photo Review: The attribute "REVIEW" indicates employment land lots or parcels "equal to or larger than five acres" for further screening using aerial photography to determine whether "less than one half-acre is occupied by permanent buildings or improvements" based on the following:

a. LANDTYPE = Employment
b. ACRES >= 5
c. CLS1IMPV >0 (indicates improvements) or "PROPUSE" is other than null or Park.

Pending land use applications: This field was added to capture information about pending land use applications for the parcel. Populated from the "Comment" field for those comments that included information about land use applications, and supplemented with information provided by current planning staff on October 2, 2014 for large vacant parcels.

MaxUnitsGr: Maximum units based on maximum gross density and total acres:

If (("GENPLAN" = 'RL') OR ("ZONEDISCRE" = 'YES' AND "ZONING" = 'RL'))
Then MaxUnitsGr = Int ([ACRES] * 2.2)

If (("GENPLAN" = 'RS') OR ("ZONEDISCRE" = 'YES' AND "ZONING" = 'RS'))
Then MaxUnitsGr = Int ([ACRES] * 7.3)

If (("GENPLAN" = 'RM') OR ("ZONEDISCRE" = 'YES' AND "ZONING" = 'RM'))
Then MaxUnitsGr = Int ([ACRES] * 21.7)

If (("GENPLAN" = 'RH') OR ("ZONEDISCRE" = 'YES' AND "ZONING" = 'RH'))
Then MaxUnitsGr = Int ([ACRES] * 43)

AddUnitGr: Additional units possible based on maximum gross density and total acres -- populated by subtracting existing total units (UNITTOTL) from the maximum number of units based on gross density (MaxUnitsGr) ([MaxUnitsGr]- [UNITTOTL]). If the result was a negative number (i.e., there are more units existing than are allowed under the current density allowances), the AddUnitGr field was populated with a 0.

Existing Land Use: This is an Envision Tomorrow attribute. “EX_LU” is based on the “USETYPE” field. The look up table for the translation from “USETYPE” (a very specific and detailed use of the property) to Envision Tomorrow is called “USETYPE to EX_LU Translation”

Existing Population, Housing, and Employment: These are attributes to use within Envision Tomorrow. The attributes “EX_HU” and its subcategories “EX_MF”, “EX_TH”, “EX_SF”, “EX_SF_SM”, “EX_SF_MD”, “EX_SF_LRG”, AND “EX_MH” are based on the Dwelling Units attributes mentioned earlier in the document. The following criteria were used:

EX_HU = UNITTOTL

EX_MF = UNITDUPX + UNITTRI + UNITFOUR + UNITAPT *

EX_TH = UNITSFDA

EX_SF = UNITSFD

EX_SF_SM = EX_SF for selection EX_SF > 0 AND ((Shape_Area/EX_SF) <= 5000)

EX_SF_MD = EX_SF for selection EX_SF > 0 AND ((Shape_Area/EX_SF) > 5000 AND (Shape_Area/EX_SF) <= 10000)

EX_SF_LRG = EX_SF for selection EX_SF > 0 AND ((Shape_Area/EX_SF) > 10000)

EX_MH = UNITADU

*There are 15 parcels that have units (“UNITTOTL”) but are not assigned to any subcategory. The “USETYPE” filed indicates them to be either ‘Nursing homes’ or ‘Commercial with residence’. Therefore the units were assigned to “EX_MF”.

Zoning Required Acres: For Development Status equal “partially vacant” and “developed w/infill potential” the methodology was based on Table 2.1.500 from Bend’s Zoning Code. The overall assumption is that a lot in this category is made up by developed and vacant land. The acres that are “committed” based on the existing zoning is the number of units times the minimum lot size or the area required for each unit. The remaining acreage that is “available” under the existing zoning is than subtracted from the constrained land.

Select based on General Plan designation (GENPLAN):

RL: ZnReqAc = ((UNITSFD+UNITADU)*15000 + UNITDUPX/2*30000 + UNITTRI/3*30000)/43560

RS: ZnReqAc = ((UNITSFD+UNITADU)*4000 + UNITDUPX/2*8000 + UNITTRI/3*10000 + UNITSFDA*2000)/43560 + (UNITFOUR+UNITAPT+UNITCNDO)/7.3

RM: ZnReqAc = ((UNITSFD+UNITADU)*3000 + UNITDUPX/2*4500 + UNITTRI/3*6500 + UNITSFDA*2000 + (UNITFOUR+UNITAPT+UNITCNDO)*2000 + if(sum(UNITFOUR,UNITAPT,UNITCNDO)>1,500,0)) / 43560

RH: ZnReqAc = ((UNITSFD+UNITADU)*2500 + UNITDUPX/2*3000 + UNITTRI/3*4000 + UNITSFDA*2000 + (UNITFOUR+UNITAPT+UNITCNDO)*1000 + if(sum(UNITFOUR,UNITAPT,UNITCNDO)>1,1000,0)) / 43560

ZnAvlAc = if(ACRES – CONSTACR – Developed Acres>0, ACRES – CONSTACR – Developed Acres,0)

Building Footprint Area: Using a 2004 building footprint layer plus a 10-foot buffer from all mapped buildings, summed the total square feet of building footprint and buffer by tax lot (“SUM_SqFt”) and converted to acres (“BldgFtptAc”). For parcels with development but no building footprint information, used average building footprint + buffer area square footages for the same number of units (1 unit: 5000sf, 2 units: 5500 sf, 3-4 units: 6650 sf) to populate BldgFtptAc. For the two parcels with >4 units and no building footprint info, used aerial photo and/or comparable adjacent parcel to approximately measure area around existing buildings.

NonBldgAc = UNCONSTAC – BldgFtptAc.

Vacant and Developed Area: This was calculated differently depending on the development status of the parcel. Envision Tomorrow applies a development type to vacant land, and uses a redevelopment rate to apply the development type to developed land.

1. For fully developed land, all unconstrained land is coded as developed (DevdAcre = UNCONSTAC; VacAcre = 0)
2. For vacant land, all unconstrained land is coded as vacant (DevdAcre = 0; VacAcre = UNCONSTAC)
3. For land that where vacant and developed areas were identified through aerial photography (“Review” = YES), vacant and developed acres are as measured through that analysis

4. For land that is either Developed with Infill Potential or Partially Vacant:
    a. Where either acres available under zoning or acres remaining after subtracting building footprints & buffers are less than a half-acre, code the whole parcel as developed except for constrained areas (DevdAcre = UNCONSTAC).
    b. Where both acres available under zoning and acres remaining after subtracting building footprints & buffers are more than a half-acre, code the greater of the two as the developed acres, with the remainder coded as “vacant” (VacAcre).
5. For certain public facilities where no redevelopment is anticipated, developed land was coded as constrained so that it would not be affected by a redevelopment rate assumption.

January 27, 2015 Update

Large taxlots were divided into smaller pieces for use in the Envision Tomorrow model. In the interest of using the most recent data to avoid errors, the following steps were used to re-join these pieces into their original parcels.

- DISSOLVE shapefile based on “FA_ID” feature, summing on the following fields:
    - NEWDEVST – First
    - EmpBLI – First
    - Empvac – Sum
    - Empdev – Sum
    - VAC_ACRE – Sum
    - DEVD_ACRE – Sum
    - CONSTACRE – Sum
- Join Envision Tomorrow dataset to resulting shapefile, based on “FA_ID”

The result is taxlot data with the latest residential and employment BLI information, with the geography originally provided by Deschutes County (i.e., no more split taxlots with identical IDs, except those which were split-zoned and treated individually from the start)

Appendix D: Envision Tomorrow & Detailed Scenarios

About Envision Tomorrow

Envision Tomorrow is an open-access scenario planning package that is being employed to analyze future growth patterns and policy decisions impacting growth in Bend. The software, comprised of an ARC/GIS extension and a Microsoft Excel model, develops estimates of how these patterns and policies will impact a range of measures, including growth capacity to travel behavior.

Envision Tomorrow is a suite of planning tools that includes analysis tools and scenario design tools. The analysis tools allows for analysis of aspects of the city using GIS data, such as tax assessor parcel data, the General Plan, and Census data. The scenario painting tool was utilized to "paint" a series of alternative future development scenarios on the landscape within Bend's UGB, and to compare scenario outcomes for this memorandum.

Envision Tomorrow provides a sketch-level glimpse of the possible impacts of policies, development decisions and current growth trajectories. Scenario comparison measures include a comprehensive range of indicators relating to land use, housing, demographics, economic growth, development feasibility, fiscal impacts, transportation, environmental factors, and quality of life.

Envision Tomorrow keeps most of the calculation elements in a scenario spreadsheet that is linked to ArcGIS via an extension. Modifying assumptions – and even adding new indicators – is far easier within a spreadsheet than within lines of computer code. In addition, the tool has an high level of transparency since each of the equations is visible and easy to change by the user.

Envision Tomorrow is comprised of two linked, but independent components.

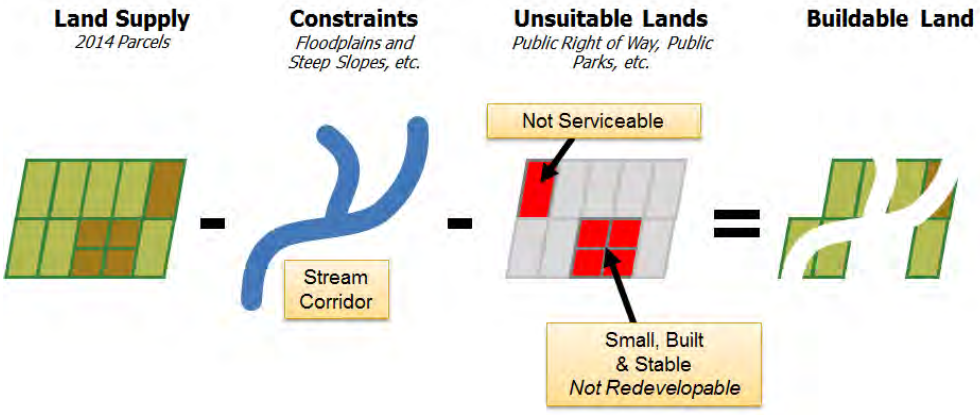
The ESRI ArcGIS Extension

The Envision Tomorrow extension for ESRI's ArcGIS is a relatively simple interface that the team used to select and "paint" different land use types, or Development Types, onto the scenario layer. The extension is also responsible for establishing a dynamic connection to the Scenario Spreadsheet, so as the team paints, information is sent to the Scenario Spreadsheet, which in turn, results in changes in the indicator charts and graphs.

ArcGIS houses the spatial component of Bend's scenario modeling. The City's Buildable Lands Inventory (BLI) was transferred, within GIS, to the planning units (taxlots) upon which scenarios

were developed. Identifying lands that have the potential for additional development and then filtering out lands that are environmentally, physically or otherwise constrained, the BLI conveys how much land within each parcel is vacant or potentially available for redevelopment.

Bend's current land use inventory data show the occupied land in the city and the land use associated with it. The current land use inventory, commonly referred to as existing land use, portrays data related to use, zoning, value and other conditions present for the 2008 base year., updated to include development that occurred between 2008 and 2014. This data is also then used in the scenario development process to determine where redevelopment opportunities may exist.



Spreadsheets

There are three basic types of spreadsheets involved in the interlinked Envision Tomorrow platform.

1. The building-level Prototype Builder spreadsheets
2. The scenario-level Scenario Builder spreadsheet
3. Individual modular models that can be dynamically linked to the scenario spreadsheet, such as the Travel Model

The smallest units of analysis in the Bend scenarios are buildings. Individual buildings were modeled in a template spreadsheet called a Prototype Builder. This template spreadsheet is a simplified, planning-level pro forma, not unlike one used by a developer to evaluate the financial feasibility of a development project. The Prototype Builder includes both the physical attributes of buildings, such as height and landscaping, and also the financial attributes, such as rents and construction costs.

The Prototype Builder is a handy stand-alone tool for evaluating the financial feasibility of current or proposed zoning, and was used in this manner to research redevelopment capacity for the Employment Opportunities Analysis. For the scenario analysis it serves as the template for creating a library of building types. The Prototype Library includes 57 very specific building types based on buildings that are present within Bend today, and a small selection of buildings that may be desirable in the future. Following is a sampling of some of the more prominent factors associated with the building types.

Physical Inputs

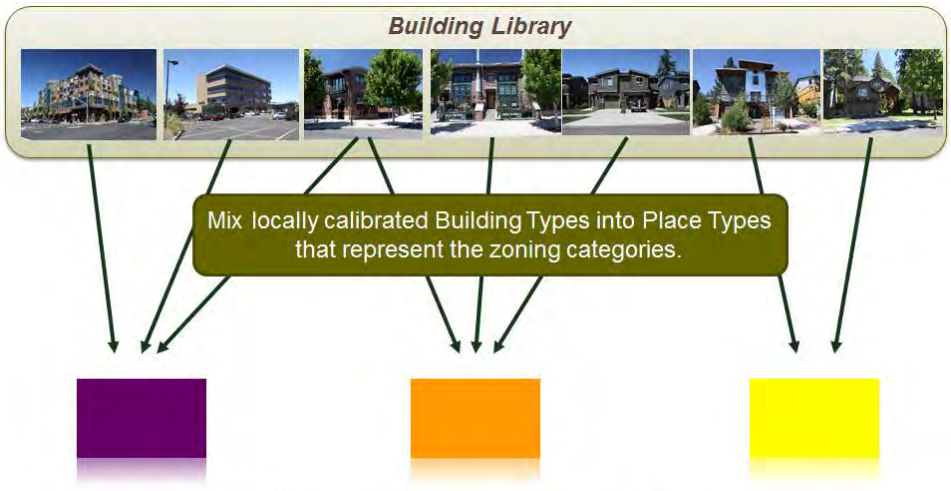
- Lot dimensions
- Height
- Building uses
- Residential unit mix and average sizes
- Square foot per employee figures
- Parking requirements
- Parking configuration (surface vs. structured)
- Parking space efficiency

Financial Inputs

- Construction costs by land use
- Land cost
- Residential and commercial rents
- Residential sales prices
- Parking construction costs

While it is impossible to capture every unique building being built in the city, the building types established through the team's market research broadly represent the "flavor" of new construction in Bend. Each building contains a range of parameters, from average rent to housing unit density, and beyond. These buildings are then mixed, in various combinations, to create the building blocks for "development types" which are used to paint the Base Case (BLI) and alternative development scenarios.

This library of building spreadsheets were loaded into the Scenario Spreadsheet and dynamically linked to enable future additions or changes. The Scenario spreadsheet houses the development types. Development types for this project were based on Bend's general plan, plus some additional types created for testing efficiency measures such as smaller lot sizes or mixed use housing.

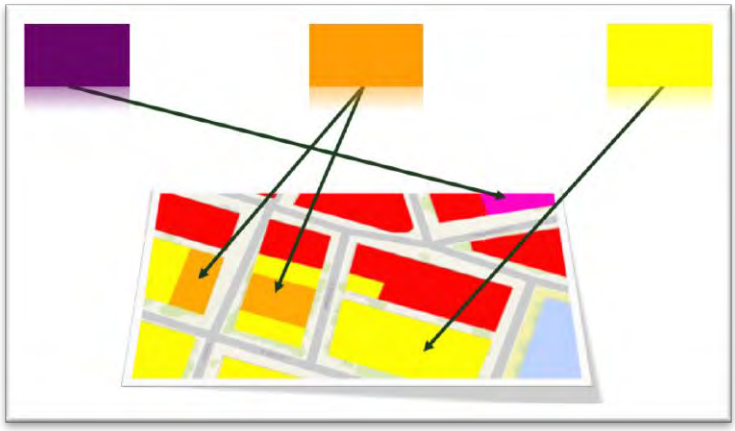


Place Types = Plan and Zoning Classes

Development types

Development types, referred to as Place Types in the graphic above, were created to emulate the City's general plan and the range of uses that one might find within a given designation. Wrapped up within these development types are the building types discussed above as well as roadway characteristics. Roadway characteristics include lane width, number of lanes, sidewalks, bicycle lanes, etc. Also included are net land reductions for parks and other public spaces.

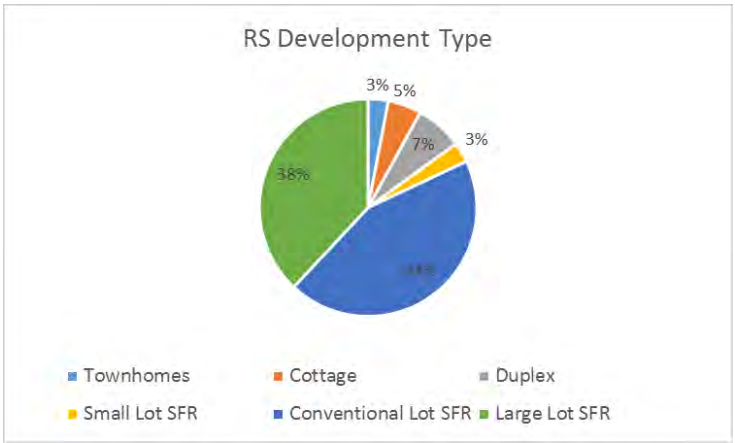
Development types have a variety of attributes, ranging from average lot size to residential energy consumed. The attributes are derived based on the mix of building types included as well as the street characteristics and amount of open space and civic uses included. The building level attributes are aggregated to the development type level as weighted averages using the calibrated mix of building types.



Development types are assigned to lands through "painting" within the GIS.

The painting is correlated to parcels that meet the appropriate criteria. It is important to understand, however, that the analysis is not parcel specific; it does not predict precisely what would occur on a given property. Rather, the weighted averages from the development type are applied to the parcels being painted. This allows the model to do a better job of realizing the variations that happen in the real world based on factors such as developer preference, lot shape, access, views, and neighborhood compatibility.

For example, this pie chart shows that the RS development type consists of a range of single-family house types. Accordingly, each acre of land is assigned with a percentage of each of the housing types included. This "averaging" technique facilitates sharing the model outputs seamlessly with the City's infrastructure optimization tool and the travel demand model.



On "vacant" land, the model applies the full amount of density and mix assumptions assigned by the development type. If developed land is painted, the model applies the redevelopment rate specified in the development type spreadsheet and then applies the density and mix

assumptions assigned by the development type to the redeveloped fraction of the land. As described above, no development potential is derived from constrained land.

Finally, the model is assessing capacity of the land based on the existing conditions and the densities and products from the development types. Envision Tomorrow does not predict the timing of this development. In essence, it provides a snapshot of potential development projected to occur during the planning period.

Appendix E: Development Types

The table below describes the development types used in the Envision Tomorrow Base Case. Each development type is composed of a mix of building types with characteristics totaling the "Residential Mix" and "Employment Mix" shown below. Net residential/employment densities are also shown below.

Name	Description	Residential Mix	Employment Mix	Res/Emp Density	Additional Information
SM	Surface Mining		Office: 16% Industrial: 84%	12.4 Jobs / Net Acre	
RL	Low Density Residential	Large Lot SF: 100%	-	2.1 Units/Net Acre	
RS	Std. Density Resdiential	Multi-Family: 5% Townhome: 6% Small Lot SF: 12% Conventional Lot SF: 32% Large Lot SF: 46%	-	5.09 Units/Net Acre .03 Jobs/Net Acre	
RM	Medium Density Residential	Multi-Family: 44% Townhome: 5% Small Lot SF: 40% Conventional Lot SF: 12%	-	12.4 Units/Net Acre .26 Jobs/Net Acre	Also includes "RM for Jobs" at 16.9 Jobs/Net Acre
RH	High Density Residential	Multi-Family: 82% Townhome: 14% Small Lot SF: 4%	-	21.1 Units / Net Acre 5.7 Jobs / Net Acre	
MDOZ	Medical District Overlay Zone	Multi-Family: 100%	Office – 86% Industrial – 9% Civic – 5%	13.1 Units / Net Acre 19.2 Jobs / Net Acre	captures different mix of uses in the MDOZ area
CC	Community Commercial	-	Retail - 35% Office - 39% Industrial - 4% Civic - 2% Hotel - 19%	16.2 Jobs / Net Acre	

Name	Description	Residential Mix	Employment Mix	Res/Emp Density	Additional Information
CL	Limited Commercial	Multi-Family: 97% Small Lot SF: 3%	Retail - 23% Office - 49% Industrial - 7% Civic – 3% Hotel - 18%	1.1 Units / Net Acre 19.6 Jobs / Net Acre	
CG	General Commercial	-	Retail: 63% Office: 19% Industrial: 3% Civic: 2% Hotel: 13%	0.7 Units / Net Acre 13.1 Jobs / Net Acre	
CB	Central Business District	-	Retail: 8% Office: 63% Civic: 17% Hotel: 12%	2.13 Units / Net Acre 74.61 Jobs / Net Acre	
IP	Industrial Park	-	Office: 43% Industrial: 57%	21.3 Jobs / Net Acre	
IL	Industrial Light	-	Retail: 9% Office: 25% Industrial: 55% Civic: 10%	10.7 Jobs / Net Acre	
IG	Industrial General	-	Retail: 4% Office: 32% Industrial: 60% Civic: 4%	14.9 Jobs / Net Acre	
MR	Mixed Riverfront	Multi-Family: 62% Small Lot SF: 38%	Retail: 15% Office: 66% Industrial: 12% Civic: 3% Hotel: 4%	2.8 Units / Net Acre 14.8 Jobs / Net Acre	

Name	Description	Residential Mix	Employment Mix	Res/Emp Density	Additional Information
ME	Mixed Employment	-	Retail: 16% Office: 31% Industrial: 41% Civic: 7% Hotel: 5%	11.6 Jobs / Net Acre	
PF	Public Facilities	-	Retail: 2% Office: 4% Civic: 94%	14.5 Jobs / Net Acre	
RS-CCR	RS with Development Restrictions	Large Lot SF: 100%	-	1.88 Units / Net Acre	a designation for areas covered by CC&Rs that limit lot divisions to ensure just one unit per lot is considered
Institutional		-	Educational – 100%	25.2 Jobs / Net Acre	Used for planned college/university campuses
MU1	Mixed Use	Multi-Family: 92% Townhome: 8%	Retail: 51% Office: 42% Civic: 5% Hotel: 2%	15.7 Units / Net Acre 24.4 Jobs / Net Acre	new neighborhood-scale mixed use development type
MU2	Mixed Use	Multi-Family: 95% Townhome: 4%	Retail: 12% Office: 69% Civic: 1% Hotel: 18%	34.1 Units / Net Acre 60.7 Jobs / Net Acre	new urban-scale mixed use development type
RS Hillside	Std Density Residential – Clustered Development	Multi-Family: 10% Townhome: 11% Conventional Lot SF: 27% Large Lot SF: 53%	Office: 100%	2.8 Units / Net Acre 0.03 Jobs / Net Acre	Used where topography or other conditions may limit density to the lower end of the allowed range, rather than the average

Name	Description	Residential Mix	Employment Mix	Res/Emp Density	Additional Information
RM Hillside	Medium Density Residential – Clustered Development	Multi-Family: 47% Townhome: 7% Small Lot SF: 29% Conventional Lot SF: 17%	Retail: 32% Office: 68%	8.7 Units / Net Acre 0.3 Jobs / Net Acre	Used where topography or other conditions may limit density to the lower end of the allowed range, rather than the average

Appendix F: Tables related to the Calibration of the Envision Tomorrow model

Residential Building Permits by Land Category 1999-2008

This table and accompanying text were included in the memorandum to the UGB Remand Task Force, titled "Draft Buildable Lands Inventory – Sub-Issue 2.2" dated August 31, 2011 and revised January 9, 2014.

Table 3

Residential Building Permits by Land Category 1999-2008

Development Status	Building Permits	% of Total
Vacant	8,173	66.47 %
Redevelopment	2	0.002%
Developed (Replacement units)	48	0.39 %
Partially Vacant	80	0.65 %
Infill	3,724	30.29 %
Publicly Owned or Institutional/Open Space[1]	268	2.18%
Total	12,295	100.00%

Table 3 indicates that roughly two-thirds of all permits issued were for development on vacant land, while approximately 30% took place on land categorized as infill. Based on the definition of "Redevelopment" cited in Step 1, there was virtually no redevelopment activity during 1999-2008. There were a total of 50 permits issued on lands where there was an existing unit AND where the existing unit was demolished. That might initially seem to indicate instances of

[1] These are units that were built on land that is generally not available for housing. An example would be a portion of public park land that was sold off for housing, while acquiring additional residential land elsewhere for park expansion. During any given period, some small amount of publicly owned or open space land may be made available for housing. During the same period, some residential land is likely to be acquired for non-housing purposes, thus becoming unavailable for housing. This activity does not indicate a general trend toward housing development on publicly owned, institutional, or open space land; it simply reflects on-going real estate transactions that in the end have relatively little impact on land availability or housing production.

redevelopment. However, when looking at these 50 permits, 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.

Residential Uses in Non-Residential Designated Areas (since 1998)

The following tables were used to calibrate the amount of expected residential development in non-residential Development Types within the Envision Tomorrow model. The mix of building types within each Development Type was matched to development seen since 1998, to the extent possible. *Source: City of Bend and Deschutes County Tax Lot Inventory data.*

Table 1. Acres by Property Use within Non-Residentially Planned Areas (since 1998)

	Total Acres						
Property Use	**CB**	**CC**	**CG**	**CL**	**ME**	**MR**	**Total**
Employment	5.5	20.6	197.4	53.2	40.5	42.7	**359.9**
Multi-Family Residential	1.3		3.5	1.4		2.1	**8.2**
Apt/Condo	1.3		1.3	1.4		2.1	**6.0**
Plex			0.2				**0.2**
Nursing Home			2.0				**2.0**
Single Family Residential				0.2		6.3	**6.5**
SFD				0.2		4.1	**4.3**
SFD-- Attached						2.3	**2.3**
Unknown			11.1	0.5			**11.6**
Grand Total	**6.8**	**20.6**	**212.0**	**55.3**	**40.5**	**51.1**	**386.3**

Table 2. Acres by Property Use within Non-Residentially Planned Areas (since 1998)

	% of Acres						
Property Use	**CB**	**CC**	**CG**	**CL**	**ME**	**MR**	**Total**
Employment	80.9%	100.0%	93.1%	96.3%	100.0%	83.5%	**93.2%**
Multi-Family Residential	19.1%	0.0%	1.6%	2.5%	0.0%	4.1%	**2.1%**
Apt/Condo	19.1%	0.0%	0.6%	2.5%	0.0%	4.1%	**1.6%**
Plex	0.0%	0.0%	0.1%	0.0%	0.0%	0.0%	**0.0%**
Nursing Home	0.0%	0.0%	1.0%	0.0%	0.0%	0.0%	**0.5%**
Single Family Residential	0.0%	0.0%	0.0%	0.4%	0.0%	12.4%	**1.7%**
SFD	0.0%	0.0%	0.0%	0.4%	0.0%	7.9%	**1.1%**
SFD-- Attached	0.0%	0.0%	0.0%	0.0%	0.0%	4.4%	**0.6%**
Unknown	0.0%	0.0%	5.2%	0.9%	0.0%	0.0%	**3.0%**
Grand Total	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**

Table 3. Total Units within Non-Residentially Planned Areas (since 1998)

	Total Units					
Property Use	**CB**	**CC**	**CG**	**CL**	**ME**	**MR**
Employment	13	3	3	1	0	**0**
Multi-Family Residential	31		2	54		**51**
Apt/Condo	31		0	54		**51**
Plex			2			
Nursing Home			0			
Single Family Residential				1		**86**
SFD				1		**46**
SFD-- Attached						**40**
Unknown			0	0		
Grand Total	**44**	**3**	**5**	**56**	**0**	**137**

Table 4. Development within the MDOZ (since 1998)

	Total Acres			% of Acres			Units		
Row Labels	**CC**	**RH**	**RM**	**CC**	**RH**	**RM**	**CC**	**RH**	**RM**
Employment	3.7	22.6	3.8	100.0%	66.6%	18.9%	0	0	0
Multi-Family Residential		11.3	16.1	0.0%	33.4%	81.1%		29	305
Apt/Condo			1.4	0.0%	0.0%	7.0%			13
Plex			4.1	0.0%	0.0%	20.8%			66
Nursing Home		9.5	10.6	0.0%	28.1%	53.3%		29	226
Transitional Housing		1.8		0.0%	5.3%	0.0%		0	
Grand Total	**3.7**	**34.0**	**19.9**	**100.0%**	**100.0%**	**100.0%**	**0**	**29**	**305**

Meeting Agenda

Residential Technical Advisory Committee – Meeting 7
Monday, February 23, 2015 10 AM – 12:30 PM
City Council Chambers, Bend City Hall

Meeting Purpose and What is Needed from the TAC

The purposes of this meeting are to:

- Review and approve the Draft Phase 1 Growth Scenarios for recommendation to the UGB Steering Committee (USC) – an action item
- Discuss the proposed TAC structure for Phase 2 – an informational item

The main agenda item for this meeting is to discuss a memorandum which describes, and recommends to the TACs, draft growth scenarios for the current Bend Urban Growth Boundary (UGB). The scenarios in the memorandum are referred to as the draft "Phase 1 Growth Scenarios" to indicate that they are the draft conclusions of the UGB analysis and policy direction from Phase 1 of the project. The team has combined the direction on spatial changes received from the TACs in January, together with TAC direction on efficiency measures, to estimate the housing and employment capacity of the current UGB. This analysis, when compared to the projected need for housing and employment, results in estimates of residual housing and employment needs required to accommodate growth to 2028. The conclusions are stated as a range, or "bookends." The Residential and Employment TACs are asked to review this work and forward their recommendation to the UGB Steering Committee (USC).

The agenda also includes an informational item on the proposed TAC structure for Phase 2, following direction from City Council leadership. In brief, the proposed structure is to: (a) supplement the Boundary TAC with two to three members each from the Residential TAC and Employment TAC to form a lead TAC for the UGB expansion analysis; (b) bring the full complement of the three TACs back together in workshop settings in Phase 2 (1-2 workshops expected); and, (c) convene the Residential and Employment TACs to review key documents prior to adoption by the City (e.g. Buildable Lands Inventory; Housing Needs Analysis; Economic Opportunities Analysis).

For additional project information, visit the project website at http://bend.or.us or contact Brian Rankin, City of Bend, at brankin@bendoregon.gov or 541-388-5584

Accessible Meeting/Alternate Format Notification
This meeting/event location is accessible. Sign and other language interpreter service, assistive listening devices, materials in alternate format such as Braille, large print, electronic formats, language translations or any other accommodations are available upon advance request at no cost. Please contact the City Recorder no later than 24 hours in advance of the meeting at rchristie@ci.bend.or.us, or fax 385-6676. Providing at least 2 days notice prior to the event will help ensure availability.

Agenda

1. Welcome — 10:00 AM

a. Welcome and convene — Tom Kemper
b. Where we are in the process – a brief look back and look forward — Joe Dills, Brian Rankin

2. Draft Phase 1 Growth Scenarios — 10:10 AM

Information and action

a. Presentation: Key findings from the Envision Tomorrow modelling.
b. TAC discussion: Following the topical order in the memo, discuss and identify key issues.
c. TAC action:
    - What elements of the recommendations should be revised, or noted for comment, in the recommendation to the USC?
    - As (if) amended, does the TAC support the recommendation to the USC for approval of the Phase 1 Growth Scenarios package?

Andrew Parish, APG and Alex Joyce, Fregonese Associates

3. Proposed TAC Structure for Phase 2 — 11:45 AM

Information

a. Brief summary of proposed TAC structure
b. TAC discussion

Joe Dills

5. Public Comment — 12:15 PM

6. Project News and Adjourn — 12:25 PM

Memorandum

February 18, 2015

To: Residential and Employment Technical Advisory Committees
Cc: Project Team
From: Angelo Planning Group Team
Re: Draft Phase 1 Growth Scenarios

INTRODUCTION

Purpose

The purpose of this memorandum is to describe, and recommend to the TACs, draft growth scenarios for the current Bend Urban Growth Boundary (UGB). The scenarios in this memorandum are referred to as the draft "Phase 1 Growth Scenarios" to indicate that they are the draft conclusions of the UGB analysis and policy direction from Phase 1 of the Bend Remand project. Issues for continuing study have been identified. The Residential and Employment Technical Advisory Committees (TACs) are asked to review this work and forward their recommendation to the UGB Steering Committee (USC).

Where We've Been - Summary of Work Leading to the Phase 1 Scenarios

The Phase 1 Scenarios were created based on the work that was completed by the TACs, USC and project team between June, 2014 and February, 2015. The following is a brief summary of that work – please see project web site for further detail.

- Project goals (See Appendix A)
- Residential TAC direction on demographic trends, growth forecasts, housing mix, building types, efficiency measures, and opportunity areas
- Employment TAC direction on employment and market trends, growth forecasts, building types, market factor, redevelopment, and opportunity areas
- Urban form analysis and diagramming
- Scenarios workshop on December 15, 2014
- Calibration of the Envision Tomorrow scenario model
- Update of Bend's Buildable Lands Inventory and preparation of a Base Case growth scenario
- Modelling and analysis of initial growth scenarios created from the ideas and direction received at the December workshop

- Review and direction by the Residential and Employment TACs regarding spatial elements of the scenarios in January, 2015 (See meeting summaries from January 26th TAC Meetings)
- Discussion and approval of residential efficiency measures by the Residential and Employment TACs in February, 2015
- Public input and involvement throughout Phase 1, including 18 TAC meetings, 2 USC meetings, a scenarios workshop, 2 open houses, MetroQuest on-line outreach, BendVoice postings, visits to community groups, and a variety of public information pieces

All of the work summarized above has been conducted consistent with project objectives to address Remand and related legal requirements, and coordinated closely with the Department of Land Conservation and Development (DLCD).

Where We Are Going - Next Steps and Phase 2 of the Remand Project

Following TAC direction, recommendations will be forwarded for consideration by the UGB Steering Committee (USC) at their meeting on March 19, 2015. With approval of a package of recommendations by the USC, Phase 1 of the project will be complete.

The Phase 1 recommendations will serve of the basis for preparing a proposed update of the Bend UGB. Per the methodology developed by the Boundary TAC, the new boundary will be developed in four steps/stages (See Appendix B).

- Base mapping of potential expansion areas
- Scenario development to create alternative growth scenarios
- Scenario evaluation
- Proposed UGB

PHASE 1 GROWTH SCENARIOS

Major Components

The four major components of the growth scenarios are:

- Scenario map
- Efficiency measures (two packages)
- Capacity analysis
- Urban form map

Scenario Map

The scenario map displays the potential type and location of future growth within the current Bend UGB. The lands which are colored on the scenario map are those which have either (a) been classified as vacant, developed, large enough for additional units under current zoning, large enough to divide under current zoning, or re-developable in the Residential Buildable Lands Inventory; (b) identified as Employment Land; or (c) part of nine “opportunity areas” identified by the Residential and Employment TACs as areas of potential change within the City.

Tax lots have been assigned a development type by "painting" using the Envision Tomorrow model. Lands which are not colored on the map are developed lands – where no additional future growth is assumed. The draft Phase 1 Growth Scenario Map is displayed in Figure 1.

The scenario map includes parcels where future growth is assumed to be guided by the existing General Plan designations that exist today. The map also includes parcels where future growth is assumed to be guided by new or revised designations (e.g. – changing a parcel from Standard Density Residential to Medium Density Residential). The changes are focused in the "opportunity areas" evaluated by the TACs.

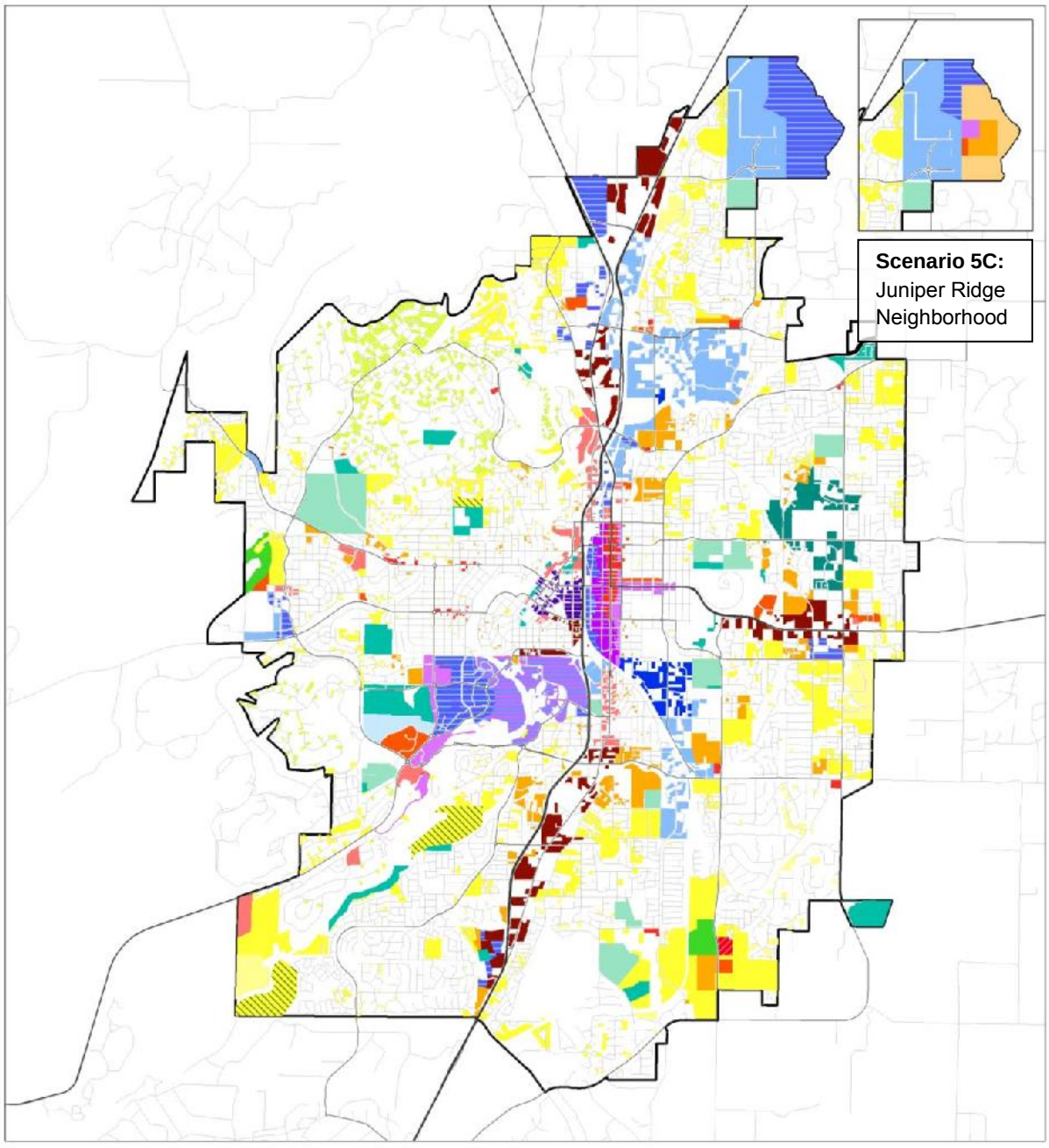
Figure 2 displays the comprehensive plan with the nine opportunity areas highlighted.

Table 1 below describes the changes to the opportunity areas in the scenario map as compared to the base case scenario.

Table 1. Description of Opportunity Areas

Opportunity Area	Base Case	Scenario Map
Opportunity Area 1: Central District Mixed-Use Multimodal Area (MMA)	Retains current plan designation and urban form as highway commercial with light industrial uses	Approximates land uses and urban form described in the Central District MMA Plan
Opportunity Area 2: East Downtown	Area retains existing General Commercial designation.	Becomes an extension of downtown, receiving the Central Business District (CB) designation
Opportunity Area 3: Central Highway 20	Retains existing designation as commercial strip abutted by single family residential	Becomes Neighborhood Mixed Use (MU-1) corridor with limited multifamily attached
Opportunity Area 4: SW Century Drive	Site retains existing light commercial and industrial character.	Area becomes university-serving mixed-use community with housing component.
Opportunity Area 5: Mill District/Core Pine	Remains General Industrial	Becomes new designation, similar to Mixed Riverfront in character.
Opportunity Area 6: Juniper Ridge	Remains Light Industrial	Two options. In Scenario 4B, Juniper Ridge is Mixed Employment (ME). In Scenario 5C, a new neighborhood with over 1,200 housing units added.
Opportunity Area 7: SE 15th St	Entire area remains Standard Residential (RS) designation.	A new complete neighborhood with a mix of residential housing and community commercial designations is applied.
Opportunity Area 8: River Edge	Site retains existing RS designation.	Site becomes clustered housing in the "RS Hillside" designation.
Opportunity Area 9: COID Property	Site retains existing Public Facilities (PF) designation.	Site becomes clustered housing in the "RS Hillside" designation.

Figure 1. Phase 1 Growth Scenario Map



Mixed Use
- CB - Central Business District
- MU 1 - Neighborhood Mixed Use District
- MU 2a - Urban Mixed Use District
- MDOZ - Medical District Overlay Zone
- MR - Mixed Riverfront
- ME - Mixed Employment

Commercial
- CC2 - Commercial Prime
- CL - Commercial Limited
- CG - Commercial General
- CC - Commercial Convenience

Industrial
- IG - Industrial General
- IL - Industrial Light

Residential
- RH - Residential Urban High Density
- RM - Residential Urban Medium Density
- RS - Residential Urban Standard Density
- RS Hillside - Residential Urban Standard Density on Hillside
- RS-CCR - Residential Urban Standard Density with CCR
- RL - Residential Urban Low Density

Other
- Park
- PF - Public Facilities
- School
- Institutional

Table 2 describes the residential and employment mix assumptions within each development type in the Hybrid Scenario Map. Each development type contains a building mix, street and other set-aside assumptions, and a rate at which redevelopment is expected to occur (set at 0% for residential development types). These development types reflect the inclusion of the efficiency measures in Appendix C, rather than being calibrated to historical trends as they were for the base case. Residential and employment densities within these development types vary between scenarios based on the application of efficiency measures, discussed in the following section of this memorandum.

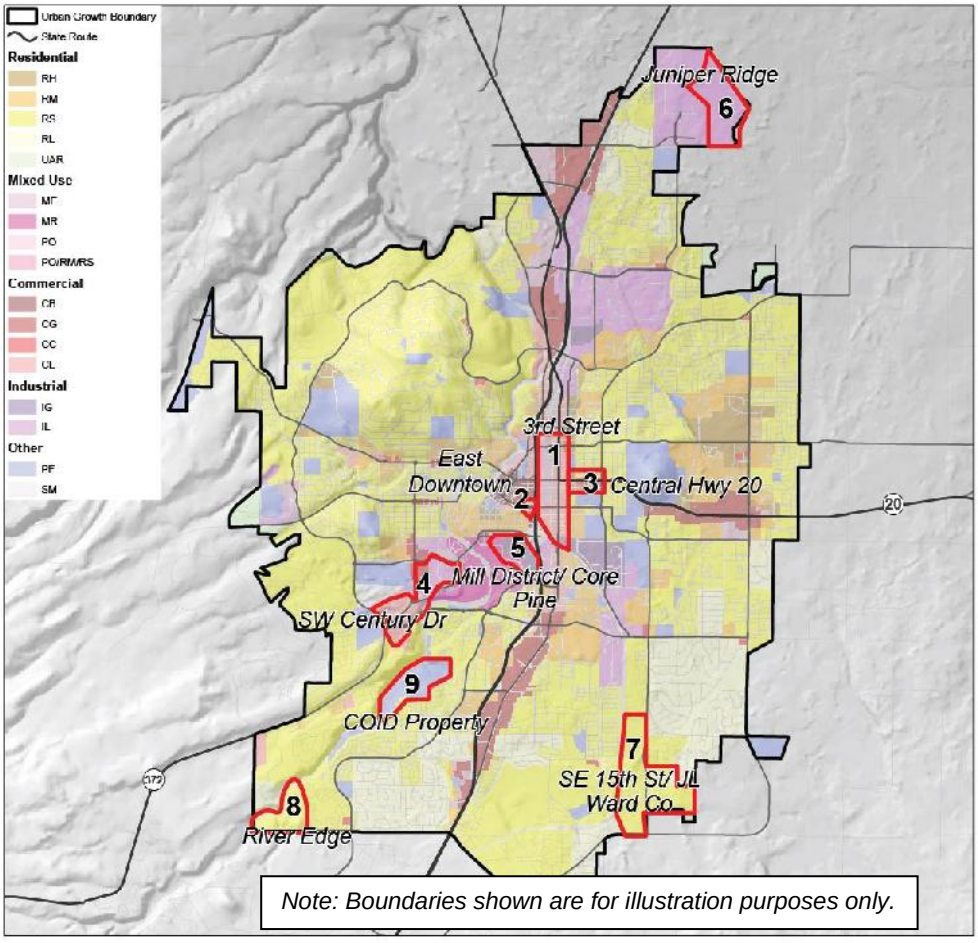
Table 2. Development Types in the Envision Tomorrow Model

Name	Description	Residential Mix	Employment Mix	Additional Information
RS	Std. Density Residential	Multi-Family: 19% Attached SF: 12% Small Lot SF: 8% Conventional Lot SF: 20% Large Lot SF: 41%	-	Contains 2% mix of SF with ADU.
RM	Medium Density Residential	Multi-Family: 44% Attached SF: 5% Small Lot SF: 40% Conventional Lot SF: 12%	-	
RH	High Density Residential	Multi-Family: 82% Attached SF: 14% Small Lot SF: 4%	-	
RL	Low Density Residential	Large Lot SF: 63% Multifamily Attached (duplex): 37%	-	Contains 2% mix of SF with ADU and 5% duplex
MDOZ	Medical District Overlay Zone	Multi-Family: 100%	Office – 86% Industrial – 9% Civic – 5%	Captures different mix of uses in the MDOZ area
CC	Community Commercial	-	Retail - 35% Office - 39% Industrial - 4% Civic - 2% Hotel - 19%	
CC2	"Walkable" Community Commercial	-	Retail – 53% Office – 31% Civic – 1% Hotel – 15%	A more dense and walkable version of the Convenience Commercial (CC) designation
CL	Limited Commercial	Multi-Family: 97% Small Lot SF: 3%	Retail - 23% Office - 49% Industrial - 7% Civic – 3% Hotel - 18%	Includes a small amount of residential use, based on historic trends

Name	Description	Residential Mix	Employment Mix	Additional Information
CG	General Commercial	-	Retail: 63% Office: 19% Industrial: 3% Civic: 2% Hotel: 13%	
CB	Central Business District	-	Retail: 8% Office: 63% Civic: 17% Hotel: 12%	
IL	Industrial Light	-	Retail: 9% Office: 25% Industrial: 55% Civic: 10%	
IG	Industrial General	-	Retail: 4% Office: 32% Industrial: 60% Civic: 4%	
MR	Mixed Riverfront	Multi-Family: 64% Small Lot SF: 36%	Retail: 15% Office: 66% Industrial: 12% Civic: 3% Hotel: 4%	
ME	Mixed Employment	-	Retail: 16% Office: 31% Industrial: 41% Civic: 7% Hotel: 5%	
PF	Public Facilities	-	Retail: 2% Office: 4% Civic: 94%	
RS-CCR	RS with Development Restrictions	Large Lot SF: 100%	-	a designation for areas covered by CC&Rs that limit lot divisions to ensure one unit per lot
Uni-versity		-	Educational – 100%	Used for planned college/university campuses
MU1	Mixed Use	Multi-Family: 92% Attached SF: 8%	Retail: 51% Office: 42% Civic: 5% Hotel: 2%	new neighborhood-scale mixed use development type
MU2a	Mixed Use	Multi-Family: 95% Attached SF: 4%	Retail: 12% Office: 69% Civic: 1% Hotel: 18%	new urban-scale mixed use development type

Name	Description	Residential Mix	Employment Mix	Additional Information
RS Hillside	Std Density Residential – Clustered Development	Multi-Family: 12% Attached SF: 24% Conventional Lot SF: 21% Large Lot SF: 42%	Office: 100%	Used where topography or other conditions may limit density to the lower end of the allowed range, rather than the average
RS Master-plan	RS for large master-planned areas	Multi-Family: 11% Attached SF: 14% Small Lot SF: 57% Conventional Lot SF: 7% Large Lot SF: 11%		Reflects efficiency measures affecting master plan requirements for large sites (over 20 acres)

Figure 2. Opportunity Areas and Current General Plan Designations



Efficiency Measures

In addition to the location-specific changes described above, two sets of efficiency measures have been applied to test their impact on the relative efficiency of development and resulting development capacity within the City. The proposed efficiency measures are listed in detail in Appendix C.

Some efficiency measures are applied in residential zones to encourage development of needed housing types and/or encourage more efficient use of residential land. Others are applied to employment zones to enable redevelopment or make more intensive new development possible. These measures were reviewed by the TAC and included the "packages" of tools listed below. The measures are generally applied to all lands within a given zone, but further work will be conducted to examine strategic application of some efficiency measures.[1]

- **Package A** is the "base case" and contains no new efficiency measures.
- **Package B** is focused on changes that make it easier for property owners and developers to build at the higher end of the allowed density range in each zone by creating greater flexibility in development standards. This package is a market-based approach that uses options and incentives to achieve higher densities. Examples include:
    - reducing minimum lot sizes and setbacks for certain housing types in certain zones
    - reducing parking ratios for certain types of businesses and certain housing types so that less land must be dedicated to parking
    - expanding allowed housing types in the RS zone
- **Package C** also increases flexibility in development standards, but it includes a mix of incentives and regulatory constraints to both allow and require development to utilize land more efficiently. Examples, in addition to those identified above for Package B, include:
    - increasing minimum density standards in the RS and RM zones
    - strengthening master planning requirements for large blocks of vacant residential land
    - prohibiting new single family detached housing in the RH zone

These packages were analyzed with Envision Tomorrow through a combination of changes in development type assumptions and the creation of new "master plan" development types for select large parcels. Changes to development types included increased minimum gross densities, changes to building mix, reduced lot sizes, reduced parking, and expanded lot coverage. Details regarding the operationalization of the Efficiency Measures within the model is provided in Appendix C.

[1] In reviewing the efficiency measures, the TACs noted that some efficiency measures were only appropriate in selected parts of the City (e.g. reduced parking ratios in mixed use, pedestrian-oriented areas). For the Phase 1 capacity analysis, this approach has been approximated through revisions to Envision Tomorrow model assumptions for some of the development types.

Capacity Analysis

The Phase 1 Growth Scenarios provide the basis for answering a fundamental question: what is the estimated capacity for growth (additional housing and jobs) within the current UGB? Capacity information is described in the Results section of this memorandum, along with analysis about the types and location of future jobs and housing. That information is then further used in answering another fundamental question: how does the capacity compare to the 20 year need for land for housing and jobs? That is: what is the residual need that must be accommodated with an expansion of the Bend UGB?

The Phase 1 Growth Scenario does not provide a single answer to the question of capacity. Rather, a range of capacity estimates is provided, referred to as "bookends" for growth within the current UGB. This approach is intended to reduce the pressure to get to a single "answer" in Phase 1, thus setting the stage for continued refinement and work in Phase 2 including additional analysis of the effectiveness and feasibility of specific efficiency measures related to impacts on public infrastructure systems such as transportation (Vehicle Miles Traveled and other indicators), water, and wastewater systems.

The drivers of the bookended capacity estimates can be summarized as follows:

- Phase 1 is concluding with one scenarios map, that has two alternatives for a single opportunity area: Juniper Ridge.
- Phase 1 is concluding with two packages of efficiency measures that, when applied in combination with the map, provide a range of estimated capacities for the current UGB.

Urban Form Map

The purpose of the Urban Form Map is to provide a high-level view of the shape of the City. It shows the variety and relationship of Bends neighborhoods, centers and corridors, and employment districts. Versions of the Urban Form Map have been used to create and evaluate scenarios to date.

Discussions with the TACs about future development within the City have focused not only on capacity and land efficiency, but also on the livability and urban form of Bend. Urban form generally defines the type and scale of development and the roads and pathways that allow people to connect to the places they live, work, shop, and play within and outside those areas. In terms of the type of development, urban form describes different types of housing and employment uses, the size or scale of buildings and lots, and the design character of new development. Urban form also describes the relative emphasis on using different types of transportation within an area – driving, walking, bicycling, or taking transit. These urban form characteristics have been described using a series of maps that show the locations and relative intensities of different types of development, including areas where there is a mix of housing, shopping, and employment uses.

The Urban Form Map will be updated to reflect scenarios 4B and 5C in advance of the February 23rd Residential and Employment TAC meetings.

RESULTS

Housing

The tables and figures below describe the housing capacity and mix of the base case and hybrid scenarios. With no changes to plan designation, the base case scenario projects an added capacity of 9,050 units within the existing UGB. Of these, 70% are expected to be single family detached units, 25% multifamily attached units, and 5% attached single family units.

Scenario 4B shows an additional capacity of roughly 3,400 units over the base case, a 38% increase. This is achieved by a combination of efficiency measures and changes to the designation of the nine opportunity areas. The housing mix in this scenario is 55% single family units, 36% multifamily attached units, and 9% attached single family. Scenario 5C shows a 61% increase over the base case, with a capacity of 14,583 units and a mix of 57% single family units, 33% multifamily attached units, and 10% attached single family.

Table 3. Housing Capacity and Housing Mix Estimates

	Base Case		Scenario 4B		Scenario 5C	
New Housing Units	**9,050**	**100%**	**12,477**	**100%**	**14,583**	**100%**
Multifamily Attached	2,240	25%	4,487	36%	4,871	33%
Attached Single Family	471	5%	1,151	9%	1,401	10%
Single Family Detached	6,340	70%	6,839	55%	8,311	57%

Figure 3. Housing Capacity and Mix

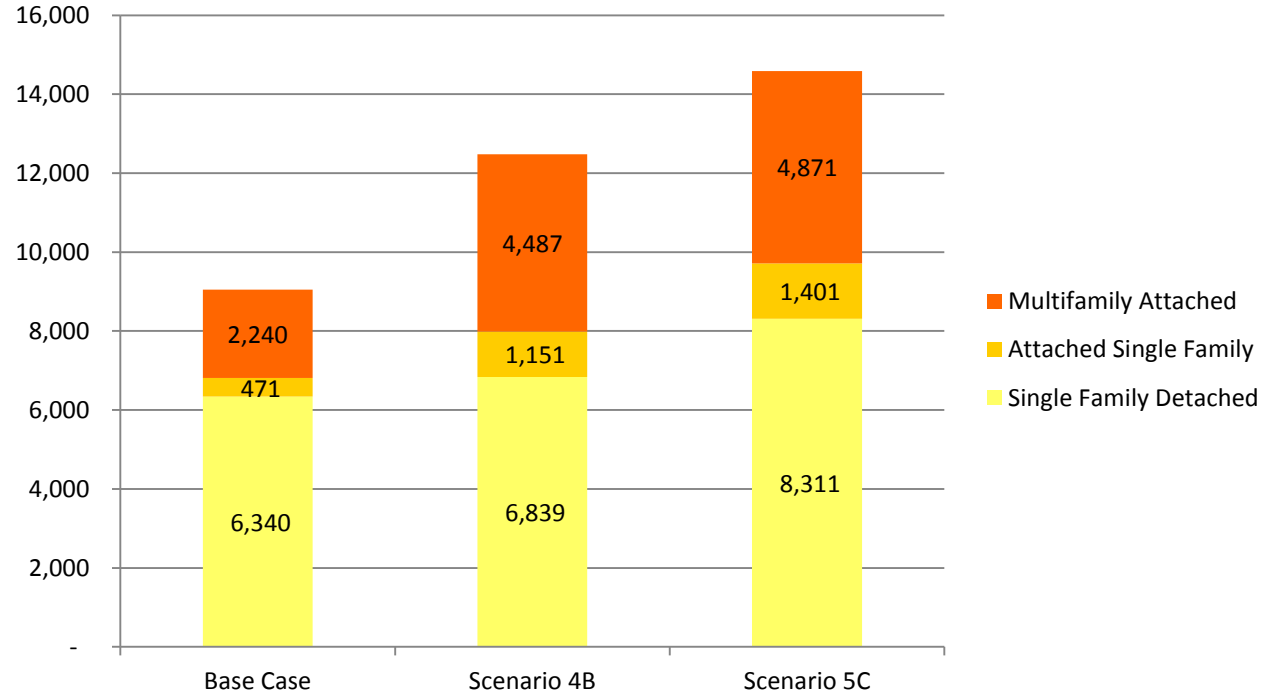


Figure 4. Housing Mix (Percentage)

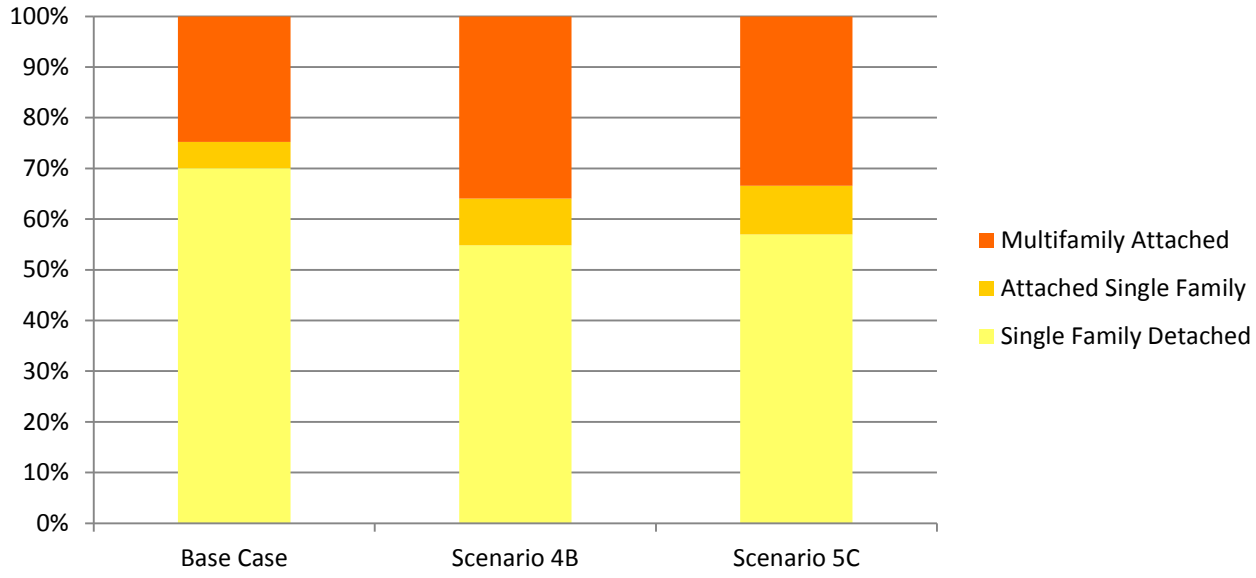


Table 4. BLI status of Added Housing Units, by Scenario

BLI Status	Base Case		Scenario 4B		Scenario 5C	
Developed	138	2%	712	6%	738	5%
Lots large enough for an additional unit under current zoning	0	0%	0	0%	0	0%
Lots large enough to divide under current zoning	3,111	34%	4,079	33%	4,258	29%
Vacant	5,776	64%	7,479	60%	8,091	55%
Publicly Owned	25	0%	26	0%	1,302	9%
None of the above*	0	0%	180	1%	193	1%
Total	**9,050**	**100%**	**12,477**	**100%**	**14,583**	**100%**

** None of the Above indicates land that is not part of the residential BLI. These units are generated through mixed-use designations on what was previously employment land.*

Table 4 describes the land on which new units occur by BLI status[2]. In all scenarios, the majority of new units occur on vacant land, and roughly one third of new units occur in lots large enough to divide under current zoning. Scenario 5C shows significant development on Publicly Owned land, namely Juniper Ridge.

Properties with a BLI designation of "developed" with additional housing units include areas with existing employment designations/land uses in opportunity areas deemed appropriate for

[2] Details regarding BLI designations and their role within the Envision Tomorrow model can be found in the February 6th memorandum titled "Draft Bend UGB Buildable Lands Inventory."

residential development, such as the Central District MMA, land near the OSU campus, and the Mill District/Core Pine area.

Employment

The tables and figures below describe the employment capacity of the base case and hybrid scenarios. Scenario 4B shows an increase of roughly 2,800 jobs over the base case, primarily in the office, industrial, and retail categories. Scenario 5C shows a decrease in new jobs from Scenario 4B due to the conversion of land in Juniper Ridge from employment to housing uses.

Table 5. Employment Capacity Estimates

	Base Case		Scenario 4B		Scenario 5C	
New Jobs	**13,074**	**100%**	**15,887**	**100%**	**14,413**	**100%**
Retail	1,745	13%	2,301	14%	2,179	15%
Office	3,766	29%	5,979	38%	5,603	39%
Industrial	3,272	25%	4,053	26%	3,248	23%
Public	3,423	26%	2,571	16%	2,466	17%
Education	383	3%	346	2%	346	2%
Hospitality	484	4%	637	4%	569	4%

Figure 5. Potential Employment Capacity

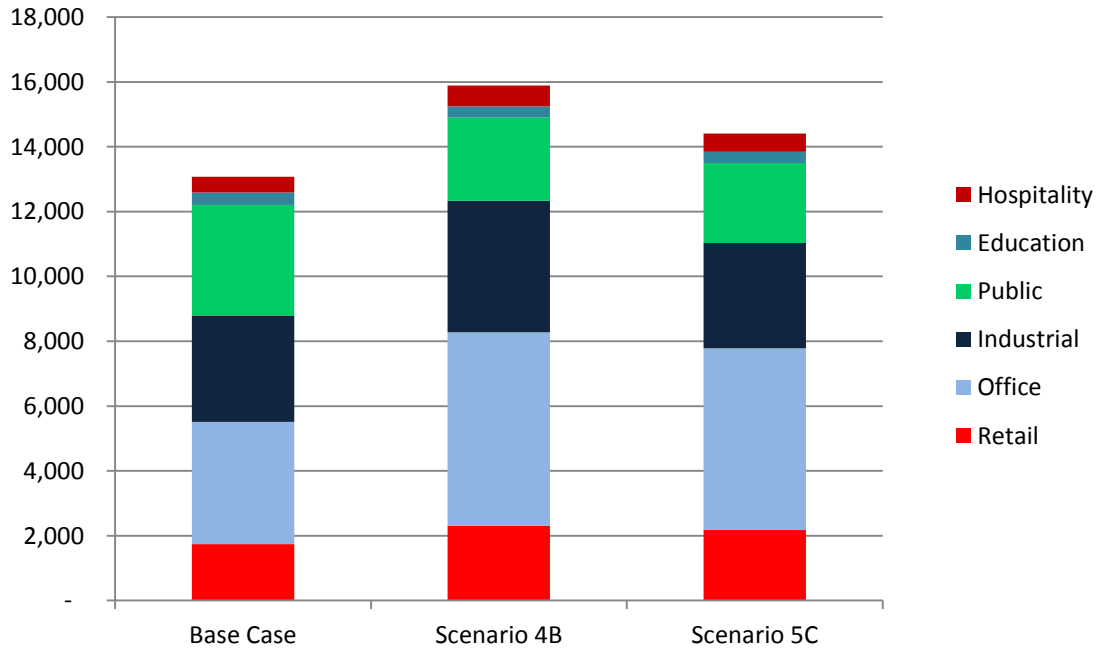


Figure 6. Potential Employment Capacity (Percentage)

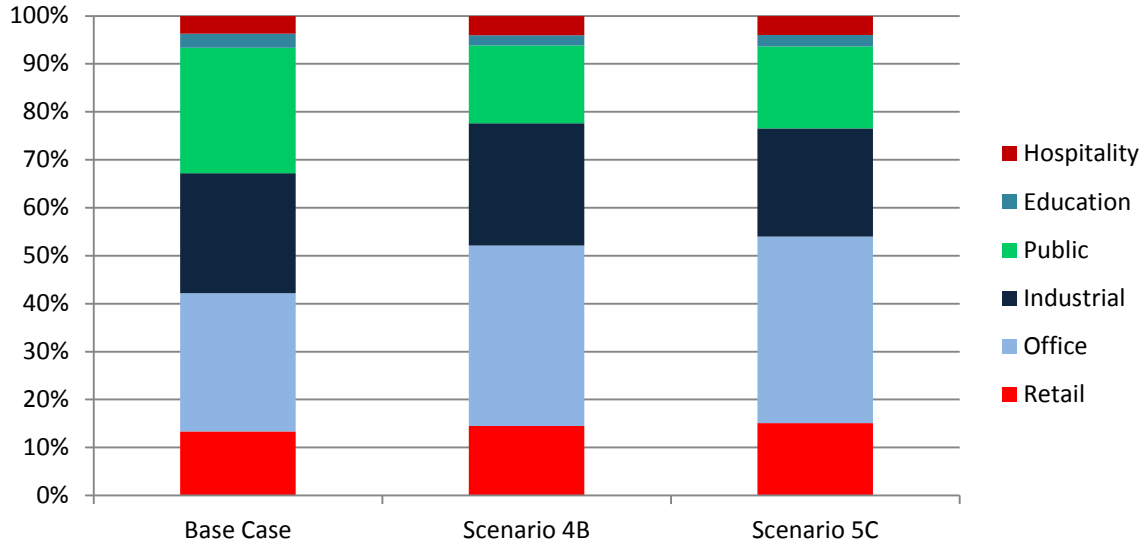


Table 6. Added Jobs by Employment BLI Status

	Scenarios		
	Base Case	**4B**	**5C**
Developed	2,778	4,840	4,840
Vacant	8,415	10,057	8,583
Other *	1,881	990	990
Total	**13,074**	**15,887**	**14,413**

* Other lands include residential land, and land designated “Public Facilities”.

Housing and Employment Comparison of Opportunity Areas

Tables 7 and 8 below describe the housing and job growth seen in the Base Case, 4B, and 5C scenarios broken down into the nine opportunity areas identified by the Residential and Employment TACs. A map of these opportunity areas is provided in Figure 2.

The largest difference between Scenario 4B and Scenario 5C is in Opportunity Area 6 – Juniper Ridge. It is designated Mixed Employment (ME) in Scenario 4B, providing capacity for nearly 2,200 jobs, and in Scenario 5C it becomes a complete neighborhood providing nearly 1,300 single-family and multifamily attached housing units.

Table 7. Housing Units Added By Opportunity Area

		Base Case	Scenario 4B	Scenario 5C
Opportunity Area 1: Central District MMA	Single Family Detached	-	-	-
	Single Family Attached	1	26	26
	Multifamily Attached	8	479	516
	Units Total	9	505	542
Opportunity Area 2: East Downtown	Single Family Detached	-	-	-
	Single Family Attached	-	-	-
	Multifamily Attached	-	-	-
	Units Total	3	-	-
Opportunity Area 3: Central Highway 20	Single Family Detached	-	-	-
	Single Family Attached	-	5	5
	Multifamily Attached	-	41	41
	Units Total	-	46	46
Opportunity Area 4: SW Century Drive	Single Family Detached	6	6	6
	Single Family Attached	-	40	40
	Multifamily Attached	27	289	289
	Units Total	33	336	336
Opportunity Area 5 Mill District/Core Pine	Single Family Detached	-	6	6
	Single Family Attached	-	-	-
	Multifamily Attached	-	11	11
	Units Total	-	17	17
Opportunity Area 6 Juniper Ridge	Single Family Detached	-	-	729
	Single Family Attached	-	-	147
	Multifamily Attached	-	-	400
	Units Total	-	-	1,276
Opportunity Area 7 SE 15th St	Single Family Detached	705	696	999
	Single Family Attached	47	123	188
	Multifamily Attached	41	337	302
	Units Total	794	1,156	1,489
Opportunity Area 8 River Edge	Single Family Detached	93	95	95
	Single Family Attached	13	36	36
	Multifamily Attached	11	19	19
	Units Total	117	149	149
Opportunity Area 9 COID Property	Single Family Detached	-	107	107
	Single Family Attached	-	40	40
	Multifamily Attached	-	21	21
	Units Total	-	169	169

		Base Case	Scenario 4B	Scenario 5C
Total	Single Family Detached	805	911	1,943
	Single Family Attached	61	270	483
	Multifamily Attached	87	1,197	1,598
	Units Total	953	2,378	4,024

Table 8. Employment Added by Opportunity Area

	Base Case	Scenario 4B	Scenario 5C
Opportunity Area 1: Central District MMA	68	557	557
Opportunity Area 2: East Downtown	3	289	289
Opportunity Area 3: Central Highway 20	2	75	75
Opportunity Area 4: SW Century Drive	540	701	701
Opportunity Area 5 Mill District/Core Pine	44	99	99
Opportunity Area 6: Juniper Ridge	1,583	2,183	709
Opportunity Area 7: SE 15th St	4	195	195
Opportunity Area 8: River Edge	1	1	1
Opportunity Area 9: COID Property	1,258	82	82
Total	**3,503**	**4,182**	**2,708**

Conclusions – Bookend Capacity Estimates

Based on the evaluation and refinement of scenarios to date, the capacity bookends for the existing Bend UGB are as described in the following table.

Table 9. Housing Capacity and Jobs Summary table

	Scenario 4B (Low Bookend)		Scenario 5C (High Bookend)	
New Housing Units	**12,477**	**100%**	**14,583**	**100%**
Multifamily Attached	4,487	36%	4,871	33%
Attached Single Family	1,151	9%	1,401	10%
Single Family Detached	6,839	55%	8,311	57%
New Jobs	**15,887**	**100%**	**14,413**	**100%**
Retail	2,301	14%	2,179	15%
Office	5,979	38%	5,603	39%
Industrial	4,053	26%	3,248	23%
Public	2,571	16%	2,466	17%
Education	346	2%	346	2%
Hospitality	637	4%	569	4%

COMPARISON TO NEED

Summary of Need

Population and employment forecasts provide the foundation for determining how much land is needed for housing and employment. This section summarizes housing and employment need in terms of housing units and jobs in light of direction provided by the Residential and Employment TACs. Need is presented for the 2014-2028 period to account for growth that occurred between 2008 and 2014.

The Remand acknowledged a 2028 population forecast of 115,063 for Bend; or 38,512 new persons for the 20-year period between 2008 and 2028. Related to the population forecast, the Remand acknowledged a need for 16,681 new dwelling units between July 1 2008 and June 30 2028. City of Bend building permit data show that 2,912 permits were issued for new residential dwellings between July 2008 and June 2014. That leaves a residual need of 13,770 new dwelling units between July 1, 2014 and June 30, 2028.

The need estimates must also consider group quarters units and second homes. With respect to group quarters, the City assumes that the percentage of persons in group quarters in Bend would remain the same as reported in the 2000 Census (2.3%). This results in a need of 461 group quarters units. Because group quarters are multifamily housing by definition, these units get allocated to the overall multifamily housing need.

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

> "…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.

The need for second homes was calculated as a percentage of total housing need (16,681 needed housing units in planning period x 18% for second homes equals 3,003 units needed for second homes in the planning period– the figure assumed for second homes) The 2,912 permits issued for new dwellings between 2008 and 2014 were deducted from total needed new units. While some of those permits may have been for second homes, there is no way to accurately determine how many. The key issue is that deducting the new permits from the 2008-2028 total housing need did not include any second homes. Thus, the second home assumption is still 18% of 16,681 or 3,003 units.

Table 10 summarizes forecasted new housing units by type and category for the 2014-2028 period. The need breaks down as follows: 13,770 "needed" new housing units, 461 group quarter units, and 3,003 second homes. Note that the second home units assume the same housing mix as needed units consistent with direction from the Residential TAC at the January 2015 meeting.

Table 10. Summary of New Housing Units by Type and Category, Bend UGB, 2014-2028

	2014-2028 Needed Housing Units		2014-2028 Needed Group Quarters Units	2014-2028 Second Homes	2014-2028 Total New Housing Units	
Needed Housing Types	**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%**

The foundation of employment land need is the forecast of employment growth. In the Remand, Bend was found to have met the requirements of Goal 9, with the forecast of 22,981 new employees from 2008 to 2028. In the years since 2008, Bend's employment has grown and changed.

Since the forecast for the 2008 EOA was developed, Bend's economy has changed, in large part as a result of the recent recession. Employment in Bend between 2008 and 2013 grew by 948 employees, at an average annual growth rate of 0.5%. Table 11 shows that using the 2013 total non-shift employment figure of 38,664 and the 2028 acknowledged forecast of 60,607 yields an increase of 21,943 new employees between 2013 and 2028.

Table 11. Employment Forecast by Employment Category, non-shift workers, Bend 2008 to 2013

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

The base case assumes that 6% of new employment will locate on redeveloped land. That equates to 1,317 employees that would locate on land that is inventoried as developed (e.g., the 1,317 employees would not create any land need). After the redevelopment deduction, the employment forecast is for 20,626 new employees that will need to be allocated a land need.

Table 12. Employment Forecast and Redevelopment Assumption, non-shift workers, Bend 2008 to 2013

Employment Assumption	Employees
Total New Employment, 2013-2028	21,943
Employment that locates on redeveloped land (6% base case assumption)	1,317
New Employment, 2013-2028 that Needs Employment Land	**20,626**

Comparison of Capacity to Need – Phase 1 Bookend Conclusions

Tables 13 and 14 below compare the forecasted residential need by housing type and forecasted job need to the capacity of Scenario 4B and Scenario 5C.

Table 13. Housing Capacity Comparison to Need

	Need	Scenario 4B		Scenario 5C	
		Capacity	Residual	Capacity	Residual
Single Family Detached	9,225	6,839	-2,386	8,311	-914
Single Family Attached	1,677	1,151	-526	1,404	-273
Multifamily Attached	6,331	4,487	-1,844	4,871	-1,460
Total Housing Units	17,234	12,477	-4,757	14,583	-2,651

Table 14. Employment Capacity Comparison to Need

	Need	Scenario 4B		Scenario 5C	
		Capacity	Residual	Capacity	Residual
Total Jobs	20,626	15,887	-4,739	14,413	-6,213

As noted previously, the bookends provide a potential range of capacity within the UGB and resulting additional needs for housing units and jobs outside the boundary. These estimates will be further refined in Phase 2 as different boundary options are studied. Refinements are expected to include the following:

- Further analysis of efficiency measures and a revised set of recommended measures
- Potential spatial refinements, including a recommended scenario for Juniper Ridge and other possible changes that would be compatible with different boundary scenarios.
- Conversion of needed housing units and jobs to acres of land and identification of specific recommended Plan designations both inside and outside the UGB.
- Estimate of land needed for other purposes outside the UGB such as schools, parks, "other lands," roads, and other infrastructure.

RECOMMENDATION FROM TAC TO USC

The project team recommends that the TAC approve the Phase 1 Growth Scenarios and recommend them to the UGB Steering Committee, as follows:

1. The Phase 1 Growth Scenarios is comprised of the package of:
   a. Phase 1 Growth Scenario Map
   b. Efficiency measures (listed in Appendix C)
   c. Capacity analysis
   d. Urban Form Map

2. The Phase 1 Growth Scenarios are subject to further refinement in Phase 2.

Appendix A

PROJECT GOALS

The City of Bend has entered the next phase of its Urban Growth Boundary (UGB) expansion to chart a path for Bend's future growth. The UGB is a line drawn on the City's General Plan map that identifies Bend's urban land. This land represents an estimated 20-year supply of land for employment, housing, and other urban uses. As the city continues to grow, we have an opportunity to develop a plan for future growth that reflects the community's goals and meets state planning requirements.

The UGB Steering Committee approved the following Project Goals on September 4, 2014.

A Quality Natural Environment

As Bend grows, it preserves and enhances natural areas and wildlife habitat. Wildfire risk management is a key consideration. Bend takes a balanced approach to environmental protection and building a great city.

Balanced Transportation System

Bend's balanced transportation system incorporates an improved, well-connected system of facilities for walking, bicycling, and public transit, while also providing a reliable system for drivers. Bend's transportation system emphasizes safety and convenience for users of all types and ages.

Great Neighborhoods

Bend has a variety of great neighborhoods that promote a sense of community and are well-designed, safe, walkable, and include local schools and parks. Small neighborhood centers provide local shops, a mix of housing types, and community gathering places. The character of historic neighborhoods is protected and infill development is compatible.

Strong Active Downtown

Bend's downtown continues to be an active focal point for residents and visitors with strong businesses, urban housing, civic services, arts and cultural opportunities, and gathering places. Parking downtown is adequate and strategically located. Planning in other areas continues to support a healthy downtown.

Strong Diverse Economy

Bend has a good supply of serviced land planned for employment growth that supports the City's economic development goals, provides a range of diverse jobs and industries, and supports innovation. Employment areas, large and small, have excellent transportation access.

Connections to Recreation and Nature

Bend continues to enhance its network of parks, trails, greenbelts, recreational facilities, and scenic views inside and outside the city.

Housing Options and Affordability

Bend residents have access to a variety of high quality housing options, including housing affordable to people with a range of incomes and housing suitable to seniors, families, people with special needs, and others. Housing design is innovative and energy efficient.

Cost Effective Infrastructure

Bend plans and builds water, wastewater, storm water, transportation, and green infrastructure in a cost-effective way that supports other project goals. Efficient use of existing infrastructure is a top priority.

Appendix B: Phase 2 Milestones

Draft October 8, 2014 - rev. November 11, 2014

Preliminary and Subject to Change

URBAN GROWTH BOUNDARY REMAND
MAKING BEND EVEN BETTER

Phase 1 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
- Goal 5 inventory

Stage 3

Scenario Development[3]

Iterative steps:
- Prepare sketch level scenarios and test with Envision
- Refine
- Scenarios

Stage 4

Scenario Evaluation[4]

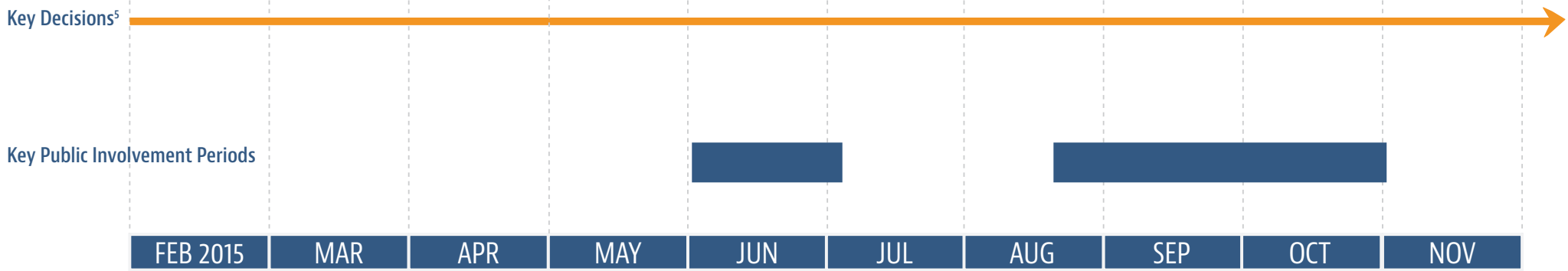
Conduct:
- Envision Testing
- Goal 14 Evaluation
- Water/Sewer Optimization
- Transportation Modeling
- Team review of results
- Goal 5 ESEE analysis

Stage 5

Preferred Scenario[4]
- Prepare evaluation conclusions
- Prepare proposed boundary, land uses, and urban form
- Draft policies, map designations, and findings

Approval of UGB Expansion Scenarios for Evaluation

Approval of Preferred Scenario



Notes:

1-4: Steps per City Attorney Memorandum, Aug 19 2014: 1 = Step 1; 2 = Step 2; 3 = Step 3A Preparation; 4 = Step 3A (3B if necessary)

5: Meeting schedule TBD, including TAC participation in meetings and workshops

Appendix C: Operationalization of efficiency measures within Envision Tomorrow

The table below describes the efficiency measures (EM) that were tested through Envision Tomorrow's Building Prototypes and Development Types. For Package B and C, separate sets of building types and development types were developed. The values were applied to the scenario maps using the Scenario Builder tool within Envision Tomorrow.

Number	Efficiency Measure (EM)	Package A – Existing Code	Package B – Revised Code EM	Package C – Revised Code & Additional EM
1	Increase minimum gross density for RS from 2.0 to 4-5 DU/acre	RS = 3.1 DU/ac	RS = 3.1 DU/ac	RS = 4.6 Du/ac
2	Increase minimum gross density for RM from 7.3 to 10-12 DU/acre	RM = 7.4 DU/ac	RM = 7.4 DU/ac	RM = 11.2 DU/ac
3	Allow Accessory Dwelling Units (ADUs) in all single-family zones	NA	Added SFR building type with ADU type. Categorized it as MFR with 2 units on each site. 1 bedroom at around 750 feet and house with a mix of 3 and 4 bedrooms. Density is 17.7 Du/AC net	Added SFR building type with ADU type. Categorized it as MFR with 2 units on each site. 1 bedroom at around 750 feet and house with a mix of 3 and 4 bedrooms. Density is 17.7 Du/AC net
4	Allow cluster / cottage housing development	No Cottage units in RS or RM	Set of cottage homes to comprise 5% of the RS and RM Development Types	Set of cottage homes to comprise 5% of the RS and RM Development Types

Number	Efficiency Measure (EM)	Package A – Existing Code	Package B – Revised Code EM	Package C – Revised Code & Additional EM
5	Allow duplexes and triplexes in SFR zones outright	Duplex set to 3% of RS and RM Triplex set to 7% of RM	Duplex set to 7% of RS and RM Triplex set to 7% of RM	Duplex set to 7% of RS and RM Triplex set to 7% of RM
6	Prohibit SFR detached from the RH zone	SFR detached = 5%	SFR detached = 5%	SFR detached = 0%
7	Decrease minimum lot sizes for SFR detached in RM zone		Reduced 3,000 sf building type to 2,500 sf	Reduced 3,000 sf building type to 2,500 sf
8	Decrease minimum lot sizes for SFR detached in RM zone		Reduced 2,500 sf building type to 2,000 sf	Reduced 2,500 sf building type to 2,000 sf
9	Decrease minimum lot sizes for SFR detached in RM zone		Reduced 2,000 sf building type to 1,500 sf	Reduced 2,000 sf building type to 1,500 sf
10	Reduce minimum lot dimensions for SFR Attached in RH zone		Reduced width from 20 feet to 18’ and depth to 75 feet	Reduced width from 20 feet to 18’ and depth to 75 feet
11	Reduce setbacks in RH and RM zones for SFR Detached		Reduced setbacks for detached building types: 1,500, 2000, 2,500, 4,000, 5,000 s.f. in RM and RH zones In some cases the maximum lot size coverage is exceeded.	Reduced setbacks for detached building types: 1,500, 2000, 2,500, 4,000, 5,000 s.f. in RM zones (No SFR detached was included in RH) In some cases the maximum lot size coverage is exceeded.
12	Increase maximum lot coverage for SFR Attached in RS zones to 50%		Set building coverage to 50%	Set building coverage to 50%
13*	Increase maximum lot coverage in RM zones to 60%		Reduced parking spaces to 1.5 per unit in order to reach 60% coverage	Reduced parking spaces to 1.5 per unit in order to reach 60% coverage

Number	Efficiency Measure (EM)	Package A – Existing Code	Package B – Revised Code EM	Package C – Revised Code & Additional EM
14*	In the RH zone – allow greater lot coverage. Potential actions: eliminate maximum lot coverage requirements; allow minimum parking and minimum landscaping requirements to set upper limit on lot coverage		For Building types used by the RH, reduced parking As follows, existing>new Residential, listed as spaces per unit 2.5 > 1.5 1.75 > 1 1.5 > 1 Retail (listed as spaces per 1,000 sf) 3 > 1.5 Office (listed as spaces per 1,000 sf) 3 > 1.85 3>1.5 for 4-story bldgs 2.85 > 1.5 2 > 1.5 Landscaping standards did not need changing to reach or exceed max FAR	For Building types used by the RH, reduced parking As follows, existing>new Residential, listed as spaces per unit 2.5 > 1.5 1.75 > 1 1.5 > 1 Retail (listed as spaces per 1,000 sf) 3 > 1.5 Office (listed as spaces per 1,000 sf) 3 > 1.85 3>1.5 for 4-story bldgs 2.85 > 1.5 2 > 1.5 Landscaping standards did not need changing to reach or exceed max FAR
15	ADUs – waive off street parking requirement	NA	SFR/ADU building type only included parking for the main house	SFR/ADU building type only included parking for the main house
16	Duplex and Triplex – reduce parking from 2 to 1.5 per unit	Parking set to 2 spaces per unit	Set to 1.5	Set to 1.5
17*	Reduce parking requirements for multi-family housing	Varies by building types	For MFR Building types reduced parking As follows, existing>new Residential, listed as spaces per unit 2.5 > 1.5 1.75 > 1 1.5 > 1	For MFR Building types reduced parking As follows, existing>new Residential, listed as spaces per unit 2.5 > 1.5 1.75 > 1 1.5 > 1

Number	Efficiency Measure (EM)	Package A – Existing Code	Package B – Revised Code EM	Package C – Revised Code & Additional EM
18	Increase minimum required density for master planned developments form 60% to 80% of maximum zone density, and reduce requirement threshold from 40 to 20 acres	60%	No change	Created RS and RM Masterplan Development Type set to 80% of max. Applied to vacant sites of 20 acres or more
19	Increase building height for higher intensity areas	Varies by building types and zone	20% of the Urban Mixed Use development types contains buildings of 5 and 8 stories	20% of the Urban Mixed Use development types contains buildings of 5 and 8 stories
20	Expand lot coverage in ME zone from 60% to 80%	60%	Parking requirements for 1 and 2 story office were reduced. Could not reach 80% threshold without employing structured parking, which doesn't match economic profile of ME areas	Parking requirements for 1 and 2 story office were reduced. Could not reach 80% threshold without employing structured parking, which doesn't match economic profile of ME areas

*Per TAC direction on February 11, 2015, parking reductions were applied only in selected higher density and mixed use areas of the City.

Memorandum

February 18, 2015

To: Bend Remand Technical Advisory Committees

Cc: Project Team

From: Joe Dills and Brian Rankin

Re: Structure and Role for Technical Advisory Committees in Phase 2 - Options

OVERVIEW

The purpose of this memorandum is to summarize a proposed structure and role for the Technical Advisory Committees (TACs) in Phase 2 of the Bend Remand process. This proposed structure follows direction from City Council leadership in recent discussions with the project management team.

Looking Back

- Feedback from TAC members has been very positive about the process.
- The three-TAC structure appears to have helped create broad ownership of, and support for, key recommendations.
- From a technical viewpoint, the TACs have added expertise and helped the team do its work – they are an important brain trust for the project.
- Managing three TACs has been very hard and expensive work. Each round of meetings requires three full meeting packets and two days of meetings by the team and TAC members.
- The comprehensive approach, and short period between meetings, sometimes reduces the team's ability to focus on individual issues or deliverables.

Looking Forward - The Work of Phase 2

The following is a summary of key working tasks for Phase 2. This is a preliminary list, but indicative of the steps and efforts that ideally the TACs would be involved in.

a. Scenario development

- Further work on evaluation criteria and weighting
- Stage 2 mapping
- Scenarios workshop
- Recommendations to USC on alternative scenarios for evaluation

b. Scenario evaluation and proposed UGB

- Sorting through a complex set of evaluations to shape the conclusions
- Creation of a hybrid scenario
- Review of refined evaluations and Goal 14/Remand compliance justification
- Recommendations to USC on the proposed UGB

c. Urbanization Report

- General Plan policies required to support the UGB and growth strategy
- Review of other parts of the report, documenting the UGB update

d. Other Key Reports

- Review of final proposed Housing Needs Analysis, Economic Opportunities Analysis, and Buildable Lands Inventory

Project Management and Process Considerations

The project management team recommends that the City:

- Continue the process of building broad ownership of, and support for, UGB recommendations through continued participation by the TAC brain trust.
- Streamline the Committee structure to avoid TAC member and team fatigue.
- Reduce the level of "simultaneous work" by the team in Phase 2, while implementing a work plan and schedule that keeps making good progress.
- Focus on scenario development during the April to June time period – this is critical path task and time period.
- When the hybrid scenario and its key findings are being prepared, focus mainly on those activities. It is another critical path milestone.

PHASE 2 TAC ROLE AND STRUCTURE

- Appoint a Phase 2 Boundary TAC comprised of members of the Boundary TAC, plus two to three members each from the Residential and Employment TACs (co-chairs as the starting point for invitation and appointment). The role of the Phase 2 Boundary TAC is to serve as the primary TAC for scenario development, evaluation, and UGB recommendation to the USC.
- Involve both the Phase 2 Boundary TAC and the balance of Phase 1 TAC members in:
  - How the Goal 14 criteria will be weighted (survey outreach)
  - Scenario development workshop in May-June (similar to December workshop)
  - Other workshops and involvement as identified during the process
- Convene the Residential TAC to review/finalize the HNA.(1-2 meetings)
- Convene the Employment TAC to review/finalize the EOA. (1-2 meetings)
- Involve both the Residential and Employment TAC in the review of the proposed final Buildable Land Inventory.
- Urbanization Report and General Plan policies review – to be determined as to which TACs are involved

City of Bend
Residential Lands Technical Advisory Committee
Meeting #7
Meeting Notes
Date: February 23, 2015

The Residential Lands TAC held its regular meeting at 10:00 am on Monday, February 23, 2015 in the Council Chambers of Bend City Hall. The meeting was called to order at 10:02 by Joe Dills of the Angelo Planning Group.

Roll Call

- ☐ Kristina Barragan
- ☐ Gary Everett
- ☐ David Ford
- ☐ Laura Fritz
- ☐ Gordon Howard
- ☐ Allen Johnson
- ☐ Thomas Kemper
- ☐ Katrina Langenderfer
- ☐ Michael O'Neil
- ☐ Kurt Petrich
- ☐ Kirk Schueler
- ☐ Sidney Snyder
- ☐ Stacy Stemach

Discussion

1. Welcome

Joe Dills called the meeting to order at 10:02 am. He provided a brief recap of looking back at the work completed since the last TAC meeting, and a look forward. The look forward for this meeting is preparing recommendations for the UGB Steering Committee (USC) for their March 19, 2015 meeting. The framing for this meeting: TAC review and forwarding of their commendations to the USC as working conclusions for Phase 1 of the project. The meeting materials included an Urban Form Map showing Scenarios 4b and 5c and a Development Types table for both the Residential and Employment TAC meetings. The package of materials make up the bookends that will be considered in Phase 2 of the project.

2. Draft Phase 1 Growth Scenarios

Andrew Parish of APG gave a power point presentation on recommended Scenarios 4b and 5c. This presentation highlighted existing materials in the TAC's February 23, 2015 meeting packet. The scenarios came from the prior work to consider three scenarios, each evaluated with three policy packages of efficiency measures (a 3 x 3 grid). The Phase 1 Growth Scenarios (See Urban Form Map) are essentially the same; difference is the presence of a housing component at Juniper Ridge in Scenario 5c. The two scenarios represent the bookends for the next phase of the project. The presentation also touched on the scenario components, the buildable lands inventory (BLI), and a presentation of the capacity analysis presented in Tables 10 and 11 of the packet.

The presentation of the capacity analysis highlighted estimates housing units and jobs in each of the opportunity area listed in Table 7 of the packet. This data includes 4,079 units on infill lands. With respect to employment, the presentation highlighted the data in each of three scenarios (1a, 4b, and 5c) and compared this to the need for employment that the Employment TAC completed at an earlier meeting.

One topic brought to the TAC for their discussion and approval was a recommendation on how to account for accessory dwelling units (ADUs) in the work on estimating the need for future housing units. The modeling thus far had not accounted for ADU's. The presentation showed data that an

average of 11.75 ADU's were permitted from 2001 to 2014. The team recommendation on this topic was to multiply this average by the number of years left in the planning period (11.75 x 14) for the recommended estimate of an additional 165 ADU's for the UGB capacity to meet the single family attached need.

Joe then directed the TAC's attention to the meeting packet and printed materials for the remainder of this topic. The discussion here involved a number of questions and comments that covered the capacity shown is buildout, how different "paint" colors in the Envision Tomorrow scenario tool correspond to City of Bend zones, the data in Tables 10 and 11 showing capacity, the development potential of the Juniper Ridge property (aka Opportunity Area No. 6), the potential and cost to provide infrastructure to Juniper Ridge, whether Juniper Ridge should be left in the inventory or removed from the UGB, and questions on the potential for development of properties in the scenarios based on their location, characteristics, and "painting."

There was some discussion about the estimated capacity of the UGB calculated and presented, in particular whether the capacity shown was at buildout (See above), and whether to assume all of the capacity will be used up during the remainder of the planning period. The team confirmed that the capacity estimate is not the same as aspiration, and are on the conservative side. The effect of potentially reduced parks SDCS's was not included in this anlaysis.

The TAC also discussed the employment and jobs data shown in the meeting materials (See Tables 11, 12, and 14). The team confirmed that medical employment was included in the Office jobs in the tables. The TAC had no further comments on the employment portion of this presentation.

The discussion on this topic concluded with some additional questions regarding transportation. Transit corridor planning has not yet been incorporated as an efficiency measure. This discussion also touched on vehicle miles traveled (VMT) that will be measures on a per capita basis. The Remand Order (See 8.6) outlines requirements for the City to meet to either reduce VMT or complete an integrated land use and transportation plan.

Following the discussion, Joe asked for a motion to approve the Phase 1 Growth Scenarios as listed on page 19 of the packet and shown below:

1. The Phase 1 Growth Scenarios is comprised of the package of:
    a. Phase 1 Growth Scenario Map
    b. Efficiency measures (listed in Appendix C)
    c. Capacity analysis
    d. Urban Form Map

Al moved approval of 1a through 1d on page 21. Al withdrew this motion per Sid's input. This led to the discussion amongst the TAC of an amended motion to include the following:

1. The Phase 1 Growth Scenarios is comprised of the package of:
    a. Phase 1 Growth Scenario Map
    b. Efficiency measures (listed in Appendix C)
    c. Capacity analysis
    d. Urban Form Map

2. The four bullets shown on page 21, listed below:
    - Further analysis of efficiency measures and a revised set of recommended measures

- Potential spatial refinements, including a recommended scenario for Juniper Ridge and other possible changes that would be compatible with different boundary scenarios.
- Conversion of needed housing units and jobs to acres of land and identification of specific recommended Plan designations both inside and outside the UGB.
- Estimate of land needed for other purposes outside the UGB such as schools, parks, "other lands," roads, and other infrastructure.

3. And, in addition to these four bullets, the addition of the following bullets:

- 5th bullet: specific analysis of VMT/capita, including potential for transit;
- 6th bullet: ADU's
- 7th bullet: further analysis of likely yield of efficiency measures during planning period.
- 8th bullet: Open table for more efficiency measures
- 9th bullet: explore additional financial incentives (parks SDCs)

Sid moved approval of an amended motion that included the Phase 1 Growth Scenario as shown on the bottom of page 21, the four bullets proposed on page 21 (see above), and the five new bullets listed above. Gary 2nd this motion. The motion passed by a unanimous vote.

3. Proposed TAC Structure for Phase 2

Joe referred the TAC to the memo at 28 and 29 of the packet that outlined the structure and role for the Residential TAC in Phase 2 of this project. Joe and Brian outlined that in Phase 2, the Boundary TAC will continue working and will be joined by 2 or 3 members of the Residential TAC. Additional meetings of the Residential TAC will be held to review individual products such as the housing needs analysis. The timeline for Phase 2 work will extend past November (as shown on timeline in packet (Appendix B)) and continue through to January 2016. The project goal is still local adoption and submittal to the Department of Land Conservation and Development (DLCD) by April 2016.

4. Public Comment
There was no public comment

5. Project News and Adjourn.
There was no additional project news. Joe adjourned the meeting at 11:53 am.

Action Items/Next Steps

Action	Assigned To
TAC approval of Phase 1 Growth Scenarios	**Done**

URBAN GROWTH BOUNDARY REMAND

BEND

Sign in Sheet

(1)

Meeting: RESIDENTIAL TAC #7

Date: 2/23/2015

Location: COUNCIL CHAMBERS

Name	Organization	Email Address
Scott + Carol Jackson	property owner	jackson4@countrycablevision.net
Seth Ehlman	DLCD	
Kristina Barragan	Alzheimers Association	
Jacqui Pennock	League of Women Voters	pennockj-f@comcast.com
Deb VanNatta	Brooks	
Laura Fritz		
Kat Langendorfer	HHRR	
Kurt Petrich		
MIKE O'NEIL	SOLARIZ	
Jody Ward	JL Ward Co	Jodye@JLWardco.com
Gary Vodden		randal.roi@gmail.com

URBAN GROWTH BOUNDARY REMAND

Meeting Agenda

Employment Technical Advisory Committee – Meeting 7
Monday, February 23, 2015 2:30 PM – 5:00 PM
City Council Chambers, Bend City Hall

Meeting Purpose and What is Needed from the TAC

The purposes of this meeting are to:

- Review and approve the Draft Phase 1 Growth Scenarios for recommendation to the UGB Steering Committee (USC) – an action item
- Discuss the proposed TAC structure for Phase 2 – an informational item

The main agenda item for this meeting is to discuss a memorandum which describes, and recommends to the TACs, draft growth scenarios for the current Bend Urban Growth Boundary (UGB). The scenarios in the memorandum are referred to as the draft "Phase 1 Growth Scenarios" to indicate that they are the draft conclusions of the UGB analysis and policy direction from Phase 1 of the project. The team has combined the direction on spatial changes received from the TACs in January, together with TAC direction on efficiency measures, to estimate the housing and employment capacity of the current UGB. This analysis, when compared to the projected need for housing and employment, results in estimates of residual housing and employment needs required to accommodate growth to 2028. The conclusions are stated as a range, or "bookends." The Residential and Employment TACs are asked to review this work and forward their recommendation to the UGB Steering Committee (USC).

The agenda also includes an informational item on the proposed TAC structure for Phase 2, following direction from City Council leadership. In brief, the proposed structure is to: (a) supplement the Boundary TAC with two to three members each from the Residential TAC and Employment TAC to form a lead TAC for the UGB expansion analysis; (b) bring the full complement of the three TACs back together in workshop settings in Phase 2 (1-2 workshops expected); and, (c) convene the Residential and Employment TACs to review key documents prior to adoption by the City (e.g. Buildable Lands Inventory; Housing Needs Analysis; Economic Opportunities Analysis).

For additional project information, visit the project website at http://bend.or.us or contact Brian Rankin, City of Bend, at brankin@bendoregon.gov or 541-388-5584

Accessible Meeting/Alternate Format Notification
This meeting/event location is accessible. Sign and other language interpreter service, assistive listening devices, materials in alternate format such as Braille, large print, electronic formats, language translations or any other accommodations are available upon advance request at no cost. Please contact the City Recorder no later than 24 hours in advance of the meeting at rchristie@ci.bend.or.us, or fax 385-6676. Providing at least 2 days notice prior to the event will help ensure availability.

Agenda

1. Welcome — 2:30 PM

a. Welcome and convene — Jade Mayer
b. Where we are in the process – a brief look back and look forward — Joe Dills, Brian Rankin

2. Draft Phase 1 Growth Scenarios — 2:40 PM

Information and action

a. Presentation: Key findings from the Envision Tomorrow modelling.
b. TAC discussion: Following the topical order in the memo, discuss and identify key issues.
c. TAC action:
    - What elements of the recommendations should be revised, or noted for comment, in the recommendation to the USC?
    - As (if) amended, does the TAC support the recommendation to the USC for approval of the Phase 1 Growth Scenarios package?

Andrew Parish, APG and Alex Joyce, Fregonese Associates

3. Proposed TAC Structure for Phase 2 — 4:15 PM

Information

a. Brief summary of proposed TAC structure
b. TAC discussion

Joe Dills

5. Public Comment — 4:45 PM

6. Project News and Adjourn — 4:55 PM

Memorandum

February 18, 2015

To: Residential and Employment Technical Advisory Committees
Cc: Project Team
From: Angelo Planning Group Team
Re: Draft Phase 1 Growth Scenarios

INTRODUCTION

Purpose

The purpose of this memorandum is to describe, and recommend to the TACs, draft growth scenarios for the current Bend Urban Growth Boundary (UGB). The scenarios in this memorandum are referred to as the draft "Phase 1 Growth Scenarios" to indicate that they are the draft conclusions of the UGB analysis and policy direction from Phase 1 of the Bend Remand project. Issues for continuing study have been identified. The Residential and Employment Technical Advisory Committees (TACs) are asked to review this work and forward their recommendation to the UGB Steering Committee (USC).

Where We've Been - Summary of Work Leading to the Phase 1 Scenarios

The Phase 1 Scenarios were created based on the work that was completed by the TACs, USC and project team between June, 2014 and February, 2015. The following is a brief summary of that work – please see project web site for further detail.

- Project goals (See Appendix A)
- Residential TAC direction on demographic trends, growth forecasts, housing mix, building types, efficiency measures, and opportunity areas
- Employment TAC direction on employment and market trends, growth forecasts, building types, market factor, redevelopment, and opportunity areas
- Urban form analysis and diagramming
- Scenarios workshop on December 15, 2014
- Calibration of the Envision Tomorrow scenario model
- Update of Bend's Buildable Lands Inventory and preparation of a Base Case growth scenario
- Modelling and analysis of initial growth scenarios created from the ideas and direction received at the December workshop

- Review and direction by the Residential and Employment TACs regarding spatial elements of the scenarios in January, 2015 (See meeting summaries from January 26th TAC Meetings)
- Discussion and approval of residential efficiency measures by the Residential and Employment TACs in February, 2015
- Public input and involvement throughout Phase 1, including 18 TAC meetings, 2 USC meetings, a scenarios workshop, 2 open houses, MetroQuest on-line outreach, BendVoice postings, visits to community groups, and a variety of public information pieces

All of the work summarized above has been conducted consistent with project objectives to address Remand and related legal requirements, and coordinated closely with the Department of Land Conservation and Development (DLCD).

Where We Are Going - Next Steps and Phase 2 of the Remand Project

Following TAC direction, recommendations will be forwarded for consideration by the UGB Steering Committee (USC) at their meeting on March 19, 2015. With approval of a package of recommendations by the USC, Phase 1 of the project will be complete.

The Phase 1 recommendations will serve of the basis for preparing a proposed update of the Bend UGB. Per the methodology developed by the Boundary TAC, the new boundary will be developed in four steps/stages (See Appendix B).

- Base mapping of potential expansion areas
- Scenario development to create alternative growth scenarios
- Scenario evaluation
- Proposed UGB

PHASE 1 GROWTH SCENARIOS

Major Components

The four major components of the growth scenarios are:

- Scenario map
- Efficiency measures (two packages)
- Capacity analysis
- Urban form map

Scenario Map

The scenario map displays the potential type and location of future growth within the current Bend UGB. The lands which are colored on the scenario map are those which have either (a) been classified as vacant, developed, large enough for additional units under current zoning, large enough to divide under current zoning, or re-developable in the Residential Buildable Lands Inventory; (b) identified as Employment Land; or (c) part of nine “opportunity areas” identified by the Residential and Employment TACs as areas of potential change within the City.

Tax lots have been assigned a development type by "painting" using the Envision Tomorrow model. Lands which are not colored on the map are developed lands – where no additional future growth is assumed. The draft Phase 1 Growth Scenario Map is displayed in Figure 1.

The scenario map includes parcels where future growth is assumed to be guided by the existing General Plan designations that exist today. The map also includes parcels where future growth is assumed to be guided by new or revised designations (e.g. – changing a parcel from Standard Density Residential to Medium Density Residential). The changes are focused in the "opportunity areas" evaluated by the TACs.

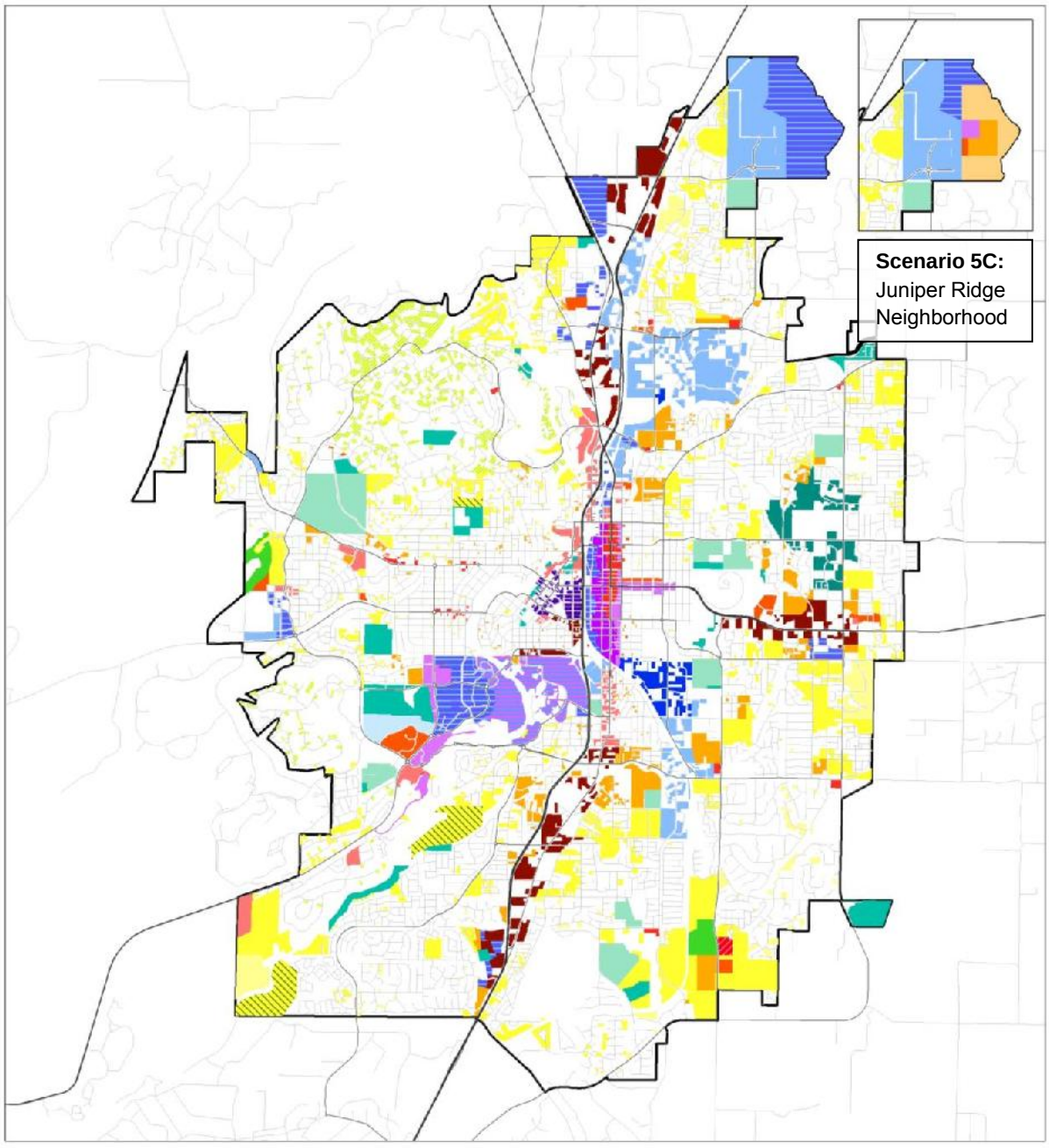
Figure 2 displays the comprehensive plan with the nine opportunity areas highlighted.

Table 1 below describes the changes to the opportunity areas in the scenario map as compared to the base case scenario.

Table 1. Description of Opportunity Areas

Opportunity Area	Base Case	Scenario Map
Opportunity Area 1: Central District Mixed-Use Multimodal Area (MMA)	Retains current plan designation and urban form as highway commercial with light industrial uses	Approximates land uses and urban form described in the Central District MMA Plan
Opportunity Area 2: East Downtown	Area retains existing General Commercial designation.	Becomes an extension of downtown, receiving the Central Business District (CB) designation
Opportunity Area 3: Central Highway 20	Retains existing designation as commercial strip abutted by single family residential	Becomes Neighborhood Mixed Use (MU-1) corridor with limited multifamily attached
Opportunity Area 4: SW Century Drive	Site retains existing light commercial and industrial character.	Area becomes university-serving mixed-use community with housing component.
Opportunity Area 5: Mill District/Core Pine	Remains General Industrial	Becomes new designation, similar to Mixed Riverfront in character.
Opportunity Area 6: Juniper Ridge	Remains Light Industrial	Two options. In Scenario 4B, Juniper Ridge is Mixed Employment (ME). In Scenario 5C, a new neighborhood with over 1,200 housing units added.
Opportunity Area 7: SE 15th St	Entire area remains Standard Residential (RS) designation.	A new complete neighborhood with a mix of residential housing and community commercial designations is applied.
Opportunity Area 8: River Edge	Site retains existing RS designation.	Site becomes clustered housing in the "RS Hillside" designation.
Opportunity Area 9: COID Property	Site retains existing Public Facilities (PF) designation.	Site becomes clustered housing in the "RS Hillside" designation.

Figure 1. Phase 1 Growth Scenario Map



Mixed Use
- CB - Central Business District
- MU 1 - Neighborhood Mixed Use District
- MU 2a - Urban Mixed Use District
- MDOZ - Medical District Overlay Zone
- MR - Mixed Riverfront
- ME - Mixed Employment

Commercial
- CC2 - Commercial Prime
- CL - Commercial Limited
- CG - Commercial General
- CC - Commercial Convenience

Industrial
- IG - Industrial General
- IL - Industrial Light

Residential
- RH - Residential Urban High Density
- RM - Residential Urban Medium Density
- RS - Residential Urban Standard Density
- RS Hillside - Residential Urban Standard Density on Hillside
- RS-CCR - Residential Urban Standard Density with CCR
- RL - Residential Urban Low Density

Other
- Park
- PF - Public Facilities
- School
- Institutional

Table 2 describes the residential and employment mix assumptions within each development type in the Hybrid Scenario Map. Each development type contains a building mix, street and other set-aside assumptions, and a rate at which redevelopment is expected to occur (set at 0% for residential development types). These development types reflect the inclusion of the efficiency measures in Appendix C, rather than being calibrated to historical trends as they were for the base case. Residential and employment densities within these development types vary between scenarios based on the application of efficiency measures, discussed in the following section of this memorandum.

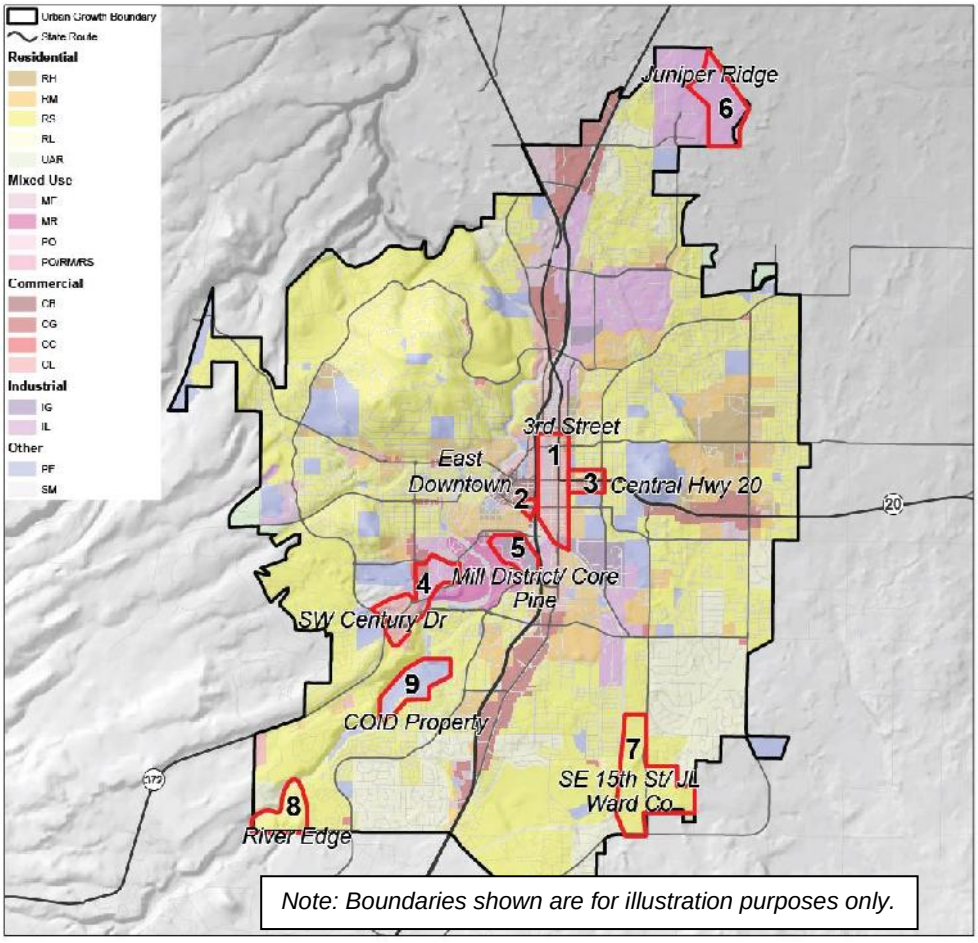
Table 2. Development Types in the Envision Tomorrow Model

Name	Description	Residential Mix	Employment Mix	Additional Information
RS	Std. Density Residential	Multi-Family: 19% Attached SF: 12% Small Lot SF: 8% Conventional Lot SF: 20% Large Lot SF: 41%	-	Contains 2% mix of SF with ADU.
RM	Medium Density Residential	Multi-Family: 44% Attached SF: 5% Small Lot SF: 40% Conventional Lot SF: 12%	-	
RH	High Density Residential	Multi-Family: 82% Attached SF: 14% Small Lot SF: 4%	-	
RL	Low Density Residential	Large Lot SF: 63% Multifamily Attached (duplex): 37%	-	Contains 2% mix of SF with ADU and 5% duplex
MDOZ	Medical District Overlay Zone	Multi-Family: 100%	Office – 86% Industrial – 9% Civic – 5%	Captures different mix of uses in the MDOZ area
CC	Community Commercial	-	Retail - 35% Office - 39% Industrial - 4% Civic - 2% Hotel - 19%	
CC2	"Walkable" Community Commercial	-	Retail – 53% Office – 31% Civic – 1% Hotel – 15%	A more dense and walkable version of the Convenience Commercial (CC) designation
CL	Limited Commercial	Multi-Family: 97% Small Lot SF: 3%	Retail - 23% Office - 49% Industrial - 7% Civic – 3% Hotel - 18%	Includes a small amount of residential use, based on historic trends

Name	Description	Residential Mix	Employment Mix	Additional Information
CG	General Commercial	-	Retail: 63% Office: 19% Industrial: 3% Civic: 2% Hotel: 13%	
CB	Central Business District	-	Retail: 8% Office: 63% Civic: 17% Hotel: 12%	
IL	Industrial Light	-	Retail: 9% Office: 25% Industrial: 55% Civic: 10%	
IG	Industrial General	-	Retail: 4% Office: 32% Industrial: 60% Civic: 4%	
MR	Mixed Riverfront	Multi-Family: 64% Small Lot SF: 36%	Retail: 15% Office: 66% Industrial: 12% Civic: 3% Hotel: 4%	
ME	Mixed Employment	-	Retail: 16% Office: 31% Industrial: 41% Civic: 7% Hotel: 5%	
PF	Public Facilities	-	Retail: 2% Office: 4% Civic: 94%	
RS-CCR	RS with Development Restrictions	Large Lot SF: 100%	-	a designation for areas covered by CC&Rs that limit lot divisions to ensure one unit per lot
Uni-versity		-	Educational – 100%	Used for planned college/university campuses
MU1	Mixed Use	Multi-Family: 92% Attached SF: 8%	Retail: 51% Office: 42% Civic: 5% Hotel: 2%	new neighborhood-scale mixed use development type
MU2a	Mixed Use	Multi-Family: 95% Attached SF: 4%	Retail: 12% Office: 69% Civic: 1% Hotel: 18%	new urban-scale mixed use development type

Name	Description	Residential Mix	Employment Mix	Additional Information
RS Hillside	Std Density Residential – Clustered Development	Multi-Family: 12% Attached SF: 24% Conventional Lot SF: 21% Large Lot SF: 42%	Office: 100%	Used where topography or other conditions may limit density to the lower end of the allowed range, rather than the average
RS Master-plan	RS for large master-planned areas	Multi-Family: 11% Attached SF: 14% Small Lot SF: 57% Conventional Lot SF: 7% Large Lot SF: 11%		Reflects efficiency measures affecting master plan requirements for large sites (over 20 acres)

Figure 2. Opportunity Areas and Current General Plan Designations



Efficiency Measures

In addition to the location-specific changes described above, two sets of efficiency measures have been applied to test their impact on the relative efficiency of development and resulting development capacity within the City. The proposed efficiency measures are listed in detail in Appendix C.

Some efficiency measures are applied in residential zones to encourage development of needed housing types and/or encourage more efficient use of residential land. Others are applied to employment zones to enable redevelopment or make more intensive new development possible. These measures were reviewed by the TAC and included the "packages" of tools listed below. The measures are generally applied to all lands within a given zone, but further work will be conducted to examine strategic application of some efficiency measures.[1]

- **Package A** is the "base case" and contains no new efficiency measures.
- **Package B** is focused on changes that make it easier for property owners and developers to build at the higher end of the allowed density range in each zone by creating greater flexibility in development standards. This package is a market-based approach that uses options and incentives to achieve higher densities. Examples include:
    - reducing minimum lot sizes and setbacks for certain housing types in certain zones
    - reducing parking ratios for certain types of businesses and certain housing types so that less land must be dedicated to parking
    - expanding allowed housing types in the RS zone
- **Package C** also increases flexibility in development standards, but it includes a mix of incentives and regulatory constraints to both allow and require development to utilize land more efficiently. Examples, in addition to those identified above for Package B, include:
    - increasing minimum density standards in the RS and RM zones
    - strengthening master planning requirements for large blocks of vacant residential land
    - prohibiting new single family detached housing in the RH zone

These packages were analyzed with Envision Tomorrow through a combination of changes in development type assumptions and the creation of new "master plan" development types for select large parcels. Changes to development types included increased minimum gross densities, changes to building mix, reduced lot sizes, reduced parking, and expanded lot coverage. Details regarding the operationalization of the Efficiency Measures within the model is provided in Appendix C.

[1] In reviewing the efficiency measures, the TACs noted that some efficiency measures were only appropriate in selected parts of the City (e.g. reduced parking ratios in mixed use, pedestrian-oriented areas). For the Phase 1 capacity analysis, this approach has been approximated through revisions to Envision Tomorrow model assumptions for some of the development types.

Capacity Analysis

The Phase 1 Growth Scenarios provide the basis for answering a fundamental question: what is the estimated capacity for growth (additional housing and jobs) within the current UGB? Capacity information is described in the Results section of this memorandum, along with analysis about the types and location of future jobs and housing. That information is then further used in answering another fundamental question: how does the capacity compare to the 20 year need for land for housing and jobs? That is: what is the residual need that must be accommodated with an expansion of the Bend UGB?

The Phase 1 Growth Scenario does not provide a single answer to the question of capacity. Rather, a range of capacity estimates is provided, referred to as "bookends" for growth within the current UGB. This approach is intended to reduce the pressure to get to a single "answer" in Phase 1, thus setting the stage for continued refinement and work in Phase 2 including additional analysis of the effectiveness and feasibility of specific efficiency measures related to impacts on public infrastructure systems such as transportation (Vehicle Miles Traveled and other indicators), water, and wastewater systems.

The drivers of the bookended capacity estimates can be summarized as follows:

- Phase 1 is concluding with one scenarios map, that has two alternatives for a single opportunity area: Juniper Ridge.
- Phase 1 is concluding with two packages of efficiency measures that, when applied in combination with the map, provide a range of estimated capacities for the current UGB.

Urban Form Map

The purpose of the Urban Form Map is to provide a high-level view of the shape of the City. It shows the variety and relationship of Bends neighborhoods, centers and corridors, and employment districts. Versions of the Urban Form Map have been used to create and evaluate scenarios to date.

Discussions with the TACs about future development within the City have focused not only on capacity and land efficiency, but also on the livability and urban form of Bend. Urban form generally defines the type and scale of development and the roads and pathways that allow people to connect to the places they live, work, shop, and play within and outside those areas. In terms of the type of development, urban form describes different types of housing and employment uses, the size or scale of buildings and lots, and the design character of new development. Urban form also describes the relative emphasis on using different types of transportation within an area – driving, walking, bicycling, or taking transit. These urban form characteristics have been described using a series of maps that show the locations and relative intensities of different types of development, including areas where there is a mix of housing, shopping, and employment uses.

The Urban Form Map will be updated to reflect scenarios 4B and 5C in advance of the February 23rd Residential and Employment TAC meetings.

RESULTS

Housing

The tables and figures below describe the housing capacity and mix of the base case and hybrid scenarios. With no changes to plan designation, the base case scenario projects an added capacity of 9,050 units within the existing UGB. Of these, 70% are expected to be single family detached units, 25% multifamily attached units, and 5% attached single family units.

Scenario 4B shows an additional capacity of roughly 3,400 units over the base case, a 38% increase. This is achieved by a combination of efficiency measures and changes to the designation of the nine opportunity areas. The housing mix in this scenario is 55% single family units, 36% multifamily attached units, and 9% attached single family. Scenario 5C shows a 61% increase over the base case, with a capacity of 14,583 units and a mix of 57% single family units, 33% multifamily attached units, and 10% attached single family.

Table 3. Housing Capacity and Housing Mix Estimates

	Base Case		Scenario 4B		Scenario 5C	
New Housing Units	**9,050**	**100%**	**12,477**	**100%**	**14,583**	**100%**
Multifamily Attached	2,240	25%	4,487	36%	4,871	33%
Attached Single Family	471	5%	1,151	9%	1,401	10%
Single Family Detached	6,340	70%	6,839	55%	8,311	57%

Figure 3. Housing Capacity and Mix

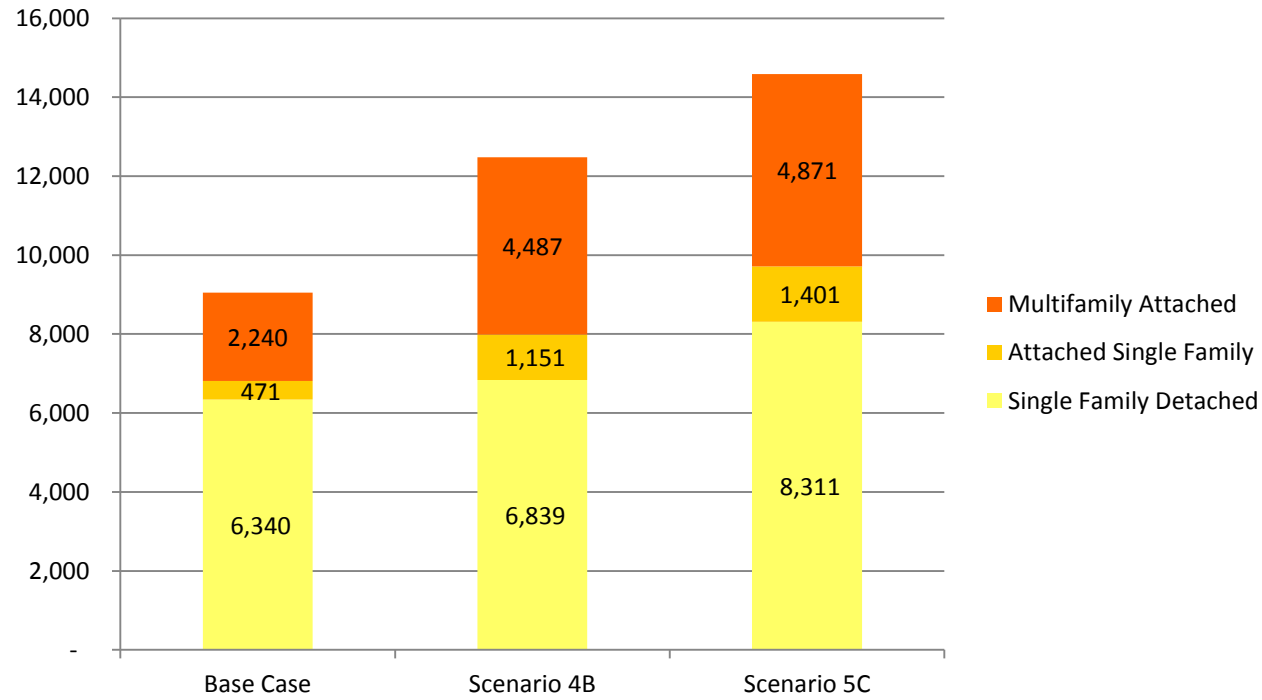


Figure 4. Housing Mix (Percentage)

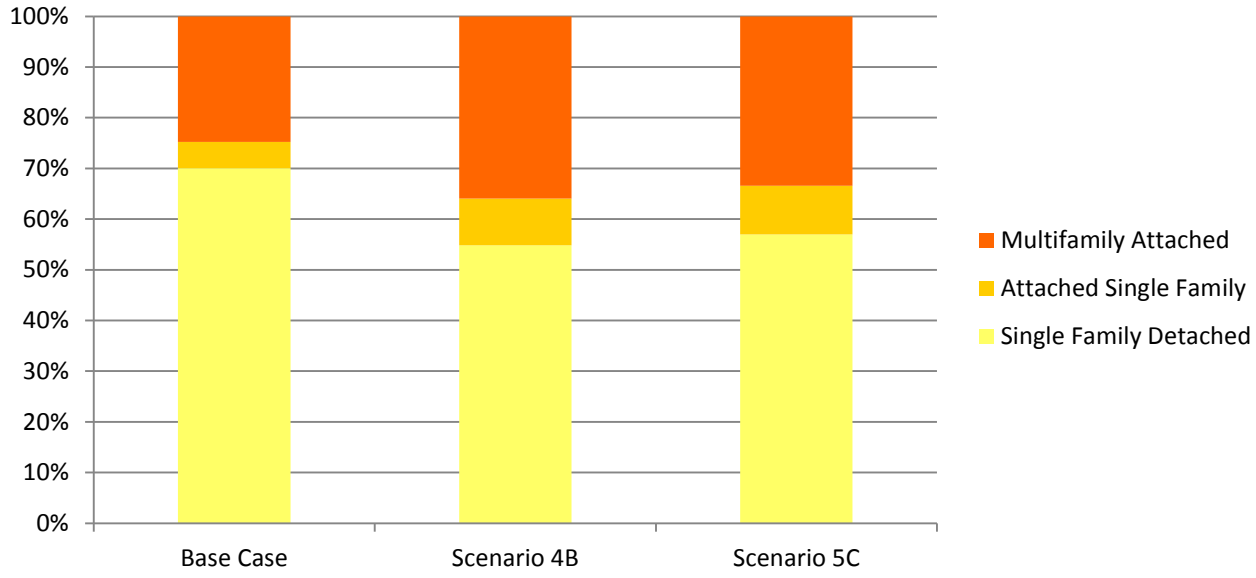


Table 4. BLI status of Added Housing Units, by Scenario

BLI Status	Base Case		Scenario 4B		Scenario 5C	
Developed	138	2%	712	6%	738	5%
Lots large enough for an additional unit under current zoning	0	0%	0	0%	0	0%
Lots large enough to divide under current zoning	3,111	34%	4,079	33%	4,258	29%
Vacant	5,776	64%	7,479	60%	8,091	55%
Publicly Owned	25	0%	26	0%	1,302	9%
None of the above*	0	0%	180	1%	193	1%
Total	**9,050**	**100%**	**12,477**	**100%**	**14,583**	**100%**

** None of the Above indicates land that is not part of the residential BLI. These units are generated through mixed-use designations on what was previously employment land.*

Table 4 describes the land on which new units occur by BLI status[2]. In all scenarios, the majority of new units occur on vacant land, and roughly one third of new units occur in lots large enough to divide under current zoning. Scenario 5C shows significant development on Publicly Owned land, namely Juniper Ridge.

Properties with a BLI designation of "developed" with additional housing units include areas with existing employment designations/land uses in opportunity areas deemed appropriate for

[2] Details regarding BLI designations and their role within the Envision Tomorrow model can be found in the February 6th memorandum titled "Draft Bend UGB Buildable Lands Inventory."

residential development, such as the Central District MMA, land near the OSU campus, and the Mill District/Core Pine area.

Employment

The tables and figures below describe the employment capacity of the base case and hybrid scenarios. Scenario 4B shows an increase of roughly 2,800 jobs over the base case, primarily in the office, industrial, and retail categories. Scenario 5C shows a decrease in new jobs from Scenario 4B due to the conversion of land in Juniper Ridge from employment to housing uses.

Table 5. Employment Capacity Estimates

	Base Case		Scenario 4B		Scenario 5C	
New Jobs	**13,074**	**100%**	**15,887**	**100%**	**14,413**	**100%**
Retail	1,745	13%	2,301	14%	2,179	15%
Office	3,766	29%	5,979	38%	5,603	39%
Industrial	3,272	25%	4,053	26%	3,248	23%
Public	3,423	26%	2,571	16%	2,466	17%
Education	383	3%	346	2%	346	2%
Hospitality	484	4%	637	4%	569	4%

Figure 5. Potential Employment Capacity

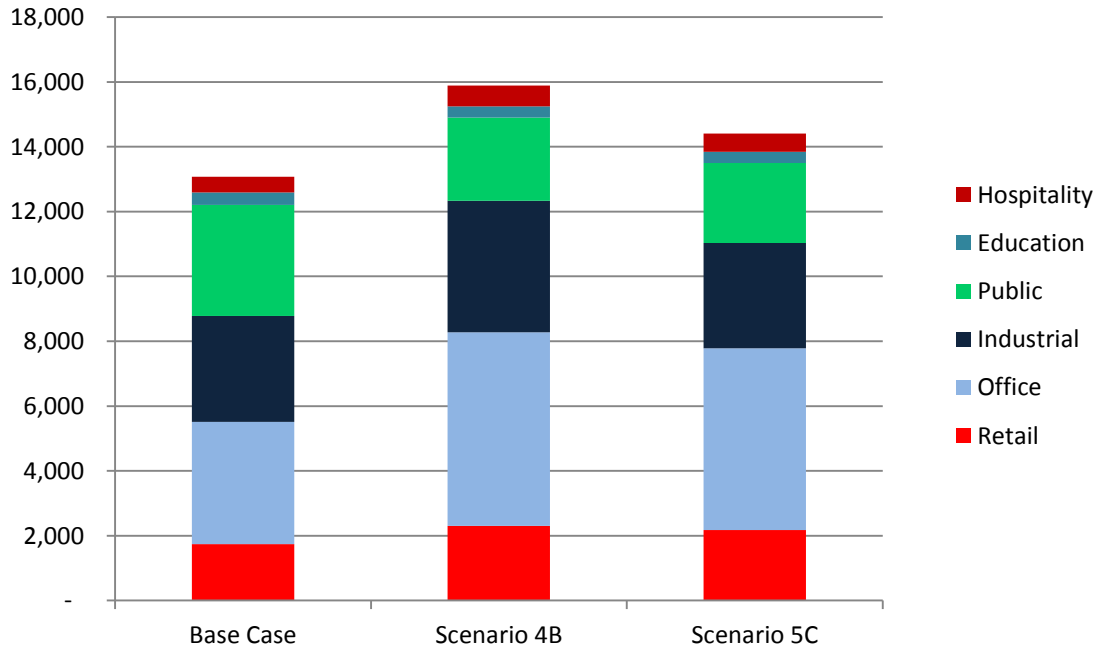


Figure 6. Potential Employment Capacity (Percentage)

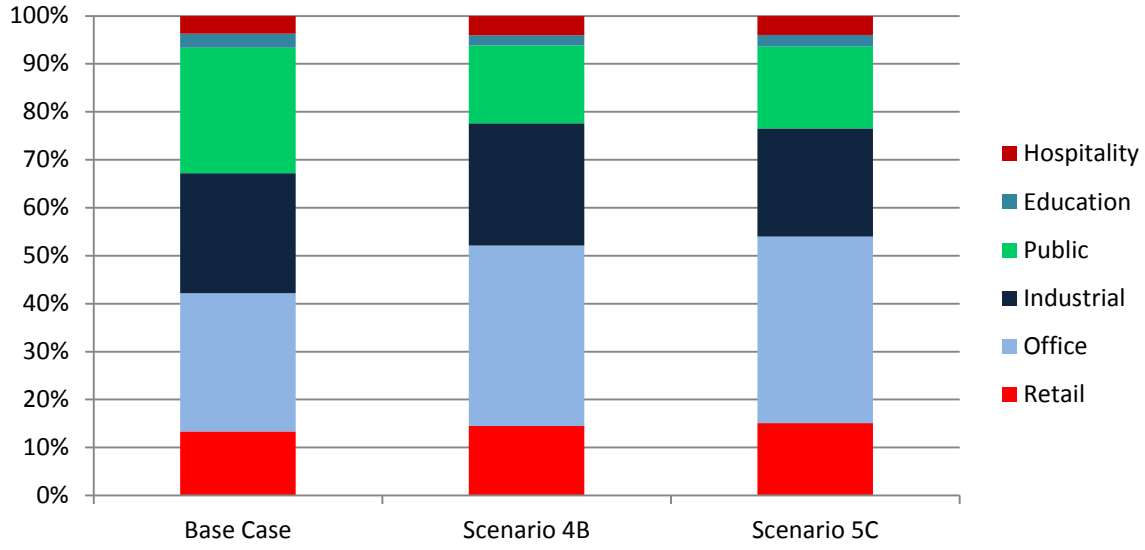


Table 6. Added Jobs by Employment BLI Status

	Scenarios		
	Base Case	**4B**	**5C**
Developed	2,778	4,840	4,840
Vacant	8,415	10,057	8,583
Other *	1,881	990	990
Total	**13,074**	**15,887**	**14,413**

* Other lands include residential land, and land designated “Public Facilities”.

Housing and Employment Comparison of Opportunity Areas

Tables 7 and 8 below describe the housing and job growth seen in the Base Case, 4B, and 5C scenarios broken down into the nine opportunity areas identified by the Residential and Employment TACs. A map of these opportunity areas is provided in Figure 2.

The largest difference between Scenario 4B and Scenario 5C is in Opportunity Area 6 – Juniper Ridge. It is designated Mixed Employment (ME) in Scenario 4B, providing capacity for nearly 2,200 jobs, and in Scenario 5C it becomes a complete neighborhood providing nearly 1,300 single-family and multifamily attached housing units.

Table 7. Housing Units Added By Opportunity Area

		Base Case	Scenario 4B	Scenario 5C
Opportunity Area 1: Central District MMA	Single Family Detached	-	-	-
	Single Family Attached	1	26	26
	Multifamily Attached	8	479	516
	Units Total	9	505	542
Opportunity Area 2: East Downtown	Single Family Detached	-	-	-
	Single Family Attached	-	-	-
	Multifamily Attached	-	-	-
	Units Total	3	-	-
Opportunity Area 3: Central Highway 20	Single Family Detached	-	-	-
	Single Family Attached	-	5	5
	Multifamily Attached	-	41	41
	Units Total	-	46	46
Opportunity Area 4: SW Century Drive	Single Family Detached	6	6	6
	Single Family Attached	-	40	40
	Multifamily Attached	27	289	289
	Units Total	33	336	336
Opportunity Area 5 Mill District/Core Pine	Single Family Detached	-	6	6
	Single Family Attached	-	-	-
	Multifamily Attached	-	11	11
	Units Total	-	17	17
Opportunity Area 6 Juniper Ridge	Single Family Detached	-	-	729
	Single Family Attached	-	-	147
	Multifamily Attached	-	-	400
	Units Total	-	-	1,276
Opportunity Area 7 SE 15th St	Single Family Detached	705	696	999
	Single Family Attached	47	123	188
	Multifamily Attached	41	337	302
	Units Total	794	1,156	1,489
Opportunity Area 8 River Edge	Single Family Detached	93	95	95
	Single Family Attached	13	36	36
	Multifamily Attached	11	19	19
	Units Total	117	149	149
Opportunity Area 9 COID Property	Single Family Detached	-	107	107
	Single Family Attached	-	40	40
	Multifamily Attached	-	21	21
	Units Total	-	169	169

		Base Case	Scenario 4B	Scenario 5C
Total	Single Family Detached	805	911	1,943
	Single Family Attached	61	270	483
	Multifamily Attached	87	1,197	1,598
	Units Total	953	2,378	4,024

Table 8. Employment Added by Opportunity Area

	Base Case	Scenario 4B	Scenario 5C
Opportunity Area 1: Central District MMA	68	557	557
Opportunity Area 2: East Downtown	3	289	289
Opportunity Area 3: Central Highway 20	2	75	75
Opportunity Area 4: SW Century Drive	540	701	701
Opportunity Area 5 Mill District/Core Pine	44	99	99
Opportunity Area 6: Juniper Ridge	1,583	2,183	709
Opportunity Area 7: SE 15th St	4	195	195
Opportunity Area 8: River Edge	1	1	1
Opportunity Area 9: COID Property	1,258	82	82
Total	**3,503**	**4,182**	**2,708**

Conclusions – Bookend Capacity Estimates

Based on the evaluation and refinement of scenarios to date, the capacity bookends for the existing Bend UGB are as described in the following table.

Table 9. Housing Capacity and Jobs Summary table

	Scenario 4B (Low Bookend)		Scenario 5C (High Bookend)	
New Housing Units	**12,477**	**100%**	**14,583**	**100%**
Multifamily Attached	4,487	36%	4,871	33%
Attached Single Family	1,151	9%	1,401	10%
Single Family Detached	6,839	55%	8,311	57%
New Jobs	**15,887**	**100%**	**14,413**	**100%**
Retail	2,301	14%	2,179	15%
Office	5,979	38%	5,603	39%
Industrial	4,053	26%	3,248	23%
Public	2,571	16%	2,466	17%
Education	346	2%	346	2%
Hospitality	637	4%	569	4%

COMPARISON TO NEED

Summary of Need

Population and employment forecasts provide the foundation for determining how much land is needed for housing and employment. This section summarizes housing and employment need in terms of housing units and jobs in light of direction provided by the Residential and Employment TACs. Need is presented for the 2014-2028 period to account for growth that occurred between 2008 and 2014.

The Remand acknowledged a 2028 population forecast of 115,063 for Bend; or 38,512 new persons for the 20-year period between 2008 and 2028. Related to the population forecast, the Remand acknowledged a need for 16,681 new dwelling units between July 1 2008 and June 30 2028. City of Bend building permit data show that 2,912 permits were issued for new residential dwellings between July 2008 and June 2014. That leaves a residual need of 13,770 new dwelling units between July 1, 2014 and June 30, 2028.

The need estimates must also consider group quarters units and second homes. With respect to group quarters, the City assumes that the percentage of persons in group quarters in Bend would remain the same as reported in the 2000 Census (2.3%). This results in a need of 461 group quarters units. Because group quarters are multifamily housing by definition, these units get allocated to the overall multifamily housing need.

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

> "…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.

The need for second homes was calculated as a percentage of total housing need (16,681 needed housing units in planning period x 18% for second homes equals 3,003 units needed for second homes in the planning period– the figure assumed for second homes) The 2,912 permits issued for new dwellings between 2008 and 2014 were deducted from total needed new units. While some of those permits may have been for second homes, there is no way to accurately determine how many. The key issue is that deducting the new permits from the 2008-2028 total housing need did not include any second homes. Thus, the second home assumption is still 18% of 16,681 or 3,003 units.

Table 10 summarizes forecasted new housing units by type and category for the 2014-2028 period. The need breaks down as follows: 13,770 "needed" new housing units, 461 group quarter units, and 3,003 second homes. Note that the second home units assume the same housing mix as needed units consistent with direction from the Residential TAC at the January 2015 meeting.

Table 10. Summary of New Housing Units by Type and Category, Bend UGB, 2014-2028

	2014-2028 Needed Housing Units		2014-2028 Needed Group Quarters Units	2014-2028 Second Homes	2014-2028 Total New Housing Units	
Needed Housing Types	**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%**

The foundation of employment land need is the forecast of employment growth. In the Remand, Bend was found to have met the requirements of Goal 9, with the forecast of 22,981 new employees from 2008 to 2028. In the years since 2008, Bend's employment has grown and changed.

Since the forecast for the 2008 EOA was developed, Bend's economy has changed, in large part as a result of the recent recession. Employment in Bend between 2008 and 2013 grew by 948 employees, at an average annual growth rate of 0.5%. Table 11 shows that using the 2013 total non-shift employment figure of 38,664 and the 2028 acknowledged forecast of 60,607 yields an increase of 21,943 new employees between 2013 and 2028.

Table 11. Employment Forecast by Employment Category, non-shift workers, Bend 2008 to 2013

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

The base case assumes that 6% of new employment will locate on redeveloped land. That equates to 1,317 employees that would locate on land that is inventoried as developed (e.g., the 1,317 employees would not create any land need). After the redevelopment deduction, the employment forecast is for 20,626 new employees that will need to be allocated a land need.

Table 12. Employment Forecast and Redevelopment Assumption, non-shift workers, Bend 2008 to 2013

Employment Assumption	Employees
Total New Employment, 2013-2028	21,943
Employment that locates on redeveloped land (6% base case assumption)	1,317
New Employment, 2013-2028 that Needs Employment Land	**20,626**

Comparison of Capacity to Need – Phase 1 Bookend Conclusions

Tables 13 and 14 below compare the forecasted residential need by housing type and forecasted job need to the capacity of Scenario 4B and Scenario 5C.

Table 13. Housing Capacity Comparison to Need

	Need	Scenario 4B		Scenario 5C	
		Capacity	Residual	Capacity	Residual
Single Family Detached	9,225	6,839	-2,386	8,311	-914
Single Family Attached	1,677	1,151	-526	1,404	-273
Multifamily Attached	6,331	4,487	-1,844	4,871	-1,460
Total Housing Units	17,234	12,477	-4,757	14,583	-2,651

Table 14. Employment Capacity Comparison to Need

	Need	Scenario 4B		Scenario 5C	
		Capacity	Residual	Capacity	Residual
Total Jobs	20,626	15,887	-4,739	14,413	-6,213

As noted previously, the bookends provide a potential range of capacity within the UGB and resulting additional needs for housing units and jobs outside the boundary. These estimates will be further refined in Phase 2 as different boundary options are studied. Refinements are expected to include the following:

- Further analysis of efficiency measures and a revised set of recommended measures
- Potential spatial refinements, including a recommended scenario for Juniper Ridge and other possible changes that would be compatible with different boundary scenarios.
- Conversion of needed housing units and jobs to acres of land and identification of specific recommended Plan designations both inside and outside the UGB.
- Estimate of land needed for other purposes outside the UGB such as schools, parks, "other lands," roads, and other infrastructure.

RECOMMENDATION FROM TAC TO USC

The project team recommends that the TAC approve the Phase 1 Growth Scenarios and recommend them to the UGB Steering Committee, as follows:

1. The Phase 1 Growth Scenarios is comprised of the package of:
   a. Phase 1 Growth Scenario Map
   b. Efficiency measures (listed in Appendix C)
   c. Capacity analysis
   d. Urban Form Map

2. The Phase 1 Growth Scenarios are subject to further refinement in Phase 2.

Appendix A

PROJECT GOALS

The City of Bend has entered the next phase of its Urban Growth Boundary (UGB) expansion to chart a path for Bend's future growth. The UGB is a line drawn on the City's General Plan map that identifies Bend's urban land. This land represents an estimated 20-year supply of land for employment, housing, and other urban uses. As the city continues to grow, we have an opportunity to develop a plan for future growth that reflects the community's goals and meets state planning requirements.

The UGB Steering Committee approved the following Project Goals on September 4, 2014.

A Quality Natural Environment

As Bend grows, it preserves and enhances natural areas and wildlife habitat. Wildfire risk management is a key consideration. Bend takes a balanced approach to environmental protection and building a great city.

Balanced Transportation System

Bend's balanced transportation system incorporates an improved, well-connected system of facilities for walking, bicycling, and public transit, while also providing a reliable system for drivers. Bend's transportation system emphasizes safety and convenience for users of all types and ages.

Great Neighborhoods

Bend has a variety of great neighborhoods that promote a sense of community and are well-designed, safe, walkable, and include local schools and parks. Small neighborhood centers provide local shops, a mix of housing types, and community gathering places. The character of historic neighborhoods is protected and infill development is compatible.

Strong Active Downtown

Bend's downtown continues to be an active focal point for residents and visitors with strong businesses, urban housing, civic services, arts and cultural opportunities, and gathering places. Parking downtown is adequate and strategically located. Planning in other areas continues to support a healthy downtown.

Strong Diverse Economy

Bend has a good supply of serviced land planned for employment growth that supports the City's economic development goals, provides a range of diverse jobs and industries, and supports innovation. Employment areas, large and small, have excellent transportation access.

Connections to Recreation and Nature

Bend continues to enhance its network of parks, trails, greenbelts, recreational facilities, and scenic views inside and outside the city.

Housing Options and Affordability

Bend residents have access to a variety of high quality housing options, including housing affordable to people with a range of incomes and housing suitable to seniors, families, people with special needs, and others. Housing design is innovative and energy efficient.

Cost Effective Infrastructure

Bend plans and builds water, wastewater, storm water, transportation, and green infrastructure in a cost-effective way that supports other project goals. Efficient use of existing infrastructure is a top priority.

Appendix B: Phase 2 Milestones

Draft October 8, 2014 - rev. November 11, 2014

Preliminary and Subject to Change

URBAN GROWTH BOUNDARY REMAND
MAKING BEND EVEN BETTER

Phase 1 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
- Goal 5 inventory

Stage 3

Scenario Development[3]

Iterative steps:
- Prepare sketch level scenarios and test with Envision
- Refine
- Scenarios

Stage 4

Scenario Evaluation[4]

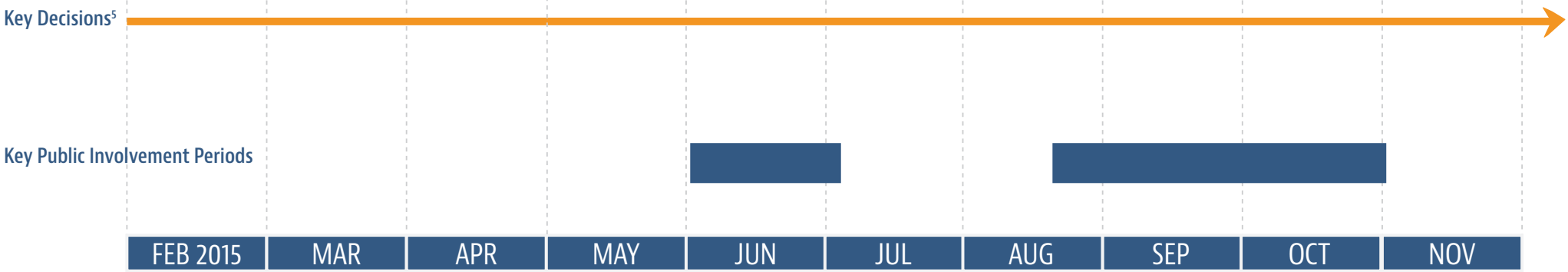
Conduct:
- Envision Testing
- Goal 14 Evaluation
- Water/Sewer Optimization
- Transportation Modeling
- Team review of results
- Goal 5 ESEE analysis

Stage 5

Preferred Scenario[4]
- Prepare evaluation conclusions
- Prepare proposed boundary, land uses, and urban form
- Draft policies, map designations, and findings

Approval of UGB Expansion Scenarios for Evaluation

Approval of Preferred Scenario



Notes:

1-4: Steps per City Attorney Memorandum, Aug 19 2014: 1 = Step 1; 2 = Step 2; 3 = Step 3A Preparation; 4 = Step 3A (3B if necessary)

5: Meeting schedule TBD, including TAC participation in meetings and workshops

Appendix C: Operationalization of efficiency measures within Envision Tomorrow

The table below describes the efficiency measures (EM) that were tested through Envision Tomorrow's Building Prototypes and Development Types. For Package B and C, separate sets of building types and development types were developed. The values were applied to the scenario maps using the Scenario Builder tool within Envision Tomorrow.

Number	Efficiency Measure (EM)	Package A – Existing Code	Package B – Revised Code EM	Package C – Revised Code & Additional EM
1	Increase minimum gross density for RS from 2.0 to 4-5 DU/acre	RS = 3.1 DU/ac	RS = 3.1 DU/ac	RS = 4.6 Du/ac
2	Increase minimum gross density for RM from 7.3 to 10-12 DU/acre	RM = 7.4 DU/ac	RM = 7.4 DU/ac	RM = 11.2 DU/ac
3	Allow Accessory Dwelling Units (ADUs) in all single-family zones	NA	Added SFR building type with ADU type. Categorized it as MFR with 2 units on each site. 1 bedroom at around 750 feet and house with a mix of 3 and 4 bedrooms. Density is 17.7 Du/AC net	Added SFR building type with ADU type. Categorized it as MFR with 2 units on each site. 1 bedroom at around 750 feet and house with a mix of 3 and 4 bedrooms. Density is 17.7 Du/AC net
4	Allow cluster / cottage housing development	No Cottage units in RS or RM	Set of cottage homes to comprise 5% of the RS and RM Development Types	Set of cottage homes to comprise 5% of the RS and RM Development Types

Number	Efficiency Measure (EM)	Package A – Existing Code	Package B – Revised Code EM	Package C – Revised Code & Additional EM
5	Allow duplexes and triplexes in SFR zones outright	Duplex set to 3% of RS and RM Triplex set to 7% of RM	Duplex set to 7% of RS and RM Triplex set to 7% of RM	Duplex set to 7% of RS and RM Triplex set to 7% of RM
6	Prohibit SFR detached from the RH zone	SFR detached = 5%	SFR detached = 5%	SFR detached = 0%
7	Decrease minimum lot sizes for SFR detached in RM zone		Reduced 3,000 sf building type to 2,500 sf	Reduced 3,000 sf building type to 2,500 sf
8	Decrease minimum lot sizes for SFR detached in RM zone		Reduced 2,500 sf building type to 2,000 sf	Reduced 2,500 sf building type to 2,000 sf
9	Decrease minimum lot sizes for SFR detached in RM zone		Reduced 2,000 sf building type to 1,500 sf	Reduced 2,000 sf building type to 1,500 sf
10	Reduce minimum lot dimensions for SFR Attached in RH zone		Reduced width from 20 feet to 18’ and depth to 75 feet	Reduced width from 20 feet to 18’ and depth to 75 feet
11	Reduce setbacks in RH and RM zones for SFR Detached		Reduced setbacks for detached building types: 1,500, 2000, 2,500, 4,000, 5,000 s.f. in RM and RH zones In some cases the maximum lot size coverage is exceeded.	Reduced setbacks for detached building types: 1,500, 2000, 2,500, 4,000, 5,000 s.f. in RM zones (No SFR detached was included in RH) In some cases the maximum lot size coverage is exceeded.
12	Increase maximum lot coverage for SFR Attached in RS zones to 50%		Set building coverage to 50%	Set building coverage to 50%
13*	Increase maximum lot coverage in RM zones to 60%		Reduced parking spaces to 1.5 per unit in order to reach 60% coverage	Reduced parking spaces to 1.5 per unit in order to reach 60% coverage

Number	Efficiency Measure (EM)	Package A – Existing Code	Package B – Revised Code EM	Package C – Revised Code & Additional EM
14*	In the RH zone – allow greater lot coverage. Potential actions: eliminate maximum lot coverage requirements; allow minimum parking and minimum landscaping requirements to set upper limit on lot coverage		For Building types used by the RH, reduced parking As follows, existing>new Residential, listed as spaces per unit 2.5 > 1.5 1.75 > 1 1.5 > 1 Retail (listed as spaces per 1,000 sf) 3 > 1.5 Office (listed as spaces per 1,000 sf) 3 > 1.85 3>1.5 for 4-story bldgs 2.85 > 1.5 2 > 1.5 Landscaping standards did not need changing to reach or exceed max FAR	For Building types used by the RH, reduced parking As follows, existing>new Residential, listed as spaces per unit 2.5 > 1.5 1.75 > 1 1.5 > 1 Retail (listed as spaces per 1,000 sf) 3 > 1.5 Office (listed as spaces per 1,000 sf) 3 > 1.85 3>1.5 for 4-story bldgs 2.85 > 1.5 2 > 1.5 Landscaping standards did not need changing to reach or exceed max FAR
15	ADUs – waive off street parking requirement	NA	SFR/ADU building type only included parking for the main house	SFR/ADU building type only included parking for the main house
16	Duplex and Triplex – reduce parking from 2 to 1.5 per unit	Parking set to 2 spaces per unit	Set to 1.5	Set to 1.5
17*	Reduce parking requirements for multi-family housing	Varies by building types	For MFR Building types reduced parking As follows, existing>new Residential, listed as spaces per unit 2.5 > 1.5 1.75 > 1 1.5 > 1	For MFR Building types reduced parking As follows, existing>new Residential, listed as spaces per unit 2.5 > 1.5 1.75 > 1 1.5 > 1

Number	Efficiency Measure (EM)	Package A – Existing Code	Package B – Revised Code EM	Package C – Revised Code & Additional EM
18	Increase minimum required density for master planned developments form 60% to 80% of maximum zone density, and reduce requirement threshold from 40 to 20 acres	60%	No change	Created RS and RM Masterplan Development Type set to 80% of max. Applied to vacant sites of 20 acres or more
19	Increase building height for higher intensity areas	Varies by building types and zone	20% of the Urban Mixed Use development types contains buildings of 5 and 8 stories	20% of the Urban Mixed Use development types contains buildings of 5 and 8 stories
20	Expand lot coverage in ME zone from 60% to 80%	60%	Parking requirements for 1 and 2 story office were reduced. Could not reach 80% threshold without employing structured parking, which doesn't match economic profile of ME areas	Parking requirements for 1 and 2 story office were reduced. Could not reach 80% threshold without employing structured parking, which doesn't match economic profile of ME areas

*Per TAC direction on February 11, 2015, parking reductions were applied only in selected higher density and mixed use areas of the City.

Memorandum

February 18, 2015

To: Bend Remand Technical Advisory Committees
Cc: Project Team
From: Joe Dills and Brian Rankin
Re: Structure and Role for Technical Advisory Committees in Phase 2 - Options

OVERVIEW

The purpose of this memorandum is to summarize a proposed structure and role for the Technical Advisory Committees (TACs) in Phase 2 of the Bend Remand process. This proposed structure follows direction from City Council leadership in recent discussions with the project management team.

Looking Back

- Feedback from TAC members has been very positive about the process.
- The three-TAC structure appears to have helped create broad ownership of, and support for, key recommendations.
- From a technical viewpoint, the TACs have added expertise and helped the team do its work – they are an important brain trust for the project.
- Managing three TACs has been very hard and expensive work. Each round of meetings requires three full meeting packets and two days of meetings by the team and TAC members.
- The comprehensive approach, and short period between meetings, sometimes reduces the team's ability to focus on individual issues or deliverables.

Looking Forward - The Work of Phase 2

The following is a summary of key working tasks for Phase 2. This is a preliminary list, but indicative of the steps and efforts that ideally the TACs would be involved in.

a. Scenario development

- Further work on evaluation criteria and weighting
- Stage 2 mapping
- Scenarios workshop
- Recommendations to USC on alternative scenarios for evaluation

b. Scenario evaluation and proposed UGB

- Sorting through a complex set of evaluations to shape the conclusions
- Creation of a hybrid scenario
- Review of refined evaluations and Goal 14/Remand compliance justification
- Recommendations to USC on the proposed UGB

c. Urbanization Report

- General Plan policies required to support the UGB and growth strategy
- Review of other parts of the report, documenting the UGB update

d. Other Key Reports

- Review of final proposed Housing Needs Analysis, Economic Opportunities Analysis, and Buildable Lands Inventory

Project Management and Process Considerations

The project management team recommends that the City:

- Continue the process of building broad ownership of, and support for, UGB recommendations through continued participation by the TAC brain trust.
- Streamline the Committee structure to avoid TAC member and team fatigue.
- Reduce the level of "simultaneous work" by the team in Phase 2, while implementing a work plan and schedule that keeps making good progress.
- Focus on scenario development during the April to June time period – this is critical path task and time period.
- When the hybrid scenario and its key findings are being prepared, focus mainly on those activities. It is another critical path milestone.

PHASE 2 TAC ROLE AND STRUCTURE

- Appoint a Phase 2 Boundary TAC comprised of members of the Boundary TAC, plus two to three members each from the Residential and Employment TACs (co-chairs as the starting point for invitation and appointment). The role of the Phase 2 Boundary TAC is to serve as the primary TAC for scenario development, evaluation, and UGB recommendation to the USC.
- Involve both the Phase 2 Boundary TAC and the balance of Phase 1 TAC members in:
  - How the Goal 14 criteria will be weighted (survey outreach)
  - Scenario development workshop in May-June (similar to December workshop)
  - Other workshops and involvement as identified during the process
- Convene the Residential TAC to review/finalize the HNA.(1-2 meetings)
- Convene the Employment TAC to review/finalize the EOA. (1-2 meetings)
- Involve both the Residential and Employment TAC in the review of the proposed final Buildable Land Inventory.
- Urbanization Report and General Plan policies review – to be determined as to which TACs are involved

City of Bend
Employment Lands Technical Advisory Committee
Meeting #7
Meeting Notes
Date February 23, 2015

The Employment Lands TAC held its regular meeting at 2:30 pm on Monday February 23, 2015 in the Council Chambers of Bend City Hall. The meeting was called to order at 2:32 pm by Jade Mayer.

Roll Call

- ☐ Ken Brinich
- ☐ Peter Christoff
- ☐ Wallace Corwin
- ☐ Todd Dunkelberg
- ☐ Scott Edelman (for Tom Hogue)
- ☐ Christopher Heaps
- ☐ William Kuhn
- ☐ Jade Mayer
- ☐ Cindy Tisher
- ☐ Ron White

Discussion

1. Welcome

Jade called the meeting to order at 2:32 pm. Joe Dills of APG gave an introduction into the day's meeting. He provided a brief recap of looking back at the work completed since the last TAC meeting and a look forward. The look forward for this meeting is preparing recommendations from the Employment TAC to the UGB Steering Committee (USC) for their March 19, 2015 meeting. He also provided this framing for the TAC's meeting: TAC review and forwarding of their recommendations to the USC as working conclusions for Phase 1 of the project. The meeting materials include those same materials the Residential TAC reviewed earlier: the Urban Form Map showing Scenarios 4b and 5c and a Development Types table for both Residential and Employment TAC meetings. The package of materials make up the bookends that will be considered in Phase 2 of the project.

2. Draft Phase 1 Growth Scenarios

Joe began this topic with looking at the work completed by the TAC setting the to-do list for Phase 2. He reported that the Residential TAC has approved the package earlier that same day. Andrew Parrish of the APG team gave a short power point presentation that outlined the components of the Phase 1 growth scenario. This presentation included review of the 3 by 3 grid (3x) of the scenarios reviewed alongside three different policy packages of efficiency measures. The Phase 1 scenarios or "bookends" are proposed as 4b and 5c. These two are essentially the same scenario with the only differences being the amount of housing and employment at Juniper Ridge differing between the scenarios. The presentation also touched on the scenario components: the Urban Form Map, buildable lands inventory, and capacity of the UGB for additional housing units and jobs also shown in Tables 10 and 11 of the packet.

Joe also brought a question for the Employment TAC that came up in the previous meeting of the Residential TAC. Medical jobs are captured under the category of "Office" used in the maps, tables, and graphics. After the team presentation, the Employment TAC members began their discussion of the recommendations for the growth scenarios. The TAC discussion touched on how costs of infrastructure would be incorporated in plans; and where in comparing scenarios this would be incorporated. The discussion on this particular topic highlighted Juniper Ridge and the Central Area

as examples of areas with plans that also need funding to construct infrastructure to support the growth contemplated under the respective plans. The team responded by clarifying that infrastructure costs must be considered when comparing different scenarios and areas to potentially include in the UGB expansion. The TAC further discussed the proposals for efficiency measures from an employment perspective, the impacts of second homes on employment lands, and the residual jobs that would be accounted for with an expansion of the UGB for employment lands.

At the conclusion of the TAC discussion, Joe directed the TAC to page 21 of the packet, on which the team listed the recommendations for the components of the Phase 1 growth scenarios and four bullets, which are reproduced below:

- Further analysis of efficiency measures and a revised set of recommended measures
- Potential spatial refinements, including a recommended scenario for Juniper Ridge and other possible changes that would be compatible with different boundary scenarios.
- Conversion of needed housing units and jobs to acres of land and identification of specific recommended Plan designations both inside and outside the UGB.
- Estimate of land needed for other purposes outside the UGB such as schools, parks, "other lands," roads, and other infrastructure.

In addition, Joe noted that the Residential TAC further recommended the following additional bullets in their recommendation to the USC.

- 5th bullet: specific analysis of VMT/capita, including potential for transit;
- 6th bullet: accessory dwelling units (ADU's)
- 7th bullet: further analysis of likely yield of efficiency measures during planning period.
- 8th bullet: Open table for more efficiency measures
- 9th bullet: explore additional incentives (e.g. parks SDCs)

The TAC discussion of these recommendations further confirmed that infrastructure costs will be considered in Phase 2. This consideration needs to evaluate infrastructure costs to ensure areas like Juniper Ridge and the Central Area can support the growth they are intended to support. The TAC further included in this discussion the ability to pay for infrastructure as a consideration in this analysis. To capture this, Joe recommended a 10th bullet: comparison of infrastructure costs between scenarios and as practical between areas.

Motion: Wally moved approval of the recommendations to the USC, including the five bullets listed above and the 10th bullet the Employment TAC included. Ken asked for a restatement of the motion to clarify, and during discussion of the motion raised the question of how community values would change with these scenarios. Joe pointed out that community values have been incorporated in the Phase 1 work through the Project Goals and Values (See page 22 of the packet) and through the online community survey. After this discussion, Cindy 2nd the motion. The motion passed unanimously.

3. Proposed TAC Structure for Phase 2

Joe provided a briefing on the TAC structure moving forward in Phase 2, and directed the TAC to the memo included in the packet. The Boundary TAC will continue meeting and working in Phase 2, and volunteers will be sought from the Residential and the Employment TACs to serve on this larger Boundary TAC. Jade recommended reaching out to the interested persons who did not get selected

for either TAC. Brian Rankin asked those interested in being considered to serve on the larger Boundary TAC to let him know by the end of the week (2/27/15).

4. Public Comments. Brian Meece of the Boundary TAC provided a public comment during the discussion of the Phase 1 growth scenarios to maintain the option of removing the east half of Juniper Ridge from the UGB if it can be served with infrastructure during the planning period. There were no other public comments at the end of the meeting.

5. Adjourn. Joe adjourned the meeting at 3:49 pm.

Action Items/Next Steps

Action	Assigned To
TAC approval of Phase 1 Growth Scenarios	Done

URBAN GROWTH BOUNDARY REMAND

BEND

Sign in Sheet

Meeting: EMPLOYMENT TAC #7

Date: FEB 23, 2015

Location: COUNCIL CHAMBERS

Name	Organization	Email Address
Wally Cowin	BEDAB	
Todd Dunkelberg	Library	
Peter Christoff	Murrill O'Sullivan, LLP	
Cindy Taylor		
Chris Heeps	me	
Ken Brandt		
Scott Edelman	DLCD	

Meeting Agenda

Urban Growth Boundary Technical Advisory Committee – Meeting 7
Tuesday, February 24, 2015 **9:00 AM – 12:30 PM** (note earlier start time)
City Council Chambers, Bend City Hall

Meeting Purpose and What is Needed from the TAC

The purposes of this meeting are to:

- Follow up discussion (from TAC Meeting 3) of approach to Goal 5 (Natural Resources) and & Goal 7 (Natural Hazards)
- Preliminary review of Stage 2 Base Maps for Factor 3 of Goal 14 (ESEE Consequences), including maps for Goals 5 & 7
- High-level discussion of how Stage 2 Base Maps could be used in Phase 2 of the UGB Remand Project
- Review and approve "Roll Up" of Phase 1 Boundary TAC recommendations to the USC

The specific discussion questions, i.e. the feedback we would like from the TAC, are listed in the memo. Joe Dills will facilitate the meeting using the questions in the memos and the Stage 2 base maps. References to packet page numbers (top right corner) are provided in the agenda and memo.

1. Welcome — 9:00 AM

a. Welcome and convene — Co-chairs
b. Updates from other TACs
c. Approval of minutes
   - Meeting 6 – page 4 of packet
d. Where we are in the process – a brief look back and look forward — Joe Dills, Brian Rankin

For additional project information, visit the project website at http://bend.or.us or contact Brian Rankin, City of Bend, at brankin@bendoregon.gov or 541-388-5584

Accessible Meeting/Alternate Format Notification
This meeting/event location is accessible. Sign and other language interpreter service, assistive listening devices, materials in alternate format such as Braille, large print, electronic formats, language translations or any other accommodations are available upon advance request at no cost. Please contact the City Recorder no later than 24 hours in advance of the meeting at rchristie@ci.bend.or.us, or fax 385-6676. Providing at least 2 days notice prior to the event will help ensure availability.

2. Approach to Goal 5 and Review of Stage 2 Base Maps — 9:15 AM

Discussion and Action

a. See Goal 5 discussion in memo (page 9 of packet) — Karen Swirsky, City of Bend

b. See Stage 2 Base Maps for Goal 5 — Mary Dorman, APG

- Riparian Corridors – page 52 of packet
- Wildlife Habitat – page 53 of packet
- Scenic Waterways – page 55 of packet
- Mineral & Aggregate Resources – page 56 of packet

c. Discuss Potential "Screening" of any Goal 5 resource sites from further consideration (based on McMinnville case)

3. Approach to Goal 7 and Review of Stage 2 Base Maps — 10:15 AM

Discussion and action

a. See Goal 7 discussion in memo (page 16 of packet) — Karen Swirsky, City of Bend

b. See Stage 2 Base Maps for Goal 7 — Craig Letz, Consultant on Fire Risk; Mary Dorman, APG

- Greater Bend CWPP Subareas – page 57 of packet
- Composite Wildfire Risk Ratings for Study Area - page 58 of packet
- 100-year Floodplains – page 59 of packet

4. Update on status of other Stage 2 Base Maps for Factor 3 — 11:00 AM

Discussion and action

a. Update on status of other maps — Mary Dorman

- Proximity to Schools, Parks and Trails see page 60 of packet
- Irrigation Districts and Irrigated Lands – coordinating with Districts, prepare map at start of Phase 2
- Water Quality Limited Streams – coordinating with DEQ on data, prepare map at start of Phase 2

5. Discuss how Stage 2 Base Maps could be used in Phase 2

11:30 AM

Discussion & feedback

a. Potential Weighting – see page 12 of packet

b. GIS Tool and Qualitative Analysis

Mary Dorman and Andrew Parrish, APG

6. Roll-up of Boundary TAC Recommendations to the USC

12:00 PM

Action

a. Overview of package – see pages 23-29 of packet

Mary Dorman

City of Bend
Boundary & Growth Scenarios Technical Advisory Committee
Meeting Notes
Meeting #6
Date January 27, 2015

The Boundary & Growth Scenarios TAC held its regular meeting at 10:00 am on Tuesday, January 27, 2015 in the City Hall Council Chambers. The meeting was called to order at 10:02 am by Sharon Smith.

Roll Call

- ☐ Toby Bayard
- ☐ Susan Brody
- ☐ Jim Bryant
- ☐ Paul Dewey
- ☐ John Dotson
- ☐ Scott Edelman
- ☐ Ellen Grover
- ☐ Nick Lelack
- ☐ Brian Meece
- ☐ Charley Miller
- ☐ Mike Riley
- ☐ Ron Ross
- ☐ John Russell
- ☐ Sharon Smith
- ☐ Gary Timm
- ☐ Rod Tomcho
- ☐ Dale Van Valkenburg
- ☐ Robin Vora
- ☐ Ruth Williamson

Discussion

1. Welcome

Sharon called the meeting to order at 10:02 a.m. The first order of business was approval of prior meeting minutes from the October 14, November 18, and December 16, 2014 Boundary TAC meetings.

Sharon asked for a motion to approve the Meeting #3 (October 14, 2014) meeting minutes. Susan Brody commented that she did attend this meeting and that the meeting minutes so reflect, along with John Dotson. Dale moved approval of the October 14, 2014 meeting minutes with the addition of Susan and John Attending. Ellen seconded the motion. Motion passed unanimously.

Dale them moved approval of the Meeting #4 (November 18, 2014) minutes; Toby seconded the motion. Motion passed unanimously.

For Meeting #5, Mike Riley requested clarification that on page 2 of 4, the minutes reflect that the TAC approved by answering yes to the questions on page 16 of the packet. John Russell moved approval of the minutes with this change, Rod seconded. Motion passed unanimously.

Brief update from other TACS

Dale provided an update from yesterday's (1/26/2015) Residential TAC meeting. The TAC decided on how to account for growth in housing between 2008 and 2014. The TAC approved an approach with four voting against. The Residential TAC also reviewed maps of scenarios for growth inside the city, with discussion of whether potential measures are feasible to achieve more efficient use of and in the UGB. The additional discussion on the Residential TAC touched on the mix of housing moving forward after the 2008 to 2014 period, and how the proportion of 55% in the mix will be achieved.

Brian Meece provided a report from the 1/26/2015 Employment TAC Meeting. The Employment TAC reviewed similar data, including job growth between 2008 and 2014. The TAC is starting to look at

need from the employment side. The consultant team gave the Employment TAC the same presentation the Residential TAC saw earlier in the day. The additional discussion of the Employment TAC meeting touched on whether certain scenarios were too aggressive or ambitious, review of parking standards and changes to them as an efficiency measures, and possibly considering changes to parking standards in areas that are more walkable.

Update

Joe Dills then provided a quick update to the Boundary TAC on where we are in the process. He provided a chart that was handed out and pointed out this will be critical for organizing work this year. Looking forward, the work completed so far will be rolled up into a package for TAC approval by end of February. This package would then be a recommendation from the Boundary TAC to the USC.

Brian Rankin added that the TAC will review a Goal 5 scoping memo in February and working to include experts on wildfire in the presentation.

The remaining discussion from the TAC included questions on how the TAC will operate in the next phase, how mix of housing will affect the mapping of water and sewer service and whether they are adequate for any changes in density, and how the TAC works with the public in Phase 2.

2. Follow up from December meeting – Revised Stage 2 Base Maps for Factor 1 (Efficiency)

Mary Dorman gave a presentation that began with reviewing a diagram of the project schedule. She recapped the work the TAC reviewed at their December 2014 meeting, and highlighted the maps they would review today. Her presentation included several maps, beginning with page 42 of the packet. These maps included Improvement to Land Value and CCRs. The map on CCRs generated several questions of whether all subdivisions outside UGB that also had CCRs were accurately reflected on the map. The TAC further discussed the level of analysis performed on the CCRS, whether they are enforceable, whether it's impractical to assume redevelopment of an existing subdivision, and the amount of HOA member support needed to approve a change in CCRs.

The question was then posed to the TAC whether to move ahead with the maps shown in the packet starting at page 42 (top left). Susan moved approval, Toby seconded. All voted in favor, no opposed, with only Scott abstaining.

3. Recommended Stage 2 Base Maps for Factor 2 (Orderly & Economic Facilities)

Transportation.

Chris Maciejewski of DKS and Associates gave a presentation of the transportation mapping completed for Stage 2. Mary Dorman directed the TAC to the report starting at page 72 (top left) of the packet. Chris provided the TAC some background on transportation planning, referring to the Functional Class map as an example of a long range plan that is in place for existing UGB. Referenced MTP recent update and adoption. He confirmed the 2013 TSP has been acknowledged, referred to his memo to the TAC, and briefly described the metropolitan planning organization (MPO) and its funding sources. He further discussed the most recent work to update the metropolitan transportation plan (MTP) and the assumptions that went into it. He concluded by noting the city's roadway system is well funded, the state's system has major funding deficiencies before reviewing the following transportation maps on pages 72 through 74 with the TAC.

> Pages 72 of packet – Physical Barriers to Connectivity. This map identified what's already developed, not what's considered, with a focus on topographical any physical constraints. TAC questions on this

map focused on the northeast and why not moderate, railroad tracks, and the potential need for an interchange in the northeast. Direction to revise map in the northeast; canal may be an issue.

Page 73 of packet – 2040 Exception Land Reliance on Congested Corridors (aka Bottlenecks). This map was a revised version of prior map shared with TAC, including exception land and their reliance on congested corridors (2040 horizon year). The MTP work related to this identifies areas with reasonably funded fixes. The areas in green are less reliant on congested corridors, based on number of trips in the peak hours. The TAC discussion on this map included question on the map's utility – what does it tell us? Chris pointed out that it can be used as a cost indicator – with potential for evaluating mitigation.

Page 74 of packet – Connectivity to Complete Roadway Grid. This map examined where future arterials and collectors will go in a UGB expansion. Green represents a grid looks feasible, although it's not necessarily there. See also page 60 of the packet.

The TAC provided this direction on the Transportation maps. 1. First map (page 72) NE quadrant has a minimum physical barrier. 2. Umbrella understanding that we when get to evaluating a subarea, the ratings shared today may change; small areas may have unique conditions. 3. Information is at a high level now for scenario evaluation. We'll need to drill down later.

Motion requested – TAC recommends using these maps on transportation in Stage 2. Rod made the motion with Susan providing a second. All voted in favor, no in opposition, with Dale and Paul abstaining.

Water.

Dave Stangel of Murray Smith and Associates (MSA) gave a presentation that focused on maps at pages 63 and 75 of the packet. He also referred the TAC to a memo he prepared for the meeting packet. The focus of this analysis was identifying areas that could be served by the City's outback facility. Questions from the TAC included clarification of the base – blobs or parcel level – and the purpose of the 3,900' elevation for gravity.

Jason Wick of Avion Water Company provided additional data for those parcels of land in the study area already served by Avion Water Company. Jason provided a map of Avion's service area. The Ward property at China Hat and Knott Road would need boosting. Going north (east of Bend) to Butler Market Road the system is gravity fed. Avion's service area north of Butler Market Road needs boosting during the summer months. Buck Canyon Road also needs boosting during the summer months. All of Avion's water is ground water. Energy costs would be incremental in boosting water.

The TAC discussion on water questioned whether there was a limitation to the amount of water we have access to? Jason clarified that Avion is well placed with water rights. Avion also has a new reservoir at Butler Market and Hamehook Roads.

Question put to the TAC here was whether to advance MSA's and Avion's maps to guide Stage 2 evaluation. Discussion on this noted to bring Roads into discussion on infill. Dale moved approval of city maps, with Toby providing second. A friendly amendment was offered to include Avion's map in the motion and it was included without opposition. Motion passed unanimously.

Sanitary Sewer

Dave Stangel of MSA then gave a presentation on the City's recently approved collection system master plan (CSMP). He noted a few members of the City's Sewer Infrastructure Advisory Committee (SIAG) were in the audience, and referred the TAC to page 76 of the meeting packet.

The map shown today was the map included in the City's capital improvement plan. Dave summarized the major projects, and noted that an optimization approach was used to right size the needed improvements.

The TAC discussion on this map included questions on the rating of certain areas, planned improvements that would ameliorate these deficiencies, the timing of improvements, and the density assumptions included in the analysis. Tom Hickman of the City of Bend further noted that capacity of the system's plant interceptor is currently an issue and being addressed.

The motion was put before the TAC to recommend using the map at page 76. Tobey made the motion with Mike providing a second. The motion passed unanimously with no votes in opposition or abstention.

Stormwater

Mary Dorman followed up the presentation on this topic from the last TAC meeting with the map shown at pages 77 through 79 of the packet. Regarding the Drinking Water Protection Areas map (See page 78), Mary and Tom Hickman provided some examples of ground water contamination. The City has to address drill holes and underground injection controls (UIC's). The areas with drill holes and UIC's are shown in red on the DWPA map. The maps were presented as a package (pages 77 through 79) for TAC approval. The TAC discussion included question as to the utility and relevance to future work? The data on these maps can help identify what potential land uses may be located in areas included in the UGB.

Additional TAC discussion on the stormwater maps touched on water quality limited streams, and considering these limitations when looking at future land use patterns. The Department of Environmental Quality (DEQ) has not promulgated total maximum daily loads (tmdl's) for the streams in the study area. City should look at water quality factors and coordinate this with DEQ.

Joe gave the team recommendation on advancing the maps into Stage 2. John Dotson so moved with Gary Timm providing a second to the motion. The motion passed unanimously with John Russell abstaining on the second map at page 78 of packet. Final discussion on these maps was to include data from maps at pages 78 and 79 of the packet in future ESEE analysis. With respect to water quality limited streams, consider at Stage 4 evaluation; bring back map with water quality limited streams for information and to help future discussion. No vote on the bottom of page 31 of the packet regarding the team recommendation for water quality limited streams – roll this into the Goal 5 discussion. The team had recommended dropping proximity to water quality limited streams as an indicator for "orderly and efficient stormwater" facilities.

4. Recommended Stage 2 Base Maps for Factor 4 (Compatibility with Resource Activities Outside UGB)

Mary directed the TAC to maps presented at pages 82 through 84 of the packet. Maps at pages 83 and 84 identify locations of exception lands in relation to exclusive farm use zoned lands and forest use zoned lands. The TAC discussion of these maps addressed irrigation districts and the functionality of their respective canal systems, the potential for smaller parcels of land engaging in commercial farm operations, and with respect to Goal 14 Factor 4 (Compatibility of the proposed urban uses with nearby agricultural and forest activities occurring on farm and forest land outside the UGB) that irrigation delivery may not approximate the use. The team and city need to look not just at lands zoned EFU, also look at MUA10 (Multiple Use Agricultural), irrigation deliveries, EFU tax deferral status.

Joe recommended closing on these maps and bringing forward supplemental information and thinking on this topic. John made this motion and Sharon provided a second to the motion. The motion passed unanimously.

No public comments were offered, and Joe informed the TAC the next meeting on February 24, 2015 would start at 9:00 am. Sharon adjourned the meeting at 12:30 pm.

Action Items/Next Steps

Action	Assigned To
Approve meeting minutes for:	
Meeting 3 (October 14, 2014)	Done
Meeting 4 (November 18, 2014)	Done

Meeting 5 (December 16, 2014)	Done
Approve use of transportation maps at pages 72 through 74 of packet for Stage 2	Done
Advance City and Avion Water maps forward for Stage 2 evaluation	Done
Advance City sewer map at page 76 forward for Stage 2 evaluation	Done
Advance City drinking water protection area map (page 78) and exception lands distance from DWPA (page 79) to stage 2	Done
Team recommendation to drop proximity to water quality limited streams as an indicator for "orderly and efficient stormwater facilities"?	Deferred - to be incorporated in work on Goal 5
Approve maps at pages 83 and 84 and advance forward for Stage 2 work	Done

Meeting adjourned at 12:30 pm by Sharon Smith.

Memorandum

February 18, 2015

To:	Boundary and Growth Scenarios Technical Advisory Committee
From:	Bend Staff and APG Consulting Team
Re:	FOLLOW UP ON GOALS 5 & 7; REVIEW STAGE 2 BASE MAPS FOR FACTOR 3 OF GOAL 14; ROLL-UP OF UGB METHODOLOGY

INTRODUCTION

This will be the final meeting of the Boundary TAC for Phase 1. The meeting will start one hour earlier because of the very full agenda. As outlined in the agenda, the project team has the following objectives for this meeting:

- Follow-up discussion (from TAC Meeting 3) of approach to Goal 5 (Natural Resources) and Goal 7 (Natural Hazards)
- Review Stage 2 Base Maps for Factor 3 of Goal 14 (ESEE Consequences), including maps for Goals 5 & 7
- High-level discussion of how Stage 2 Base Maps could be used in Phase 2 of the UGB Remand Project
- Review and approve “roll up” Phase 1 Boundary TAC recommendations to the USC

APPROACH TO GOAL 5 – SCOPING

This memorandum is a follow-up to the Goal 5 discussion and recommendations that occurred at TAC Meeting 3.[1] Please see the earlier memo for:

- Overview of Goal 5 and the Goal 5 administrative rule
- Status of City of Bend Goal 5 Inventories and ESEE Analysis
- Status of Deschutes County Goal 5 Inventories and ESEE Analysis
- Direction from LCDC Remand on Goal 5
- Options and Recommendations for Consideration of Goal 5

Based on the discussion at Meeting 3, the TAC recommended that the project team prepare a Goal 5 scoping memo to complete additional “reconnaissance level” inventory work, with a focus on designated Urban Reserve lands. The TAC also asked for feedback on schedule and budget implications that could be associated with additional Goal 5 inventory work.

[1] See packet for Boundary TAC Meeting 3 (October 14, 2014), pages 9-17.

City staff took the lead in preparing this section of the memo to respond to the TAC request.

GOAL 5 ISSUES	
Key Goal 5 Resources to Consider for Scenario development	**Status**
*Riparian corridors	If portions of Tumalo Creek and Deschutes River are proposed for inclusion into UGB, prepare Safe Harbor or Standard inventory; Safe Harbor Program to Protect or ESEE analysis for any portions within the UGB expansion area.
Wetlands	Record is sufficient
*Wildlife Habitat	If portions of Tumalo Creek and Deschutes River are proposed for inclusion into UGB, prepare Safe Harbor wildlife inventory for those portions. New information since Remand: ODFW has 2009 big game maps; spotted frog listed as Threatened by USFWS.
Federal W&S Rivers/*State Scenic Waterways	Include implementation protocols for Middle Deschutes Scenic Waterway Plan
Groundwater resources	Record is sufficient
OR Recreation Trails	Record is sufficient
Natural Areas	Record is sufficient
Wilderness areas	Record is sufficient
*Mineral & Aggregate resources	Where not shown as SM on Des Co Comp Plan, show areas with active DOGAMI permits (RL Coats property)
Energy sources	Record is sufficient
Cultural Areas	Record is sufficient

*Goal 5 issues identified by Remand

Riparian Corridors

Safe Harbor Inventory

Goal 5 requires that the City protect significant riparian resources inside its UGB. If the proposed expansion area scenarios include sections of either or both the Deschutes River and Tumalo Creek, the remand requires the city to either utilize the Safe Harbor provisions of Goal 5 or to conduct a standard inventory of the riparian resources, and to develop a protection program.

The Safe Harbor inventory process is intended to make it relatively simple for local jurisdictions to identify significant riparian corridors based on stream flow and available data sources listed in 660-023-0090(4)(a-f) and to minimize or avoid the need for extensive field work and technical

analysis. As a Safe Harbor, a local government may determine the boundaries of significant riparian corridors within its jurisdiction using a standard setback distance. For streams with an average annual stream flow greater than 1,000 cubic feet per second (cfs), such as the Deschutes River, the riparian corridor boundary is measured at 75 feet upland from the top of each bank. For streams with an average annual stream flow less than 1,000 cfs, such as Tumalo Creek, the riparian corridor boundary is measured at 50 feet from the top of bank.

In areas where the topography is steep or it is difficult to identify the top of bank, a standard inventory must be conducted. Standard inventories can be done on a reach by reach basis, and involve identifying the important resources to be protected in each reach. The standard inventory requires an assessment of the riparian area's ability to provide the following functions: water quality support, flood management, thermal regulation, and wildlife habitat. Existing data may be used as available.

Within the study area, it is likely that significant portions of the Deschutes River and most of Tumalo Creek are eligible for a Safe Harbor inventory. However, the stretch of the Deschutes River located in the northern portion of the study area, and the stretch of Tumalo Creek just as it joins the Deschutes River are both located within deep canyons and may not be eligible for Safe Harbor inventory.

The Goal 5 inventory should be done concurrent with the UGB expansion. This is because protected Goal 5 resources are not counted in the Buildable Land Inventory, and adjustments might be needed to the total expansion area to meet the City's land needs.

If a standard inventory is required for reaches of the Deschutes River and Tumalo Creek, the estimated cost for this work is approximately $6,000 to $20,000, depending on the area. It is estimated that this work could be completed within two months of initiation. The information collected for the inventory would be adequate to conduct any ESEE analysis that might be needed in development of a program to protect the resource (see below).

Programs to Protect Riparian Resources

The City will need to establish a program to protect any significant riparian resources located within the proposed expansion area. The City must determine if the Safe Harbor Program to Protect is adequate for the City's objectives, or if a standard approach is needed. The City's existing Waterway Overlay zone would accomplish protection,

The Safe Harbor Program to Protect requires protection through policy and code that prevents the permanent alteration of the riparian area by grading or by the placement of structures or impervious surfaces, except for the following uses, provided they are designed and constructed to minimize intrusion into the riparian area:

- Streets, roads, and paths;
- Drainage facilities, utilities, and irrigation pumps;
- Water-related and water-dependent uses; and

- Replacement of existing structures with structures in the same location that do not disturb additional riparian surface area.

The ordinance must also contain provisions to control the removal of riparian vegetation.

The Safe Harbor Program to Protect may also be used for reaches of the river that were inventoried through a standard inventory, if that program is sufficient to meet the City's objectives for protection.

If the resources identified in a standard inventory require protections that differ from those provided by the Safe Harbor Program, then the standard program requires an ESEE analysis to establish the basis for allowing, limiting, or prohibiting uses otherwise allowed in the zone that conflict with the resource. The protection measures adopted by the city would need to be supported by the conclusions of the ESEE analysis. If the proposed UGB expansion does not include reaches of Tumalo Creek or the Deschutes River, then Goal 5 for riparian resources will not apply.

Project Team Recommendation – Riparian Corridors

- Obtain more detailed topographic data to clearly identify segments of the Deschutes River and Tumalo Creek where the safe harbor inventory is an option early in Phase 2.
- If the TAC proposes including any of the steeper segments of the Deschutes River or Tumalo Creek in UGB alternatives, proceed with a targeted standard inventory of the resource values in these segments and draft ESEE analysis to balance potential urbanization and protection of the riparian resources.
- If the USC selects a preferred UGB scenario that includes segments of the Deschutes River and/or Tumalo Creek, package any needed amendments to plan and code provisions (e.g., Waterway Overlay Zone) to comply with the goal 5 rule.

Questions for the Boundary TAC

- Does the TAC agree with the recommended approach and timing to address Goal 5 riparian corridors?
- Should exception lands abutting or within a certain distance of riparian corridors be ranked lower (fair or poor) than other exception lands on the Stage 2 base maps? If yes, what distance is appropriate to consider for proximity?

Wildlife Habitat

The Remand directs the City to conduct a Safe Harbor inventory for wildlife along the Deschutes River and Tumalo Creeks, if either of those areas is proposed for inclusion into the UGB. The City has elected to broaden the consideration of wildlife issues beyond that associated with the Deschutes River and Tumalo Creek because of new information on Oregon spotted frog and Big Game habitat that has come to light since 2009.

The Safe Harbor allows the City to limit the inventory to consideration of *available* information on where one or more of the following conditions exist:

(a) The habitat has been documented to perform a life support function for a wildlife species listed by the federal government as a threatened or endangered species or by the state of Oregon as a threatened, endangered, or sensitive species;

(b) The habitat has documented occurrences of more than incidental use by a species described in subsection (a) of this section;

(c) The habitat has been documented as a sensitive bird nesting, roosting, or watering resource site for osprey or great blue herons pursuant to ORS 527.710 (Oregon Forest Practices Act) and OAR 629-024-0700 (Forest Practices Rules);

(d) The habitat has been documented to be essential to achieving policies or population objectives specified in a wildlife species management plan adopted by the Oregon Fish and Wildlife Commission pursuant to ORS Chapter 496; or

(e) The area is identified and mapped by ODFW as habitat for a wildlife species of concern and/or as a habitat of concern (e.g., big game winter range and migration corridors, golden eagle and prairie falcon nest sites, or pigeon springs).

Criteria (a) and (b) apply to the Oregon spotted frog, and criteria (d) and (e) apply to Big Game habitat. No osprey or great blue heron resource sites have been identified in the available literature; therefore, criterion (c) does not apply.

Threatened and Endangered Species

At the time that the Remand was written, there were no Threatened or Endangered species within the City or the study area. On August 28, 2014, the USFWS listed the Oregon spotted frog as a Threatened species under the Endangered Species Act. A final rule designating critical habitat was published in the fall of 2014. The map depicting critical habitat in Bend and the study area was provided by the US Fish and Wildlife Service and is included on the Riparian Resources map. Spotted frogs occur within the Bend City limits in the Old Mill district, and suitable habitat is found in some locations within the study area along the Deschutes River to the south of the current UGB. Within the study area, spotted frog habitat would be included in the areas identified as riparian.

Wildlife Species Management Plan

ODFW has a management plan for big game habitat in Deschutes County (Lower Deschutes Wildlife Area Management Plan, 2009). In 2009, maps of deer and elk habitat and winter range for Deschutes County were made public. The map includes large portions of the west and south sides of the city and surrounding areas. While the remand did not require the city to address wildlife habitat outside of the riparian corridors, the new map brings information to light that the city and Boundary TAC feel is appropriate to consider.

The areas identified on the 2009 map are considerably larger than those currently protected by Deschutes County's Wildlife Overlay Zone, and include most of the exception lands west and south of the City. ODFW considers the mapped areas as Goal 5 resources, and labels the habitat as Category 2 under the ODFW Fish and Wildlife Habitat Mitigation Policy[2]. According

[2] Category 2 habitat is considered "essential or important, but not irreplaceable habitat."

to ODFW, the 2009 Wildlife map is based on inventories and field knowledge of the areas utilized by deer and elk for summer, transition and winter range. The agency has decades of data, in the form of fall and spring counts, to support this mapping; however, only the last few years of data are digitized, and then only on certain herd ranges. Collaring studies have been done since 2005, and those results support the 2009 winter range map.

In interviews with an ODFW Deschutes District Wildlife Biologist, the agency places the highest value on the big game habitat (deer winter range) that is currently with the Deschutes County Wildlife Overlay Zone. Of the areas that are mapped as big game habitat but are not within the Wildlife Overlay Zone, District Wildlife Biologist has identified several areas that the agency believes are important for wintering elk. In addition, there is an area of deer winter range located south of the UGB and east of Highway 97 which ODFW believes may provide important cover. These areas are roughly identified on the map entitled Exception Land & Big Game Winter Ranges (see page 53 of packet).

The City will address Goal 5 for the areas added to the UGB after the process selects lands to be added. If any of the lands that are selected for inclusion into the UGB include big game habitat identified by ODFW, the city will need to apply Goal 5 and complete an ESEE analysis to evaluate them as candidate lands for urbanization under Goal 14. The weight that the city puts on big game habitat is a matter for the process and city to decide, with input from ODFW.

In the event that independent field work is required to complete the ESEE analysis, the costs would be relative to the amount of area needed to be surveyed, ranging from approximately $15,000 for 100 acres to $80,000 for 1,000 acres.

Project Team Recommendation – Wildlife Habitat

- Screen the exception lands within the designated Wildlife Overlay (see map on page 54 of packet) from further consideration for UGB scenarios. The county's protection program under the Wildlife Overlay is based on density restrictions, clustering requirements and open space protection (50%). Potential urbanization of these exception lands would inherently conflict with protection of the big game winter range.
- Consider other big game habitat identified by ODFW (not currently designated or protected by Deschutes County) as part of the Factor 3 ESEE analysis and balancing to evaluate candidate UGB expansion areas.

Questions for the Boundary TAC

- The TAC originally decided not to use the Big Game Habitat maps for initial screening. In the light of the additional clarification provided by ODFW, does the TAC support the recommended screening of the two exception areas within the designated Wildlife Overlay from further consideration?
- Should exception lands abutting or within a certain distance of the designated Wildlife Overlay or identified by ODFW be ranked lower (fair or poor) than other exception lands on the Stage 2 base maps? If yes, what distance is appropriate to consider for proximity?

- Does the TAC agree with the recommended approach and timing to address other wildlife habitat areas?

State Scenic Waterways

The Remand requires the City to adopt local requirements to implement the State Plan for protection the Middle Deschutes Scenic Waterway[3], include setback from the canyon rim for structures, if the proposed UGB expansion area includes any sections of the Scenic Waterway. The City may accomplish this by adopting the Deschutes County code, 18.84.095 or revising Bend's Deschutes River Corridor Design Review Combining Zone (2.7.650) as needed.

Project Team Recommendation – State Scenic Waterways

- If the proposed UGB expansion includes any sections of the Scenic Waterway, apply or revised code provisions to assure protection required under Goal 5.

Question for the Boundary TAC

- Assuming application of the protection program for the scenic waterway (setback for structures), should exception lands abutting or within a certain distance of the designated Scenic Waterway be ranked lower (fair or poor) than other exception lands on the Stage 2 base maps? If yes, what distance is appropriate to consider for proximity?

Mineral and Aggregate Resources

The Remand required the City to clarify the status of mineral and aggregate sites that occur in the study area but that are not on the County's acknowledged surface mining inventory. The site in question is the Shevlin Sand and Gravel (SSG) site located in the northwest quadrant of the City on Shevlin Park Road. As requested by the representative of the mining operator during the Remand hearings (letter dated May 7, 2009), the 280 acres designated Surface Mining on the Plan Map should include only portions of the SSG property that are legally capable of being used as part of SSG's mining operation.

The Stage 2 map on page 56 of the packet outlines the area in the Surface Mining zone subject to DOGAMI Permit 09-0018 (based on Attachment 2 to the May 7, 2009 letter).

Project Team Recommendation – Mineral and Aggregate Resources

- Aggregate sites do not need to be included in the UGB to allow continued mining. Assuming 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 project team recommends screening the portion of the site under DOGAMI Permit 09-0018 from consideration for UGB scenarios. This would not affect consideration of the remainder of the property.

[3] The Middle Deschutes Scenic Waterway is located from the northern Bend UGB to approximately river mile 161 at Tumalo State Park, as a State Recreational River Area. South of the UGB, the Deschutes has both the State Scenic Waterway designation as well as Federal Wild and Scenic designation.

Questions for the Boundary TAC

- Does the TAC support the team recommendation to screen the portion of the aggregate site under DOGAMI Permit 09-0018?
- If not screened, should the portion of the site zoned for Surface Mining and under active DOGAMI permit be ranked poor (red) because of conflicts between potential urbanization and continued mining of the aggregate resource during the planning period?

APPROACH TO GOAL 7 – SCOPING

The Remand did not require the City to address wildfire risk. However, the Commission suggested that the City could explain how it addresses relative wildland fire risk in alternate UGB expansion scenarios when considering locational factor 3 under Goal 14.

The City has contracted with Craig Letz, Wildfire Consultant, to help examine the potential for wildfire risk to influence various UGB expansion scenarios. The Greater Bend Community Wildfire Protection Plan (CWPP) is the most comprehensive wildfire risk assessment that has been completed for the Wildland Urban Interface (WUI) areas surrounding Bend. It was originally completed in 2006 and the process was again undertaken in 2011 considering updated information.

The CWPP represents a collaborative effort including local firefighting agencies, local businesses, homeowner/neighborhood associations, state and federal agencies, and other organizations and individuals.

In 2006, the group developing the plan used Fire Regime Condition Class (FRCC) as a risk assessment tool. FRCC considers the type of vegetation and the departure from its natural fire behavior return interval. No updated data had been published to demonstrate the significant amount of work that had occurred in the planning area in the intervening five years so FRCC was not used in the 2011 CWPP.

The CWPP Steering Committee relied on the ODF Assessment of Risk Factors and the classification ratings of individual areas under Oregon Forestland – Urban Interface Fire Protection Act of 1997 (aka Senate Bill 360).

Although there are a range of tools available, the CWPP appears to be the most locally oriented tool for assessing risk. This multi-agency document concluded that wildfire is a risk in all parts of the greater Bend area. The CWPP bases its assessment on five factors:

1. **Risk of Wildfire Occurrence** – the likelihood of a fire occurring based on historical fire occurrence, home density and ignition sources. The risk is rated high in the Bend area, based on historical evidence of fire history as well as ready ignition source like dry lightning storms, debris burning, equipment use, juveniles, campfires, and arson. The current condition of the vegetation on the federal and private lands adjacent to and within the Bend area poses an extreme risk of catastrophic loss from wildland fire. Bend is also threatened by the likely possibility of a crown fire sweeping into the community, or by embers falling on the community from an adjacent wildland fire.

2. **Hazard -** resistance to control once a fire starts based on weather, topography, (including slope, aspect and elevation), vegetation and crown fire potential. Less logging activity, effective wildland fire suppression and a lack of forest management has led to dense vegetation in the wildland urban interface. All portions of the Bend area are rated extreme or high under this assessment.
3. **Protection capability** – Fire protection capability ranges from low to moderate in the Greater Bend WUI. In this category, the lower the overall rating, the better the risk factor is. The ratings are based on fire protection capability and resources to control and suppress wildland and structural fires. The ratings also consider response times and community preparedness.
4. **Values Protected** – based on home density per ten acres and community infrastructure such as power substations, transportation corridors, water and fuel storage, etc. The Bend area is rated moderate to high**.**
5. **Structural Vulnerability** – based on assessments of flammable roofing, defensible space, ingress/egress, road width, all season road conditions and grade, fire service access, and street signs.

These five factors allow the City to draw conclusions, relative to Factor 3 of Goal 14, about the current conditions relative to wildfire vulnerabilities. In addition, it may allow the TAC to draw some conclusions about the costs of managing areas to reduce wildfire risk, as well as to control wildfire when it does occur. These factors and composite fire risk ratings[4] from the CWPP were used to create the Wildfire Risk Ratings Map on page 58 of the packet.

Project Team Recommendation – Wildfire Risk

- Use the Composite Wildfire Risk Ratings from the CWPP to rank exception lands in the study areas from Highest risk (1-2), to Higher (3-4) and High Risk (5-6).
- Consider other potential models for predicting wildfire risk and input from Craig Letz on strategies to minimize and mitigate wildfire risk in the consideration of UGB scenarios in Phase 2.

Question for TAC

- Does the TAC support use of the Stage 2 base map for relative Wildfire Risk in Phase 2?

PROPOSED METHODOLOGY FOR CONSIDERATION OF FACTOR 3: ESEE CONSEQUENCES

Link with UGB Project Goals

Three of the eight goals adopted by the UGB Steering Committee are directly related to Factor 3 and the city's urban form:

[4] Composite rankings from Table 8 of Greater Bend CWPP (2011).

- *A Quality Natural Environment* – As Bend grows, it preserves and enhances natural areas and wildlife habitat. Wildfire risk management is a key consideration. Bend takes a balanced approach to environmental protection and building a great city.
- *Great Neighborhoods* – Bend has a variety of great neighborhoods that promote a sense of community and are well-designed, safe, walkable, and include local schools and parks.
- *Connections to Recreation and Nature* – Bend continues to enhance its network of parks, trails, greenbelts, recreational facilities, and scenic views inside and outside the city.

Factor 3: Key Indicators Stage 2 Base Mapping

Table 1 was first introduced in the packet for the November TAC meeting. The TAC discussion at that meeting focused on "key indicators" for Stage 2 base mapping for all four factors of Goal 14. Table 1 has been refined based on TAC input and review of preliminary base maps at TAC Meetings 5 and 6 (see page 31 of packet for most recent version of Table 1).

The TAC recommended that the following indicators be used for Stage 2 base mapping for Factor 3:

- 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
- Proximity to existing or planned parks, trails, elementary schools
- Proximity to water quality limited streams
- Presence of irrigated lands and primary canals

Preliminary Stage 2 Base Maps for Factor 3

Over the past three months, the project team has been preparing and refining Stage 2 maps to analyze the exception lands in the study area based on key indicators for Goal 14 factors. All Stage 2 base maps are formatted using a standard map template and consistent color scheme ranging from good (green) to fair (yellow) to poor (red).

Preliminary base maps for Factor 3 are included on pages 51-61 of the packet. The project team reviewed and considered several GIS data sources in preparing the Stage 2 maps for Factor 3, including (1) Deschutes County GIS layers for designated riparian corridors, aggregate sites, big game winter range, 100-year floodplains, irrigated lands; (2) ODFW GIS layer (2009) for big game winter range in Deschutes County; (3) Project Wildfire and Deschutes County GIS layer for composite fire risk; (4) City/School District/Park GIS layers for existing and planned elementary schools, parks and trails; and (5) Greenprint GIS layers for overall conservation and recreation values.

Some of the Stage 2 base maps (such as those for Factor 1) assign good-fair-poor rankings and illustrate objective GIS data, such as parcel size, improvement to land value, etc. Other Stage 2

base maps (such as Factor 2 transportation maps) assign good-fair poor rankings based on a combination of objective data and professional judgment.

The preliminary Stage 2 base maps for Factor 3 also involve a mix of data and judgment in assigning rankings. GIS data can be used to show the location of designated Goal 5 resources. However, should parcels be ranked fair or poor because of the presence of a Goal 5 resource or proximity to a Goal 5 resource?

Factor 3 maps are included on pages 51-61 of the packet. Good-fair-poor rankings have been assigned on some of the maps (such as Wildfire Risk Ratings) where relative ratings have already been assigned through other plan/data efforts. For other maps (such as Riparian Corridors, Scenic Waterways, Mineral & Aggregate Resources and Floodplains), the project team has identified the "location" of the resource or hazard on the Stage 2 base maps based on GIS data. However, input from the TAC is needed on whether and how to apply relative rankings based on this information.

Project Team Recommendations

- Consider screening the exception lands that are currently within the Deschutes County Wildlife Overlay from further consideration for UGB scenarios (based on ESEE consequences and guidance from the McMinnville UGB decision). See map on page 54 of packet. The "program" to protect the big game winter range is based in large part on restricting densities, requiring clustering and requiring protection of open space (50% of site). Potential urbanization of these lands could inherently conflict with protection of the big game winter range.
- Consider screening the area of the Shevlin sand & gravel site that is currently under active DOGMI permits from further consideration for UGB scenarios (based on ESEE consequences and guidance for the McMinnville UGB decision). See map on page 56 of packet. There is no need to consider this site for urbanization in the 2008-2028 planning period to allow extraction of the resource.
- Don't screen any other lands from consideration for UGB scenarios based on Factor 3, but "balance" all Goal 14 factors in the formation and evaluation of scenarios in Phase 2.

Questions for the Boundary TAC

- Do the preliminary maps for Factor 3 (see pages 51-61of packet) capture the key indicators for Factor 3 for the Stage 2 base mapping? Are any refinements needed?
- Does the TAC support the team recommendations to screen the exception areas described above from further consideration for UGB scenarios?
- Can the TAC provide input on whether or how to rank exception lands in the study area based on the presence or proximity to Goal 5 resources and Goal 7 hazards?

USE OF STAGE 2 BASE MAPS IN PHASE 2

As the Boundary TAC has been reviewing Stage 2 base maps over the past 3 meetings, questions have come up about how the maps could be used in Phase 2. The intent of Stage 2 base mapping was included in the memo for the January TAC meeting and is summarized below for context.

Intent of Stage 2 Base Mapping

The purpose of Stage 2 mapping is to identify which exception lands perform well relative to Goal 14, and therefore should be considered for inclusion in expansion area scenarios. This is a preparatory step to the creation and evaluation of expansion area scenarios. Stage 2 mapping is not intended to eliminate parcels, but rather to evaluate all exception parcels in the study area based on key indicators for the Goal 14 factors. The evaluation will then support a balancing process to reach conclusions about why some areas are better suited to include in a UGB scenario than other areas. The totality of the Stage 2 maps and analysis will then allow the team to write findings explaining why other exception areas were less suitable and were not included in a UGB scenario.

Initial Approach

As the package of Stage 2 base maps has grown, the project team has discussed how they might be used to help form UGB scenarios in Phase 2.

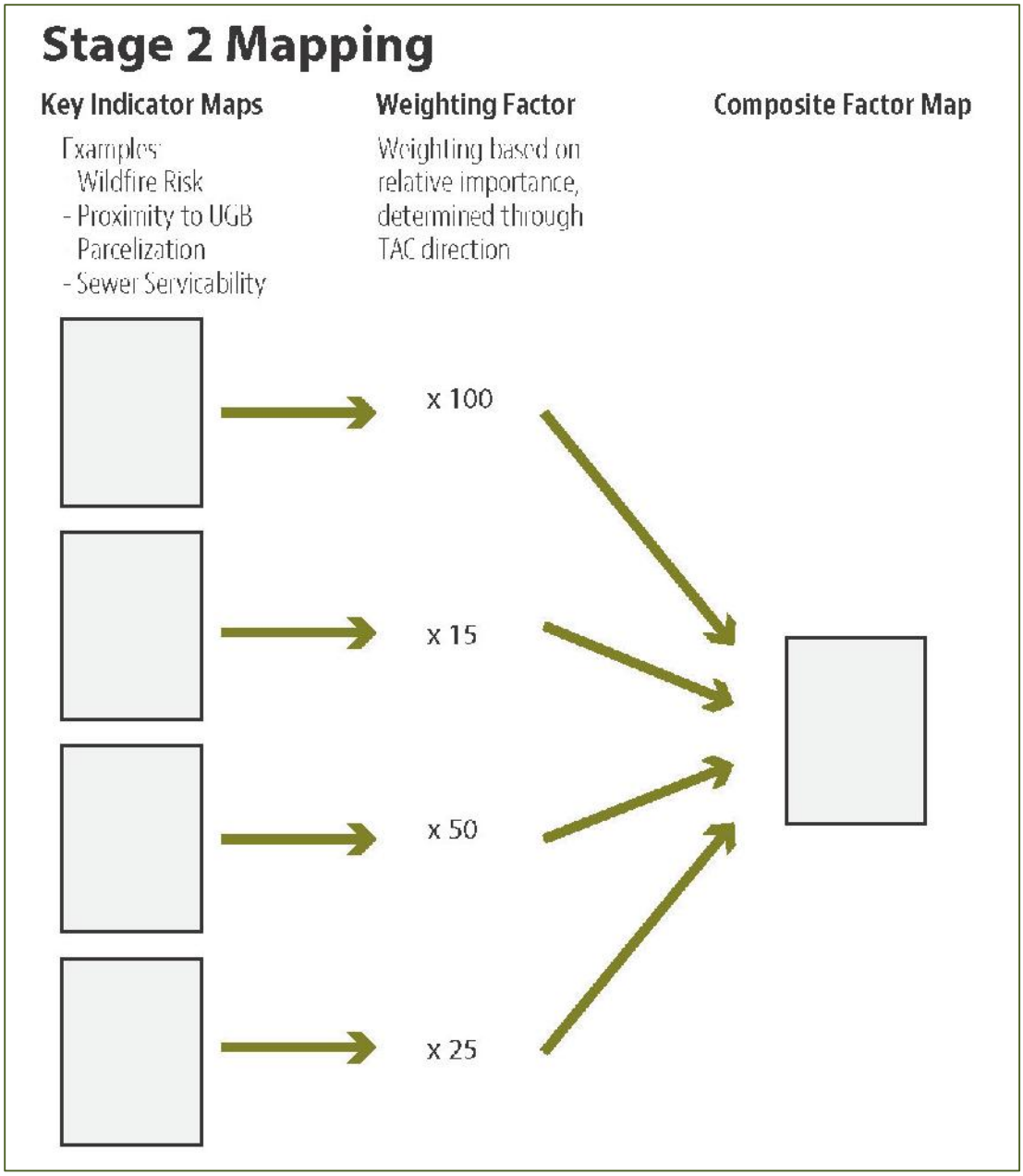
The project team suggests that the City consider using an approach that combines data with values about what is most important. This would be similar to what was done as part of the GIS analysis for the Greenprint report.[5] In that project, eight broad goals were identified. Each of the "goals" has a weighting, and each "goal" has any number of "criteria," each with their own weighting. For Greenprint, the weighting was informed by public opinion and stakeholder surveys.

The Boundary TAC could take a similar but tailored approach – applying weighting to each of the four factors of Goal 14, and associated weighting for the Stage 2 base maps that serve as "key indicators" for the Goal 14 factors. The team could use Survey Monkey or other tools to obtain input from the Boundary TAC and the USC to help inform what the weighting should be for the Goal 14 factors and indicators.

After the weighting is established, the project team would use GIS to run the analysis of all Stage 2 maps with the weighting, with the objective of arriving at a single composite map for each of the Goal 14 factors (best and worst performing lands). The TAC could then use the four maps, along with qualitative judgment, to form UGB scenarios. The process would be data driven, but would also provide the opportunity for evolving organically to group parcels into "areas" with similar characteristics, as allowed by the Goal 14 rule. This analysis would also be informed by estimates of land need that come out of Phase 1, along with new work to characterize the capacity of the exception lands (essentially a Buildable Land Inventory). The key to this approach is craft it to be an organized structure for balancing the Goal 14 factors, without crossing the line into an overly complicated decision model.

The concept for the initial approach is illustrated below.

[5] See Appendix C of Greenprint Report included in Boundary TAC 3 packet (pages 77-83).



Questions for the Boundary TAC

- Does the TAC agree with the initial approach outlined above?
- Does the TAC agree it would be helpful to weight the Goal 14 factors and indicators?
- Does the TAC have other suggestions on the approach that could help inform the scope for Phase 2 work?

ROLL-UP OF BOUNDARY TAC RECOMMENDATIONS FROM PHASE 1

The Boundary TAC has made significant progress in refining the methodology to prepare for the formation and evaluation of UGB scenarios early in Phase 2. The Roll-Up of the Boundary TAC

Methodology (see pages 23-29 of packet) summarizes the topics and recommendations from each meeting of the TAC, including feedback on the Stage 2 base maps for each of the Goal 14 factors. The UGB Steering Committee will be considering these recommendations, along with recommendations from the Residential and Employment TACs, at the USC meeting on March 19, 2015 to wrap up Phase 1 work.

The project team understands that some of the base maps are still a work in progress and revisions may be needed based on input at TAC Meeting 7. In particular, a handful of irrigation districts will be working with the team to provide a similar set of maps of the study area to reflect areas that have more or less impacts to the districts. Also, a few additional maps (Irrigated Lands, Water Quality Limited Streams) will be prepared following Meeting 7.

Questions for the Boundary TAC

- Do the materials on pages 23-29of the packet accurately reflect the recommendations of the Boundary TAC for discrete topics relating to the UGB methodology?
- Do the Stage 2 base maps on pages 36-65 of the packet capture key indicators for the Goal 14 factors to help form UGB scenarios in Phase 2?

As introduced in the section above, a first task for Phase 2 will focus on recommended "weighting" of the Stage 2 maps and Goal 14 factors to help identify the best performing lands to include in UGB scenarios.

Boundary TAC

Roll-Up of Methodology & Stage 2 Maps

TAC Meeting	Topic	Boundary TAC Recommendations	USC Action
1	Tiered approach to analysis of expansion areas	Categorize and analyze land within the study area based on the priority categories in ORS 197.298 (exception lands first priority)	✓
2	Study area for UGB analysis	Approve a 2-mile study area for UGB analysis	✓
2	Legal guidance – McMinnville UGB case	Follow guidance from the Court of Appeals decision on the McMinnville UGB case (see memo from City Attorney and diagram on pages 5-9 of Meeting 2 packet)	✓
2	Evaluation criteria & measures for Factor 1- Efficiency	Preliminary approval of Factor 1 evaluation criteria & measures to compare alternative UGB scenarios in Phase 2	✓
3	Preliminary identification of unbuildable lands within study area	Consider the following lands 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 Direction from TAC: If information is available, consider aggregate	

TAC Meeting	Topic	Boundary TAC Recommendations	USC Action
		reserves remaining for significant sites.	
3	Step 2 screening vs. Step 3 Evaluation	Preliminary recommendation not to screen any exception lands from further consideration at Step 2 based on ESEE consequences or compatibility with activities on resource lands. May revisit recommendation if evidence is available to show that urbanization of a parcel or group of parcels would have severe ESEE consequences or compatibility issues.	
3	Approach to Goal 5	Complete "reconnaissance level" review of Goal 5 inventories, with specific focus on Urban Reserve lands. Coordinate with ODFW on available winter range inventory information. Direction from TAC: Consider use of Greenprint data and maps for ESEE evaluation in Step 3 to save time and money.	
3	Approach to Goal 7	Explore availability of more detailed information for relative wildfire risk to supplement Bend Community Wildlife Protection Plan (CWPP). Direction from TAC: Address wildlife risk in Step 3 ESEE analysis and comparison of UGB alternatives when more information is available on land needs, relative wildfire risk and mitigation strategies.	
4	Refinement of Phase 2 Milestones	Discuss and confirm how the TAC will consider and apply the Goal 14 factors at two important stages shown in the diagram for Phase 2 milestones (see attached diagram on page 30 of packet). • Stage 2 Base Mapping – analyzing the study area to identify ideal lands for specific UGB expansion scenarios • Stage 4 Scenario Evaluation – analyzing the specific UGB expansion scenarios using Envision, Optimization and Travel Demand models Direction from TAC: Focus on key indicators and Stage 2 base mapping in Phase 1.	

TAC Meeting	Topic	Boundary TAC Recommendations	USC Action
4	Base Mapping – Key Indicators for Goal 14 Factors	Get ready for Phase 2. Stage 2 base mapping will help the TAC visualize and balance how different sub-areas within the 2 mile study area perform based on the key indicators. See attached Table 1 (page 31) for approach to consideration of Goal 14 factors at Stage 2 (Base Mapping) and Stage 4 (Scenario Evaluation). Identify what tools will be used in each stage (e.g. GIS and models).	
5	Preview Base Mapping for Factor 1 – Efficiency	TAC review and input on preliminary base maps for Factor 1: <u>Efficiency Indicators</u> • Parcel size • Improvement to land value • Proximity to UGB • Topography (25% slopes) • Rural subdivisions with known CC&Rs <u>Direction from TAC:</u> 1) use standard map template and consistent colors for all Stage 2 mapping, 2) make sure CC&R map reflects information in the 2008 UGB record.	
5	Discuss Indicators and Preliminary Base Mapping for Factor 2 – Orderly & Economic Public Facilities	Discuss key indicators for Factor 2 base mapping: <u>Transportation Indicators</u> • Barriers • Existing Bottlenecks • System Connectivity Input on preliminary map to illustrate Existing Bottlenecks	

TAC Meeting	Topic	Boundary TAC Recommendations	USC Action
		Water Indicators • Gravity system • Pressure zones Input on preliminary map to illustrate Gravity system (for City of Bend) Sewer Indicators • Gravity system • Maximize existing/planned system Input on preliminary map to illustrate two indicators bulleted above Stormwater Indicators • Proximity to Drinking Water Protection Areas (DWPA) • Surface geology (welded tuff) • Proximity to water quality limited streams Input on preliminary map to illustrate surface geology Direction from TAC: 1) include recent & planned improvements in the consideration of Existing Bottlenecks map for transportation, 2) coordinate with Avion for input on their water service area, 3) try to simplify the map for sewer – assume all improvements from the CSMP, 4) use consistent colors for all Stage 2 mapping, ranging from good (green) to fair (yellow) to poor (red).	
6	Approve Base Mapping for Factor 1 – Efficiency	Review updates to maps based on TAC input at Meeting 5 TAC approval of Base Mapping for Factor 1 (see maps on page 36 of packet) (Note: individual TAC members volunteered to help supplement CC&R research in Phase 2)	

TAC Meeting	Topic	Boundary TAC Recommendations	USC Action
6	Review and preliminary approval of Base Mapping for Factor 2 – Orderly & Economic Public Facilities	TAC review and input on preliminary base maps for Factor 2: <u>Transportation Maps</u> • Physical Barriers to Connectivity • 2040 Reliance on Congested Corridors • Connectivity to Complete Roadway Grid <u>Water Maps</u> • Water Analysis (Bend service area) • Water Analysis (Avion service area) <u>Wastewater Map</u> • Preliminary Analysis of Potential UGB Expansion Basins <u>Stormwater Maps</u> • Surficial Geology • Proximity to Drinking Water Protection Areas <u>Direction from TAC:</u> 1) clarify which Stage 2 maps are based on parcel-level data vs. sub-area rankings, 2) consider specific changes to rankings on Physical Barriers to Connectivity map (e.g., NE quadrant and areas abutting UGB in NW quadrant), 3) suggest different line weights for arterial & collector roads on maps, 4) integrate rankings for Bend & Avion service areas on a single map, 5) consider map for water quality limited streams under Factor 3 ESEE consequences	
6	Discuss Indicators and Preliminary Base Mapping for Factor 4 – Compatibility with Activities on Resource Lands	Discuss key indicators for Factor 4 maps: • Proximity to designated forest land • Proximity to designated high-value agricultural land	

TAC Meeting	Topic	Boundary TAC Recommendations	USC Action
		• Proximity to irrigated agricultural land Review preliminary base map illustrating proximity of exception parcels to designated Forest land (contiguous – red, within ¼ mile – light red, within 1 mile – bright green, greater than 1 mile – dark green). Review preliminary base map illustrating proximity of exception parcels to high-value EFU parcels (based on GIS data relating to EFU sub-zone, parcel size and availability of irrigation). <u>Direction from TAC:</u> 1) westerly edge of Tetherow is adjacent to Forest land, 2) focus on high-value EFU parcels may unnecessarily limit the analysis of compatibility, 3) consider activities on other EFU parcels that are irrigated but don't necessarily meet minimum lot size of the sub-zone.	
7	Review Preliminary Base Mapping for Factor 3 – ESEE Consequences	Review preliminary base maps for Factor 3 based on "key indicators" approved by the TAC at meeting 4: • Presence of significant Goal 5 resources or other resources (including Greenprint, ODFW, USFWS, and DOGAMI data sources) • Relative wildlfire risk and presence of other natural hazards • Proximity to existing or planned parks, trails, elementary schools • Presence of irrigation districts, irrigated lands and canals (deferred to Phase 2) • Presence of water quality limited streams - DEQ 303d designations (deferred to Phase 2) <u>Preliminary Stage 2 Base Maps for Factor 3</u> • Goal 5 – individual maps or consolidated map of existing designated Goal 5 resources (e.g., scenic waterways, riparian areas, wildlife overlay, significant aggregate sites)	

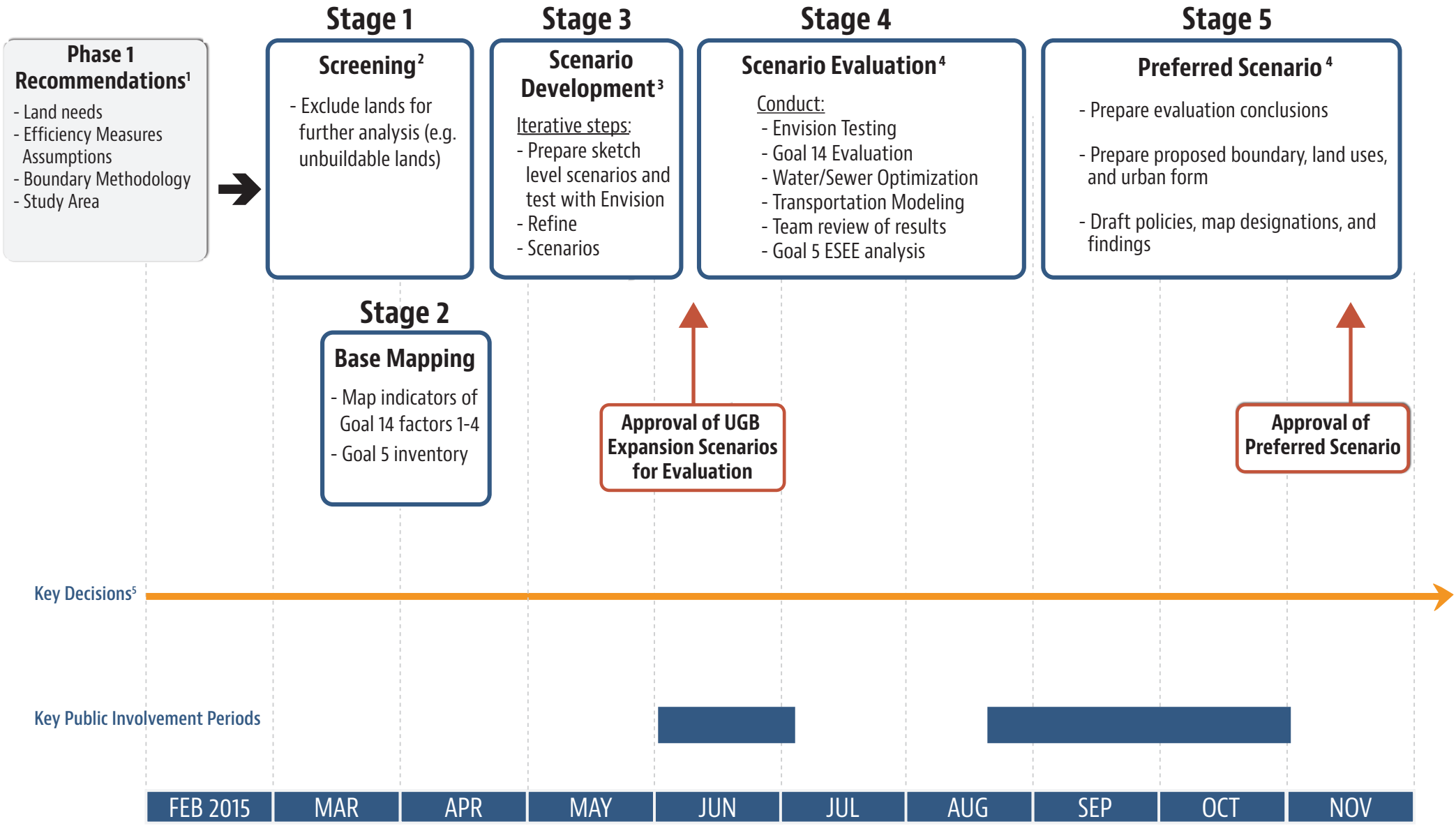
TAC Meeting	Topic	Boundary TAC Recommendations	USC Action
		• Goal 5 - ODFW input on potential additional big game winter range in exception areas (not currently designated as significant or included in Deschutes County Wildlife Overlay) • Goal 7 – map illustrating composite fire risk from Greater Bend Community Wildlife Protection Plan (CWPP) • Goal 7 – map of floodplains • Map illustrating proximity of exception lands to existing/planned elementary schools, parks and trails • Map illustrating boundaries of irrigation districts, irrigated lands and canals in study area (to be completed in Phase 2) • Map identifying water quality limited streams in study area (to be completed in Phase 2)	
7	Discuss options and approach for using Stage 2 base maps in Phase 2	High-level discussion with TAC. Flesh out approach at start of Phase 2	

Phase 2 Milestones

Draft October 8, 2014 - rev. November 11, 2014

Preliminary and Subject to Change

URBAN GROWTH BOUNDARY REMAND
MAKING BEND EVEN BETTER



Notes:

1-4: Steps per City Attorney Memorandum, Aug 19 2014: 1 = Step 1; 2 = Step 2; 3 = Step 3A Preparation; 4 = Step 3A (3B if necessary)

5: Meeting schedule TBD, including TAC participation in meetings and workshops

Table 1. Goal 14 Factors

Stage 2 – Base Mapping Purpose: Prioritize exception lands within Study Area based on proposed **key indicators**	**Stage 4 – Scenario Evaluation** Purpose: Evaluate alternative scenarios based on proposed **performance measures**
Factor 1: Efficient accommodation of identified land needs	
Analysis Tool: GIS • 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 CC&Rs prohibit or limit additional development *See Factor 1 Maps – page 36 of packet*	**Analysis Tool: Envision** • Urbanized acres • New housing units built inside vs. outside existing UGB in 2028 (# and %) • New jobs located inside vs. outside existing UGB in 2028 (# and %) • Estimated average density for housing and jobs in 2028 (units/acre and jobs/acre – measure for entire scenario and associated UGB expansion area) • Percent of new growth accommodated through infill/redevelopment by scenario
Factor 2: Orderly and economic provision of public facilities and services	
Transportation	
Analysis Tools: GIS & existing transportation modeling data • **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.,	**Analysis Tool: Envision** • VMT/capita • VMT/facility type (including trip-type) • Mode split • Housing & jobs within ¼ mile of transit corridors (# and %) • Intersection density • # of new lane miles • Rough costs for transportation improvements ($ per lineal foot) by scenario • Roll up of cost per acre for UGB expansion area associated with each scenario **Analysis Tool: Travel Demand Model**

Stage 2 – Base Mapping Purpose: Prioritize exception lands within Study Area based on proposed **key indicators**	Stage 4 – Scenario Evaluation Purpose: Evaluate alternative scenarios based on proposed **performance measures**
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. *See Factor 2 Maps for Transportation – page 42 of packet*	• Scenario balances VMT between highway and other street classifications and between trip types (local, city-wide, regional) • Scenario supports system that provides logical connections and progression of system hierarchy (local street – collector – arterial – highway) • Scenario balances flow across available facilities and improves utilization of under-capacity roadways (congestion analysis) • Scenario better balances number of system lane miles for both state and local system • Scenario improves grid system for pedestrian/bicycle travel • Scenario supports efficient transit corridors • More detailed types and costs of transportation improvements including the need for new transportation facilities, such as highways and other roadways, interchanges, arterials and collectors, additional travel lanes, other major improvements (identified by scenario and UGB expansion area associated with each scenario)
Water	
Analysis Tool: GIS & existing water system master plan information • **Gravity system (City of Bend)**: Consideration of exception areas that could be served by gravity by City of Bend *See Factor 2 Map for Water – page 46 of*	**Analysis Tool: Envision** • Acres served by gravity system by scenario • Rough costs for water improvements ($ per lineal foot) by scenario • Roll up of cost per acre for UGB expansion area associated with each

Stage 2 – Base Mapping Purpose: Prioritize exception lands within Study Area based on proposed **key indicators**	Stage 4 – Scenario Evaluation Purpose: Evaluate alternative scenarios based on proposed **performance measures**
packet • **Pressure zones:** Consideration of pressure zones with existing water storage capacity. *The project team has concluded that it is not feasible to rank exception areas based on pressure zones in the Stage 2 mapping. However, this will be considered in the Stage 4 scenario evaluation for water facilities.*	scenario **Analysis Tool: Optimization** • New housing units & jobs (# and %) within pressure zones with storage by scenario • Additional water storage facilities required by scenario • More detailed types and costs of water system improvements by scenario – along with roll up as cost per acre for expansion area associated with each scenario
Sanitary Sewer	
Analysis Tool: GIS & existing sewer system master plan information • **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. *See Sanitary Sewer Map – page 47 of packet*	**Analysis Tool: Envision** • Acres served by gravity system by scenario • Rough costs for sewer improvements ($ per lineal foot) by scenario • Roll up of cost per acre for UGB expansion area associated with each scenario **Analysis Tool: Optimization** • Number of existing pump stations removed by scenario • More detailed types and costs of sewer system improvements by scenario – along with roll up as cost per acre for expansion area associated with each scenario

Stage 2 – Base Mapping Purpose: Prioritize exception lands within Study Area based on proposed **key indicators**	Stage 4 – Scenario Evaluation Purpose: Evaluate alternative scenarios based on proposed **performance measures**
Stormwater	
Analysis Tool: GIS and existing stormwater master plan information • **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. *See Factor 2 Maps for Stormwater – pages 48-50 of packet* • **Water quality limited streams**: Consider proximity to water quality limited streams. This could be illustrated by a map showing areas outside the UGB inside the study area that drain to Tumalo Creek and the Deschutes River. *The project team/TAC recommends consideration of this indicator under Factor 3 base mapping.*	**Analysis Tool: Envision** • Acres of new development within DWPA by scenario • Acres of scenario with welded tuff geology • Acres of scenario draining to water quality limited streams
Factor 3: Comparative environmental, social, economic and energy consequences (ESEE)	
Analysis Tool: GIS • 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	**Analysis Tool: Envision** • Development (acres, number of housing units, number of jobs) in areas where Goal 5 resources are present • Development (acres, number of housing units, number of jobs) in Goal 7 hazard prone areas • Housing units within walking distance of existing/planned elementary schools, parks and trails in 2028 (# and % of

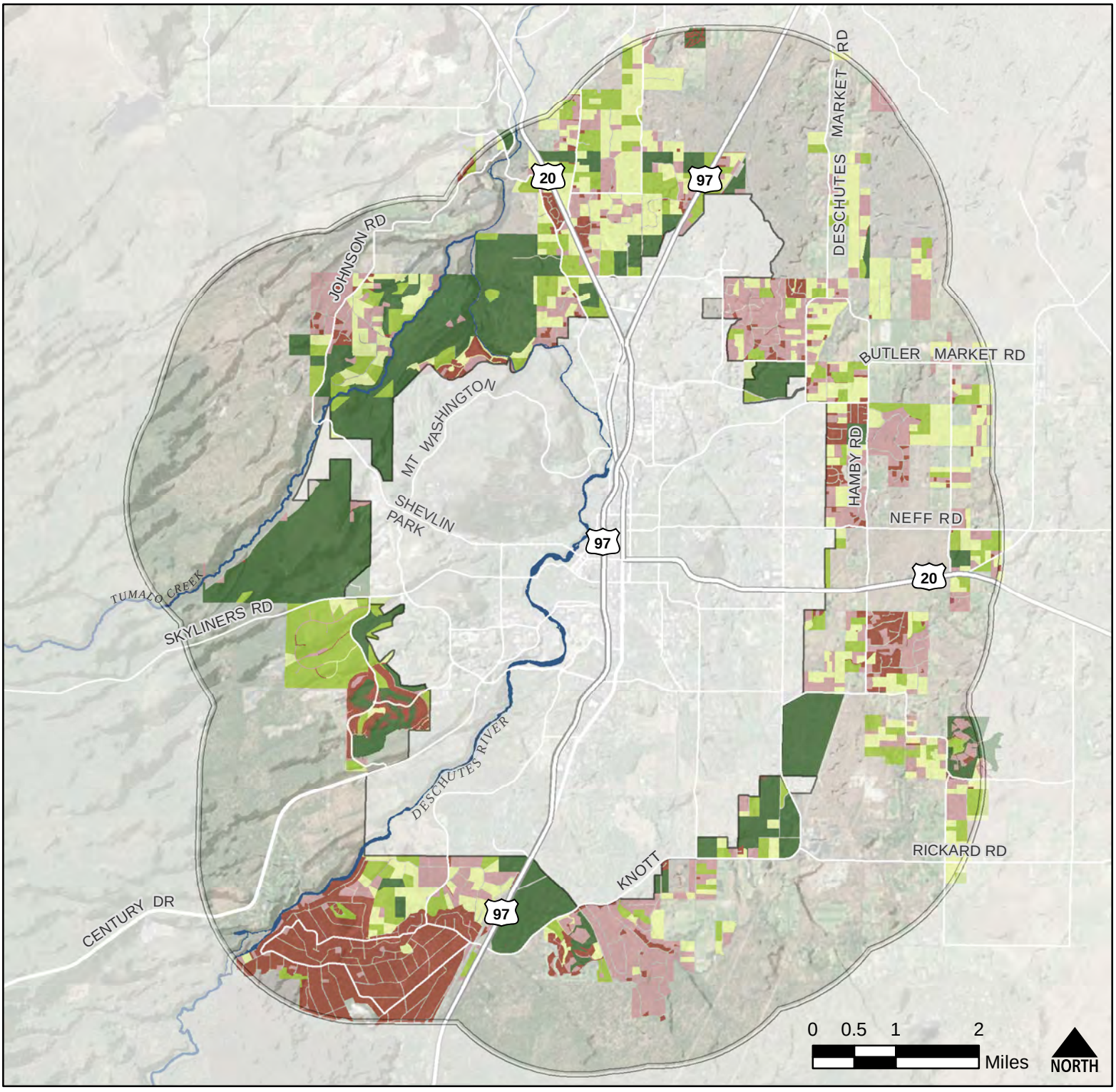
Stage 2 – Base Mapping Purpose: Prioritize exception lands within Study Area based on proposed **key indicators**	Stage 4 – Scenario Evaluation Purpose: Evaluate alternative scenarios based on proposed **performance measures**
lands and canals in study area • Presence of water quality limited streams (303d) in study area *See Factor 3 maps – page 51 of packet*	total units) • Housing mix & affordability by income level • Jobs housing balance (by TAZ or quadrant) • Greenhouse gas emissions • Total impervious surface area • % of job growth in downtown Bend
Factor 4: Compatibility of proposed urban uses with nearby agricultural and forest activities occurring on farm and forest land outside the UGB	
Analysis Tool: GIS • Proximity to designated forest land • Proximity to designated high-value agricultural land (irrigated) *See Factor 4 Maps – page 62 of packet*	**Analysis Tool: Envision** • Perimeter of proposed UGB in proximity to designated forest land (lineal feet/miles) relative to existing UGB • Perimeter of proposed UGB in proximity to designated high-value agricultural land (lineal feet/miles) relative to existing UGB • Designated forest or agricultural land included in scenario, if any (acres)

Factor 1 Maps

STAGE 2 MAPS FOR FACTOR 1 OF GOAL 14: EFFICIENT ACCOMMODATION OF IDENTIFIED LAND NEEDS

- Parcel Size
- Improvement to Land Value Ratio
- Distance from UGB
- Steep Slopes (>25%)
- Subdivisions with Known CC&Rs

Priority 2 Exception Land Parcel Size



URBAN GROWTH BOUNDARY REMAND

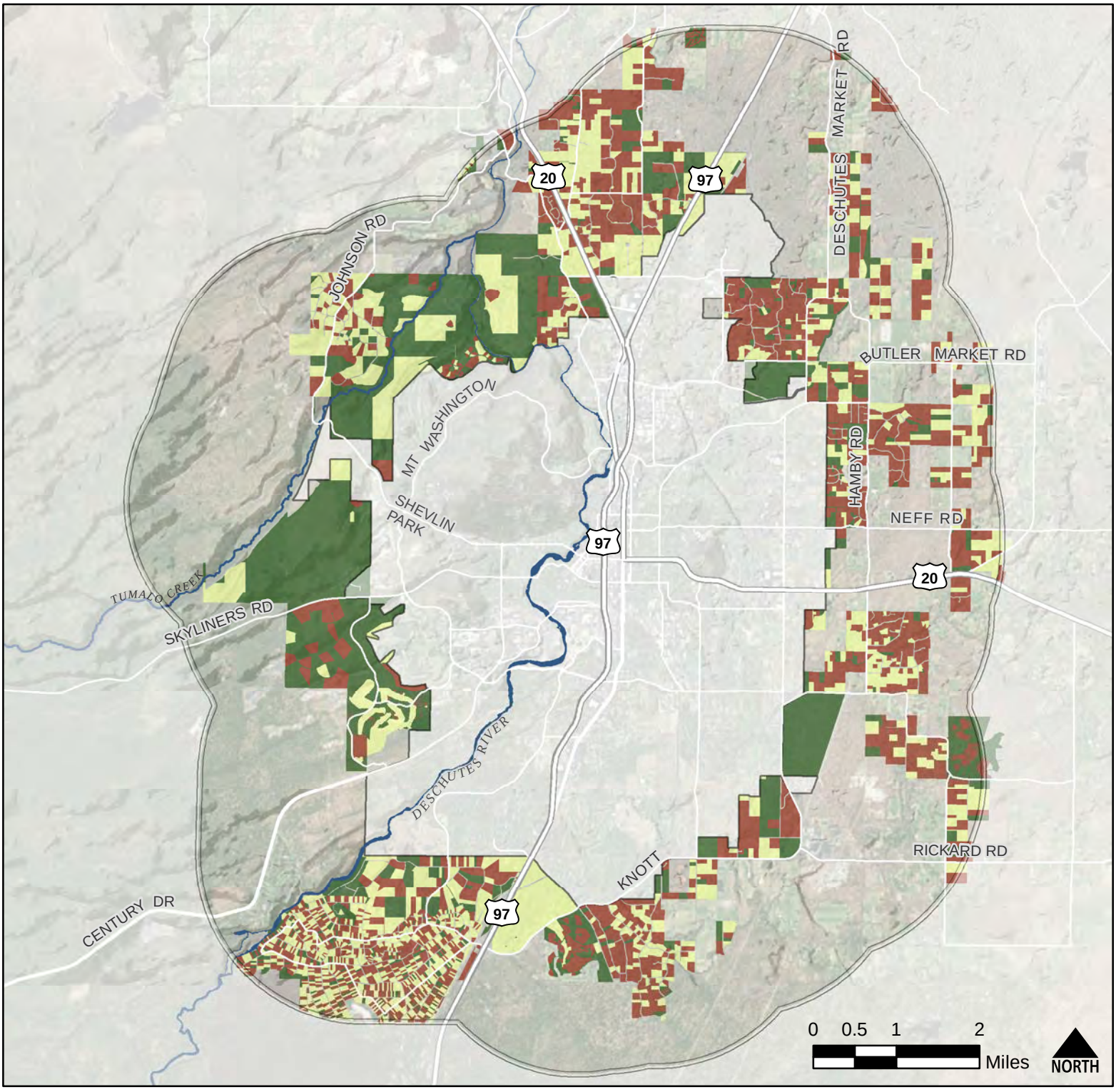
Service Layer Credits: Deschutes County GIS (2014)

Prepared 1/2/2015

Improvement to Land Value Ratio

2 Miles from UGB
Urban Growth Boundary
Streams/Rivers
Roads/Highways

Exception Land Improvement to Land Value Ratio
No Improvement Value
1 and Below (Improvement less than Land Value)
Above 1 (Improvement more than Land Value)



URBAN GROWTH BOUNDARY REMAND

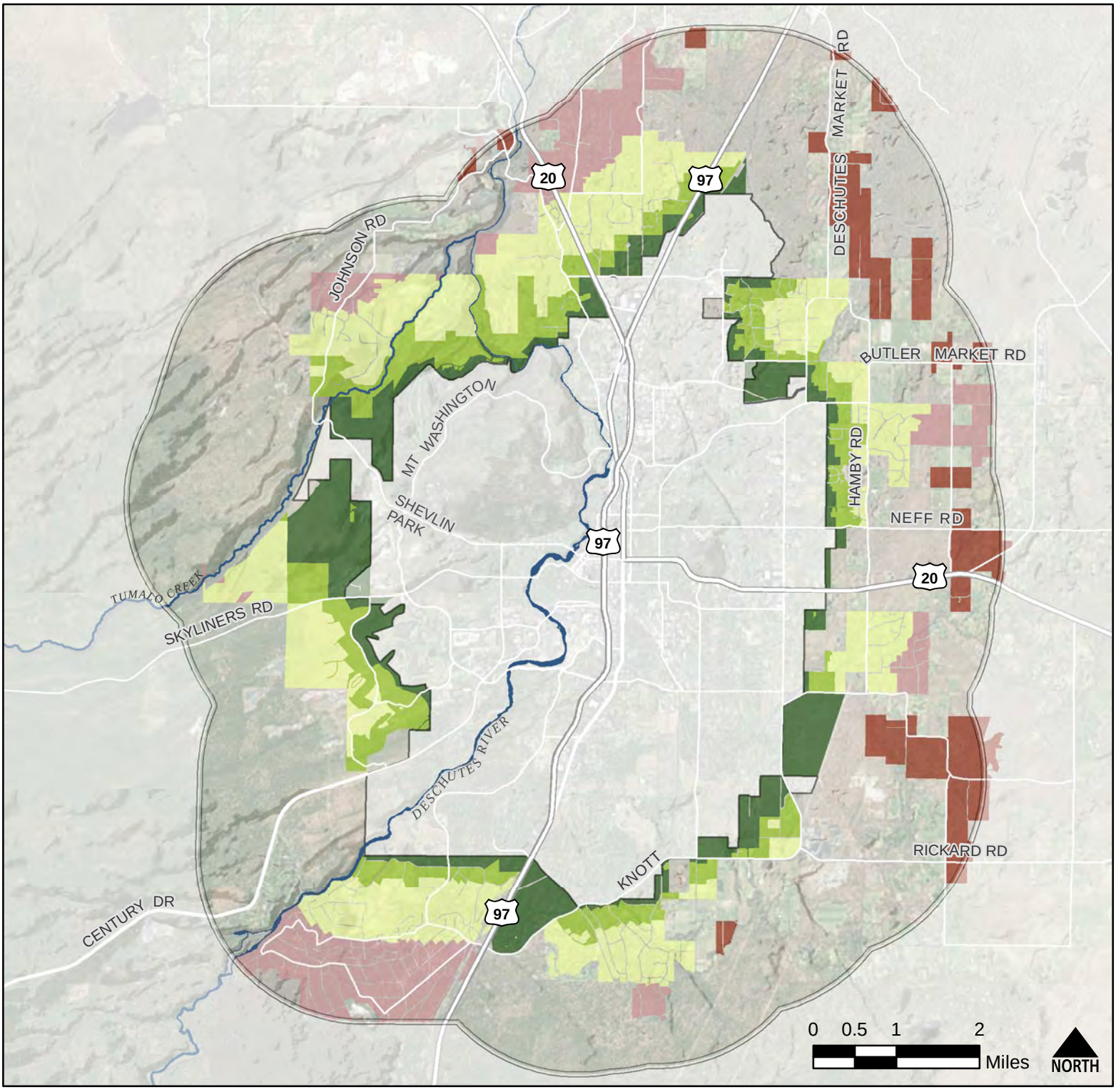
Service Layer Credits: Deschutes County GIS (2014)

Prepared 1/20/2015

Taxlot Distance from UGB

2 Miles from UGB
Urban Growth Boundary
Streams/Rivers
Roads/Highways

Exception Land
Contiguous
Within .25 miles
Within 1 mile
Greater than 1 mile
Separated from UGB by Resource Land



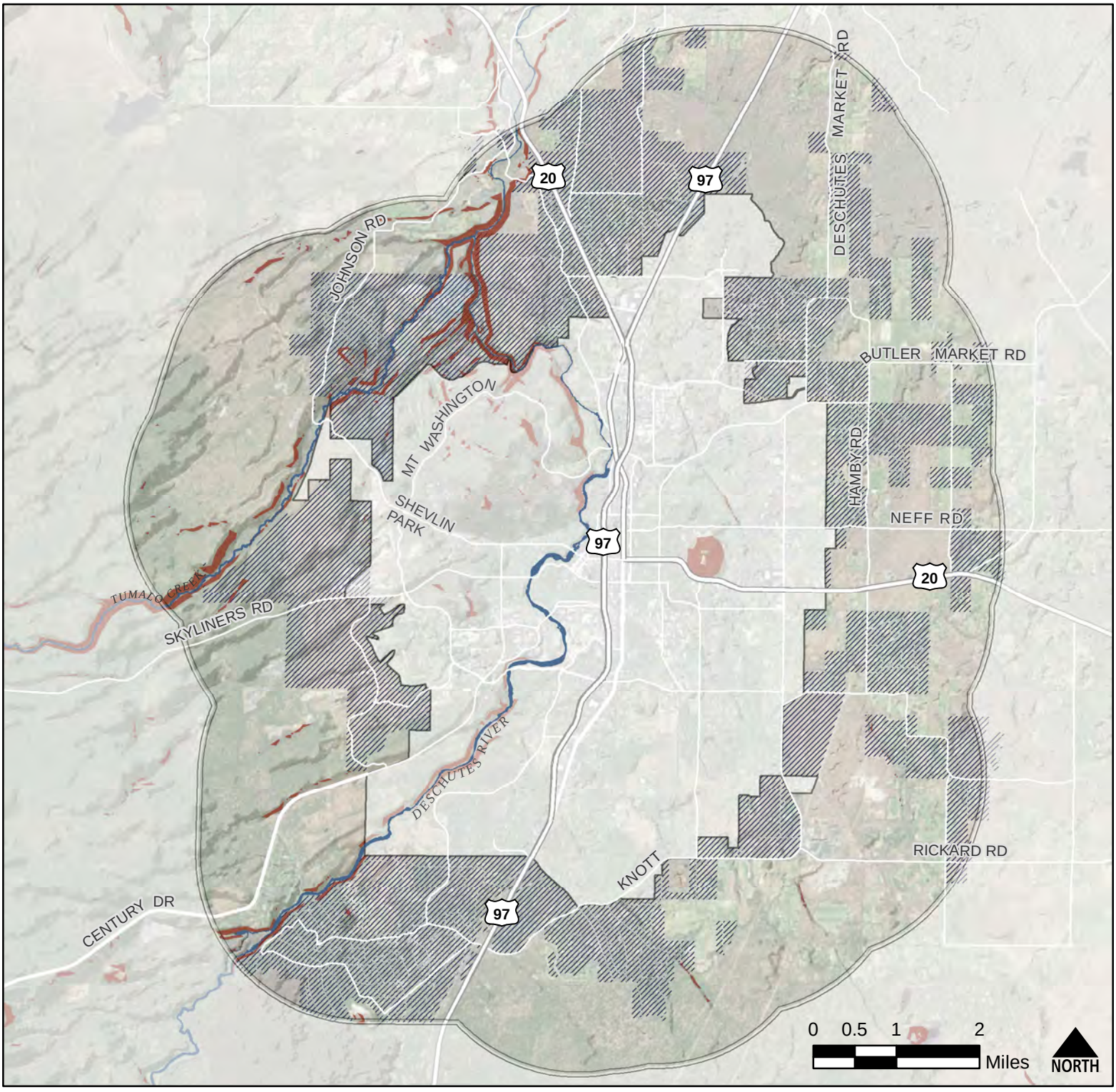
URBAN GROWTH BOUNDARY REMAND
BEND

Note: Distance from UGB is from individual tax lots. If a tax lot is contiguous, then the whole tax lot is shown as contiguous even though portions may be farther away.

Service Layer Credits: Deschutes County GIS (2014)

Prepared 1/20/2015

Steep Slopes

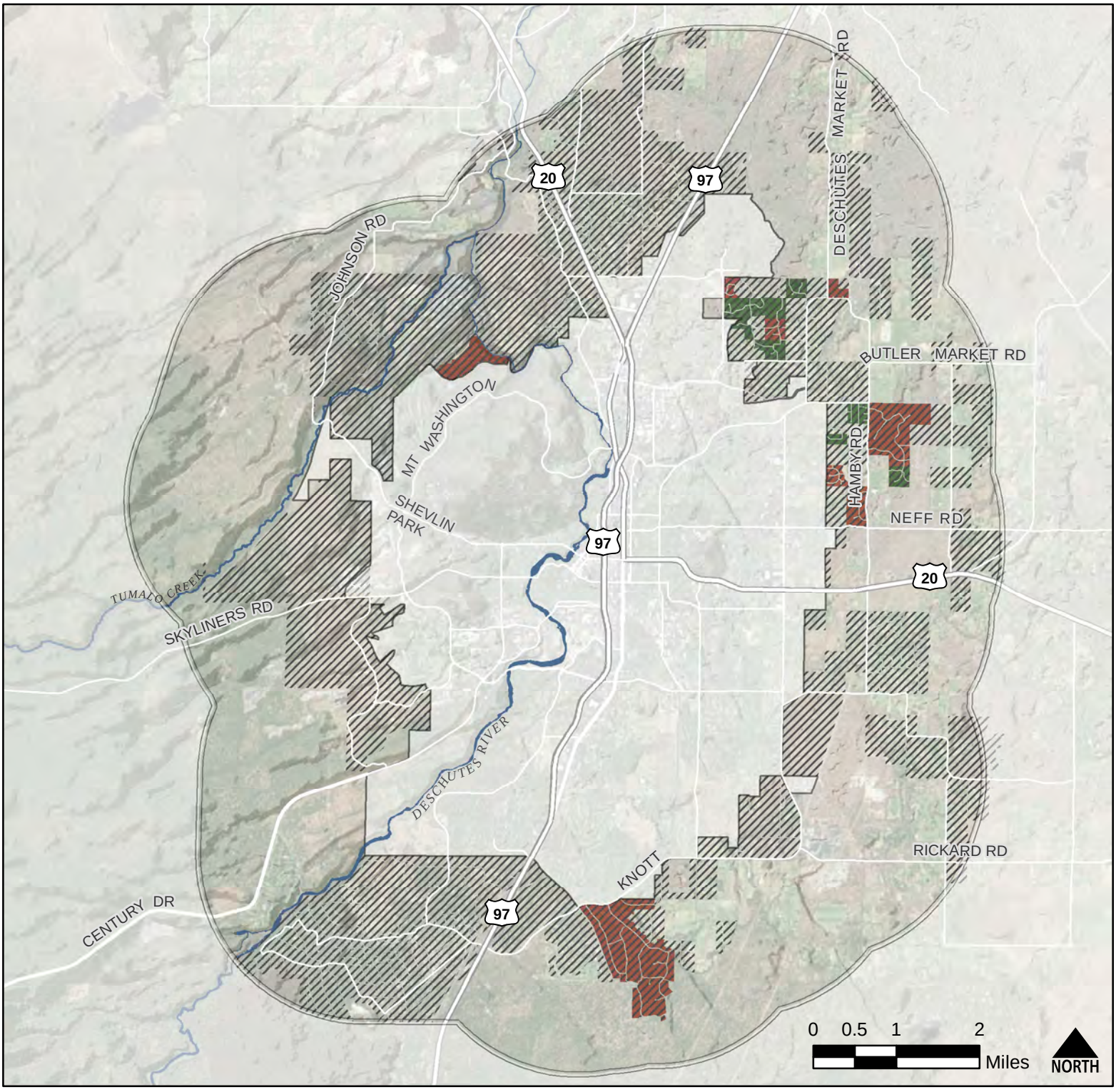


URBAN GROWTH BOUNDARY REMAND

Service Layer Credits: Deschutes County GIS (2014)

Prepared 1/20/2015

Subdivisions with Known CC&Rs



URBAN GROWTH BOUNDARY REMAND

Note: analysis of known CC&Rs is a work in progress and subject to change.

Service Layer Credits: Remand Record (entered 12/01/2008); Deschutes County GIS (2014)

Prepared 1/20/2015

Factor 2 Maps

STAGE 2 MAPS FOR FACTOR 2 OF GOAL 14: ORDERLY & ECONOMIC PROVISION OF PUBLIC FACILITIES AND SERVICES

Transportation Maps

- Physical Barriers to Connectivity
- 2040 Reliance on Congested Corridors
- Connectivity to Complete Roadway Grid

Water Map

- Water Analysis (City of Bend Service Area)

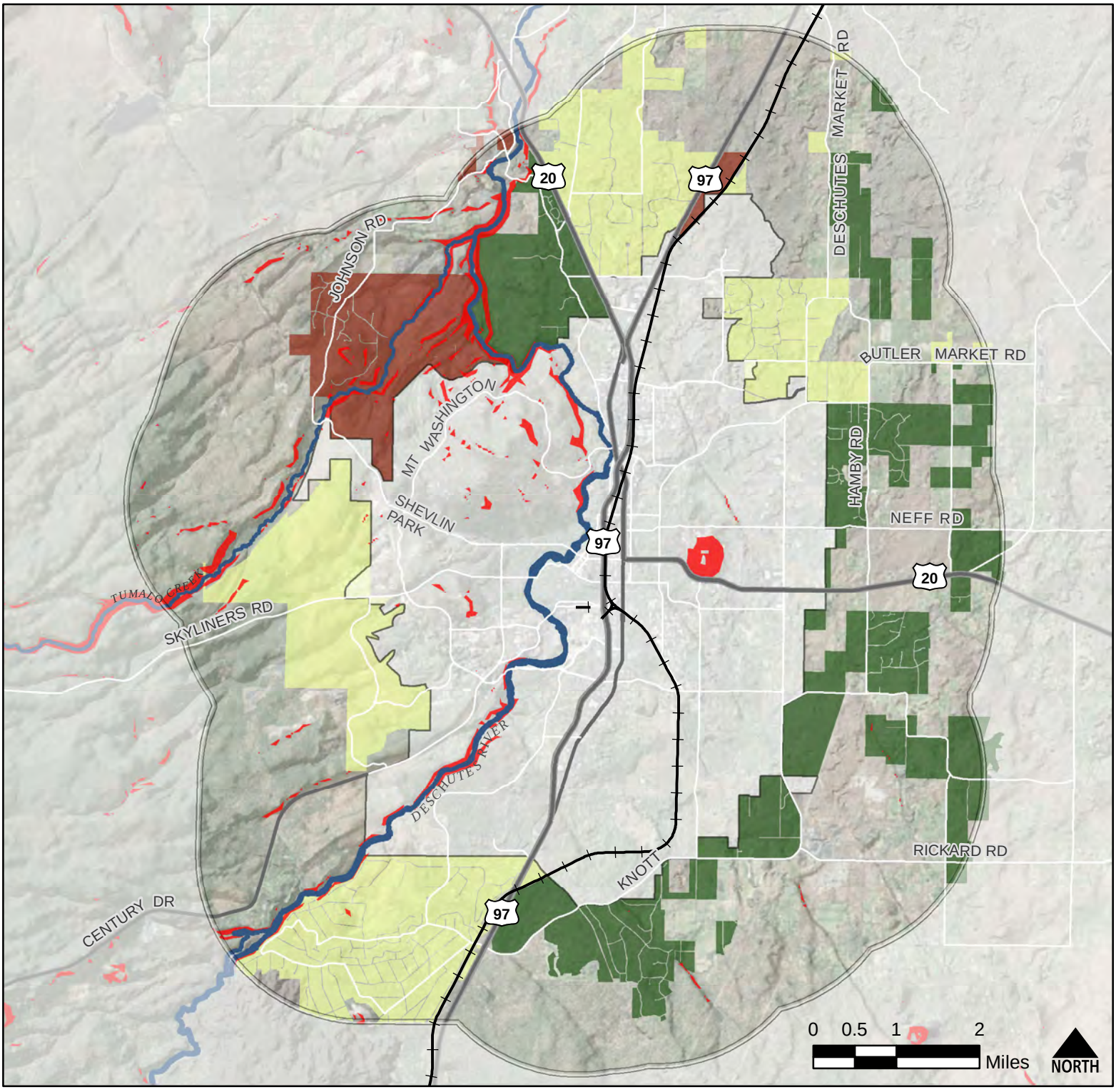
Wastewater Map

- Preliminary Analysis of Potential UGB Expansion Basins

Stormwater Maps

- Surficial Geology
- Drinking Water Protection Areas (GIS Base Map)
- Proximity to Drinking Water Protection Areas

Physical Barriers to Connectivity



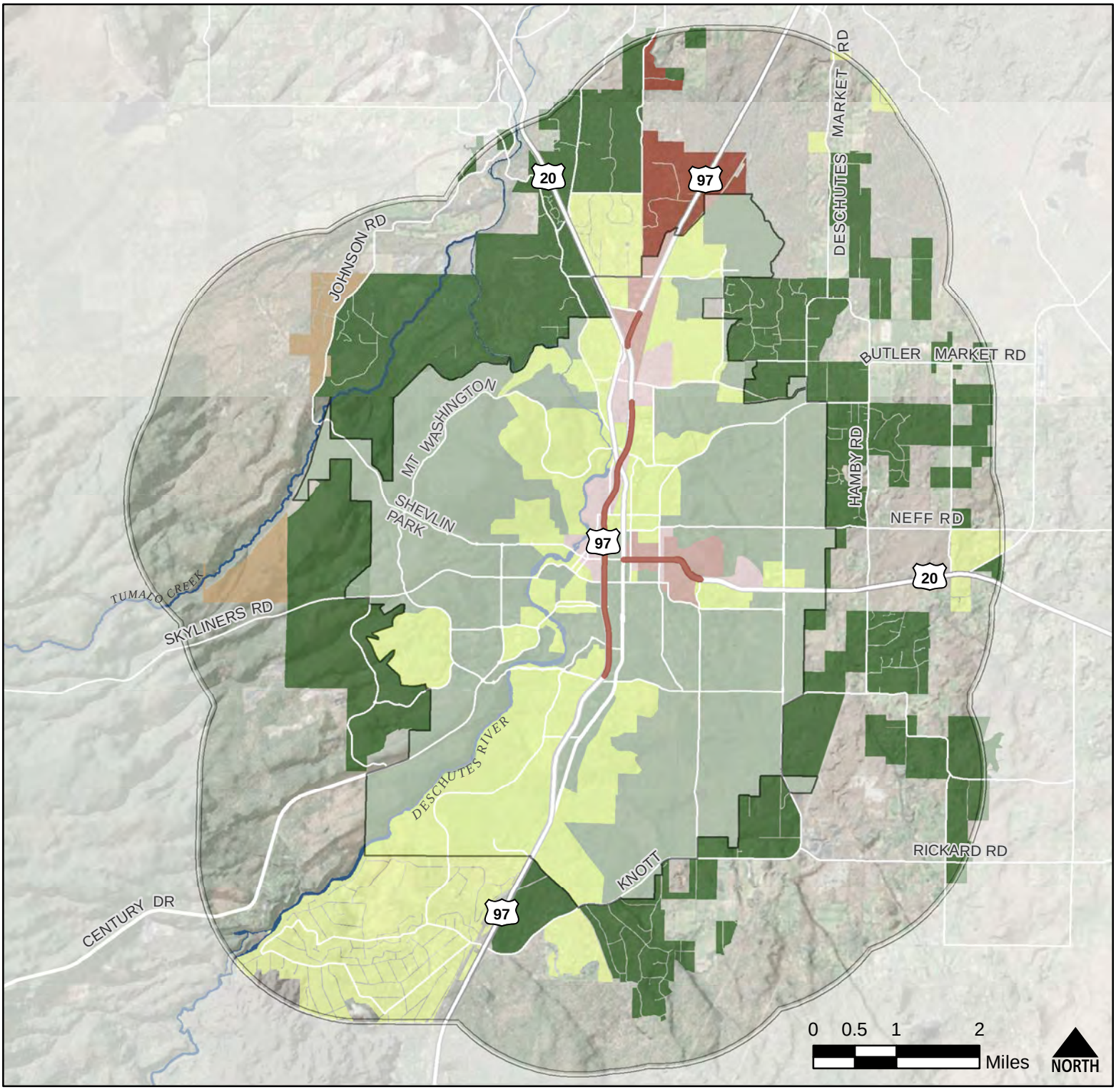
URBAN GROWTH BOUNDARY REMAND

Service Layer Credits: DKS, Deschutes County GIS (2014)

Prepared 2/17/2015

03471

2040 Exception Land Reliance on Congested Corridors



URBAN GROWTH BOUNDARY REMAND

Service Layer Credits: DKS, Deschutes County GIS (2014)

Prepared 1/21/2015

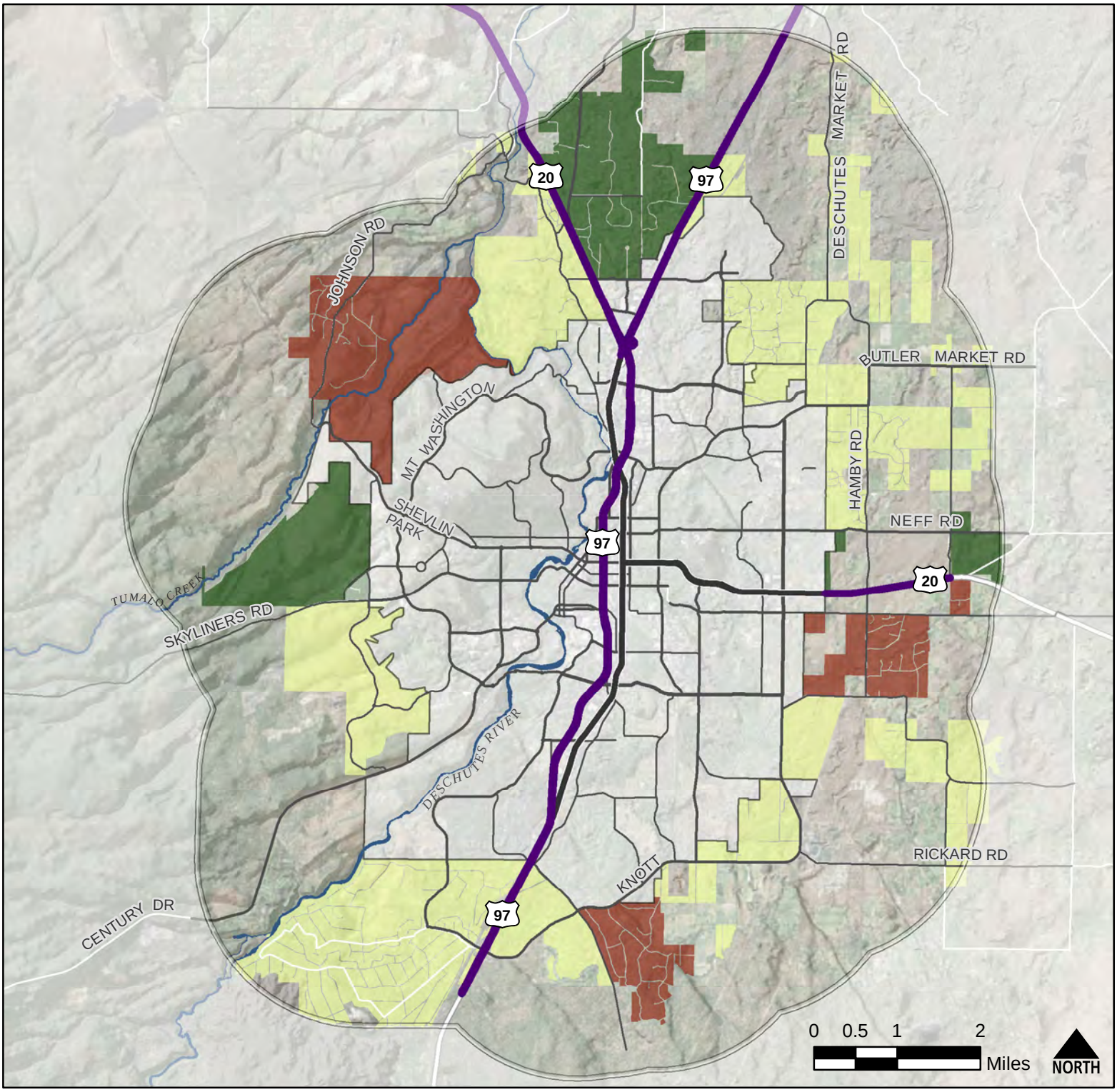
03472

Connectivity to Complete Roadway Grid

2 Miles from UGB
Urban Growth Boundary
Streams/Rivers

Functional Classification
Expressway
Principal Arterial
Major Arterial
Minor Arterial
Major Collector

Exception Land
Good Connectivity
Fair Connectivity
Poor Connectivity

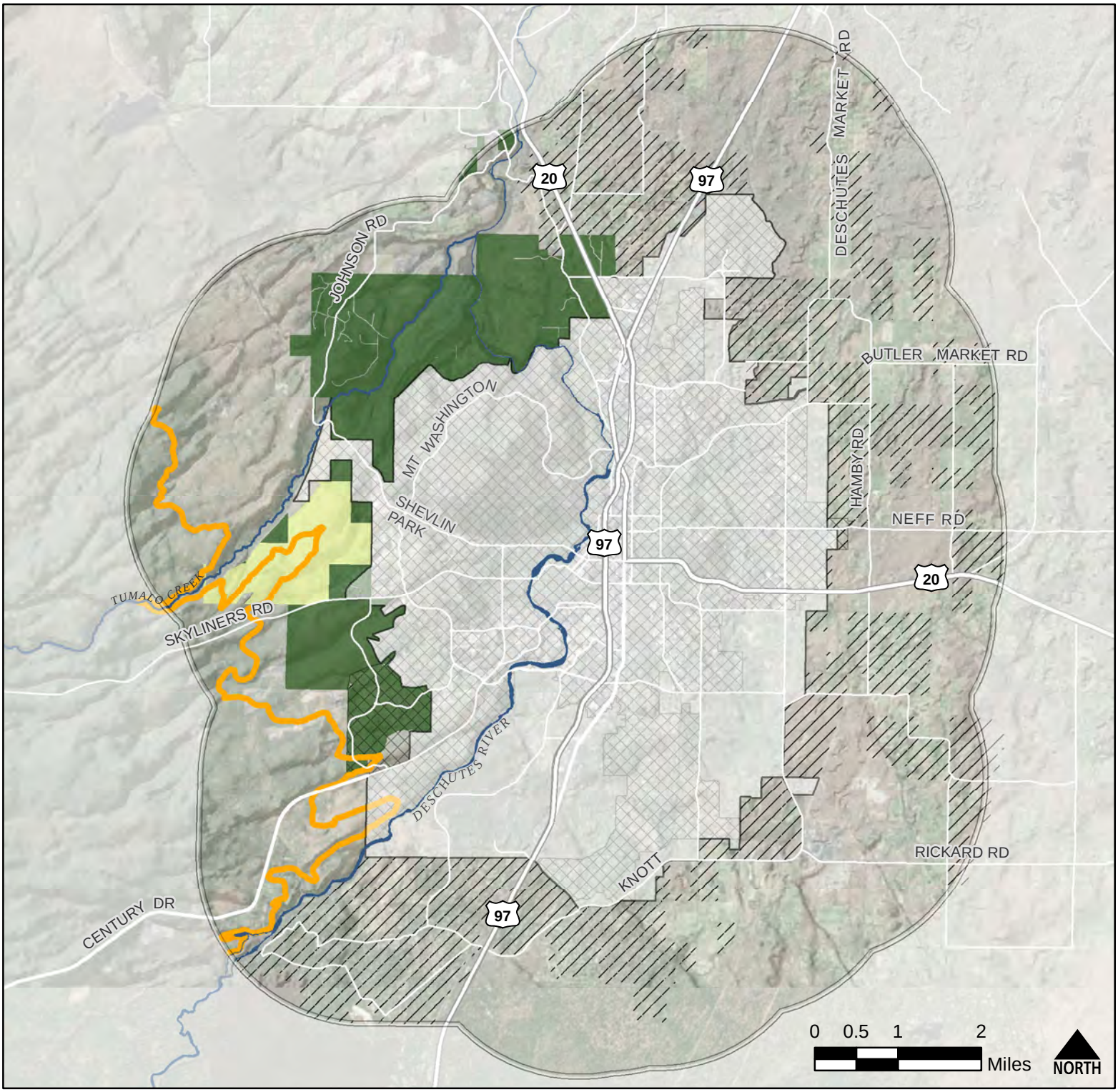


URBAN GROWTH BOUNDARY REMAND
BEND

Service Layer Credits: DKS, Deschutes County GIS (2014)

Prepared 1/21/2015
03473

Water Analysis



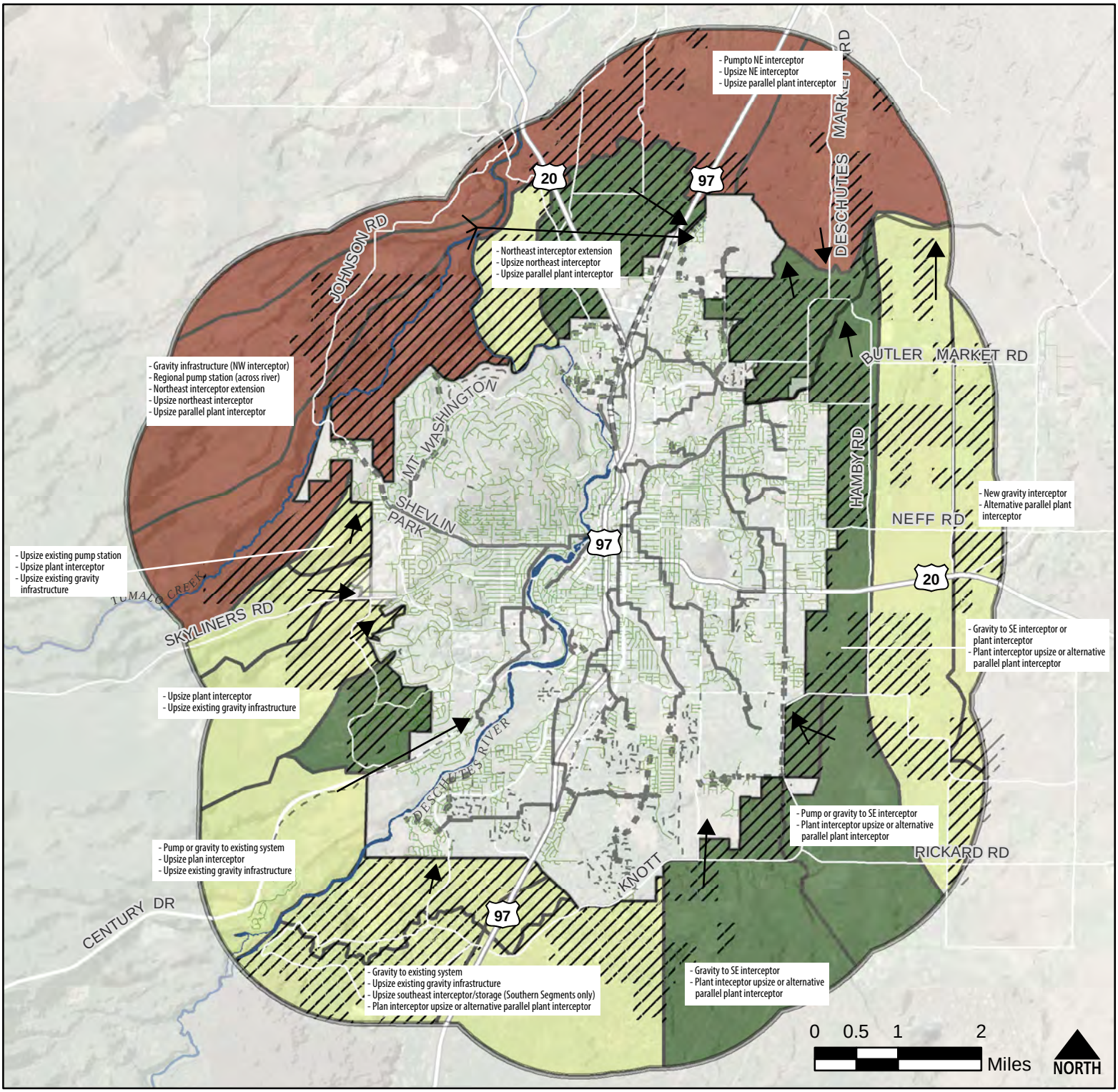
URBAN GROWTH BOUNDARY REMAND

Service Layer Credits: MSA (2014), NRCS, Deschutes County GIS (2014)

Prepared 1/21/2015

03474

Preliminary Analysis of Potential UGB Expansion Wastewater Basins



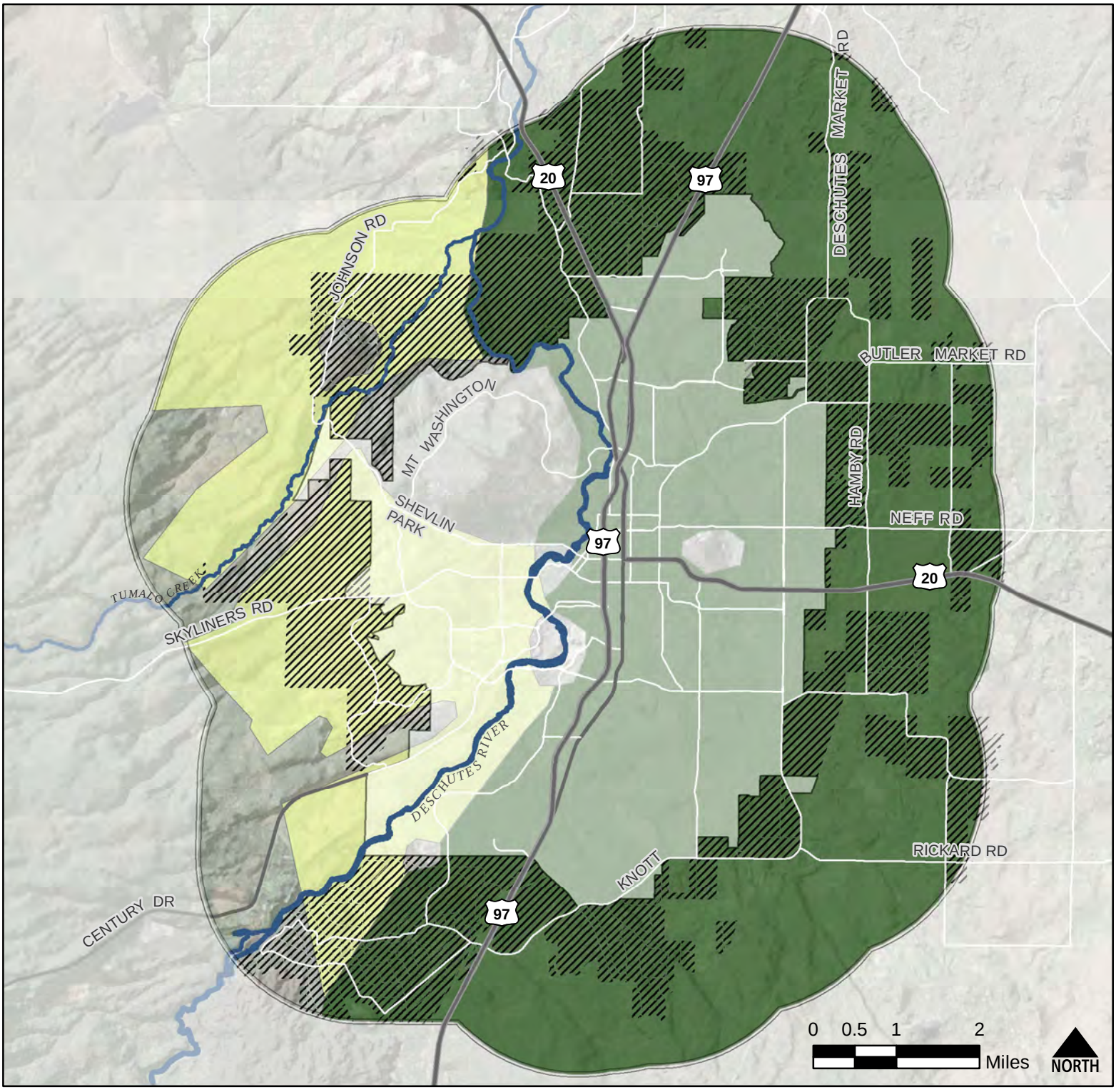
URBAN GROWTH BOUNDARY REMAND

Good - Gravity to existing or planned infrastructure. Minimal additional improvements.
Fair - Pump to existing or planned infrastructure or gravity to new infrastructure. Additional gravity improvements.
Poor - Pump to new infrastructure. Significant additional gravity and/or pumping improvements.

Service Layer Credits: MSA Maps & Memo (2015), Deschutes County GIS (2014)

Prepared 2/17/2015

Surficial Geology



URBAN GROWTH BOUNDARY REMAND

Service Layer Credits: Deschutes County GIS (2011), USGS (2005)

QTst - Tuffaceious Sedimentary Rocks and Tuffs (Lower? Pleistocene and Andestic Ejecta)
Qb - Basalt and Basaltic Andesite (Holocene and Pleistocene)

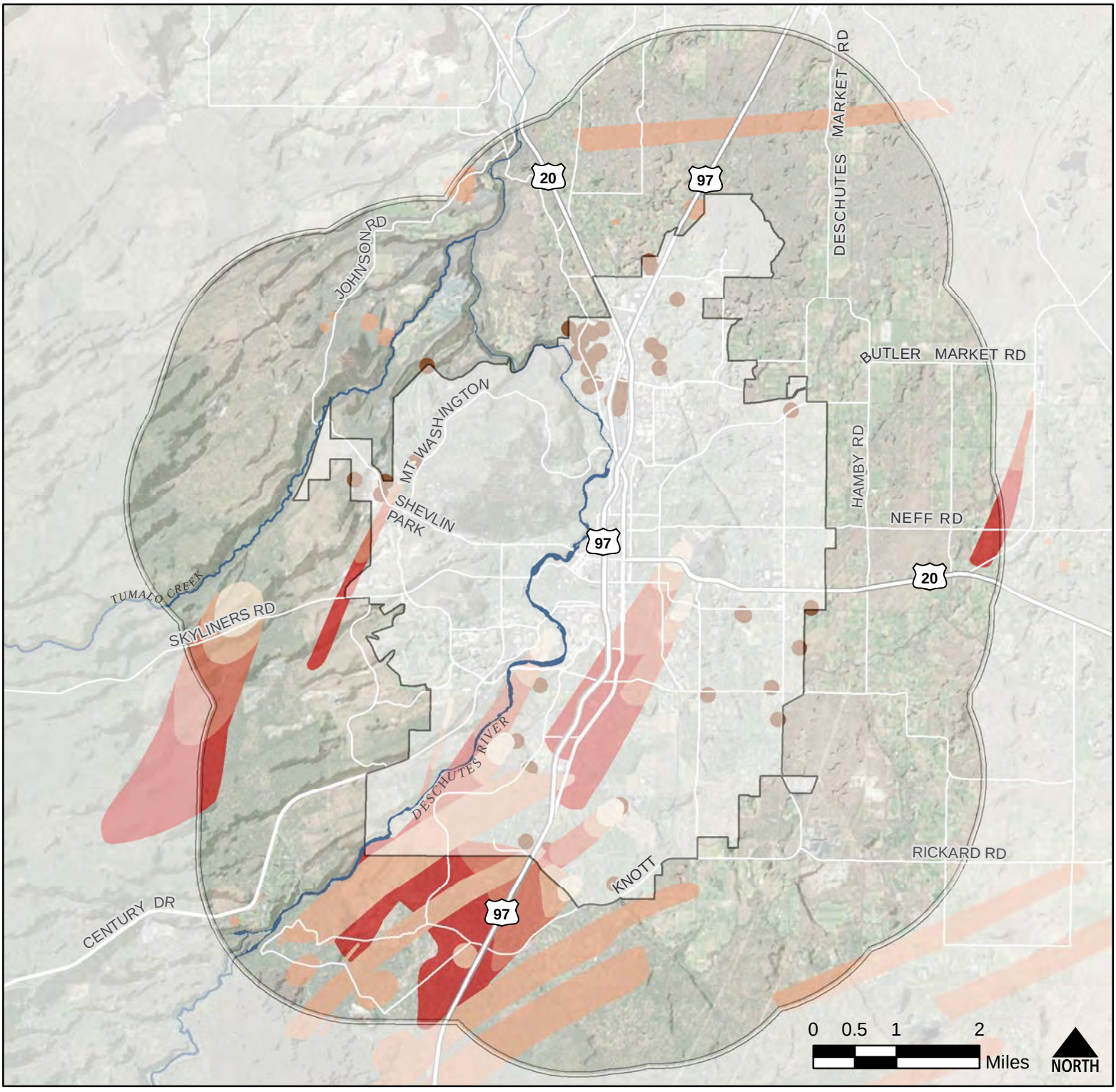
Note: The locations of geologic features shown are approximate.

Prepared 1/19/2015

Drinking Water Protection Areas (DWPA)

2 Miles from UGB
Urban Growth Boundary
Roads/Highways

Drinking Water Protection Area
500' Buffer
1 Year
2 Year
5 Year
10 Year

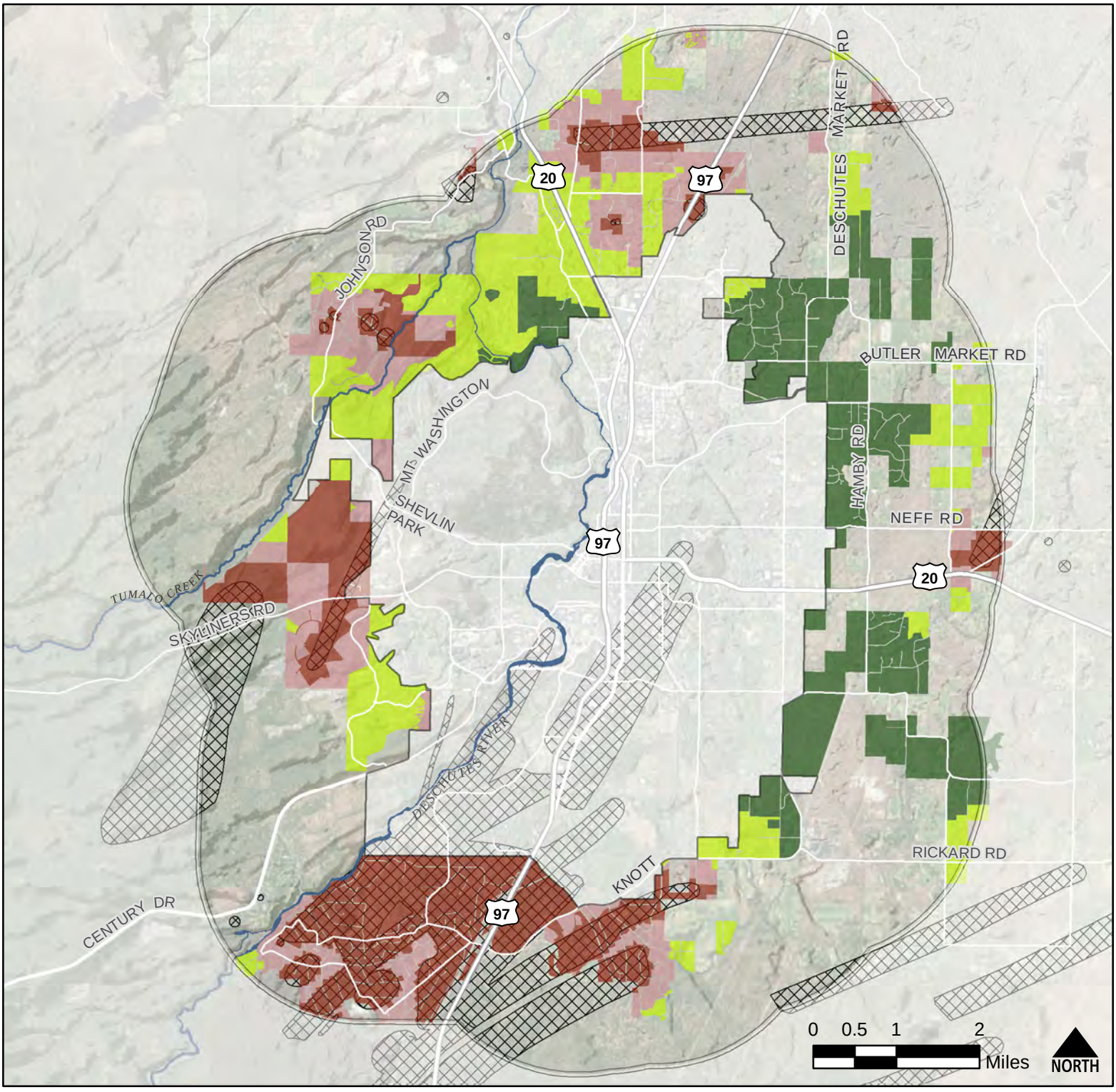


URBAN GROWTH BOUNDARY REMAND
BEND

Service Layer Credits: Deschutes County GIS (2014), City of Bend (2011)

Prepared 1/21/2015
03477

Exception Land Distance from Drinking Water Protection Areas (DWPA)



URBAN GROWTH BOUNDARY REMAND

Service Layer Credits: Deschutes County GIS (2014), City of Bend (2011)

Prepared 1/20/2015

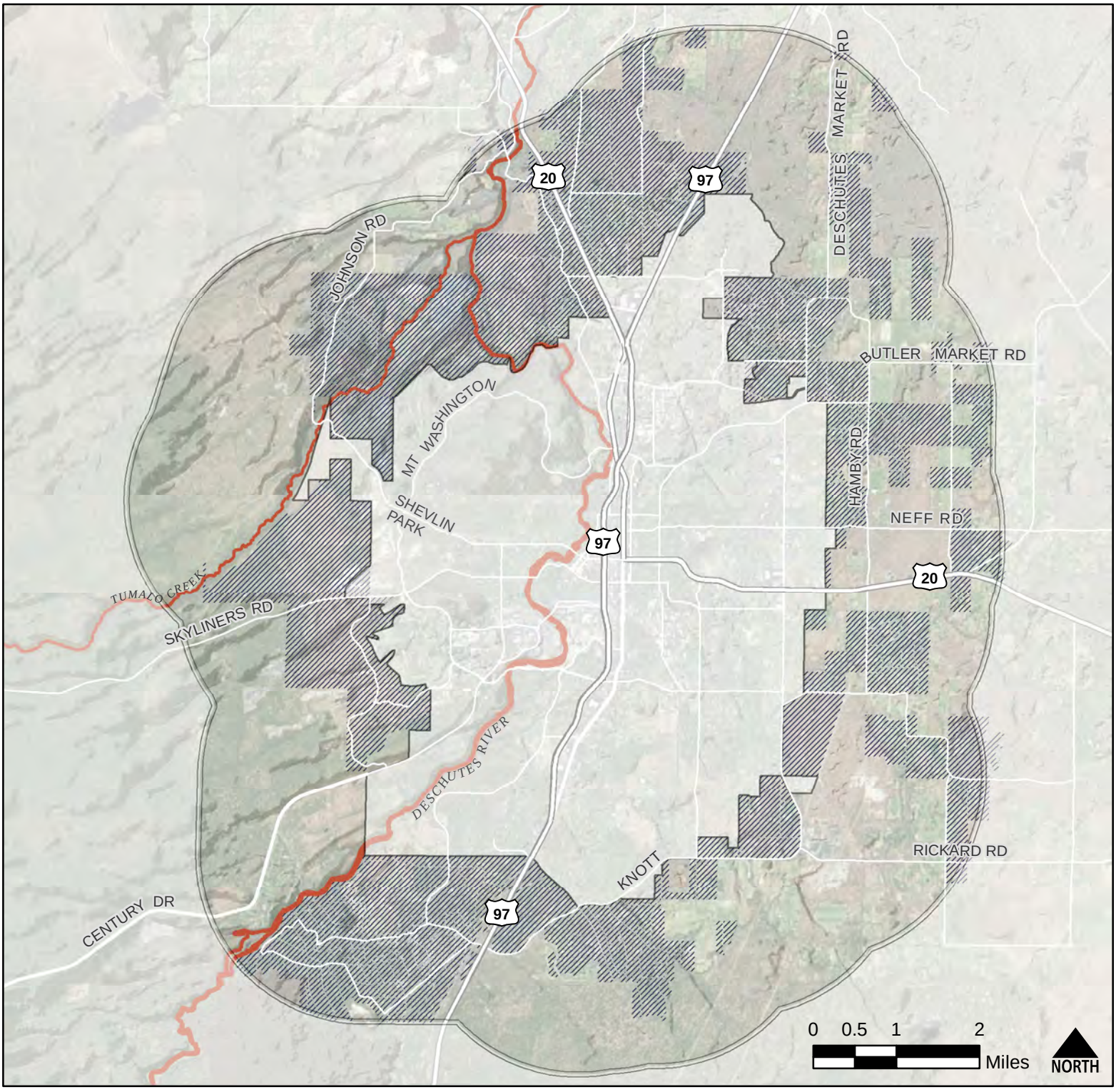
03478

Factor 3 Maps

STAGE 2 MAPS FOR FACTOR 3 OF GOAL 14: ESEE CONSEQUENCES

- Riparian Corridors
- Exception Land & Big Game Winter Ranges (ODFW)
- Proximity to Winter Range
- Federal/State Scenic Waterways
- Mineral & Aggregate Resources
- Fire Risk – CWPP Boundary Subareas
- Composite Wildfire Risk Ratings
- 100-year Floodplains
- Proximity to Elementary Schools & Parks

Riparian Areas - 100' buffer form Deschutes River & Tumalo Creek



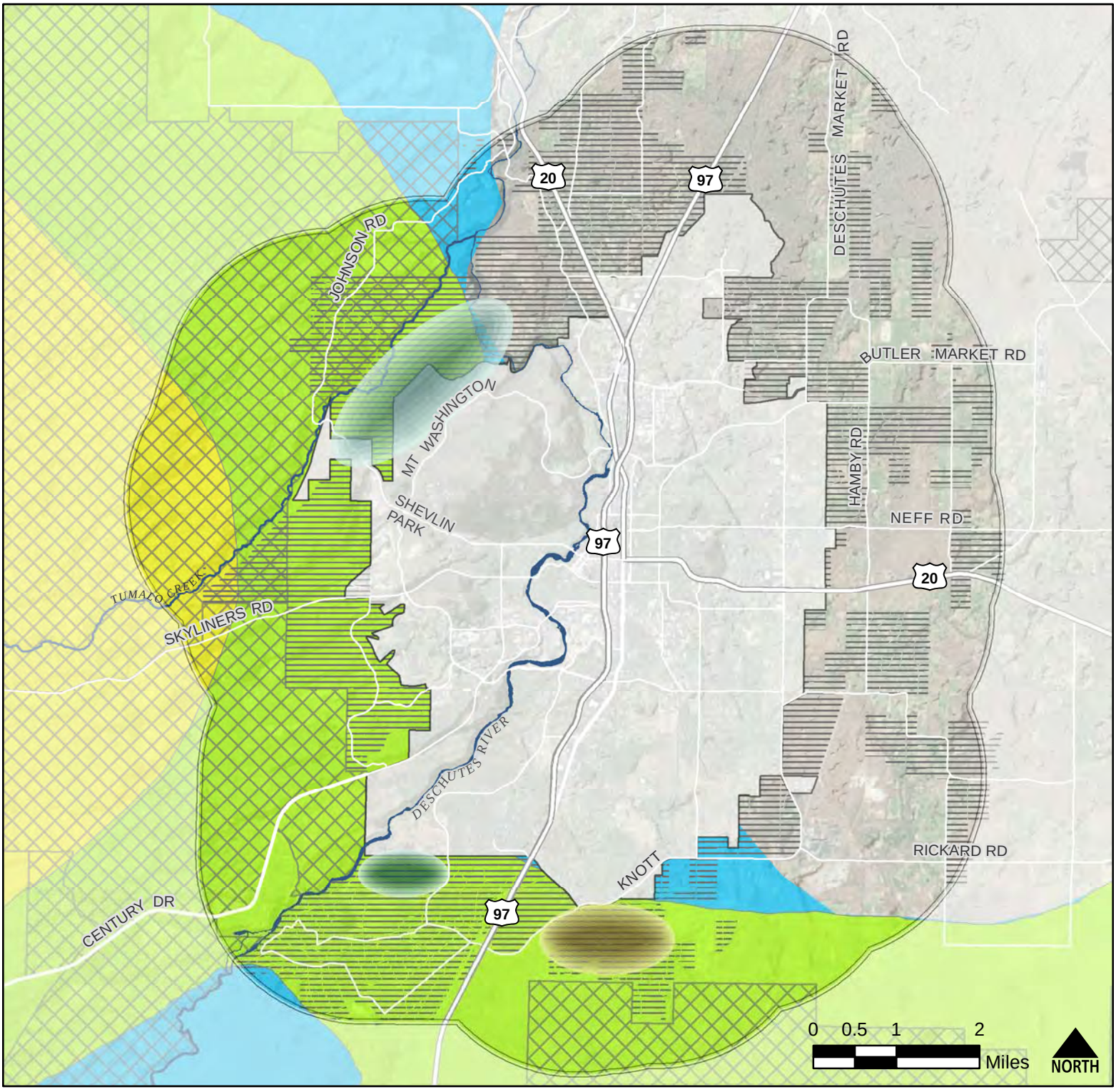
URBAN GROWTH BOUNDARY REMAND

Service Layer Credits: Deschutes County GIS (2014)

Prepared 2/13/2015

03480

Exception Land & Big Game Winter Ranges



URBAN GROWTH BOUNDARY REMAND

Service Layer Credits: Oregon Department of Fish and Wildlife (2011-2012). Deschutes County GIS

Note: Areas of potential concern based on interviews with ODFW

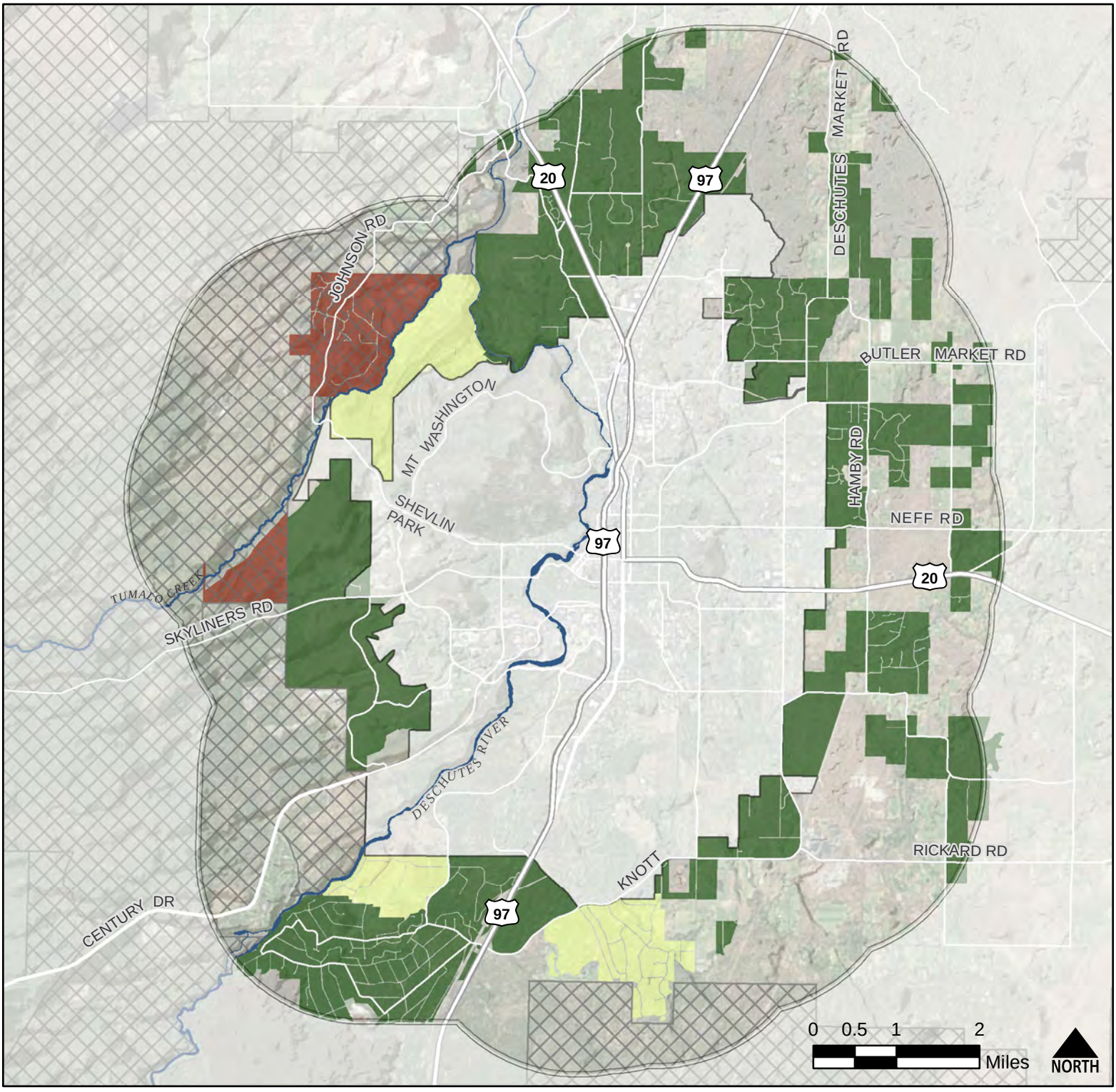
Prepared 2/13/2015

Proximity to Winter Range/Wildlife Area Combining Zone

2 Miles from UGB
Urban Growth Boundary
Streams/Rivers
Roads/Highways
Wildlife Area Combining Zone

Exception Land Proximity to Winter Range/Wildlife Area Combining Zone

Outside
Potential ODFW Addition
Inside

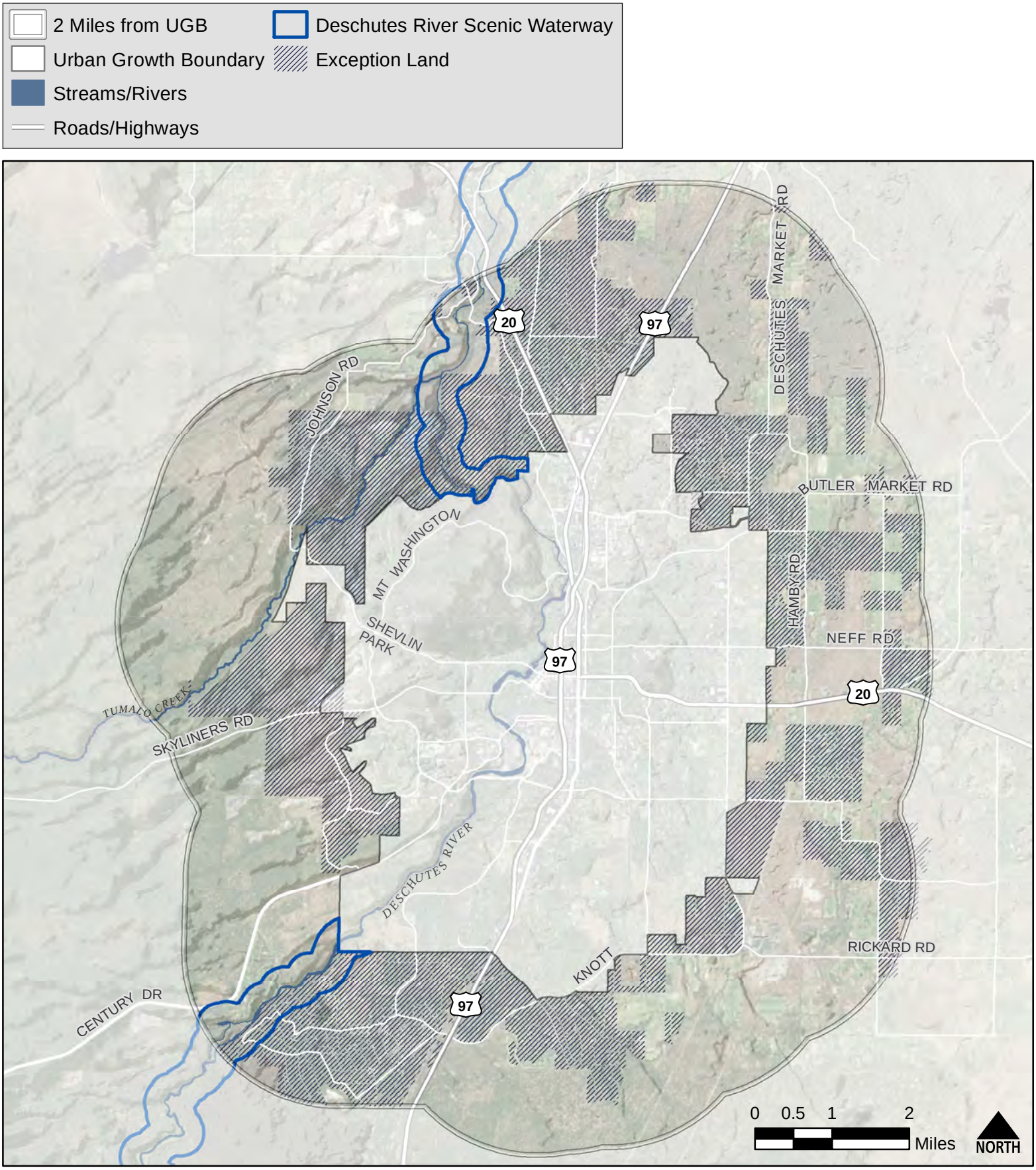


URBAN GROWTH BOUNDARY REMAND

Service Layer Credits: Oregon Department of Fish and Wildlife (2011-2012). Deschutes County GIS

Prepared 2/13/2015

Federal/State Scenic Waterways



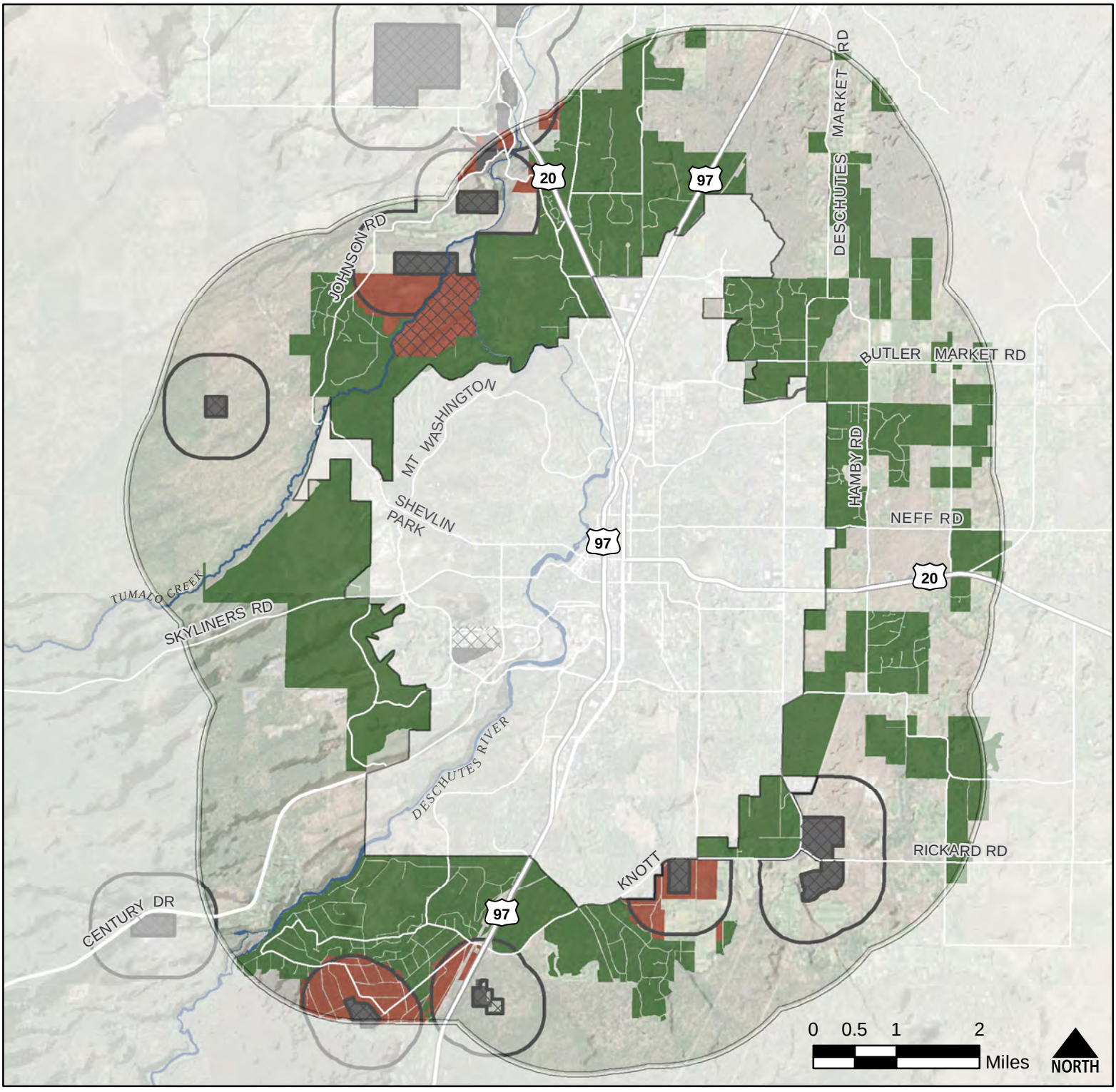
URBAN GROWTH BOUNDARY REMAND

Service Layer Credits: Deschutes County GIS (2014)

Prepared 2/13/2015

03483

Exception Land Proximity to Surface Mining Impact Areas



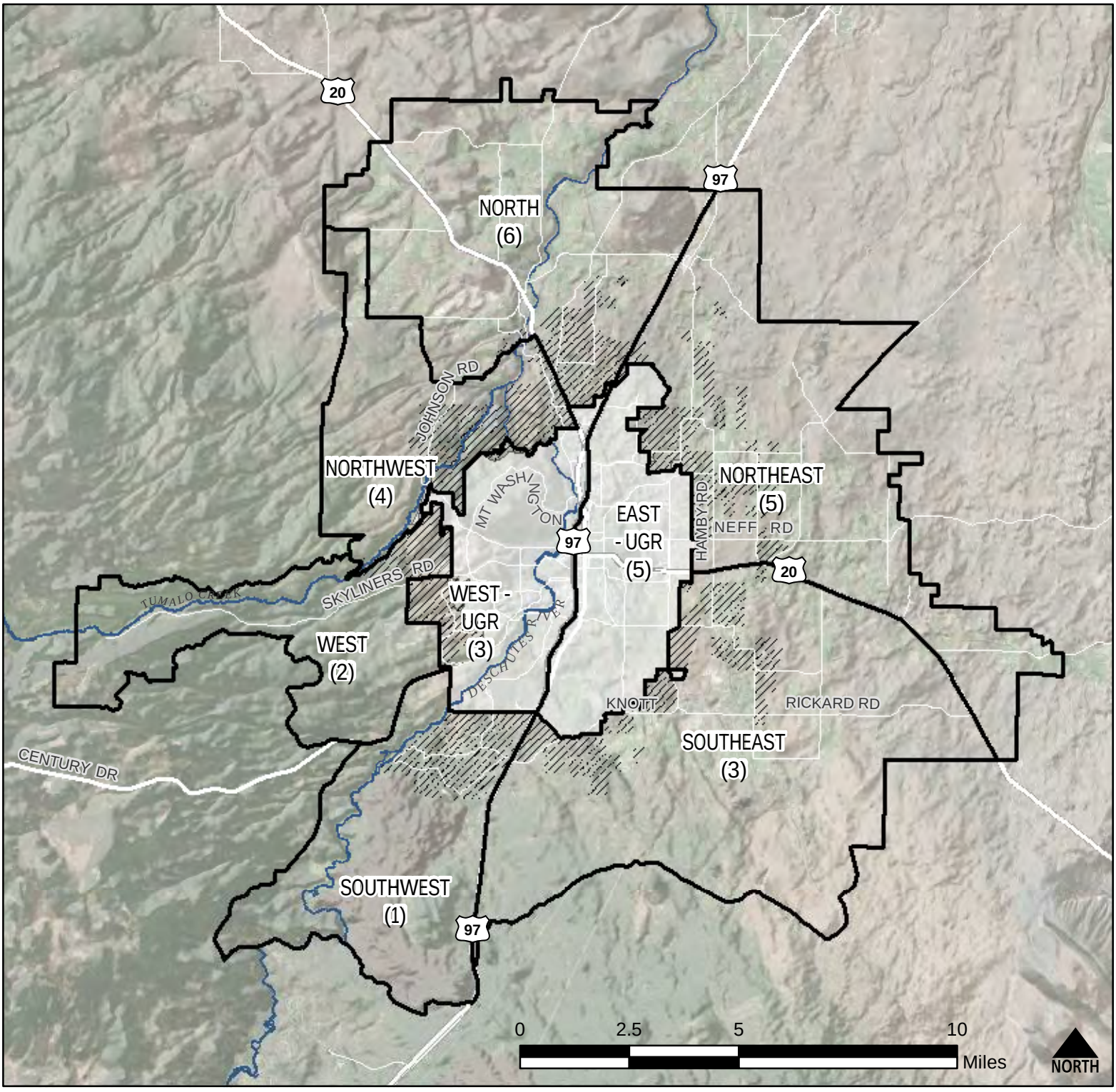
URBAN GROWTH BOUNDARY REMAND

Service Layer Credits: Deschutes County GIS (2014)

Prepared 2/13/2015

03484

Greater Bend CWPP Boundary Subareas

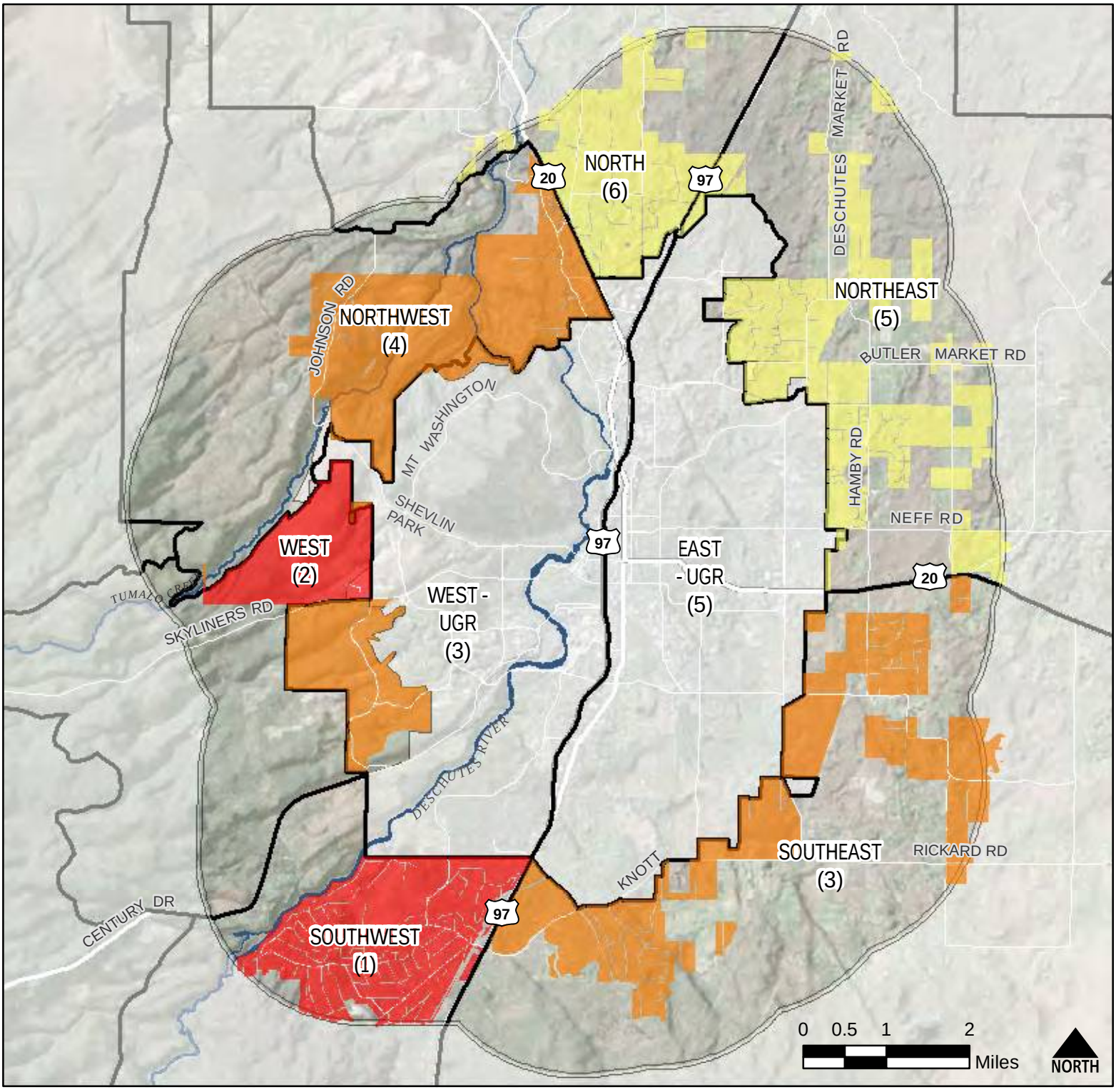


URBAN GROWTH BOUNDARY REMAND

Service Layer Credits: Project Wildfire (2011), Deschutes County GIS (2014)
Rating Source: CWPP Table 8 - Composite Ratings

Prepared 2/2/2015

Composite Wildfire Risk Ratings

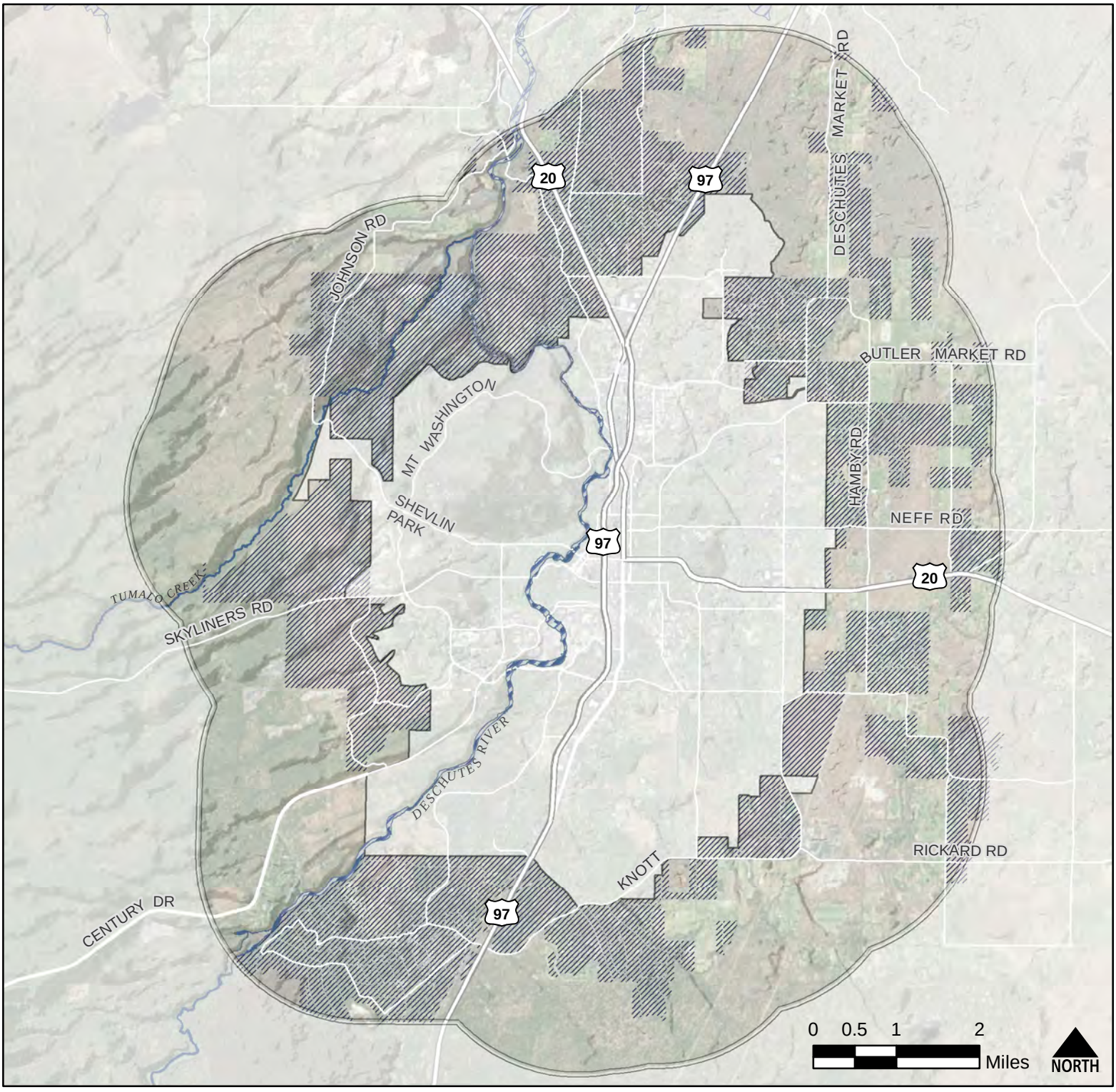


URBAN GROWTH BOUNDARY REMAND

Service Layer Credits: Project Wildfire (2011), Deschutes County GIS (2014)
Rating Source: CWPP Table 8 - Composite Ratings

Prepared 2/2/2015

100-year Floodplain



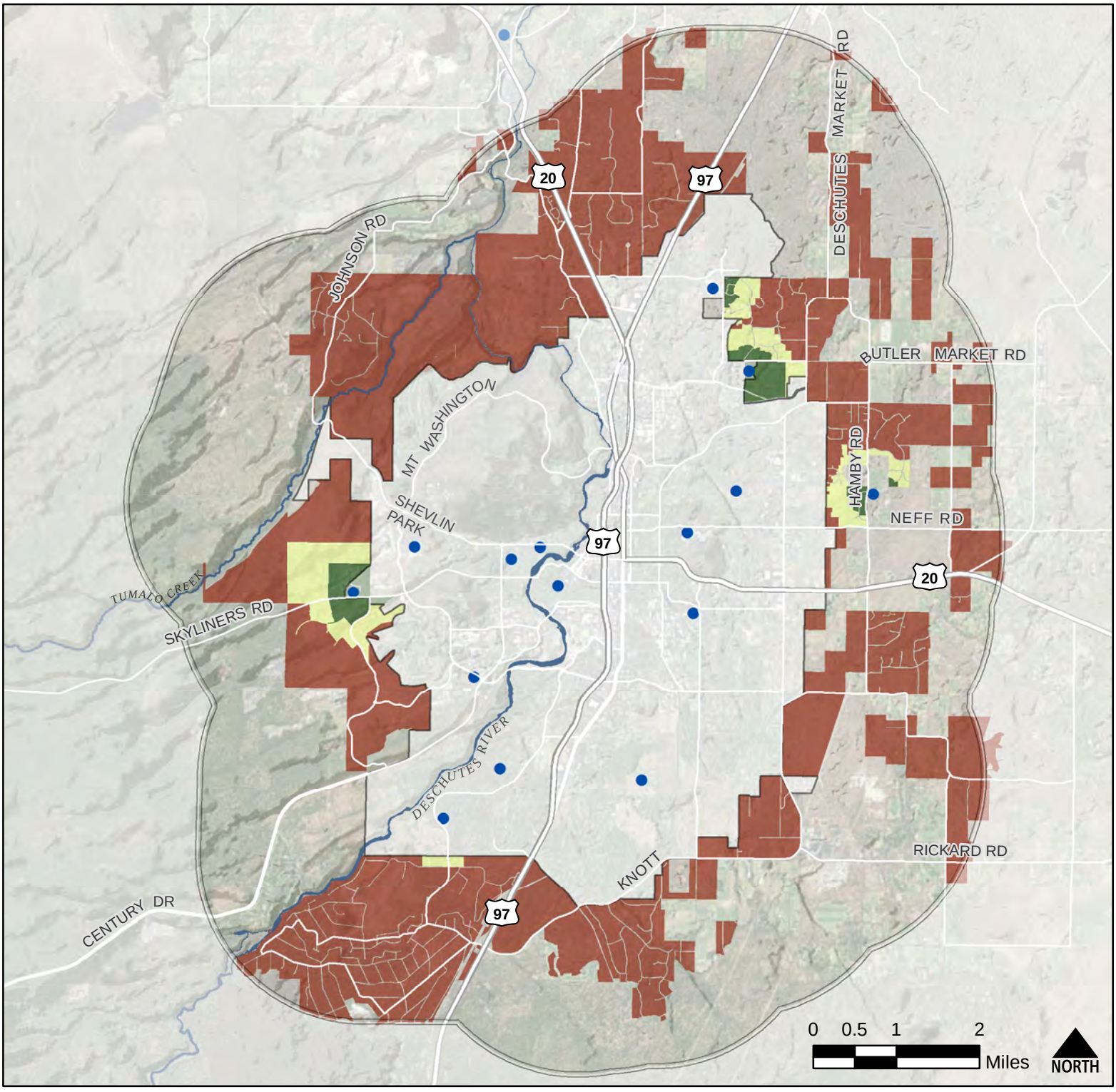
URBAN GROWTH BOUNDARY REMAND

Service Layer Credits: Deschutes County GIS (2014)

Prepared 1/20/2015

03487

Exception Land Proximity to Elementary Schools



URBAN GROWTH BOUNDARY REMAND

Service Layer Credits: Deschutes County GIS (2014)

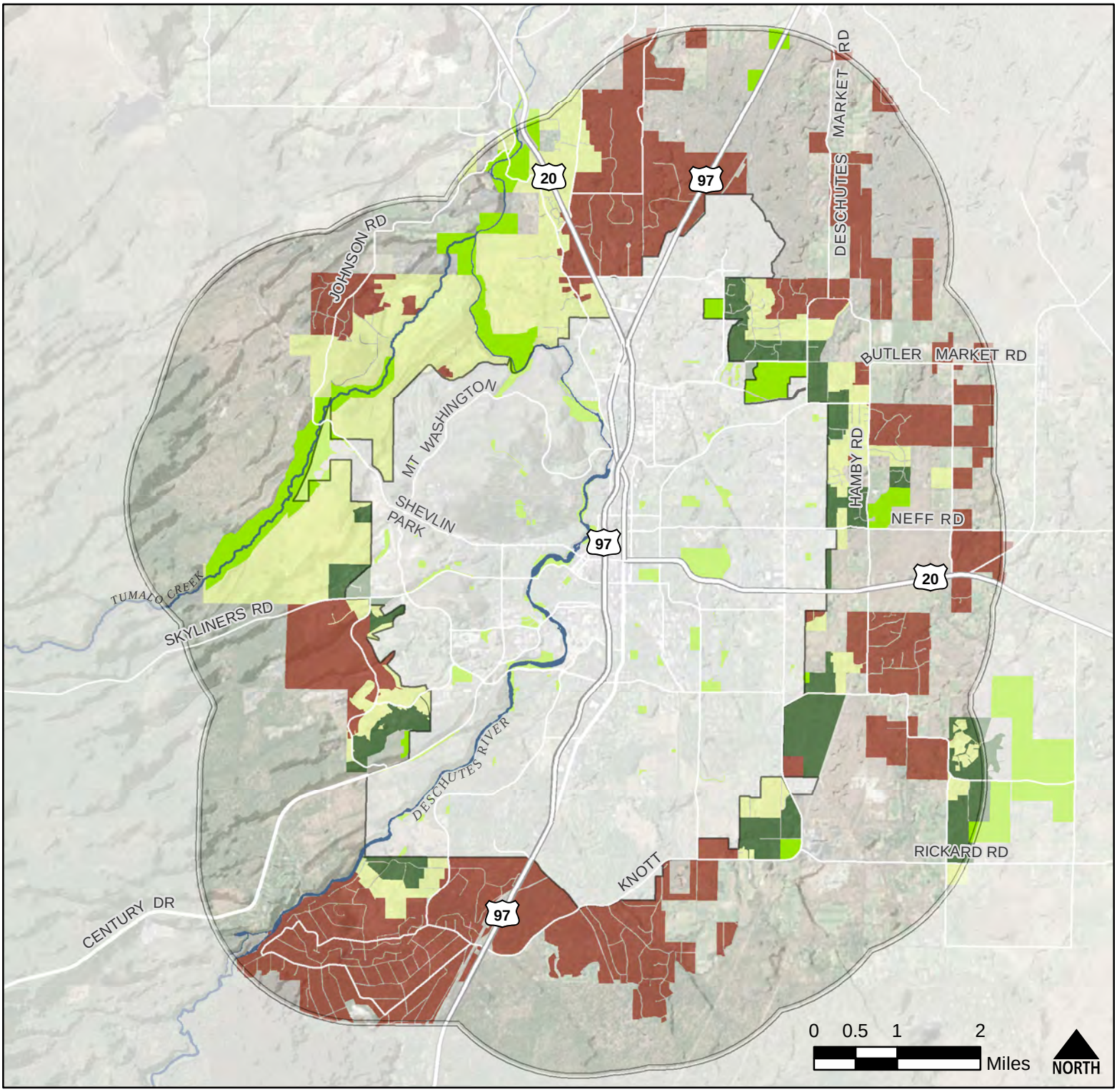
Prepared 2/13/2015

03488

Exception Land Proximity to Parks

2 Miles from UGB
Urban Growth Boundary
Streams/Rivers
Roads/Highways
Park

Proximity to Parks
Within .25 Miles (Not Including Nature Parks)
Within .5 Miles (Insluding Nature Parks)
Greater than .5 Miles



URBAN GROWTH BOUNDARY REMAND
BEND

Service Layer Credits: Deschutes County GIS (2014)

Prepared 2/13/2015
03489

Factor 4 Maps

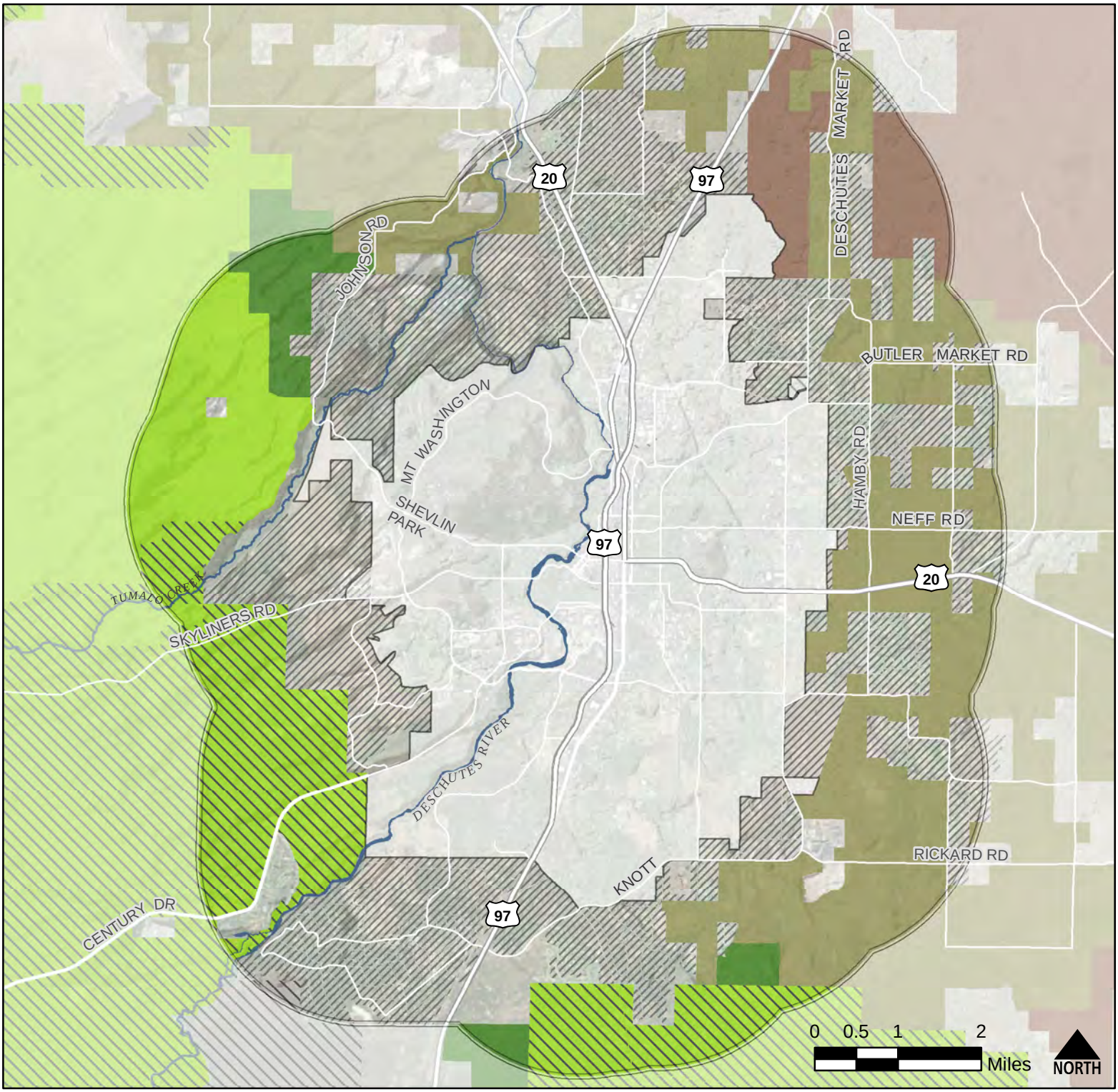
STAGE 2 MAPS FOR FACTOR 4 OF GOAL 14: COMPATABILITY WITH FARM/FOREST ACTIVITIES ON NEARBY FARM AND FOREST LAND

- **Farm/Forest Zoning in Study Area**
- **Proximity of Exception Parcels to zoned Forest Land**
- **Proximity of Exception Parcels to High Value zoned EFU Land**

EFU and Forest Use Zones

2 Miles from UGB
Urban Growth Boundary
Roads/Highways
Exception Land
Deschutes National Forest

ZONE
EFU - ALFALFA SUBZONE
EFU - TUMALO / REDMOND / BEND SUBZONE
Forest Use Zone (F-1)
Forest Use Zone (F-2)

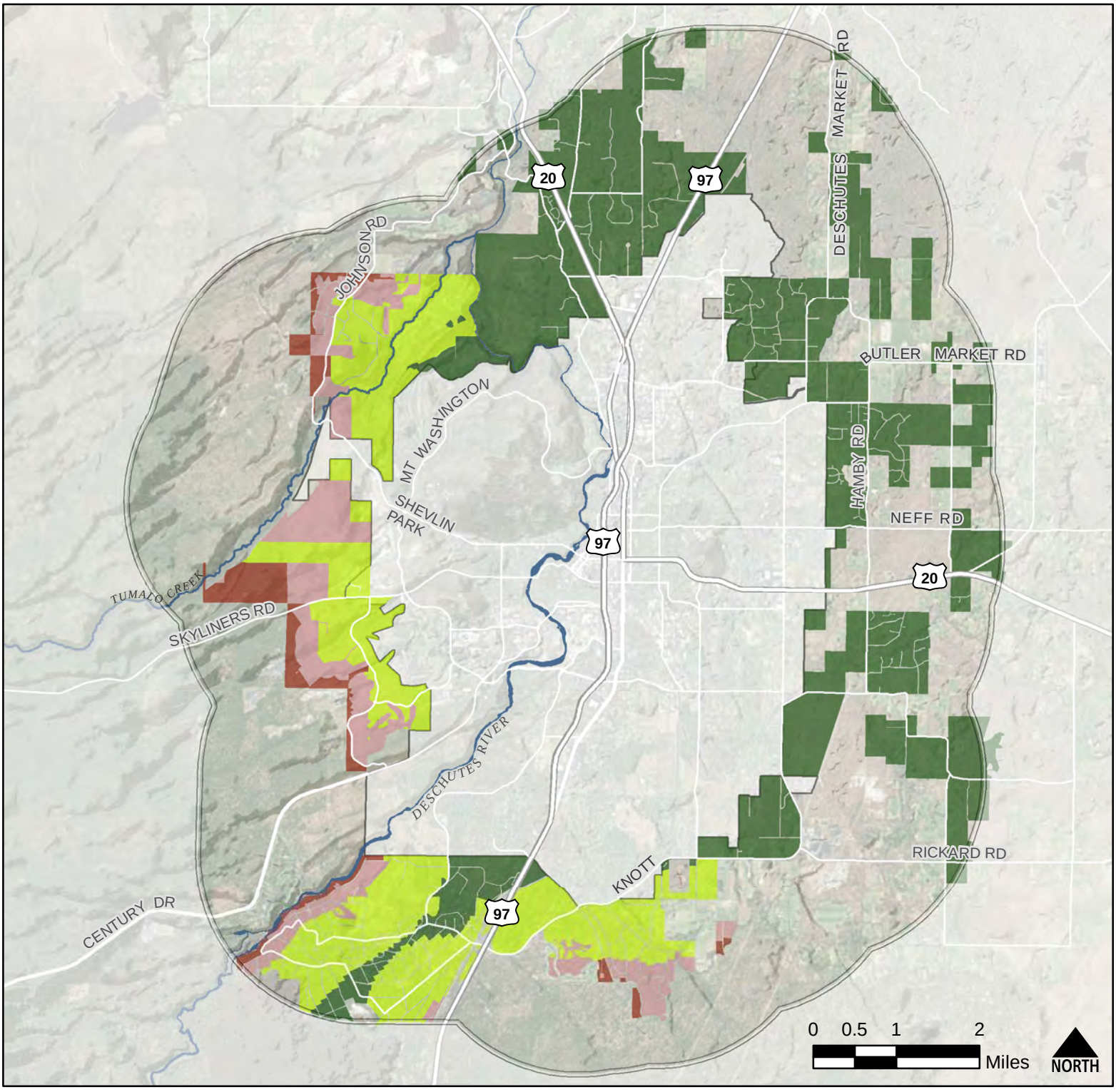


URBAN GROWTH BOUNDARY REMAND
BEND

Service Layer Credits: Deschutes County GIS (2014)

Prepared 1/14/2015
03491

Exception Land Distance from Forest Use Zoned Parcels



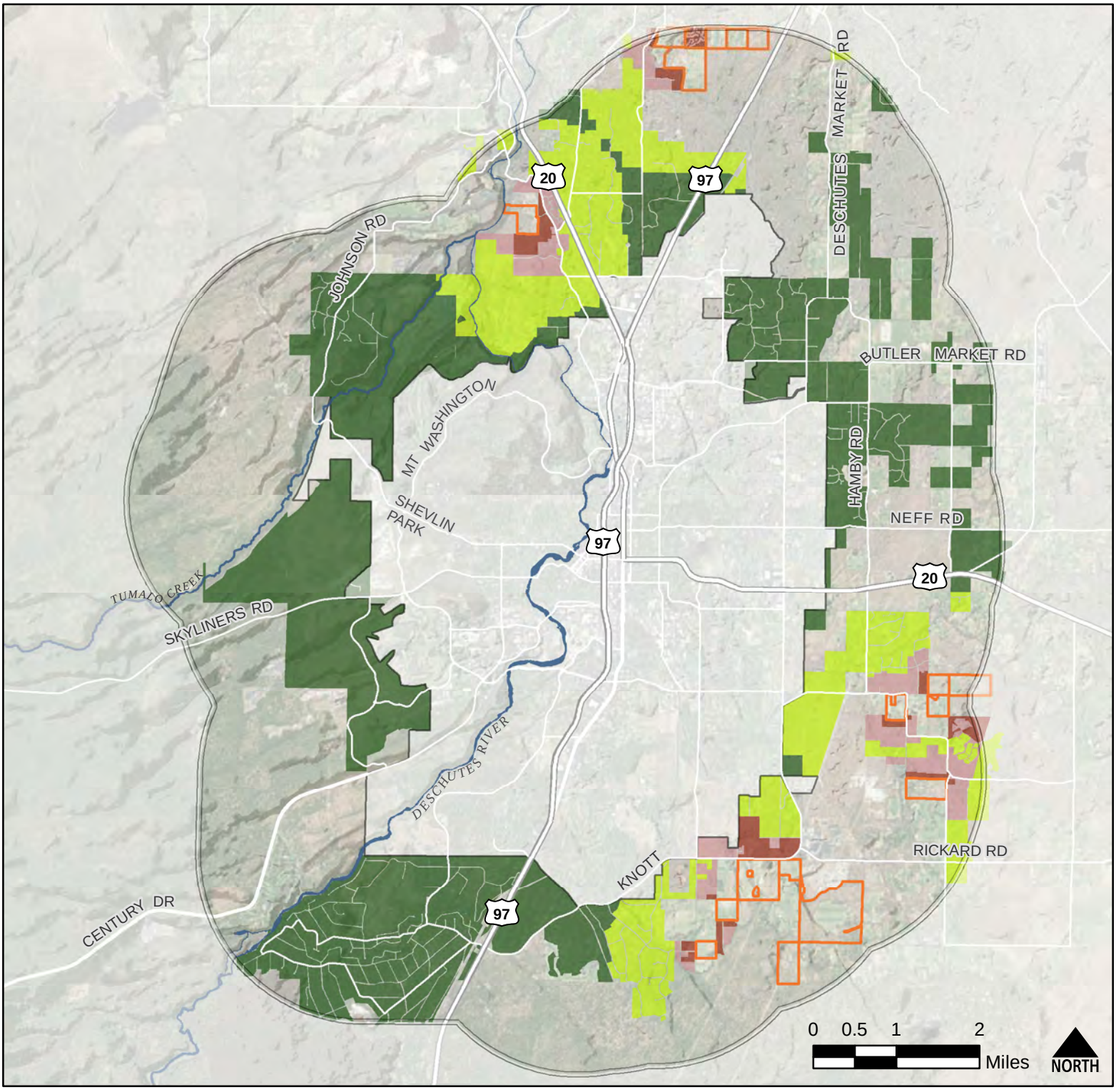
URBAN GROWTH BOUNDARY REMAND

Service Layer Credits: Deschutes County GIS (2014)

Prepared 2/17/2015

03492

Exception Land Distance from High Value EFU Zoned Parcel



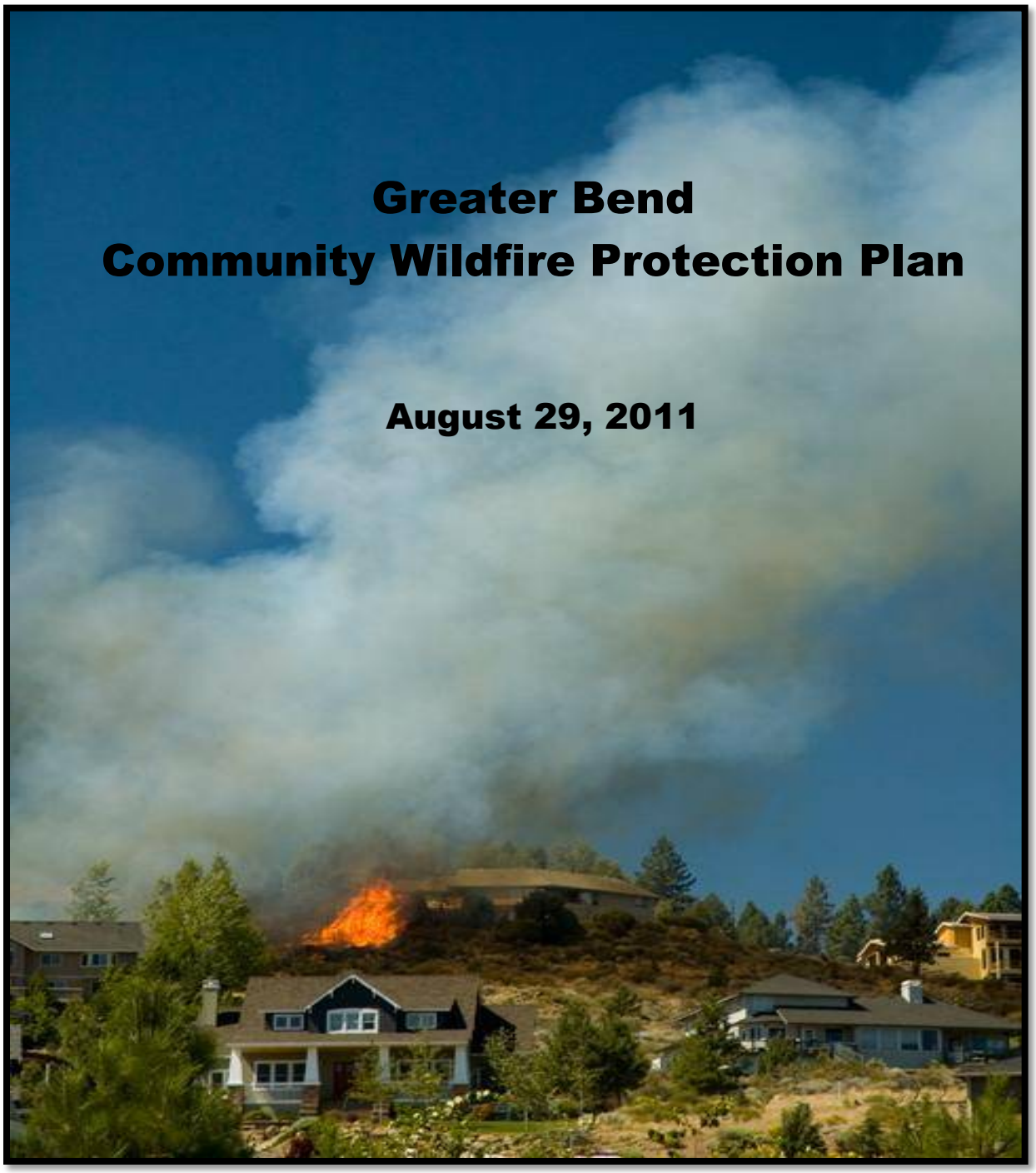
URBAN GROWTH BOUNDARY REMAND

Service Layer Credits: Deschutes County GIS (2014)

Prepared 1/14/2015

03493

Greater Bend
Community Wildfire Protection Plan



August 29, 2011

Prepared by Kate Lighthall, Project Wildfire 541-322-7129 klighthall@bendcable.com

Declaration of Agreement

The Greater Bend Community Wildfire Protection Plan (CWPP) was originally completed and approved in May 2006. As directed by this CWPP, extensive fuels reduction activities have been completed on public and private lands. The Steering Committee reconvened in September 2010 to update the original plan. Under the Healthy Forests Restoration Act, the CWPP is approved by the applicable local government, the local fire department and the state entity responsible for forest management.

This plan is not legally binding as it does not create or place mandates or requirements on individual jurisdictions. It is intended to serve as a planning tool for fire and land managers and residents to assess risks associated with wildland fire and identify strategies and make recommendations for reducing those risks.

_____ _____

Larry Huhn, Fire Chief — Date
City of Bend Fire Department

_____ _____

George Roshak, Board Chair — Date
Deschutes County Rural Fire Protection District #2

_____ _____

Kevin Benton, Unit Forester — Date
Oregon Department of Forestry

_____ _____

Tammy Baney, Chair — Date
Deschutes County Board of Commissioners

Acknowledgements

Assembled within the true spirit of collaboration, the following people are acknowledged for their participation and commitment resulting in this 2011 Greater Bend Community Wildfire Protection Plan.

Kevin Benton	Unit Forester, Oregon Department of Forestry
Cheryl Bregante	Resident
JR Bregante	Resident
Melinda Campbell	Deschutes County GIS
George Chesley	Resident
Lisa Clark	COFMS
Kelly Esterbrook	Resident
Jim Dorman	Resident
Ben Duda	Oregon Department of Forestry
Patti Gentiluomo	Sunriver CWPP
Tom Fay	DCRFPD #2
Gary Frazier	Resident
Doug Johnson	US Forest Service
Doug Koellermier	Bend Fire and Rescue
Katie Lighthall	Project Wildfire
Renee Lamoreaux	Bureau of Land Management
Bob Madden	Bend Fire and Rescue
Gary Marshall	Bend Fire and Rescue
Ray Miao	Resident
Joe Stutler	Deschutes County Forester
Tom Stump	Resident
Misha Williams	Resident

Table of Contents

Contact Information

Larry Huhn, Fire Chief
Bend Fire & Rescue
1212 SW Simpson Avenue
Bend, OR 97702
(541) 322-6300

Tom Fay, Manager
Deschutes County Rural Fire Protection District #2
1212 SW Simpson Avenue
Bend, OR 97702
(541) 318-0459

Doug Koellermeier, Deputy Fire Chief
Bend Fire & Rescue
1212 SW Simpson Avenue
Bend, OR 97702
(541) 322-6300

Ben Duda, Assistant Unit Forester
Oregon Department of Forestry
3501 NE 3rd Street
Prineville, OR 97754
(541) 447-5658

Joe Stutler, County Forester
Deschutes County
61150 SE 27th Street
Bend, OR 97702

Lisa Clark, Fire Mitigation Specialist
Central Oregon Fire Management Service
3050 NE 3rd Street
Prineville, OR 97754
(541) 416-6864

Kate Lighthall, Program Director
Project Wildfire
61150 SE 27th Street
Bend, OR 97702
(541) 322-7129

Greater Bend
Community Wildfire Protection Plan

Purpose

Wildland fire is a natural and necessary component of forest ecosystems across the country. Central Oregon is no exception. Historically, wildland fires have shaped the forests valued by residents and visitors. Forests and other wildlands in greater Bend however, are now significantly altered due to past forest management practices, fire prevention efforts, modern suppression activities, residential development and a general lack of large scale fires. These activities have resulted in overgrown forests - some with closed canopies and all with abundant ladder fuels that dramatically increase the chances of large wildland fires that burn intensely and cause catastrophic losses.

Previous population growth and projected future growth has led to increased residential development into forests and into the wildland urban interface (WUI) presenting an increased challenge for fire protection, fire prevention and law enforcement agencies.

The purpose of the Greater Bend Community Wildfire Protection Plan (CWPP) is to:

- **Protect lives and property from wildland fires;**
- **Instill a sense of personal responsibility for taking preventive actions regarding wildland fire;**
- **Increase public understanding of living in a fire-adapted ecosystem;**
- **Increase the community's ability to prepare for, respond to and recover from wildland fires;**
- **Restore fire-adapted ecosystems;**
- **Create and maintain fire adapted communities; and**
- **Improve the fire resilience of the landscape while protecting other social, economic and ecological values.**

Originally completed in May 2006, this comprehensive revision outlines a clear purpose with updated priorities, strategies and action plans for fuels reduction treatments in the greater Bend wildland urban interface. This CWPP also addresses special areas of concern and makes recommendations for reducing structural vulnerability and creating defensible spaces in communities at risk. It is intended to be a living vehicle for fuels reduction, educational, and other projects to decrease overall risks of loss from wildland fire.

Planning Summary

The Bend City Council adopted the original Greater Bend Community Wildfire Protection Plan by resolution on May 3, 2006. The Greater Bend CWPP was also formally adopted by Deschutes County by resolution on May 8, 2006.

Since that time, tremendous efforts have been made by county, state and federal land management agencies to reduce the threat of high intensity wildland fires through fuels reduction activities on public lands. In addition, private residents have responded enthusiastically to the defensible space and preparation guidelines to reduce hazardous fuels on their own properties.

Although reducing the risk of high intensity wildland fire is the primary motivation behind this plan, managing the forests and wildlands for hazardous fuels reduction and fire resilience is only one part of the larger picture. Residents and visitors desire healthy, fire-resilient forests and wildlands that provide habitat for wildlife, recreational opportunities, and scenic beauty.

In keeping with the strategy of the original Greater Bend CWPP, the Steering Committee revisited the planning outline in *Preparing a Community Wildfire Protection Plan: A Handbook for Wildland-Urban Interface Communities* (Communities Committee, Society of American Foresters, National Association of Counties, and National Association of State Foresters 2005).

Eight steps are outlined to help guide Steering Committees through the planning process:

Step one: Convene the decision makers.

The Greater Bend CWPP Steering Committee reconvened in September 2010 to review the extensive amount of work completed within and adjacent to the WUI boundary on public and private lands; and reassess the priorities for future fuels reduction treatments.

Step two: **Involve state and federal agencies.**

The Healthy Forests Restoration Act (HFRA) directed communities to collaborate with local and state government representatives, in consultation with federal agencies and other interested parties in the development of a CWPP. The Steering Committee recognized the importance of this collaboration and involved not only members from the USDA Forest Service and USDI Bureau of Land Management (BLM) but Oregon Department of Forestry (ODF) and Deschutes County representatives as well. Each agency brought a wealth of information about fuels reduction efforts planned and completed along with educational information based on current research across the nation.

Step three: Engage interested parties.

The Steering Committee is also comprised of members of local firefighting agencies, local businesses, homeowner/neighborhood associations, and other organizations and individuals.

Step four: Establish a community base map.

The Steering Committee reviewed the previous maps and boundaries from the 2006 CWPP and adjusted the boundaries of the Communities at Risk based on new information for this revision.

Step five: Develop a community risk assessment.

Fire Regime Condition Class (FRCC) was used as a risk assessment tool in the 2006 CWPP. No updated data has been published that allowed the group to use this assessment tool again. The Steering Committee therefore relied on the ODF Assessment of Risk Factors and the classification ratings of individual areas under the Oregon Forestland – Urban Interface Fire Protection Act of 1997 (aka Senate Bill 360).

Step six: Establish community hazard reduction priorities and recommendations to reduce structural ignitability.

Based on the assessments, the Steering Committee produced two groups of priorities for fuels reduction treatments on public and private lands – Highest and High. The Steering Committee also made recommendations to reduce structural ignitability based on information in the assessments and local knowledge.

Step seven: Develop an action plan and assessment strategy.

The Steering Committee identified an action plan for key projects; roles and responsibilities for carrying out the purpose of the CWPP; potential funding needs and the evaluation process for the CWPP itself.

Step eight: Finalize the Community Wildfire Protection Plan.

A draft of the Greater Bend CWPP was available for public comment for 30 days prior to the final signing and approval of the plan. Interested parties provided comments during this period. The Greater Bend Community Wildfire Protection Plan was mutually approved by Bend Fire & Rescue, Deschutes County Rural Fire Protection District #2, Oregon Department of Forestry, and the Deschutes County Board of Commissioners as demonstrated in the Declaration of Agreement.

Collaboration

In 2002, President George Bush established the Healthy Forests Initiative (HFI) to improve regulatory processes to ensure more timely decisions, greater efficiency and better results in reducing the risk of catastrophic wildfire.

In 2003, the Congress passed historical bi-partisan legislation: the Healthy Forests Restoration Act (HFRA). This legislation directs federal agencies to collaborate with communities in developing a Community Wildfire Protection Plan which includes the identification and prioritization of areas needing hazardous fuels treatment. It further provides authorities to expedite the National Environmental Protection Act (NEPA) process for fuels reduction projects on federal lands. The act also requires that 50% of funding allocated to fuels projects be used in the wildland urban interface.

Since the enactment of this legislation, communities have had the opportunity to direct where federal agencies place their fuels reduction efforts. HFRA also allows community groups to apply for federal funding to make communities safer against the threat of wildland fire.

Although some of the authorities under HFI and HFRA have been subsequently challenged in federal courts, all have been successfully appealed and the original intent and authorities under each remain the same.

Original members of the Steering Committee reconvened in September 2010 with new members to update the Greater Bend CWPP. The Steering Committee group included community members from the greater Bend area along with representatives from the Bend Fire & Rescue, Deschutes County Rural Fire Protection District #2, Oregon Department of Forestry, the USDA Forest Service, the USDI Bureau of Land Management, Project Wildfire and Deschutes County to develop the Greater Bend Community Wildfire Protection Plan.

The plan was created by this Steering Committee in accordance with *Preparing a Community Wildfire Protection Plan: A Handbook for Wildland-Urban Interface Communities* (Communities Committee, Society of American Foresters, National Association of Counties, and National Association of State Foresters 2005); and Deschutes County Resolution 2004-093.

The Bend City Council adopted the 2011 Greater Bend Community Wildfire Protection Plan by resolution on _____. The Greater Bend CWPP was formally adopted by Deschutes County by resolution 2006-039 on May 8, 2006 and this 2011 updated plan on _____.

Updated Background Information

Bend, Oregon is located east of the Cascades and is the social, economic and recreational hub of Deschutes County. According to the 2000 census 52,029 residents called the greater Bend area home. The latest certified population estimates reveal a 60% increase in Bend's population to 83,125 (Population Research Center, Portland State University, July 2010 www.pdx.edu/sites/www.pdx.edu.prc/files/media_assets/CertCityTownPopEst2010.pdf).

Developed between 3,500 and 4,300 feet in elevations, in a classic wildland urban interface environment, the greater Bend area is also home to abundant wildlife including deer, elk, and many species of birds and fish. Within the planning area there is also a significant amount of public land with developed and dispersed recreation sites which provide valuable recreation opportunities to both residents and visitors. In the summer months, Deschutes County estimates an additional transient population of up to 20,000 people that occupy these areas creating a seasonal challenge for those agencies responsible for fire suppression and evacuation.

Historically, the Bend area was a mix of forest types including ponderosa pine, some open tracts of western juniper, bitterbrush, sage and open grasslands. Forests in the higher elevations were composed of mixed conifers.

Today, with more development into the wildland urban interface, less stand management, less logging activity and highly effective wildland fire suppression, the greater Bend area is characterized by thicker stands of western juniper on the north and east sides with ponderosa pine, bitterbrush and bunchgrasses to the west and south. In some areas, invasive species such as rabbit brush and variety of noxious weeds are crowding out the native grasses and shrubs. The higher elevations are still a mix of conifers including ponderosa pine.

The Bend community has experienced several large fires (over 100 acres) in the last 100 years. Three large fires that occurred within the last 20 years have threatened lives, property, wildlife and the landscape. In 1990, the Awbrey Hall Fire burned 3,032 acres and destroyed 22 homes. In 1996, the Skeleton Fire consumed 22,000 acres, 19 homes and 15 outbuildings. In 2003, the 18 Road Fire charred 3,800 acres and threatened the southwest side of Bend and the High Desert Museum. In the summer of 2010, the Rooster Rock Fire charred over 6,100 acres north of the Bend CWPP boundary and threatened Bend's drinking water source.

As part of the ongoing wildland fire risk management of the surrounding public and private forestlands, the US Forest Service, Oregon Department of Forestry, Deschutes County and private landowners are engaged in several hazardous fuels treatment projects.

Oregon Department of Forestry

Over the last five years, Oregon Department of Forestry has been working with a number of private landowners to complete fuels reduction projects in the greater Bend area. These projects have been primarily west and south of Bend. The West Bend Fuels Break project created a fuel break along the Forest Service 4606 road from Skyliners road to Tumalo Reservoir. Five adjacent private landowners completed fuels reduction work on 176 acres adjoining the 4606

road. Two additional landowners treated a total of 225 acres of fuels reduction work adjacent to this fuel break or within close proximity. In summary, seven landowners completed 401 acres of fuels reduction on the west side of Bend in the WUI.

On the south side of Bend, three landowners completed 639 acres of hazardous fuels reduction.

Currently, ODF is working with two landowners to complete fuels reduction under the American Recovery and Reinvestment Act (ARRA) grant program. This project encompasses 31 acres of fuels reduction in the wildland urban interface. ODF also has multiple ongoing projects to assist landowners in compliance with Senate Bill 360 standards.

Hazardous fuels reduction: Mechanical and other treatments used to reduce ladder fuels and thin trees to decrease the threat of high intensity wildfires.

The US Forest Service

The US Forest Service – Bend Fort Rock District manages 37,047 acres of the federal lands in the greater Bend area and continues to make great strides to increase forest health and reduce the potential for high intensity wildland fire.

It is important to note that each project area requires multiple types of fuels reduction activities to achieve the desired result including mechanical shrub mowing, tree thinning, hand piling, and under burning. Therefore, multiple entries are required in order to adequately restore forest ecosystem health and reduce hazardous fuels. The ultimate goal for these projects is to reduce the potential for high intensity fire that can spread to tree crowns, requiring costly suppression efforts and causing large losses on the landscape as well as in and around communities.

The following is a snapshot of fuels treatment projects on federal lands across the greater Bend area as a result of the Greater Bend CWPP:

Table 1 – Summary of Federal Fuels Projects as of January 2011

Project Name	Thinning (acres)			Mowing (acres)			Burning (acres)		
	Possible	Completed	Remaining	Possible	Completed	Remaining	Possible	Completed	Remaining
East Tumbull	4,957	1,393	3,564	4,622	1,223	3,399	377	336	41
Fuzzy	53	0	53	945	945	0	783	658	125
Katalo East	535	535	0	1,277	1,277	0	627	0	627
Katalo West	54	54	0	58	58	0	58	0	58
South Bend	1,026	0	1,026	2,695	2,256	439	2,035	0	2,035
West Tumbull	1,198	1,061	137	1,162	0	1,162	559	0	559
Fry	70	70	0	70	70	0	70	0	70
Totals	**7,893**	**3,113**	**4,780**	**10,829**	**5,829**	**5,000**	**4,509**	**994**	**3,515**

Collaborative Forests Landscape Restoration Act – Deschutes Collaborative Forest Project

In 2010, a collaborative group of local agencies and organizations formed a proposal for funding a large, collaborative forest restoration and hazardous fuels reduction project on public lands managed by the Deschutes National Forest. Under the federal Collaborative Landscape Forest Restoration Act, the proposal was funded and at the time of this CWPP update, the 130,000 acre Deschutes Collaborative Forest Project was taking shape with a new Steering Committee and several task-oriented sub-committees. The entire project spans the west side of the Greater Bend WUI, the western portion of the East & West Deschutes County CWPP boundary, and is also included in the Sisters CWPP boundary to the north and the Sunriver CWPP boundary to the south.

Once implemented the prescriptions and guidelines identified in the Greater Bend CWPP will be met marking a significant treatment of wildland hazardous fuels on a landscape scale, a priority in each of the CWPPs in Deschutes County. This will also allow the creation and realization of fire adaptive communities along the entire west side of the Greater Bend CWPP.

Project Wildfire

Over the last five years, Project Wildfire has secured over $8.5 million in grant funding to reduce hazardous fuels on private lands. In order to stretch the grant money as far as possible, Project Wildfire instituted the Sweat Equity Program whereby residents create or maintain defensible space on their property, bring the woody debris to the roadside and the grant funding pays to have it hauled away. Project Wildfire manages this program and now estimates that residents

participating in this program are treating 10,000 acres each year. The benefit of this program is not only the treatment of hazardous fuels, but the education and resident "buy-in" that are occurring at the individual resident and neighborhood levels.

Similar to the Sweat Equity Program, Project Wildfire also coordinates and manages the FireFree Program whereby residents also complete their defensible space work and bring it to local recycling sites at no charge.

The debris collected through the Sweat Equity Program is combined with the debris collected through the FireFree Program to yield approximately 200,000 cubic yards of woody biomass each year. The debris is ground into a biomass fuel and utilized for making clean energy and electricity throughout the region.

Firewise Communities USA

The Firewise Communities USA program is a national recognition program which highlights communities that have chosen to complete and maintain defensible space; ensure adequate access, water and signage; and build or retro-fit structures with non-combustible building materials such as siding, decks and roofing. The Awbrey Glen neighborhood became a recognized Firewise Community in 2009 and is now leading the charge to assist other neighborhoods in their Firewise and FireFree endeavors. Bend Fire and Rescue has made the development of additional Firewise Communities a top priority for the coming years.

Community Base Maps

The CWPP Steering Committee relied on the following maps and GIS data (Appendix A):

- Greater Bend WUI boundary with eight revised Communities at Risk, and all private & public land ownership;
- Updated fire starts in the last five years and fires over 100 acres in the last 100 years;
- 2009 Senate Bill 360 Classification Ratings.

For updated planning purposes, the Steering Committee referenced this data and relied on recent activities and fuels treatment projects in specific Communities at Risk.

Community Profile

The community of Bend presents a unique challenge for the wildfire planning process. Although the core urban area is not at significant risk from wildfire due to the amount of development and lack of vegetation, the areas adjacent to the core of Bend are characterized by large trees and excessive ground vegetation or "ladder fuels" that contribute to its scenic beauty *and* the overall wildland fire risk. Closed canopies are rare inside the city limits. However, there are significant areas of hazardous wildland fuels intermixed with homes and businesses that in the event of a grass or brush fire, could sustain a wildland fire event with catastrophic losses likely. These areas are also susceptible to ember showers from wildland fire events nearby.

Ladder fuels: Bitterbrush, manazanita, sagebrush and other flammable vegetation that can provide a direct path or "ladder" for fire to travel to trees or structures.

Ember showers: smoldering embers from a nearby fire that can land in gutters, roof valleys; on or under decks and siding; in vents; or on lawn furniture where they can ignite and cause damage to a home. They can travel miles and ignite spot fires far from the original fire.

The climate in greater Bend is typical of the east slopes of the Cascade Mountains, with most of the annual precipitation coming as winter snow or fall and spring rains. Summers are dry and prone to frequent thunderstorms with lightning storms producing multiple fire ignitions.

US Highway 97, a major transportation route through the state, runs north to south, through the middle of the city of Bend. US Highway 20 also intersects the city of Bend in the north and east part of town. As central Oregon grows, more residents and tourists crowd the highway and increase congestion, particularly during the summer months when fire season reaches its peak. As part of the central community, transportation routes are included in the consideration of the WUI boundary due to their critical role as roads and travel corridors that link communities together and serve as evacuation routes.

Wildland Urban Interface Description

The Healthy Forests Restoration Act defines the WUI as an area within or adjacent to an at-risk community that has been identified by a community in its wildfire protection plan.

The Bend CWPP Steering Committee reviewed the overall WUI boundary and approved its use in this update. The southern edge of the boundary is the northern boundary of the Sunriver CWPP. The northern part of the WUI is the Greater Sisters Country CWPP boundary on the northwest side and the boundary for the Greater Redmond CWPP on the northeast side. The east and west portions of the WUI are defined by the rural fire district boundaries. An area around the Bridge Creek watershed is also included in the Greater Bend WUI. The city of Bend lies in the core of the Greater Bend WUI boundary. The Greater Bend wildland urban interface boundary is approximately 245 square miles and covers 156,041 acres.

The Steering Committee further reviewed the internal boundaries of the Communities at Risk. Based on topographical information and local fire agency knowledge, the Steering Committee agreed to adjust the North boundary and create a Northwest Community at Risk. The Deschutes River Woods, Skyliners and Saddleback boundaries from the original CWPP in 2006 were revised to create the Southwest and West Communities at Risk (see Appendix A).

It is important to note that the WUI boundary extends to the entire CWPP boundary. By comparison, the Greater Sisters Country CWPP outlines a WUI boundary that sits *inside* the overall CWPP boundary as there are large agricultural lands outside the interface with limited structural development. For the Greater Bend CWPP, the Steering Committee acknowledges that the wildland urban interface stretches across the entire planning area, with structural development and other values at risk.

Communities at Risk

The Healthy Forest Initiative (HFI) and the Healthy Forests Restoration Act (HFRA) define a "community at risk" from wildland fire as one that:

- is a group of homes and other structures with basic infrastructure and services (such as utilities and collectively maintained transportation routes) in or adjacent to federal land;
- has conditions conducive to large-scale wildland fire; and
- faces a significant threat to human life or property as a result of a wildland fire.

As noted, the Steering Committee redefined the existing boundaries of the Communities at Risk to identify these eight (8) Communities at Risk.

Table 2 – Communities at Risk

Community at Risk	Acreage	Structures	Estimated Population
North	25,441	2,284	5,710
Northwest	12,896	413	1,033
West	14,140	51	128
Southwest	17,397	2,458	6,145
Southeast	36,148	1,611	4,028
Northeast	27,302	1,877	4,693
West UGR	11,715	14,828	37,070
East UGR	11,002	15,920	39,800

Fuel Hazards and Ecotypes

The Greater Bend WUI encounters diverse vegetation types including:

- Ponderosa pine
- Western juniper
- Bitterbrush
- Manzanita
- Sagebrush

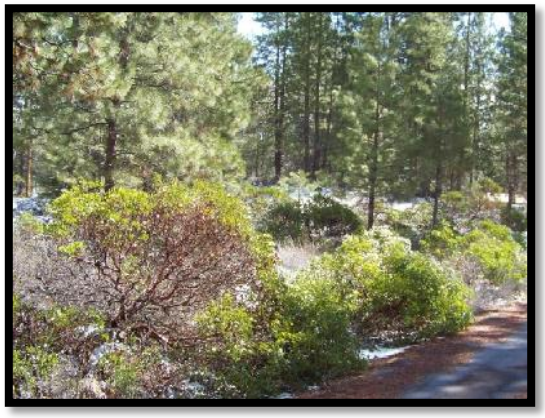
Ponderosa pine is currently found in the southern and western portions of the greater Bend area, and in the higher elevations. Historically, ponderosa pine forests contained more understory grasses and less shrubs than are present today. These plants combined with fallen pine needles, formed fast-burning fuels that led to recurrent widespread burning. The fire history for ponderosa pine is characterized by low-intensity ground fires that occur at intervals of 11-15 years. The pattern of low ground fires and stand dynamics resulted in the open park-like conditions that early inhabitants and visitors found in the region.

Less stand management, less logging activity and highly effective wildland fire suppression have significantly altered the ponderosa pine forest type. Removal of the larger pines has dramatically decreased open park-like forests, replacing them with more evenly spaced and smaller "black-bark" forests. Similar to other species of conifer forest types, the suppression of fire has greatly increased the number and density of trees, creating ladder fuels and putting the stands at risk of attack from insects and disease. These factors have contributed to more intense fires in ponderosa pine forests in recent years.

Western juniper occurs mainly in the northern and eastern sections of the Greater Bend WUI. The fire history of western juniper is characterized by fire that occurs approximately every 30 years and is generally limited by the availability of fuels. Western juniper trees have thin bark and fires kill them easily. Western juniper appears to be expanding its range over the previous century.

Bitterbrush occurs throughout the greater Bend area on all aspects and elevations and is frequently found with mixed shrubs such as manzanita and sage. Bitterbrush is fire dependent, but not fire resistant. It regenerates mostly from seed after a fire and often sprouts from caches of seeds made by rodents. Bitterbrush will sprout after burning regardless of the severity of the burn and matures relatively quickly. Consequently, the Greater Bend WUI area is rich with patches of bitterbrush that burn well on their own and provide fire-ready ladder fuels for taller tree stands.

Manzanita is a shrub that occurs throughout the greater Bend area, usually mixed with other shrub species such as bitterbrush. Manzanita is established both through sprouts and seeds that are stimulated by fire. Fires in manzanita are conducive to rapid and extensive fire spread due to both physical and chemical characteristics. The shrub has volatile materials in the leaves, low moisture content in the foliage and persistence of dead branches and stems. Manzanita is particularly susceptible to fire where it is the primary understory component.



Sagebrush is found on the eastern portions of the Greater Bend WUI and commonly grows in association with juniper and bitterbrush. Most fires kill sagebrush plants. In many sage communities, changes in fire occurrence along with fire suppression and livestock grazing have contributed to the current condition of sage communities. Prior to the introduction of annuals, insufficient fuels may have limited fire spread in big sagebrush communities. Introduction of annuals, especially cheat grass, has increased fuel loads so that fire carries easily. Burning in sage communities commonly sets the stage for repeated fires. Fire frequency can be as little as 5 years, not sufficient time for the establishment and reproduction of big sagebrush. In these cases annuals such as cheat grass commonly take over the site.

The result of the fuel hazards and forest types in the greater Bend area is an overgrowth of trees and forest floor fuels with an abundance of dead or dying vegetation that contribute to a substantially elevated risk of wildland fires that are difficult to control. These overly dense

conditions lead to fire behavior that produces flame lengths over eight feet with crowning and torching that can result in stand replacement severity fires.

Not only have large, stand replacement fires not occurred, but also the more frequent low intensity fires have not been allowed to burn either. This practice of fire exclusion along with insufficient vegetation/fuels reduction has resulted in the buildup of excessive live and dead fuels.

Community Assessment of Risk

Fire Regime Condition Class (FRCC) was used as a risk assessment tool in the 2006 CWPP. No updated data has been published to demonstrate the significant amount of work that has occurred in the planning area over the last five years. The Steering Committee notes the importance however of a landscape level analysis and understanding with an overall goal to return the landscape to its historical setting. It is described in this section for reference only.

The Steering Committee relied on the ODF Assessment of Risk Factors and the classification ratings of individual areas under the Oregon Forestland – Urban Interface Fire Protection Act of 1997 (aka Senate Bill 360).

ODF Assessment of Risk Factors

Risk of Wildfire Occurrence

The risk of wildfire occurrence refers to the likelihood of a fire occurring based on historical fire occurrence, home density and ignition sources. The risk is rated HIGH in each of the Communities at Risk based on historical evidence of fire history as well as ready ignition sources like dry lightning storms, debris burning, equipment use, juveniles, campfires, and arson.

The current condition of the vegetation on the federal and private lands adjacent to and within the Greater Bend WUI poses an extreme risk of catastrophic loss from wildland fire. Bend is also threatened by the likely possibility of a crown fire sweeping into the community, or by embers falling on the community from an adjacent wildland fire.

Hazard

The hazard rating describes resistance to control once a fire starts based on weather, topography (including slope, aspect and elevation), vegetation and crown fire potential. As stated earlier, less logging activity, effective wildland fire suppression and a lack of forest management has led to dense vegetation in the wildland urban interface. All Communities at Risk in the Greater Bend WUI are rated EXTREME under this assessment except the East UGR area which is rated HIGH.

A wildland fire could start within the communities or in any of the forested areas adjacent to or surrounding the communities. With a fire of any significance, it could be difficult to assemble the resources necessary to adequately address all of the fire and life safety issues that could arise in the early stages of emergency operations. The potential exists for a high intensity wildland fire for any number of reasons, during a significant portion of each year.

Values Protected

The human and economic values protected in the Greater Bend WUI are based on home density per ten acres and community infrastructure such as power substations, transportation corridors, water and fuel storage, etc. Five Communities at Risk are rated MODERATE in this category and three are rated HIGH.

Based on Deschutes County tax records from 2009, there are approximately 36,207 homes in the Greater Bend WUI, with an appraised value of $8.4 billion. In addition over 2,300 businesses operate in the Bend area, with an appraised value of $3.3 billion.

The essential infrastructure includes multiple webs of utilities, roads, water and sewer systems and has an approximate replacement value of $275,000 per mile for electrical transmission lines; $150,000 per mile of electrical distribution lines; and $2 million per electrical sub-station. Loss to roads, water and sewer systems would be minimal because most are underground or otherwise not flammable.

Other Community Values

Of high importance to residents and business owners in Bend is the value placed on scenic beauty and recreational opportunities that exist on public lands both within and adjacent to the planning area. If a large wildland fire occurs in this area which resulted in area closures or the closure of either US Highway 97 or state highway 20, the economic loss to businesses could exceed $3.5 million per day.

The loss of recreational use by visitors to the area as a result of scenic quality, specifically large "burn over" areas, will have an unknown economic impact not only to the Bend area, but to the remainder of Deschutes County and neighboring cities like Sunriver, La Pine, Redmond and Sisters. If a large wildland fire occurs in this area, the result will be catastrophic loss to both the developed and dispersed recreational opportunities in the greater Bend area.

Protection capability

Fire protection capability ranges from LOW to MODERATE in the Greater Bend WUI. In this category, the lower the overall rating, the better the risk factor is. The ratings are based on fire protection capability and resources to control and suppress wildland and structural fires. The ratings also consider response times and community preparedness.

When local resources are fully engaged, all agencies can request additional resources through the State of Oregon and request federal resources through the Pacific Northwest Coordination Center.

In addition to this high level of coordination, all fire departments and agencies in Central Oregon convene each year for a pre-season meeting to discuss the upcoming wildland fire season. Topics addressed at this meeting include predicted wildland fire activity, weather forecasts and how agencies can/will respond to meet the needs of fire events.

Bend Fire and Rescue

Bend Fire and Rescue is the city of Bend's municipal fire department. With a predominantly career staff and small volunteer support personnel, Bend Fire and Rescue provides first response structural and wildland fire coverage within its 164 square mile service district. Through five stations Bend Fire and Rescue provides Emergency Medical Services, including Advanced Cardiac Life Support transport, within a 1,450 square mile boundary. The department also provides limited Hazardous Materials and River Rescue services. The department has adopted the National Incident Management Systems (NIMS) and all personnel have received training and continue to train in its use. Bend Fire and Rescue employs one Fire Chief, five Deputy Chiefs, three Battalion Chiefs, sixty eight Firefighter/Paramedics and Emergency Medical Technicians (EMTs), six members in the Fire Prevention Division, and three administrative staff members. The Department also employs six part-time EMTs and utilizes volunteers in other programs.

Bend Fire and Rescue commands a Fire Investigation Team (FIT) that provides 24/7 fire investigation across the district, including wildland fires. The benefit of the FIT is not only in the investigation to determine the cause of a fire, but to provide information about the science of fire so the department can focus on a prevention message, campaign and code development to prevent those fires in the future.

Bend Fire and Rescue utilizes a fleet of firefighting and EMS apparatus including six structural engines, six off-road brush engines, three water tenders, one ladder truck, one heavy rescue vehicle, six ambulances, three command vehicles, and seven fire prevention vehicles.

The department is a party to the Central Oregon Mutual Aid Agreement. In the event of a major fire the department may request assistance from all other fire departments that are signatory to the agreement. In addition to Central Oregon Fire Departments, this includes the US Forest Service, Oregon Department of Forestry, and the BLM. Conversely, when these agencies need assistance and the District has resources available, it assists them. Bend Fire and Rescue is also a party to an Automatic Aid Agreement with Redmond, Cloverdale, Sunriver, Sisters, US Forest Service and ODF. Through a streamlined Computer Aided Dispatch (CAD) center, Bend Fire and Rescue responds automatically to certain calls in areas up to five miles beyond the fire district.

In addition to the firefighting resources, Bend Fire and Rescue puts 10% of its workforce towards fire prevention. The fire prevention team is comprised of one Fire Marshal and six Deputy Fire Marshals that provide enforcement of local fire codes and ordinances as well as provide public education across the district.

Local Ordinances provide the department with the control of burning practices. This step alone has contributed positively to the decrease in the amount of fire calls and reduced the threat of wildfire in the greater Bend area. Also reducing the threat of wildfires within the city limits are

ordinances which allow the department to enforce natural vegetation fuels reduction (the "weed abatement" program).

Local building codes and fire codes also reduce the catastrophe from wildfires as they allow the department to restrict the use of combustible roofing materials, design new communities with adequate and proper access (ingress/egress) for emergency vehicles as well as adequate water supply and hydrant distribution. Address sign specifications and road signs are also managed by Bend Fire and Rescue. These opportunities give firefighters an expedient route to fires and allow residents to safely evacuate.

All of these enforced code and ordinance provisions help reduce the number and severity of fires in the greater Bend area.

Deschutes County Rural Fire Protection District #2 (DCRFPD#2)

DCRFPD #2 is directed by a five-member, elected board of directors. Day-to-day operations of the fire district are handled by the Fire District Manager. The Fire District contracts with the Bend Fire and Rescue to provide fire and EMS services within the fire district.

Oregon Department of Forestry (ODF)

Within the greater Bend WUI, private forestland and State Parks are protected by the Central Oregon District of the Oregon Department of Forestry. ODF provides wildland fire response for fires burning on, or threatening private forestlands paying a Forest Patrol Assessment. There are some areas within the Greater Bend WUI that receive dual protection from ODF and Bend Fire and Rescue because they are located within the rural fire protection district and are also classified as private forestland within the ODF district.

Oregon Department of Forestry provides two off-road brush engines to patrol the Bend area during fire season, typically June through October. Twelve additional engines are available for response in the Prineville-Sisters unit. Statewide resources are also available to ODF including initial attack hand crews, dozers, water tenders, helicopters, air tankers, and overhead staff positions.

USDA Forest Service and USDI Bureau of Land Management

The US Forest Service and BLM provide wildland fire protection on the federal lands within the greater Bend area. Together, they are identified as the Central Oregon Fire Management Service (COFMS). COFMS includes the Deschutes National Forest, the Ochoco National Forest, the Crooked River National Grassland, and the Prineville District of the BLM. These four units are managed cooperatively under combined leadership, with an Interagency Fire Management Officer, two Deputy Fire Management Officers, and a Board of Directors including decision makers from both agencies, with Forest Service District Rangers and BLM Field Managers. COFMS has a central dispatching facility in partnership with the Oregon Department of Forestry that serves as a communications hub for fire and fuels operations, as well as safety and training issues for COFMS. In total, COFMS provides the following resources: 25 engines, 6 initial attack hand crews, 6 prevention units, 2 dozers, 2 water tenders, 1 air attack, 3 lead planes and 3 helicopters. Additional regional and national resources are available and include 53

smokejumpers, 2 inter-regional Hotshot crews, 1 air tanker, 1 National Fire Cache, and 23 overhead staff positions.

Law Enforcement

Police services are provided by the City of Bend Police Department and Deschutes County Sheriff. Both entities have responsibility for ensuring the safe and orderly evacuation of the community in the event of a major emergency. A number of resources have been allocated to accomplish this task including hi/lo sirens on vehicles; emergency notification via radio and television; reverse 9-1-1 capability; Police and Sheriff's Department staff; Bend Fire and Rescue staff and community-wide volunteers. Any other issues relative to a major emergency are addressed by the Countywide Disaster Plan and the Deschutes County Department of Emergency Services.

Oregon State Police assists the law enforcement efforts and cooperates with the City of Bend and Deschutes County for protection in the greater Bend area.

Community Preparedness

Also under the category of Protection Capabilities, the ODF Assessment of Risk examines a community's level of organization and preparedness to respond in an emergency situation. The assessment looks at whether the area has an organized stakeholder group that looks out for its own area through mitigation efforts, a phone tree, etc. Or, does the area only receive outside efforts such as newsletters, mailings or FireFree information from other groups? In the Greater Bend WUI, the communities at risk varied from having a high level of organization to not having any. The Steering Committee used local knowledge to determine the level of preparedness. The average value rating for community preparedness was MODERATE.

Structural Vulnerability

In recent years, many neighborhoods in the greater Bend area have taken steps to decrease the vulnerability of structures to wildland fire. Although attitudes and behaviors towards fire are changing in the Bend area thanks to educational programs like FireFree and Firewise, the population growth and continued development into the wildland urban interface present fresh challenges each year. The Steering Committee puts high value on the importance of making structures and neighborhoods in the Greater Bend WUI as fire safe as possible.

The ratings for structural vulnerability ranged from LOW to MODERATE. The survey included assessments of the following:

- Flammable roofing – wood or non-wood present;
- Defensible space – meets local requirements or not;
- Ingress/egress – one, two or more roads in/out;
- Road width – 0 to more than 24 feet wide;
- All season road conditions – surfaced or not with grade more or less than 10%;

- Fire Service access – more or less than 300 ft with or without turnaround;
- Street signs – Present with 4” reflective characters or absent.

The following table is a summary of the eight Communities at Risk, the value ratings (with corresponding scores) and the total scores for each community in each category. The higher the total score in this assessment, the higher the overall risk.

Table 3 - ODF Assessment Summary

Community at Risk	What is the likelihood of a fire occurring?	Hazard rating	Protection capability	Human and economic values protected	Structural vulnerability	Overall score	Rank
West UGR	High 40	Extreme 68	Low 6	High 50	Low 23	187	**1**
Southwest	High 35	Extreme 74	Low 8	High 35	Moderate 33	185	**2**
West	High 30	Extreme 76	Moderate 10	Moderate 22	Moderate 47	185	**2**
Northwest	High 30	Extreme 74	Moderate 10	Moderate 22	Moderate 46	182	**3**
Southeast	High 30	Extreme 74	Low 9	Moderate 22	Low 26	161	**4**
East UGR	High 40	High 51	Low 7	High 50	Low 10	158	**5**
Northeast	High 30	Extreme 66	Moderate 10	Moderate 22	Low 26	154	**6**
North	High 30	Extreme 61	Low 8	Moderate 22	Low 25	146	**7**

The higher the overall score, the greater the risk.

Risk: Describes the likelihood of a fire occurring based on historical fire occurrence and ignition sources. Low = 0 – 13 points; Moderate = 14 – 27 points; High = 28 – 40 points.

Hazard: Describes resistance to control once a fire starts based on weather, topography and fuel. Low = 0 – 9 points; Moderate = 10 – 40 points; High = 41 – 60 points; Extreme = 61 – 80 points.

Protection capability: Describes fire protection capability and resources based on type of protection, response times and community preparedness. Low = 0 – 9 points; Moderate = 10 – 16 points; High = 17 – 40 points. The lower the score here, the better the risk factor.

Values protected: Describes the human and economic values in the community based on home density per ten acres and community infrastructure such as power substations, transportation corridors, water and fuel storage, etc. Low = 0 – 15 points; Moderate = 16 – 30 points; High = 31 – 50 points.

Structural vulnerability: Describes the likelihood that structures will be destroyed by wildfire based on roofing and building materials, defensible space, separation of homes, fire department access and street signage. Low = 0 – 30 points; Moderate = 31 – 60 points; High = 61 – 90 points.

Total score: A sum of all the points from each category surveyed.

Fire Regime and Condition Class

Although not used as an assessment tool for this updated CWPP, the Steering Committee notes it here because of its description and goals for the overall landscape.

Fire Regime - Condition Class considers the type of vegetation and the departure from its natural fire behavior return interval.

Five natural (historical) fire regimes are classified based on the average number of years between fires (fire frequency) combined with the severity of the fire on dominant overstory vegetation. Fire regimes I through IV are each represented on the landscape in the Greater Bend WUI. Ponderosa pine for example has an 11-15 year fire interval with low potential for stand replacement fires. Ponderosa pine therefore falls within Fire Regime I which describes species with fire return intervals between 0 – 35 years. Western juniper has a fire return interval of 31 years with high potential for stand replacement fires. Therefore, it falls within Fire Regime II.

Table 4 summarizes Fire Regimes.

Table 4 – Fire Regimes

Fire Regime Group	Fire Frequency	Fire Severity	Plant Association Group
I	0 – 35 years	Low severity	Ponderosa pine, manzanita, bitterbrush
II	0 – 35 years	Stand replacement	Western juniper
III	35 – 100+ years	Mixed severity	Mixed conifer dry
IV	35 – 100+ years	Stand replacement	Lodgepole pine
V	> 200 years	Stand replacement	Western hemlock, mixed conifer wet

Condition Class categorizes a departure from the natural fire regime based on ecosystem attributes. In Condition Class 1, the historical ecosystem attributes are largely intact and functioning as defined by the historical natural fire regime. In other words, the stand has not missed a fire cycle. In Condition Class 2, the historical ecosystem attributes have been moderately altered. Generally, at least one fire cycle has been missed. In Condition Class 3, historical ecosystem attributes have been significantly altered. Multiple fire cycles have been missed. The risk of losing key ecosystem components (e.g. native species, large trees, soil) is low for Class 1, moderate for Class 2, and high for Class 3.

Table 5 summarizes Condition Class.

Table 5 – Condition Class

Condition Class	Attributes
Condition Class 1	▪ Fire regimes are within or near an historical range. ▪ The risk of losing key ecosystem components is low. ▪ Fire frequencies have departed from historical frequencies (either increased or decreased) by no more than one return interval. ▪ Vegetation attributes are intact and functioning within an historical range.
Condition Class 2	▪ Fire regimes have been moderately altered from their historical range. ▪ The risk of losing key ecosystem components has increased to moderate. ▪ Fire frequencies have departed (either increased or decreased) from historical frequencies by more than one return interval. This change results in moderate changes to one or more of the following: fire size, frequency, intensity, severity or landscape patterns. ▪ Vegetation attributes have been moderately altered from their historic ranges.
Condition Class 3	▪ Fire regimes have been significantly altered from their historical range. ▪ The risk of losing key ecosystem components is high. ▪ Fire frequencies have departed (either increased or decreased) by multiple return intervals. This change results in dramatic changes to one or more of the following: fire size, frequency, intensity, severity, or landscape patterns. ▪ Vegetation attributes have been significantly altered from their historic ranges.

There are 156,041 acres in the Greater Bend WUI area. Significant fuels reduction projects continue to reduce the amount of acreage in Condition Class 2 & 3. Achieving Condition Class 1 on public lands however, requires multiple entries on treatment sites, over a period of years. For example, thinning and mowing may occur over a 12-24 month project period. The under-burning component of the project may not occur for another year while the land recovers from the thinning and mowing and produces an adequate shrub content to support prescribed fire.

Condition Class applies on the landscape level. Therefore, the Steering Committee recognizes that although significant fuels reduction work has been completed by US Forest Service, the need continues on the landscape as a whole. The Steering Committee supports the ongoing planning and treatment process on public lands.

Oregon Forestland-Urban Interface Fire Protection Act of 1997

The Oregon Forestland-Urban Interface Fire Protection Act, also known as Senate Bill 360, enlists the aid of property owners toward the goal of turning fire-vulnerable urban and suburban properties into less volatile zones where firefighters may more safely and effectively defend homes from wildfires. The law requires property owners in identified forestland-urban interface areas to reduce excess vegetation around structures and along driveways. In some cases, it is also necessary to create fuel breaks along property lines and roadsides.

The process of identifying forestland-urban interface areas follows steps and definitions described in Oregon Administrative Rules. Briefly, the identification criteria include:

- Lands within the county that are also inside an Oregon Department of Forestry protection district.
- Lands that meet the state's definition of "forestland."
- Lands that meet the definition of "suburban" or "urban"; in some cases, "rural" lands may be included within a forestland-urban interface area for the purpose of maintaining meaningful, contiguous boundaries.
- Lots that are developed, that are 10 acres in size or smaller, and which are grouped with other lots with similar characteristics in a minimum density of four structures per 40 acres.

Forestland-urban interface areas are identified in each county by a classification committee. Once areas are identified, a committee applies fire risk classifications to the areas. The classifications range from "low" to "high density extreme," and the classification is used by a property owner to determine the level of hazardous fuel reduction that needs to be established on the property to minimize risk of experiencing structural property loss from unwanted wildfire. The classification committee reconvenes every five years to review and recommend any changes to the classifications. This process was completed and approved in fall 2009. At the same time, Deschutes County elected to classify *all* the lands within its boundaries, regardless of ODF protection.

The Oregon Department of Forestry is the agency steward of this program. It supplies information about the act's fuel-reduction standards to property owners. ODF also mails each of these property owners a certification card, which may be signed and returned to ODF after the fuel reduction standards have been met. Certification relieves a property owner from the act's fire cost recovery liability. This takes effect on properties that are within a forestland-urban interface area and for which a certification card has not been received by ODF. In these situations, the state of Oregon may seek to recover certain fire suppression costs from a property owner if a fire originates on the owner's property, the fuel reduction standards have not been met, and ODF incurs extraordinary suppression costs. The cost-recovery liability under the Oregon Forestland-Urban Interface Fire Protection Act is capped at $100,000.

The specific recommendations under Senate Bill 360 for private lands are outlined under Prioritized Hazard Reduction Recommendations and Preferred Treatment Methods in this CWPP.

Each of the eight Communities at Risk in the Greater Bend CWPP has one or more corresponding classification ratings under Senate Bill 360. The ratings among the eight Communities include High, Extreme and High Density Extreme. The following table summarizes the percentages of Extreme and High Density Extreme in each Community at Risk.

Table 6 - SB 360 Rating and percentage of Extreme and High Density Extreme

Community at Risk	Percentage High Density Extreme	Percentage Extreme
North	0	4%
NW	2	4%
SE	0	33%
East UGR	0	0
West UGR	0	0
SW	21%	2%
W	0	5%
NE	0	4 %

The Steering Committee utilized this information to come to consensus in ranking the Communities at Risk based on the highest percentages of Extreme and High Density Extreme.

Table 7 – Consensus Ranking of SB 360 Ratings

Consensus Rank	Community at Risk
1	Southwest
2	Southeast
3	West
4	Northeast North Northwest
5	West UGR East UGR

These rankings produced the following composite for consideration.

Table 8 - Composite ODF Assessment & SB 360 ratings

Community at Risk	ODF Assess Rank	+ SB 360 Rating	= Total Score	Composite Rank
West UGR	**1**	**5**	**6**	**3**
Southwest	**2**	**1**	**3**	**1**
West	**2**	**3**	**5**	**2**
Northwest	**3**	**4**	**7**	**4**
Southeast	**4**	**2**	**6**	**3**
East UGR	**5**	**5**	**10**	**5**
Northeast	**6**	**4**	**10**	**5**
North	**7**	**4**	**11**	**6**

The Steering Committee agreed to add the ODF Assessment ranking number to the SB 360 ranking number to produce a final score, then the composite rank. Two groups of priorities for fuels reduction treatments emerged from this analysis:

Highest

Southwest
West
Southeast
West UGR
Northwest

High

East UGR
Northeast
North

Areas of special concern

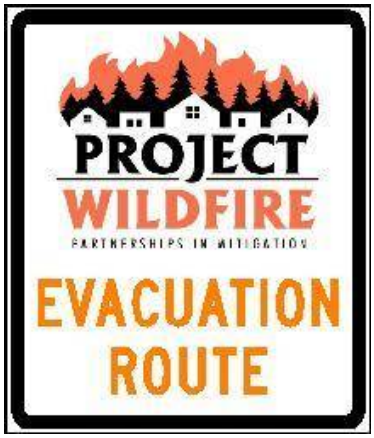
Critical Transportation Routes

Critical Transportation Routes do not have a standard definition in Deschutes County. For purposes of the Greater Bend CWPP, the Steering Committee defines Critical Transportation Routes as:

- all routes necessary for the support of routine flow of commerce to and/or through the Bend area,
- all routes that could be used for potential evacuation of citizens and/or visitors from a wildland fire threat to public safety,
- routes needed for emergency ingress and egress to a wildland fire incident, not including unimproved or "two-track" roads,
- and, all routes needed to protect and support critical infrastructure (power substations, communication transmission lines, water and fuel storage, public service facilities, recreation facilities, etc).

With up to 20,000 visitors in Bend per day during peak summer months and an additional 20,000 people using recreation sites and the transportation corridors around Bend, critical transportation routes are a prime concern for those agencies responsible for fire suppression and evacuation.

As noted in the 2006 CWPP, the Steering Committee is concerned with the lack of maintained roads leading in and out of the high risk areas in the WUI. Should an evacuation be necessary, the Steering Committee expressed great concern over the quality of the evacuation routes. Many of the egress routes are dirt roads that contribute to substantial dust and debris clouds as vehicles attempt to use them. During the summer months, after a few cars travel the road, the dust is so dense that it is not safe for vehicles to continue using the road until the dust settles. Lack of maintenance has led to deteriorated road surfaces with large potholes, ruts and washboards that slow evacuation efforts and cause some vehicles to break down, further complicating a mass departure from the area. The current condition of some of the evacuation routes is a life safety issue.



Working with Deschutes County and Project Wildfire, several neighborhoods within the Communities at Risk have taken advantage of a signage program to increase visibility of evacuation route signs along roads. The signs are made from high intensity reflective material and indicate proper exit routes from these neighborhoods.

The Steering Committee underscored the need to continue to identify, develop and protect critical transportation routes as part of this planning process. Ingress/egress issues are included under Recommendations to Reduce Structural Vulnerability. This issue is also highlighted under Action Plan and Implementation.

Bend drinking water protection area

The Greater Bend CWPP Steering Committee included the Bridge Creek Watershed in the WUI boundary. Approximately half of Bend's water comes from this area. The watershed was established in 1926 in cooperation with the Deschutes National Forest and a subsequent 1991 Memorandum of Understanding which describes protection measures in place for the watershed. Annual inspections of the watershed are conducted with the Department of Environmental Quality and the Deschutes National Forest. A wildland fire occurring in or near this watershed could severely affect water quality in the Bridge Creek watershed. The Steering Committee recommends treatment for hazardous fuels as identified in this plan to prevent catastrophic damage from wildfires to the watershed.

Hazardous vegetation along railroads

The Steering Committee expressed concern over the condition of the vegetation in the railroad right of way in those Communities at Risk that the railroad transects. In Deschutes River Woods (Southwest) for example, residents are concerned about the increased flammability of the weeds due to their unchecked growth. In some areas, the railroad right of way extends 100 feet from the center of tracks on both sides of the rails. In the past, trains traveling in the area have ignited dry weeds along the railways. In addition to the size of the railroad right of way is the amount and type of flammable vegetation. These areas are dense with bitterbrush, rabbit brush, cheat grass and noxious weeds – all acting as ladder fuels to the ponderosa pine that shares the right of way. Sheer size along with the amount and type of vegetation can lead to a large fire with high spreading potential to nearby homes and neighborhoods already at risk. The Steering Committee recommends encouraging the owners of the railroad to comply yearly with requests that the weeds be maintained below 4" to deter the spread of any potential fires.

Prioritized Hazard Reduction Recommendations and Preferred Treatment Methods

As maintained in the original CWPP, the Steering Committee agreed that the Greater Bend Community Wildfire Protection Plan is a tool that can be used for many outcomes. The following is an outline of the priorities, as well as preferred treatments and goals under the Greater Bend Community Wildfire Protection Plan.

Priorities

Based on the assessment composite as shown in Table 8 the Steering Committee has identified the following priorities:

Highest

Southwest
West
Southeast
West UGR
Northwest

High

East UGR
Northeast
North

Goals

The Steering Committee identified the following goals to meet the Purpose on page one of the Greater Bend CWPP:

- Reduce hazardous fuels on public lands;
- Reduce hazardous fuels on private lands;
- Reduce structural vulnerability;
- Increase education and awareness of the wildfire threat;
- Identify, improve and protect critical transportation routes;

Preferred treatments and goals for hazardous fuels reduction

Appendix A includes detailed maps of the WUI boundary throughout the Greater Bend CWPP and the recommended areas for treatments by reducing wildland fuel hazards on both public and private lands.

The standard of the Greater Bend CWPP is to decrease the risk of uncharacteristic and high intensity wildland fire behavior by reducing fuel loads to that which can produce flame lengths of less than four feet. This enables safe and effective initial attack.

The CWPP goal is also to provide for a healthy, fire resilient landscape that supports the social, economic and ecological values of Bend area residents and visitors. The Steering Committee recognizes the effectiveness and value of maximizing treatment efforts in areas that are adjacent to federal or private projects and recommends that future projects consider these benefits when selecting areas for treatment. The following specific standards are recommended for treatments on public and private lands within the Greater Bend WUI.

Public lands

Six of the eight Communities at Risk are adjacent to public lands managed by either the Forest Service or the Bureau of Land Management. State owned lands represent only a small percentage of the lands (1.6%) within the plan area.

It is the intent of the Steering Committee that the Greater Bend WUI is subject to expedited measures for hazardous fuels treatment and allocation of funds to protect the communities and neighborhoods as stipulated by the Healthy Forests Restoration Act.

The overall standard for public lands under this CWPP is to decrease the risk of high intensity wildland fire behavior by reducing and maintaining fuel loads to that which can produce flame lengths of less than four feet in the areas within the WUI boundary. This buffer will begin at the edge of private lands (except where other land management practices prohibit it such as riparian or wetland areas) and extend onto the federal lands to the designated WUI boundary. This enables safe and effective initial attack. This standard can be achieved by federal land management agencies through a variety of treatment methodologies such as thinning, prescribed burning and mechanical treatments. Specific treatments should address fuels issues on a landscape scale rather than acre by acre.

Federal land managers are strongly encouraged to work toward the overall standard by restoring Condition Class 2 and 3 lands with the goal of returning the landscape to Condition Class 1. In mixed conifer, lodgepole and sub-alpine fir stands where Crown Fire Potential is rated Extreme by the federal agencies the recommended standard is to reduce fuel loads to that which can produce flame lengths of less than four feet, regardless of Condition Class:

- Within a ¼ mile buffer of the Greater Bend WUI boundary. Treatments should begin here and increase in ¼ mile increments until the WUI boundary is reached.
- Within 300 feet of any evacuation route from any of the Communities at Risk.
- Maintenance of previously treated lands is also a top priority. Treatment and maintenance of previously treated lands before treatment begins again in other places is an important component of keeping communities safe.

In general, the dominant strategy in all areas should be thinning from below, in an effort to restore large tree, open, ponderosa pine dominated forests. In juniper and bitterbrush dominated stands, federal land managers are strongly encouraged to utilize mechanical treatments including prescribed fire to reduce fuel loads to that which can produce flame lengths of less than four feet.

These treatments shall be consistent with the current COFMS Fire Management Plan on the federal lands and existing land management plans on state owned lands.

The Steering Committee also encourages federal and state land managers to work with local landowners to minimize road closures that could be used as alternate evacuation routes.

Industrial and non-industrial private forestlands

Private forestlands are generally larger land holdings managed for multiple values including timber, wildlife, recreation and water. The landowner may or may not live on the property however the property is largely forest vegetation excluding the area directly adjacent to any structures. There are still a few private forestland parcels in the Greater Bend WUI that directly border some of the Communities at Risk. The Steering Committee recommends continued partnerships with private forestland owners that encourage fuels management to the standards above as part of an overall plan for management of the forest resource.

Industrial and non-industrial private forestland owners can meet the overall standard by treating Condition Class 2 and 3 lands with the goal of returning the landscape to Condition Class 1 by reducing fuels loads to that which can produce flame lengths of less than four feet:

- Within a ¼ mile buffer of adjacent communities at risk. Treatments should begin here and increase in ¼ mile increments until the WUI boundary is reached.
- Within 300 feet of any evacuation route from adjacent Communities at Risk.

The standard can be achieved through a variety of treatment methodologies such as thinning, prescribed burning and mechanical treatments. Specific treatments should address fuels issues on a landscape scale rather than acre by acre. These treatments shall be consistent with existing land management plans for these areas.

Private and county owned lands

The majority of the land (66%) in the Greater Bend planning area is private land and is considered developed, or in rare cases intermixed with development. The County owns less than 2% of the land in this planning area.

Private land with *or* without structural improvements

On private lands within the Greater Bend CWPP WUI boundary with structural improvements or those that are vacant, the goal is for each property to meet the Senate Bill 360 Standards for its individual classification rating. This statute outlines standards and requirements for defensible space on private property that has fire protection from Oregon Department of Forestry.

Not all property in the Greater Bend WUI is provided wildland fire protection by ODF. During the reclassification process in 2009 however, Deschutes County elected to classify every parcel of private land regardless of its protection status by ODF.

A detailed description of the standards is available from the Oregon Department of Forestry in the handbook for the Oregon Forestland – Urban Interface Fire Protection Act of 1997. This information is also available at www.oregon.gov/ODF/fire/SB360.

The minimum Default Standards under the Oregon Forestland – Urban Interface Fire Protection Act of 1997 (Senate Bill 360) are:

- Establish a primary fuel break of 30 feet around structures;
- Create fuel breaks around driveways longer than 150 feet;
- Remove tree branches within 10 feet of chimneys;
- Remove any dead vegetation that overhangs a roof;
- Remove flammable materials from under decks and stairways;
- Move firewood 20 feet away from structures;

If a property is classified as High, the standard includes the above requirements and a secondary fuel break around structures up to 20 feet if the structure has a flammable roof. For properties rated Extreme or High Density Extreme, secondary fuel breaks around structures up to an additional 70 feet are required if the structure has a flammable roof. In addition, 20 foot fuel breaks are also required around the perimeter of a property if it is rated Extreme or High Density Extreme.

Property owners can also create and/or maintain defensible space, a fire-resistant buffer that allows for effective first-response firefighting and a significantly reduced risk of the spread of fire by participating in programs like FireFree and Firewise which promote a variety of fire safe actions to help prevent the spread of fire to protect individual homes and neighborhoods.

Recommendations to Reduce Structural Vulnerability

Structural Vulnerability

Based on the assessment of structural vulnerability for the ODF Assessment of Risk Factors, Table 9 identifies the main hazards within the eight Communities at Risk in the Greater Bend planning area. For each hazard or risk listed, an action is recommended to address the threat or decrease the risk. The communities are listed in priority order from Table 8.

Table 9 – Structural Vulnerability Hazards & Recommendations

New Priority	Community at Risk	Primary Hazards	Recommended Actions
1	Southwest	Defensible Space – Hazardous Vegetation	FireFree, Firewise, SB 360 compliance
		Structural composition	FireFree, Firewise, SB 360 compliance
		Insufficient water supply	Improve water supply
		Poor condition of roads	Identify, upgrade and maintain
		Some inadequate signage	Identify and improve
2	West	Defensible space – hazardous vegetation	FireFree, Firewise, SB 360 compliance
		Structural composition	FireFree, Firewise, SB 360 compliance
		Draft sites only	Develop water supply
		Insufficient access & evacuation routes	Establish route(s), sign and maintain
		Some inadequate signage	Identify and improve
3	Southeast	Defensible space – hazardous vegetation	FireFree, Firewise, SB 360 compliance
		Structural composition	FireFree, Firewise, SB 360 compliance
		Insufficient access & evacuation routes	Improve route(s), sign and maintain
		Poor condition of evacuation routes	Identify, upgrade and maintain
3	West UGR	Defensible space – hazardous vegetation	FireFree, Firewise, SB 360 compliance
		Structural composition	FireFree, Firewise, SB 360 compliance
		Insufficient access & evacuation routes	Improve route(s), sign and maintain
4	Northwest	Defensible space – hazardous vegetation	FireFree, Firewise, SB 360 compliance
		Structural composition	FireFree, Firewise, SB 360 compliance
		Hydrants only, no draft sites	Improve water supply
		Insufficient access & evacuation routes	Establish route(s), sign and maintain
		Poor condition of interior roads	Identify, upgrade and maintain
5	East UGR	Defensible space – hazardous vegetation	FireFree, Firewise, SB 360 compliance
		Structural composition	FireFree, Firewise, SB 360 compliance
5	Northeast	Defensible space – hazardous vegetation	FireFree, Firewise
		Structural composition	FireFree, Firewise
		Insufficient access & evacuation routes	Improve route(s), sign and maintain
		Poor condition of some roads	Identify, upgrade and maintain
		Some inadequate signage	Identify and improve
6	North	Defensible space – hazardous vegetation	FireFree, Firewise
		Structural composition	FireFree, Firewise
		Insufficient access & evacuation routes	Establish route(s), sign and maintain
		Poor condition of some roads	Identify, upgrade and maintain
		Some inadequate signage	Identify and improve

Thanks to the educational efforts across the greater Bend WUI and in response to these recommendations, individuals and specific neighborhoods have responded enthusiastically to take the necessary steps to reduce the threat of wildfire. Project Wildfire has assisted multiple neighborhoods through "Sweat Equity" programs whereby residents complete the defensible space activities on their property and stack the debris at the roadside. Utilizing various grants,

Project Wildfire has the debris hauled away and the resulting biomass ground for use in the generation of clean electricity.

Table 10 provides a checklist for residents seeking to reduce the risk of catastrophic losses to their homes and properties.

Table 10 – Defensible Space Checklist

☑ **What can I do to help prevent losses to my property and my neighborhood?**

- ❑ Post easy-to-read address signs so emergency crews can find your home.
- ❑ Reduce flammable vegetation and brush around your home.
- ❑ Reduce the density of nearby trees.
- ❑ Clear wood piles and building materials away from your home.
- ❑ Remove low tree branches and shrubs.
- ❑ Keep grass and weeds cut low.
- ❑ Remove overhanging branches and limbs.
- ❑ Remove leaves & needles from gutters, roofs and decks.
- ❑ Remove dead plants and brush.
- ❑ Maintain a minimum of 30 feet of defensible space around your home.
- ❑ Screen vents and areas under decks with 1/8" metal mesh.
- ❑ Keep decks free of flammable lawn furniture, doormats, etc.
- ❑ Choose fire-resistant roofing materials.
- ❑ Trim vegetation along driveways a minimum distance of 14' x 14' for fire trucks.
- ❑ Use alternatives to burning debris.

Education

As stated in the Purpose of the Greater Bend CWPP, four of the goals for this planning effort are to:

- Instill a sense of personal responsibility for taking preventative actions regarding wildland fire,
- Increase public understanding of living in a fire-adapted ecosystem, and
- Increase the community's ability to prepare for, respond to and recover from wildland fires;
- Create and maintain fire adapted communities.

With these goals in mind, education and outreach are top priorities for the Greater Bend CWPP. The rapid influx of new residents is just one reason the Steering Committee places high value on the education of Bend area residents and landowners. Many new residents are unfamiliar with wildland fire and have limited experience with issues such as defensible space. Residents and visitors will continue to benefit from clear examples of what a fire resilient forest and community look like as well as easy access to resources that help them take action.

The creation of fire adapted communities is new to the Greater Bend CWPP as a goal. As residents employ the recommendations in this CWPP, fire adapted communities will begin to surface. A recent public paradigm shift across the United States, a fire adapted community engages a higher degree of personal responsibility on the part of residents in fire prone areas. Residents and neighbors are encouraged to prepare not only their properties but also their families in fire safe practices including necessary evacuation protocols. Utilizing pre-fire strategies such as defensible space and fire resistant landscaping and construction materials, communities can turn entire neighborhoods into fire adapted communities where even in the event of a wildland fire, people can safely evacuate themselves, homes survive with little or no intervention from fire agencies and if trapped, people know what to do to survive the fire.

> A fire adapted community is one that is located in a fire prone area that requires little or no assistance from firefighters during a wildfire. Residents in a fire adapted community possess the knowledge and skills to prepare their homes and properties to survive a wildfire. They can evacuate early, safely and effectively and if trapped, they can survive.

Deschutes County, Project Wildfire and Bend Fire and Rescue endorse the nationwide Ready, Set, Go! Program that provides a framework for enhancing current education programs that will lead to the development of fire adapted communities.

There are several opportunities to enhance these educational efforts in the greater Bend area. Bend Fire and Rescue, the Central Oregon Fire Prevention Cooperative and Project Wildfire all provide wildland fire prevention programs through a variety of individual and collaborative efforts.

Some neighborhoods in the greater Bend area are well organized through homeowners associations and other groups. These groups provide valuable ongoing education to their populations about the risks of high intensity wildland fire and ways to improve their protection. The Steering Committee supports these groups and encourages their formation in the greater Bend area to address the educational needs of current and incoming residents about living in a fire adapted community and increasing personal responsibility for creating defensible space.

Local residents are encouraged to contact Bend Fire and Rescue for information. Residents may also find additional information on how they can reduce hazards and protect themselves from loss due to wildland fires at www.firefree.org and www.firewise.org.

Action Plan and Implementation

The Steering Committee recognizes that the Greater Bend CWPP is a living tool with multiple applications. The following actions are intended to assist individuals and agencies in the implementation of this CWPP across Bend and the adjacent WUI.

Reduce hazardous fuels on public lands

Immediately following the acceptance and signed approval of this plan, the Steering Committee will make copies of the 2011 Greater Bend CWPP available to all public land managers including the Deschutes National Forest and the Oregon Department of Forestry. The intention of the Steering Committee is to engage in continued discussions with the greater Bend community and adjacent landowners to implement the CWPP and accomplish hazardous fuels reduction projects in the most expeditious manner possible. The Steering Committee recognizes the effectiveness and value of maximizing treatment efforts in areas that are adjacent to federal or other private projects and recommends that future projects consider these benefits when selecting areas for treatment.

Reduce hazardous fuels on private lands

The intention of the Steering Committee is to engage in continued discussions with landowners to facilitate fuels reduction projects on private lands through the implementation of Senate Bill 360. These actions can be accomplished through education activities and grants for specific projects on private lands.

Bend Fire and Rescue will work with Oregon Department of Forestry and Project Wildfire to identify and certify three (3) communities for application under the national Firewise Communities USA program.

Reduce Structural Vulnerability

The Steering Committee is charged with the task of engaging community members to review the Structural Vulnerability Assessment in this CWPP and identify projects that will strengthen the potential for the neighborhoods to survive a wildland fire within the Greater Bend WUI. The ODF Assessment of Risk Factors and Tables 8 & 10 can be utilized as a resource for homeowners to improve the fire resistance of their homes on an individual basis and also by groups to implement education programs.

As asserted above, Bend Fire and Rescue will work with Oregon Department of Forestry and Project Wildfire to identify and certify three communities for application under the national Firewise Communities USA program.

The Steering Committee is also charged with the task of working with Bend Fire and Rescue to identify and assess the water resources available for fire suppression in Bend and the surrounding WUI. The Steering Committee can make recommendations for projects to ensure adequate water resources are available for fire suppression.

Increase Awareness and Education

The Steering Committee will work with Bend Fire and Rescue and Project Wildfire to review the educational programs available and identify potential projects for implementation.

Identify, Improve and Protect Critical Transportation Routes

The Steering Committee will work with Bend Fire and Rescue, City of Bend Police Department, Deschutes County, and Oregon Department of Transportation to identify and map existing transportation and evacuation routes. The Steering Committee will assist in conducting further assessments to determine the evacuation needs of greater Bend and identify potential projects that develop new routes and/or improve existing routes.

The Steering Committee will continue to encourage federal land managers to work with local landowners to minimize closures of roads that can be used as alternate evacuation routes.

Fund Projects

The Steering Committee will encourage and assist community groups in seeking funding for fuels reduction, educational, and other projects to decrease overall risks of loss from wildland fire.

Evaluation and Monitoring

The Steering Committee faced a complex task in the update of the Greater Bend Community Wildfire Protection Plan. Implementing and sustaining these efforts will require a significant commitment. Maintaining a collaborative and cooperative environment with Bend Fire and Rescue, Deschutes County RFPD #2, community-based organizations, local government and the public land management agencies continues to be an important step in reducing the risk of wildland fire. The Steering Committee pledges to maintain this cooperation with the public over the long-term with the commitment of all the partners involved.

At a minimum, the Steering Committee shall include: a Deputy Fire Chief from Bend Fire and Rescue; a representative from ODF; representatives from the US Forest Service, the BLM, and Deschutes County along with members of the greater Bend public.

The Steering Committee agrees that the Greater Bend Community Wildfire Protection Plan will be a living document, intended to promote fuels reduction, educational, and other projects to decrease overall risks of loss from wildland fire; revisited at least annually to address its Purpose.

Project Wildfire will ensure that the evaluation and monitoring activities listed above are addressed by the Steering Committee each year. As members of the Steering Committee change, Project Wildfire will ensure that it maintains a balanced representation of agency and public members, with a continued focus on inviting interested parties to participate in the review and planning process.

Bend Fire and Rescue will work with Project Wildfire to convene the Steering Committee as often as the Steering Committee deems necessary to implement and review the Greater Bend Community Wildfire Protection Plan. Topics for discussion can include:

- Identification and assessment of new or treated risks.
- Evaluation and tracking of progress toward goals.
- Updating of maps.
- Adoption of new and/or revised priorities.
- Identification of specific projects.
- Discussion of grant opportunities and determination of projects eligible for funding.
- Writing of grants.
- Identification of appropriate projects to address additional items as outlined in the Action Plan for Structural Vulnerability, Education and Critical Transportation Routes.
- Coordination of additional items, projects and assessments.

Project Wildfire will ensure that the evaluation and monitoring activities listed above are addressed by the Steering Committee each year. As members of the Steering Committee change, Project Wildfire will ensure that it maintains a balanced representation of agency and public members, with a continued focus on inviting interested parties to participate in the review and planning process.

City of Bend
Boundary & Growth Scenarios Technical Advisory Committee
Meeting #7
Meeting Notes
Date February 24, 2015

The Boundary & Growth Scenarios TAC held its regular meeting at **9:00** am on Tuesday, February 24, 2015 in the Council Chambers of Bend City Hall. The meeting was called to order at 9:02 am by Sharon Smith.

Roll Call

☐ Toby Bayard	☐ Steve Hultberg	☐ John Russell
☐ Susan Brody	☐ Nick Lelack	☐ Sharon Smith
☐ Paul Dewey	☐ Brian Meece	☐ Rod Tomcho
☐ John Dotson	☐ Charlie Miller	☐ Dale Van Valkenburg
☐ Rockland Dunn	☐ Mike Riley	☐ Robin Vora
☐ Scott Edelman	☐ Ron Ross	☐ Ruth Williamson

Discussion

1. Welcome.

Sharon called the meeting to order at 9:04 am. Joe Dills of the consultant team asked for reports from the other TACs. Dale gave the update from the Residential TAC, which last met on Monday the 23rd. The Residential TAC made final recommendations to the Boundary TAC and the USC on the bookends for Phase 2. These included efficiency measures and zone changes and were presented to both the Residential and the Employment TACs. The TAC approved the recommendations listed on page 29 of their packet along with some additional bulleted recommendations on vehicle miles traveled (VMT), accessory dwelling units (ADU's), planning period yield, potential new efficiency measures, and financial incentives. Brian Meece reported on the Employment TAC and gave a similar report and further noted that the bookends are in clay, not stone. These may change further in Phase 2. After the TAC reports Joe asked for approval of the minutes from Meeting #6. The TAC approved the minutes by consensus.

2. Approach to Goal 5 and review of Stage 2 Base Maps

Joe introduced this item as a series of decisions outlined in the meeting packet (See pages 9 through 16). Karen Swirsky of the City gave the presentation of this topic, beginning with the material starting on page 10 of the packet. This presentation focused on the Goal 5 resources for which TAC direction was sought: riparian corridors, wildlife habitat, State Scenic Waterways, and Mineral and Aggregate Resources.

Riparian Corridors. Karen this discussed use of the safe harbor standard and inventory for Goal 5 resources. Tumalo Creek may require a standard Goal 5 inventory. If the creek is included in a UGB expansion, the City will need to complete either a safe harbor or standard Goal 5 inventory for the creek. At that point, the City would then need to decide which program to use to protect the resource (safe harbor or Goal 5 standard). The TAC discussed different options for buffers along the riparian corridors that ranged from 50 to 75 feet, including the standards employed by the County in the Landscape Management Combining Zone. The TAC further discussed applying a different standards if the river was located in a steep canyon. The potential costs of consultant help was also

covered, and could run from $6,000 to as high as $20,000. Mary Dorman of the consultant team presented the team recommendations as shown on the bottom of page 12, which are reproduced below:

Project Team Recommendation – Riparian Corridors

- Obtain more detailed topographic data to clearly identify segments of the Deschutes River and Tumalo Creek where the safe harbor inventory is an option early in Phase 2.
- If the TAC proposes including any of the steeper segments of the Deschutes River or Tumalo Creek in UGB alternatives, proceed with a targeted standard inventory of the resource values in these segments and draft ESEE analysis to balance potential urbanization and protection of the riparian resources.
- If the USC selects a preferred UGB scenario that includes segments of the Deschutes River and/or Tumalo Creek, package any needed amendments to plan and code provisions (e.g., Waterway Overlay Zone) to comply with the goal 5 rule.

Questions for the Boundary TAC

- Does the TAC agree with the recommended approach and timing to address Goal 5 riparian corridors?
- Should exception lands abutting or within a certain distance of riparian corridors be ranked lower (fair or poor) than other exception lands on the Stage 2 base maps? If yes, what distance is appropriate to consider for proximity?

Joe asked for a motion on the first question on page 12. Brian moved approval, John Dotson 2nd. This motion passed unanimously.

The TAC then took up the second question on page 12. The TAC discussed whether it would be useful to the project to rank exception lands abutting or within a certain distance of riparian corridors. Paul thought it would be helpful. Steve had the opposite view. Robin added that steep slopes with soil erosion potential should be considered. The TAC discussion touched on addressing this during the economic, social, environmental, and energy (ESEE) analysis for the Goal 5 resource.

Motion: Charley moved a "no" answer to the second question: exception lands abutting or within a certain distance of riparian corridors should not be ranked on the Stage 2 base maps. Brian 2nd this motion. The discussion on this motion addressed what level of Goal 5 work will be needed as development gets closer to the creek. The TAC passed this motion on a 9 in favor - 5 opposed vote. After the vote was taken there was brief discussion as to whether there was some middle ground. After this discussion, the TAC consensus was to move on to the next topic.

Wildlife Habitat. Karen presented this topic, directing the TAC to pages 12 to 14 of the packet. Karen referred the TAC to 5 items on the top of page 13 of the packet. The Safe Harbor for wildlife habitat under Goal 5 allows the City to limit the inventory to consideration of available information where one or more of the following conditions exist:

a) The habitat has been documented to perform a life support function for a wildlife species listed by the federal government as a threatened or endangered species or by the state of Oregon as a threatened, endangered, or sensitive species;

b) The habitat has documented occurrences of more than incidental use by a species described in subsection (a) of this section;

c) The habitat has been documented as a sensitive bird nesting, roosting, or watering resource site for osprey or great blue herons pursuant to ORS 527.710 (Oregon Forest Practices Act) and OAR 629-024-0700 (Forest Practices Rules);

d) The habitat has been documented to be essential to achieving policies or population objectives specified in a wildlife species management plan adopted by the Oregon Fish and Wildlife Commission pursuant to ORS Chapter 496; or

e) The area is identified and mapped by ODFW as habitat for a wildlife species of concern and/or as a habitat of concern (e.g., big game winter range and migration corridors, golden eagle and prairie falcon nest sites, or pigeon springs).

Karen noted that the Oregon spotted frog was listed in 2014, and their habitat in Bend is located along the stretch of the Deschutes River that flows through the Mill District. Karen then introduced Corey Heath with the Oregon Department of Wildlife (ODFW). ODFW published a 2009 map that is on page 53 of the packet (Titled "Exception Land and Big Game Winter Ranges"). This map identified those county exception lands that were also located within the Wildlife Area Combining Zone. The map further identified three areas in ovals or ellipses that represented areas of particular concern for ODFW; these were exception areas outside of the WA zone that had potential deer and elk winter range. The map on page 54 (titled "Proximity to Winter Range/Wildlife Area Combining Zone") was brought into the discussion because it shows two areas in red in the existing WA zone and one in yellow that are also of concern to ODFW. The TAC discussion on wildlife habitat touched on whether elk are as important as deer in protecting habitat, the orientation of the ellipses for browse and cover, and the movement of elk and deer herds along the exception lands west and southwest of Bend.

Motion: The team recommendations regarding Wildlife Habitat were presented on page 14 of the packet (See also Map on page 54) are reproduced below:

Project Team Recommendation – Wildlife Habitat

- Screen the exception lands within the designated Wildlife Overlay (see map on page 54 of packet) from further consideration for UGB scenarios. The county's protection program under the Wildlife Overlay is based on density restrictions, clustering requirements and open space protection (50%). Potential urbanization of these exception lands would inherently conflict with protection of the big game winter range.
- Consider other big game habitat identified by ODFW (not currently designated or protected by Deschutes County) as part of the Factor 3 ESEE analysis and balancing to evaluate candidate UGB expansion areas.

Questions for the Boundary TAC

- The TAC originally decided not to use the Big Game Habitat maps for initial screening. In the light of the additional clarification provided by ODFW, does the TAC support the recommended screening of the two exception areas within the designated Wildlife Overlay from further consideration?
- Should exception lands abutting or within a certain distance of the designated Wildlife Overlay or identified by ODFW be ranked lower (fair or poor) than other exception lands on the Stage 2 base maps? If yes, what distance is appropriate to consider for proximity?

1st recommendation (just red areas) – John moved approval; Susan 2nd. Motion passed with 13 in Favor, no opposed, and one abstention (Steve H).

2nd recommendation (big game) Yes they should be ranked – Paul moved approval, John Dotson 2nd. After some discussion, Paul withdrew his motion and John his second.

A new motion was presented: used a buffering (cross hatch vs. dark green on maps) in Stage 2 mapping. This motion was not moved and did not receive a second.

Sharon made a different motion with respect to the second question on page 14: adopt the map on page 54 of the packet as ranking at this stage. Rod 2nd this motion. The discussion on this motion

clarified that the effect of this motion would pull out the three (3) ellipses identified by ODFW from consideration, takes the areas in red off the table, and yellow gets ranked lower. No extra buffering at this stage. The motion passed with 11 in Favor, none opposed, and four abstentions (Dale, Robin, Paul, and John Dotson).

State Scenic Waterways. The team directed the TAC to the recommendation on page 15 of the packet (See also the map on page 55) that is reproduced below:

Project Team Recommendation – State Scenic Waterways

- If the proposed UGB expansion includes any sections of the Scenic Waterway, apply or revised code provisions to assure protection required under Goal 5.

Question for the Boundary TAC

- Assuming application of the protection program for the scenic waterway (setback for structures), should exception lands abutting or within a certain distance of the designated Scenic Waterway be ranked lower (fair or poor) than other exception lands on the Stage 2 base maps? If yes, what distance is appropriate to consider for proximity?

Motion: Dale made a motion to map corridors as yellow, based on the team recommendation. Toby 2nd this motion. The motion passed unanimously.

Mineral and Aggregate Resources. The team presented the recommendation on this topic, also at the bottom of page 15 and the top of page 16 (See also the map on Page 56 of the packet).

Project Team Recommendation – Mineral and Aggregate Resources

- Aggregate sites do not need to be included in the UGB to allow continued mining. Assuming 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 project team recommends screening the portion of the site under DOGAMI Permit 09-0018 from consideration for UGB scenarios. This would not affect consideration of the remainder of the property.

Questions for the Boundary TAC

- Does the TAC support the team recommendation to screen the portion of the aggregate site under DOGAMI Permit 09-0018? • If not screened, should the portion of the site zoned for Surface Mining and under active DOGAMI permit be ranked poor (red) because of conflicts between potential urbanization and continued mining of the aggregate resource during the planning period?

The discussion of this topic touched on existing and active mining permits from the Oregon Department of Geology and Mineral Industries (DOGAMI). Map 56 identifies both county designated Goal 5 surface mines and one that is permitted by DOGMAI and identified with a cross-hatched pattern.

Motion: Toby moved approval of the recommendation. Dale 2nd the motion. For discussion, Steve Hultberg clarified that the motion addressed cross-hatching of red areas on Map 56. The motion passed with 12 votes in Favor, no opposed, and two abstentions (Sharon and Paul).

3. Approach to Goal 7 and Review of Stage 2 Base Maps

Karen introduced this topic, and introduced Craig Letz. Craig is a consultant recently retired from the Forest Service over 25 years of experience in forest fire management. The packet discussion on this topic starts at page 16, and includes two maps at pages 57 and 58. Craig also handed out a copy of Table 8 from the Greater Bend Area Community Wildfire Protection Plan (CWPP). Craig's presentation touched on the development of the 2011 CWPP, which was a collaborative effort among

all the agencies that have a role to play in wildfire prevention as well as home owners associations (HOAs) and private property owners. Craig's presentation touched on several points, which are summarized here:

- evaluating risk – prioritizes where to direct resources for forest treatment
- red (on the CWPP Map) means higher risk – prioritized above other areas for treatment
- the 2006 CWPP based on a Fire Regime Class from the Oregon Department of Forestry (ODF)
- treatment causes how fire moves through a landscape
- Pages 16 -17 of the packet addressed ODF assessment of risk; risk of wildfire occurrence, hazard, protection capability, values protected, and; structural vulnerability
- Table 8 from the 2011 CWPP – the first column represents ODF's assessment of risk; second column a rating system from 1997 Senate Bill (SB) 360
- Proposed wildfire risk ratings: high, high, and highest (as shown on map at page 58).

The TAC discussion followed Craig's presentation and involved questions and comments on the maps showing risk and whether that included resistance to control. The ratings shown on the map at page 58 reflected a higher risk with a lower number; conversely those areas with a lower number represented those areas with the highest wildfire risk. With respect to the map at page 56 (Composite Wildfire Risk Ratings), the TAC inquired as to whether climate change was factored into the CWPP analysis, whether certain areas were properly rated given actions (such as treatments) that had taken place since 2011, whether project should include this data as part of the databased relied upon in completing the Goal 14 ESEE analysis later in the project.

Motion: Joe brought the discussion back to a question of whether the data on fire risk should be used in the ESEE completed during the Goal 14 boundary analysis in Stage 4. Sharon moved approval of this motion: using the data on wildfire risk during the Goal 14 boundary analysis in Stage 4. Toby 2nd this motion. The discussion on the motion included a suggestion to include considering of wildfire in estimating water and transportation costs. After the discussion, the motion – use the information on wildfire risk in the Goal 14 ESEE in Stage 4 – passed with 13 votes in Favor, two opposed, and no abstentions.

4. Update on status of other Stage 2 Base Maps for Factor 3

Mary Dorman of the consultant team gave the presentation on this topic. She identified several new maps for the TAC's review regarding the location of the flood plain (page 59), elementary schools (page 60), and parks (61) in the study area. Additional map work on water quality limited streams are forthcoming. The TAC's input on these maps included adding other schools (e.g. middle, high schools) to the map at page 60 and including other types of parks (neighborhood, regional) on the map at page 61.

Motion: The proposed motion to the TAC was to use the maps on pages 60 and 61 of the packet for use in Stage 2, as revised based on the TAC's input. Sharon moved approval of this motion, Ron 2nd the motion. The motion passed with two abstentions (Robin and Brian Meece).

5. Discuss how Stage 2 Base Maps could be used in Phase 2

This topic addressed how the Stage 2 Base Maps could be used in Phase 2 of the remand project. This discussion touched on the maps at pages 37 through 41 of the meeting packet (and also listed on page 36). The TAC discussed using the maps in the dialog with the community, and indicated that some maps were more important to certain TAC members than others. The suggestion was made to overlay all of the maps for a given factor (one of the four Goal 14 boundary location factors) and look at a composite of each factor. This would allow the TAC and team to see trends in lands colored red,

green, and yellow. The TAC also provided some feedback regarding the CCRs map (page 41) and ensuring that it reflected that Cascade Highlands and Tetherow had CCRs that would limit future redevelopment and that the map should so reflect this data.

Motion: Dale moved approval of a motion to look at one composite map per Goal 14 factor, with the understanding that the team will look at weighting. Susan 2nd the motion. The motion passed unanimously.

6. Roll up of Boundary TAC recommendations to the USC

Mary provided the introduction and recommendation to the TAC. The UGB Steering will be meeting on March 19, 2015 and will consider the TAC's recommendations on Phase 1 at that time. The portion of the meeting packet that the team recommends the TAC approve as the recommendation to the Steering Committee starts on page 23, and includes the TAC decisions listed on pages 23 through 29, the Stage 2 and Stage 4 mapping recommendations in Table 1 (pages 31-35), and the proposed maps on pages 36 to the end of the packet. The TAC discussion on this topic included adding costs related to wildfire (e.g. roads, water) be factored into scenario work.

Motion: Sharon moved approval to modify the second bullet under Factor 3, Stage 4, by adding the words "and costs" so that it reads "Development and costs (acres, number of housing units, number of jobs) in Goal 7 hazard prone areas. Dale 2nd the motion. The motion passed unanimously.

Additional items

Joe provided the TAC with a brief report on the scoping of Phase 2 of the project. This included providing the TAC a memorandum on the TAC structure going forward in Phase 2 that was included in the meeting packets for the Residential and the Employment TACs. Brian also provided some input on the meeting schedules in Phase 2.

Joe adjourned the meeting at 12:37 pm.

Action Items/Next Steps

Action	Assigned To
Goal 5 and Stage 2 Base Maps	Done ✓ Riparian Corridors ✓ Wildlife Habitat ✓ Scenic Waterways ✓ Mineral and Aggregate Resources
Goal 7 and Stage 2 Base Maps	Done ✓ Direction on incorporating wildfire costs in ESEE during boundary location analysis ✓ 100 year flood plain map completed for exception lands in study area
Other Stage 2 Base Maps for Factor 3	Done ✓ Maps approved, with revisions, for schools, parks ✓ TAC direction to have one composite map per Goal 14 factor (four factors) To Do:

	✓ Irrigation districts ✓ Water quality limited streams ✓ Team will looked at potential weighting ✓ Complete revisions to CCRs map
Roll Up of Boundary TAC Recommendations to the USC	Done

URBAN GROWTH BOUNDARY REMAND

BEND

Sign in Sheet

Meeting: BOUNDARY TAC #7

Date: 2/24/2015

Location: COUNCIL CHAMBERS

Name	Organization	Email Address
Chris Schmoyer	Schwabe Williamson & Wyatt	cschmoyer@schwabe.com
Corey Heath	ODFW	corey.heath@state.or.us
Robin Vora		robinvora@gmail.com
Scott & Carol Jackson	Landowner	jacksonc@countrycablevision.net
JOHN DOTSON		
Mark Riley	MW Environmental PE	
Ron Ross		
Scott Edelman	DLCD	
Sharon Smith		
Dell Valentine	Brooks	
Brian Meece		
Rockand Dunn	Planning Commission	
Rod Tancho		
Toby Bayard		toby bayard@hotmail.com

Brian Rankin

From: Robin Vora <robinvora1@gmail.com>
Sent: Sunday, March 01, 2015 8:21 PM
To: Joe Dills; Brian Rankin; Mary Dorman; Matt Hastie; Damian Syrnyk; Mike Riley
Subject: Stage 2 Mapping Comment

To: UGB Boundary Committee
UGB Steering Committee

After sitting on it for a few days I wish to change my vote on submittal of Stage 2 maps to the UGB Steering Committee from an "Abstention" to "No."

I do not believe we have completed our homework on Riparian Corridors and Fire Risk. We were less than objective in our rankings of those two maps and the Wildlife Winter Range map. Please also submit this email to the Steering Committee as a minority opinion. You are welcome to share it with the rest of the UGB Boundary TAC committee.

The Riparian Corridor mapping recommendation does not give enough consideration to the fact that residential lawns and driveways, and any on-site sewage systems, contribute a significant amount of nutrients, herbicides, pesticides, oil product residues, and pathogens to nearby river and wetlands. Riparian corridors are also important wildlife habitat.

The Committee recommendation to exclude only a 50 foot buffer on Tumalo Creek and 75 foot buffer on the Deschutes River, where slopes are less than 25%, offers inadequate protection to rivers and riparian areas. The recommendation ignores abundant science.

For example, a USDA Natural Resource Conservation Service guide for protection and restoration of riparian areas recommends a 150-foot buffer for water quality protection and 750-foot for wildlife dependent on wetlands and watercourses (pp. 13-14). An objective recommendation from the Committee would consider this and similar science and recommendations. If we follow our color mapping scheme, we should exclude areas within 150 feet of the river banks (high water, black or dark red color), and show in bright red any lands within 750 feet of the river banks because it is important wildlife habitat. These distances should be greater on steeper slopes. (I don't know if that threshold for steep slopes should 25% or less.)

The Winter Range map ignores the fact that wildlife habitat currently degraded by development is still wildlife habitat that possibly could be partially restored through mitigation measures in the city code or land purchases for conservation. I think the Committee made the right recommendation to exclude the two dark red areas, and show the "potential ODFW Addition" as a second risk category that should be bright red. The additional mapped Big Game Winter Range on the west and south sides of the city, between Rickard Road and Hwy 20 (p. 53 of packet), should be a yellow-green color to separate it from land that is not mapped as Big Game Winter Range, which could be shown as dark green. There should be a difference in mapping of land that is winter range and land that is not.

I believe the Fire Risk map also needs more work and is not ready for submittal. The Committee didn't seem to grasp the fact that the areas adjacent to and near forests -- forests have large volumes of easily combustible fuel and high probability of wildfire -- have a much higher risk of wildfire (and therefore increased risk to public safety) than potential UGB expansion areas in the east and northeast.

I do not believe planners can come up with a complex cost-estimate ranking to separate out areas in the west and south. Such a cost estimate would have to consider more than wider roads or water hydrants. It would have to include maintenance of fuel treatments on adjacent and nearby private and public lands. It would have to consider fire ignition probability during extreme fire danger when temperatures are over 90 degrees F and west or southwest winds are gusting at more than 30 mph. Fires can easily spot 2 or more miles under extreme conditions and start new fires.

A fire analysis would have to consider the ability of local fire resources to respond to a major fire adjacent to the city, including when there may be many local fires burning at the same time. This often happens after lightning storms. A cost analysis would have to include the cost of bringing in national fire management teams and resources, including air resources, at a cost of many millions of dollars to the taxpayer.

The Two Bulls, Awbrey Hall, Bridge Creek, 18, and Skeleton Fires have provided plenty of warning in the recent past. It is just a matter of time before a B & B scale fire comes racing into the west or southern part of Bend. Encroachment of forests and shrub lands with urbanization has long been recognized nationally as a major problem and a consequence of poor land use decisions. One has to only look at Southern California to see some of the consequences.

At our meeting the Committee voiced opinions that it did not want to do a lot of complex ratings such as would be needed to do true block-by-block fire risk analyses and mitigation cost estimates. As I suggested at our meeting, a simple ranking would be to show the area depicted as Big Game Winter Range (p. 53 of packet) as High Fire Danger (bright red), and the north and east sides of the UGB expansion study area as light green-yellow, low fire risk. Otherwise, I believe the Fire Risk map is not objective and is inadequate if it does not at least differentiate fire risk adjacent to ponderosa pine forest versus fire risk adjacent to scattered juniper-shrub and irrigated pastures.

Thank you for your time and consideration. I believe it is better to be upfront and objective from the start and not have to again redo under remand. While I can understand landowners' desire to develop their properties, land use planning must also consider the environmental consequences and cost to local residents and the general taxpayer. I realize we have a tight timeframe, but in haste we should not do incomplete work and then have to take more time later to make adjustments.

Robin Vora

1679 NE Daphne Dr.

Bend, OR 97701