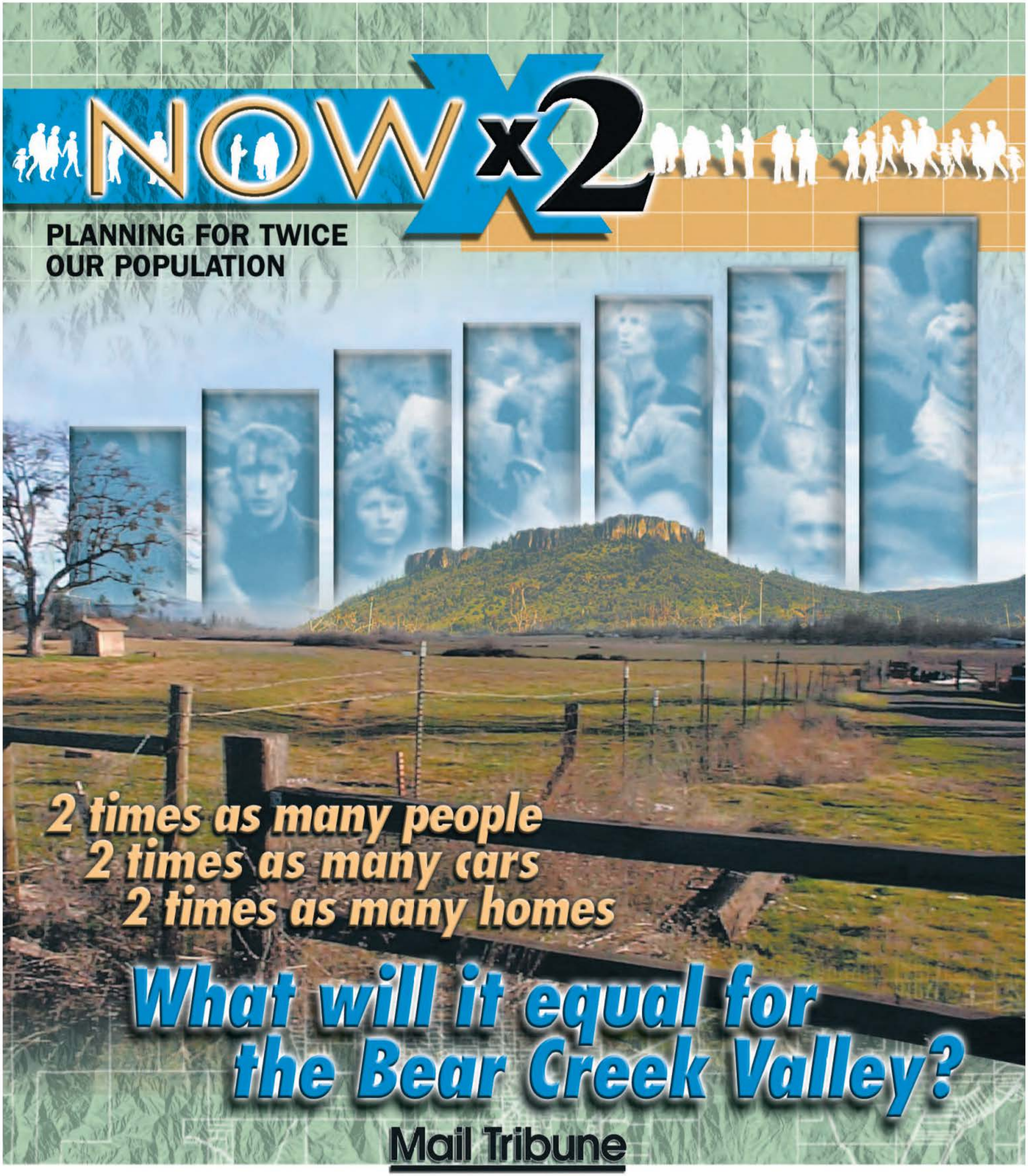
APPENDIX I

DECEMBER 2002 "NOW X 2" NEWSPAPER INSERT


NOW x2
PLANNING FOR TWICE OUR POPULATION
2 times as many people
2 times as many cars
2 times as many homes
What will it equal for the Bear Creek Valley?
Mail Tribune

What is this all about?

The official title is "**Greater Bear Creek Valley Regional Problem Solving.**" Basically it's Jackson County, Medford, Ashland, Central Point, Eagle Point, Jacksonville, Talent, Phoenix, and the state of Oregon sitting down at the same table trying to figure out how to make room for long-term future population growth while preserving the places and features of the valley that we all enjoy.

What is NOWx2 ?

NOWx2 is a unique exploration of growth and long-range planning for the Greater Bear Creek Valley - the population center for Jackson County. While most studies are pegged to a time line, say 20 years or 30 years, NOWx2 shifts the focus to people.

It asks, `What could this valley be like with twice the population we have today?'

Let's look first at the simple math of the proposition. We're starting with a present day population of 135,000 within the study area, which is a rounding off of the year 2000 census. Multiply times two and you get what we're trying to plan for: 270,000 individuals. More than a quarter million people. Right here in the Rogue Valley.

Rather than contemplating when growth will happen, and at what rate, NOWx2 addresses how it might happen, and how development should proceed to preserve and enhance the features and amenities we value today.

Realistically, NOWx2 takes a very long-term perspective. Various population forecasts and historical experience suggest that the Greater Bear Creek Valley might expect to double in population sometime between 2040 and 2060, but no one can really know for sure.

Those of you who have a few years under your belts no doubt have a feel for the changes that can occur with the kind of growth we are trying to plan for. Our population right now is about twice what it was in the 1960s. Fewer than 70,000 people then; more than 135,000 now; and 270,000 someday. Think of the changes that have occurred since the '60s in this valley.

We'll never know how much better this valley would be now, and what mistakes we could have avoided, if this process had taken place in the 1960s. We can say, though, that if we don't try today to plan ahead, this valley could very well become what the people moving here now are seeking to escape.

What are we trying to accomplish?

We hope to reap as much benefit as possible from the population growth that surely is coming our way, while avoiding the pitfalls - loss of agricultural land, loss of open space, reduced community identity, and transportation and other infrastructure problems.

Participants in the process agree that taking charge of our future by planning collaboratively on regional issues is more effective than planning city by city. They also think that we need to be willing to look far into the future, well beyond the usual 20-year time frame.

More specifically, we are trying to put lines on a map to guide us, and those who follow us, to the parts of the valley where we should and should not grow. We are trying to guide cities to areas that can readily receive urban services and foster community identity. We are trying to keep cities from growing into one another, and onto valuable farm land. We are trying to save the important parts of what we are now while we are becoming something else.

At this point in the process it appears that we have identified enough land for future growth. We won't be forced to look towards our best resource lands and open space - even with twice as many people here as we have right now. For all those who love our varied landscapes and independent cities, that is very good news.

As you go through this material you will see a lot of lines on maps. They are all still tentative recommendations and proposals. The result of a lot of work to date, they have been erased and redrawn many times. No doubt, they will continue to change as this project continues. ■

This publication is a product of the Greater Bear Creek Valley Regional Problem Solving project, involving the cities of Medford, Central Point, Talent, Jacksonville, Eagle Point, Ashland and Phoenix, and Jackson County, Medford Water Commission, Bear Creek Valley Sanitary Authority and the State of Oregon. The project is being coordinated by the Rogue Valley Council of Governments, a voluntary association of local governments in Jackson and Josephine counties that provides technical assistance in areas of land use, transportation, water quality, public involvement and special services to seniors and the disabled. At present, funding for this effort is coming from the participants themselves.

ROGUE VALLEY COUNCIL OF GOVERNMENTS

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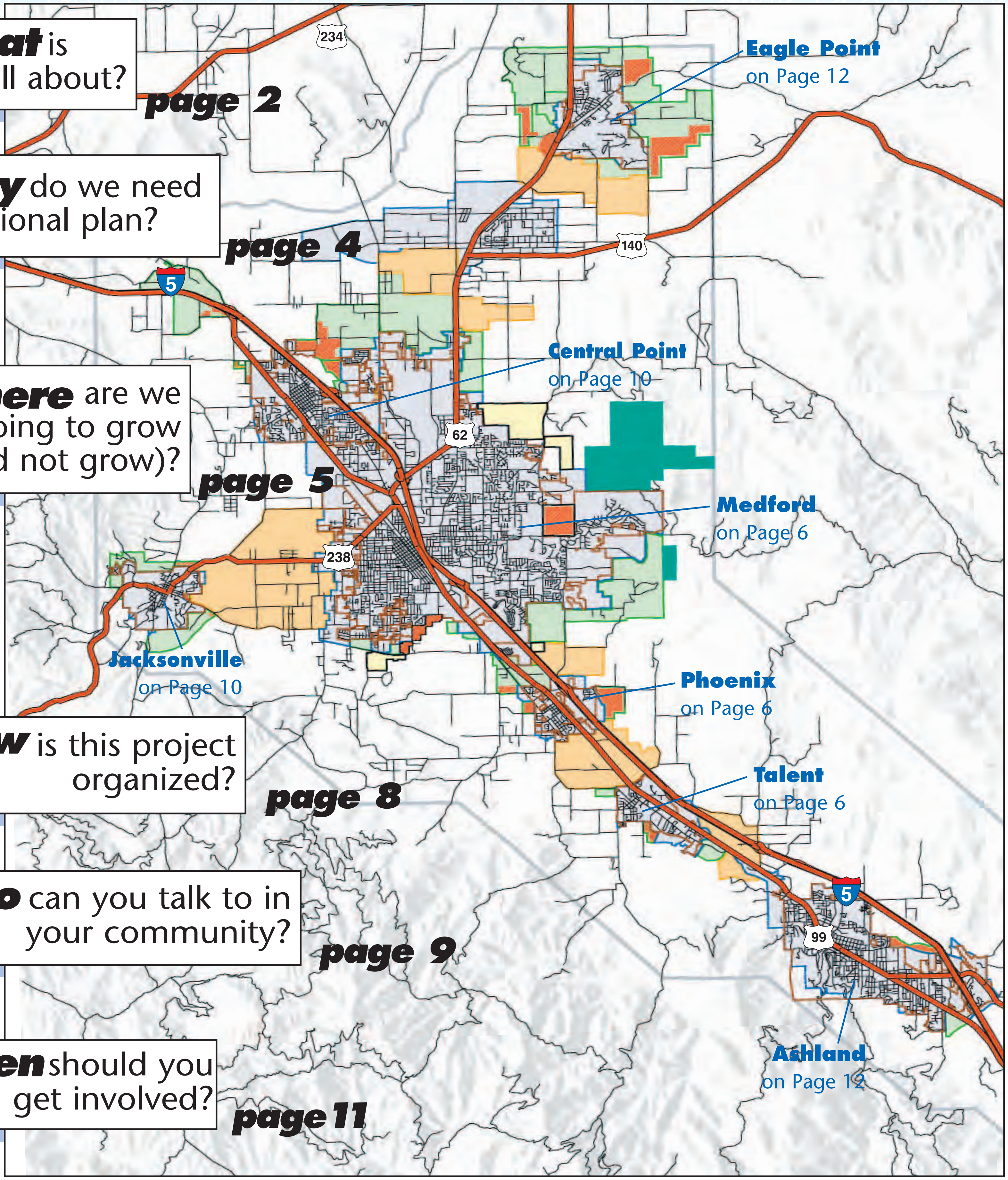

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Why do we need a regional plan?

This has been one of the fastest growing regions in the state of Oregon for decades, a trend that probably isn't going to change anytime soon. The demand for space for more people, more business, and more services has had, and will continue to have, repercussions on our region.

For example, some in this valley call farmland an endangered species. This is not to say that our cities have specifically targeted farmland in their growth plans - more often there hasn't been much choice in the matter. Cities share the valley with some of the best agricultural land around.

As cities have grown in this valley, the rural spaces between them have shrunk. Medford and Central Point have actually grown together. Many of the participants in this project are concerned about the prospect of this valley becoming a single, unbroken, unchanging urban stretch from Ashland to Central Point to Eagle Point.

With growth issues especially, we are finding that many decisions made within single communities can have impacts on the communities around them, and on the larger region. In addition, impacts can flow the other way too, from the regional level to the community one. We need a way of making cooperation between jurisdictions more of a way of life than it is right now.

Finally, the region is facing what many describe as a transportation crisis, caught in a situation of overwhelming need and minimal funding. While not much more than time and an upturn in the economy can help with our present situation, the only way to avoid being caught in a similar trap in the future is to plan transportation needs well in advance. To do that, we need to know where our growth will occur well into the future.

WHY this area?

In short, this is where the people are. At first glance Jackson County may seem large. At 2,800 square miles, or 1.8 million acres there should be plenty of room for this NOWx2 population of 270,000. But 80 percent of the county is forest resource land, and half of the county is actually owned by the federal government. So what's left for us?

Increasingly, the answer has been the narrow center of the county, the flat land and rolling hills of the Bear Creek Valley. Historically, this is where commerce settled, where major crossroads developed and where more and more people made their homes and built their lives. Right now 70 percent of the county's population lives within the valley.

The communities within the valley have a history of working together on regional issues such as drinking water systems, waste water treatment, transportation and air quality. NOWx2 capitalizes on these long-standing relationships. ■

Where are we going to grow (and not grow)?

We began this project by identifying lands that appeared to offer the most value to the region by staying rural, due to their agricultural importance or their role in providing space between cities. From there, each city was asked to outline the areas that appeared to have potential for future urban growth, avoiding, where possible, the generally recommended "non-growth" areas.

Where is the best farmland?

A special committee, the Resource Lands Review Committee, worked with computer models, surveys, and their own extensive agriculture experience to draw rough maps for cities to use to guide their initial selections of growth areas. As the cities came back with ideas, the resource committee more closely reviewed each proposed growth area. Members were looking to conserve land that: has been agriculturally viable in the past and/or is agriculturally viable at present and/or has a strong likelihood of being agriculturally viable in the future.

Many factors were considered in the identification of important farmlands. Markets, economies, management, competition, location, climatic factors, soil quality, and the potential for future crops are just some of the considerations that can play into a decision about what should and should not continue long term as farmland. The committee members' recognized expertise and local experience in farm and forestry has been extremely useful in producing practical recommendations.

The committee's review is guided by state law, which requires preservation of important agriculture land for continued farm uses. You can see the results of their work on the color maps. The Resource Lands Review Committee's recommended agriculture areas show up in red striping. These are the areas that the Committee recommends should not be urbanized.

Remember these are recommendations, and still await ratification or potential modification by the Policy Committee. In addition, there may a need for the Policy Committee, faced with a sufficiently compelling urban-based justification, to recommend an area for future urban growth even though it is recognized as part of the commercial resource lands base.

Where else do we not want to grow?

Cities — and ultimately the people living in them and near them — need some room. Community Buffer Areas create space around cities, protecting each city's identity and preserving the valley's many transitions between urban, suburban, and rural. The Citizen Involvement Committee, which drew these buffers, wanted to answer an often-heard concern: "We don't want this valley to end up looking like something out of California, where you never really know when you are leaving one city and entering another." Buffers would be preserved through existing zoning - no new restrictions would have to be imposed.

The proposed buffers are in orange on the maps. There are two kinds:

Rural Buffer: Open areas, often farms, that provide a marked contrast with urban areas; and

Urban Buffer: A point along a densely populated unincorporated area that borders a city boundary, or along the shared boundary between two cities (Medford and Central Point). Architectural features or design standards could be used to achieve the separation effect here, since no rural lands remain.

Where do we want to grow?

On the maps, suggested growth areas show up in green. Some cities are showing more potential growth areas than others. Reasons for these difference vary. Sometimes steep slopes, major transportation routes, or farmland limit proposed growth areas. In some communities, a local desire to grow, or not to grow, drives the recommendations. Some of the areas that have been suggested may be important in improving the efficiency of city services, strengthening the transportation system, enhancing existing neighborhoods, or making better use of urban land already within a city.

As they stand right now, the potential growth areas, even without counting the areas with the most significant agricultural concerns, add up to at least enough land to accommodate our NOWx2 doubling of the current valley population — 270,000 people.

Adoption of this plan would streamline the approval process for cities needing to expand their urban growth boundaries. Of course, many of the potential growth areas are likely to remain undeveloped for many years given the long-range nature of NOWx2 planning. Indeed, some of the areas may remain outside city development for the next 50 years.

By setting out growth areas now, development can occur now, next year, and for years to come in ways that support growth in the more distant future. Everything from roads to parks to water systems can be planned and built with greater efficiency. That saves public money while enhancing public service.

Where are we on the other project work?

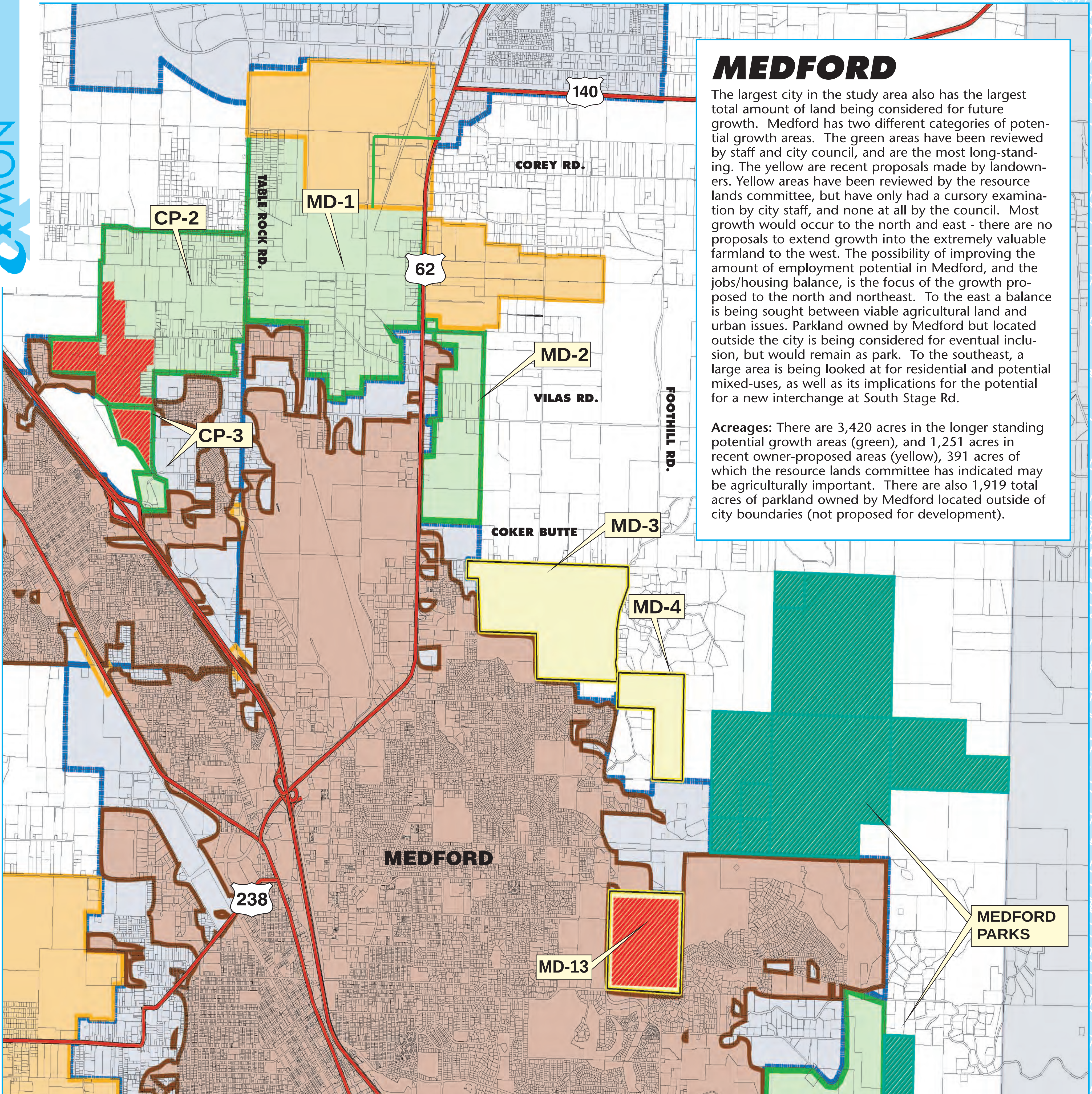
In addition to mapping buffers and growth areas, the committees have also been busy with other aspects of the regional plan, such as cataloging regional open space, drafting a policy for city and county joint management of the future growth areas, and devising a regional standard on agricultural buffering between farms and residential developments. There will be opportunities for public discussion and evaluation of everything you see here, including the additional work we couldn't fit onto these pages, beginning in January 2003. The review process is described on page 11.

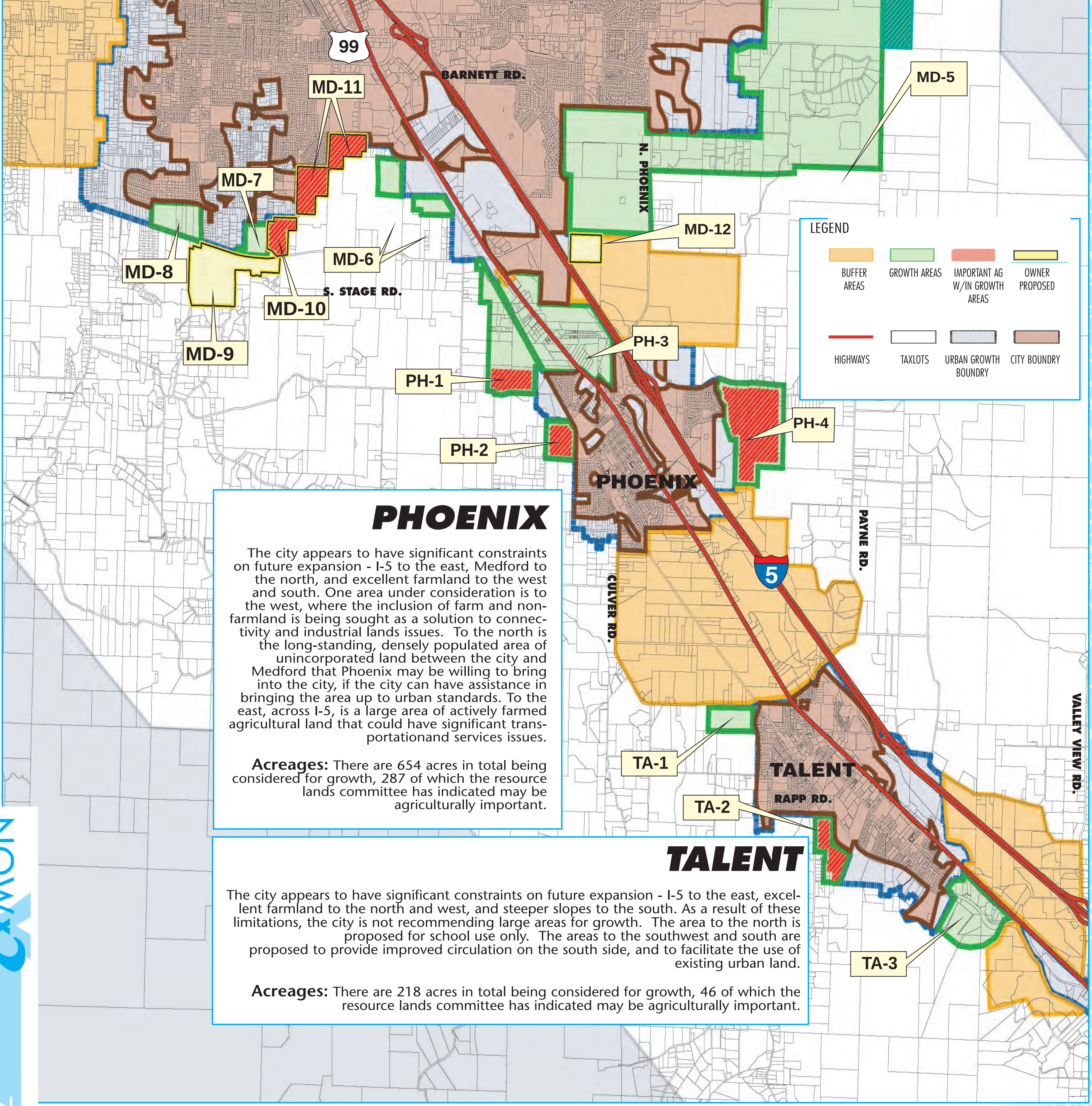
Who's been doing all this work? The role and makeup of all the committees working on NOWx2 is on page 7. ■

MEDFORD

The largest city in the study area also has the largest total amount of land being considered for future growth. Medford has two different categories of potential growth areas. The green areas have been reviewed by staff and city council, and are the most long-standing. The yellow are recent proposals made by landowners. Yellow areas have been reviewed by the resource lands committee, but have only had a cursory examination by city staff, and none at all by the council. Most growth would occur to the north and east - there are no proposals to extend growth into the extremely valuable farmland to the west. The possibility of improving the amount of employment potential in Medford, and the jobs/housing balance, is the focus of the growth proposed to the north and northeast. To the east a balance is being sought between viable agricultural land and urban issues. Parkland owned by Medford but located outside the city is being considered for eventual inclusion, but would remain as park. To the southeast, a large area is being looked at for residential and potential mixed-uses, as well as its implications for the potential for a new interchange at South Stage Rd.

Acreages: There are 3,420 acres in the longer standing potential growth areas (green), and 1,251 acres in recent owner-proposed areas (yellow), 391 acres of which the resource lands committee has indicated may be agriculturally important. There are also 1,919 total acres of parkland owned by Medford located outside of city boundaries (not proposed for development).





PHOENIX

The city appears to have significant constraints on future expansion - I-5 to the east, Medford to the north, and excellent farmland to the west and south. One area under consideration is to the west, where the inclusion of farm and non-farmland is being sought as a solution to connectivity and industrial lands issues. To the north is the long-standing, densely populated area of unincorporated land between the city and Medford that Phoenix may be willing to bring into the city, if the city can have assistance in bringing the area up to urban standards. To the east, across I-5, is a large area of actively farmed agricultural land that could have significant transportationand services issues.

Acreages: There are 654 acres in total being considered for growth, 287 of which the resource lands committee has indicated may be agriculturally important.

TALENT

The city appears to have significant constraints on future expansion - I-5 to the east, excellent farmland to the north and west, and steeper slopes to the south. As a result of these limitations, the city is not recommending large areas for growth. The area to the north is proposed for school use only. The areas to the southwest and south are proposed to provide improved circulation on the south side, and to facilitate the use of existing urban land.

Acreages: There are 218 acres in total being considered for growth, 46 of which the resource lands committee has indicated may be agriculturally important.

How is this project structured?

Committees and stakeholders have played important roles in the project.

How will decisions be made?

All work so far is in the form of recommendations - no final decisions have been made. Nonetheless, the time for decisions is approaching. Beginning in June, each city is expected to send its list of favored growth areas to the project's Policy Committee for deliberation. At roughly that same time, deliberations will also begin in the Policy Committee on a variety of other issues including the buffer areas, transportation routes, the management of the future growth areas, and on ways to settle conflicts that might arise between urban uses and farm operations. Eventually, the Policy Committee will make final decisions about what will and will not be included in the regional plan. If a city or the county cannot agree with the Policy Committee on a particular issue, it can independently pursue the matter with the state, but would have to do so outside of the RPS process.

State agencies (particularly the departments of Agriculture, Land Conservation and Development, and Transportation) will then review the plan, which will come back to the county and cities for public hearings. After the local hearings, the Land Conservation and Development Commission will consider giving the plan final approval. Once state and local approval occur, the plan actually becomes a contract between the state and the participating jurisdictions, with all parties agreeing to abide by its provisions. ■

CITY COUNCILS, COUNTY COMMISSIONERS, AND AGENCIES

↕

POLICY COMMITTEE

↕

PROJECT CITIZEN INVOLVMENT COMMITTEE ↔ **TECHNICAL ADVISORY COMMITTEE** ↔ **Resource Lands Review Committee**

City councils, county commissioners, and state agency officials The final decision makers for their jurisdictions. They have been involved in reviewing parts of the project, especially aspects that pertain to their communities, and will become more active as the project continues. Eventually, they will consider whether to adopt and implement project provisions coming out of the plan.

Policy Committee Elected officials from all participating jurisdictions, plus key state agencies. The Committee sets basic policy direction for the project, reviews all committee work, and will determine the content of the final regional plan.

Project Citizen Involvement Committee
Members of the general public in the study area, representing a mix of professions, interests, and geographic areas. The pCIC has concentrated on open space issues, especially on the identification of the community buffer areas.

Technical Advisory Committee Technical staff of the jurisdictions participating in the project. The TAC is responsible for the main body of work in the project, as well as the review of the products of the pCIC and RLRC. The TAC is the conduit of all work to the Policy Committee for comment and final approval.

Resource Lands Review Committee Required and governed by state law, membership was chosen by Jackson County Commissioners. The RLRC includes members of the public with expertise in agriculture and forestry, and representatives of several state agencies. Its job has been to study proposed growth areas, to recommend which areas should be in the commercial resource lands base (important farmland), and to recommend policies for buffers between urban land and farms.

Who can you talk to in your community?

Name	Jurisdiction	Phone Number	Email Address
Alan DeBoer, Mayor	Ashland	488-6002	awdb@aol.com
John McLaughlin, Planning Director	Ashland	488-5305	mclaughj@ashland.or.us
Ken Gerschler, Community Planner	Central Point	664-3321 ext. 293	keng@ci.central-point.or.us
Tom Humphrey, Planning Director	Central Point	664-3321 ext. 230	tomh@ci.central-point.or.us
Garey Walruff, Councilor	Eagle Point	826-4212	no e-mail address available
David Hussell, City Administrator	Eagle Point	826-4212	davidhussell@cityofeaglepoint.org
Jim Lewis, Mayor	Jacksonville	899-1231	jvillemayor@charter.net
Paul Wyntergreen, City Administrator	Jacksonville	899-1231	jvillepaul@charter.net
Lindsay Berryman, Mayor	Medford	774-2000	cnclmed@ci.medford.or.us
Mark Gallagher, Principal Planner	Medford	774-2382	mark.gallagher@ci.medford.or.us
Don Walker, City Administrator	Phoenix	535-1955	phoenixcityadm@aol.com
Jeannell Wyntergreen, Comprehensive Planner	Phoenix	535-2050	jwplanning@wave.net
Marian Telerski, Mayor	Talent	535-1566	telerski@internetcds.com
Kevin Cronin, City Planner	Talent	535-7401	kevin@cityoftalent.org
Sue Kupillas, Commissioner	Jackson County	774-6119	KupillSC@jacksoncounty.org
Raul Woerner, Planner III	Jackson County	774-6918	woernerg@jacksoncounty.org
Laura Hodnett, Public Information Coordinator	Medford Water Commission	774-2436	laurah@ci.medford.or.us
Chuck Root, Manager	Bear Creek Valley Sanitary Authority	779-4144	croot@bcvsa.org
Michael Cavallaro, Project Manager	Rogue Valley Council Of Governments	664-6676 ext. 203	mcavallaro@rvcog.org

On the web

A copy of this NOWx2 publication, complete with maps, is available on the Rogue Valley Council of Governments web site:

www.rvcog.org.

Also, more information about the Regional Problem Solving project is on our web site. Click on Greater Bear Creek Valley Regional Problem Solving.

Making Our Own Rules

NOWx2 is a Regional Problem Solving project. The Oregon Legislature set up Regional Problem Solving to help regions address land-use issues particular to a local area. Communities identify a problem, or set of problems, that state land use laws don't address, and then collaborate on a solution.

In the Greater Bear Creek Valley, issues stem from cities growing in close proximity to one another and to the region's best farmland. The Regional Problem Solving process gives the valley certain freedoms to find new ways to manage land and development.

For example, one state rule designed to protect farmland could have the opposite effect here. The rule says residential land in a rural area has a high priority to be developed into urban land. This rule protects farms in a place like the Willamette Valley, with large tracts of uninterrupted farmland. In Jackson County, however, we have a lot of residential land sprinkled out among some of our best and most productive farms and orchards. Strictly applying the state rule here in some cases would force cities to grow into farmland simply because there were concentrations of rural housing nearby. Meanwhile, less valuable resource land would have to remain undeveloped.

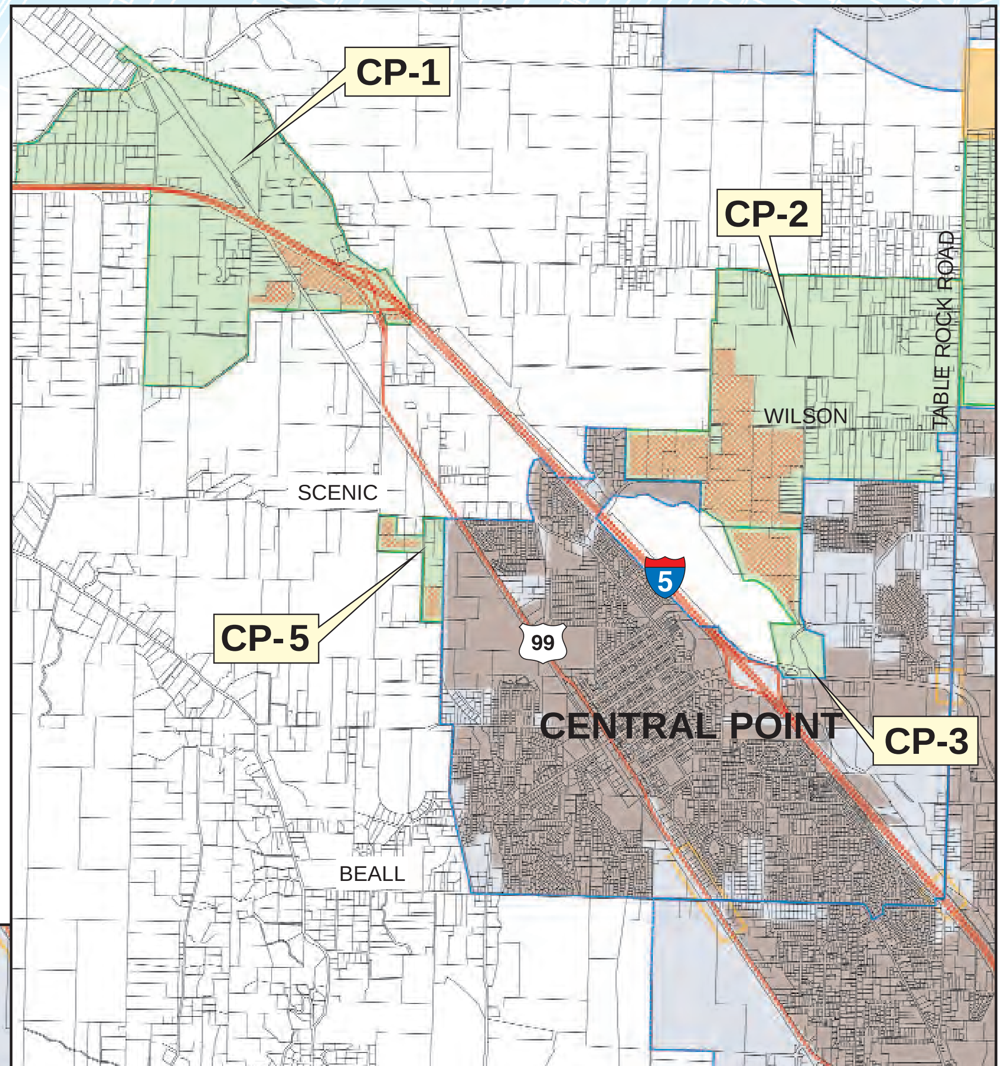
Regional Problem Solving allows us to say `No' to this kind of decision making, and devise rules that make sense here.

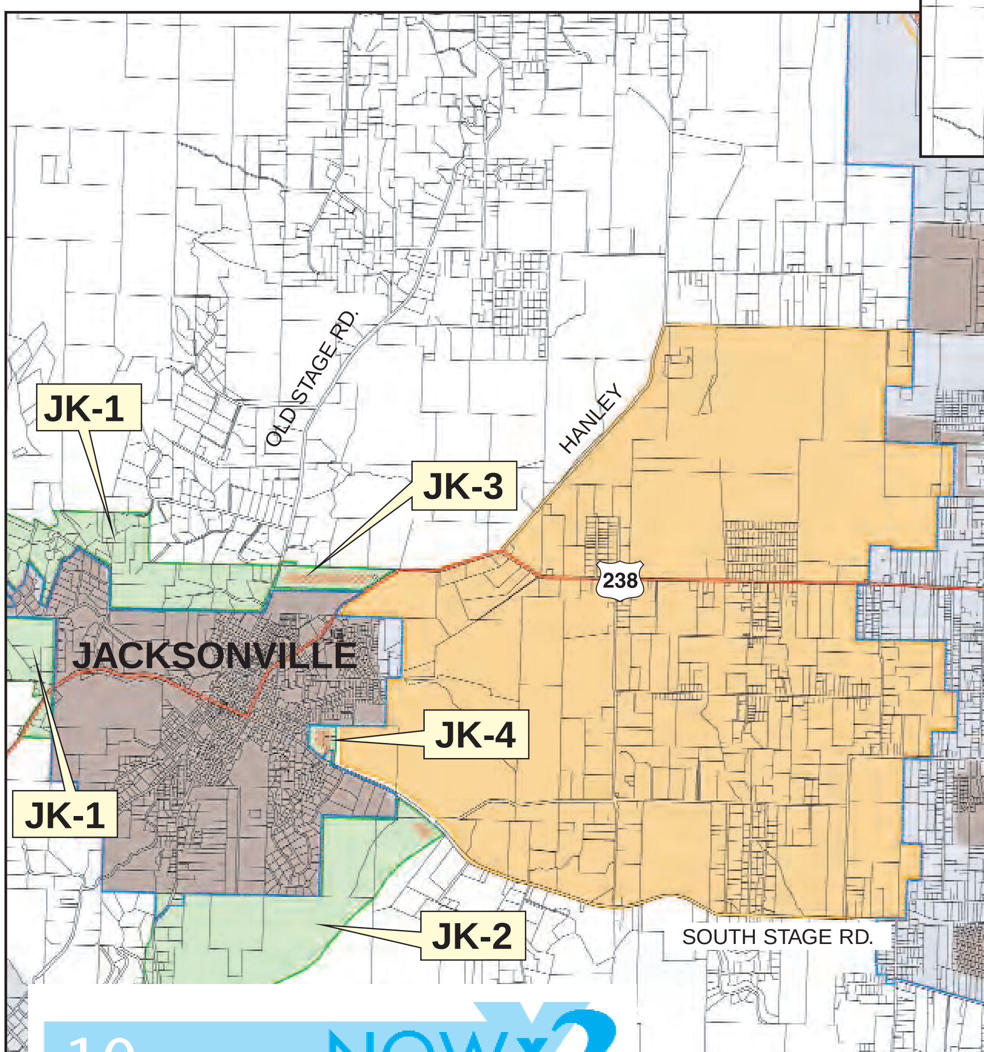
Clearly, our cities are giving up some of their autonomy if they come together under a regional plan. Yet by acting alone, individually, they may not be any more likely to solve all of their problems, much less avoid the impacts of decisions by their neighbors. In the end, autonomy lost by collaborating may actually be autonomy gained. ■

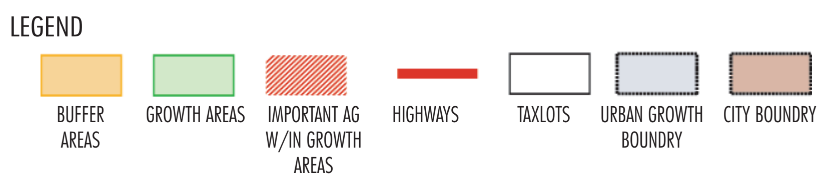
CENTRAL POINT

The city is constrained by Medford to the east and south, by excellent agricultural land to the west and north, and by vernal pools and a fairly densely settled area of rural residential land to the north. Although growth to the west and northwest is limited by the high quality farmland, there is a growth area to the northwest with poor-quality soil, beyond the quality agricultural areas, that is being considered. How this area could resolve the development pressure it might put on the intervening farmland, and how it might mitigate the transportation implications of its development, need to be considered. The other major growth area for the city could be to the north, although agricultural issues play a part there, too. The Expo and related county land are also factors in the remaining Central Point options being studied.

Acreages: There are 1,745 acres in total being considered for growth, 304 acres of which the resource lands committee has indicated may be agriculturally important.







JACKSONVILLE

The city continues to pursue a need to provide an alternate route around the city for heavy through traffic, while at the same time dealing with difficult terrain, some agricultural issues, the old dump site to the south, and a great deal of settled rural residential areas on its periphery. Development consistent with the city's special character will mean that new growth areas would probably be, on average, of lesser density than other communities in the valley.

Acreages: There are 652 acres in total being considered for growth, 49 acres of which the resource lands committee has indicated may be agriculturally important.

When should you get involved?

In a word, Now. As you can see, NOW×2 has produced a lot of ideas and recommendations for preserving the flavor of the Greater Bear Creek Valley as communities grow. More than 100 people - citizens, elected officials, specialists of varied expertise - have participated on the project committees. More ideas, more voices will help to fine tune these ideas, tempering proposals with a greater understanding of what individuals and the larger community thinks is important. The names of project contacts are provided on page 9 so you can call or e-mail for information, and so you can find out dates and times of the meetings in your community. A six-month city review period is expected to begin in January. The public input cities receive willcertainly contribute to the outcome.

When will we know more about this review process?

We're working on a variety of ways to draw the public into the review process. Look for:

- Public displays in city halls and libraries;
- More work with local media to help get the word out;
- NOW×2 information packets at local gathering places (cafes, grocery stores, community centers);
- Wider distribution of the survey included in this newsletter;
- Public forums where people can ask questions of staff and elected officials;
- Presentations to community groups;
- Mailings (in utility bills, newsletters) to get the information out; and
- City council and planning commission meetings.

When will this project be finished?

That is the toughest question of all. Because of the significance of what the cities and the county are trying to do, it is more important that everyone feel comfortable with the plan than it is to meet an arbitrary deadline. Yet participants are committed to having a real and useful regional plan, not an unending planning process.

By next June, the Policy Committee should begin deliberations on the various plan elements, a process that probably will go into late winter or early spring 2004. The draft regional plan could be ready by late spring 2004, and approved by the participating jurisdictions by fall 2004. A state-approved plan may come back to us in early 2005. We are all working hard to make sure the product is worth the wait. ■

Survey Questions

1. Where do you live? What is your Zip Code? ____________ **In the County** ☐ **In the City of** ______________________________

2. After learning more about this project, how likely do you think it is that we can keep this valley livable and beautiful even with twice as many people as we have right now?
☐ **extremely** ☐ **very** ☐ **somewhat** ☐ **not very** ☐ **forget it** ☐ **no idea**

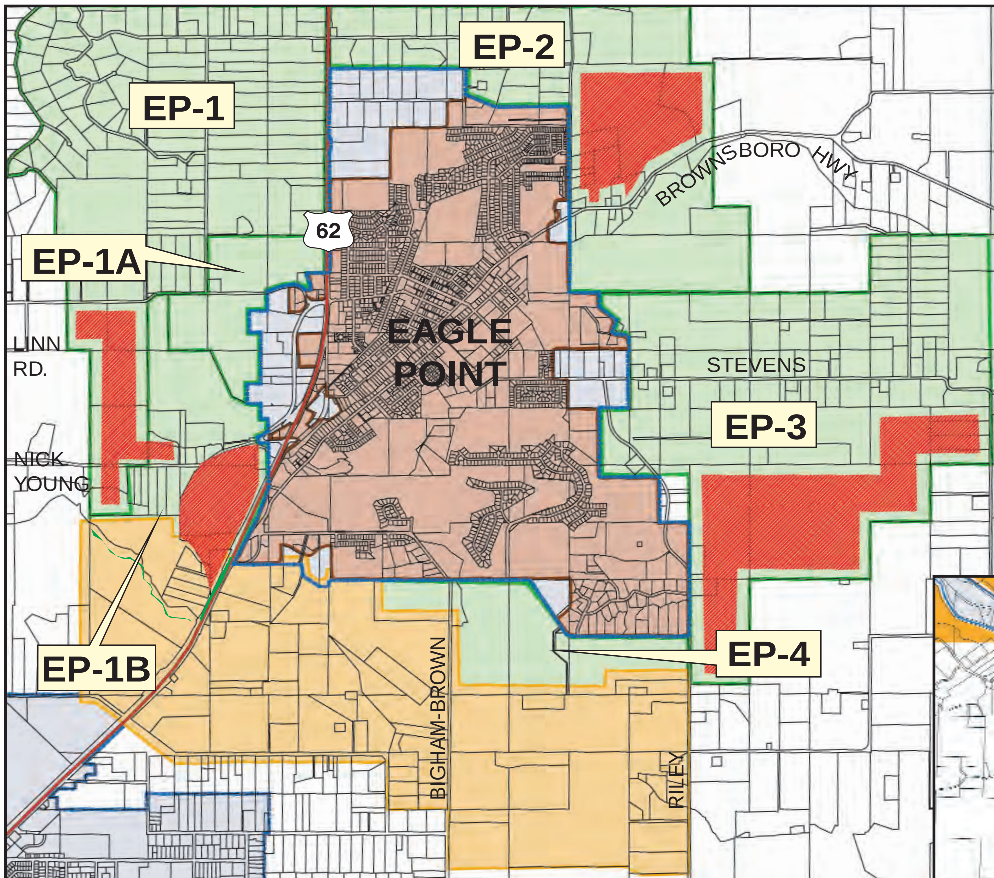
3. If your city (or the part of the county in which you live) had a choice of how much it grows in the future, what would you like to see?
☐ **fast growth** ☐ **moderate growth** ☐ **slow growth** ☐ **no growth** ☐ **don't care**

4. In planning for our valley's future, how important do you think it is to protect good agricultural land from being built on?
☐ **very important** ☐ **somewhat important** ☐ **not important** ☐ **don't care**

5. How important do you think it is to maintain a buffer of rural land between cities so they don't grow into each other?
☐ **very important** ☐ **somewhat important** ☐ **not important** ☐ **don't care**

6. If we're going to conserve farmland and open space, we may have to make the most of the land within our cities. How much of an increase in the use of smaller lots, duplexes, townhouses, and apartments within our cities would you be comfortable with to achieve this?
☐ **big increase** ☐ **moderate increase** ☐ **slight increase** ☐ **none** ☐ **too much already** ☐ **don't care**

Survey continued on back cover



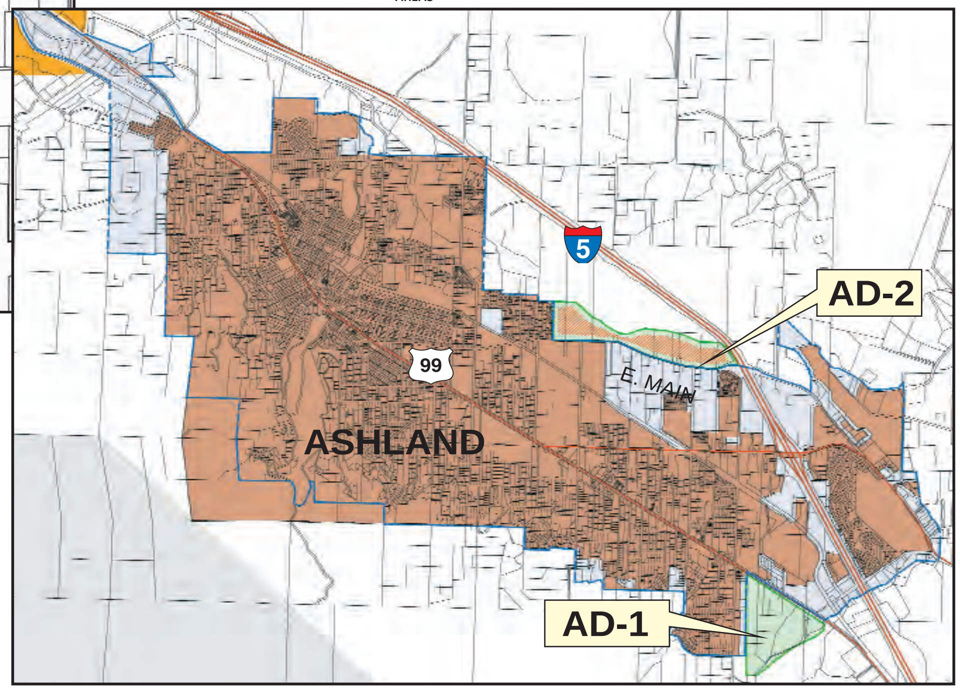
EAGLE POINT

Eagle Point has the highest percentage of growth areas compared to its present size, but has a number of potential issues with traffic, slopes, wetlands, and agricultural lands. Future growth to the west of Hwy. 62 may require expensive improvements to Hwy. 62; slope could be an issue to the west and east of the city; wetlands may restrict growth to the south; and agricultural land is primarily an issue to the northeast and southeast.

Acreages: There are 3,652 acres in total being considered for growth, 866 acres of which the resource lands committee has indicated may be agriculturally important.

LEGEND

BUFFER AREAS | GROWTH AREAS | IMPORTANT AG W/IN GROWTH AREAS | HIGHWAYS | TAXLOTS | URBAN GROWTH BOUNDRY | CITY BOUNDRY



ASHLAND

The city appears to have significant constraints on future expansion - I-5 to the east, Talent to the north, steep slopes to the south, and resource lands to the southeast. The area to the south may represent the farthest extension of the city in that direction. The other remaining area between the city and I-5 represents one of the last areas of buildable county land on the Ashland side of the highway.

Acreages: There are 187 acres in total being considered for growth, 96 of which the resource lands committee has indicated may be agriculturally important.

Please clip out and mail this completed survey

Survey Questions

continued from other side

7. How much would you be willing to spend a year in additional taxes to purchase important regional open space (including buffers)?

❑ **$200** ❑ **$150** ❑ **$100** ❑ **$50** ❑ **less than $50** ❑ **$0** ❑ **don't care**

8. Do you think that neighboring cities should plan cooperatively and share decision-making responsibilities on certain growth issues, even if it means that each city might not get exactly what it prefers?

❑ **yes** ❑ **maybe** ❑ **no** ❑ **don't care**

9. Do you think citizens have enough opportunity to get involved in planning for the future?

❑ **yes** ❑ **maybe** ❑ **no** ❑ **don't care**

10. Which of the potential growth areas from the maps seem to make the MOST sense to you? Please mark up to 6, using the coding for each growth area **(for example, EP-1)** (   ) (   ) (   ) (   ) (   ) (   )

11. Which of the potential growth areas from the maps seem to make the LEAST sense to you? Please mark up to 6, using the coding for each growth area **(for example, EP-1)** (   ) (   ) (   ) (   ) (   ) (   )

Please clip out and mail this completed survey in an envelope to this address, or include it with your sewer or water bill, or leave it at your city hall or the Jackson County Courthouse. Thank you.

RVCOG RPS Survey
PO BOX 3275
Central Point OR, 97502

APPENDIX II

COMMERCIAL AGRICULTURAL LAND BASE CRITERIA

Commercial Agricultural Land Base Criteria

FINAL Acknowledged Version (12/03)

The commercial agricultural land base (the base) is generally composed of lands zoned Exclusive Farm Use containing Class 1 to 4 soils within an irrigation district's zone of influence. Either whole parcels or portions of parcels may be included in the base. Any land zoned for resource use can be included in the base to protect the viability of agricultural lands determined to be part of the base.

In determining whether land is within the base or not, issues of land suitability for agriculture are more important than present profitability. Present profitability is often dependent on relatively transient factors which may not be good predictors of future profitability. The agricultural economy has historically experienced fluctuations in profitability due to shifts in consumer tastes and markets; rapid improvements in technology; changes in local, national, and international economic conditions; political considerations; and differences in management strategies.

The U.S. Natural Resource Conservation Service Soil Survey for Jackson County lists mapped soil types and specifies crops and practices that are "suitable" and "very suitable" on that soil. Information listed in the soil survey will be carefully considered when evaluating whether or not it is reasonable to expect that commercial agricultural production is possible on a particular property. The evaluation shall include choice of suitable crops, production methods, parcel size, shape, location and related factors.

Class 1 and 2 soils have fewer limitations to commercial crop production than Class 3 and 4 soils, although soils classes 1 thru 4 are assumed to be part of the base unless proven otherwise. Factors of negative suitability that limit the land's long-term productivity shall be considered in removing lands from the base. Negative factors of microclimate, lack of contiguity with other resource lands and small parcel size, and a history of conflict with adjoining homesites must be more severe to remove land composed of Class 1 and 2 soils from the base than they would be to cause removal of land of Class 3 and 4 soils.

<u>Factors of Negative Suitability</u>

A. One or more of the following factors of negative suitability shall be determinant in removing lands with Class 1 and 2 soils from the base:

1. Extreme microclimatic conditions
2. Significant lack of contiguity with other resource lands combined with a parcel's (or portion thereof) relatively small size
3. A history of severe urban-rural conflict impacting the farming operation
4. Seriously contaminated soils

B. One or more of the following factors of negative suitability shall be determinant in removing lands with Class 3 and 4 soils from the base:

1. Severe microclimatic conditions
2. Lack of contiguity with other resource lands combined with a parcel's (or portion thereof) relatively small size
3. A history of urban-rural conflict impacting the farming operation
4. Seriously contaminated soils

In addition to negative suitability factors, land with predominantly Class 3 and 4 soils may be excluded from the commercial resource base if the parcel's value as an urbanized agricultural buffer protecting commercial resource land outweighs the value of it continuing as resource land.

APPENDIX III

REGIONAL AGRICULTURAL BUFFERING STANDARDS

Agricultural Buffering Standards – Establishing Effective Buffers Between Rural Agricultural and Urban Uses

Prepared by the

Resource Lands Review Committee (RLRC)

of the

Rogue Valley Regional Problem Solving process

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Agricultural Buffering Standards – Establishing Effective Buffers Between Rural Agricultural and Urban Uses

I – INTRODUCTION

Good quality rural agricultural land is a finite and steadily shrinking state and regional resource that must be conserved and managed for the long term. A crucial element of Oregon•s Statewide Planning Goals and Standards, developed out of Senate Bill 10 in 1969, is to "preserve and maintain rural agricultural lands• (Goal 3).   The Oregon Legislature subsequently adopted policies (ORS 215.243 and 215.700) to further define how to preserve "the maximum amount of the limited supply of rural agricultural land•, and the Department of Land Conservation and Development has developed numerous Administrative Rules in further support. Current state policies and law overwhelmingly mirror public opinion concerning rural agricultural land, with the most common reasons for preserving farmland having to do with its significant role in diversifying the regional economy, the important contribution it makes to the area•s quality of life and culture, its ability to provide wildlife corridors, the protection it can provide to riparian areas, and even the temporizing effect it can have on the local microclimate.

One unintended consequence of the clear demarcation between rural and urban uses created by the statewide land use system in Oregon is the conflict often created by the sharpness of the transition from many urban uses to farming practices. Chemical spray drift, noise, dust, odor, and chemical run-off from the rural agricultural side affect new urban residents, and sediment, stormwater run-off, residential chemical spray drift, trespass, and vandalism impact the rural agricultural side. The closer the two uses are to each other, the more dramatic and long-term the problems are likely to be.

The most effective means of lessening the potential for conflict is separating the two uses. Although there are a variety of ways in which to achieve this separation, the most elemental is distance. The greater the distance, the greater the buffering effect. Unfortunately, land is at a premium in the Rogue Valley, and this region does not have the luxury of setting aside 1,000 feet or more of buildable urban land to mitigate potential conflicts between urban and rural uses. Therefore, buffer areas that are practical for this relatively narrow and densely populated valley will not totally eliminate all impacts of rural agricultural activities. The education of residents and farm operators, the employment of deed restrictions, siting requirements, construction standards, fencing, minimal separation distances, vegetative elements, and the use of best farming practices, including systems of spray notifications, are all useful mechanisms in avoiding as much conflict as possible.

II – PURPOSE

The purpose of establishing a regionally applicable set of standards for buffering urban development from rural agricultural lands is to provide consistent technical guidance on reducing the potential for conflict between farming activities and urban uses (principally residential and institutional development). This purpose is in accordance with the Planning Guidelines of Statewide Planning Goal 3 (Agricultural Lands), which states that *urban growth should be separated from rural agricultural lands by buffer or transitional areas of open space*. The standards in this document are intended to assist local governments, developers, landholders, and consultants in arriving at the best buffering solution for urbanizing areas in juxtaposition to rural agricultural land.

III – OBJECTIVES

These buffering standards seek to achieve the following objectives:

1. To ensure the continued use of farmland for farm uses.
2. To minimize potential conflict by developing, where possible, a well-defined boundary between rural agricultural and urban uses. The best boundary will be one that provides a sound transition in both directions, from rural to urban and urban to rural.
3. To minimize the impacts of urban development on rural agricultural production activities and land resources.
4. To minimize the potential for complaints about rural agricultural activities from urbanized areas.

IV – WORKING PRINCIPLES

The buffering standards herein have been developed around the following considerations:

1. Adequate consideration of potential conflict between existing rural agricultural zoned lands and proposed urban levels of development is necessary during development assessment. **Significant conflict is assumed to be likely in all cases where urbanization is proposed within 500 feet of Class I - IV rural agricultural land. In addition, some lesser level of conflict is assumed possible within the next 500 feet from the urban/rural boundary.** Agricultural buffers that are appropriate to the realities of the region will not be successful in completely negating these potential conflicts, but can lessen their severity, frequency, and negative impact on both agriculture and urban quality of life.
2. Those individuals seeking to buy, rent, or lease urban properties within 1,000 of rural agricultural land should be informed in writing of the consequences of being located within a "rural agricultural impact zone."
3. Local or regional long-range planning should avoid, as far as is practicable, locating urban sensitive receptors, primarily residential development, in proximity to rural agricultural land. Where urban sensitive receptors must be located near rural agricultural land, buffering mechanisms should be used to minimize potential conflicts.
4. The central concept in buffering is adequate separation between conflicting uses. There are a number of strategies for achieving this separation through planning decisions and the use of planning controls:
   - A well-designed vegetative buffering element will reduce the amount of land required for an effective buffer.
   - Man-made or natural features should be incorporated in buffers whenever possible, such as infrastructure rights-of-way, roads, non-residential structures, watercourses, wetlands, ridge lines, rock outcrops, forested areas, and steep slopes.
   - A buffer area can provide public open spaces or purpose-designed buffer areas (public recreational/natural areas) if the location is appropriate for satisfying a portion of the community's open space needs, the use of the buffer area as public open space is compatible with adjoining uses, the buffer area is not the community's principle provider of recreational opportunities, and the impacts from the adjoining rural agricultural use do not overly restrict the planned recreational use of the open space.
   - Existing areas of rural residential zoning can provide the required buffering if and when the rural residential lots provide a minimum of 200 feet of separation between the urbanizing and rural agricultural land.
   - Existing small-acreage farms (5 acres or less) can provide the required buffering if and when the small acreage farms provide at least 200 feet of separation between the nearest farmable land (including animal enclosures) on the small-acreage farm land and the nearest planned urban sensitive receptor. The owners of these small-acreage farms must agree to the use of their property as a buffering mechanism.

- There is a publicly owned right of way that could be incorporated as part of the buffer.

5. It is unreasonable for new urban uses to require a modification of rural agricultural activities practiced according to recognized industry standards, especially if those modifications would hamper efficient rural agricultural operations. The existing use has precedence.
6. Buffering mechanisms should be provided/funded by the proponent of the urban development. The buffering mechanisms will be physically located entirely on the urbanized property, unless:
   - there is a publicly owned right of way that could be incorporated as part of the buffer; or
   - there is a naturally occurring area on the rural agricultural land that is permanently incapable of being farmed (rock formation, riparian area, etc.), is of sufficient depth, and is contiguous with the border of the urbanizing land or a publicly owned right of way; or
   - the proponent of development purchases from the farm owner an easement on agricultural land of the appropriate length and depth, and pays for the establishment of whatever vegetative buffer, fencing, or irrigation system that would have been required on the urbanizing land; or
   - title to the area providing the physical portion of the buffer is transferred to the farm being buffered. If a vegetative buffer is indicated, it is installed by the developer. Whether a vegetative buffer is installed or not, the buffer is henceforth the responsibility of the farmer, and must be maintained as a buffer as long as the property remains zoned for resource use.
7. The buffering mechanisms must be included in the development application and must be approved by the city **before or concurrent with** final approval for the development project.
8. The city is responsible for enforcing compliance with all matters pertaining to the implementation of planned and approved buffering plans. The city shall permit developers flexibility in scheduling the establishment of the approved buffering mechanisms due to factors such as water availability, weather, and general logistics, although the buffer plan shall establish a sequencing of buffer mechanism implementation that demonstrates completion prior to either final plat sign off or - for larger lot buffers and in the event no land division occurs - final building inspection.
9. Although flexibility in the nature and design of buffering mechanisms can be provided for in the event of significant localized circumstances, customized (flexed) buffer designs must be at least as effective as the buffering options established herein. Proposed flexed buffer designs must be clearly justified, with the burden of proof being on the proponent of urban development to show that the flexed buffer design will not reduce the intended level of protection.
10. Class I – IV rural agricultural land is presumed to be of "high potential impact" due to the fact that it can be and often is used for a wide variety of different rural agricultural uses, and because new and as yet unforeseen uses and practices are likely to surface in the future. Therefore, these rural agricultural lands are assumed to require buffering mechanisms that mitigate the most likely high impact rural agricultural land use, regardless of present use. The only exception to this would be those class I – IV rural agricultural lands that have a long and essentially unbroken history of rural agricultural inactivity. These, as well as all Class VI rural agricultural lands, would be considered of "low potential impact" (see *Element A - Chemical Spray Drift*).
11. To mitigate a reduction of overall residential densities resulting from urban land dedicated to buffering mechanisms, a city shall permit the proponent of urban development to maintain planned densities through lot size averaging, clustering, planned development criteria, or similar techniques. The objective is to maintain minimum density across the development.
12. Where conflicts already exist between rural agricultural and urban land uses, mechanisms including mediation, source controls, and public outreach are encouraged.

V – APPLICABILITY OF THE STANDARDS

Although these buffering standards were developed to be applied to urbanizing lands originally selected as urban reserve lands identified through the Regional Problem Solving process "NOW X 2", they can, at a city's discretion, also be applied to future urban growth boundary expansions into non-urban reserve lands, should changing conditions cause that to occur.

These standards can also be used by cities to buffer urban development occurring within already established urban growth boundaries from rural agricultural land outside the UGB (whether that rural land part of or not part of an Urban Reserve Area). The single greatest potential difficulty in applying these standards (which are generally more comprehensive than those presently in force in the region's cities) within existing UGBs is the possibility that there are single lots on the urbanizing side, not part of a larger development and less than 300 feet in depth, which could suffer disproportionately from the economic impacts of the buffer requirements. In those cases, depending on the width of the lot, a proportionate buffering distance should be determined. Jackson County's **Alternative Setback Reduction Rules** (Jackson County 2004 Land Development Code chapter 8, Section 8.5.3(F)) provide an example of how such a proportionate distance could be calculated. Flexibility of this type is only permissible when applied to parcels within UGBs established prior to January 1, 2006.

VI – BUFFER LONGEVITY

Depending on the location of the urbanization, whether it borders rural agricultural land that is either outside of the UGB but within an Urban Reserve, or wholly outside of an Urban Reserve, buffering mechanisms can be expected to have a shorter or longer useful life. There are two categories of buffers based solely on their projected longevities – **long-term and mid-term** buffers.

> **<u>Long-term Buffer</u>**: Buffers providing protection to rural agricultural lands outside of Urban Reserve Areas. The rural agricultural lands being buffered are resource lands not identified for future urbanization in any state-recognized plan, either regional or municipal.
>
> **<u>Mid-term Buffer</u>**: Buffers providing protection to rural agricultural lands within a city's Urban Reserve Area.

Long-term and mid-term buffers are closely related in their requirements, and both must be designed to preserve longer-term functionality. Nonetheless, because the rural agricultural land being protected by mid-term buffers is destined for conversion to urban uses within a distinct planning horizon, albeit a relatively long one, mid-term buffers must be designed for eventual conversion to urban uses. The specific buffering mechanism used in a mid-term buffer will depend on a number of factors: what is the most likely time period it will remain as a buffer; what are the important financial considerations affecting the proponent of development; and to what specific use will the buffer eventually be put once the rural agricultural land is urbanized – will the physical buffer eventually be converted to housing or to roads, or will it be used to provide a recreational use for the community?

For some mid-term buffers, ***the simplest yet most effective solution to providing the buffer may be to defer the development of an appropriate portion of the urbanizing land bordering rural agricultural land until such time as that rural agricultural land is made urbanizable through its eventual incorporation into the UGB and subsequent annexation.***

VII – MAJOR BUFFERING ELEMENTS

For the purposes of providing options for addressing the major potential sources of conflict between rural agricultural and urban lands, these sources of conflict have been grouped as follows:

> **Chemical Spray Drift** – Principally this is rural agricultural chemical use, but can also apply to careless homeowner use of agrochemicals. Separation between urban and rural agricultural uses is the preferred tool, employing either simple distance or a combination of distance and a vegetative buffer.
>
> **Noise** – Noise is an impact arising from rural agricultural operations. A reasonable level of

mitigation can be achieved through community design and construction standards for individual structures.

Sediment and Stormwater Run-off – These impacts arise from both the urban and agricultural sides, and can severely impact rural agricultural operations as well as urban health and livability. These negative impacts can be avoided or significantly reduced by appropriate erosion prevention and control measures during construction, and by an adequate stormwater master plan for the development that takes into account impacts from and on the adjoining rural agricultural land.

Trespass and Vandalism – Trespass and vandalism are considered by most farmers to be the most serious issue facing agricultural operations in proximity to urban areas. Climb-resistant fences and/or trespass-inhibiting shrubbery are means of reducing these impacts, as is placing the buffer into private ownership (the option of allowing larger urban lots with strict setback requirements).

Odor – One of the less important agriculture-related impacts in the Rogue Valley. Unless there are compelling, site specific reasons why this would be especially critical (such as the presence of a livestock feed lot), the occasional issues with odor should be sufficiently addressed by requiring that the owners, renters, and those leasing urban properties within 1,000 feet of rural agricultural land receive notice through an explicitly worded restrictive deed covenant of the negative impacts to which they will likely be exposed as a result of living within 1,000 feet of farm land (see Appendix 3).

Dust, Smoke, and Ash – Like odor, this grouping is one of the least important agriculture-related issues in the region, and, like odor, can addressed by the use of a restrictive deed covenant.

ELEMENT A – Chemical Spray Drift

Problem Overview

The off-target movement of rural agricultural chemicals can be a cause for concern to urban residents in proximity to farming areas based on fears of exposure, and/or due to associated odors. Currently there is no acceptable ambient air standard for rural agricultural chemical spray drift, which, along with noise and dust, is considered a common by-product of farming practices under Oregon's Right to Farm statute.

In Oregon, research and field trials have shown that spray drift from orchard airblast type sprayers over open ground can cover distances up to 500 feet, with most falling to earth within a 200 to 300 foot distance (less when applied under optimal conditions). Spray drift from tractor-mounted boom-type sprayers is usually significantly less. Although these Rogue Valley standards assume that farmers, as well as their employees and contractors, will use rural agricultural chemicals in accordance with reasonable and practicable measures as set out in the EPA-approved label and pesticide regulations of the state of Oregon, chemical spray drift can and will be affected by a variety of factors:

chemical composition/formulation;
method of application/release height;
use of surfactants or other spray additives;
spray technology;
applicator experience;
frequency of application;
ability of target vegetation to capture spray droplets;
target structure;
weather conditions;
microclimate;
topography; and
natural and man-made landscape features.

Major Buffer Design Considerations

There are several major considerations affecting the design of buffers meant to mitigate chemical spray drift:

- Whether the adjoining agricultural land qualifies as "high potential impact" or "low potential impact";
- Whether the buffer will incorporate a vegetative element or not; and
- If a vegetative element is included in the buffer, whether it is designed to buffer "existing higher intensity" or "existing lower intensity" agricultural land.

Differing Levels of Potential Impact - The majority of the Class I – IV rural agricultural land to be buffered is considered to be of "high potential impact" due to the fact that it can be and often is used for a wide variety of different rural agricultural uses, and because new and as yet unforeseen uses and practices are likely to surface in the future. Nonetheless, there is a recognition that some rural agricultural land, by virtue of suitability and history, is of comparatively "low potential impact". The standards for buffering these rural agricultural lands are lower, based primarily on the reduced impacts of the rural agricultural practices on these lands – 50 to 100 feet of separation between usable farmland and sensitive receptors, no vegetative buffers required, and just 50 feet of separation for commercial and industrial uses, also without a requirement of vegetative buffers.

When is Rural Agricultural Land Considered of "Low Potential Impact"?

Rural agricultural lands can be considered of low potential impact if they:

1) are composed of greater than 50% Class IV soils, can demonstrate an unbroken or essentially unbroken 25-year history of rural agricultural inactivity (fallow land), **and** which have one or more of the following (as determined by a certified soil scientist):
   - greater than 50% hydric soils;
   - greater than 50% shallow soils (surface to bedrock or permanent cemented hardpan) of less than 2 feet in depth.

OR

2) are composed of greater than 50% Class VI or worse soil.

OR

3) are outside of an irrigation district's zone of influence (defined as the area within an irrigation district's present boundary, as well as areas presently lying outside, which cannot be considered ineligible on reasonable technical grounds – as determined by the most appropriate irrigation district - for a future expansion of an existing irrigation district).

Buffers Without Vegetative Elements - Buffers without vegetative buffers rely on sheer distance to control spray drift. In general in the Rogue Valley, in open ground conditions (without a vegetative buffering element), minimally effective buffers between urban sensitive receptors and high potential impact rural farmland should separate the two uses by between 100 and 200 feet For non-sensitive receptors (commercial, professional, and industrial), that distance can be between 50 and 100 feet While more land is necessary for a buffer without a vegetative element than for a buffer with one, the cost and complications associated with vegetative buffers, plus the long-term maintenance, can be avoided. Additionally, future urbanization is simplified.

There is flexibility in what can be included in a buffer to satisfy the required linear distances. For non-vegetative buffers, distance can be achieved by including one or more of the following components:

- Developable land devoted to buffering use;
- Man-made or natural features, such as infrastructure rights-of-way, roads, non-residential structures, watercourses, wetlands, ridge lines, rock outcrops, forested areas, and steep slopes;
- Non-farmable areas of the farmland being buffered (including yards, storage areas, roads, and all structures);
- Publicly owned land without significant present or projected public use (as determined by the public entity owning the land);
- Existing developed rural residential, rural commercial, or rural industrial parcels, within the urban reserve, and of at least 200' in depth as measured from a shared property line with EFU-zoned land (these parcels to be used for buffering, if contiguous with the urban reserve/rural border, must be at least 300 feet in depth to ensure future developability);
- A purchased easement (at least 200 feet in depth) on agricultural land;
- A portion (at least 200 feet in depth) of the proponent of development's land temporarily withheld from development to provide a mid-term buffer. This temporarily withheld land (which could be zoned under any of the county's designations) would be eligible for development upon the annexation of the rural agricultural land it buffers;

Buffers With Vegetative Elements - Research and field trials have shown well-designed vegetative buffers can be effective in capturing up to 80% of pesticide spray drift from an application upwind of even a single row of appropriate species of trees. The better designed the planting, the better the protection, and the more likely the effectiveness of the planting would be able to withstand the damage or death of individual trees. Where a vegetative buffer element can be satisfactorily established and maintained, or where one exists that is of acceptable width, composition, density (or optical porosity), and location, a minimum total width of 75 feet to 100 feet for urban sensitive receptors, and 50 feet for commercial and industrial uses, will suffice.

A major advantage to the proponent of development in establishing a vegetative element is the ability to halve or more than halve the separation distance (50, 75, or 100 feet instead of 100 to 200 feet), which represents a savings to development. There can be further cost reductions in plant materials, labor, and material depending on whether the vegetative element is designed to buffer "existing higher intensity" or "existing lower intensity" agricultural land.

<u>Existing Higher Intensity</u>

Rural agricultural land would qualify for an "existing higher intensity buffer" if it includes existing plantings (or scheduled plantings within one year of projected buffer completion date, as determined by documented consultation with the owner/operator of the farming operation) of long-term crops with a height at maturity exceeding 4 feet In the Rogue Valley, these are primarily vineyards and orchards (fruit or nut trees), but may also include other higher intensity crops as determined by the local Extension Service or the Oregon Department of Agriculture.

Design Summary (see Sections A and B of Appendix 1 for full details):

Tree-based buffer – 3 rows

<u>Existing Lower Intensity</u>

Rural agricultural land would qualify for an "existing lower intensity buffer" if it includes fallow land, land of potential high impact presently being used for grazing, or crops of any type with a height at maturity below 4 feet In the Rogue Valley these are primarily row crops and hay fields, and all uses other than those falling under the definitions of "Existing Higher Intensity".

Design Summary (see Sections A and B of Appendix 1 for full details):

Tree-based buffer – 2 rows

While the presumption is that any rural agricultural lands of high potential impact could establish crops and institute practices of higher intensity in the future (such as orchards), and thus buffers appropriate for these lands must all eventually be capable of buffering higher intensity rural agricultural practices, present use is a good indicator of near-future practices. Existing higher intensity practices require a more robust buffer earlier than lower intensity uses, while buffers designed for initial lower intensity will suffice to serve less intense uses during their early development. At or near functional maturity, lower intensity buffers will also suffice to provide adequate mitigation of spray drift from higher intensity uses (should those eventually occur).

The primary advantage in allowing these initial differences in buffer design is a reduction in short-term (and some long-term) costs. In tree-based buffers, it is a reduction of one row of trees, from three rows in the higher intensity buffer to two rows in the lower intensity buffer (although spacing between trees is reduced slightly in the two-row buffer).

For tree-based vegetative elements of buffers of any intensity, the requirements can be partially or fully satisfied by existing areas of trees and brush, as long as their buffering effect is essentially the same as that intended by the requirements in Appendix 1. If the characteristics of the existing vegetation do not meet the requirements in Sections A – D of Appendix 1, and so cannot substitute in full or in part for an adequate vegetative buffer, then the area can either be incorporated into the buffer design at half its "value" (for example, a 20 feet wide riparian area would be calculated as 10 feet of vegetative buffer), or it can be left out of the vegetative element and calculated at its original width (20 feet of existing vegetation would be considered as 20 feet of bare land).

Due to the fact that structures, solid walls, and other impermeable or very dense objects force air flow around or over themselves, these are not considered substitutes for vegetative buffer elements – in fact, depending on their location and characteristics, their effects may actually be counterproductive.

In all cases, and under all conditions, the vegetative buffer must be designed, installed, and signed off on by licensed or certified professionals such as landscape architects, landscape contractors, arborists, irrigations systems contractors, and reforestation experts. Each buffer should be designed with consideration for the unique characteristics of each site, especially aspect, existing vegetation, soil quality and depth, topography, adjacent land uses, and the microclimate. Also important will be the local availability of plant materials and the use of native plants.

Element A – Chemical spray drift

Objective: To locate new urban development so that the impact of rural agricultural chemical spray drift on health and amenity is avoided and complaints from residents regarding the use of rural agricultural chemicals is minimized.

Performance Criteria: Urban development to be located or incorporate measures such that chemical spray drift does not adversely affect community public health and safety, and does not lead to significant levels of complaints concerning adjacent rural agricultural operations.

Solution Options

HIGH Potential Impact Agricultural Land
SENSITIVE Receptors

(1) 100 feet of separation between the outermost urban sensitive receptor and the nearest farmable rural agricultural land, with an adequate tree-based vegetative buffering element. The buffer must incorporate the criteria in Appendix 1**,** with the appropriate design keyed to the adjoining present use – *higher* or *lower intensity*. The vegetative element must be located between the urban sensitive receptors and adjacent rural agricultural land, preferably closer to the spray source than the receptor. The buffer can include or be entirely composed of rural agricultural land on which an easement has been purchased, and on which no agricultural activity that could lead to complaints from adjoining urban uses would be allowed.

The buffer must be:

— provided with a suitable watering system;
— composed of plant species that will not harbor pests or diseases damaging to the local agriculture (Appendix 1, the Extension Service, or the Oregon Departments of Agriculture or Forestry are the primary sources of information for determining this);
— acceptable to the owners of the adjoining rural agricultural land;
— provided with a legally enforceable long-term maintenance plan; and
— composed of native or locally acclimatized plants to the extent practicable.

or:

(3) 200 feet of separation between the outermost urban sensitive receptor and the nearest farmable rural agricultural land without the presence of an adequate vegetative buffering element. The buffer can include or be entirely composed of rural agricultural land on which an easement has been purchased, and on which no agricultural activity that could lead to complaints from adjoining urban uses would be allowed.

or:

(4) 100 feet of separation with a vegetative buffer between the outermost sensitive receptor and the nearest farmable rural agricultural land through setbacks on larger individual urban lots adjoining the

Urban Reserve Boundary where buffering is anticipated to be long-term. Lots should be designed to provide the appropriate separation, while allowing sufficient area available for normal residential use, and shall be possible only if their use will not cause the development's average density to drop below the zone's minimum. Additionally, this option shall be subject to the following:

- A minimum building setback of 100 feet from the agricultural land, within which structures such as living quarters, decks, patios, gazebos, carports, pools or children's play areas cannot be located. Fences may be located within this area, as may garages or storage outbuildings, provided they do not include workshop or living spaces.
- Except for fences and garden-related apparatus, no structures shall be located within 50 feet of the adjacent agricultural land. This area shall otherwise contain only a vegetative buffer of trees that meets the density and size requirements for *lower intensity* specified in Appendix 1. The buffer must be composed of plant species that will not harbor pests or diseases damaging to the local agriculture (Appendix 1, the Extension Service, or the Oregon Departments of Agriculture or Forestry are the primary sources of information for determining this), and must be provided with a suitable watering system. To the extent practicable, the buffer should be composed of native or locally acclimatized plants. Maintenance of the vegetative buffer is the responsibility of the urban property owner.
- The vegetated buffer shall be planted no later than the final inspection.
- An adequate watering system shall be installed no later than the final inspection.
- A fence with a minimum height of six feet and meeting the minimum specifications in Section G of Appendix 1 shall be constructed along the property line separating the urban and rural properties. The fence shall be constructed prior to final inspection. Maintenance of the fence is the responsibility of the urban property owner.
- The larger lots must be part of a development large enough that the loss in density can be compensated for in another portion of the development. In no circumstances shall the larger lot buffers cause the overall density of the development to fall below the minimum zone density.
- At the time of subdivision, restrictive covenants and/or plat notes shall provide notice of the above setbacks and buffering requirements through a statement similar to the following: "Lots _______ adjoin an Urban Reserve Boundary, separating urban and agricultural land. In order to preserve and protect the viability of the adjacent agricultural land, these lots are subject to additional restrictions as follows:…(reference to restrictions if a plat note or actual restrictions here if in covenants)…" Covenants shall also include the following: "These provisions are regulations of the City of _________, who may take enforcement action relative thereto. They may be modified or eliminated only through the recording of document(s) signed by appropriate representatives of the City of _________ and Jackson County. Modifications may occur only if appropriate to reflect changed regulations of the city, and termination shall take place only if the subject lots no longer adjoin agricultural land."

HIGH Potential Impact Agricultural Land
NON-SENSITIVE Receptors

(1) 50 feet of separation between the outermost urban industrial or commercial structure or area of regular concentrations of individuals on industrially or commercially zoned land and the nearest farmable rural agricultural land. A vegetative buffer designed for lower intensity use must be included within the buffer. The buffer can include or be entirely composed of rural agricultural land on which an easement has been purchased, and on which no agricultural activity that could lead to complaints from adjoining urban uses would be allowed. The buffer must incorporate the criteria in Appendix 1, and must be:

— provided with a suitable watering system;
— composed of plant species that will not harbor pests or diseases damaging to the local agriculture (Appendix 1, the Extension Service, or the Oregon Departments of Agriculture or Forestry should be the primary sources of information for determining this);
— acceptable to the owners of the adjoining rural agricultural land;
— provided with a legally enforceable long-term maintenance plan; and
— composed of native or locally acclimatized plants to the extent practicable.

or:

(2) 100 feet of separation between the outermost urban industrial or commercial structure or area of regular concentrations of individuals on industrially or commercially zoned land and the nearest farmable

rural agricultural land. The buffer can include or be entirely composed of rural agricultural land on which an easement has been purchased, and on which no agricultural activity that could lead to complaints from adjoining urban uses would be allowed.

LOW Potential Impact Agricultural Land
SENSITIVE Receptors

(1) 100 feet of separation between the outermost urban sensitive receptor and the nearest portion of low potential impact land suitable for any rural agricultural use. The buffer can include or be entirely composed of rural agricultural land on which an easement has been purchased, and on which no agricultural activity that could lead to complaints from adjoining urban uses would be allowed.

or:

(2) 50 feet of separation between the outermost urban sensitive receptor and the nearest portion of low potential impact land suitable for any rural agricultural use through setbacks on larger individual lots immediately adjacent to the rural farmland being buffered. The lots must be of sufficient size to allow a minimum setback of 50 feet, within which structures such as living quarters, decks, patios, gazebos, carports, pools or children's play areas cannot be located. Fences may be located within this area, as may garages or storage outbuildings, provided they do not include workshop or living spaces.

LOW Potential Impact Agricultural Land
NON-SENSITIVE Receptors

(3) 50 feet of separation between the outermost urban industrial or commercial structure or area of regular concentrations of individuals on industrially or commercially zoned land and the nearest portion of low potential impact land suitable for any rural agricultural use. The buffer can include or be entirely composed of rural agricultural land on which an easement has been purchased, and on which no agricultural activity that could lead to complaints from adjoining urban uses would be allowed.

ELEMENT B – Noise

Problem Overview

There are several sources of noise generally associated with rural agricultural activity in the Rogue Valley that may lead to land use conflict. These are noises associated with intensive livestock facilities, constant or very long-term noise from fixed installations (e.g. pumps, refrigeration and processing plants), and occasional or intermittent noise from tractors, wind-generating frost control equipment, spray equipment, and other machinery. Of these, the most important are occasional or intermittent noises from wind machines, tractors, and spray equipment (especially airblast sprayers).

The recommendations that follow are designed to mitigate the most serious noise impacts, but will not fully resolve the issue. Noise from rural agricultural activities, especially the relatively occasional noise from wind machines, tractors, and spray equipment are part of the reality of rural life. Individuals choosing to live in proximity to rural agricultural land must understand that this proximity exposes them to inconveniences that are endemic to the area in which they have chosen to live.

Many noise-generating activities associated with agriculture are intermittent and may affect a particular adjacent residence for only a few hours several times a year (e.g. wind machines in orchards; bird cannons in berries or grapes). **However, it should be noted that many farm activities require operation of equipment in the evening or very early morning hours due to crop or livestock conditions or critical temperature and wind condition parameters that, despite the personal wishes of the farmer, effectively dictate the necessity and timing of such activities.** It should also be noted that the nighttime or very early morning operation of rural agricultural equipment on a given parcel can and will differ from year to year, depending on climatic conditions and the type of crop.

Due to the comparatively intensive settlement of the Rogue Valley, and the high level of urban intrusion into rural agricultural areas, the most effective and basic means of mitigating for noise—through separation distances that might have to measure in the several thousands of feet—is not feasible. On the other hand, noise from rural agricultural operations is one of the most controversial and polarizing issues within the residential/rural agricultural interface, and must be addressed as an issue in effective buffer designs. A reasonably effective, financially feasible means of buffering for noise in the Rogue Valley must be a compromise between cost and results.

Assumptions

One strategy in addressing the issue of noise is a strong, explicit restrictive deed covenant directed at the owners of urban land in proximity to rural agricultural land. As stated previously, individual urban land owners must be informed, in detail, of the range of impacts they will be exposed to living within 1,000 feet of rural farmland, with noise being one of the most potentially significant of these. This notification is critical because noise from rural agricultural operations cannot be cost-effectively mitigated to the degree that spray drift can, and therefore will likely remain a contentious issue in the future in some parts of the valley.

One major reality of cost-effective noise buffering is a focus on "interior noise exposure" as the measure of noise level acceptability, rather than a combination of interior and exterior and/or day and night noise levels. The control of interior noise levels is practical with the use of strategies such as structure orientation, construction standards, noise mitigating materials, the distribution of rooms within the house, the use of auxiliary structures such as garages to block sound, and the use of terrain and natural features to affect the intensity of sound that reaches and is transmitted through the structure. While it is true that some of these, such as the orientation of structures, and the use of terrain and natural features of the area can also mitigate exterior noise levels, the effect will probably not be as consistent across a property or in all situations.

The major reason that mitigating for exterior noise levels is not feasible is the cost-benefit of addressing rural agricultural noises that are intermittent at best, usually not exceeding 150 – 200 hours per year, and that are inherently and technically difficult to address. The few potential strategies to address exterior noise – distance, barriers, and reduction of source machine output - all present significant constraints to reasonable mitigation.

Relying on distance is not a viable option for much the same reason that it wasn't the mechanism of choice for spray drift – it's too land intensive. To achieve an exterior noise level of just a typical quiet daytime urban area would require approximately 1,500 feet It could take another 500 feet or more to reach the level of a quiet urban nighttime.

An alternative to distance in mitigating exterior noise levels would be a sound barrier of the type used alongside highways. Not only are the aesthetic drawbacks of such construction considerable (especially since most people locating on the urban fringes are doing so <u>because</u> of the attraction of the rural landscape), but the cost of such walls would be considerable. In addition, they are only effective if they interfere with the line of sight of receptor and source — taller buildings from the urban side, wind machines from the rural side, and significant slopes on either side would reduce the effectiveness of the barrier. Finally, because of its height and lack of permeability, a sound barrier could actually be counterproductive for spray drift mitigation.

The last major potential mechanism in noise mitigation would be the reduction of the source machines' output. To date, the only real effective means of mitigating noise source directly is the construction of a containment building, such as a pump house or a building for a generator, for fixed noise producers. Because the most significant agricultural noise producers are not small, fixed machines, but rather are large and fixed (such as a wind machine) or mobile (such as a tractor with or without spray equipment), the potential for direct noise mitigation is not significant.

The main advantage of using interior noise levels as a measure of adequate noise mitigation is the fact that the vast majority of complaints about rural agricultural noise occur when that noise is generated at night and in the early morning, between the hours of 10:00 PM and 6:00 AM, at which time potential complainants are invariably attempting to sleep. This means that the individuals to be buffered from the noise are usually in a controllable space that is relatively easily engineered. The main disadvantage of relying on interior noise levels is the human factor. For a noise mitigation strategy that incorporates a number of measures to reduce the total sound transmission into a living space to be effective, people must cooperate. Just one open window can defeat even the costliest noise mitigation measures. Nonetheless, it is a reasonable assumption that individuals with full knowledge that they are choosing to live in an area in which they will be exposed to certain noise levels on an intermittent basis (at any time of night and day), and who are provided with the means (such as their windows) to mitigate these occasional unacceptable levels of noise, should be expected to do so when it becomes necessary.

<u>Noise Levels and Buffering Strategies</u>

In all circumstances in which buffering from chemical spray drift is required, noise mitigation is recommended for urban sensitive receptors within the first 500 feet of the rural/urban boundary. These 500 feet are divided into four Noise Zones (see section F of Appendix 1 for details). Each Noise Zone specifies Sound Transmission Class (STC) ratings for the exterior envelope sufficient to mitigate agricultural noise to an approximate interior nighttime level of 45 dB(A). For all noise mitigating solution options, an agricultural noise source of 90 dB(A), of mid to higher frequencies, is used as the most likely higher-level rural agricultural noise. The agricultural noise source is assumed to be located

25 feet from the rural/urban boundary, and is assumed to have attenuated (lessened) to 90dB(A) at the urban/rural boundary. The use of this noise standard of 90 dB(A) compares favorably with readings conducted in the Rogue Valley on the most commonly complained-about noise producers—tractors, airblast sprayers, and wind machines.

Element B – Noise from rural agricultural activities

Objective: To mitigate the interior noise impacts of rural agricultural activities.

Performance Criteria: Sensitive receptors to be located or incorporate measures such that rural agricultural noise does not adversely affect community public health and safety, and does not lead to significant levels of complaints concerning adjacent rural agricultural operations.

Solution Options

HIGH or LOW Potential Impact Agricultural Land
SENSITIVE Receptors

(1) Construction and placement of urban sensitive receptors within 500 feet of the rural/urban boundary may, at the discretion of the builder or developer, comply with the following criteria for the acoustic design of the exterior building envelope and for the ventilating system and its parts (see details in Section E of Appendix 1).

Noise Zone 1	0 to 50 feet from rural/urban boundary	no new sensitive receptors
Noise Zone 2	51 to 175 feet from rural/urban boundary	exterior walls = STC-45 exterior windows = STC-38 exterior doors = STC-33 roof/ceiling assembly = STC-49 ventilation = see F2 in Appendix 1 for details
Noise Zone 3	176 to 375 feet from rural/urban boundary	exterior walls = STC-40 exterior windows = STC-33 exterior doors = STC-33 roof/ceiling assembly = STC-44 ventilation = see F2 in Appendix 1 for details
Noise Zone 4	376 to 500 feet from rural/urban boundary	exterior walls = STC-35 exterior windows = STC-28 exterior doors = STC-26 roof/ceiling assembly = STC-39 ventilation = see F2 in Appendix 1 for details

or:

(2) Design measures from a qualified acoustic consultant may be incorporated in community and individual structure design to achieve a sound transmission loss sufficient to reduce exterior noise levels to a maximum of 45 dB(A) within sensitive receptor structures. A standard agricultural noise source of 90dB(A) of mid to higher frequencies, measured at the rural/urban growth boundary, and originating 25 feet into the rural property, is assumed.

ELEMENT C – Sediment and Stormwater Run-off

Overview

Urban development affects land surface characteristics and the hydrological balance, with the impacts often occurring on farmland located lower in the landscape. The increase of impermeable surfaces and changes to drainage patterns can accelerate soil erosion, siltation and sedimentation; and increase the risk of flooding. Techniques to alleviate conflict due to downstream effects of residential development highlight suitable erosion, sediment, and stormwater control during the construction and operational stages of a development.

Buffering Considerations

Whenever possible, the 50 to 200 foot width of the spray drift buffers should be considered an important option for mitigating sediment and stormwater run-off. Options can include provisions for erosion controls during the construction and operation phases of the development, and permanent management of stormwater run-off. If the use of the buffer areas is not possible, all erosion control and permanent stormwater management must take place within the built portion of the development. **Ongoing maintenance and enforcement must be identified and incorporated into the conditions of approval prior to the start of construction.**

Element C – Sediment and stormwater run-off from development
Objective: To design new urban development so that the impact of run-off and sediment from urban development areas onto rural agricultural land is minimized. **Performance Criteria:** Urban development to be located or incorporate measures to minimize the impact of urban-derived sediment and storm water run-off onto rural agricultural land.
Solution **HIGH or LOW Potential Impact Agricultural Land** **SENSITIVE or NON-SENSITIVE Receptors** Urban development proposals to include the following: (1) Urban development proposals to include the following: an erosion control and prevention plan for the construction and operation phases of the development that meet current federal, state, and local standards, especially as concerns the conveyance of stormwater run-off from all hard surfaces (including roads, roofs, driveways etc.) to stable waterways, and measures such as water detention and retention implemented within the buffer area and/or the built area to reduce peak flow during runoff events to levels acceptable for the existing stream.

ELEMENT D – Trespass and Vandalism

Overview

One of the most damaging effects of urban proximity to farmland is the issue of trespass and vandalism. Trespass is important not just because it is the necessary precursor to vandalism, but because of the significant liability issues connected with the accidental exposure of trespassers to chemicals and the danger of heavy machinery. Vandalism itself may be the single most common reason given by many agriculturists with land adjacent to urban areas for claiming that their land is no longer agriculturally viable. Interestingly, vandalism is often highest in areas with elevated levels of complaints from nearby residents about noise and chemical spray.

Buffering Considerations

Although important in creating a physical separation between development and rural agricultural land, the width of the spray drift buffers themselves, even with a vegetative element, will not prevent trespass. In fact, without the inclusion of some element to frustrate trespass, buffers could be the object of vandalism themselves, thus potentially compromising their ability to appropriately mitigate spray drift. Unless there is a significant natural barrier to trespass incorporated into the buffer, such as a steep draw, a deep, permanent creek, a very dense, established stand of blackberries, a cliff, or something similar, a fence or other man-made barrier will have to be incorporated. As specified in Section G of Appendix 1, the recommended man-made barrier is a minimum 6 foot chain link fence designed to be difficult to scale. If the fence is to be added to a larger lot residential setback buffer, it may be of other materials, but must be of the same minimum height and must be climb resistant. With the residential setback buffers, the fence is to be established at the urban/rural property line; with all other non-vegetative, non-setback buffers the fence should be on the development/buffer boundary (or, if there is some community use of part of the buffer, then between the community use and the rest of the buffer), and with vegetative buffers, on the development side of the vegetative element (or, if there is some community use of part of the buffer, then between the community use and the rest of the buffer). See Section G of Appendix 1 for potential fence placements. In lieu of a fence, trespass-inhibiting shrubs may be planted. These shrubs would become part of the buffer, and would have to be established at the same time the buffer is.

Element D – Trespass and vandalism from urban development

Objective: To provide protection for rural agricultural land from trespass and vandalism.

Performance Criteria: Natural or man-made barriers to be incorporated in buffers to provide protection for rural agricultural land from trespass and vandalism originating from urban development.

Solution Options

HIGH or LOW Potential Impact Agricultural Land
SENSITIVE or NON-SENSITIVE Receptors

(1) Incorporate significant natural barriers in buffer areas;

or:

(2) Establish a minimum 6 foot climb-resistant fence of durable materials either on the rural/urban property line of residential setback buffers, on the buffer/development boundary of non-vegetative, non-setback lot buffers (or, if there is some community use of part of the buffer, then between the community use and the rest of the buffer), and with vegetative buffers, on the development side of the vegetative element (unless there is an agreed-upon need for access to the vegetative element from the development side). See Section G of Appendix 1 for details.

or:

(3) Establish a planting of trespass inhibiting shrubs. These shrubs can be incorporated in a vegetative element, or can be stand-alone. They must adhere to the criteria in Section G of Appendix 1**.**

ELEMENT E – Odor

Overview

Odor has been determined to be of lesser importance in the majority of cases in the Rogue Valley. Odor in rural areas can arise from use of rural agricultural chemical sprays, fertilizers, effluent disposal, intensive livestock operations, and composting plants. Such odors can have a negative impact on urban residential quality of life, but rarely have the potential to affect public health. Confined animal feeding operations (CAFOs) are subject to their own set of regulations.

Odor is often a major factor in many complaints about off-site chemical spray drift where there is actually no real toxic exposure. Some rural agricultural chemicals contain ♣markers♣ (strong odors) to allow easy identification, so it is these markers or mixing agents that are often detected at some distance from the target area and cause concern, even though in many instances only extremely low levels of the active ingredients may be present. Residents♣ association of the odor with the chemical is sufficient to raise fears of exposure.

Factors affecting complaints from odor are influenced by the frequency, intensity, duration and offensiveness of the odor. An objectionable odor may be tolerated if it occurs infrequently at a high intensity; however, a similar odor may not be tolerated at lower levels if it persists for a longer duration or more frequently. In addition, tolerance of rural agricultural odors is highly subjective and varies greatly among individuals.

Odor can be emitted from a variety of sources and is dispersed by the atmosphere, and typically seems worse during hot weather. Ground level concentrations of odor have been reported as being inversely related to wind speed and atmospheric conditions, i.e. the lower the wind speed and the more stable the conditions, the higher the concentration. The subjective nature of conflict resulting from exposure to odor makes the determination of design goals difficult. Unlike chemical spray drift that is in the form of liquid droplets, odors are in the form of gases and can thus travel and be detected at greater distances. Other than relying on the restrictive covenant, no feasible cost effective measures are available to the developing urban areas for mitigating most odor issues.

Element E – Odor

Objective: Odor as a by-product of rural agricultural operations will have a minimal negative effect on rural agricultural operations.

Performance Criteria: Awareness of the probability of rural agricultural operations causing odor, and of their right to do so under Oregon law, will be emphasized.

Solution

HIGH or LOW Potential Impact Agricultural Land
SENSITIVE or NON-SENSITIVE Receptors

(1) All urban properties within 1,000 feet of rural agricultural lands will have a restrictive covenant attached to their deeds clearly stating that urban residents in proximity to rural agricultural land will likely be exposed to a variety of odors from agricultural operations.

ELEMENT F – Dust, Smoke, and Ash

Overview

Dust, smoke, and ash, like odor, have been determined to be of lesser importance in the Rogue Valley. Although some rural agricultural activities, including cultivation prior to planting, tractor and transport movements, crop harvest, legal frost protection heaters, and prescribed fires for disease control can generate dust, smoke, and ash, this is considered to be of little importance as a rural/urban antagonist in the Rogue Valley. As with odor, above, the inclusion of the probability of exposure to dust, smoke, and ash in the restrictive covenant is considered sufficient mitigation.

Element F – Dust, smoke, and ash

Objective: Dust, smoke, and ash, as a by-product of rural agricultural operations will have a minimal negative effect on rural agricultural operations.

Performance Criteria: Awareness of the probability of rural agricultural operations causing dust, smoke, and ash, and of their right to do so under Oregon law, will be emphasized.

Solution

HIGH or LOW Potential Impact Agricultural Land
SENSITIVE or NON-SENSITIVE Receptors

(1) All urban properties within 1,000 feet of rural agricultural lands will have a restrictive covenant attached to their deeds clearly stating that urban residents in proximity to rural agricultural land will likely be exposed to dust, smoke, and ash from agricultural operations.

Buffering Design Criteria
Summary Tables

HIGH Potential Impact Agricultural Land

SENSITIVE Receptors (all residential uses, hotels, motels, schools, places of worship, medical centers, etc)

	CHEMICAL SPRAY DRIFT			TRESPASS AND VANDALISM	SEDIMENT / STORMWATER RUN-OFF	ODOR, DUST, SMOKE, & ASH
	tree-based buffer	larger lot tree-based buffer	non-vegetative buffer	fencing / shrubbery	erosion control and prevention plan	restrictive deed covenant
Option 1						
0 to 100 ft	✔			✔	✔	
101 to 175 ft					✔	✔
176 to 375 ft					✔	✔
376 to 500 ft					✔	✔
500 to 1000 ft						✔
Option 2						
0 to 100 ft		✔		✔	✔	✔
101 to 175 ft					✔	✔
176 to 375 ft					✔	✔
376 to 500 ft					✔	✔
500 to 1000 ft						✔
Option 3						
0 to 200 ft			✔	✔	✔	
201 to 375 ft					✔	✔
376 to 500 ft					✔	✔
500 to 1000 ft						✔

NOTES:

- The distances in this chart are linear distances from the rural/urban boundary, and assume that all buffering takes place on urbanizing land. If all or part of a buffer is located on rural land, distances will be measured from the beginning of the buffer, and not from the beginning of the boundary.
- Vegetative buffer elements will be maintained and protected through a variety of different agreements. If a restrictive covenant is used for this purpose, it would be in addition to the restrictive covenant used to mitigate odor, dust, smoke, & ash, chemical spray drift, and noise.
- Larger lot tree-based buffers are only allowed on urban lands adjacent to the outermost urban reserve boundary.

HIGH Potential Impact Agricultural Land
NON-SENSITIVE Receptors (commercial, industrial)

	CHEMICAL SPRAY DRIFT		TRESPASS AND VANDALISM	SEDIMENT / STORMWATER RUN-OFF	ODOR, DUST, SMOKE, & ASH
	tree based buffer	non-vegetative buffer	fencing / shrubbery	erosion control and prevention plan	restrictive deed covenant
Option 1					
0 to 50 ft	✔		✔	✔	
51 to 175 ft				✔	✔
176 to 375 ft				✔	✔
376 to 500 ft				✔	✔
501 to 1000 ft					✔
Option 2					
0 to 100 ft		✔	✔	✔	
101 to 175 ft				✔	✔
175 to 375 ft				✔	✔
376 to 500 ft				✔	✔
501 to 1000 ft					✔

NOTES:

- The distances in this chart are linear distances from the rural/urban boundary, and assume that all buffering takes place on urbanizing land. If all or part of a buffer is located on rural land, distances will be measured from the beginning of the buffer, and not from the beginning of the boundary.
- Vegetative buffer elements will be maintained and protected through a variety of different agreements. If a restrictive covenant is used for this purpose, it would be in addition to the restrictive covenant used to mitigate odor, dust, smoke, & ash, chemical spray drift, and noise.

LOW Potential Impact Agricultural Land
SENSITIVE Receptors (all residential uses, hotels, motels, schools, places of worship, medical centers, etc)

	CHEMICAL SPRAY DRIFT / TRESPASS AND VANDALISM		TRESPASS AND VANDALISM	SEDIMENT / STORMWATER RUN-OFF	ODOR, DUST, SMOKE, & ASH
	non-vegetative buffer	larger lot non-veg. buffer	fencing / shrubbery	erosion control and prevention plan	restrictive deed covenant
Option 1					
0 to 50 ft		✔	✔	✔	✔
51 to 175 ft				✔	✔
176 to 375 ft				✔	✔
376 to 500 ft				✔	✔
501 to 1000 ft					✔
Option 2					
0 to 100 ft	✔		✔	✔	
101 to 175 ft				✔	✔
175 to 375 ft				✔	✔
376 to 500 ft				✔	✔
501 to 1000 ft					✔

NOTES:
- The distances in this chart are linear distances from the rural/urban boundary, and assume that all buffering takes place on urbanizing land. If all or part of a buffer is located on rural land, distances will be measured from the beginning of the buffer, and not from the beginning of the boundary.
- Vegetative buffer elements will be maintained and protected through a variety of different agreements. If a restrictive covenant is used for this purpose, it would be in addition to the restrictive covenant used to mitigate odor, dust, smoke, & ash, chemical spray drift, and noise.
- Larger lot tree-based buffers are only allowed on urban lands adjacent to the outermost urban reserve boundary.

LOW Potential Impact Agricultural Land
NON-SENSITIVE Receptors (commercial, industrial)

	CHEMICAL SPRAY DRIFT / TRESPASS AND VANDALISM	TRESPASS AND VANDALISM	SEDIMENT / STORMWATER RUN-OFF	ODOR, DUST, SMOKE, & ASH
	non-vegetative buffer	fencing / shrubbery	erosion control and prevention plan	restrictive deed covenant
Option 1				
0 to 50 ft	✔	✔	✔	
51 to 175 ft			✔	✔
176 to 375 ft			✔	✔
376 to 500 ft			✔	✔
501 to 1000 ft				✔

NOTES:
- The distances in this chart are linear distances from the rural/urban boundary, and assume that all buffering takes place on urbanizing land. If all or part of a buffer is located on rural land, distances will be measured from the beginning of the buffer, and not from the beginning of the boundary.
- Vegetative buffer elements will be maintained and protected through a variety of different agreements. If a restrictive covenant is used for this purpose, it would be in addition to the restrictive covenant used to mitigate odor, dust, smoke, & ash, chemical spray drift, and noise.

VIII – DEVIATING FROM THE STANDARDS

Should the proponent of development elect to pursue a buffer design that proposes less linear separation or less of a vegetative element than specified in the minimally acceptable solutions, or that differs materially in other ways (other than increasing the linear distance or the amount of vegetative element) the buffer would be considered a "flexed" design.

When is a Buffer Design Not Considered Flexed?

A buffer design is not considered flexed when existing elements consistent with the purpose of the buffer are incorporated in the buffer.

For buffers without vegetative buffer elements, the requirements of linear distance can be achieved by elements such as the following:

- Man-made or natural features such as infrastructure rights-of-way, roads, non-residential structures, watercourses, wetlands, ridge lines, rock outcrops, forested areas, and steep slopes.;
- Non-farmable areas of the farmland being buffered (including yards, storage areas, roads, and all structures);
- Publicly owned land without consistent present or projected public use (as determined by the public entity owner):
- An easement on agricultural land purchased by the proponent of development;
- Rural residential, commercial, or industrial land without a significant history of complaints related to adjoining farm use, whose owners agree in writing to the use of their land as part of the required buffer area; and
- Other open areas (except undeveloped rural residential, commercial, or industrial parcels) that are considered appropriate to the purpose of the buffer.

For buffers with vegetative elements, the requirements can be partially or fully satisfied by existing areas of trees and brush, as long as their buffering effect is essentially the same as that intended by the requirements in Appendix 1. If the characteristics of the existing vegetation do not meet the requirements in Appendix 1, and cannot substitute in full or in part for an adequate vegetative buffer, then the area can either be incorporated into the buffer design at half its "value" (for example, a 20 foot wide riparian area would be calculated as 10 feet of vegetative buffer), or it can be left out of the vegetative element and calculated at its original width (20 feet of existing vegetation would be considered as 20 feet of bare land).

Whenever the proposed buffer design varies from the minimum buffering options described in these standards, the proponent of development is responsible for the preparation of a **Conflict Assessment and Mitigation Study (CAMS)**. **If no material variation is sought from the minimum buffering standards, the CAMS is not necessary**.

<u>What must be included in the CAMS?</u>

The CAMS must:

a. Determine the present and likely future agricultural land use activities with the potential of causing problems for adjacent urban development. The determination of likely agricultural practices should be based on factors such as soil type; topography; parcel size, shape, and location; infrastructure; microclimatic conditions; regional rural agricultural practices and crops; and the farming history of the parcel and surrounding similar parcels.

b. Determine how the proposed urban development will likely impact the management and operation of nearby farmlands. All owners of resource land within 1,000 feet of the land proposed for development will be interviewed, and full transcripts of those interviews will be attached to the CAMS.
c. Identify the elements that may cause conflict and the extent of the conflict, from both the urbanizing as well as from the rural agricultural. The elements should be quantified, where possible, in terms of frequency and duration of activities to determine the element's impacts. As part of this evaluation, the CAMS must consider the likely future uses determined in (a) above. The buffering mechanisms that are proposed must be sufficient to accommodate these potential future uses. NOTE: The current financial viability of a particular crop will not be considered an important limiting factor in determining potential future use.
d. Propose a set of buffering measures that will achieve acceptable buffering outcomes – these may include, but not be limited to, the siting of residences, size and geometry of lots, separation widths, communal open space, vegetation, natural landscape features, acoustic features, etc.
e. Propose the means by which the proposed buffering measures will be monitored and maintained. This should include responsibility for implementing and maintaining specific features of the buffer areas to ensure continued effectiveness. Acknowledgment of the authority responsible for ensuring compliance with any agreement will be plainly cited.
f. Establish a timeline for the development that establishes when the buffer will be installed. It shall be assumed that the buffer will be established prior to either final plat sign off or final building inspection (for larger lot buffers and in the event no land division occurs).

The CAMS must be prepared by appropriate experts under contract with the proponent of development, and upon completion of a final draft, must be submitted to the owners and operators of rural agricultural land within 1,000 feet of the boundary between the rural and proposed urban uses. These owners and operators will be given a month to provide input on the CAMS, and such input will be attached to the CAMS. All costs incurred in the preparation of the CAMS will be the responsibility of the proponent of development. The fee for the CAMS, paid to Jackson County, will be based on a cost-plus overhead calculation with the deposit equal to a Jackson County Type 3 land use application.

The draft CAMS must be reviewed and a recommendation forwarded to the appropriate city planning commission by the Agricultural Buffering Committee. The Agricultural Buffering Committee shall be considered an ad hoc advisory committee appointed by the Jackson County Board of Commissioners to the city planning commission in whose jurisdiction the development is proposed.

The Agricultural Buffering Committee

The Agricultural Buffering Committee may be made up of members having expertise in as many of the following fields as possible: *Soil Science; Agronomy; Dendrology and/or Forestry; Agrochemicals; Landscape Architecture; Animal Husbandry; Orchard Management; Horticulture; Farming; Ranching; and Parks and Recreation*. In addition, there shall be a permanent member of the Jackson County Planning Department or Planning Commission, and an open non-voting position to be filled on an as-needed basis by a member of the affected city's planning department or planning commission. The Committee shall elect co-chairs from the non-jurisdiction membership. Or, the Jackson County Board of Commissioners may choose to select an organization with agricultural expertise, such as the Oregon State University Extension Service to function as the Agricultural Buffering Committee. Staffing of the Agricultural Buffering Committee will be provided by Jackson County.

Should the Agricultural Buffering Committee, in the course of its review of the flexed buffer proposal, require expert assistance, the proponent of development will be notified of the cost of that technical assistance. The proponent of development may suggest an alternative to the identified technical assistance, but the Committee will make the final selection. If the proponent of development does not agree to the cost of the technical assistance, the flexed buffer design will receive a negative recommendation without any further analysis.

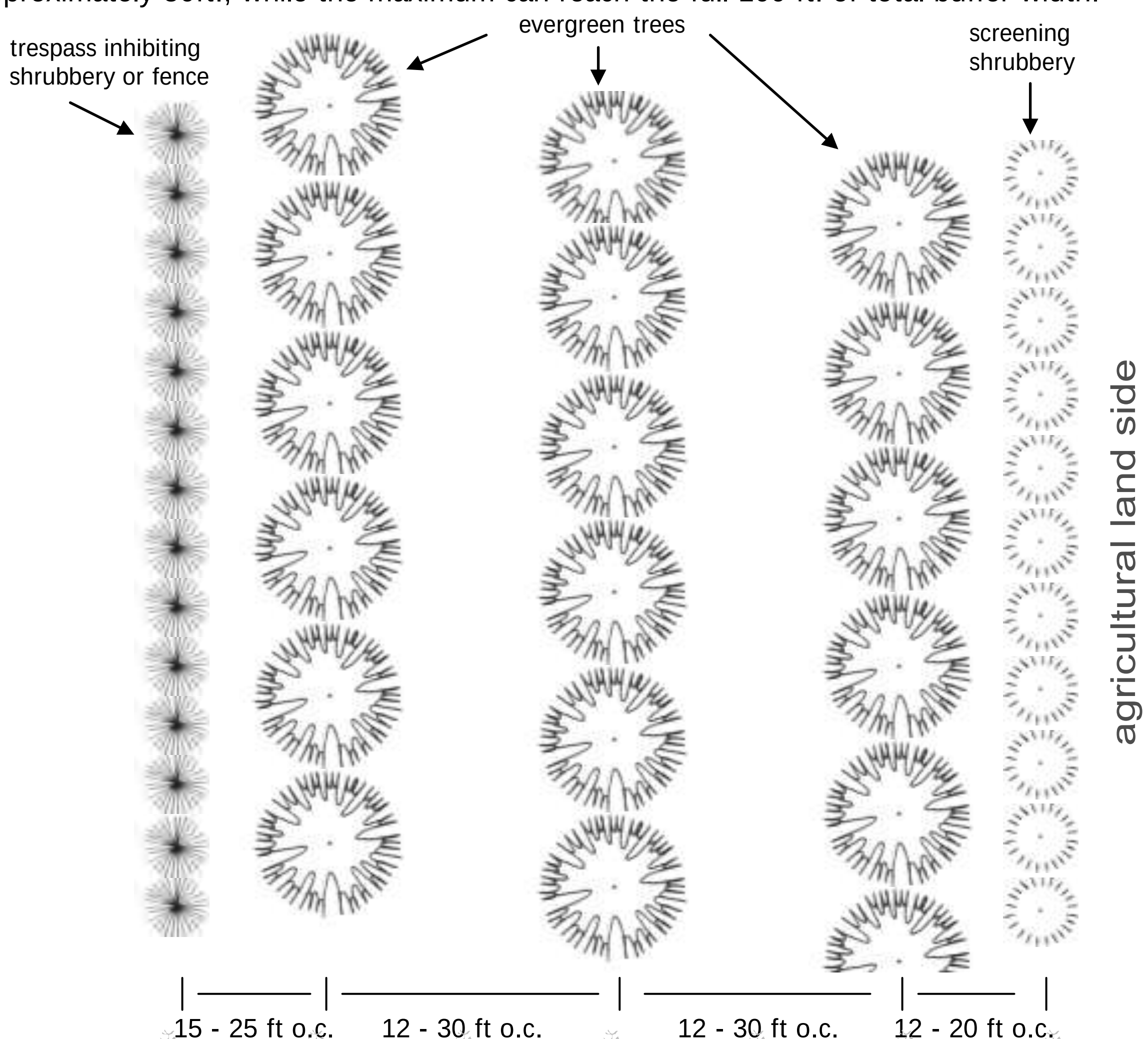
APPENDIX 1 – Spray Drift Buffer Criteria

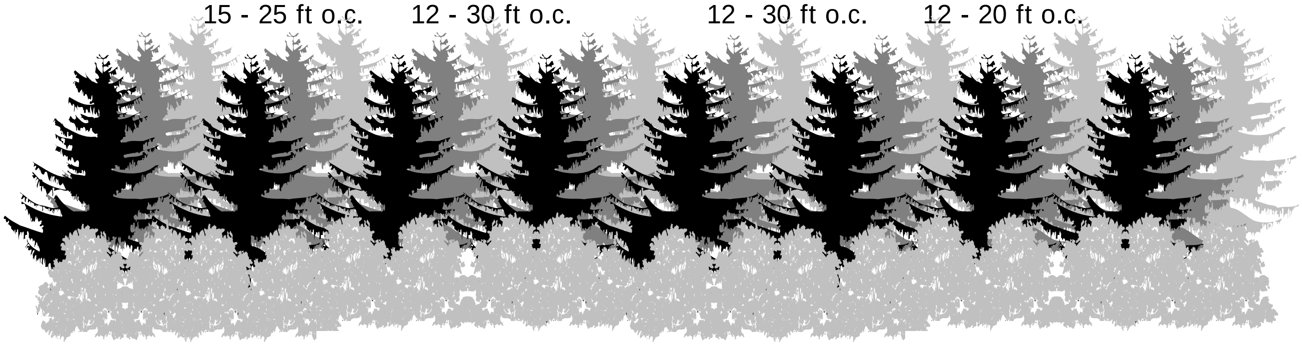
SECTION A — TREE BUFFERS

A1) BUFFER LAYOUT

Existing Higher Intensity Buffer

Depending on the tree and shrub species used, the minimum possible width of the planted portion is approximately 50ft., while the maximum can reach the full 100 ft. of total buffer width.

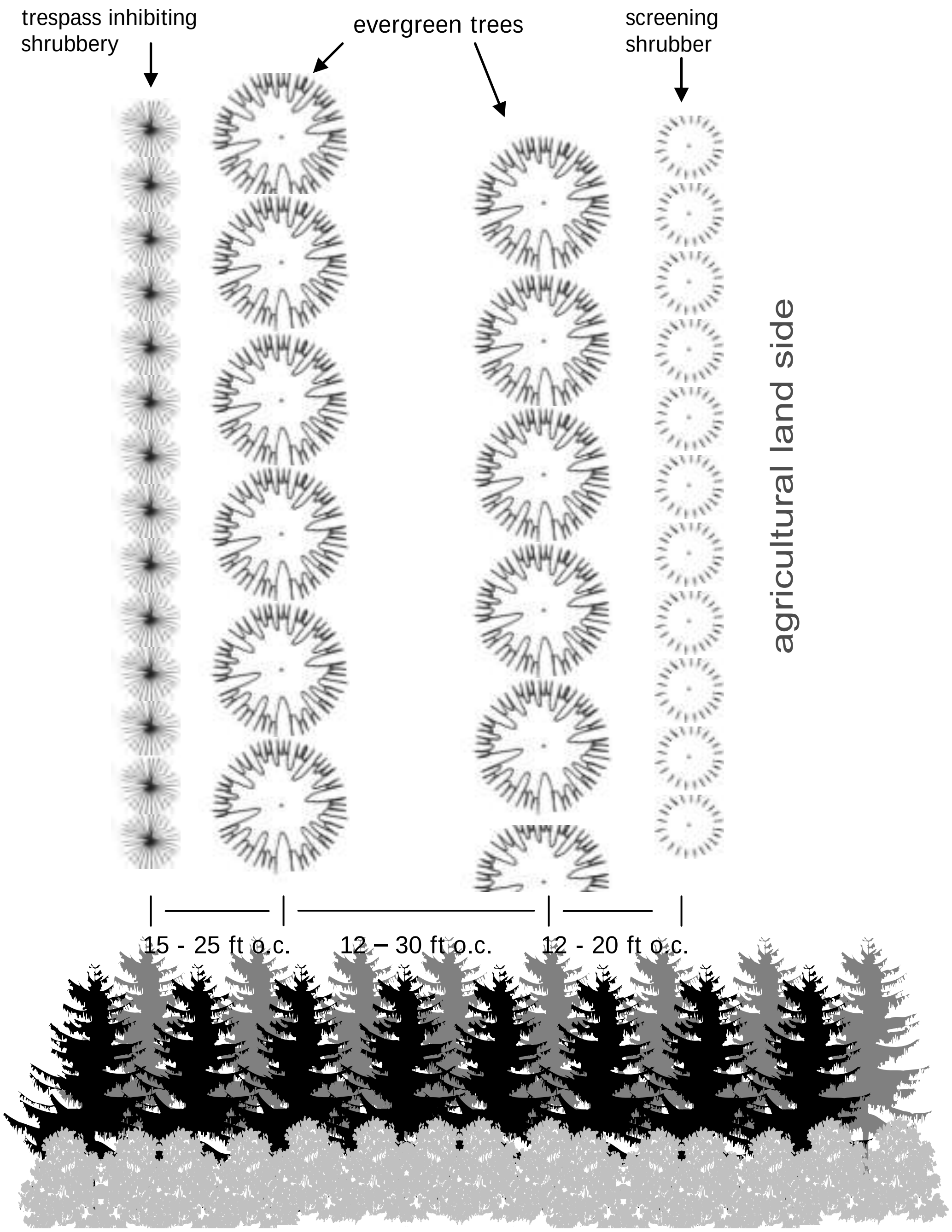




Buffer viewed from the agricultural side, screening shrubbery included.

Existing Lower Intensity Buffer

Depending on the composition of the buffer and the tree and shrub species used, minimum possible width of the planted portion is approximately 40ft., maximum is approximately 65 ft.



Buffer viewed from the agricultural side, screening shrubbery included.

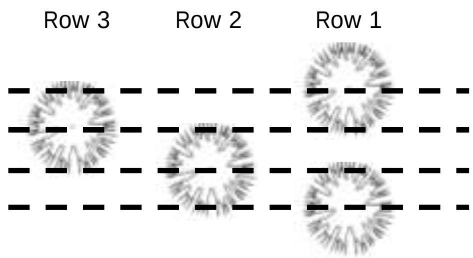
A2) SPACING AND NUMBER OF TREE ROWS

<u>Existing Higher Intensity Buffer</u>

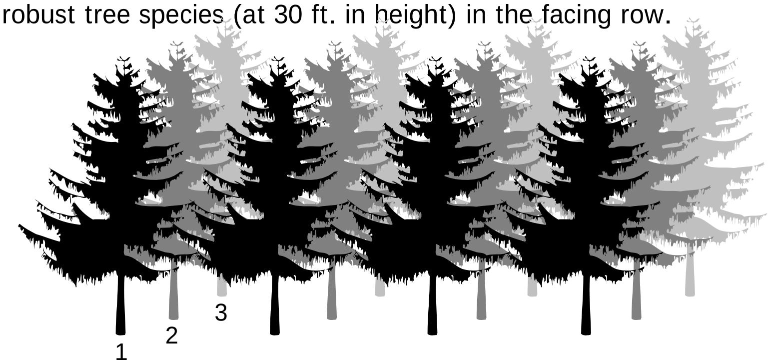
Three offset rows. To mitigate the effect of individual tree mortality as well as compensate for individual differences between trees, rows are offset to providing maximum overlapping between rows. Specific spacing between rows will depend on the species of trees being planted. Distance between rows (dr) at planting for all tree species is calculated by the following formula:

$$dr = \frac{(ts30' + ts30'')}{2} + 4 \text{ ft.}$$

where ts30' is widest spread in feet of the most robust tree species (at 30 ft. in height) in one row, and ts30" is the widest spread in feet of the most robust tree species (at 30 ft. in height) in the facing row.



Trees within rows are equidistant (see A3). Rows 2 and 3 are offset in thirds, using the spacing between trunks of trees in row 1 as a guide.



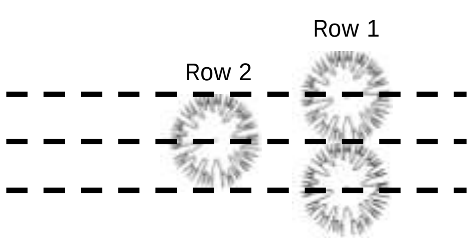
Buffer viewed from front. Screening shrubbery has not been included in this image so row spacing can be demonstrated.

<u>Existing Lower Intensity Buffer</u>

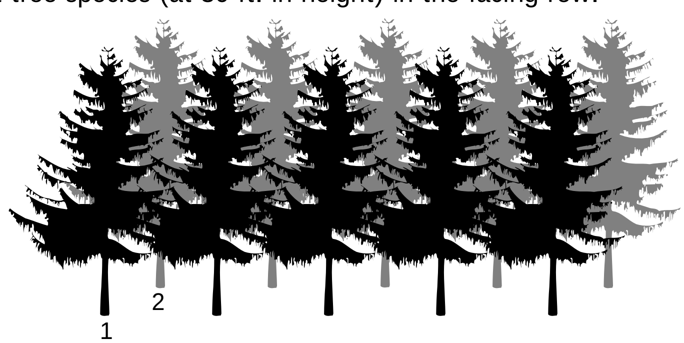
Two offset rows. Distance between rows (dr) at planting for all tree species is calculated by the following formula:

$$dr = \frac{(ts30' + ts30'')}{2} + 4 \text{ ft.}$$

where ts30' is widest spread in feet of the most robust tree species (at 30 ft. in height) in one row, and ts30" is the widest spread in feet of the most robust tree species (at 30 ft. in height) in the facing row.



Trees within rows are equidistant (see A3). The rows are exactly offset.



Buffer viewed from front. Screening shrubbery has not been included in this image so row spacing can be demonstrated.

A3) TREE SPACING WITHIN ROWS

Existing Higher Intensity Buffer

Specific spacing from tree to tree within a row will differ depending on the natural form of the species of tree used. The two relevant tree shapes of the recommended evergreens are either a narrow pyramid (such as Atlas Cedar) or a broad pyramid (such as Norway spruce).

Narrow Pyramid Trees

Distance between trees at planting (dt) is calculated by the following formula:

In a single species row:

$$dt = \frac{ts30}{2} \times 2.5$$

where ts30 is the widest spread in feet of the tree at 30 ft. in height

In a two species row:

$$dt = \frac{(ts30^1 + ts30^2)}{4} \times 2.5$$

where $ts30^1$ is the widest spread in feet of the first tree species at 30 ft., in height, and $ts30^2$ is the widest spread in feet of the second tree species at 30 ft. in height

Broad Pyramid Trees

Distance between trees at planting (dt) is calculated by the following formula:

In a single species row:

$$dt = \frac{ts30}{2} \times 2.2$$

where ts30 is the widest spread in feet of the tree at 30 ft. in height

In a two species row:

$$dt = \frac{(ts30^1 + ts30^2)}{4} \times 2.2$$

where $ts30^1$ is the widest spread in feet of the first tree species at 30 ft., in height, and $ts30^2$ is the widest spread in feet of the second tree species at 30 ft. in height

Existing Lower Intensity Buffer

Specific spacing from tree to tree within a row will differ depending on the natural form of the species of tree used. The two relevant tree shapes of the recommended evergreens are either a narrow pyramid (such as Atlas Cedar) or a broad pyramid (such as a Norway spruce).

Narrow Pyramid Trees

Distance between trees at planting (dt) is calculated by the following formula:

In a single species row:

$$dt = \frac{ts30}{2} \times 1.9$$

where ts30 is the widest spread in feet of the tree at 30 ft. in height

In a two species row:

$$dt = \frac{(ts30^1 + ts30^2)}{4} \times 1.9$$

where $ts30^1$ is the widest spread in feet of the first tree species at 30 ft., in height, and $ts30^2$ is the widest spread in feet of the second tree species at 30 ft. in height

Broad Pyramid Trees

Distance between trees at planting (dt) is calculated by the following formula:

In a single species row:

$$dt = \frac{ts30}{2} \times 1.6$$

where ts30 is the widest spread in feet of the tree at 30 ft. in height

In a two species row:

$$dt = \frac{(ts30^1 + ts30^2)}{4} \times 1.6$$

where $ts30^1$ is the widest spread in feet of the first tree species at 30 ft., in height, and $ts30^2$ is the widest spread in feet of the second tree species at 30 ft. in height

A4) TREE HEIGHT AT PLANTING

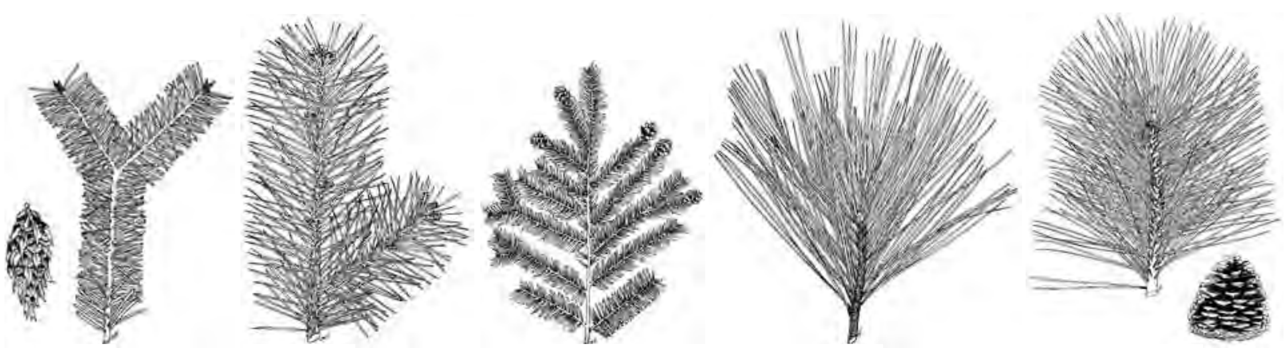
Existing Higher or Lower Intensity Buffer

5′ – 6′, balled and burlapped.

A5) TREE FOLIAGE CHARACTERISTICS

Existing Higher or Lower Intensity Buffer

Because the smallest surface area captures the highest proportion of spray drift droplets, and because agricultural spraying in the Rogue Valley is practically year-round, evergreens with needles or needle-like foliage such as pine, fir, cedar, spruce, cypress, or hemlock are the most effective at trapping spray drift on a consistent basis. Among evergreens, needle surfaces that are rough or hairy are more efficient at capturing spray drift than those that are glossy or smooth.



fir spruce hemlock pine pine

A6) RECOMMENDED TREE SPECIES

Existing Higher or Lower Intensity Buffer

The following are recommendations for medium to tall evergreen trees that will grow under most local conditions. This should not be considered a complete list, as there may be other appropriate species. At least two different species are recommended for each buffer, with the preference being for multiple species, as well as species variety within rows. Due to spacing requirements, the effect of differing widths must be taken into account when laying out the geometry of the buffer. As holds true for all plant material in the buffer, they should not be prone to agriculturally harmful insects or diseases, and should come from locally acclimatized stock whenever possible.

Botanical Name	Common Name	Pyramid Shape	H	W	Annual Growth	Needs Shrub Screen?	Shade Tolerant?
For typical valley sites							
Abies pinsapo	Spanish Fir	broad	40′	20′	<12″	no	yes
Calocedrus decurrens	Incense Cedar	narrow	50′	25′	12-18″	yes(low)	yes
Cedrus altantica glauca	Blue Atlas Cedar	narrow	50′	30′	12″	no	yes
Cedrus deodara	Deodar Cedar	narrow	60′	30′	12-18″	yes(low)	yes
Cedrus deodara	Golden D. Cedar	narrow	60′	30′	12-18″	yes(low)	yes
Cedrus brevifolia	Cyprian Cedar	narrow	40′	20′	12-18″	yes(low)	yes
Cedrus libani	Cedar of Lebanon	narrow	40′	20′	12″	no	yes
Cupressus arizonica	Arizona Cypress	broad	40′	20′	>18″	no	yes
Cupressus bakeri	Baker Cypress	narrow	40′	15′	<12″	yes	no
Cupressus sempervirens	Italian Cypress	narrow	60′	8′	12-18″	yes	yes
Pinus (attenuata x monteray)	KMX hybrid pine	narrow	80+	8′	>24″	no?	no
Pseudotsuga menziesii	Douglas Fir	narrow	60′	30′	12-18″	yes	np
Sequoia gigantea	Giant Sequoia	narrow	80′	20′	12-18″	yes	yes
Sequoia sempervirens	Coastal Redwood	narrow	80′	30′	>24″	yes	yes
Picea abies	Norway Spruce	broad	60′	30′	>12″	no	yes
Pinus ponderosa	Ponderosa Pine	narrow	60′	20′	12-18″	yes	no
Pinus jeffreyi	Jeffrey Pine	narrow	60′	15′	12-18″	yes	yes
Juniperus occidentalis	Western Juniper	broad	35′	15′	<12″	yes	no
Thuja (standishii x plicata)	Green Giant	narrow	60′	20′	12-18″	no	yes
For higher moisture sites, riparian areas							
Thuja plicata	W. Red Cedar	broad	60′	20′	>18″	no	yes

One species that has been used most frequently in the relatively few attempts in the valley to establish vegetative buffers, and one which is heavily used as an ornamental throughout southern Oregon, specifically as a screening element, is the **Leyland Cypress (Cupressocyparis leylandii)**. It has a high rate of growth, a height at maturity of 50 ft., dense and attractive foliage, and drought tolerance. Unfortunately, there are signs that the species is beginning to suffer from significant canker and root pathogen problems (Seiridium and Botryosphaeria cankers, Cercospora needle blight, and Phytophthora and Annosus root rots). With the existing relative overuse of the species to date in the valley, it is not recommended that the Leyland Cypress be employed in a buffer unless and until varieties are available that are resistant to these disease problems.

SECTION B — TRESPASS INHIBITING SHRUBBERY

For tree buffers. Trespass inhibiting shrubbery can serve in addition to, or in place of, specified fencing. More often than not, it will be located on the non-agricultural side of the buffer.

B1) SPACING AND NUMBER OF ROWS

Existing Higher or Lower Intensity Buffer

One or more rows sufficient to create an 8 ft. minimum width at maturity.

B2) SPACING WITHIN ROWS

Existing Higher or Lower Intensity Buffer

As appropriate to the variety to avoid spaces between plants within 3 years.

B3) FOLIAGE CHARACTERISTICS

Existing Higher or Lower Intensity Buffer

The primary purpose of these shrubs is to frustrate trespass, not reduce spray drift. Their most important characteristics are very dense growth and/or the presence of thorns. If the trespass-inhibiting shrubbery must be on the agricultural side, and must fill the additional role of screening shrub for tree buffers (cover bare trunk space from the ground to the first branches), their foliage should be as fine as possible, and should be evergreen.

B4) OVERALL SHRUB HEIGHT

Existing Higher or Lower Intensity Buffer

At least 5 ft. in height at maturity if used solely as a trespass inhibitor. If doubling as screening shrubbery for tree buffers, mature height should be 125% of anticipated ground-to-foliage bare space of average mature specimen of tree species being screened.

B5) RECOMMENDED TRESPASS INHIBITING SPECIES

Existing Higher or Lower Intensity Buffer

The following are recommendations of some appropriate shrubs that will grow under most local conditions. This should not be considered a complete list, as there may be other appropriate species. As holds true for all plant material in the buffer, they should not be prone to agriculturally harmful insects or diseases.

Botanical Name	Common Name	Height	Width	Growth Rate	Serve as Screen?
Berberis x chenaultii	Chenault Barberry	4′	5′	mod	yes
Berberis darwinii	Darwin's Barberry	10′	10′	fast	yes
Berberis julianae	Wintergreen Barberry	6′	6′	fast	yes
Elaeagnus pungens	Thorny Elaeagnus	15′	20′	fast	yes
Ilex aquifolium	English Holly	15′	6′	mod	no
Mahonia aquifolium	Oregon grape	5′	3′	slow	no
Osmanthus armatus	Chinese Osmanthus	10′	15′	slow	yes
Rosa sp.	Shrub Roses	var.	var.	fast	no

SECTION C — SCREENING SHRUBBERY

Only pertains to tree buffers, and only when tree species in the first row on the agricultural side will not provide sufficient foliage cover to ground level.

C1) SPACING AND NUMBER OF ROWS

Existing Higher or Lower Intensity Buffer

One or more rows sufficient to create a 5 ft. minimum width at maturity.

C2) SPACING WITHIN ROWS

Existing Higher or Lower Intensity Buffer

As appropriate to the variety to avoid spaces between plants within 3 years.

C3) FOLIAGE CHARACTERISTICS

Existing Higher or Lower Intensity Buffer

Screening shrubs should have as fine and as dense a foliage as possible, and should be evergreen.

C4) OVERALL SHRUB HEIGHT

Existing Higher or Lower Intensity Buffer

Mature height should be 125% of anticipated ground-to-foliage bare space of average 30 ft. specimen of tree species being screened.

C5) RECOMMENDED SCREENING SHRUB SPECIES

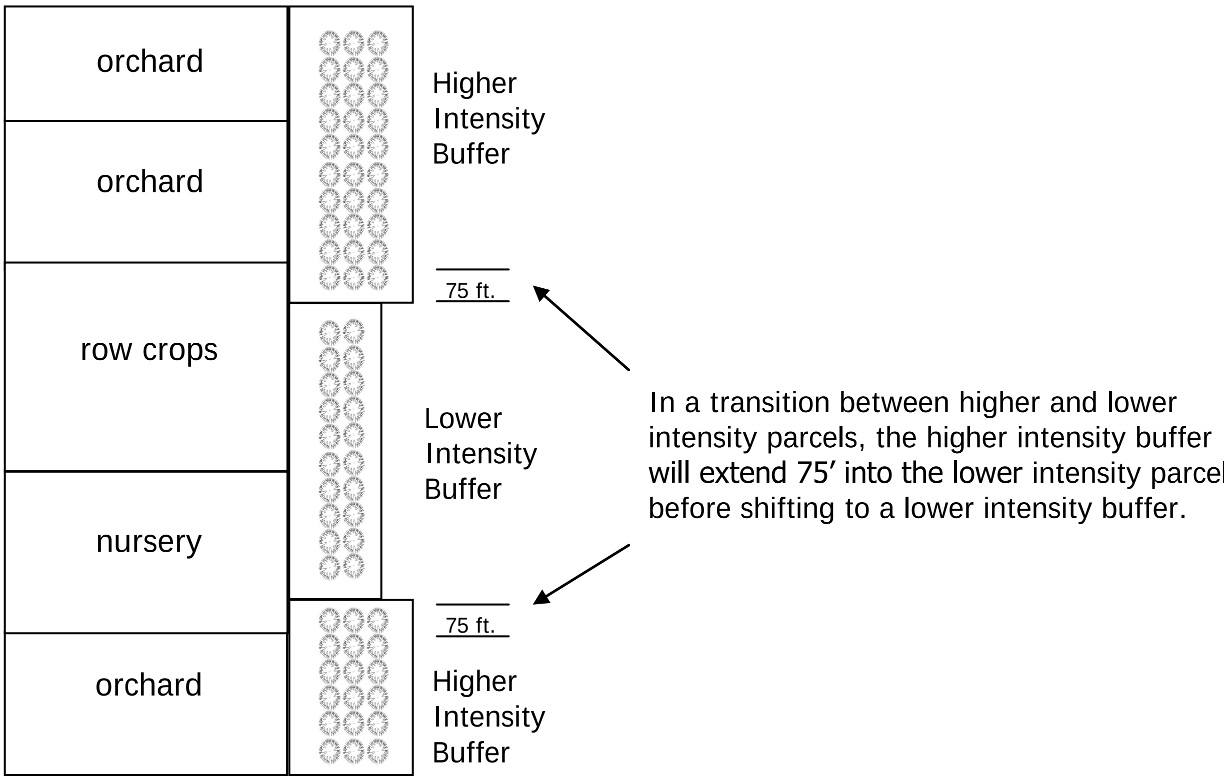
Existing Higher or Lower Intensity Buffer

The following are recommendations of shrubs that will grow under most local conditions. This should not be considered a complete list, as there may be other appropriate species. As holds true for all plant material in the buffer, they should not be prone to agriculturally harmful insects or diseases.

Botanical Name	Common Name	Height	Width	Growth Rate
Chamaecyparis lawsoniana *'Ellwoodii'*	Ellwood Cypress	8′	4′	slow
Cryptomeria japonica *'Elegans Compacta'*	Plume Cryptomeria	12′	6′	fast
Ligustrum ovalifolium	California Privet	15′	6′	fast
Osmanthus armatus	Chinese Osmanthus	10′	15′	slow
Photinia x fraseri	Photinia	15′	12′	fast
Prunus laurocerasus	English Laurel	15′	10′	
Prunus laurocerasus *'"Schipkaensis'*	West Coast Schipkaensis	10′		fast
Prunus lusitanica	Portugal Laurel	12′	8′	
Taxus x media *'Hatfieldii'*	Hatfield Yew			
'Hicksii'	Hick's Yew	8′	3′	
Viburnum tinus *'Robustum'*	Laurustinus	10ft	6ft	

SECTION D — TRANSITIONS BETWEEN DIFFERENT INTENSITY BUFFERS

Because chemical drift mitigation is the principal factor behind the need for vegetative buffers, and because spray height is the prime factor in determining whether a given agricultural parcel at the time of buffer establishment requires a higher or lower intensity buffer, it is necessary to provide an overlap of the higher level of spray buffer to mitigate for spray being carried past a buffer transitioning too soon to a lower level of protection.



SECTION E — NOISE MITIGATION FOR SENSITIVE RECEPTORS

Agricultural activity is assumed to create a noise level of 90 dB(A) at the rural/urban boundary. New sensitive receptor structures and remodels of existing structures may, at the discretion of the builder or developer incorporate measures to mitigate sound transmission to interior living spaces using the parameters suggested in E1 and E2.

E1) NOISE ZONES

0 ft — rural/urban border

- 90 dB(A) @ 25 ft. from noise source
- 84 dB(A) @ 50 ft. from noise source

NOISE ZONE 1

No new sensitive receptors recommended

50 ft

NOISE ZONE 2

- 78 dB(A) @ 100 ft. from agricultural noise source

exterior walls = STC-45
exterior windows = STC-38
exterior doors = STC-33
roof/ceiling assembly = STC-49
ventilation = see F2 for details

175 ft

- 72 dB(A) @ 200 ft. from agricultural noise source

NOISE ZONE 3

exterior walls = STC-40
exterior windows = STC-33
exterior doors = STC-33
roof/ceiling assembly = STC-44
ventilation = see F2 for details

375 ft

- 66 dB(A) @ 400 ft. from agricultural noise source

NOISE ZONE 4

exterior walls = STC-35
exterior windows = STC-28
exterior doors = STC-26
roof/ceiling assembly = STC-39
ventilation = see F2 for details

500 ft

lessening noise intensity

NOTES: 1) all sound transmission class (STC) ratings are laboratory values; 2) A sensitive receptor is considered to be in the highest intensity noise zone into which any portion of its building envelope intrudes. 3) If the buffer is provided on agricultural land rather than urban land, distances and noise zones would be calculated from the beginning of the buffer rather than the rural/urban boundary.

E2) MINIMUM GUIDELINES FOR STRUCTURAL NOISE MITIGATION

Scope: The following minimum guidelines for acoustic design of the exterior envelope of buildings and for the ventilating system and its parts are intended to mitigate noise. Builders or developers may apply these guidelines to any new buildings or structures constructed or placed in use within city boundaries.

Definitions: Sound Transmission Class (STC) is a single number rating for describing sound transmission loss of a roof/ceiling, wall, partition, window, or door. Sensitive receptor includes the following urban uses:

- dwelling, mobile home park, or other residential place in a residential development;
- motel, hotel, or hostel;
- places of worship and public meeting facilities;
- childcare center, kindergarten, school, university, or other educational institution; or
- medical center or hospital.

Design Guidelines:

Noise Zone 1 — Avoid construction or placement of new sensitive receptors in this Zone.

Noise Zone 2 — Design the exterior envelope of buildings in Noise Zone 2 to achieve the following minimum ratings:

(a) Exterior walls shall have a laboratory sound transmission class rating of at least STC-45.

(b) Exterior windows shall have a laboratory sound transmission class rating of at least STC-38.

(c) Exterior doors shall have a laboratory sound transmission class rating of at least STC-33.

(d) Roof/ceiling assembly combined shall have a laboratory sound transmission class rating of at least STC-49.

(e) Ventilation shall be provided in accordance with existing codes, with the following:

1. A ventilation system shall be installed that will provide the minimum air circulation and fresh air supply requirements for various uses in occupied rooms without the need to open any windows, doors, or other openings to the exterior. The inlet and discharge openings shall be fitted with sheet metal transfer ducts of at least twenty gauge steel, which shall be lined with one-inch thick coated fiber glass or approved material, and shall be at least 10 feet long, with one 90-degree bend.
2. Gravity vent openings shall be as close to code minimum in number and size as practical. The openings shall be fitted with transfer ducts at least six feet in length containing internal one-inch thick coated fiber glass sound absorbing duct lining or other approved material. Each duct shall have a lined 90-degree bend in the duct such that there is no direct line-of-sight from the exterior, through the duct, into the attic.
3. Bathroom, laundry, and similar exhaust ducts connecting interior space to the outside, shall contain at least a 10-foot length of internal sound absorbing duct lining. Exhaust ducts less than 10 feet in length shall be fully lined and shall also meet the provisions of proper sealing of air leakage from the structure with approved weather-stripping and caulking compounds. Each duct shall be provided with a lined 90-degree bend in the duct such that there is no direct line-of-sight through the duct from the venting cross-section to the room-opening cross-section. Duct lining shall be coated fiber glass duct liner at least one inch thick.
4. Domestic range exhaust ducts connecting the interior space to the outdoors shall contain a self-closing baffle plate across the exterior termination that allows proper ventilation. The duct shall be provided with a 90-degree bend.

Noise Zone 3 — Design the exterior envelope of buildings in Noise Zone 3 to achieve the following minimum ratings:

(a) Exterior walls shall have a laboratory sound transmission class rating of at least STC-40.
(b) Exterior windows shall have a laboratory sound transmission class rating of at least STC-33.
(c) Exterior doors shall have a laboratory sound transmission class rating of at least STC-33.
(d) Roof/ceiling assembly combined shall have a laboratory sound transmission class rating of at least STC-44.
(e) Ventilation shall be provided in accordance with existing codes, with the following:

1. A ventilation system shall be installed that will provide the minimum air circulation and fresh air supply requirements for various uses in occupied rooms without the need to open any windows, doors, or other openings to the exterior. The inlet and discharge openings shall be fitted with sheet metal transfer ducts of at least twenty gauge steel, which shall be lined with one-inch thick coated fiber glass or approved material, and shall be at least five feet long, with one 90-degree bend.
2. Gravity vent openings shall be as close to code minimum in number and size as practical. The openings shall be fitted with transfer ducts at least three feet in length containing internal one-inch thick coated fiber glass sound absorbing duct lining or other approved material. Each duct shall have a lined 90-degree bend in the duct such that there is no direct line-of-sight from the exterior, through the duct, into the attic.
3. Bathroom, laundry, and similar exhaust ducts connecting interior space to the outside, shall contain at least a 10-foot length of internal sound absorbing duct lining. Exhaust ducts less than 10 feet in length shall be fully lined and shall also meet the provisions of proper sealing of air leakage from the structure with approved weather-stripping and caulking compounds. Each duct shall be provided with a lined 90-degree bend in the duct such that there is no direct line-of-sight through the duct from the venting cross-section to the room-opening cross-section. Duct lining shall be coated fiber glass duct liner at least one inch thick.

a. Domestic range exhaust ducts connecting the interior space to the outdoors shall contain a self-closing baffle plate across the exterior termination that allows proper ventilation. The duct shall be provided with a 90-degree bend.

Noise Zone 4 — Design the exterior envelope of buildings in Noise Zone 4 to achieve the following minimum ratings:

(a) Exterior walls shall have a laboratory sound transmission class rating of at least STC-35.
(b) Exterior windows shall have a laboratory sound transmission class rating of at least STC-28.
(c) Exterior doors shall have a laboratory sound transmission class rating of at least STC-26.
(d) Roof/ceiling assembly combined shall have a laboratory sound transmission class rating of at least STC-39.
(e) Ventilation shall be provided in accordance with existing codes, with the following:

1. A ventilation system shall be installed that will provide the minimum air circulation and fresh air supply requirements for various uses in occupied rooms without the need to open any windows, doors, or other openings to the exterior. The inlet and discharge openings shall be fitted with sheet metal transfer ducts of at least twenty gauge steel, which shall be lined with one-inch thick coated fiber glass or approved material, and shall be at least five feet long, with one 90-degree bend.
2. Gravity vent openings shall be as close to code minimum in number and size as practical.
3. Bathroom, laundry, and similar exhaust ducts connecting interior space to the outside, shall contain at least a 10-foot length of internal sound absorbing duct lining. Exhaust

ducts less than 10 feet in length shall be fully lined and shall also meet the provisions of proper sealing of air leakage from the structure with approved weather-stripping and caulking compounds. Each duct shall be provided with a lined 90-degree bend in the duct such that there is no direct line-of-sight through the duct from the venting cross-section to the room-opening cross-section. Duct lining shall be coated fiber glass duct liner at least one inch thick.

4. Domestic range exhaust ducts connecting the interior space to the outdoors shall contain a self-closing baffle plate across the exterior termination that allows proper ventilation. The duct shall be provided with a 90-degree bend.

SECTION F — FENCING

Used in place of or (most effectively) in addition to trespass-inhibiting shrubs or significant topographical features that inhibit trespass.

F1) RECOMMENDED FENCING SPECIFICATIONS

Existing Higher or Lower Intensity Buffer

Fence height is 6′ minimum. The following specifications are recommended for all buffers. Alternate specifications, or those not detailed below, should meet, at a minimum, a heavy residential/light industrial use test.

Fence Fabric Coating — GAW (galvanized after weaving). Can be plastic or powder coated.

Fence Fabric Gauge — 11 minimum

Fence Fabric Mesh Size — 2″ maximum

Fence Fabric ASTM Specifications — Meets A 392-96 (Zinc Coated), F 1345-96 (Zinc-5% Aluminum-Mishmetal Ally Coated)

Framework Gauge — 16 minimum

Framework Tensile Strength — 45,000 pounds per square inch minimum

Framework Diameter

Toprail — $1^{3/8}$″ minimum (if toprail is omitted, use tension wire)

Line Posts — $1^{7/8}$" minimum

Terminal Posts — $2^{3/8}$" minimum

Framework Coating — Inline flow-coat or hot-dipped galvanized. Can have additional coatings.

Framework ASTM Specifications — Meets F 761-82 (Steel Posts and Rails), F 934-96 (Stand Colors for Polymer-Coated)

Fittings — All steel fittings hot-dipped galvanized. Tie wires made from aluminum or galvanized steel.

Fittings ASTM Specifications — F 626-96 (Fence Fittings)

Gate — Fence fabric and framework match fencing materials.

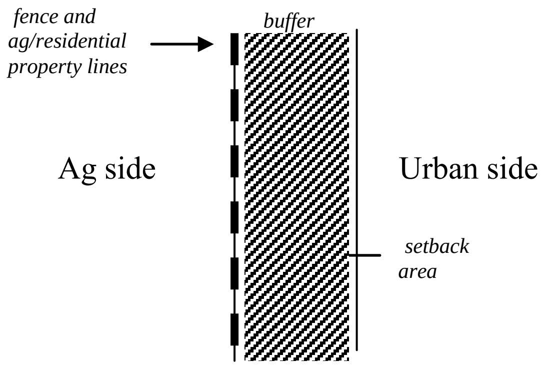
Gate ASTM Specifications — F 654-91 (Residential Chain-Link Fence Gates)

Anti-Climbing Measures — Fences resistant to climbing, either by incorporating slates in the mesh, incorporating angled barb wire (where permitted), or by using one of the following mixes of mesh size and wire gauges (in order from most to least recommended):
3/8"mesh/11 gauge, 1" mesh/9 gauge, 1" mesh/11 gauge, 2" mesh/6 gauge

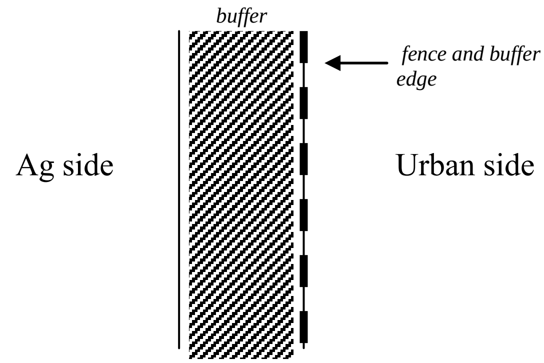
F2) FENCING PLACEMENT

Existing Higher or Lower Intensity Buffer

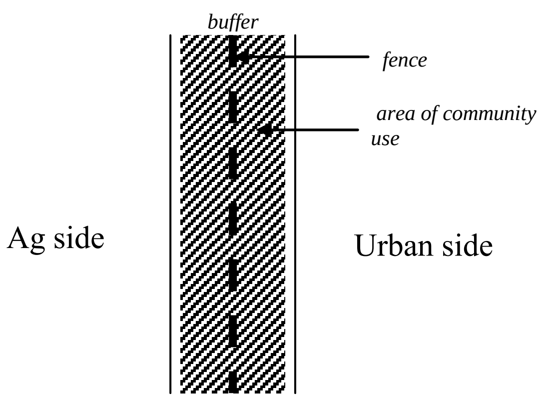
Fencing placement can be a critical issue due to conflicting interests of access. It should be clear that the primary purpose of the fence (as with trespass-inhibiting shrubbery) is to decrease trespass onto agricultural land. Gates should be at a minimum, and should be installed only where required as part of an approved recreational or maintenance plan for the buffer.



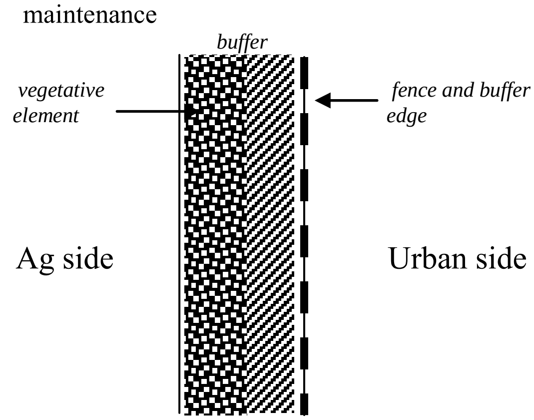
a) "Estate" lot buffer: no community use, individual property owner maintenance



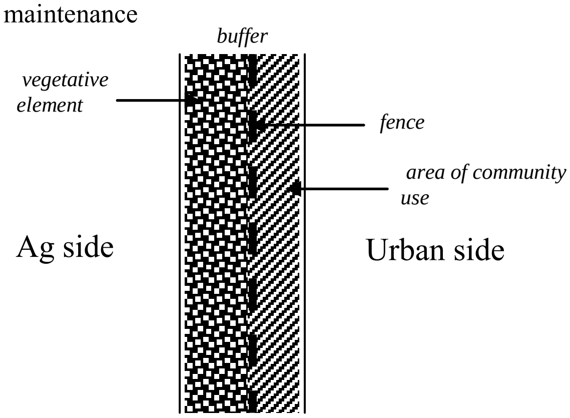
b) Buffer with no vegetative element: no community use, either community or farmer maintenance



c) Buffer with no vegetative element: with limited community use, shared or single-party maintenance



d) Buffer with vegetative element: no community use, either community or farmer maintenance



e) Buffer with vegetative element: with community use, either community or shared maintenance

NOTE: To reduce the potential of residents being exposed to chemical spray drift, the scenarios represented by a, b, d, and e, are the preferred options. It is **not** recommended that a considerable portion of a non-vegetative buffer adjoining agricultural land of high potential impact be dedicated to significant community use, as in scenario c.

SECTION G — OTHER DESIGN CONSIDERATIONS

G1) IRRIGATION SYSTEM

The establishment of an irrigation system is mandatory for vegetative buffers. Must be designed by a licensed professional, and should be site and species specific, as appropriate. The operation and maintenance of the irrigation system must be part of the buffer's overall maintenance plan.

G2) ROAD PLACEMENT

<u>Existing Higher or Lower Intensity Buffer</u>

It is always preferable to not bisect buffers with roads due to the wind funneling effect they create. If a road is unavoidable, it should be as narrow as possible, not linear, and should not be oriented to the prevailing wind. It should be noted that even a road with an acceptable orientation and design will permit some degree of increased spray drift to pass through the buffer area, and will also pose a greater risk of trespass.

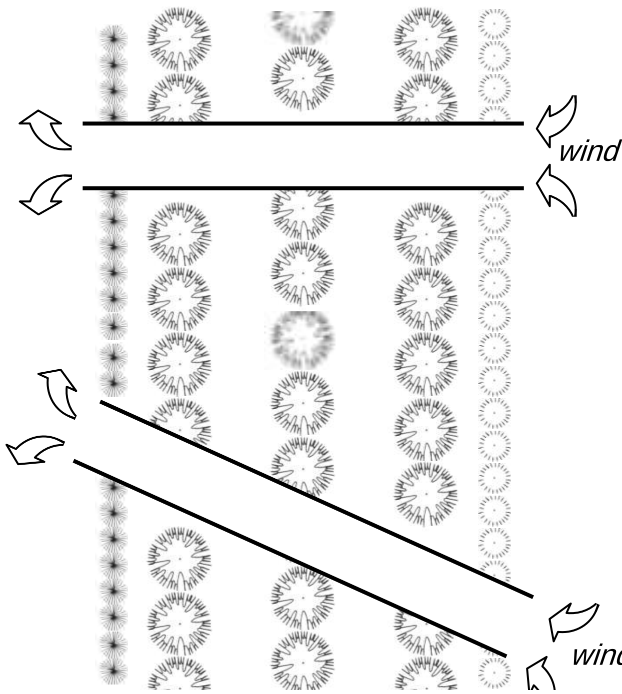


Figure 1 – Undesirable orientation of cross road.

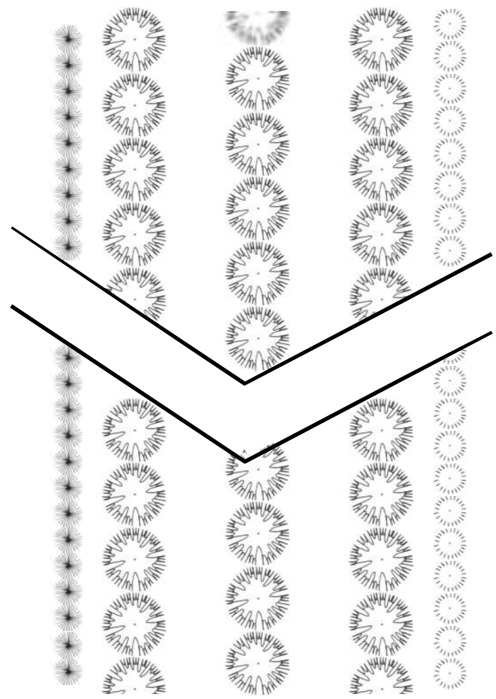


Figure 2 – Desirable orientation of cross road.

APPENDIX 2 - Definitions

Agricultural land use — In general terms, refers to the use of land for the cultivation and husbandry of plant and animal products. In Oregon, it can also be described as all those agricultural activities permitted on rural lands zoned for Exclusive Farm Use. Agricultural land use is subject to constraints imposed by climate; slope, soil, and water limitations; processing requirements; economic conditions; zoning and land use; and aspect.

Buffer area — A management zone of varying size, shape, and characteristics which transitions between different land uses. Various combinations of buffering strategies and elements can be utilized in the management zone to provide separation between commercial agricultural/forestry and urban use (e.g., vegetation (grass, bushes, trees); utility corridors (roads, highways, railroads, powerlines), land use (hobby farms, large lots, parks); or natural barriers (hillsides, bluffs, canyons, creeks, rivers). Management requirements of buffers can differ significantly depending on the strategies employed, but management is always a crucial consideration, and always a long-term necessity.
Buffers can be characterized, apart form their specific designs, on the basis of their relative permanence:

> **Long-term Buffer**: Buffers providing protection to agricultural lands outside of an Urban Reserve, lands which are not destined for urbanization in any state-recognized plan, either regional or municipal. These buffers should be considered permanent in terms of their designs.
> **Mid-term Buffer**: Buffers providing protection to agricultural lands within an Urban Reserve.

Buffer element — a natural or artificial feature within a buffer area that mitigates an adverse impact. A buffer element may consist of vegetation (grass, bushes, trees), utility corridors (roads, highways, railroads, power lines), rural residential areas, natural barriers (hillsides, bluffs, canyons, creeks, rivers, wetlands), or other natural or man-made features.

Chemical drift ●airborne movement of agricultural chemicals onto a non-target area with the actual or perceived potential for risk of injury or damage to humans, plants, animals, environment, or property.

Existing Higher Intensity Agricultural Land — A subset of High Potential Impact Agricultural Lands, the definition is used to establish the initial design of a vegetative buffer element. The ag lands in this category support existing plantings (or scheduled plantings within one year of projected buffer completion date, as determined by documented consultation with the owner/operator of the farming operation) of long-term crops with a height at maturity exceeding 4 ft. In the Rogue Valley, these are primarily vineyards and orchards (fruit or nut trees), but may also include other higher intensity crops. To determine what qualifies as a higher intensity crop the local government will consult with the Extension Service or the Oregon Department of Agriculture.

Existing Lower Intensity Agricultural Land — A subset of High Potential Impact Agricultural Lands, the definition is used to establish the initial design of a vegetative buffer element. The ag lands in this category contain fallow land, land of potential high impact presently being used for grazing, or crops of any type with a height at maturity below 4 ft. In the Rogue Valley these are primarily row crops and hay fields, and all uses other than those falling under the definitions of "Existing Higher Intensity".

Farmable Land — The portion of an EFU-zoned parcel with no natural (wetland, riparian, topographic, geologic, etc) or man-made (yards, storage areas, roads, structures, etc) features that would provide a significant impediment to plant cultivation or animal husbandry.

High Potential Impact Agricultural Lands — The majority of Class I – IV agricultural lands. Because these agricultural lands can be and often are used for a wide variety of different agricultural uses, and will likely be suitable for new and as yet unforeseen uses and practices in the future, the assumptions are that they will require buffering mechanisms that mitigate the most likely high impact agricultural land use reasonably likely over time, regardless of present use. The only exception are those agricultural lands defined as of "low potential impact".

Irrigation District's Zone of Influence — The area within an irrigation district's present boundary, as well as areas presently lying outside, which cannot be considered ineligible on reasonable technical grounds (as determined by the pertinent irrigation district) for a future expansion of an existing irrigation district.

Low Potential Impact Agricultural Lands — Agricultural lands can be considered of low potential impact if they:

- are composed of predominately Class IV soils, can demonstrate an unbroken or essentially unbroken 25-year history of agricultural inactivity or grazing use, **and** which have one or more of the following:
  - — greater than 50% hydric soils;
  - — greater than 50% shallow soils (surface to bedrock) of less than 2 ft. in depth.

OR

- are composed of greater than 50% of Class VI or worse soil.

OR

- are outside of an irrigation district's zone of influence (the area within an irrigation district's present boundary, as well as areas presently lying outside which cannot be considered ineligible on reasonable technical grounds by the pertinent irrigation district for a future expansion of an existing irrigation district).

Sensitive receptor —

- dwelling, mobile home park, or other residential place in a residential development;
- motel, hotel, or hostel;
- places of worship and public meeting facilities;
- childcare center, kindergarten, school, university, or other educational institution; or
- medical center or hospital.

Separation distance — the total linear distance between a source and a sensitive receptor.

APPENDIX 3 - MODEL RIGHT TO FARM RESTRICTIVE COVENANT

WHEREAS, farming and the related agricultural businesses are an important industry in Jackson County, providing a substantial contribution to the economy of the County, enhancing the quality of life, promoting environmental quality, and exerting minimal demands upon services from local government; and

WHEREAS, it is the purpose of this document to maintain and enhance the agricultural industry of the County by minimizing potential conflicts between agricultural and non-agricultural land use, and by providing notice of potential effects of living near agricultural land; and

WHEREAS, this notice and restrictive covenant is applied to the real property described in Exhibit A, which is located within 1,000 (one thousand) feet of agriculturally zoned land designated within a municipal or county comprehensive plan; and

WHEREAS, this Right to Farm Restrictive Covenant shall run with the land until such time as no part of the property is located within 1,000 feet of agriculturally zoned land, actively farmed or not;

THEREFORE, the present and all subsequent owners of the subject property agree:

(1) That the property described in Exhibit A may be subjected to impacts from lawful agricultural or agricultural processing facilities operations that may cause inconvenience and/or discomfort. These impacts can include, but are not limited to, exposure at any time of night and day to

NOISE;
ODORS;
FUMES;
DUST;
SMOKE and ASH;
WATER;
VIBRATIONS;
INSECTS;
BIRDS;
RODENTS; AND
CHEMICALS

related to activities including, but not limited to, the cultivation and tillage of the soil; dairying; the production, irrigation, frost protection, cultivation growing, harvesting, and processing of any commercial agricultural commodity, including timber, viticulture, apiculture, or horticulture; the raising of livestock, fur-bearing animals, fish, or poultry; agricultural spoils areas; and any practices performed by a farmer or on a farm as incidental to or in conjunction with such operations, including the legal application of pesticides and fertilizers, use of farm equipment, storage or preparation for market, delivery to storage or to market, or to carriers for transportation to market.

(2) That to the extent that agricultural operations cause discomfort and inconvenience, but are in compliance with all applicable laws; employ practices that are generally accepted, reasonable, and prudent for the operation to be profitable; and use practices that are common on farms of like nature, then these operations are protected from any legal actions meant to restrict them.

(3) That a farm or farm operation that is in conformance with existing laws and accepted practices shall not be found to be a public or private nuisance as a result of a change in ownership or size; temporary cessation or interruption of farming; adoption of new technology; or a change in type of farm product being produced.

(4) That the present and subsequent owners agree to prohibit dogs, under their care or ownership, or under the care or ownership of an invited visitor on their property, from trespassing on agricultural property.

(5) In any legal action brought in which a farm or farm operation is alleged to be a nuisance, if the defendant farm or farm operation prevails, the farm or farm operation may recover from the plaintiff the actual amount of costs and expenses determined by the court to have been reasonably incurred by the farm or farm operation in connection with the defense of the action, together with reasonable and actual attorney fees.

(6) That this restrictive covenant does not exempt agricultural operators from compliance with federal, state, or local laws, nor protect them from legal recourse resulting from noncompliance.

(7) That Oregon Department of Agriculture regulations, criteria, and dispute resolution procedures may be utilized in determining whether a practice is generally acceptable and reasonable.

(8) That the state of Oregon or (Jackson County and/or the City of ______________) may, in addition to any other available remedy, bring an action to enforce this restrictive covenant, or to restrain or prevent its violation in any way.

(9) That all individuals who purchase, rent, or lease subject property will receive a copy of this document.

(10) That this document shall be deemed to apply to the property described herein until a release is filed of record executed by an authorized representative of the City of __________ Planning Department or its successor. Such release shall be recognized as notice that the subject property is no longer located within 1,000 feet of agriculturally zoned land, but shall not be construed as an indication that other federal, state, or county protections to agricultural operations do not still apply.

Dated this _______________________day of _____________________, 20___

Record Owner Record Owner

Record Owner Record Owner

STATE OR OREGON)
) ss.
County of Jackson)

Personally appeared the above names____ and acknowledged the foregoing instrument to be his/her voluntary act and deed before me this ______day of _________________, 20___.

____
Notary Public for the State of Oregon
My Commission Expires:

APPENDIX 4 - Model Agricultural Buffering Ordinance

Section I : Purpose
The purpose of establishing standards for buffering urban development from agricultural lands is to reduce the potential for conflict between farming activities and urban (residential, institutional, commercial, and industrial) uses. Buffering standards seek to achieve the following objectives:

1. To ensure the continued use of farmland for farm uses.
2. To minimize potential conflict by developing, where possible, a well-defined boundary between agricultural and urban uses. The best boundary will be one that minimizes conflict in both directions.
3. To minimize the impacts of urban development on agricultural production activities.
4. To minimize the potential for complaints about agricultural practices and activities.

Section II : Applicability
Appropriate levels of agricultural buffering shall be required adjacent to all EFU-zoned lands as documented in *Agricultural Buffering Standards - Establishing Effective Buffers Between Rural Agricultural and Urban Uses*, and outlined in the attached buffering design criteria summary tables. Agricultural buffering standards can be applied at any time following annexation, but must be in place prior to a) final plat sign off; b) final building inspection in the event no land division occurs; or c) final occupancy for larger lot buffers.
Different degrees of buffering are required based on the following factors:

1. <u>The proposed urban use</u>: Whether the proposed urban use is residential, institutional, commercial, or industrial. The sensitivity of urban uses to agricultural practices declines from residential and institutional to commercial and industrial. Uses considered are those within 1,000 feet of the adjoining EFU land. If there are mixed uses present, those of the highest degree of sensitivity will determine the specific buffering design criteria.
2. <u>The impact being buffered</u>:
   Chemical Spray Drift - within 50 to 200 ft of the rural/urban boundary;
   Noise – within 500 ft of the boundary
   Sediment and Stormwater Runoff – within 500 ft of the boundary;
   Trespass and Vandalism - within 50 to 200 ft of the boundary
   Odor, Dust, Smoke, and Ash – within 1,000 ft of the boundary
3. <u>Whether the adjacent EFU land is of "high" or "low" potential impact:</u>
   (a) High potential impact EFU lands — Class I – IV agricultural lands are considered to be of high potential impact.
   (b) Low potential impact EFU lands — Agricultural lands can be considered of low potential impact if:
   — they are composed of greater than 50% Class IV soils, can demonstrate an unbroken or essentially unbroken 25-year history of agricultural inactivity (fallow land) or grazing use, and have one or more of the following (as determined by the *Natural Resource Conservation Soil Survey for Jackson County* or a certified soil scientist):
   Greater than 50% hydric soils;
   Greater than 50% shallow soils (surface to bedrock or permanent cemented hardpan) of less than 2 ft. in depth.
   OR
   — are composed of greater than 50% Class VI or worse soil.
   OR
   — are outside of an irrigation district's zone of influence (the area within an irrigation district's present boundary, as well as areas currently lying outside, which could qualify on

reasonable technical grounds - as determined by the most appropriate irrigation district - for future expansion of the district).

4. Whether existing uses on the adjacent EFU land can be classified as existing higher or lower intensity:
   (a) Existing Higher Intensity — Adjacent EFU land qualifies for an "existing higher intensity buffer" if it includes existing plantings (or scheduled plantings within one year of projected buffer completion date, as determined by documented consultation with the owner/operator of the farming operation) of long-term crops with a height at maturity exceeding 4 ft. In the Rogue Valley, these are primarily vineyards and orchards (fruit or nut trees), but may also include other higher intensity crops. To determine what qualifies as a higher intensity crop the local government will consult with Extension Service or the Oregon Department of Agriculture.
   (b) Existing Lower Intensity — Adjacent EFU land qualifies for an "existing lower intensity buffer" if it includes fallow land, land of potential high impact presently being used for grazing, or crops of any type with a height at maturity below 4 ft. In the Rogue Valley these are primarily row crops and hay fields, and all uses other than those falling under the definitions of "Existing Higher Intensity".
5. Whether the desired buffer is to be mid- or long-term:
   (a) Mid-term buffer — Buffers providing protection to agricultural lands within an Urban Reserve Area.
   (b) Long-term buffer — Buffers providing protection to agricultural lands outside of an Urban Reserve Area. The agricultural lands being buffered are resource lands not identified for future urbanization in any state-recognized plan, either regional or municipal. Long-term buffers shall be considered permanent in terms of their designs.

Section III : Buffering Standards

Solution options for mitigating the impacts of adjoining urban and agricultural uses are detailed in the document *Agricultural Buffering Standards - Establishing Effective Buffers Between Rural Agricultural and Urban Uses,* and outlined in the attached buffering design criteria summary tables. Whenever the proposed buffer design varies from the solution options listed in the buffering standards document, the applicant shall prepare a Conflict Assessment and Buffer Study (CABS). For actual design and application of the criteria or guidance to prepare a CABS, reference shall be made to the document *Agricultural Buffering Standards - Establishing Effective Buffers Between Rural Agricultural and Urban Uses.*

HIGH Potential Impact Agricultural Land
SENSITIVE Receptors (all residential uses, hotels, motels, schools, places of worship, medical centers, etc)

	CHEMICAL SPRAY DRIFT			TRESPASS AND VANDALISM	SEDIMENT / STORMWATER RUN-OFF	ODOR, DUST, SMOKE, & ASH
	tree-based buffer	larger lot tree-based buffer	non-vegetative buffer	fencing / shrubbery	erosion control and prevention plan	restrictive deed covenant
Option 1						
0 to 100 ft	✔			✔	✔	
101 to 175 ft					✔	✔
176 to 375 ft					✔	✔
376 to 500 ft					✔	✔
500 to 1000 ft						✔
Option 2						
0 to 100 ft		✔		✔	✔	✔
101 to 175 ft					✔	✔
176 to 375 ft					✔	✔
376 to 500 ft					✔	✔
500 to 1000 ft						✔
Option 3						
0 to 200 ft			✔	✔	✔	
201 to 375 ft					✔	✔
376 to 500 ft					✔	✔
500 to 1000 ft						✔

NOTES:
- The distances in this chart are linear distances from the rural/urban boundary, and assume that all buffering takes place on urbanizing land. If all or part of a buffer is located on rural land, distances will be measured from the beginning of the buffer, and not from the beginning of the boundary.
- Vegetative buffer elements will be maintained and protected through a variety of different agreements. If a restrictive covenant is used for this purpose, it would be in addition to the restrictive covenant used to mitigate odor, dust, smoke, & ash, chemical spray drift, and noise.
- Larger lot tree-based buffers are only allowed on urban land adjacent to the outermost urban reserve boundary.

HIGH Potential Impact Agricultural Land
NON-SENSITIVE Receptors (commercial, industrial)

	CHEMICAL SPRAY DRIFT		TRESPASS AND VANDALISM	SEDIMENT / STORMWATER RUN-OFF	ODOR, DUST, SMOKE, & ASH
	tree based buffer	non-vegetative buffer	fencing / shrubbery	erosion control and prevention plan	restrictive deed covenant
Option 1					
0 to 50 ft	✔		✔	✔	
51 to 175 ft				✔	✔
176 to 375 ft				✔	✔
376 to 500 ft				✔	✔
501 to 1000 ft					✔
Option 2					
0 to 100 ft		✔	✔	✔	
101 to 175 ft				✔	✔
175 to 375 ft				✔	✔
376 to 500 ft				✔	✔
501 to 1000 ft					✔

NOTES:
- The distances in this chart are linear distances from the rural/urban boundary, and assume that all buffering takes place on urbanizing land. If all or part of a buffer is located on rural land, distances will be measured from the beginning of the buffer, and not from the beginning of the boundary.
- Vegetative buffer elements will be maintained and protected through a variety of different agreements. If a restrictive covenant is used for this purpose, it would be in addition to the restrictive covenant used to mitigate odor, dust, smoke, & ash, chemical spray drift, and noise.

LOW Potential Impact Agricultural Land
SENSITIVE Receptors (all residential uses, hotels, motels, schools, places of worship, medical centers, etc)

	CHEMICAL SPRAY DRIFT / TRESPASS AND VANDALISM		TRESPASS AND VANDALISM	SEDIMENT / STORMWATER RUN-OFF	ODOR, DUST, SMOKE, & ASH
	non-vegetative buffer	larger lot non-veg. buffer	fencing / shrubbery	erosion control and prevention plan	restrictive deed covenant
Option 1					
0 to 50 ft		✔	✔	✔	✔
51 to 175 ft				✔	✔
176 to 375 ft				✔	✔
376 to 500 ft				✔	✔
501 to 1000 ft					✔
Option 2					
0 to 100 ft	✔		✔	✔	
101 to 175 ft				✔	✔
175 to 375 ft				✔	✔
376 to 500 ft				✔	✔
501 to 1000 ft					✔

NOTES:
- The distances in this chart are linear distances from the rural/urban boundary, and assume that all buffering takes place on urbanizing land. If all or part of a buffer is located on rural land, distances will be measured from the beginning of the buffer, and not from the beginning of the boundary.
- Vegetative buffer elements will be maintained and protected through a variety of different agreements. If a restrictive covenant is used for this purpose, it would be in addition to the restrictive covenant used to mitigate odor, dust, smoke, & ash, chemical spray drift, and noise.
- Larger lot tree-based buffers are only allowed on urban land adjacent to the outermost urban reserve boundary.

LOW Potential Impact Agricultural Land
NON-SENSITIVE Receptors (commercial, industrial)

	CHEMICAL SPRAY DRIFT / TRESPASS AND VANDALISM	TRESPASS AND VANDALISM	SEDIMENT / STORMWATER RUN-OFF	ODOR, DUST, SMOKE, & ASH
	non-vegetative buffer	fencing / shrubbery	erosion control and prevention plan	restrictive deed covenant
Option 1				
0 to 50 ft	✔	✔	✔	
51 to 175 ft			✔	✔
176 to 375 ft			✔	✔
376 to 500 ft			✔	✔
501 to 1000 ft				✔

NOTES:
- The distances in this chart are linear distances from the rural/urban boundary, and assume that all buffering takes place on urbanizing land. If all or part of a buffer is located on rural land, distances will be measured from the beginning of the buffer, and not from the beginning of the boundary.
- Vegetative buffer elements will be maintained and protected through a variety of different agreements. If a restrictive covenant is used for this purpose, it would be in addition to the restrictive covenant used to mitigate odor, dust, smoke, & ash, chemical spray drift, and noise

APPENDIX 5 - Agricultural Buffering Standards Reference Material

Agricultural Land Commission. 1993. Landscape buffer specifications. Provincial Agricultural Land Commission, British Columbia, Canada. http://www.landcommission.gov.bc.ca/publications/buffer/lbs.pdf

Baker, D.E. 1997. Noise: The invisible hazard. University of Missouri-Columbia University Extension. http://muextension.missouri.edu/xplor/agguides/agengin/g01962.htm

Bamboo World. 2001. Bamboo World – Species selection guide. Current year catalogues available at http://www.bambooworld.com.au/pages/WhDownloads.htm

Brandle, J.R. and S. Finch. 1991. How windbreaks work. University of Nebraska Extension EC 91-1763-B

Capelin, M. 2001. Buffer areas: minimizing conflict between agricultural and residential areas. Queensland Government National Resources and Mines NRM facts L49(2001)

Chemical Standards Branch, Attwood. 2002. Using vegetation as a barrier to reduce spray drift. State of Victoria Department of Natural Resources and Environment, Australia. NRE Information Series. http://pandora.nla.gov.au/pan/55667/20060127/AG0860.pdf

City of Arroyo Grande. Noise element. Arroyo Grande General Plan, California. http://www.arroyogrande.org/comm_dev/general_plan/noise.pdf

City of Berkeley. Section 13.40.060 Interior noise standards. City of Berkely Municipal Code, California. http://www.ci.berkeley.ca.us/bmc/Berkeley_Municipal_Code/Title_13/40/060.html

City of Brentwood. Agricultural Buffers. City of Brentwood, California. http://www.ci.brentwood.ca.us/boards/aarg/enterprise/agricultural_buffers.cfm

City of Burien. City of Burien Building Code. City of Burien, Washington. http://www.mrsc.org/mc/burien/burien15.pdf

City of Modesto. City of Modesto noise policies. City of Modesto General Plan, California. http://www.modestogov.com/pwd/seir/pdf/MID%20SEIR%20Appendix%20G%20Modesto%20Noise.pdf

City of Riverside. Section 16.08.175 Exterior noise insulation standards. City of Riverside Municipal Code, California. http://www.riversideca.gov/municipal_code/Title_16/08/175.html

City of San Rafael. 2020. Draft Noise Element. San Rafael General Plan.

City of Stanton. 9.28.060 Interior noise standards. City of Stanton Municipal Code, California. http://www.qcode.us/codes/stanton/view.php?topic=9-9_28-9_28_060

City of Truckee. 1996. Chapter 6 – Noise element. Truckee General Plan, California. http://www.truckee2025.org/96genlplan/vol1ch6.htm

Cleugh, H. 1997. Trees for shade and shelter, in Design Principles for Farm Forestry: A guide to assist farmers to decide where to plant trees and farm plantations on farms. Eds. Abel, N et al. RIRDC, Canberra, Australia, pp 39-52.

Felsot, A. 2003. Do buffers make good neighbors? Minimizing persticide exposure at the ag-urban interface. Agri. and Envi. News, July 2003, 207. http://www.aenews.wsu.edu/July03AENews/July03AENews.htm#NoSprayBuffers

Government of British Columbia Provincial Agricultural Land Commission. 1993. Landscaped Buffer Specifications. http://www.landcommission.gov.bc.ca/publications/buffer/lbs_main.htm

Hall, F. R. and R.D. Fox. 1996. The reduction of pesticide drift, p209-239. In: Foy, C.L. and D.W. Pritchard (editors). 1996. Pesticide formulation and adjuvant technology. CRX Press, New York.

Hall, F.R. 1999. Precision Farming: Technologies and information as risk-reduction tools. P.96-116. In: Ragsdale, N.N. and J.N. Seiber (editors). 1999. Pesticides: Managing risks and optimizing benefits. American Chemistry Society Symposium Series, Washington, DC.

Hall, F.R., J. Cooper, L. Kirchner, R. Downer, and R. Thacker. 1996. Assessment of off-target

movement of orchard pesticides: Capture efficiencies of synthetic and biological biomarkers. J. Environ. Sci. Health. B31(4), 815-830(1996)
Hammond, S.V. 2002. Can city and farm coexist? The agricultural buffer experience in California. Great Valley Center's Agricultural Transactions Program, California. 25 p. http://www.greatvalley.org/pub_documents/2004_5_29_0_1_40_buffer_study.pdf
Handel, M.E. 1994. Conflicts and solutions when agricultural land meets urban development. Master of Science thesis, Community Development, University of California at Davis.
Handel, M.E. 1997. Buffers. pp. 47-51. In: Cappock, R. and M. Kreith, (editors). 1997. California's Future: Maintaining Viable Agriculture at the Urban Edge. UC Agricultural Issues Center.
Heisler, G.M. and D.R. Dewalle. 1988. Effects of windbreak structure on wind flow. Elsevier Science Publishers B.V., Amsterdam. Agriculture, Ecosystems and Environment, 22/23 (1988) 41-69.
Napa County. 2000. 8.16.060 Interior noise standards. Napa County Code, California. http://www.co.napa.ca.us/Code2000/_DATA/TITLE08/Chapter_8_16__NOISE_CONTROL_REGULA/8_16_060_Interior_noise_standa.html
Office of Industrial Hygiene. 2004. Requirements for determining and mitigating traffic noise impacts to residential structures. Riverside County Department of Public Health, California. http://www.rivcoph.org/indhyg/traffic.htm
Perch, J. 1996. Subdivision near agriculture....a guide for approving officers. Ministry of Agriculture, Fisheries, and Food, and the Provincial Agricultural Land Commission. British Columbia.
PFRA Shelterbelt Centre. 1999. Planning Field Shelterbelts. Prairie Farm Rehabilitation Administration Shelterbelt Centre Publications. http://www.agr.gc.ca/pfra/shelterbelt/shbpub24.htm
PFRA Shelterbelt Centre. Trees and Shrubs for Prairie Shelterbelts. Prairie Farm Rehabilitation Administration Shelterbelt Centre Publications. http://www.agr.gc.ca/pfra/shelterbelt/species_e.htm#table1
Porskamp, H.A.J., J.M.P.G. Michielsen, and Ir.J.F.M. Huijmans. 1994. The reduction of the drift pesticides in fruit growing by a windbreak. Dienst Landbouwkundig Onderzoek, Instituut voorMilieu-en Agritechniek, Rapport 94-29. Wageningen, 27pp.
Queensland, Australia Department of Natural Resources. 1997. Planning guidelines, separating agricultural and residential land uses. http://www.lgp.qld.gov.au/docs/ipa/pdf_doc/plng_guide_sep_ag.pdf
Raupach, M.R. and J.F. Leys. 1999. The efficacy of vegetation in limiting spray drift and dust movement. CSIRO Land and Water, technical report 47/99. http://www.clw.csiro.au/publications/technical99/tr47-99.pdf
Raupach, M.R., J.F. Leys, and N. Woods. 2000. Modelling the effects of riparian vegetation on spray drift and dust: The role of local protection. CSIRO Land and Water, technical report 29/00. http://www.clw.csiro.au/publications/technical2000/tr29-00.pdf
Rural Industries Research and Development Corporation. 1999. Growing trees on cotton farms. Rural Industries Research and Development Corporation, Australia. 76 pages.
San Luis Obispo. 2000. 23.06.046 Interior noise level standards. San Luis Obispo County Code. http://www.sloclerkrecorder.org/countycode/_data/TITLE23/Chapter_23_06_OPERATIONAL_STANDARD/23_06_046_Interior_noise_level.html
Santa Clara County. Sec. B11-153. Interior noise standards. Santa Clara County Code and Municipal Code Corporation, California. http://services.sccgov.org/scc/assets/docs/scc_ordinance/31108004.HTM
Smith, R. 2000. All-year shrubs. http://www.rodsgarden.50megs.com/shrall.htm
Smith, R. 2000. Trees. http://www.rodsgarden.50megs.com/trees.htm
Sokolow, A.D. 2004. California's edge problem: Urban impacts on agriculture. University of California at Berkley. http://are.berkeley.edu/extension/giannini/Chapter12.pdf
Spray Drift Task Force. 1997. A summary of airblast application studies.

http://www.agdrift.com/PDF_FILES/airblast.pdf
Spray Drift Task Force. 1997. A summary of ground application studies. http://www.agdrift.com/PDF_FILES/ground.pdf
Timerson, B.J. 1999. A guide to noise control in Minnesota: Acoustical properties, measurement, analysis, regulation. Minnesota Pollution Control Agency. http://www.pca.state.mn.us/programs/pubs/noise.pdf
Ucar, T and F.R. Hall. 2001. Windbreaks as a pesticide drift mitigation strategy: a review. Pest. Manag. Sci.57:663-675(2001)
Ucar, T. and F. Hall. 1998. Windbreak technology for agrochemical drift mitigation. Proress Report 1 for the Laboratory for Pest Control Application Technology and the USDA-NRCS.
Van de Zande, J.C., JMPG Michielsen, H Stallinga, and A de Jong. 2000. The effect of windbreak height and air assistance on exposure of surface water via spray drift. Part of the proceedings of the BCPC Conference – Pests & Diseases 2000. p. 91-96
Wacker, M, A.D. Sokolow, and R. Elkins. 2001. County right-to-farm ordinances in California: An assessment of impact and effectiveness. AIC Issues Brief, Agricultural Issues Center, University of California. Number 15(2001)
Wang, H., E.S. Takle, and J. Shen. 2001. Shelterbelts and windbreaks: Mathematical modeling and computer simulation of turbulent flows. Ann. Rev. Fluid Mech., 33,549-586.
Wight, B. and K. Stuhr. 2002. Windbreaks: An agroforestry practice. Agroforestry Notes (2002) AF Note – 25:1-4
Wight, B., T.K. Boes, and J.R. Brandle. 1991. Windbreaks for rural living. University of Nebraska Extension EC91-1767-X
Wilkenson, K and C. Elevitch. 1999. Multipurpose windreaks: Design and species for pacific islands. Agroforester, Hawaii. http://agroforestry.net/overstory/overstory32.html (presently unavailable).
Zhou, X., J.R. Brandle, E.S. Takle, and C.W. Mize. 2002. Estimation of the 3-dimensional aerodynamic structure of a green ash shelterbelt. Agric. For. Meteor., 111,93-108.

APPENDIX IV

OPEN SPACE CHAPTER:

GREATER BEAR CREEK VALLEY RPS PHASE ONE REPORT

NOTE: The following is the 2001 "Greater Bear Creek Valley Regional Problem Solving Phase One Status Report" chapter on open space (pgs. 18 – 32). Although the work on community buffers underwent some significant updates following this status report, the remainder of the work provides valuable information on a range of open space opportunities for participating cities and Jackson County.

OPEN SPACE

Open space recommendations constituted the primary responsibility of the project Citizen Involvement Committee (pCIC). Because several members of the pCIC had been involved in *OurRegion,* and had seen first hand how difficult it had been to conceptualize the different opinions of what open space was, the first task of the pCIC was to go through a process of identification and definition that could take the *OurRegion* discussion to the next step.

Some central elements of the *OurRegion* work on open space were carried forward. First, open space continued to be clearly distinguished from resource land. The pCIC considered it important to continue to reinforce the idea that, while resource lands are in the broadest sense open space, the still-considerable amount of agricultural and forest land at this point in our history could have the effect of de-emphasizing the need for other open space. There was also consensus that resource land should stand on its own merits as resource land, and not have its status in any way related to or dependent on the value it may or may not serve to provide a break in the urban landscape.

OurRegion did struggle with the definition of open space. Was open space best said to be in the eye of the beholder? Or was open space best defined by what it was not—not farm, not forest, not city? Could it be defined by some of its parameters: the idea that it can exist in both urban or rural settings, or provide a transition between the two; be highly managed, moderately maintained, or completely wild; be public or private property; open to visitors or accessible only as a viewscape; or be in a pristine state or in varying states of development or usage. Or, was there another way of looking at open space, by the function that it may serve? For example,

- ♦ floodplain protection and management;
- ♦ preservation of significant water recharge areas;
- ♦ stormwater control;
- ♦ stream temperature control;
- ♦ protection of fisheries habitat along stream corridors;
- ♦ preservation of significant wildlife corridors and habitats;
- ♦ recreational opportunities, including golf courses, parks, playgrounds;
- ♦ educational opportunities;
- ♦ greenbelts and buffers between urban areas and uses;
- ♦ non-motorized linkages between urban areas; and
- ♦ scenic viewsheds

As did the participants in *OurRegion*, the pCIC considered an adequate definition of what open space is to be important. The pCIC agreed with *OurRegion* that open space in the general sense is considered by most to be one of the primary contributors to, and a litmus test for, the high quality of life in this region. A paragraph from *OurRegion* merits inclusion here:

> "Open space serves complex and overlapping functions between the environment and man. Adequate land needs to set aside for these functions to be met while population grows. We know now how much wetlands, watersheds, wildlife corridors and fisheries depend upon the larger interrelationships each has with the other within a region, but we still may not fully appreciate how dependent man too is on the health of these complex interrelationships, both physiologically and psychologically."

Building on this base of prior work, the pCIC established five categories of open space—Community Buffers, Environmental, Aesthetic, Cultural, and Recreational. It should be noted that, although a particular open space is placed under a single category, there are multiple cases in which a particular site could easily fit under more than one category. In these cases, a judgment call was made by staff, later approved by the pCIC, as to which open space category was the best fit for its primary use.

Aside from community buffers, which, as explained below, will be treated somewhat differently from the rest of the open space types, the open space recommended under the categories of Environmental, Aesthetic, Cultural, and Recreational does not include land that is under public ownership (state, federal, or local) due to the protections that those areas already enjoy. The open space recommendations made by the pCIC are for land in private ownership, areas large or small which have characteristics that make them worthy of the region's attention, appreciation, and (if necessary) future protection. There are no recommendations of any measures to specifically protect any of these areas of open space (save one, Hillcrest Orchards), and no suggestion that the region obtain open space at the expense of private property owners. What is being attempted by these open space recommendations is to bring to the region's attention those pieces of the valley, some small, some large, that this committee felt were extraordinary for one or more reasons. These are the areas that this group considered to be the points of quality in the region that magnify and maximize the entire experience of the Greater Bear Creek Valley portion of the Rogue Valley. It was the pCIC's intention to raise awareness of these areas so that if, at any time in the future, they are threatened in any significant way, the appreciation of the repercussions of their modification or disappearance could be given their due weight. In addition, the pCIC is calling attention to potential opportunities for a greater degree of usage of some of the open space areas, mostly for recreation, but also for environmental, aesthetic, and cultural uses. In these cases, some mechanisms would probably have to be devised to compensate property owners for any heightened use of their land by the public.

Finally, there are a number of the recommended open spaces that are within potential future growth areas. In these cases, the pCIC is recommending to the appropriate jurisdiction that these particular open space areas be seriously considered for future inclusion into the city's open space or parks system. If a favorable decision is made with enough anticipation, the city could purchase the land or an easement at a favorable price, or could come to some mutually beneficial agreement with the developer at the earliest planning stages.

Community Buffers

While engaged in the open space definition process, it became clear to the pCIC that community buffers were in a class by themselves. They were not selected based on the inherent qualities or characteristics of the lands that make them up, as are the other open space types, but are buffers due entirely to their location between jurisdictions. For the purposes of the project, community buffers will be grouped with the other open space categories in a general sense, but will be treated differently as an operational concept.

The idea of encouraging individual community identity within a process of regionalization may at first seem somewhat incongruous. Nonetheless, the existence, and long-term perpetuation, of the differences between the communities in the study area—cultural, historical, economic, environmental—are basic to the regional planning strategy that the participants have decided is most appropriate to southern Oregon. Certainly, a separation between communities is not the only or most important indicator of a community's sense of identity, and cannot create what does not already exist. On the other hand, unambiguous borders do seem to be extremely useful in providing a healthy substrate upon which community identity can thrive. For individuals traveling from one city to another, it provides a transition between communities that calls attention to the special characteristics each has. For residents of a city, it provides an easily identifiable, discreet universe that is wholly and totally separate from others nearby, something which can help to create a sense of community.

Although the general concept of providing separation between communities seemed to be straightforward and simple at first both to staff and to the pCIC, a number of issues arose early in the process.

1. Are buffers appropriate only where there is existing, predominantly rural zoning between communities?
2. How big should they be and what form should they take?
3. Should they be used to provide additional protection for valuable farmland?
4. How should they be protected to adequately perform their task?
5. Are they appropriate in all cases?

<u>Question #1</u> - *Are buffers appropriate only where there is existing rural zoning (especially resource land) between communities?*

Community Buffers were initially conceptualized as little more than existing rural lands (predominantly resource lands) providing separation between expanding cities. What became evident fairly quickly was the fact that only a few of the potential buffers fit this definition (most notably between Jacksonville and Medford, and between White City and Eagle Point). Others were more complicated, involving a mix of higher density county residential land and resource land, or, in the case of Medford and Central Point, nothing but urban land. To account for these different scenarios, the pCIC expanded its initial one-size-fits-all concept of community buffers.

Rural Buffer - An area of overwhelmingly rural uses (predominantly EFU and rural residential land), which provides a marked contrast with the urban levels of development it is separating. In the establishment of a rural buffer, existing zoning would most likely be maintained at present levels. Again, a good example of where this type of buffer would be appropriate is the area between Jacksonville and Medford and between White City and Eagle Point.

Urban Buffer - An unincorporated area of urban or near-urban levels of development which is relatively indistinguishable from adjoining cities, or the contiguous shared boundary between cities. In an urban buffer, design standards of some sort would be necessary over time to achieve the desired perceived separation. A good example of where this type of buffer would be possible is the contiguous border between Central Point and Medford, or the unincorporated community between Phoenix and Medford.

Compound Buffer - Not a distinct type in itself, but rather a single buffer area consisting of both rural and urban buffer components. In a compound buffer, the rural and urban components would be considered for separate strategies appropriate to their different characteristics.

Question #2 - *How big should they be, and how should they be shaped?*
The scope of the proposed buffers vary greatly, from 3,400 acres between Jacksonville and Medford to 536 acres between Talent and Ashland. The size and shape of each proposed buffer was the result of a process that took into account a number of factors. To begin with, buffers were considered only where there was a possibility that community borders could grow together in the future. Once this general area was established, the location of significant transportation corridors was considered because the transition between communities is predominantly experienced along these corridors. Another important factor was the existence of natural topographic features which could serve as logical limits to the buffer. Also considered was the need to balance the size of the proposed buffer area with potential expansions of future city borders—making the proposed buffer smaller than theoretically possible to allow reasonable room for expansion, while still maintaining enough of the buffer to maintain its integrity.

Question #3 - *Should they be used to provide additional protection for valuable farmland?*
Although an early tendency of some members of the pCIC was to use the concept of community buffers to add an extra layer of protection to agricultural land, which caused early versions of some of the buffer areas to be quite large, it was decided that community buffers should not be influenced by any other purpose than providing an appropriate degree of separation between communities. If a buffer, the shape, size, and location of which was determined based on the parameters discussed in Question #2 above, had valuable agricultural land incorporated within, then that land could have an added factor of protection afforded it or, conversely, could add another factor of protection to the buffer. Protection of agricultural land would not, however, be a driving force behind the determination of any of the buffers. Later input from the Oregon Department of Agriculture (ODA) did add a slightly different slant on the issue, expressing concern that buffers not be composed of a significant amount of non-resource land if that inclusion of non-resource land (considered more acceptable for future growth by the state) would force resource land outside of the buffer to be included in future growth areas. An analysis of the buffer areas, as they stand at present, shows that there is no relationship between the amount of non-resource land within the proposed buffers and the inclusion of resource land in future growth areas.

Question #4 - *How should they be protected to adequately perform their task?*
Measures to ensure that buffer areas continue to provide the separation they are intended to provide depend in

large measure on the type of buffer. Rural buffers could be protected by an agreement between Jackson County and the affected cities to not seek expansion of the UGB into the area by the cities, nor to provide for any significant upzoning by Jackson County. Since the rural nature of the area in this type of buffer is its most salient feature, maintaining the present zoning is appropriate. This is also true of the rural component of a compound buffer. For urban buffers (and the urban components of compound buffers) that involve unincorporated communities within the County, there would also be agreements with the County and affected cities that could stipulate changes in zoning (including upzoning) and design standards that could serve to enhance the perception, rather than the reality, of separation. In urban buffers that are at a contiguous border between two cities, there would most likely be an agreement between cities of zoning and design standards for the area that are complimentary, and that, again, enhance the perception of separation.

Question #5 - *Are they appropriate in all cases?*
Originally, the pCIC had proposed community buffers in all the theoretically appropriate areas between jurisdictions. The only exception was the potential for the urbanized buffer along the contiguous border of Central Point and Medford, which was not addressed in any real detail by the pCIC. During the course of the project, issues arose in the project at large that affected the original buffer designs. Most notable among these are the following:

White City / Medford-Central Point - The original compound buffer was situated on either side of Hwy 62, extending on the west side of Hwy 62 south from Denman State Park to the northern border of proposed Medford growth area MD-1 and Central Point growth area CP-2, and all the way west to Downing Rd., and east of Hwy 62 from the rural residential area south of White City to the north of proposed Medford growth area MD-2 all the way east to midpoint between McLoughlin Dr. and Foothill Rd. During the process of identifying potential growth areas, the larger area west of Hwy 62, including the proposed buffer area as well as the unincorporated community of Gibbon Acres, was identified as having high potential for future growth. The pCIC reviewed the rationale for the change in direction, and agreed that dedicating the area to growth appeared to offer more compelling benefits to the region than dedicating it to a community buffer. The committee's decision to make this change was heavily influenced by the existence of Denman State Park, located between the proposed buffer and White City, which provides a ready-made and permanent buffer. This new potential growth area, now labeled CP/MD-1, has not yet been adopted by either Medford or Central Point, nor has there been any formal discussion of how the area would be "divided up" should both jurisdictions be interested. It may be that neither of the two cities would be interested, or that only one would be. The buffer area to the east of Hwy 62 remains unaltered at this point in the project.

Central Point / Medford - As mentioned, the identification of opportunities for an urbanized buffer along points of high travel across the contiguous border of Medford and Central Point was not a high priority for the pCIC. Staff eventually took some general direction from the committee and identified three points of high travel—the intersections of Beall Ln. and Hwy 99 and Table Rock Rd and Pine St./Biddle Rd., and I-5 at the Table Rock Rd. overpass. Whether these will be embraced as appropriate sites for urbanized buffer treatments (design standards, architectural or landscape features, etc.), or even whether any buffer treatments at all will be seen as desirable by either jurisdictions is unknown at this point. Recent comments by a Central Point public official concerning the city's shared destiny with Medford as part of the urban core of the valley provide an interesting window onto the relationship between the two cities, and suggest that, perhaps in this case, making an overt distinction between the two communities as two entirely separate entities may not be the most appropriate strategy.

Medford / Phoenix - The proposed compound buffer between Medford and Phoenix was one of the more problematic, due to the urban and near-urban levels of development on county land between I-5 and the RR tracks to the west. The compound nature of the buffer was clear in the extreme differences between the rural buffer component to the east of I-5, the urbanized area in the middle, and the rural strip on the western end of the buffer. Notwithstanding this complexity, Phoenix, Medford, Jackson County, and several state agencies expressed a desire to focus on a solution to the unincorporated community between Phoenix and Medford; on the industrial land to the west of the railroad tracks and south of South Stage Rd.; and on the connectivity issues forced by the lack of crossings over the railroad tracks that precluded refinements to the proposed buffer during the project period. At this time, the current very draft solution to the connectivity issues associated with the city taking in the industrial area to the north of the city and west of the RR tracks would seem to indicate that the need for a rural component to a Phoenix/Medford buffer to the west of the railroad tracks would disappear. That portion, though, is a minor part of the theoretical buffer—of more importance is the eventual disposition of the entire unincorporated community between I-5 and the railroad tracks. **How** that is decided will have a major effect on the location, type, and viability of a buffer in that location. **Whether** the unincorporated area is included in the solution may have a great deal to do with how creative the region and the state are in finding a way to fund the provision of urban services to the unincorporated area should one or both of the cities eventually agree to annexing part or all of the community. All parties are aware that the provision of services would be extremely costly due to the existing density and patterns of development, and thus would not be undertaken lightly by either city. As for the rural buffer component to the east of I-5, it is not anticipated that it will be affected by this process.

BUFFERS

Description	Type		Acreage
Eagle Point / White City	Rural		987
White City / Medford / Central Point	Rural	(west of Hwy 62)	pending
		(east of Hwy 62)	433
Central Point / Medford	Urban		N/A*
Jacksonville / Medford	Rural		3,400
Medford / Phoenix	Compound	(rural, east of I-5)	576
		(urban, between I-5 & 99)	254
Phoenix / Talent	Rural		897
Talent / Ashland	Rural		536

* *Because there is a contiguous border between Medford and Central Point, the urban buffer would be located in isolated points of high transit, and would not involve significant acreage.*

Open Space - Environmental

Environmental open space focused on the fish-bearing waterways (trout and salmon) in the study area, prominent examples of vernal pools, and native oak savannas.

The fish-bearing waterways selected were chosen by the committee for environmental reasons, primarily for their usefulness in maintaining the study area as an important center for salmonid breeding and rearing. There were discussions of the possibility in the future of developing a creekside system of trails throughout the region, but it was acknowledged that the highest potential for that occurring widely, considering the patterns of ownership along most of the creeks in the area, was not considered likely. There was consensus that creeks within future growth areas had the highest potential for having master planned creekside trails once those areas came into development, and for that reason the pCIC recommends that cities pay special attention to those opportunities, especially in larger future growth areas. For this reason, all the riparian areas that cross potential future growth areas have “recreational” as a secondary classification as a recognition of that potential.

The vernal pools selected by the pCIC are representative of the larger and more important concentrations of vernal pool complexes identified in the first phase of an ongoing project sponsored by Jackson County to produce a wetland conservation plan to deal with the issue of vernal pools in the County. The vernal pools recommended by the pCIC do not represent the totality of what is present in the study area, but they do represent the apparently more complete, ecologically stable, and potentially viable pool complexes in the area. A final determination of which vernal pools do indeed fit these criteria will be made upon the completion of the vernal pools project.

Almost all the oak savanna sites selected are fairly large stands of native oaks, representative of this historically predominant tree species in the area. These types of oak stands have become progressively less common in the region over the last century, falling initially to agriculture, and now increasingly to development. The recommended stands are especially important due to the fact that the trees, not being economically valuable nor particularly in demand as ornamentals, are not being replanted. Since the only significant occurrences of these trees in the future are going to be naturally occurring in existing stands, the pCIC is recommending that these examples, and others the committee may have missed, be preserved.

ENVIRONMENTAL OPEN SPACE

Code	Description	Secondary Classification
1 - 2	Vernal pools complex	
1 - 3	Antelope Creek riparian corridor	
1 - 4	Little Butte Creek riparian corridor	
1 - 5	Former Eagle Point sewage treatment site	recreational
1 - 7	Vernal pools complex	
3 - 5*****	Whetstone Creek riparian corridor	recreational #
4 - 1	Rogue River riparian corridor	recreational, aesthetic
4 - 4	Vernal pools complex	
4 - 5	Oak savanna/vernal pools complex	aesthetic
5 - 3	Dean Creek riparian corridor	
5 - 4*****	Willow Creek riparian corridor	recreational #
6 - 2	Griffin Creek riparian corridor	
6 - 3*****	Oak savanna	aesthetic
6 - 4	Jackson Creek riparian corridor	
6 - 8	Oak savanna	aesthetic
6 - 9*****	Oak savanna	aesthetic
9 - 7	Larson Creek riparian corridor	recreational #
11 - 3	Oak savanna	aesthetic
12 - 2	Kenutchen Creek riparian corridor	
12 - 3	Anderson Creek riparian corridor	
13 - 1*****	Coleman Creek riparian corridor	recreational #

14 - 2*	Wagner Creek riparian corridor	recreational #
15 - 2	Bear Creek riparian corridor	recreational, aesthetic
16 - 5*	Butler Creek riparian corridor	
16 - 3	Myer Creek riparian corridor	
17 - 3	Neil Creek riparian corridor	
17 - 4	Clayton Creek riparian corridor	
17 - 5*	Tollman Creek riparian corridor	recreational #
17 - 7	Ashland Creek riparian corridor	

*****_wholly or partially within, or contiguous with, a potential future growth area._
#_the "recreation" secondary classification applies to the portion of the riparian corridor laying within or alongside a potential future growth area._

Open Space - Aesthetic

There are a number of different types of open space included under this category, including scenic corridors (roads), geologic formations, a scenic lookout, an historic farm, and an orchard. By far the most significant of these are the scenic corridors that have been recommended, twelve in total, which transect some of the most beautiful scenery the valley has to offer. With these, the pCIC is recommending that careful consideration be given by governments as well as individual citizens before making any significant changes to the areas around these scenic corridors that could compromise what makes these stretches of public roadway so special. The pCIC also considers these scenic corridors to be high priorities for creating opportunities for safe bicycle and pedestrian use, and recommends some type of "Greater Bear Creek Valley Scenic Corridor" signage to call a higher level of attention to these special roadways.

Of the other aesthetic open space, the next most popular were the geologic formations, namely Payne Cliffs and Pompadour Bluff. Neither of these permit access by the public at large, and therefore, at least at present, add value only as viewscape. Of the remaining recommended aesthetic open space, the scenic lookout is a modest hill in Eagle Point overlooking an expanse of EFU land (and the White City/Eagle Point buffer); the historic farm is at the entrance to Ashland, and is almost universally associated with the gateway to Ashland; and the orchard, along Hwy 62 towards the northern limits of Medford, which provides an attractive break from the largely commercial areas to the south and north of it (the latest information concerning this orchard, which is part of the proposed growth area MD-2, is that it will be pulled and not replanted).

AESTHETIC OPEN SPACE

Code	Description	Secondary Classification
1 - 1	Scenic lookout	
5 - 1	North valley gateway	
7 - 3	Vilas Road scenic corridor	
7 - 4	Foothill Road scenic corridor	
7 - 5	Coker Butte Road scenic corridor	

7 - 6*	Orchard	
8 - 1	Payne Cliffs	
8 - 7*	North Phoenix Road scenic corridor	
10 - 3a	Rossanley Road scenic corridor	
10 - 3b	Hanley Road scenic corridor	
10 - 4	Hwy 238 scenic corridor	
10 - 5	South Stage Road scenic corridor	
11 - 1*	Old Stage Road scenic corridor	
12 - 1	Payne-Suncrest scenic corridor	
16 - 2	Wagner Creek Road scenic corridor	
16 - 4	Billings Farm	
17 - 2	Pompadour Bluff	
17 - 6	Dead Indian Memorial Road scenic corridor	

***** *wholly or partially within, or contiguous with, a potential future growth area.*

Open Space - Cultural
There are fairly limited examples of this open space category in the recommendations, but a great deal of variety. There is the Willow Springs School, the Hillcrest Orchards historic buildings as well as the orchard itself, the Stearns Pioneer Cemetery, the Voorhies Mansion, and the "Nut Farm Building" off Wagner Rd. Some of these are highly visible, most are well known, and all are priceless examples of the area's history that deserve to be preserved. Of all of these, the Willow Springs School appears to be most at risk in the short term, as the owners and the community have not been able to do the degree of restoration necessary due to financial limitations.

CULTURAL OPEN SPACE

Code	Description	Secondary Classification
5 - 2*	Willow Springs historic elementary school	aesthetic
7 - 1	Hillcrest Orchards historic buildings	aesthetic
7 - 2	Hillcrest Orchards	aesthetic/recreational
9 - 2	Voorhies Mansion	
14 - 4	Stearns pioneer cemetery	
16 - 8	Historic "Nut Farm"	

***** *wholly or partially within, or contiguous with, a potential future growth area.*

Open Space - Recreational
The overwhelmingly popular theme in this category was in terms of providing trails for public use throughout the study area. There were two main purposes expressed for doing so. One was to provide a means for people

to enjoy the valley by having reasonable access to a trail system, and the other was to provide linkages between open space of all types in both urban and rural areas. At present, recreational opportunities in the valley form a static system of unrelated and unconnected sites that not only promote activities that seem incongruous (driving to an area to be able to walk, for example), but fail to provide the crucial factor of wide spread open space linkages. These linkages are not only important in providing a means for elements of the natural system to “communicate” with each other, but are also vital in promoting the most advantageous use of the areas being connected, as well as of the linkages themselves. In fact, these linkages in and of themselves can become more important for recreational purposes than what they serve to connect.

The best example of a theme that should be built upon in the future in this region is the Bear Creek Greenway. It is an excellent example of a systemic integration of functions on a regional basis, protecting wetlands and riverine areas for wildlife corridors at the same time that it is providing bicycle and pedestrian connections to other cities and parks, all the while providing myriad educational opportunities. The pCIC recommends building on this example in aggressive fashion in the future.

There are two fairly dramatic concepts that have taken shape during the project that relate to the establishment of a trail system in the region. One has been discussed intermittently over the years, the other much less so, if at all. Both would require courage and determination, as well as the creation of a shared sense of common benefit among the public, to accomplish.

<u>Canal-based Trails</u>: This is a concept that has been greeted with resistence when it has been proposed in the past, although it has never been proposed in the context of a larger plan to provide a dramatic increase in recreational opportunities region-wide. The modification being suggested is to phase in a canal-based trails system as stretches of the canal are piped and placed underground. In this fashion the area covered by the existing easement would be sufficient for a trails system, and the liability of providing public access to an open body of water would disappear.

Undoubtedly, the concerns expressed in the past by landowners whose land is now crossed by canals would need to be addressed, and it may be that not all lengths of canal that would otherwise be suitable for trails would eventually be converted due to resistence by landowners and, potentially, the irrigation districts themselves. Perhaps there would be the need for some sort of landowner compensation, fencing, or enforcement to make the idea both saleable and functional. Possibly financial assistance with public funds for the piping itself would be an incentive, or a careful analysis of tailoring the uses to appeal to the landowners along a particular stretch (permitting use by horses in rural areas for example) would be important—these are the kinds of details that would need to be worked out over time if and when the region determined that the effort is worthwhile.

<u>Agricultural Buffer Trails</u>: A potential trails use of agricultural buffers has arisen from the stated interest of the Resource Lands Review Committee (RLRC) to establish regional standards of agricultural buffers for all future growth areas that border on EFU lands. The details of what these buffers would look like would be worked out in the second phase of RPS, but one preliminary idea is to use the land set aside for these buffers (which would be on the land coming into development) to establish a trail system. The most benefit from this idea would be along the peripheries of the largest growth areas, such as those found around Eagle Point, between White City and Medford/Central Point, and on the east side of Medford. These “buffer trails” have been included on the recommended open space map, but should be considered as tentative until it is clearer whether the concept has sufficient support to continue forward.

RECREATIONAL OPEN SPACE

Code	Description	Secondary Classification
2 - 1	Various White City open space	
6 - 1*****	Open space	aesthetic

8 - 5	Cherry Lane Estates potential trail	aesthetic
9 - 1*****	Open space	aesthetic
11 - 4	Baseball fields	
12 - 5	Open space	
16 - 1	trail	aesthetic
16 - 10*****	Various irrigation canals	aesthetic
17 - 1	Grizzley Peak potential trail	aesthetic

***** *wholly or partially within, or contiguous with, a potential future growth area.*

Open Space Focus: Hillcrest Orchards

The pCIC recommended that the region pay very special attention to Hillcrest Orchards in the near future. At present Hillcrest Orchards is an anomaly in the valley—a large area of EFU-zoned land completely encircled by the city of Medford. The land was first settled in 1853, and was first planted to a commercial orchard crop in 1897. Hillcrest Orchards, as an entity, came into being in 1908 when it was sold to the Hillcrest Orchard Company. Two years later Reginald Hascall Parsons became the owner of the 185 acre property, with the ownership by the family continuing for the last 93 years.

Pears are the principal crop at present, although the orchard has been experimenting with grapes for the last several years (Cabernet Sauvignon, Cabernet Franc, Merlot, and Syrah), and has the potential in the future to convert upwards of 100 acres of the orchard to vineyard. The total property is now 255 acres, 250 acres of which includes the orchard and outbuildings, with a separate parcel of the remaining 5 acres which holds the main residence. This structure (designed by Frank C. Clark and completed in 1917), and a number of the outbuildings, most notably the old packing house, are on the National Register of Historic Places.

The pCIC was universal in its appreciation of Hillcrest as an open space centerpiece in the valley, as well as an important link with the region's past, and was equally as united in expressing the desire to see an alternative to urban development in Hillcrest's future. At present, the orchard is zoned EFU and is in active production, although investments in the orchard have reportedly been flat in the recent past due to uncertainty about the future of Hillcrest. The orchard is being held in a trust that is likely to terminate in the short term, and once that occurs, ownership of the orchard reverts to 11 heirs (the eleven grandchildren of the original owners). Among those heirs there are, reportedly, divided opinions about the future of Hillcrest; from those who would support the continuation of farming to those who would favor the development of the property. The only part of Hillcrest Orchards that is not in question is the residence and five acres that surround it. These will most likely remain a shared property among the heirs.

The pCIC sees two general alternatives that could keep Hillcrest out of development, which is what the committee considers to offer the greatest eventual regional benefit. The first alternative would be for Hillcrest to continue as an agricultural operation. This would probably necessitate that the heirs interested in continuing to farm the property buy out the others. It is unknown how feasible that would be, and whether Hillcrest Orchards can return to profitability after years of operating losses. Even if the buyout could occur, and even if Hillcrest Orchards could become profitable, the interest in farming the property could end with the purchasing generation of heirs. Another round of inheritance could change the scenario, unless there were provisions placed in the will or wills that would prevent that. A modification to this continued farming scenario would be for the region to purchase a conservation easement, which would serve a purpose similar to purchasing development rights. The money from the easement purchase could assist in covering some of the expenses of returning the orchard to a higher level of productivity, and/or could be used to establish a potential commercial use for the old structures, such as a wine tasting room, restaurant, or site for events such as weddings. One potential problem with this idea is that a conservation easement could guarantee that Hillcrest would never be developed, but it wouldn't necessarily assure that the land would be maintained in a form most advantageous to the region in the future.

A second alternative would be for the region to fund the purchase of Hillcrest, and to preserve it as some form of open space. The recommendation from *OurRegion* was to establish Hillcrest as a "heritage orchard," preserving the majority of the present orchard as a working farm, and establishing a peripheral park to buffer the orchard from the surrounding development. Because the idea of a heritage orchard is similar to what has been done with Hanley Farm, the Southern Oregon Historical Society could become an important element in the solution, and may be a logical choice to own and/or manage Hillcrest. One interesting refinement of the idea to establish a buffering park is to create a world class botanical garden at Hillcrest, something that could eventually become a major draw for the region.

Because the second alternative calls for the purchase of Hillcrest Orchards, the cost is an important factor. Reportedly, the main 250 acre piece has a value of approximately $3 million, or somewhere around $12,000 per acre. This is certainly far below its theoretical development value, but is also in excess of its current worth as just class 3 and 4 EFU land. The members of the pCIC discussed the implications of attempting to fund the purchase, and the mechanisms whereby that might be accomplished, and although there was some disagreement on the details, there was unanimous agreement on the fact that the region would respond, whether through a bond issue or private donations. Given the option of either converting Hillcrest Orchards to largely residential uses, or creating a future regional open space treasure, the pCIC was unambiguous in its recommendation.

Non-buildable Lands

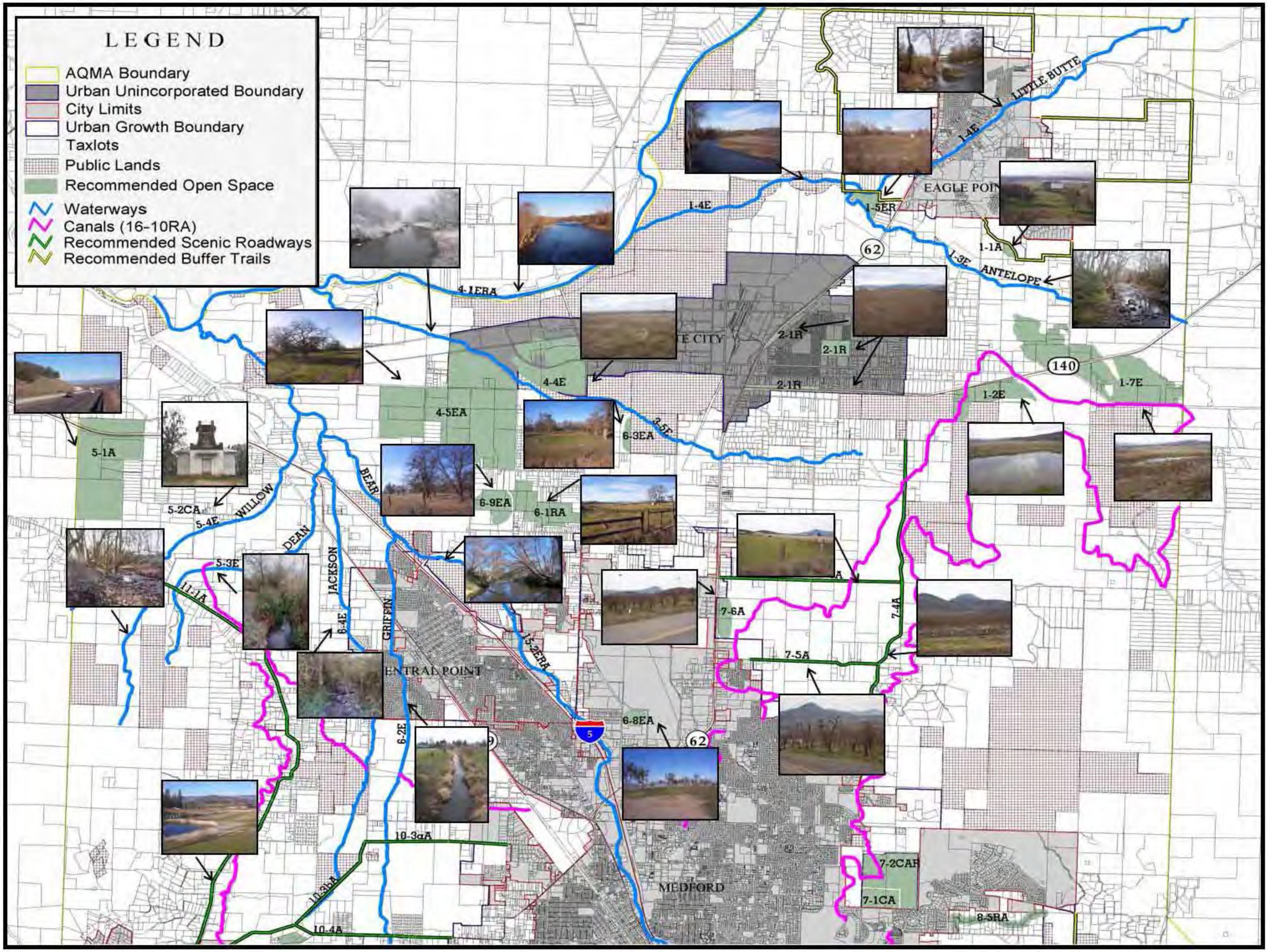
Non-buildable lands could have been considered as a separate category of open space. That they were not has to do with the fact that they are lands upon which development is unlikely for predominantly physical or practical reasons, and, therefore, provide open space only as an ancillary circumstance. In this sense they had more in common with resource lands than open space.

Non-buildable lands were an original core element of the project strategy, as they represented a fairly straightforward and understandable first step in determining the non-growth areas. Although that strategy was modified somewhat during the course of the project, the identification of non-buildable lands remained a basic project building block.

The factors that were identified as qualifiers for categorizing lands as "non-buildable" are as follows:

- wetlands (including vernal pools)
- publically-owned lands
- floodways
- slopes in excess of 40%
- privately-owned lands with conservation easements
- rights-of-way

These "non-buildable" factors are the lowest common denominator of the variety of individual jurisdictional standards for what is unsuitable for growth. As such, they are relatively basic and, in the case of maximum slope, somewhat liberal. Nonetheless, these factors did provide for initial agreement on a basic set of lands which were considered to be unsuitable for growth by all participants.


LEGEND
AQMA Boundary
Urban Unincorporated Boundary
City Limits
Urban Growth Boundary
Taxlots
Public Lands
Recommended Open Space
Waterways
Canals (16-10RA)
Recommended Scenic Roadways
Recommended Buffer Trails
LITTLE BUTTE
1-4E
EAGLE POINT
1-5ER
1-1A
1-3E
ANTELOPE
62
140
4-1ERA
2-1R
4-4E
4-5EA
3-5E
6-3EA
1-2E
1-7E
5-1A
5-2CA
5-4E
WILLOW
BEAR
DEAN
JACKSON
6-9EA
6-1RA
5-3E
11-1A
6-4E
GRIFFIN
7-6A
7-4A
7-5A
15-2ERA
CENTRAL POINT
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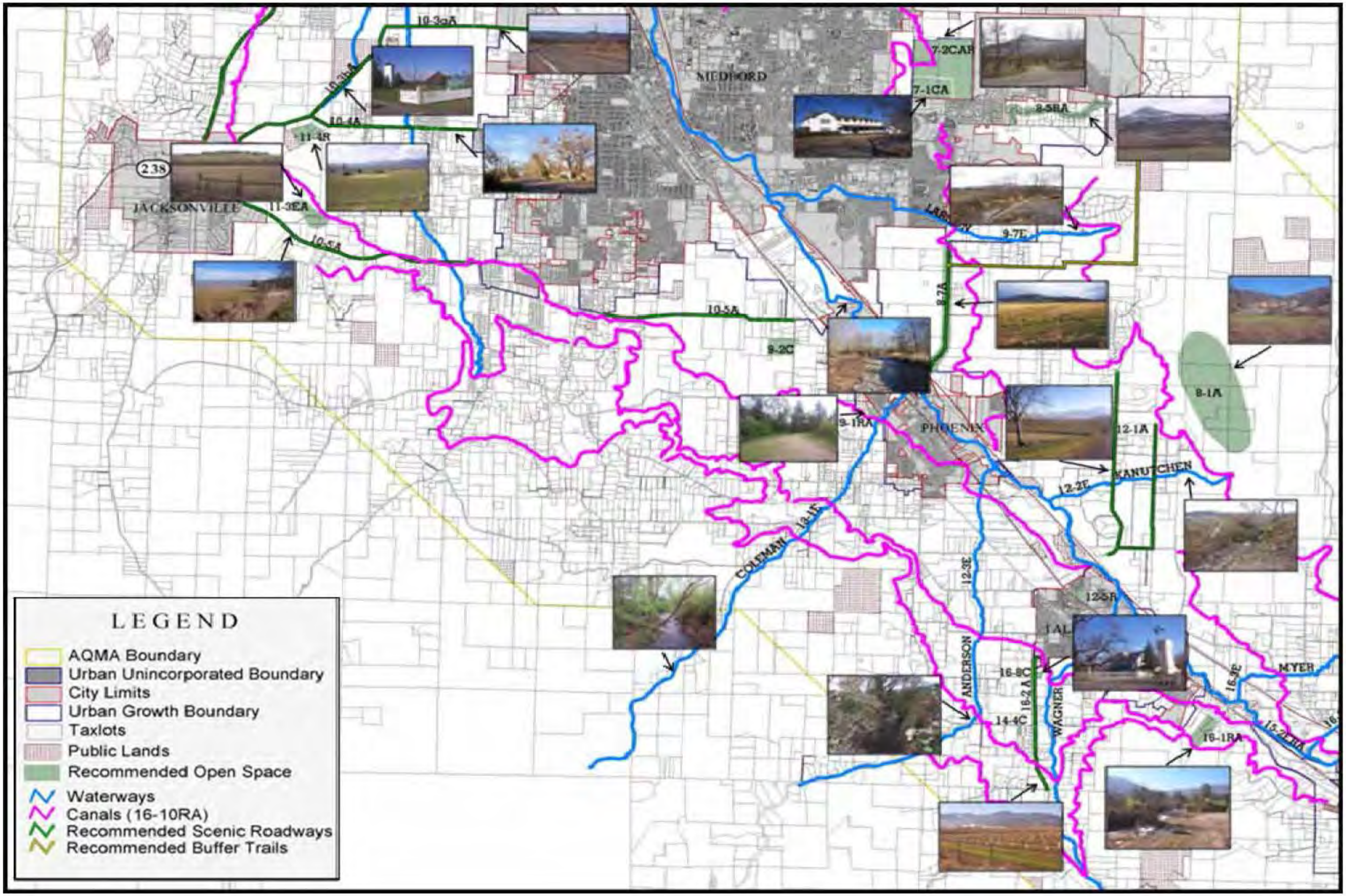
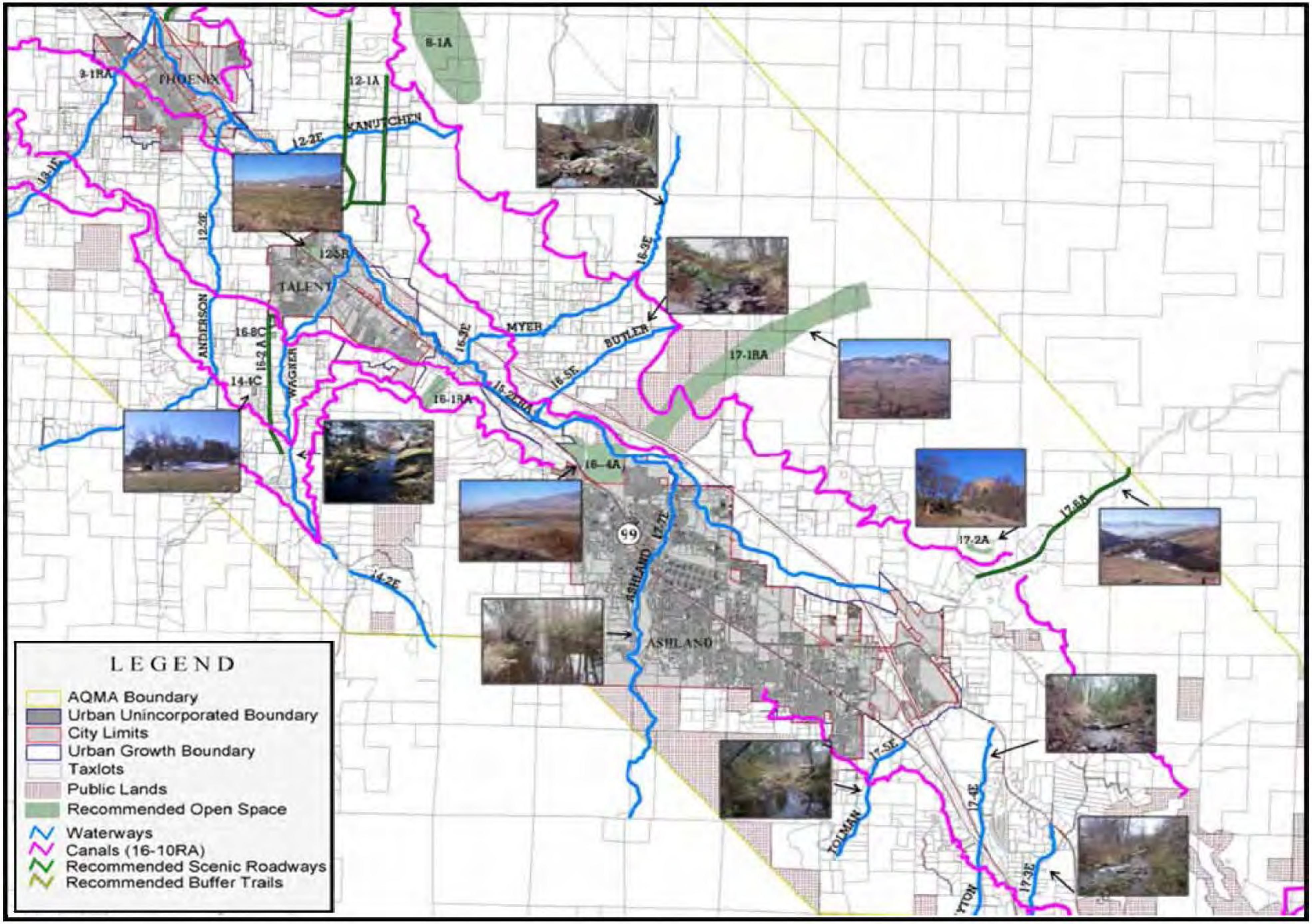
MEDFORD
7-2CAR
7-1CA
8-5RA


LEGEND
AQMA Boundary
Urban Unincorporated Boundary
City Limits
Urban Growth Boundary
Taxlots
Public Lands
Recommended Open Space
Waterways
Canals (16-10RA)
Recommended Scenic Roadways
Recommended Buffer Trails
MEDFORD
JACKSONVILLE
PHOENIX
238
COLEMAN
ANDERSON
WAGNER
KANUTCHEN
MYER
10-5A
9-2C
9-7E
9-7A
8-1A
12-1A
12-2E
12-3E
12-5R
16-8C
16-2A
14-4C
16-1RA
16-3E
7-1CA
7-2CAR
8-5RA
10-4A
11-4R
11-3EA
10-3aA



8-1A
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PHOENIX
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KANUTCHEN
12-2E
13-1E
12-2E
12-3E
TALENT
ANDERSON
16-8C
15-2A
WAGNER
14-4C
16-3E
MYER
BUTLER
16-5E
17-1RA
16-1RA
16-2E
16-4A
99
ASHLAND
17-7E
14-2E
ASHLAND
17-2A
17-6A
17-5E
TOLMAN
17-4E
17-3E
LEGEND
AQMA Boundary
Urban Unincorporated Boundary
City Limits
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Public Lands
Recommended Open Space
Waterways
Canals (16-10RA)
Recommended Scenic Roadways
Recommended Buffer Trails

APPENDIX V

REGIONAL LAND PRESERVATION STRATEGIES

Regional Land Preservation Strategies

Of the pCIC's community buffering recommendations for rural buffers, only one has proven impossible to implement (the area between Medford and Phoenix). Every other community buffer has been successfully incorporated into the cities' long range growth plans by avoiding the inclusion of any significant areas of urban reserve lands within them, although the original buffer between Medford and Jacksonville was reduced when the RPS study area was finalized to extend only as far west as the eastern boundary of the Jackson County/Jacksonville Area of Mutual Planning Concern. The community buffers represent significant agreement by cities with the pCIC's recommendations and the project's Goals 2 and 3. The final recommended rural buffers include a total of almost 7,000 acres, distributed as follows:

Neighboring Communities	Total Acres
Eagle Point / White City –	1,271 acres
White City / Medford –	1,276 acres
Medford / Jacksonville –	2,347 acres
Phoenix / Talent –	1,315 acres
Talent / Ashland –	711 acres

It should be noted that although the City of Jacksonville lies outside the regional plan area, the need to preserve the rural separation area between it and the City of Medford is an important consideration in the valley. Figures 1 through 5 show the locations of the Community Buffers:

Figure 1
Eagle Point / White City
Community Buffer

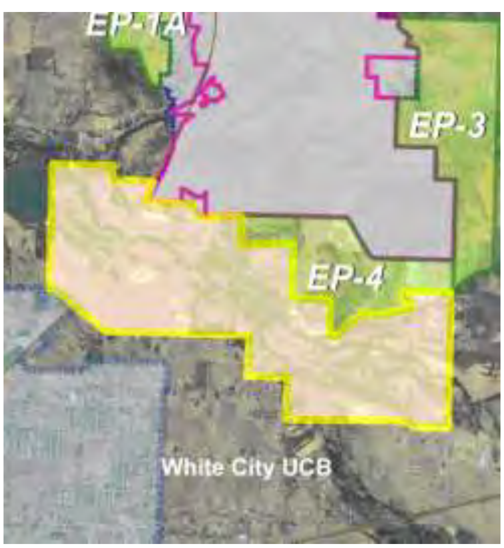


Figure 2
White City / Medford
Community Buffer

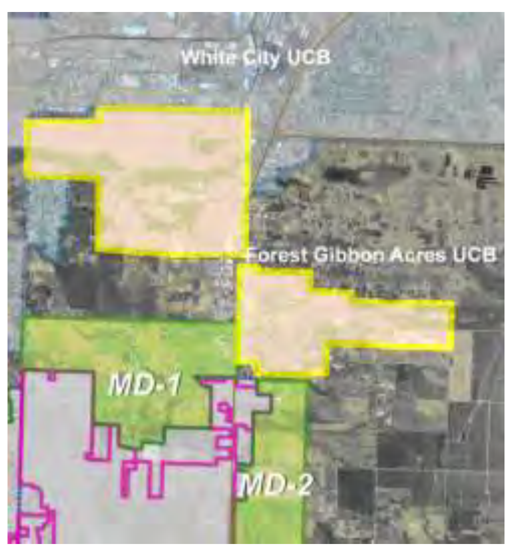


Figure 3
Medford / Jacksonville
Community Buffer

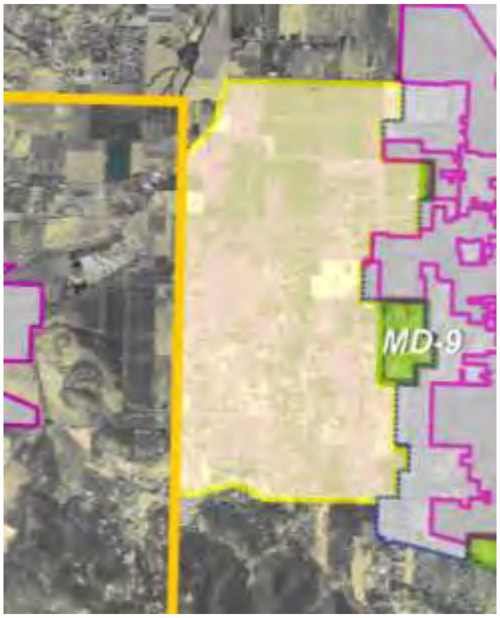


Figure 4
Phoenix / Talent
Community Buffer

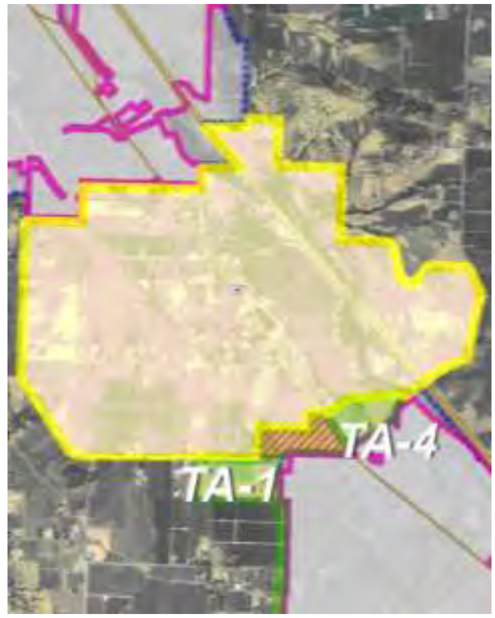
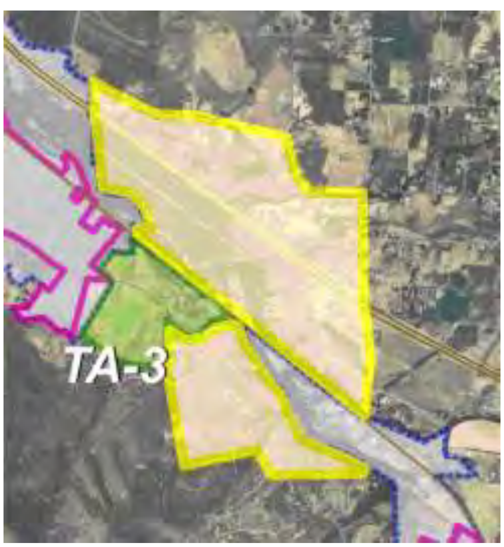


Figure 5
Talent / Ashland
Community Buffer



BACKGROUND
The preservation of important open space in the Greater Bear Creek Valley is one of the priorities of the Regional Problem Solving process, and is established as such in the project's Goals and Policies:

> **Goal 2: Conserve resource and open space lands for their important economic, cultural, and livability benefits.**
>
> > **Policy #4** The region will explore incentives and other measures to achieve the long-term preservation of regionally significant open space, including lands within the designated community buffer areas.
>
> **Goal 3: Recognize and emphasize the individual identity, unique features, and relative competitive advantages and disadvantages of each community within the region.**
>
> > **Policy #1** The region will facilitate and enhance the individual identity of each community by A) maintaining buffer areas of rural land between the various cities; B) where communities are planned to be contiguous, by establishing distinct design features along transportation corridors that demark the municipal boundaries; or C) by other appropriate means.

During the first two years of the RPS process, the Citizen Involvement Committee worked to identify the region's most important open space, and, as part of that process, mapped a number of "community buffers", rural lands between cities, that were considered crucial in preventing cities in the valley from eventually growing into one another (as exists in the shared boundary between Medford and Central Point). Cities, in forming their proposals for urban reserves, attempted to avoid placing potential urban reserves on most of these areas of open space value.

Nonetheless, the present reality of Measure 37 claims, the facts that EFU zoning itself is less than 50 years old, and the realization that the simple state of not being part of an urban reserve area under RPS gives no absolute guarantee that rural lands will not eventually develop under some future scenario, especially over the next three to four decades, have encouraged the RPS process to look at incentives mechanisms that could ensure the long-term protection of important open space lands. Below are the strategies recommended out of committee.

STRATEGY OVERVIEW
There are three categories of COSA's identified under this overall strategy – **Rural**, **Urban**, and **Blended**.

<u>1) Rural COSA</u>
To provide for long-term preservation of important open space areas in the Greater Bear Creek Valley, all lands (receiving areas) added to a city UGB, or established as part of an urban reserve after January 1, 2007, must provide, as a condition of annexation, a set minimum acreage of conservation easements purchased from rural lands within the RPS planning area (sending areas). The ratio of sending easement acres to receiving acres will vary by city depending on different prioritization factors, and the price of the easements will be determined by the market place.

Strategy Details
<u>Eligible lands</u>: There are two major classes of lands under this strategy – receiving and sending. The receiving areas are those lands added to a city's UGB (or included in an

urban reserve) after January 1, 2008. At a minimum, this program would impact the acreage dedicated to residential uses, but each city could also include, at its discretion, commercial and industrial acreages. The sending areas include rural lands inside the RPS planning area with more than 2 acres of undeveloped land.

Ratios: Although the relative priorities of sending areas will be established regionally, each city will be responsible for setting the ratio of sending acres to receiving acres. The ratios established will depend on a number of factors, including size, attributes, and proximity to urban land. Sending parcels of high value or desirability could be set at fractions of one acre (say a tenth of a sending acre to one growth acre), while significantly less important parcels could be at multiples (five acres of sending acres to one growth acre). As an example, land within the recommended pCIC buffer areas could be the first tier of priority lands, EFU lands proximate to these areas could be the second, and resource lands on the edges of the region could be the third.

Price: The price of conservation easements will be determined by the market. The health of the market in easements, measured as a function of their availability and cost, will be monitored under RPS on a periodic basis.

Flexibility: If deemed appropriate by the annexing city and the proponent of development, all or part of the easement requirement may be replaced by an affordable housing guarantee. The proponent of development must come to agreement with the city on the percentage of affordable housing being guaranteed, as well as provide its clear definition of affordable housing. In no case will that definition include a design that does not ensure at least 30 years of affordability.

2) Urban COSA
To provide for a recognizable transition between contiguous urbanized areas. The design standards to create the urban COSA would be applied to urban land along major transportation corridors.

Strategy Details
Eligible lands: Existing or planned contiguous areas of urban land between jurisdictions. As proposed in the Regional Plan, these are lands between Phoenix and Medford, and between Central Point and Medford.

Master Plan: To create an urban COSA, the affected jurisdictions would collaboratively identify, plan, finance, and implement the recommended design standards through a mutually-adopted refinement plan addressing the urban or parkway design of the separating transportation corridors.

3) Blended COSA
To provide for flexibility in situations in which neither a rural nor urban COSA would be the most appropriate choice. Although the primary focus of a blended COSA is on preservation of key open space as the predominant and driving planning focus, which is similar to the goal of the rural COSA, there is also a component of residential/commercial development significant enough to dictate the inclusion of the entire blended COSA in the city's urban inventory. The primary advantage of the blended COSA is the ability to provide for an optimal level of residential/commercial development, while also preserving key open space values.

Strategy Details
Eligible lands: urban reserves with key open space value, or with importance as a preservation area to facilitate regional infrastructure needs. Designated lands must be protected by a master plan that can only be approved and modified by regional agreement.

Master Plan: The blended COSA area will function as a microcosm of the rural COSA strategy (above). The portions of the blended COSA designated in the master plan as residential/commercial development is required to function as receiving areas to protect the sending areas within that same mixed use area. In the event that the receiving areas within the blended COSA cannot generate sufficient easements to protect the COSA's sending areas, then the same areas eligible for use as receiving areas per the rural uses strategy would be used to protect the blended COSA's sending areas. Within some single large properties, the sending and receiving areas may be located on the same parcel.

APPENDIX VI

TRANSPORTATION PLANNING ANALYSIS UNIT (TPAU) MODELING REPORT

Land Use and Transportation Modeling for Regional Problem Solving

Brian Gregor
ODOT Transportation Planning Analysis Unit
10/23/07

Summary

This report presents the results of transportation and land use modeling for the Regional Problem Solving (RPS) process in the Greater Bear Creek Valley. The purpose of the RPS process is to identify additional lands needed for urban development to accommodate a doubling of the region's population. The RPS process will created a coordinated urban expansion plan for Jackson County and the cities of Ashland, Central Point, Eagle Point, Jacksonville, Medford, Phoenix and Talent.

The jurisdictions involved in the RPS process agreed upon and adopted a set of goals and policies to guide the outcome of the process. These policies identify a number of issues of concern regarding land utilization, public facilities and services, resource lands, housing, jobs, and community identity. A number of analyses have been commissioned in order to determine how growth proposals might affect these concerns.

ODOT's Transportation Planning Analysis Unit (TPAU) was requested help evaluate transportation effects. To do so, TPAU modeled various development scenarios using new land use and transportation models for the region. The land use model was developed to provide the land use inputs required by the transportation model. The modeling proceeded in the following three stages:

1) Model the transportation performance of the adopted regional transportation plan (RTP) for a range of land use futures that could plausibly occur given the proposed urban growth areas.
2) Model the transportation performance of this same set of plausible land use futures on a road network with additional capacity expansion (beyond what is addressed by the RTP).
3) Model the transportation performance for different land use and transportation policy scenarios. The land use scenarios include growth with no change in policy, growth according to a policy which concentrates mixed use development in nodes, and growth according to a policy which creates regional employment centers. The transportation scenarios include different levels of road and public transportation network expansion.

The three stages of the RPS modeling have provided information to assist the RPS decision-making process and subsequent planning.

By the time the region’s population doubles, the road system will have to be expanded substantially in order to avoid extensive and severe congestion. Making the road improvements identified in the current regional transportation plan (RTP) will be insufficient to avoid congestion. Enhancing the RTP road network with more capacity and road connections will do much to reduce congestion. Major new roads may be needed as well. None of the model scenarios was able to eliminate all severe congestion on the road system. The analysis did not determine what would be necessary to do so.

The analysis shows that travel patterns, amounts of travel, congestion, and travel times will be significantly affected by the way in which the region grows. This is seen most clearly in the third stage results. The results show that a nodal development pattern, where higher density mixed development is clustered in nodes, would significantly reduce travel distances, congestion, and average travel time relative to the other land use scenarios. The regional attractor scenario, which simulates the development of major employment centers, produces more VMT and less benefit from road improvements than the no policy change scenario.

Planning should consider the effects of uncertainty in how land in the region will develop over time. There are many possible ways land could be developed that are consistent with the growth area proposals, comprehensive plans, and market tendencies. Overall travel is unlikely to be affected but individual portions of the road system will be affected. The results show that congestion on freeway ramps is most sensitive to how land development proceeds.

The results for congestion on the I-5 mainline, on the other hand, show predictable growth of congestion. The second stage of modeling showed large increases in I-5 congestion and only small differences among the land use scenarios.

Development of all of the growth areas will result in increased travel on congested roadway sections. The high capacity scenario would eliminate most, but not all of the affected congested roadway sections. This information can be used to help identify where road improvements will be needed. Determining what should be done in these areas to accommodate development will require more detailed analysis which is beyond the scope of this study.

Purpose

The people of the Greater Bear Creek Valley have been engaged in a process for identifying where urban areas should expand in order to accommodate a future doubling of the population in the region. This process is called the Regional Problem Solving (RPS) process. The objective of the process is to develop a regional plan for growth through cooperation and collaboration. The outcome of the RPS will be the designation of urban reserve areas that will accommodate the expansion of urban growth boundaries as more urban lands are needed to support growth of the region's population.

The RPS process is supported by state laws which recognize that some regional land use planning issues might not be resovable simply by following state planning rules; a more flexible collaborative problem solving process may be needed. The laws provide that if such a process is used to achieve agreements among affected local jurisdictions and state agencies, the Land Conservation and Development Commission may acknowledge comprehensive planning decisions resulting from the agreements, even if the planning decisions are not fully compliant with the statewide planning goals. The goal of the RPS process in the Greater Bear Creek Valley is to get agreement among local jurisdictions and state agencies on where urban reserves should be designated in the area.

The RPS process is directed by a Policy Committee which is composed of the eight local governments in the area (Jackson County, Ashland, Central Point, Eagle Point, Jacksonville, Medford, Phoenix, Talent), state agencies (DLCD, ODOT, GERT, OHCS, DEQ), and the Medford Water Commission. The policy committee is supported by a Technical Advisory Committee, Resource Lands Review Committee, and Citizen's Involvement Committee. The Rogue Valley Council of Governments (RVCOG) is facilitating and coordinating the work of the RPS committees.

Over the course of several years, the committees have considered what areas should be designated as urban reserves. Their deliberations have been informed by resource inventories; development needs analyses, and input from various stakeholders. The result of their deliberations has been a proposal for urban reserve areas.[1] In addition, to identifying the boundaries of the proposed urban reserve areas, the local jurisdictions identified the mix of residential, commercial and industrial development they desire for these areas.

The RVCOG and ODOT's Region 3 office, with the support of the Policy Committee, requested modeling assistance from ODOT's Transportation Planning Analysis Unit (TPAU). Through agreement with the RVCOG, which also coordinates the work of the Metropolitan Planning Organization (MPO) for the area, TPAU is responsible for performing urban transportation modeling for the region to support regional transportation planning efforts. TPAU was asked to model the potential transportation

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[1] Maps of the proposed urban reserve areas and other information on the RPS process is available at the following web address http://www.rvcog.org/MN.asp?pg=rps_main_page.

consequences of land development that might occur given the proposed urban reserve areas. The modeling objectives are:

1. To develop a moderately large set of plausible future land use patterns consistent with the study goals.
2. To test the effects of this set of future land use patterns on the transportation system.
3. To identify the features of land use patterns that most affect transportation performance.
4. To assist in identifying additions to the transportation network needed to serve development of the urban reserves.

Modeling Approach

At the beginning, the modeling task posed some significant challenges. First, the time horizon for population doubling (2050) is well beyond the horizon that is typically modeled (20-30 years). This increases the uncertainty of predictions coming from the model. Second, the land use future to be modeled is specified in very general terms: the urban reserve areas and general development designations for those areas. Transportation models require much more specific information about the distribution of future households by a number of attributes (size, workers, income, age) and employment by industry type. Third, there was no transportation model available at the time which covered the entire study area.

In order to satisfy the modeling request, two new models had to be developed. The first of these was a new transportation model for the entire region. TPAU had a template and software for developing this model and had recently begun development of a new model for the MPO. Development and calibration of this new model had to be completed before the transportation modeling could be done. A land use model also needed to be developed in order to provide sufficiently detailed forecasts for the transportation model to use. Given the inherent uncertainty involved in long range land use forecasting it was decided that a new type of model should be built which produces many plausible land use scenarios. This model was named the Land Use Scenario DevelopeR (LUSDR). A technical description of LUSDR is included in Appendix A of this report.

The modeling was carried out in three stages. In the first stage, the LUSDR model was run multiple times to generate 30 future land use scenarios for existing and proposed urban growth areas. The model comprehensive plan designations for existing urban areas were derived from existing local comprehensive plans. The urban reserve classifications for individual proposed growth areas were made to be consistent with the desired mix of uses identified for those areas by the local jurisdictions. Once the alternative land use scenarios were developed, the new transportation model was applied to them to determine the resulting travel demand. This modeling assumed that all transportation projects identified in the adopted regional transportation plan (RTP) would be completed. Based on this modeling, TPAU presented the information about the growth scenarios and their effects on transportation.

It was found that the RTP transportation network will not have enough road capacity to avoid high levels of traffic congestion when the region's population doubles. After seeing the results of the first stage of modeling, the Policy Committee requested that TPAU do additional modeling to determine the effect that additional improvements to the road network would have on congestion. The Technical Advisory Committee developed a proposal for an enhanced transportation network to address the congestion. TPAU modeled this network with the 30 land use scenarios developed previously and compared the results to the first stage results. This comparison revealed how different transportation network improvements affect the distribution of travel and congestion on the network. The modeling also revealed that congestion on some portions of the transportation system (notably freeway ramps) is very sensitive to land use patterns.

Upon seeing the results of the second modeling stage, the Policy Committee requested that additional modeling be done to explore the joint effects of three different land use policy scenarios and five transportation scenarios.

In the third stage modeling exercise, land use policy scenarios were developed to represent specific outcomes from three differing land use policy approaches for accommodating growth (still assuming that all of the proposed growth areas would be included). These land use scenarios are:

1. **No Policy Change**: This scenario is meant to represent the land use pattern resulting from the growth areas with no overall regional growth policy. This scenario was developed by averaging the 30 land use scenarios generated by the LUSDR model. Figure 1 shows the geographic distributions of households and employment for this scenario.
2. **Nodal Development**: This scenario represents a land use pattern where there is a concentration of development (both households and employment) in compact nodes located around the region. This scenario was developed by altering the "No Policy Change" scenario to double the population and employment within the defined nodes and reduce population and employment growth within the growth areas by a corresponding amount. Figure 2 shows how the "Nodal Development" and "No Policy Change" scenarios differ in the distribution of households and employment.
3. **Regional Attractor**: This scenario represents a land use pattern where employment growth in the region is concentrated in defined regional centers. This scenario was developed by altering the "No Policy Change" scenario so that half the total employment growth is placed in designated regional employment centers. Increased growth in these centers is offset by reduced growth elsewhere in the region. Figure 3 shows how the "Regional Attractor" and "No Policy Change" scenarios differ in how households and employment are distributed.

The five transportation scenarios represent different levels of expansion of the roadway and public transit networks. They are as follows:

1. **RTP Network**: This scenario represents the road and transit networks in the adopted regional transportation plan.

2. **Enhanced Network**: This scenario modifies the "RTP Network" scenario to expand the capacity of existing roads by adding lanes and to increase the connectivity of the existing network by filling in identified gaps in the road system. It includes extentions to existing roads, but does not include any major new roads.
3. **High Capacity Network**: This scenario modifies the "Enhanced Network" scenario to include general concepts for new major arterials. These include a new alignment for Crater Lake Highway, substantial upgrades and some new alignment for Hwy 99 in the south Medford and Phoenix area, and an extension of Hwy 140 to the Seven Oaks interchange on I-5. It is important to recognize that these new arterials do not represent adopted plans or official endorsements.
4. **Enhanced Network with High Capacity Public Transit**: This scenario adds expansion of the public transportation system to the "Enhanced Network" scenario.
5. **High Capacity Network with High Capacity Public Transit**: This scenario adds expansion of the public transportation system to the "High Capacity Network" scenario.

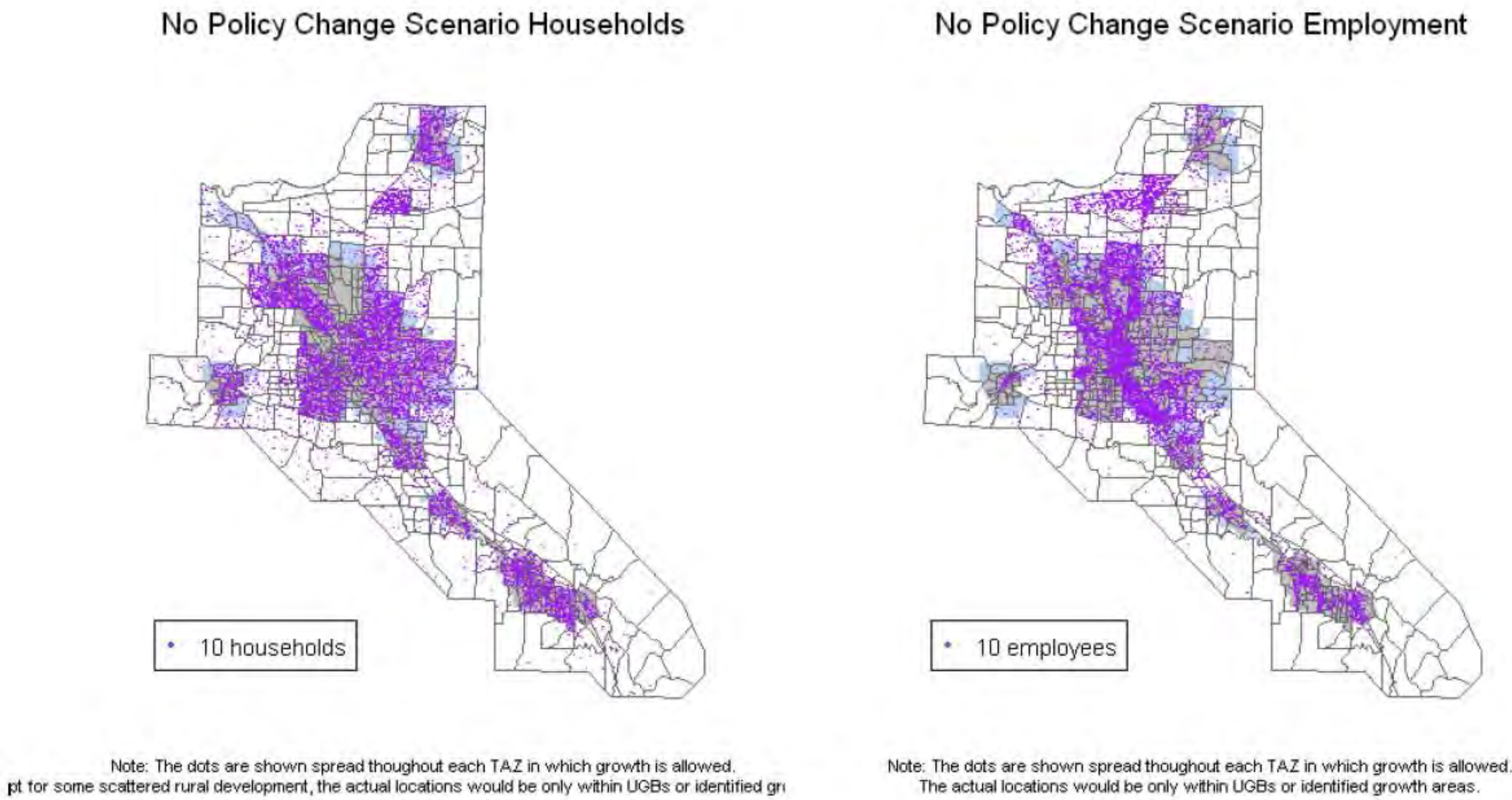


FIGURE 1 Household and Employment Distributions with the No Policy Change Scenario

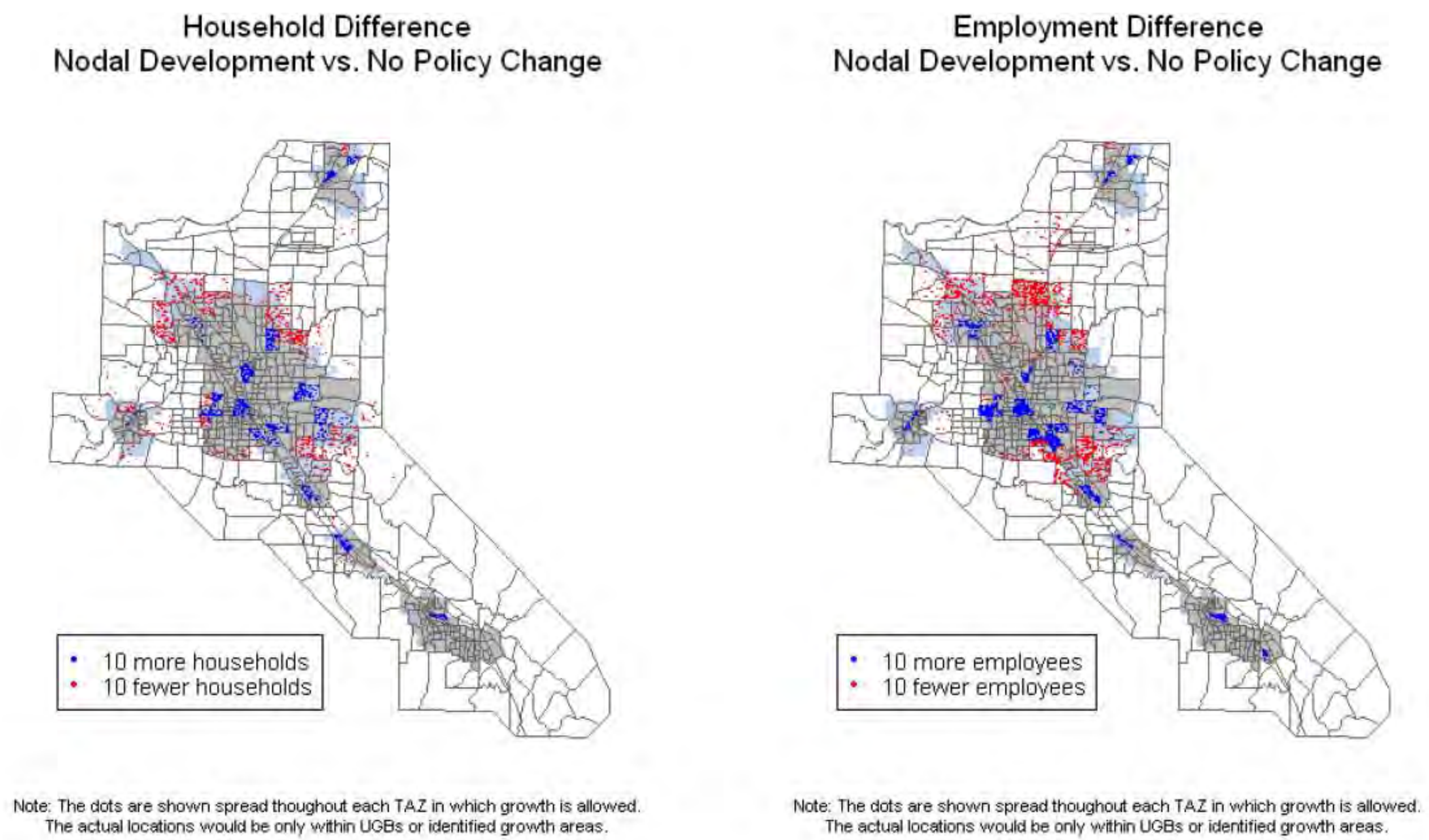


FIGURE 2 Household and Employment Differences between the Nodal Scenario and the No Policy Change Scenario

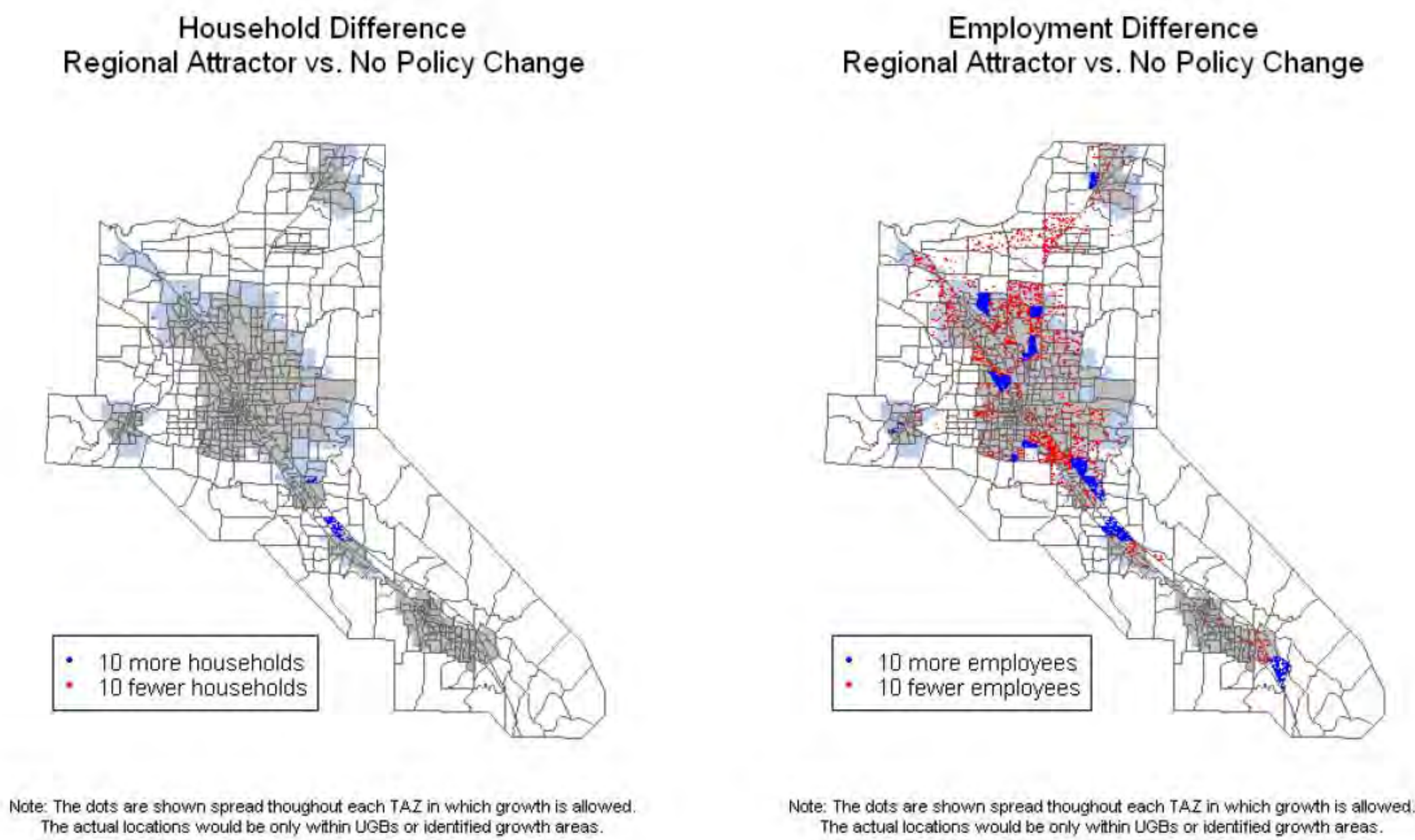


FIGURE 3 Household and Employment Differences between the Regional Attractor Scenario and the No Policy Change Scenario

Altogether, 15 combinations of land use and transportation scenarios were modeled in the third stage. The results of these model runs were used to show how overall transportation system performance and the severity of congestion on the network vary among the land use and transportation scenarios. In addition, special modeling methods were used to show the likely routes travelers to and from the growth areas will use and the congestion they will experience on those routes.

It should be noted that because the MPO transportation model was being developed during the course of the RPS modeling work, the model's capabilities improved as modeling progressed. During the first stage, the model had been calibrated initially to represent daily traffic flow patterns. By the second stage, the calibration of the daily traffic model was complete, but the peak hour traffic model was not complete. By the third stage, the peak hour traffic model was complete as well. The results of the first two modeling stages show daily results. The results of the third stage show peak hour results.

First Stage Modeling Results

The LUSDR model was run multiple times to generate 30 future land use scenarios. These scenarios represent ways that the region might develop given the proposed growth areas and assumed flexibility in how land might develop within general plan categories. The land use scenarios were then modeled using the regional transportation model to evaluate the range of transportation impacts that would result from these scenarios.

The region was divided into ten districts for the purpose of evaluating variation among the land use scenarios. Figure 4 shows these districts.

Rogue Valley MPO Model Area Showing
RPS Growth Study Areas and Reporting Districts

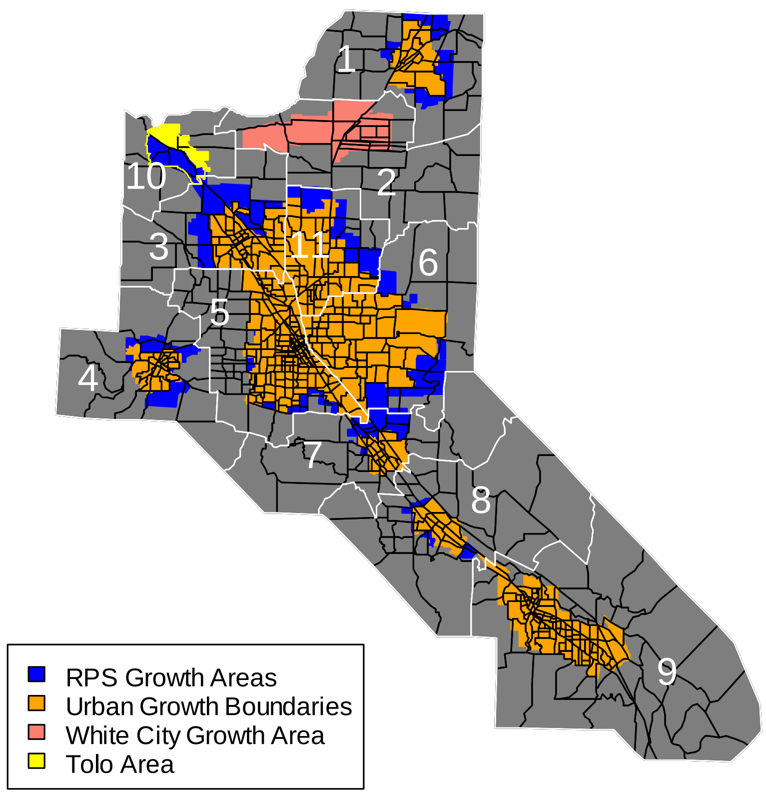


FIGURE 4 Reporting Districts

Following are a series of charts that provide several views of how the numbers of households and amounts of employment in each of the districts vary among the scenarios.

These charts refer to each district by name rather than by number. The correspondence between district numbers and names is as follows:

Number	Name
1	Eagle Point
2	White City
3	Central Point
4	Jacksonville
5	West Medford
6	East Medford
7	Phoenix
8	Talent
9	Ashland
10	Tolo
11	North Medford

Several things should be noted about the Tolo growth area outlined in yellow on the map. This area is shown as it was described at the time the first stage of modeling was being done. The yellow portion of the area was not proposed for urban development, so future urban uses were only allocated to the blue portion of the area. The Tolo area was also different than other growth areas in that there were at the time of modeling two different desired futures for development in the area, one forwarded by Jackson County and the other forwarded by the city of Central Point. Since the modeling was completed, the extent of the urban portion of the Tolo area has been reduced in size.

The allocations of households and employment to the districts by the 30 scenarios generated by the LUSDR model are shown in Figures 5 through 8. These figures show the variation in results as well as the central tendencies. The variation is important to see because it indicates the amount of uncertainty in the forecasts. This uncertainty carries into the transportation results.

For most of the districts, the household allocations do not vary much among the 30 scenarios. This is shown in Figure 5. The red dots in the figure show all of the scenario results for all districts. The dashed lines in the figure separate the results by district. Therefore, the 30 red dots between each pair of horizontal dashed lines show all the scenario results for a district. The values that these dots represent are read off of the horizontal axis. The farther to the right a dot is located, the higher the number of households that dot represents. There is no meaning to the vertical positioning of dots between the horizontal dashed lines. The vertical positioning simply spreads the dots out so they don't cover up one another. The black downward pointing triangle at the top of each cluster of dots shows the median value for that group of dots.

Figure 5 orders the districts from top to bottom by the range of variation among scenarios for each district. Talent, at the top of the figure has the least amount of variation between scenarios, as can be readily seen by the tight clustering of the dots. East Medford, at the bottom of the figure has the greatest amount of variation. This ordering shows that for most of the districts there is a strong relationship between the scenario average for the district and the range of variation in values. As the as the average number of households increases, so does the amount of variation. Several districts (Tolo, Ashland and West Medford) don't fit this pattern though. The Tolo area has more variation than expected because the model shows the effects of the two competing land use visions for this area. The Ashland and West Medford districts have less variation than otherwise might be expected because less land is proposed to be added to the urban areas in these districts than in other districts.

Figure 6 shows the relative variation in results by graphing all values as a proportion of the median values. Districts are ordered by the amount of relative variation. It can be seen from this figure that the relative variation in the results for several of the less populous districts tends to greater than for more populous districts. The Tolo area stands out has having a large range of relative variation. At the other end of the spectrum, the values for the Ashland, West Medford and East Medford areas are within 10% of the median values for those areas.

The distinction between relative and absolute variation has important ramifications for transportation. A large amount of absolute variation will translate into variation in transportation results for major transportation facilities and significant portions of the transportation system. A large amount of relative variation in the absence of large absolute variation can show up as variation in localized transportation results.

Figures 7 and 8 show that employment distributions have much more variability than household distributions. This can be seen most clearly by comparing Figure 8 with Figure 6. It can also be seen by comparing Figure 7 with Figure 5 that employment does not show as clear a relationship between the amount of variation in a district and the average amount of employment in the district. This has important ramifications for transportation because the number of trips attracted to an area tends to be proportional to the amount of employment present in the area.

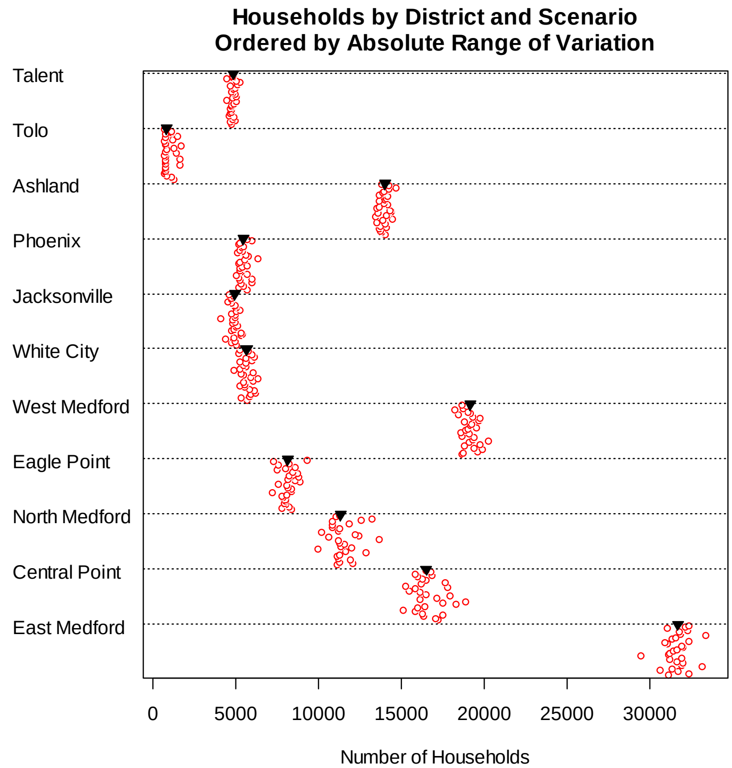


FIGURE 5 Absolute Variations in Households by District

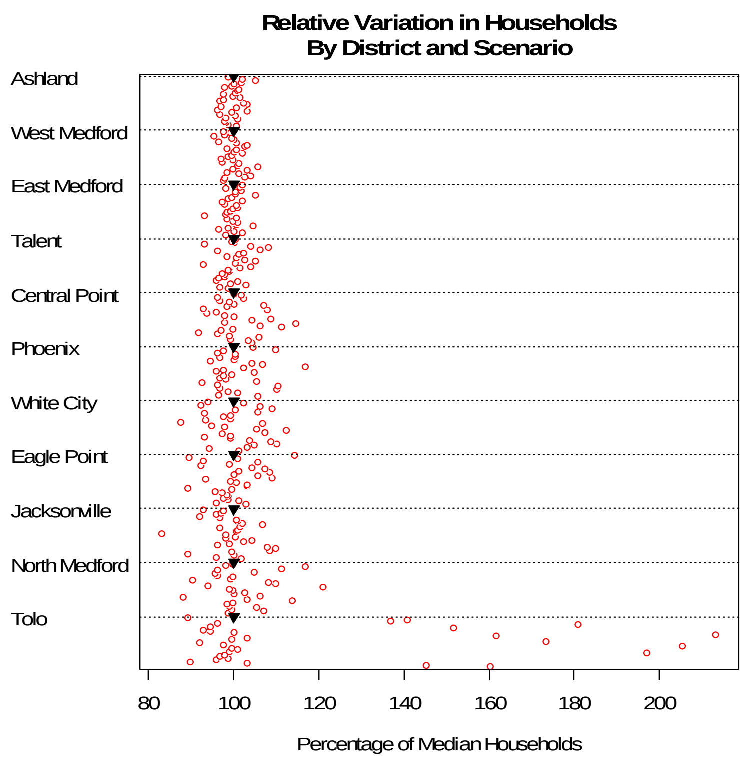


FIGURE 6 Relative Variations in Households by District

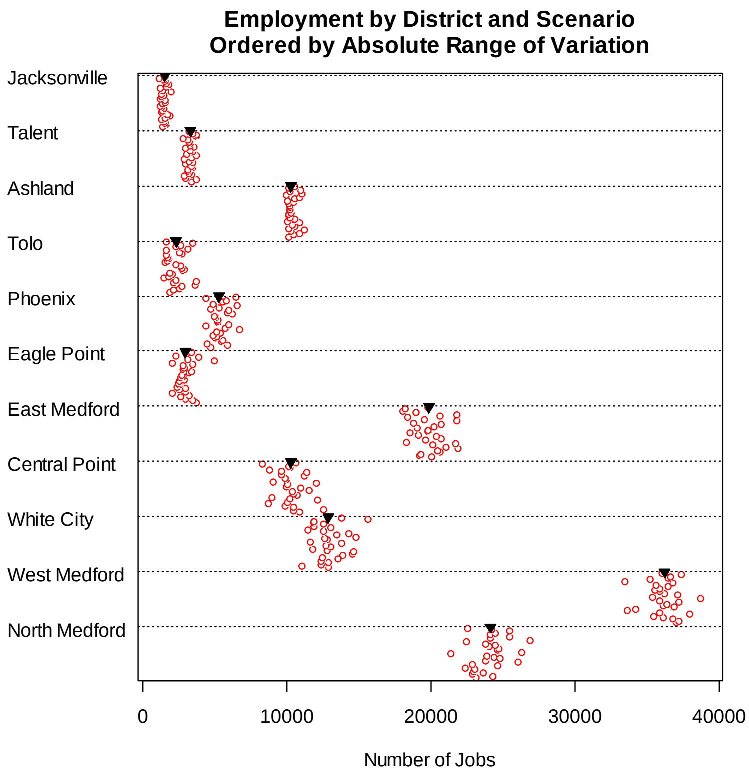


FIGURE 7 Absolute Variations in Employment by District

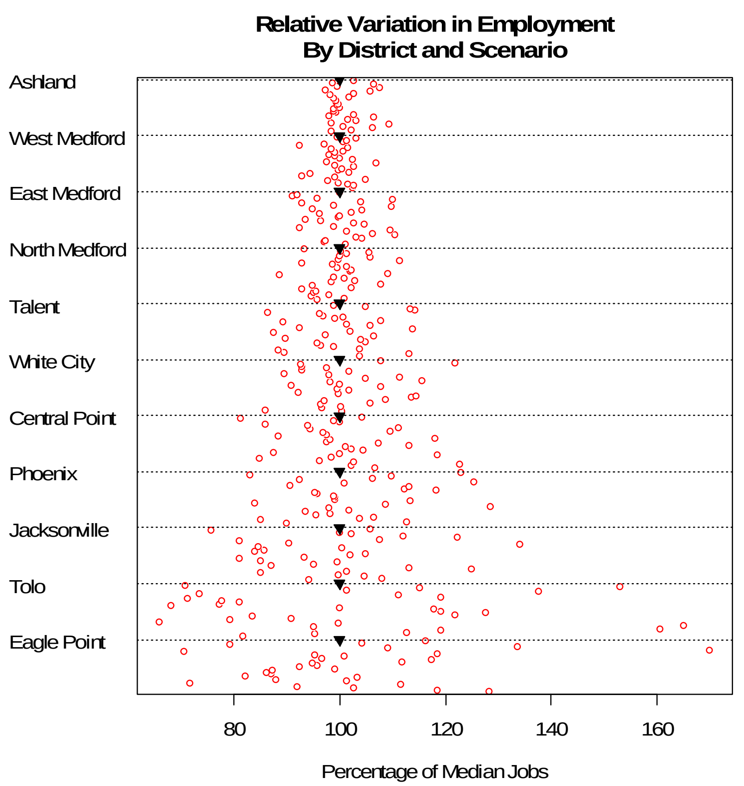


FIGURE 8 Relative Variations in Employment by District

The transportation model was run for all 30 scenarios and system-wide and localized effects were evaluated. System-wide variation in most travel measures was found to be low. Figure 9 shows that total vehicle miles traveled (VMT) varies by less than 1% from the average. Figure 10 shows that the variation in total vehicle hours traveled (VHT) is minor as well. Figure 11 shows that the percentage of the total VMT that occurs on the freeway also varies very little. This lack of variation is not surprising given that all scenarios reflect the same underlying transportation and land use policies.

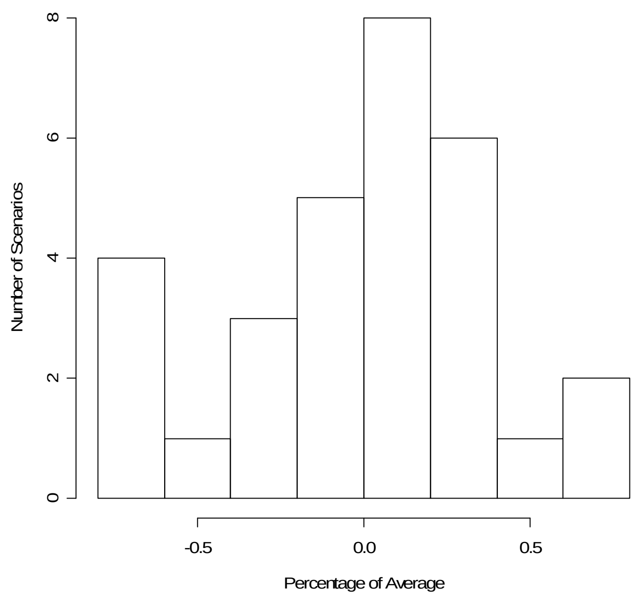


FIGURE 9 Variation in Total Vehicle Miles Traveled

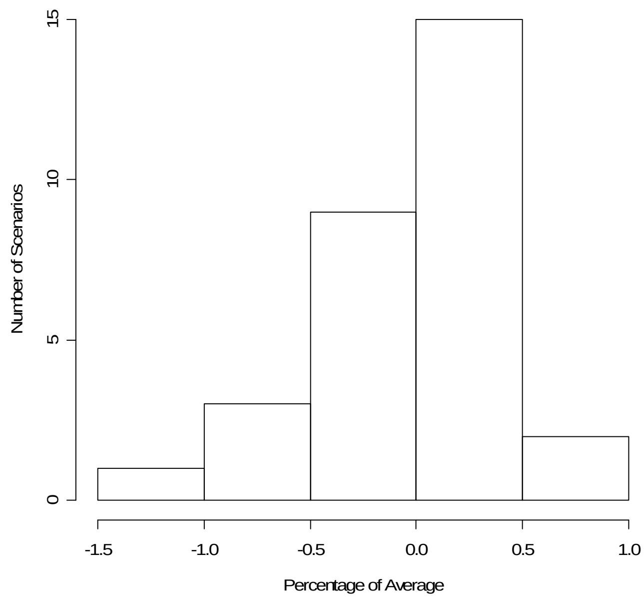


FIGURE 10 Variation in Total Vehicle Hours Traveled

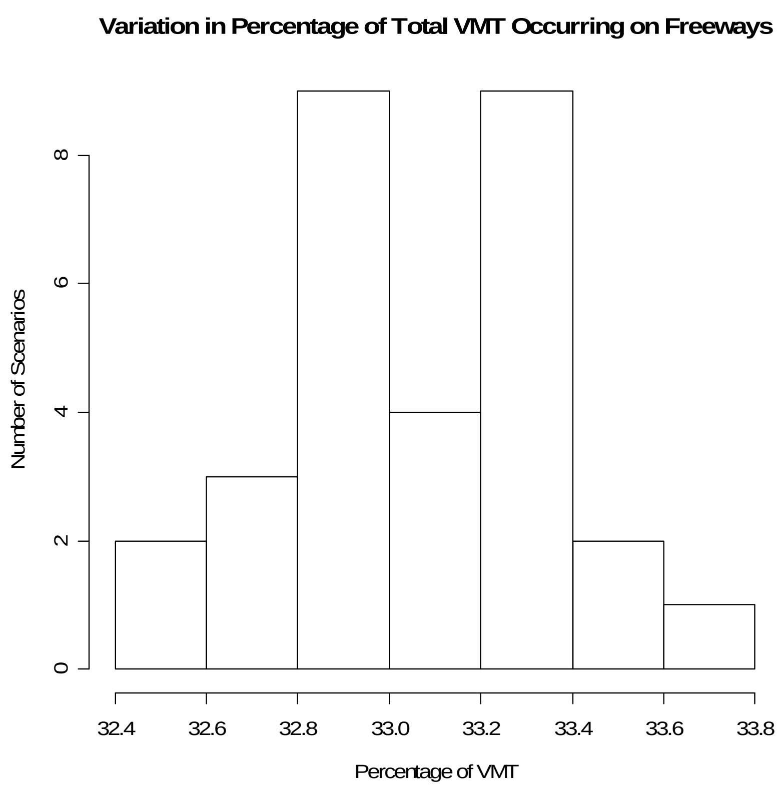


FIGURE 11 Variation in Freeway VMT

The variation in land uses does however show up in more localized congestion effects. These were examined for a selected set of key locations in the network. Since the MPO transportation model was not fully calibrated at this time, the locations were chosen on major roads, where calibration results were most reliable. These locations are shown in Figure 12. It should be noted that although the locations are shown as points on the map, they represent road segments. They do not represent intersections, nor does the model represent particular characteristics at intersections.

Figure 13 shows congestion levels at each of the monitor sites for all of the land use scenarios. The chart is in the same format as the Figures 5 through 8 where each set of dots between each pair of horizontal lines shows the values for a monitoring site. The median value for each group is shown by an inverted triangle at the top of each grouping. The horizontal scale shows congestion levels using the ratio of average daily traffic to hourly capacity (ADT/C) as a measure. Ratios in the range of 9 to 11 reflect conditions where there is congestion during most of the peak hour. Higher values reflect conditions where congestion is likely to be present for multiple hours of the day. It should be noted that these congestion measures are not very precise, given the general way in which transportation models represent roadway performance and by the initial calibration of the model.

It can be seen from the scatter of the dots, that the range of congestion levels for some locations is fairly narrow. This is the case for all of the locations on I-5. The low variation in freeway congestion is consistent with the low variation in the amount of freeway travel shown in Figure 11.

The least variation is present for all of the monitor locations in the southern part of the valley. This is probably the result of the low variation among the land use patterns for the city of Ashland.

The highest levels of congestion variation occur in the more centrally located portions of the region: Table Rock Road in North Medford, Hwy 99 in Central Point, Hwy 238 near Jacksonville, South Stage Road near Jacksonville, North Phoenix Road, and Hwy 99 in South Medford. These are major arterials that connect areas where uncertainty about the amount of development that might occur is greater. Several of the areas where the variation in congestion is high also have high overall congestion levels.

Figure 14 maps median congestion levels for the locations. The color scheme for the dots represents the congestion measures shown in Figure 13. It can be seen that high congestion levels present barriers to travel between portions of the region. At the north end of the region, severe congestion on Crater Lake Highway and Table Rock Road presents barriers to travel between the northern and central portions of the region. To the south, congestion on I-5 and severe congestion on Hwy. 99 in South Medford, and North Phoenix Road creates a barrier to travel between the southern and central portions of the region. To the west, congestion and severe congestion on South Stage Road and Hwy. 238 present a barrier between Jacksonville and Medford.

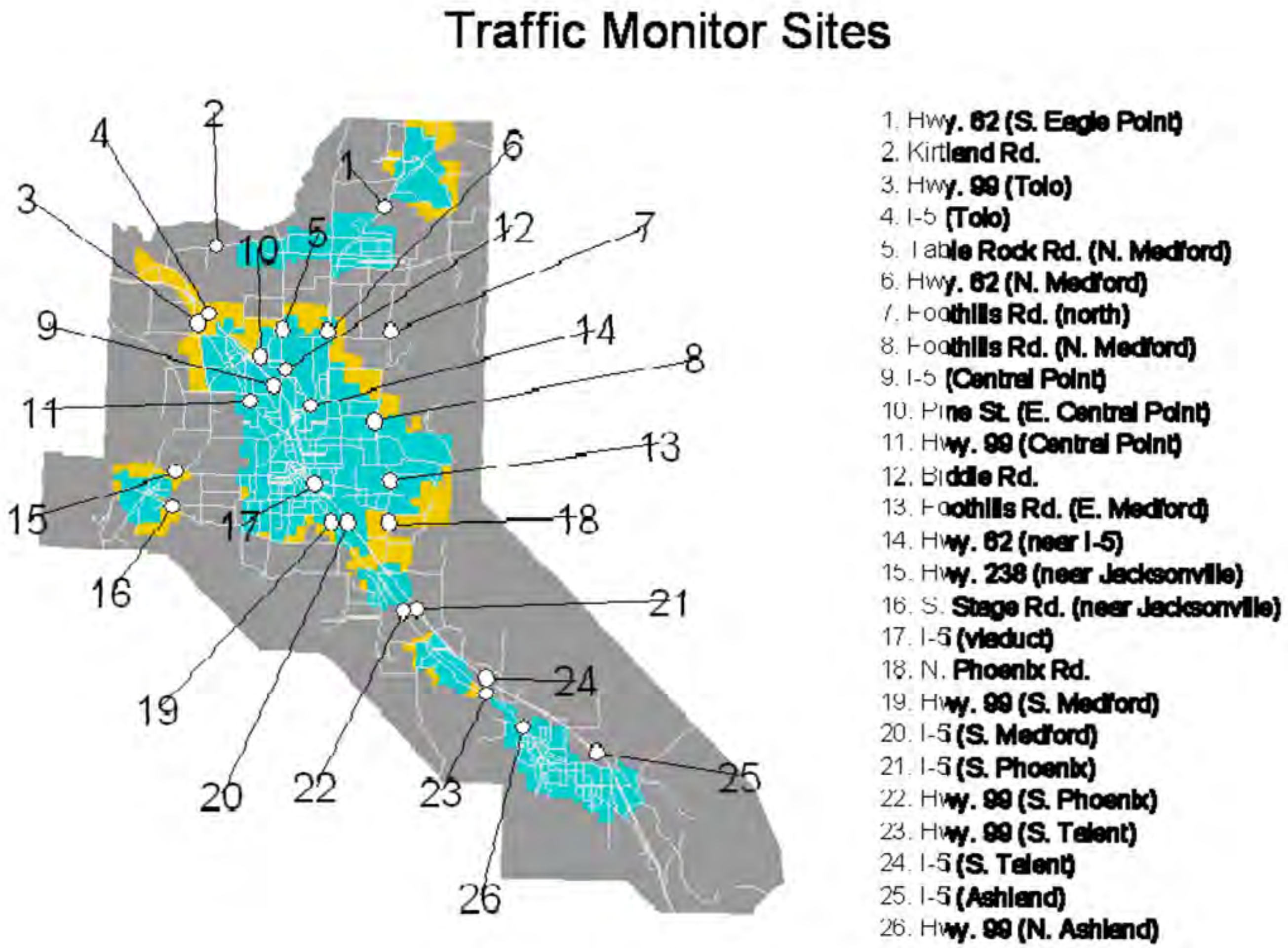


FIGURE 12 Locations for Measuring Congestion Levels

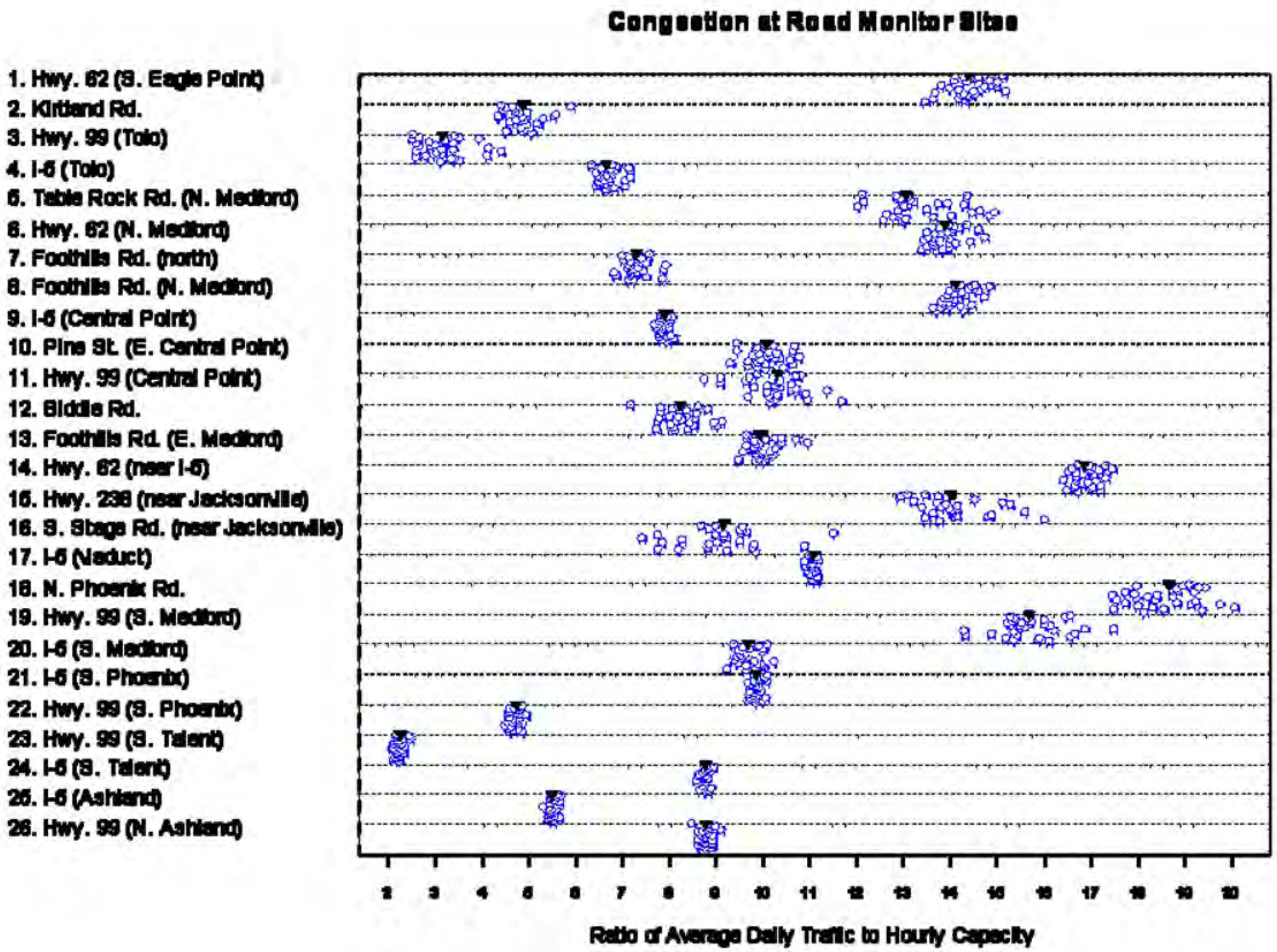


FIGURE 13 Variation in Congestion Levels at Monitoring Locations

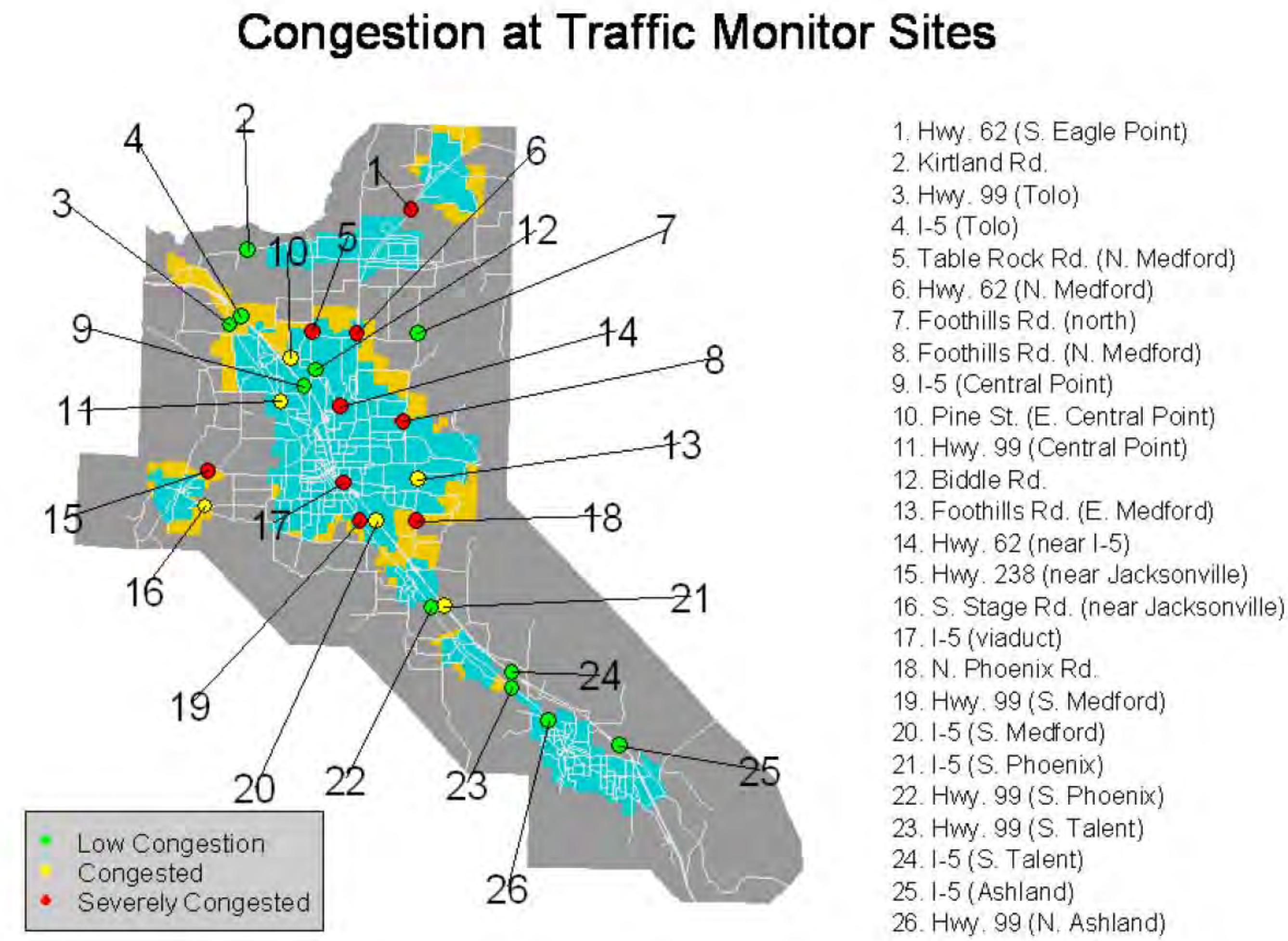


FIGURE 14 Congestion Levels at Monitoring Locations

Second Stage Modeling Results

Given the results of the first stage of modeling, TPAU was requested to model the effects of a road network more expansive than the RTP network. The Technical Advisory Committee developed a proposal for increasing the capacity of the RTP network. This revised network scenario was then modeled with all of the land use scenarios and the results were compared with the results of the earlier modeling.

The modeling reveals that the amount of travel with an enhanced road network would be about the same as with the RTP network. As with the earlier modeling, total VMT varies little among the land use scenarios. For the RTP network, VMT ranges between 17.0 and 17.2 daily miles per person. For the enhanced network, the range is from 17.2 to 17.4 miles per person. Although the total VMT does not differ much between the two transportation scenarios, the distribution of VMT among different road classes differs substantially. This is shown in Figure 15.

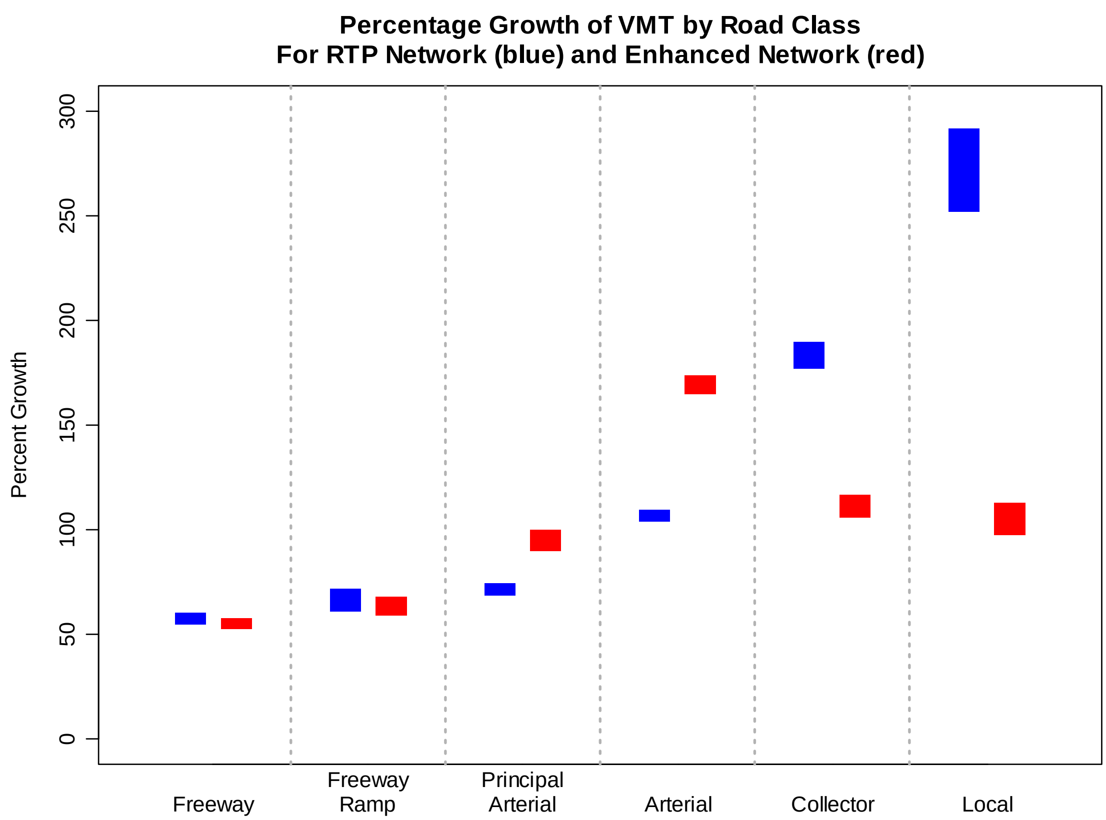


FIGURE 15 VMT Growth by Function Class

Figure 15 shows the percentage growth of VMT by functional class for the two road network scenarios. Colored bars are used to show the ranges of values resulting from modeling the 30 LUSDR generated scenarios. The blue bars show the results for the RTP network while the red bars show the results for the enhanced network. Several patterns are apparent in this graph. First, there is little difference in the growth of traffic on freeways and freeway ramps for the two alternative road network scenarios. Second, with the RTP network, a greater proportion of traffic is carried on the lower order road classes (e.g. collector, local) while more traffic is carried by the principal arterials and arterials with the enhanced network. This difference occurs because lesser capacity on the major roads with the RTP network causes more congestion and slower speeds on these roads. The slower speeds on major roads results in traffic being shifted to lower order roads that are ordinarily less attractive alternatives because they are less direct and have lower speed limits.[2]

The different rates of traffic growth on different portions of the system mean that the proportion of traffic carried by each part of the system will change over time. Figure 16 shows this. The blue and red rectangles show the ranges of values for the RTP and Enhanced network scenarios respectively. The black lines show the current levels.

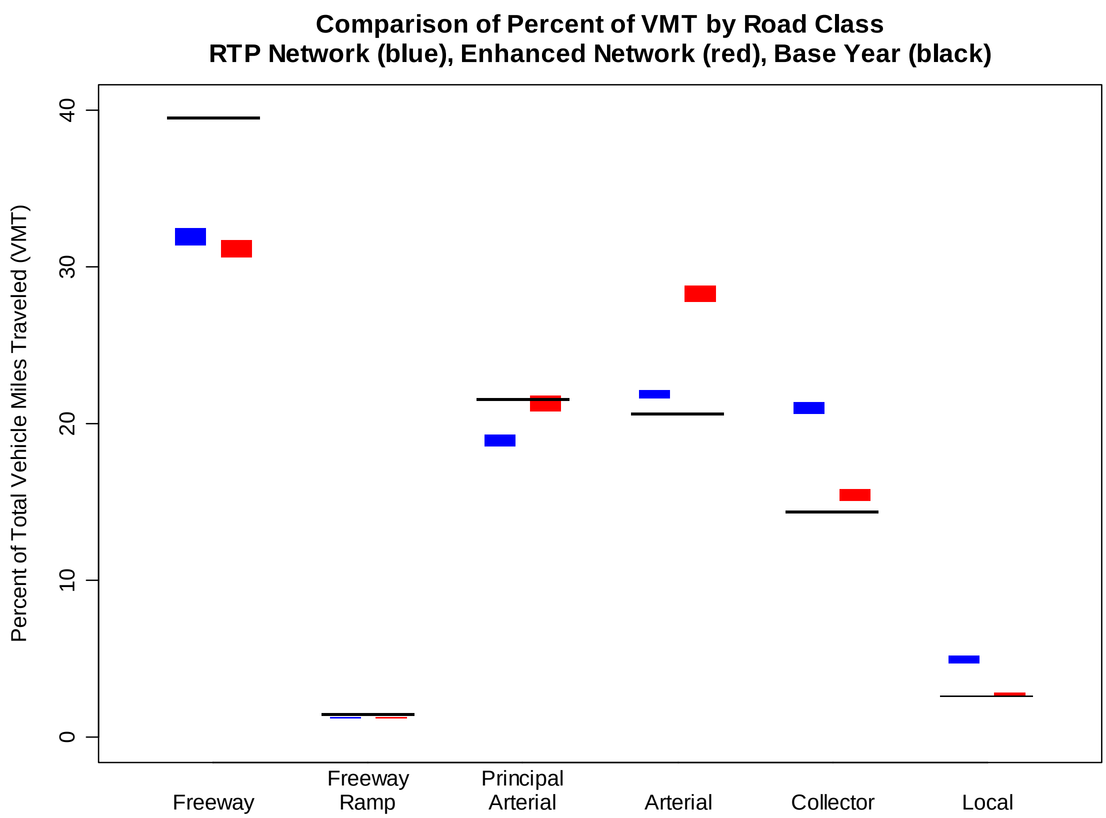


FIGURE 16 Percentage of Total VMT by Functional Class

[2] It should be noted, that the model only contains a small proportion of the local roads in the region. It is not necessary and can be counter productive for travel models to include too many local roads. Since the results presented in this section only represent a sampling of the local roads, they should be considered in combination with the collector results and interpreted in that light.

It can be seen that I-5 carries most of the region's VMT but cannot keep carrying that percentage because of growing congestion. But, even though the percentage of VMT carried by I-5 will decrease in the future, the freeway will continue to carry more VMT than any other part of the road system.

The percentage of VMT carried on principal arterials declines by a few percentage points with the RTP network. The enhanced network increases capacity enough to permit the principal arterials to carry about the same percentage of VMT as they do today.

Greater differences between the RTP and Enhanced networks can be seen in the distributions of VMT among arterials and collectors. Differences in percentage shares are clearly evident. With the RTP network senario, the arterial share is close to the current share while the collector share is much higher than the present share. With the Enhanced network the situation is reversed.

Figure 17 shows congestion levels on different portions of the road system for the two transportation scenarios. The figure is composed of six graphs which show the amount of congestion on each portion of the system. Congestion is shown in three categories: low congestion, congestion, high congestion. The vertical scale shows the percentage of lane miles in each congestion category. The bars have the same meaning as in previous graphs.

The freeway chart in the figure shows large increases from current levels in the proportion of the freeway that is congested. Presently most of the freeway lane miles experience low congestion levels. By the time the population doubles, most of the lane miles will be highly congested. Present and future freeway congestion proportions are near mirror images of each other. The results for the two transportation scenarios are similar. The RTP network scenario results show a little more variablility than the enhanced network scenario results.

As with the freeways, the amount of congestion on freeway ramps increases from present levels, although the amount of increase is not as dramatic. It should be noted, however, that the measure of ramp congestion is very approximate. The amount of congestion on a freeway is sensitive to the ramp geometry, to traffic control at the ramp terminus, and to traffic congestion on the intersecting road. It can also be seen from the chart that the enhanced network scenario, relative to the RTP network scenario, reduces the proportion of lane miles that are in the congested category, but does not have much relative effect on the proportion of lane miles that are very congested. Finally, the ramp results show significantly more variation than the results for any of the other parts of the road system. In other words, freeway ramp congestion is affected more by land use patterns than are other parts of the road system.

With the principal arterials, it can be seen that the decline in the percentage of lane miles experiencing low levels of congestion is approximately equal to the increase in the percentage experiencing high levels of congestion for both network scenarios. The increase in congestion with the enhanced network scenario is significantly smaller than the increase with the RTP network.

The arterial graph is similar to the graph for principal arterials. Congestion does not increase as much on arterials as on principal arterials. The enhanced network scenario in comparison to the RTP network scenario does not have as great an effect on relieving congestion on arterials. This is the result of the relative effects of the scenarios on the distribution of traffic among arterials, collectors and locals.

Congestion on the collectors and locals does not increase much with either scenario because these roads tend to have a lot of reserve capacity. For the same reason, congestion does not vary much with the land use patterns.

Figure 18 shows how travel is affected by congestion. These data are presented in the same graphical form as Figure 17, but where the measure is the percentage of VMT, rather than the percentage of lane miles.

The first thing that can be seen by comparing Figure 18 with Figure 17 is that congestion affects a greater proportion of travel than lane miles. This is to be expected since congestion is more likely to occur where travel is greater.

It can also be seen by comparing the figures that the amount of travel affected by congestion varies more among the land use scenarios. This is the case for all portions of the road system, but is particularly so for freeway ramps. Variability in ramp congestion is an important consideration because ramps connect the freeway to the rest of the road system and because ramp congestion can affect congestion on the freeway itself.

Figure 18 also shows a large amount of variation for local roads, but this is a result of the limited sample of local roads included in the model. Congestion levels calculated for local roads in the model will be sensitive to land use because the model loads traffic onto a relatively small number of roads. Since there are many more local roads than are represented in the model, we can expect that local road congestion (on average) will vary much less than is shown in the model results.

Figure 18 shows clearly that the amount of congestion occurring on freeway ramps is sensitive to land use patterns. It follows from this finding that the characteristics of the land use patterns resulting in more or less ramp congestion should be examined. We saw earlier in Figures 6 and 8 that employment distributions vary more among the scenarios than do household distributions. Therefore it is likely that differences in congestion are related to differences in the distribution of employment. Figure 19 shows this graphically.

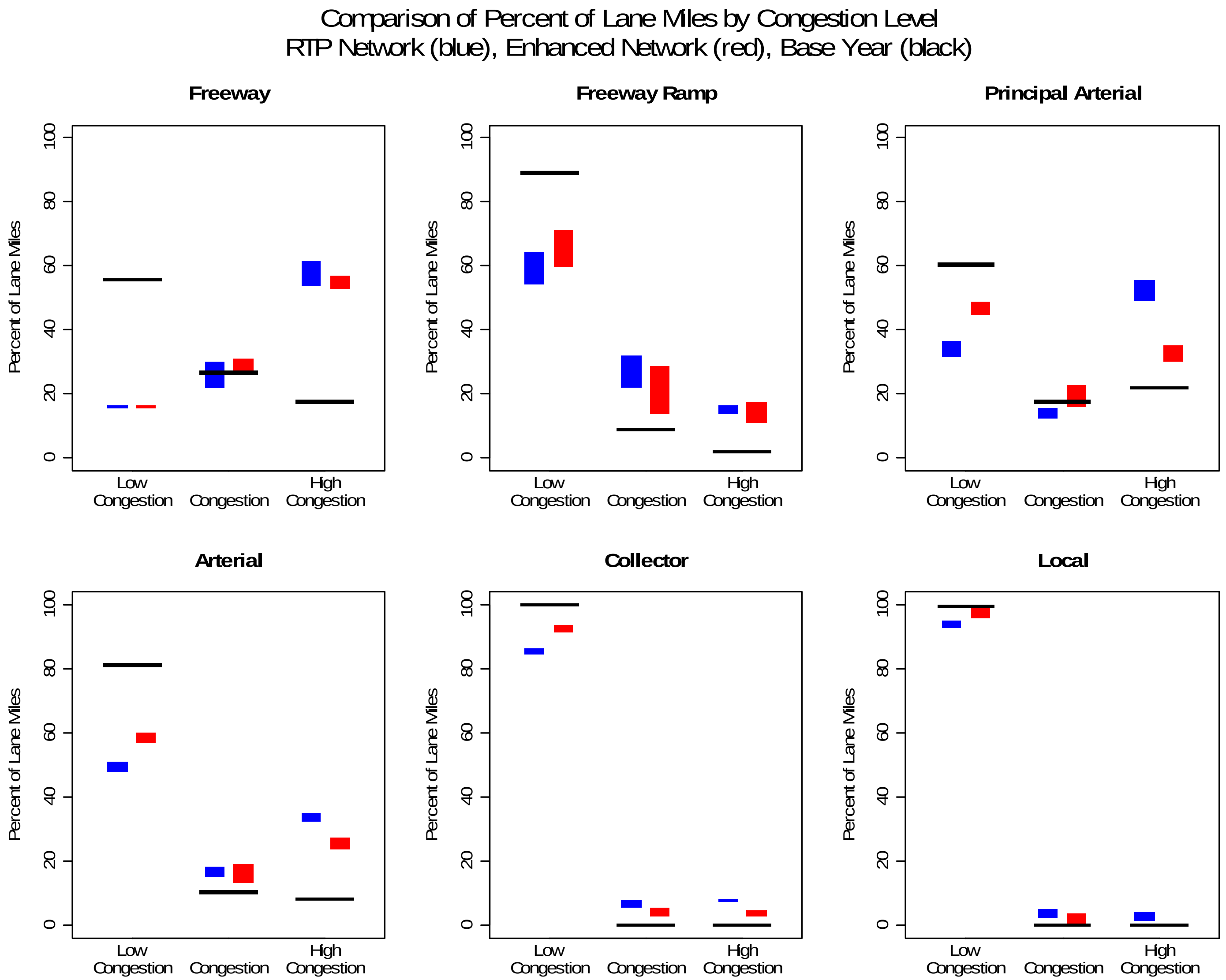


FIGURE 17 Congestion Levels by Lane Miles Functional Class

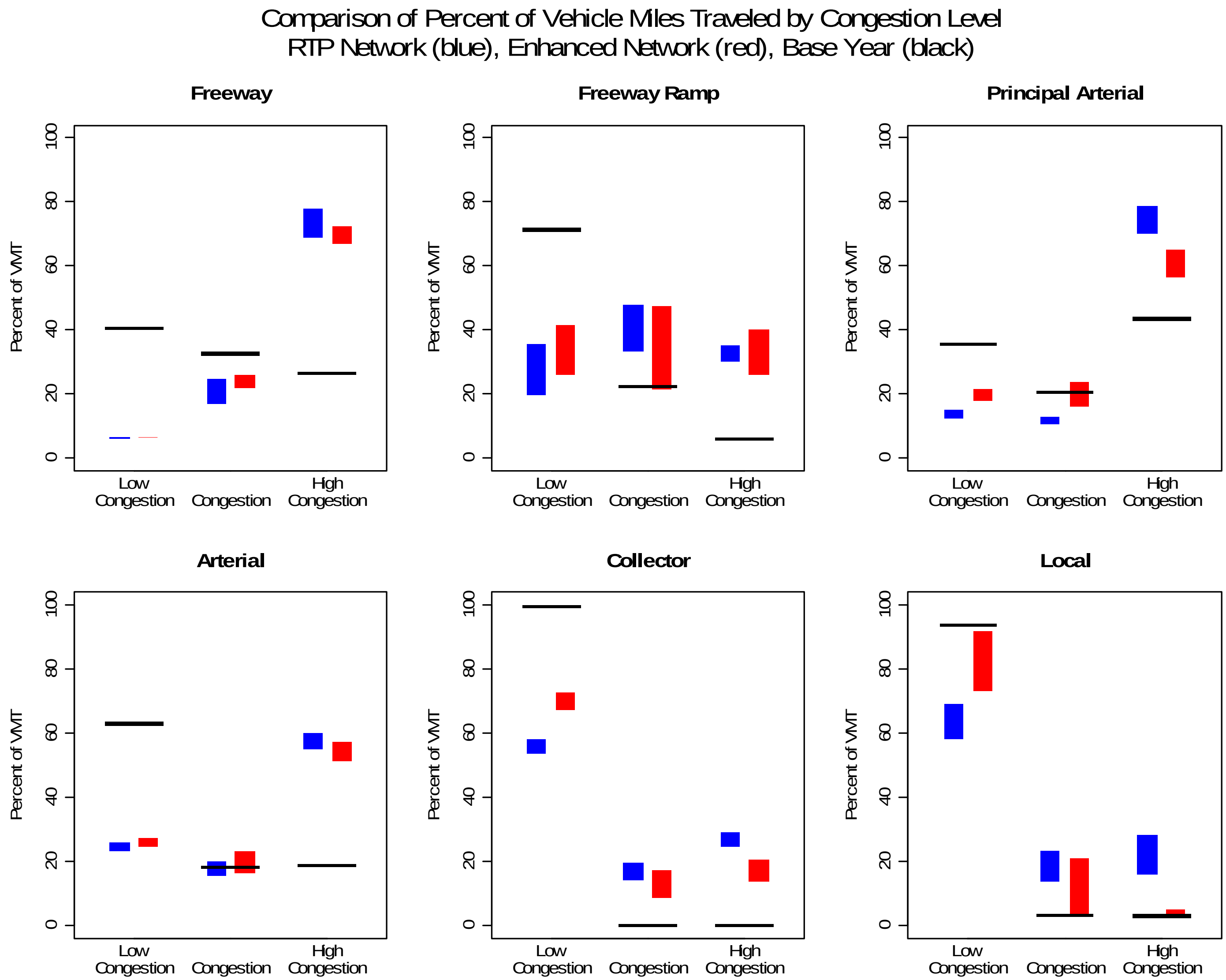


FIGURE 18 Congestion Levels by VMT by Functional Class

Figure 19 was generated by dividing the scenario results into two groups based on whether they had more or less than the average level of freeway ramp congestion. The amount of employment growth in each zone was added up within each group. The difference in employment by zone for the two groups was then calculated. Positive differences show where employment is greater in the senarios that have more ramp congestion. Negative differences show where the employment is greater in the scenarios having less ramp congestion. These are mapped in Figure 19 with red circles showing zones having positive differences and blue circles showing zones having negative differences. The area of each circle is proportional to the size of the difference.

Employment Growth Tendencies
Related to Enhanced Network Freeway Ramp Congestion

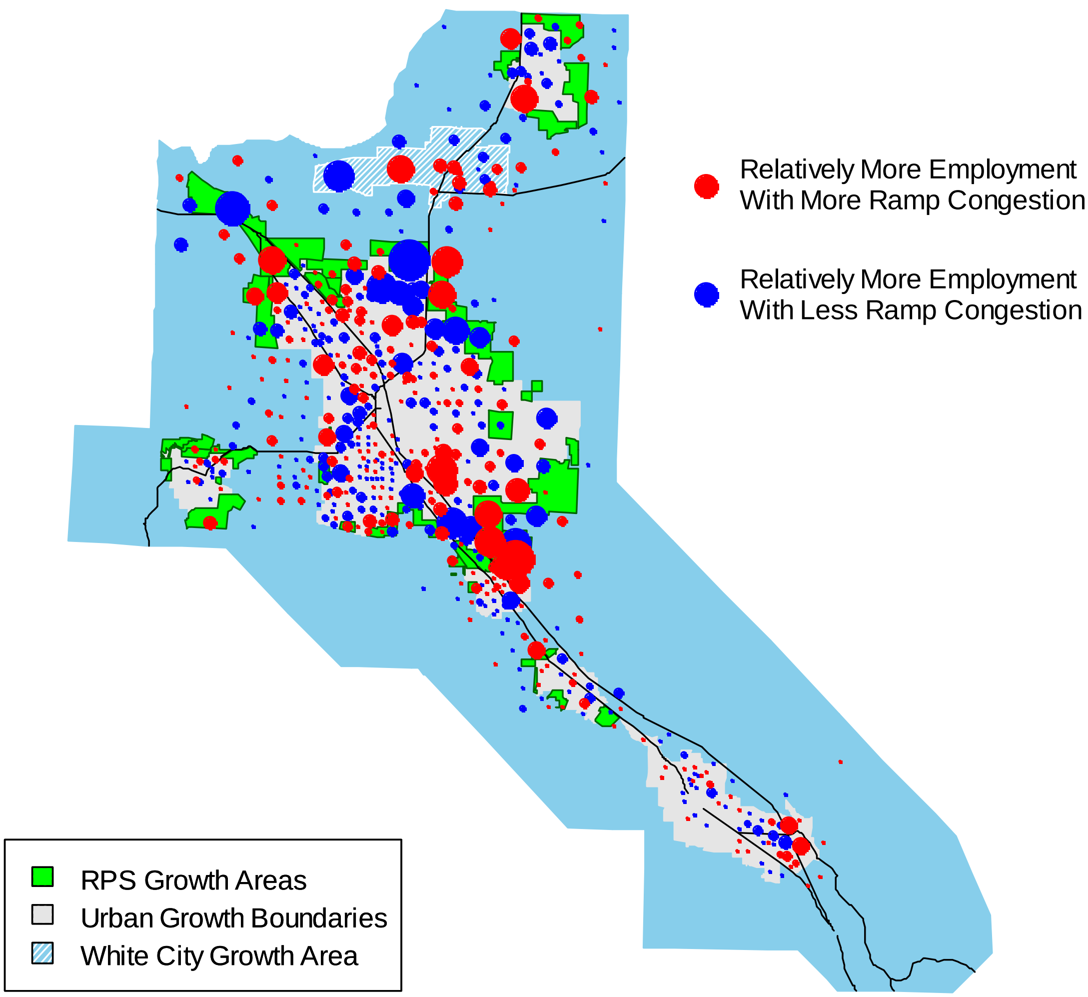


FIGURE 19 Relationship Between Employment Distribution and Ramp Congestion

There appears to be a relationship between employment growth near interchanges and the amount of ramp congestion at some interchanges. Greater ramp congestion is associated with greater employment growth near the Seven Oaks, South Medford, and Fern Valley interchanges. Less ramp congestion is associated with more employment growth in the Tolo area, in the general vicinity of the North Medford interchange, and between the South Medford and Fern Valley interchanges. Less interchange congestion is also associated with greater employment growth in the vicinity of the Medford/Rogue Valley International Airport.

Third Stage Modeling Results

Upon seeing the results of the second modeling stage, the Policy Committee requested that TPAU do additional modeling to explore the joint effects of three different land use policy scenarios and five transportation transportation scenarios. These scenarios are described on pages 5 and 6. Altogether 15 combinations of land use and transportation were modeled.

This modeling stage had several purposes. The first was to evaluate how different land use and transportation policies affect overall system travel and congestion. A second purpose was to show the relationship between road system deficiencies (congestion) and the development of individual growth areas. This information can be used to help identify where system improvements are needed in order to accommodate more growth.

The modeling done during this stage, unlike the previous stages, did not consider uncertainty in land development patterns. This was a matter of practical necessity. In the previous stages, the transportation model was run for the 30 land development scenarios generated by the LUSDR model. So the first stage involved 30 transportation model runs using the RTP network. The second stage added another 30 transportation model runs using the enhanced network. If this same process was followed for the third stage, a total of 450 transportation model runs would be required. This was beyond the capabilities of TPAU given the staffing and computer hardware and software available. Therefore, a single land use scenario was developed to represent each of the land use policy scenarios: no policy change, nodal development, regional attractor. The no policy change scenario was developed by averaging the 30 LUSDR scenarios. The nodal development and regional attractor scenarios were developed by modifying the no policy change scenario as described on pages 5 and 6.

Another difference with the earlier modeling stages was that the calibration of the travel model for the peak period was completed. Therefore peak period travel results could be presented.

System Performance Measures

Table 1 compares the effects of the alternative scenarios on average vehicle trip length. This measure is calculated by dividing the total vehicle miles traveled by the total number of vehicle trips. Several patterns can be seen in the numbers.

- The values for the no policy change and regional attractor land use scenarios are the same.
- Trip lengths for the nodal development scenario are about 5-7% shorter than for the other two scenarios.
- The high capacity road network increases trip lengths for the no policy change and regional attractor scenarios, but not the nodal development scenario.
- The high capacity transit network decreases trip lengths.

TABLE 1 Average Peak Hour Trip Length

Transportation Scenarios	Land Use Scenarios		
	No Policy Change	Nodal Development	Regional Attractor
RTP Network / Low Transit	4.0	3.8	4.0
Enhanced Network / Low Transit	4.0	3.8	4.0
High Capacity Network / Low Transit	4.1	3.8	4.1
Enhanced Network / High Transit	3.9	3.7	3.9
High Capacity Network / High Transit	4.0	3.8	4.0

Table 2 compares the effects of the alternatives on peak hour travel delay. Delay is the difference in travel time between congested and uncongested conditions. This measure shows the overall effect of anticipated peak hour road congestion on travelers. (Note that this measure of peak hour delay does not consider delay resulting from traffic accidents or other incidents, or delay that occurs outside the peak hour.) Several patterns can be seen by comparing the numbers in the table.

- The regional attractor land use scenario produces the highest amounts of travel delay.
- The nodal development scenario produces the lowest amounts of travel delay, 8-11% lower than the no policy change scenario.
- The high transit scenarios produce 7–8 % lower travel delay than the corresponding low transit scenarios.
- Improving the road network from the RTP network to the enhanced network reduces delay by about 20%.
- Improving the road network from the enhanced network to the high capacity network reduces delay by an additional 8-10%.

TABLE 2 Annual Peak Hour Congestion Delay Per Capita

Transportation Scenarios	Land Use Scenarios		
	No Policy Change	Nodal Development	Regional Attractor
RTP Network / Low Transit	3.7	3.3	3.7
Enhanced Network / Low Transit	2.9	2.6	3.0
High Capacity Network / Low Transit	2.6	2.4	2.7
Enhanced Network / High Transit	2.7	2.4	2.8
High Capacity Network / High Transit	2.4	2.2	2.5

Table 3 compares average travel times per trip for the fifteen scenario combinations. Several patterns can be seen in the numbers.

- The nodal development scenario has the lowest travel times; 4-7% lower than the no policy change scenario and 6-11% lower than the regional attractor scenario.
- The high transit scenarios have 2-3% lower travel times than the corresponding low transit scenarios.
- Improving the road network from the RTP network to the enhanced network reduces travel time by about 3-8%.
- Improving the road network from the enhanced network to the high capacity network only shows improvements in travel time for the nodal development scenario.

TABLE 3 Average Peak Hour Travel Time

Transportation Scenarios	Land Use Scenarios		
	No Policy Change	Nodal Development	Regional Attractor
RTP Network / Low Transit	7.2	6.7	7.5
Enhanced Network / Low Transit	6.8	6.5	6.9
High Capacity Network / Low Transit	6.8	6.4	6.8
Enhanced Network / High Transit	6.6	6.3	6.7
High Capacity Network / High Transit	6.6	6.3	6.7

Network Congestion Levels

Figures 20 through 22 identify peak hour congestion levels on the roadway network for the three land use scenarios combined with the RTP road network and transit network. Appendix B contains maps for all fiften scenarios. Congestion is classified according to the following three general levels:

- Uncongested: the traveler generally does not encounter stop and go traffic or long waits at traffic signals during the peak hour.
- Congested: the traveler experiences stop and go traffic or long waits at traffic signals during the peak hour, but does not experience much congestion during other periods of the day.
- Very Congested: the traveler experiences stop and go traffic or long waits at traffic signals during several hours of the day.

It should be noted that since these results come directly from the model, they provide only general estimates of congestion. Traffic congestion is affected by many design and operational details of the roadway network. These details are impractical to model on a system-wide basis. Congestion might be somewhat better or worse than what is shown in the maps.

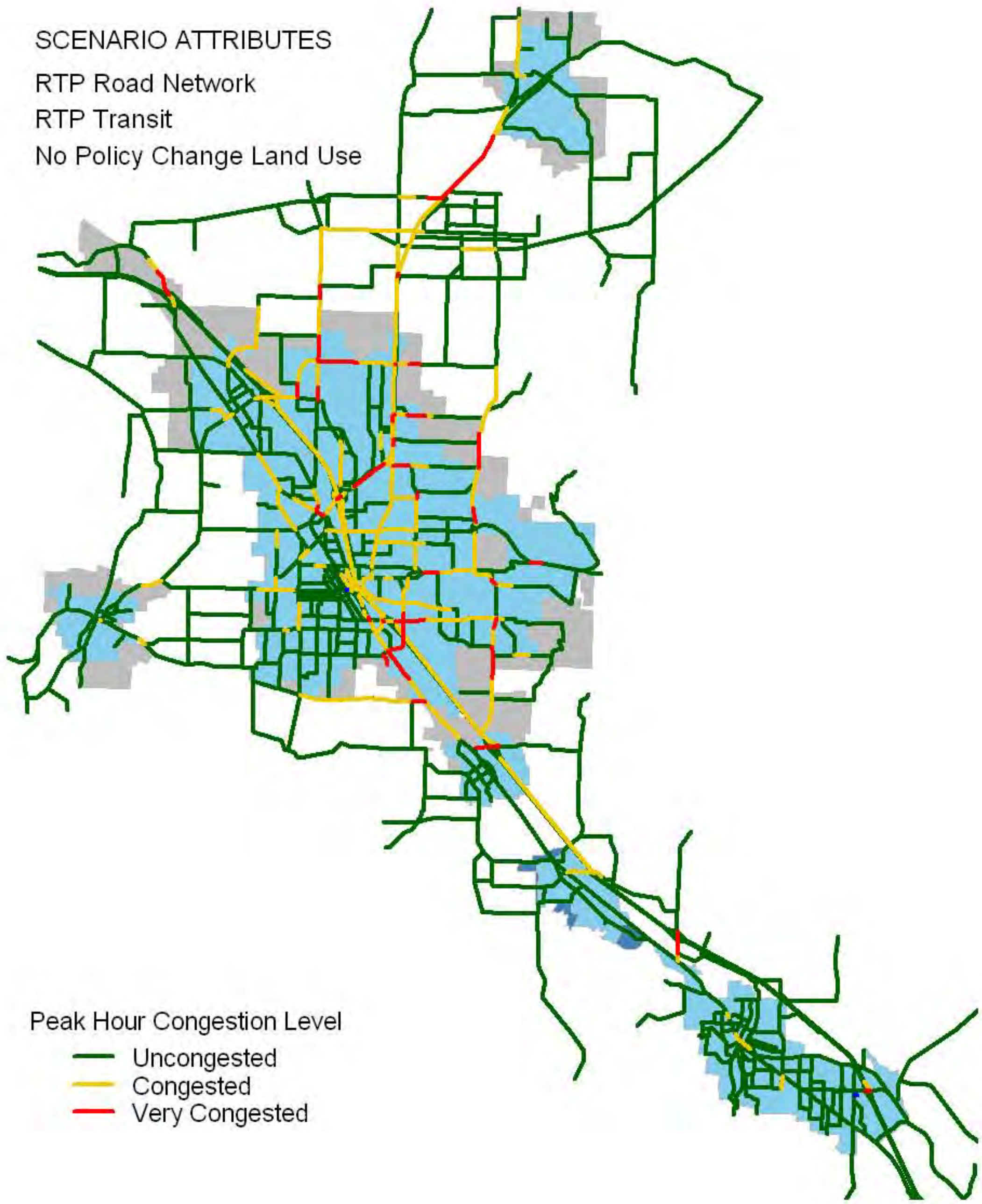


FIGURE 20 Peak Hour Congestion Levels for RTP Road Network, RTP Transit Network and No Policy Change Land Use Scenario

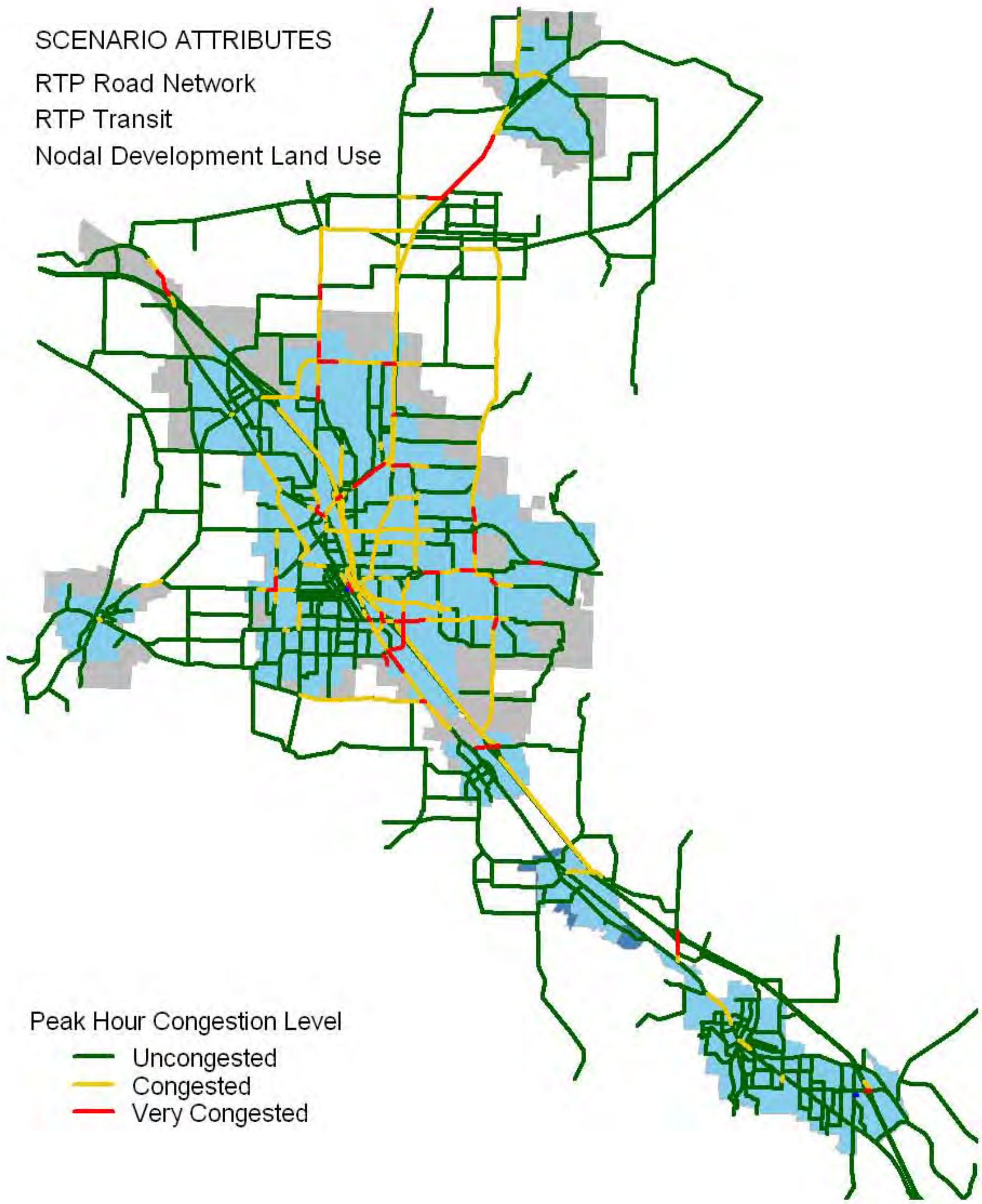


FIGURE 21 Peak Hour Congestion Levels for RTP Road Network, RTP Transit Network and Nodal Development Land Use Scenario

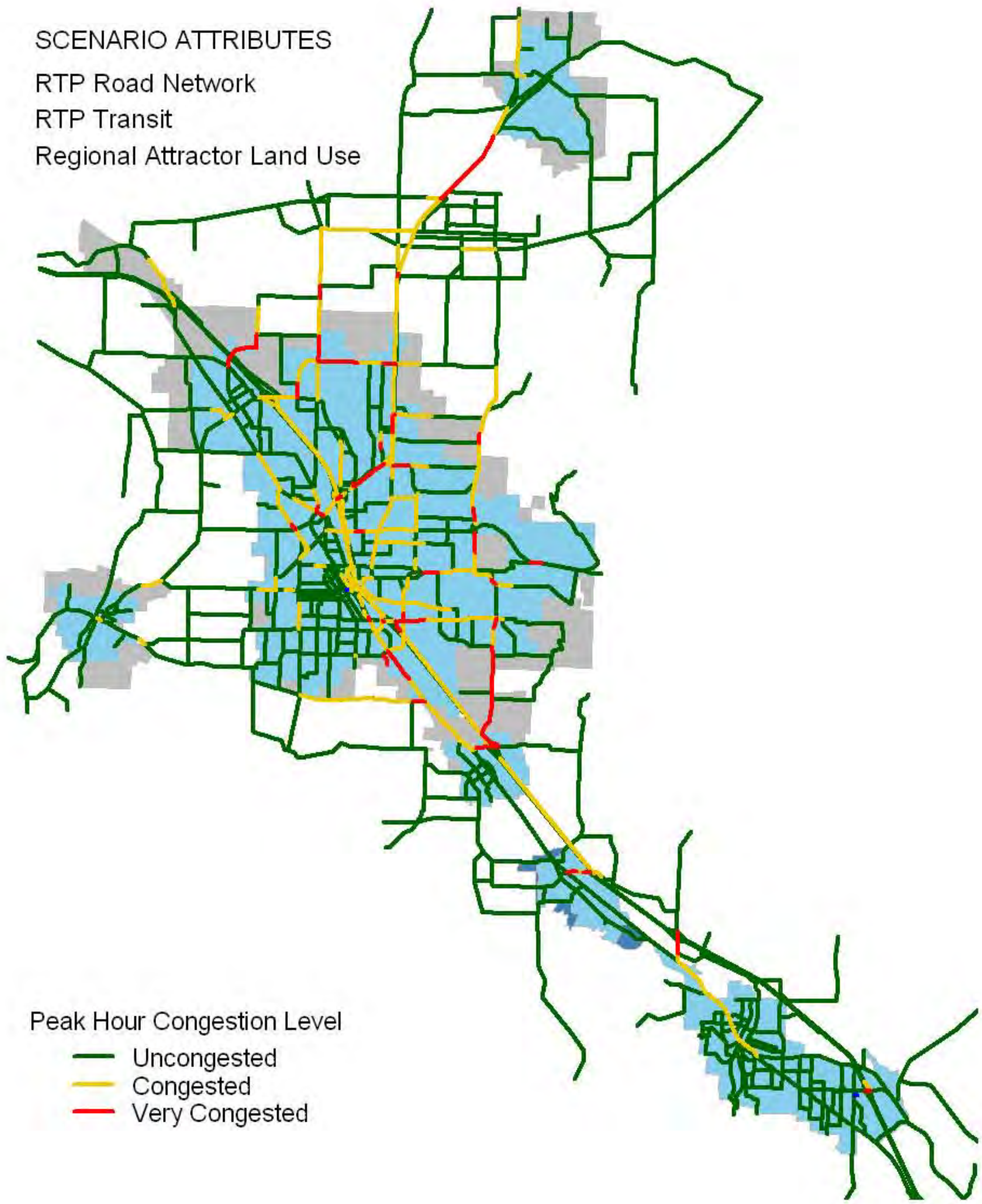


FIGURE 22 Peak Hour Congestion Levels for RTP Road Network, RTP Transit Network and Regional Attractor Land Use Scenario

Several general observations may be made about how congestion varies among the scenarios. First, expanding the capacity of the road system (enhanced network and high capacity network scenarios) does the most to reduce the extent of congested and very congested roadway sections. Second, the high capacity network scenario eliminates most of the congested and very congested road sections. Some trouble spots of severe congestion are not eliminated by any of the scenarios:

- Crater Lake Highway near Eagle Point,
- Crater Lake Highway, Hwy 99 near the north Medford interchange,
- Hwy 99 and local roads in the vicinity of the south Medford interchange,

Many other road segments experience peak hour congestion. Most notably, I-5 is congested between the Central Point and Phoenix interchanges. The land use scenarios are associated with only localized differences in congestion. Likewise, the effect of public transportation on congestion is not readily apparent from these maps.

Congested Locations Affected by Growth Area Development

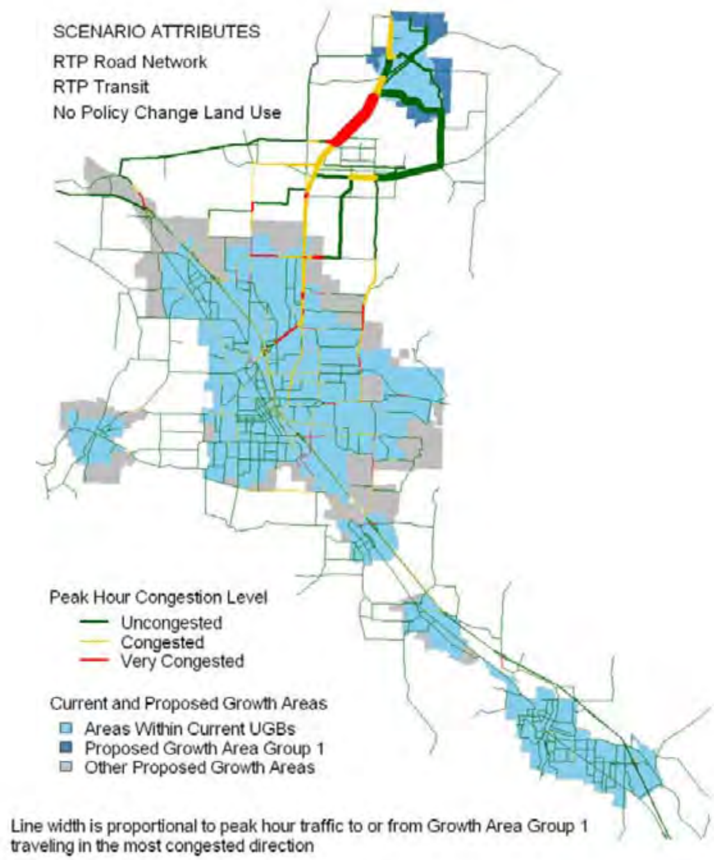
One of the objectives of the modeling work for the RPS study is to help identify portions of the road system where road improvements are likely to be needed to accommodate increased travel resulting from development of the growth areas. Figures 23 to 29 were produced to help with that task. These maps show the routes that travelers to and from the different growth areas are most likely to use. This is done by varying the widths of the lines representing roads in proportion to the percentage of growth area traffic using the roads. Roadway congestion is shown on the maps using the same three-color scheme used in the congestion maps above. By combining these data in the maps, it is easy to see the congested locations that are most associated with development of the different growth areas.

The growth areas are combined into seven groupings to keep the number of maps down to a manageable number. Two maps are shown for each growth area grouping. One map shows traffic flows and congestion for the scenario that combines the RTP road network, RTP transit network, and no policy change land use pattern. The other shows the results for the least congested scenario: high capacity road network, high capacity transit network, nodal development land use pattern. Several observations can be made from these maps:

- ***Eagle Point Vicinity (Figure 23)***: Crater Lake Highway is a major congestion bottleneck affected by travel to and from this area. The extent of congestion on this route would be substantially reduced by the high capacity scenario, but a significant bottle neck would remain near Eagle Point.
- ***Central Point Vicinity (Figure 24)***: Severe congestion is most present on routes connecting this area to the North Medford and White City areas to the east. The high capacity scenario would eliminate most of the severe congestion on these routes. Congestion on I-5 and Hwy 99 affects a substantial amount of travel to and from areas to the southeast. The high capacity scenario has little effect on this congestion.
- ***Northeast Medford Vicinity (Figure 25):*** Travel to and from these growth areas is affected by congestion on many routes. The high capacity scenario would

substantially reduce the extent of congestion, but congestion would remain on a number of road segments, including Crater Lake Highway. Only a small portion of travel to and from these areas would affect congested portions of I-5.

- ***Jacksonville Vicinity (Figure 26):*** Travel to and from these growth areas would experience congestion on Hwy 238 and South Stage Road. The high capacity scenario would eliminate this congestion. A small portion of travel to and from these areas would affect congestion on Crater Lake Highway.
- ***Southwest Medford Vicinity (Figure 27):*** Travel to and from these growth areas would experience congestion in several areas. Most notable are the severely congested portions of Hwy 99 and local roads in the general vicinity of the south Medford interchange. The high capacity scenario would significantly reduce the severity and extent of congestion, but substantial congestion would remain in this area.
- ***Phoenix and Southeast Medford Vicinity (Figure 28):*** Travel to and from these growth areas would experience congestion on North Phoenix Road, East Barnett Road, Hwy 99, I-5, and several other roads. The high capacity scenario would significantly reduce the severity and extent of congestion on the most roads that would be most heavily traveled. Congestion would remain on portions of North Phoenix Road, East Barnett Road, and Hwy 99.
- ***Talent Vicinity (Figure 29):*** Travel to and from these growth areas would experience congestion on I-5 and Hwy 99. The high capacity scenario would eliminate most of this congestion.



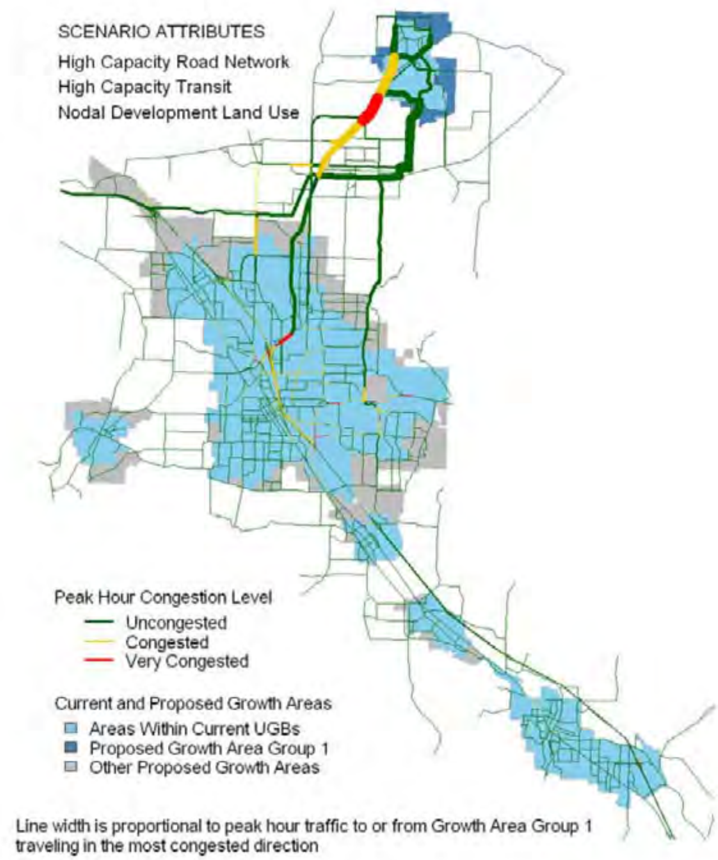


FIGURE 23 Eagle Point Vicinity Growth Area Traffic Flows and Congestion on Network

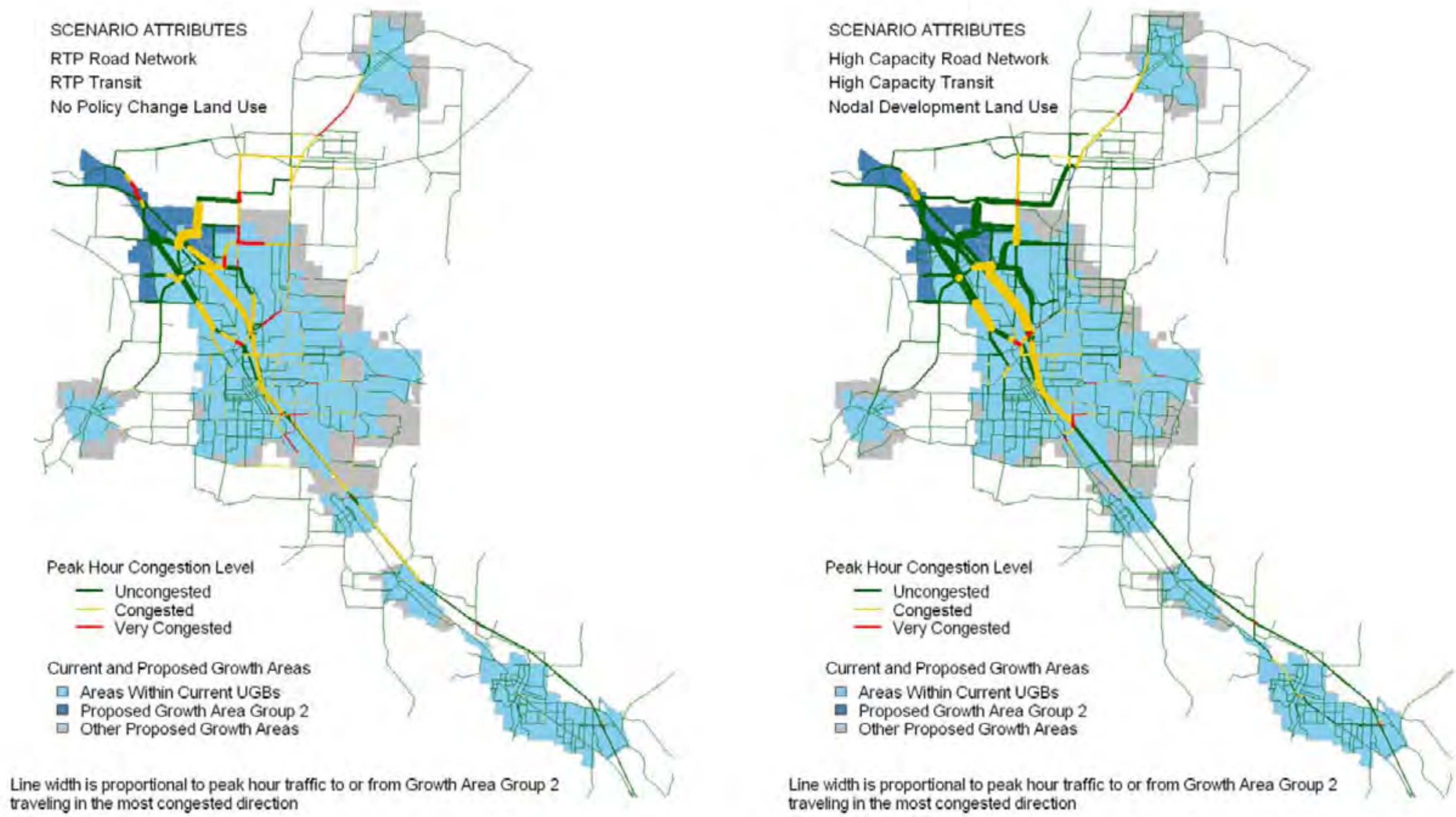


FIGURE 24 Central Point Vicinity Growth Area Traffic Flows and Congestion on Network

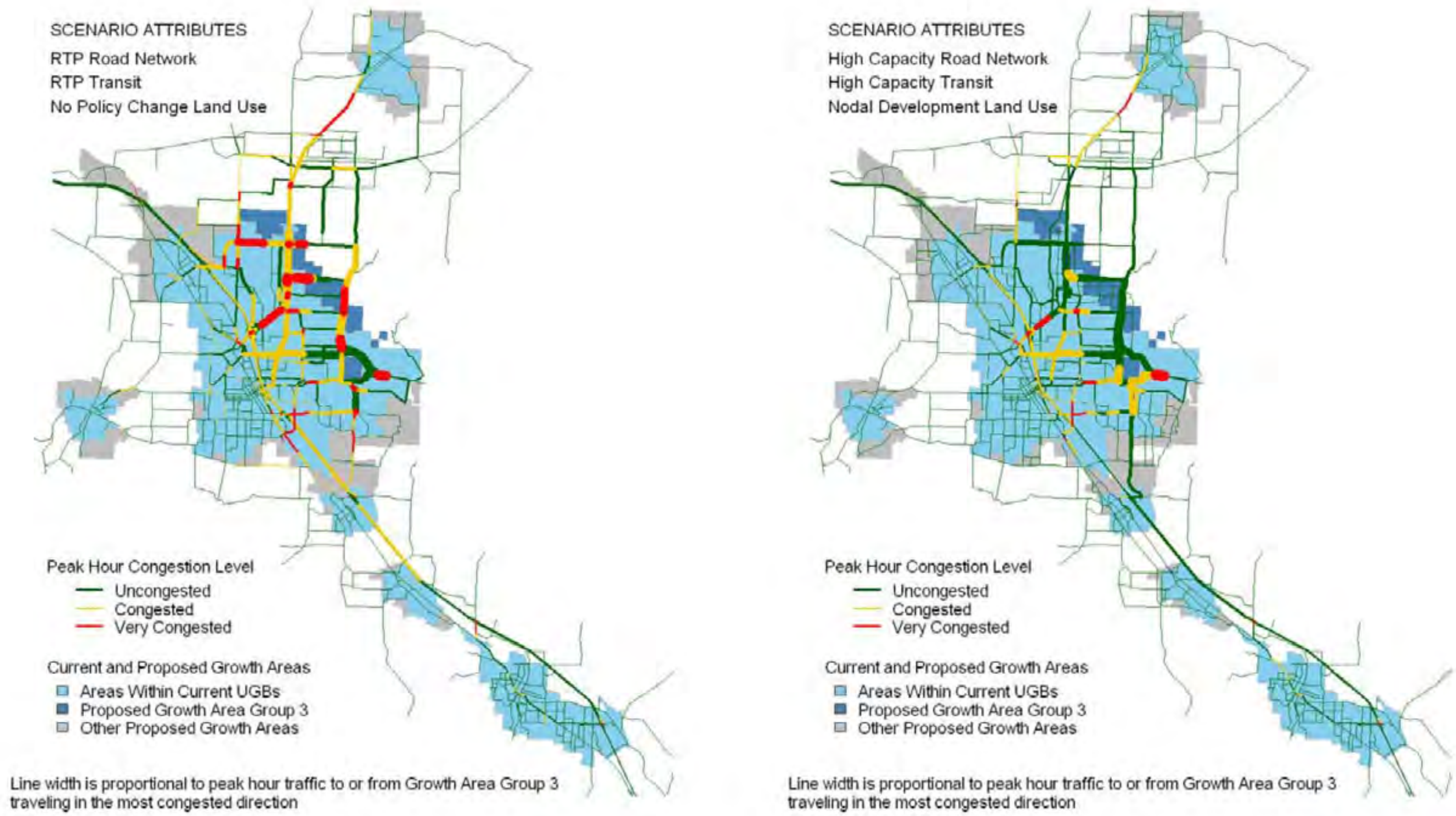


FIGURE 25 Northeast Medford Vicinity Growth Area Traffic Flows and Congestion on Network

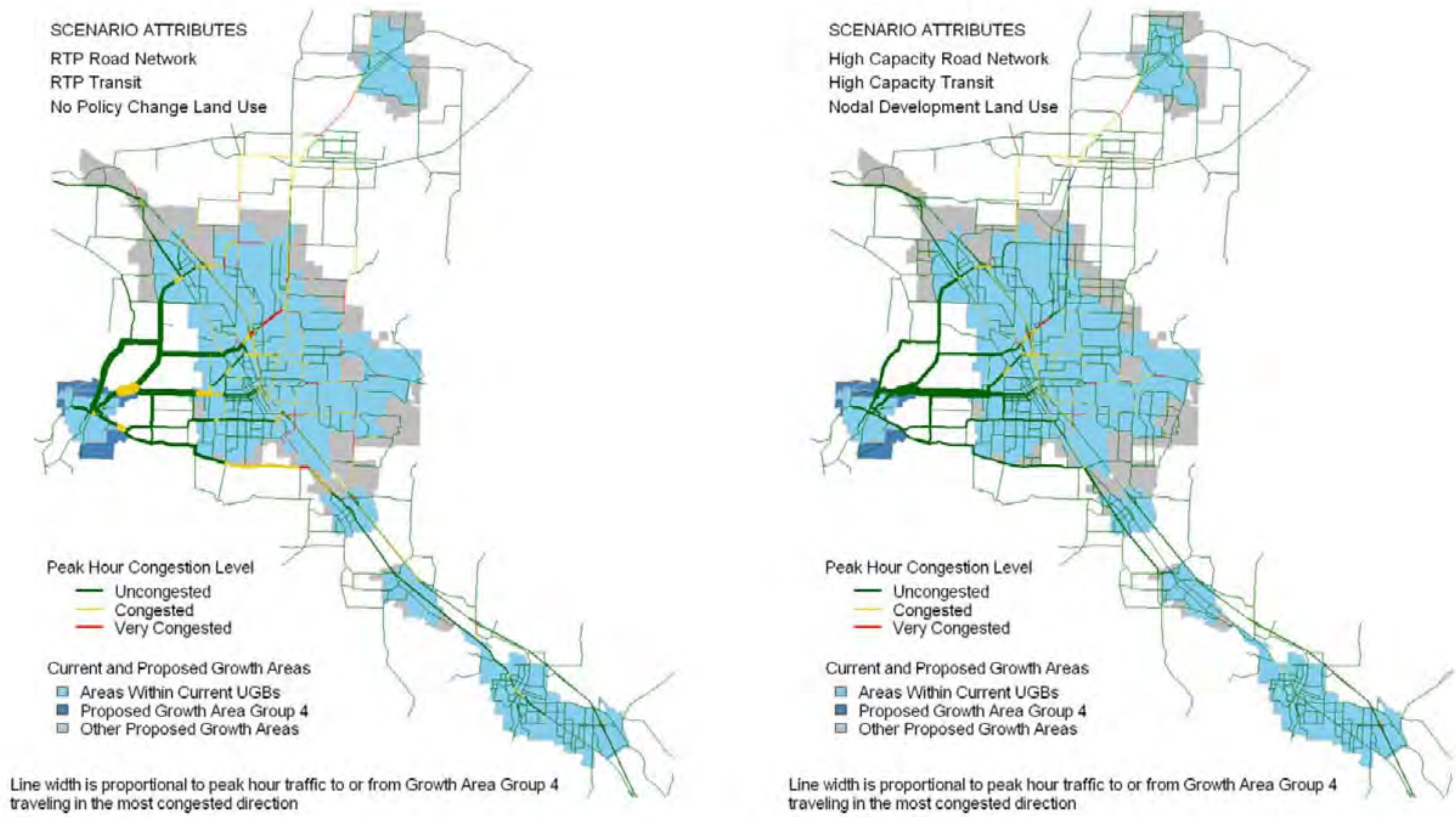


FIGURE 26 Jacksonville Vicinity Growth Area Traffic Flows and Congestion on Network

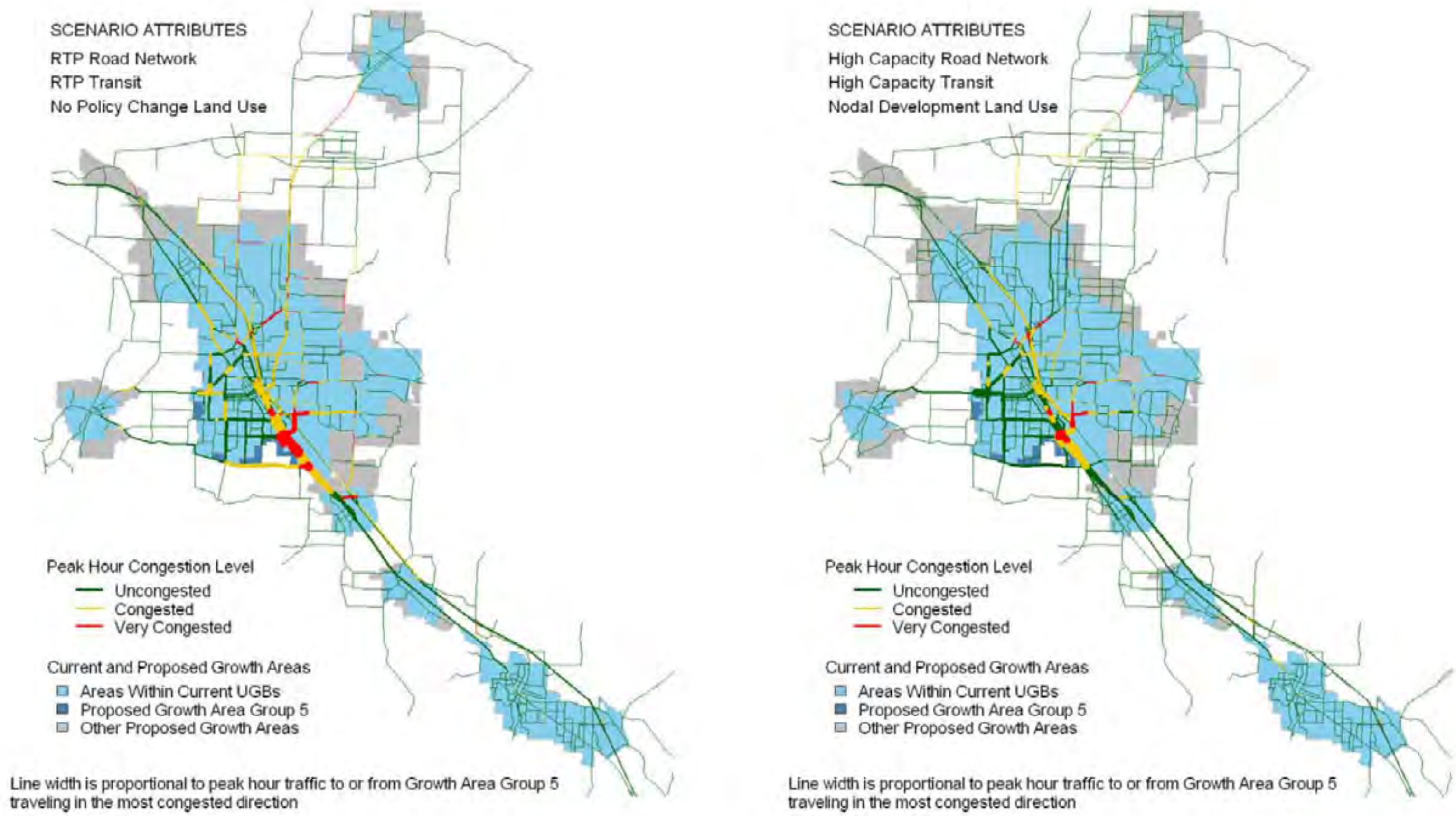
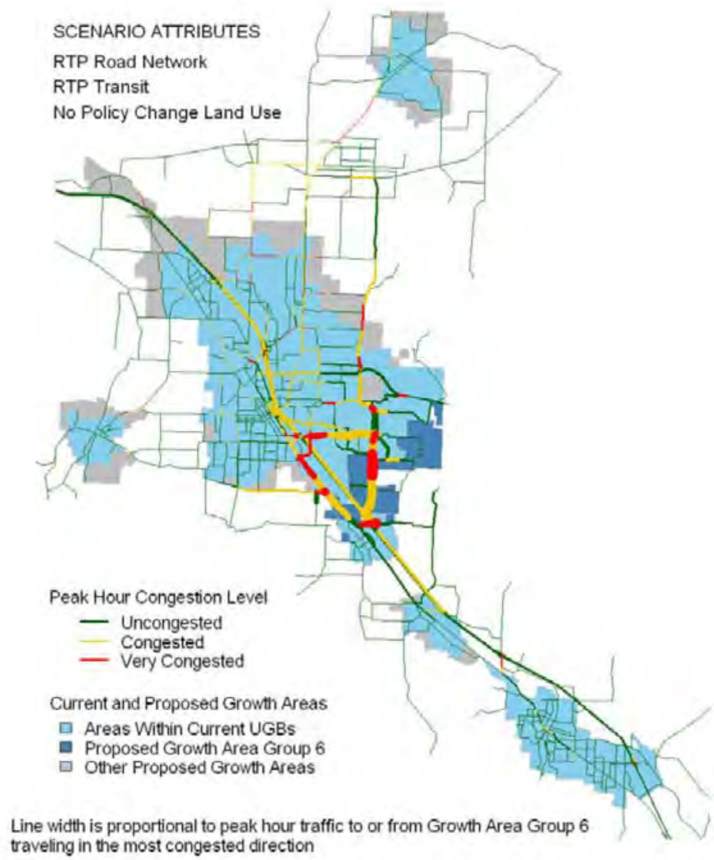


FIGURE 27 Southwest Medford Vicinity Growth Area Traffic Flows and Congestion on Network



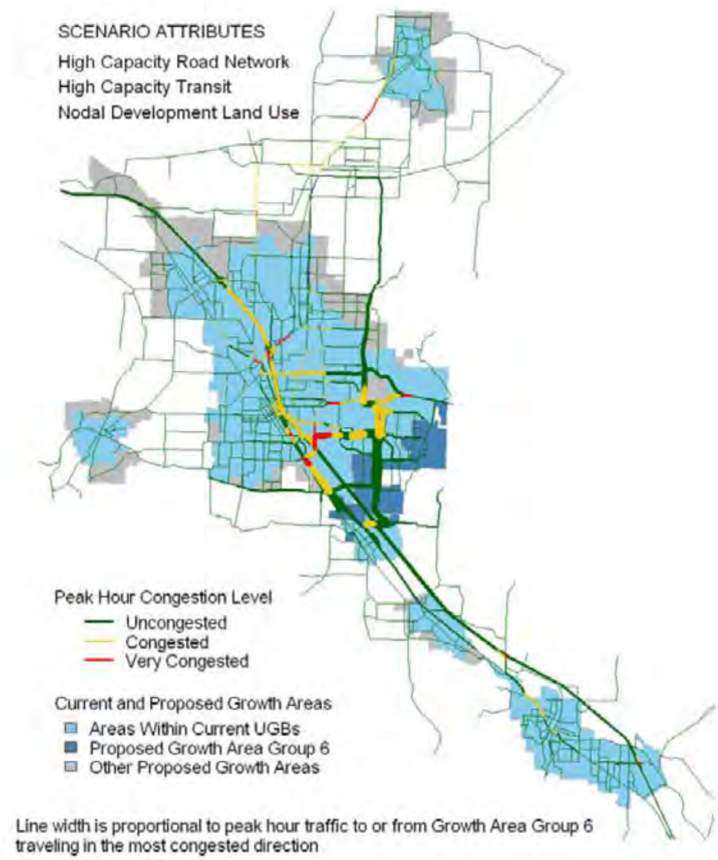


FIGURE 28 Phoenix and Southeast Medford Vicinity Growth Area Traffic Flows and Congestion on Network

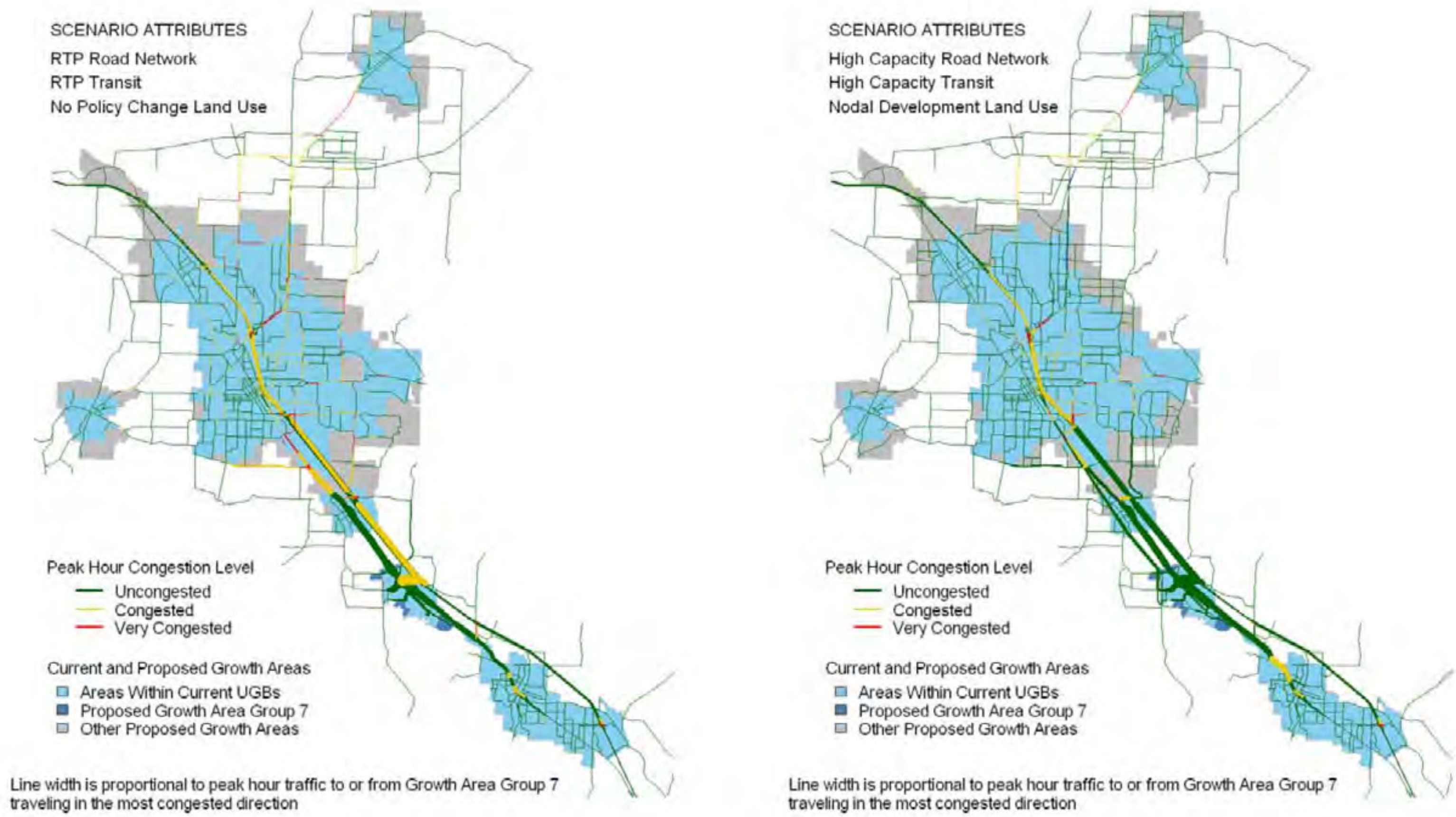


FIGURE 29 Talent Vicinity Growth Area Traffic Flows and Congestion on Network

Appendix A: Description of LUSDR

The following description of the LUSDR model is an excerpt from a forthcoming article by the author in the *Journal of the Transportation Research Board*, reformatted for this report.

OVERVIEW OF THE LAND USE SCENARIO DEVELOPER

LUSDR is a stochastic microsimulation of land development implemented in the R programming language. Households, employment establishments and developments are simulated as individual agents that are allocated at the transportation analysis zone (TAZ) level. Almost all the modeling processes are Monte Carlo processes where outcomes are derived by sampling from probability distributions. The probability distributions come from:

- Joint probabilities derived from cross tabulations of Census Public Use Microsample (PUMS) data;
- Terminal node probabilities from decision trees;
- Probabilities derived from inventory size distributions;
- Logit model probabilities; and,
- Expert judgement of land use compatibilities used as probabilities.

The basic processes in LUSDR are shown in Figure A1.

Generating Households and Residential Developments

A synthetic set of households is generated from an exogenous forecast of population by age cohort. Households are created by placing persons by age group into households by size, workers and age of household head. This is done through a straight-forward Monte Carlo sampling process where the number of samples equals the projected population. Each age cohort has its own sampling distribution derived from crosstabulations of PUMS person and household data. The resulting allocations of persons by age cohort to households by type is summed by household type and divided by persons per household by household size category to produce an array of households by household type. This array is then converted into individual household records.

Once individual households have been created with size, worker and age characteristics, attributes of income, dwelling tenure, and building type are added to the household records. This is also done using a Monte Carlo process, but in this case, the sampling distributions are the terminal node probabilities of decision trees. These decision trees were estimated from PUMS data using a conditional inference tree method for recursive partitioning.[3]

[3] T. Hothorn, K. Hornik, and A. Zeileis. party: A Laboratory for Recursive Part(y)itioning, 2006. R package version 0.9-5.

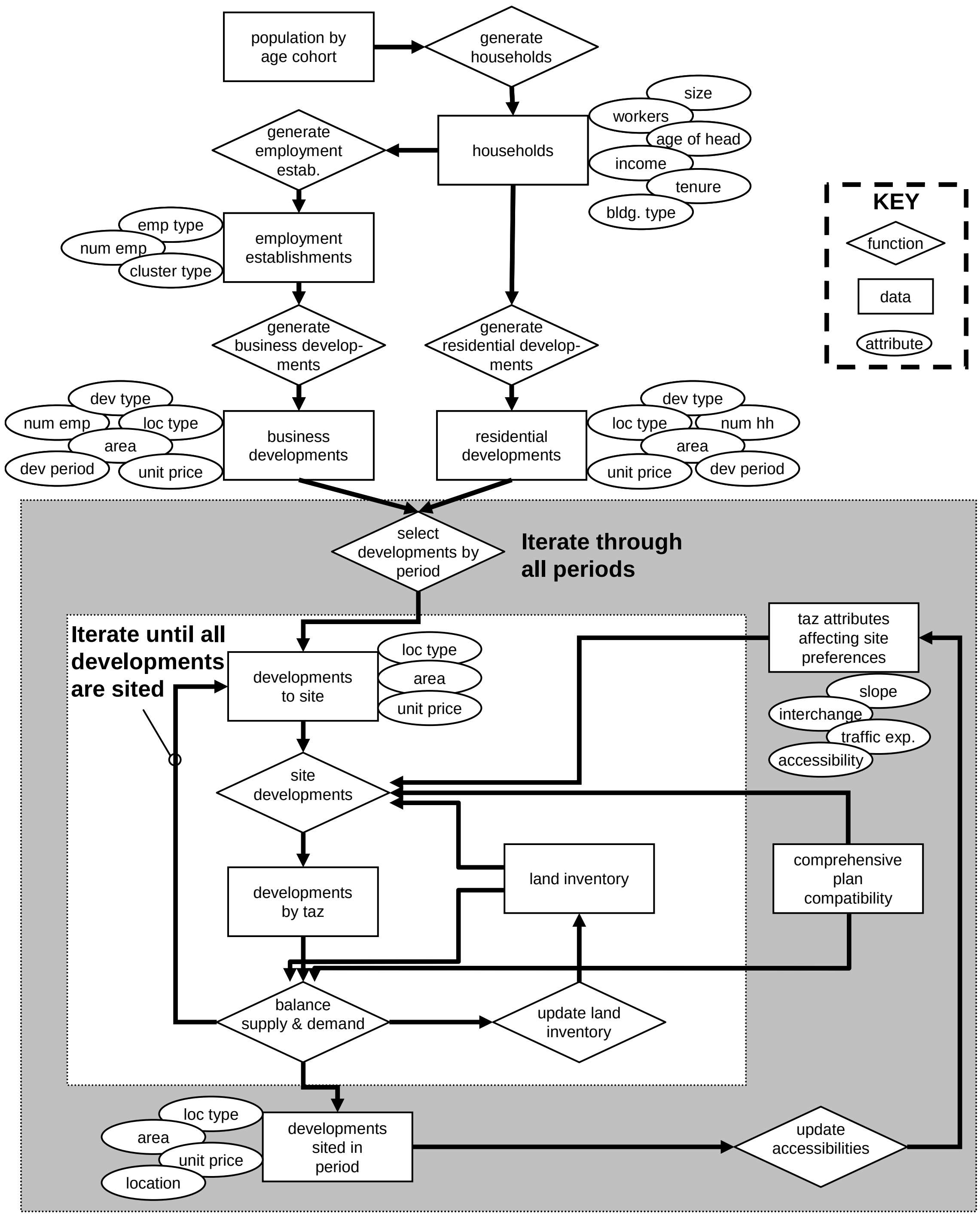


FIGURE A1 Overview of Land Use Scenario DevelopeR (LUSDR) structure

It is important to note that households are synthesized at the model-wide level. They are not synthesized at a TAZ level. The synthesized households are placed in geographic locations by assigning them to residential developments for the proper building type and then locating the residential developments. Developments are creating for each building type by successively drawing from development size distributions for the respective type and then randomly assigning households identified as occupying the building type. The development size distributions were derived from local partition and subdivision records, tax assessment data, and census data. Residential developments are randomly assigned to development periods.

Generating Employment Establishments and Business Developments

Total employment is forecast from total household workers and the ratio of employment to workers in the region. The employment is split into employment sectors, at the 2-digit NAICS level, and business development types using joint probabilities derived from employment and property data. Employment establishments are created from employment totals by repeatedly sampling from employment establishment size distributions until all employment is accounted for.

Business developments are generated by aggregating employment establishments into development clusters. Clusters are generated by successively drawing from cluster size distributions and then randomly assigning employment establishments having the identified cluster type to them. Business developments are also identified as one of 8 location types. This is done to produce simpler and more robust location models. Business developments are randomly assigned to development periods.

Locating Residential and Business Developments

Developments are allocated to TAZs in each development period. The allocation is based on consideration of land constraints, including environmental and regulatory constraints, location "preferences", and prices (Figure A1). TAZ choices are made for each development in random order. These choices are the result of two steps. First, a set of candidate TAZs is identified based on the amount of available land in each comprehensive plan category in each TAZ. Sufficient land has to be available in comprehensive plan designations that permit the development for a TAZ to be considered a candidate. Second, a choice is made among the candidate TAZs using a Monte Carlo process where the choice probabilities are generated from a location choice model for the type of development. Such models were estimated for each of the 6 residential development types and 8 business development location types. The location choice model calculates the probability that development of the type is located in a TAZ based on TAZ characteristics including slope, distance to the nearest freeway interchange, traffic exposure, local employment accessibility, regional employment accessibility, local household accessibility, and regional household accessibility.

After preliminary locations for all developments have been chosen, the model balances land supply and demand. This this done on the basis of the land supply in each comprehensive plan category and the relative price each development is willing to pay. Median land prices for each type of development, derived from tax assessment data, are used for establishing the relative willingness to pay.

A preferred order of plan designations is identified for each development based on ratings of compatibility of each type of development with each type of comprehensive plan designation. Land in each plan designation is allocated iteratively to the largest development that is willing to pay the most until no more developments with that preferred plan category can fit into the remaining land area. For those developments that are priced out of their preferred plan category, an attempt is made to locate them in lower priority categories. As developments are located, the inventory of available land in the TAZ is updated. Developments that are outbid for all suitable plan categories in the TAZ are added to a list of developments that must be reallocated. For these developments, the process is repeated for identifying candidate TAZs, choosing a preferred TAZ and bidding with other developments for location in the TAZ. The whole process is repeated until all developments are successfully located.

Features That Reduce Model Complexity

LUSDR departs from the comprehensive model ideal in a number of ways to reduce complexity and run times while retaining the most important behavioral elements.

Simplified Household Models

LUSDR does not follow the ideal of simulating person and household transitions. LUSDR creates a population of households periodically during the modeling process by sampling from distributions that respond to changing age demographics. A person and household transition model does not appear to offer sufficient added benefit to justify the added complexity and cost because:

- There are well established methods for developing demographic forecasts.
- The practice of modeling household transitions is still in a formative state.
- It would be more efficient to do sensitivity testing of alternative demographic forecasts than to build and calibrate an internal demographic model.
- The land use and transportation policies that local governments and metropolitan areas are likely to evaluate have little to do with the internal dynamics of households.

Simplified Employment Establishment Models

LUSDR also does not microsimulate the internal dynamics of employment establishments. The study of such changes, also known as “firmography” is still in its infancy.[4] The firmographic approach simulates the growth, decline and movement of

[4] Moeckel, R. Simulating Firmography. Presented at Fourth Symposium on Integrated Land Use-Transport Models, Portland, Oregon, 2005. http://www.oregon.gov/ODOT/TD/TP/docs/Modeling/4symp/1117_1045.pdf. Accessed July 28, 2005.

individual businesses. None of the current operational land-use-transport modeling frameworks reviewed by Hunt et.al. use a firmographic approach.[5] They either use an aggregate equilibrium approach to the allocation of employment, or in the case of UrbanSim, simulate transitions at an individual employee level. LUSDR uses a partial firmographic approach by modeling employment establishments as whole units. This is an important feature because the path-dependent nature of land development is affected by the "lumpiness" of development. However, going further in a firmographic approach would be very expensive and risky, given the need for stronger foundations in basic research. The time required to develop and run a model of employment establishment dynamics would be better spent on improving sampling distributions and testing model response to altered distributions.

Focus on Development Location

LUSDR simplifies the microsimulation by focusing on locating developments rather than locating individual households and employment establishments. In the ideal microsimulation, individual households and employment establishment agents interact with the owners and developers of built space through markets. Location decisions are affected by relative prices which reflect demand and supply relationships. Development decisions are influenced by prices and vacancy rates. It is a complicated, costly and time consuming undertaking to model these agents and their interactions correctly.

LUSDR avoids this complexity by more closely relating household and business location decisions with development location decisions. The type of spaces that households and businesses occupy is determined at the household and business level, respectively. This links households and businesses to the correct development types. These development types in turn have corresponding location models that were estimated from existing land use patterns. Since land use patterns are a function of both the decisions of developers and the decisions of those that occupy the developments, models derived from existing land use patterns will reflect the combined effect of the household/business and developer decisions. The estimation of location models from existing development patterns simplifies the model development process.

This simplification has more significant tradeoffs than the other simplifications. Modeling household and business location behavior can provide valuable information about changes in housing prices and rents that may result from policies. This information can also be used to model the changes in demand by building type as prices change. Finally, modeling household and business location behavior may help with simulating the segregation of households by income, which would have a significant effect on travel demand. The tradeoff is worthwhile for the situations where LUSDR is planned to be used (smaller metropolitan and urban areas that are growing). Moreover, some of the limitations can be addressed in the LUSDR framework without creating household and business location models. These are addressed at the end of the paper.

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[5] Hunt, J. D., D. S. Kriger, and E. J. Miller. Current Operational Urban Land-use-Transport Modelling Frameworks: A Review. *Transport Reviews,* Vol. 25, No. 3, 2005, pp. 329-376.

Simplified Land Supply Approach

LUSDR also has a simplified approach to modeling land supply that operates at the transportation analysis zone level rather than the parcel level. Parcel level modeling is a difficult undertaking stemming from the fact that parcels are not units of development. Parcels are legal units of land that may be bought or sold without government approval. With approval they may be partitioned or subdivided into smaller units to be sold. This occurs regularly. Parcel boundaries are rarely dissolved to create larger parcels, but parcels may be combined in other ways to accommodate development. It is common for persons or corporations to own several adjacent parcels and to have a development that occupies several or all of the parcels they own. In addition, developments such as shopping malls often are built across disjoint ownerships through long term leases or other agreements. Zero-lot-line building and zoning codes also allow development to occur so that multiple buildings act like coordinated developments. The intricacies of how parcels can be split and used in combination make parcel level modeling a substantial undertaking. Unless a parcel level approach accounts for the complexity of how properties may be split apart and used together, it is unlikely to be any more realistic than a zone-based approach that has a reasonably small zone size.

MODEL DEVELOPMENT

Model Development Platform

All of the model estimation, calibration and implementation of LUSDR was done in the R programming language[6]. In addition, a large portion of the data preparation was done using R. R has been used previously for implementing travel demand models for urban areas[7] and for tying together transportation and air quality models to produce air quality analysis[8]. Implementation of the model in R simplified the process of data development, exploratory data analysis, and model estimation. The wide variety of statistical modeling methods available in R provided development flexibility. Because R is a full featured programming language, model components could be moved directly from estimation to application. R's graphical features enabled the development of custom plotting and mapping to display model outputs.

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[6] Ihaka, R., and R. Gentleman. R: A Language for Data Analysis and Graphics. *Journal of Computational and Graphical Statistics*, Vol. 5, No. 3, pp. 299-314.
[7] Gregor, B., D. Walker. R Transport Model: Developing Open-Source Urban Transportation Models Using the R Programming Language. Presented at 9th TRB Conference on the Application of Transportation Planning Methods, Baton Rouge, Louisiana, 2003.
[8] Stabler, B., R. Jackson, B. Gregor, D. Walker. Tying Together Four Step and Emissions Models in R. Presented at 10th TRB Conference on the Application of Transportation Planning Methods, Portland, Oregon, 2005.

Data

The data used for developing and applying LUSDR for the RPS study were fairly modest. They included:

- Base year households and employment by TAZ
- Geocoded base year employment data
- Travel times from the regional travel demand model
- Travel paths from the regional travel demand model
- Public Use Microsample (PUMS) household and person files
- Other Census files: household size, number of workers, age of household head, building type, tenure
- County tax assessment data (GIS layer)
- County building polygon GIS layer
- Inventory of subdivision and partition approvals by size (number of lots) for a 5-year period
- Metropolitan area general comprehensive plan designations GIS layer
- Unbuildable lands GIS layer
- Proposed urban reserve areas GIS layer
- Regional transportation plan GIS layer

Most of the data of the data development efforts were straight forward and based on well developed procedures.

The most complicated and time consuming data development process was to develop an inventory of properties used to identify residential and business developments. Developments are composed of one or more buildings that act as a coherent development unit and the property on which they are situated. The tax lot data, building envelope data, and geocoded employment data were used to combine tax lots into properties. GIS processes were used to relate these data to each other and then the resulting data tables were imported into R for analysis.

The process for identifying properties proceeded iteratively through the following steps:

- The geographic layers were overlayed and examined along with aerial photography to identify rules for identifying properties.
- The rules were coded in R and applied to the data.
- The resulting properties were exported to GIS and examined.
- New rules were developed and existing rules were modified.
- Final adjustments were made by examining aerial photography to adjust the identified properties and to look for developments that the rules did not identify.

Appendix B: Scenario Congestion Levels

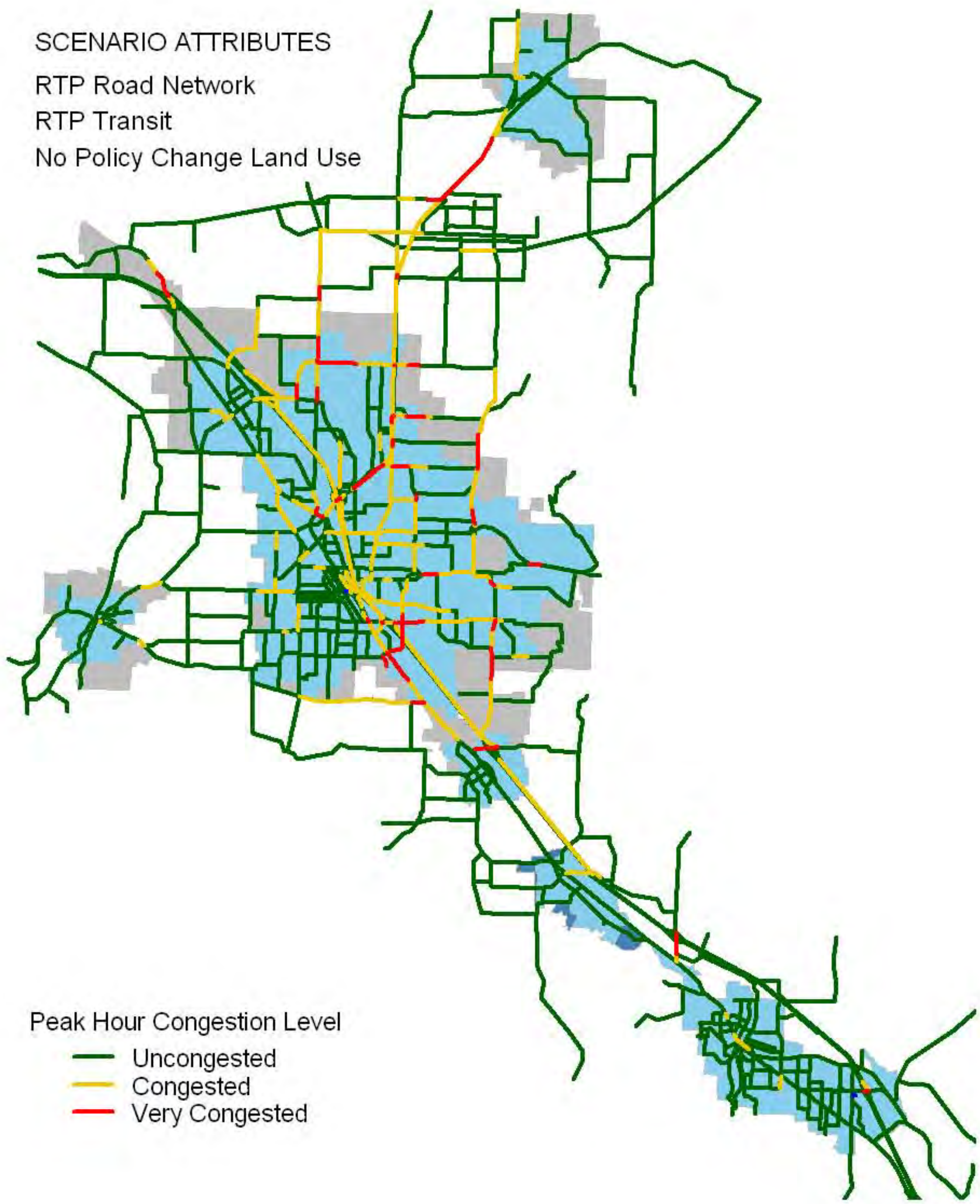


FIGURE B1 Peak Hour Congestion Levels for RTP Road Network, RTP Transit Network and No Policy Change Land Use Scenario

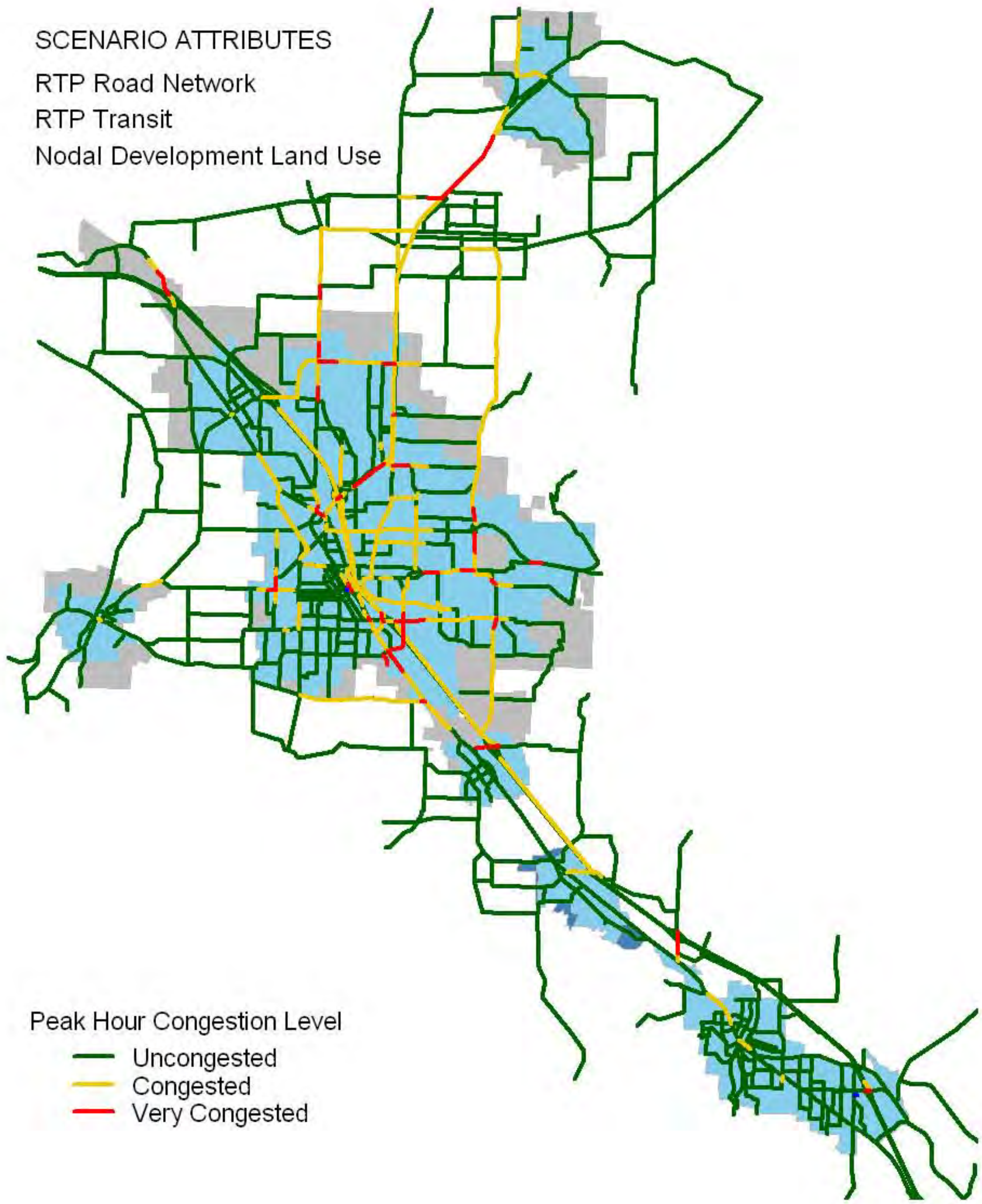


FIGURE B2 Peak Hour Congestion Levels for RTP Road Network, RTP Transit Network and Nodal Development Land Use Scenario

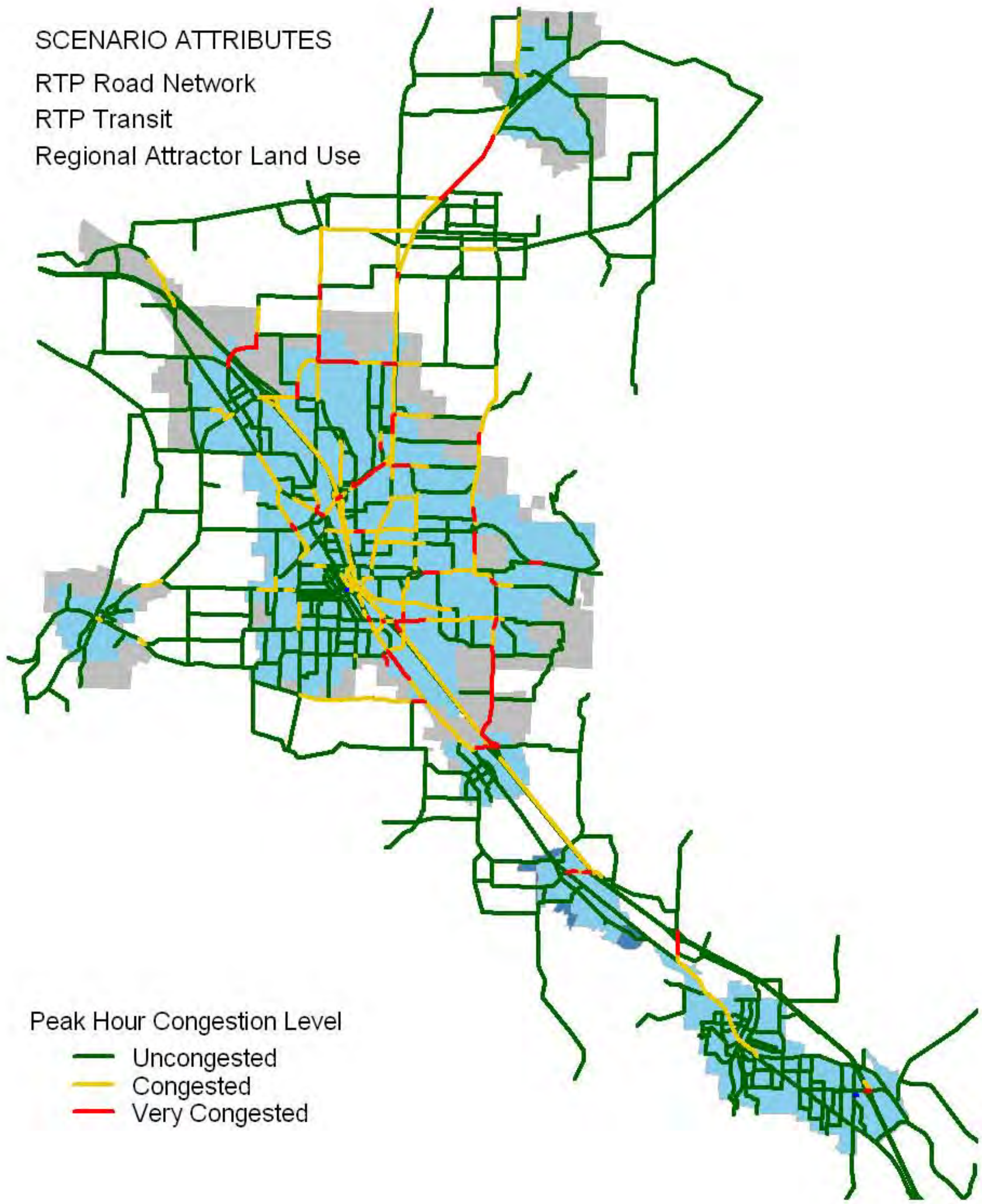


FIGURE B3 Peak Hour Congestion Levels for RTP Road Network, RTP Transit Network and Regional Attractor Land Use Scenario

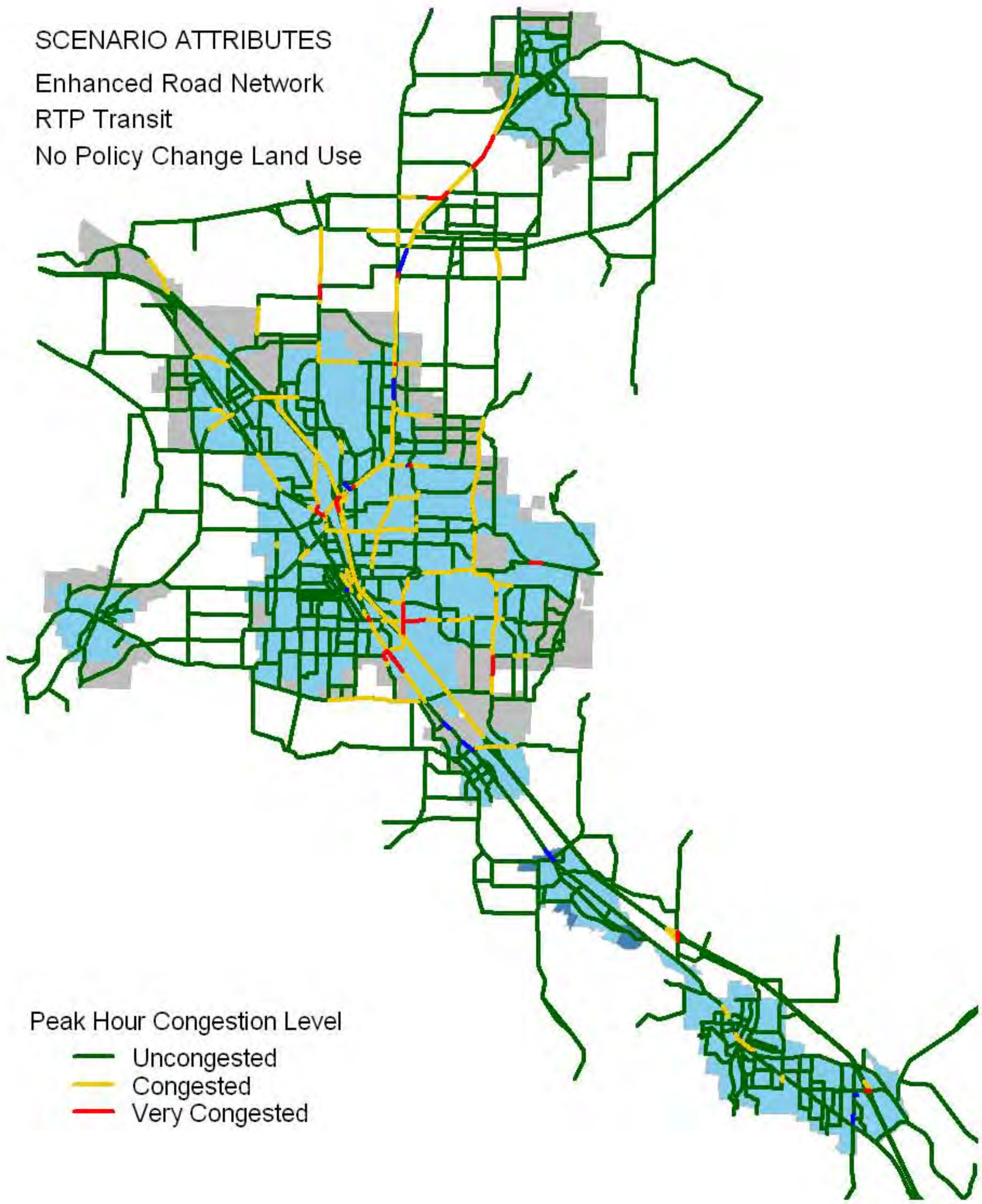


FIGURE B4 Peak Hour Congestion Levels for Enhanced Road Network, RTP Transit Network and No Policy Change Land Use Scenario

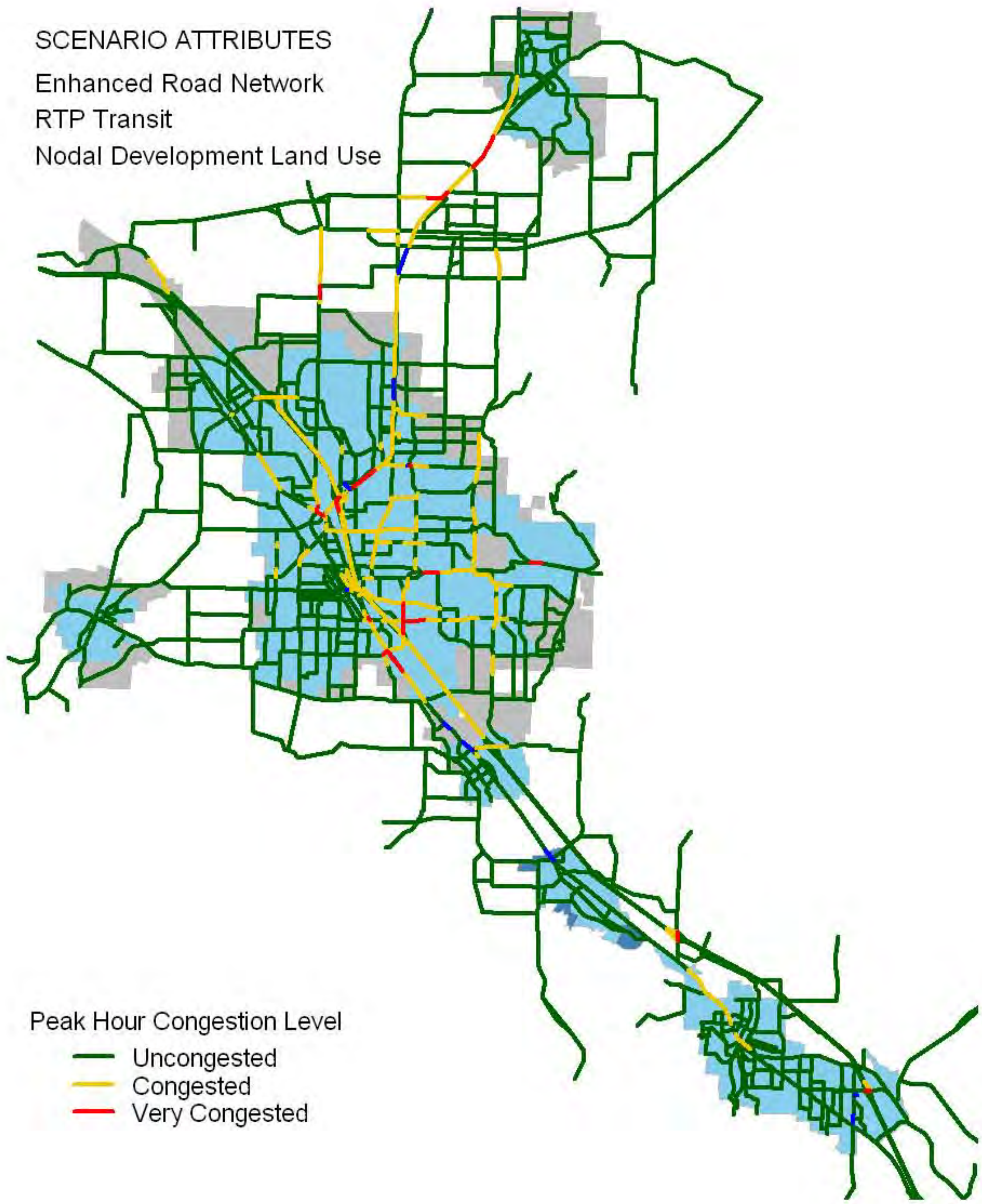


FIGURE B5 Peak Hour Congestion Levels for Enhanced Road Network, RTP Transit Network and Nodal Development Land Use Scenario

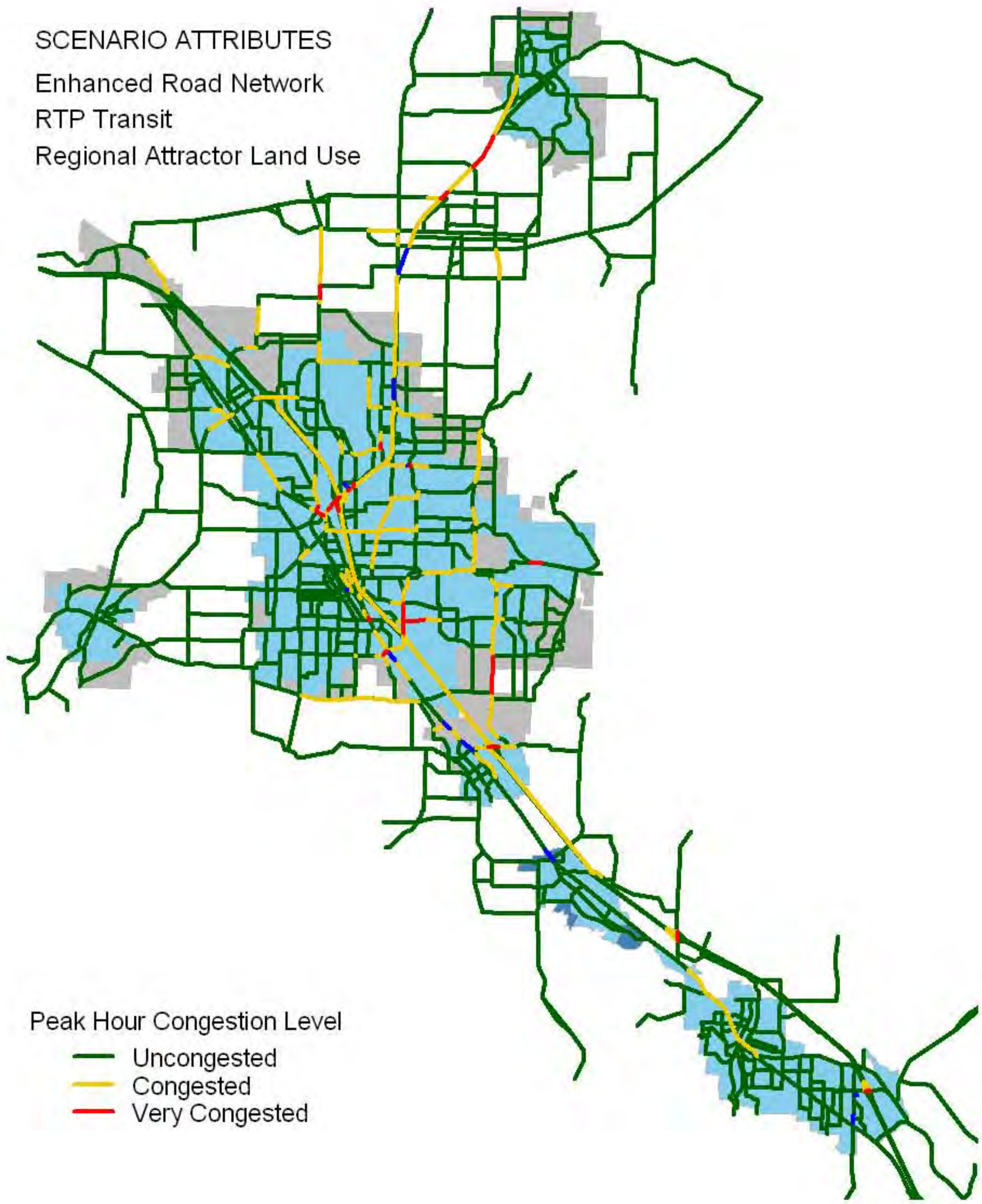


FIGURE B6 Peak Hour Congestion Levels for Enhanced Road Network, RTP Transit Network and Regional Attractor Land Use Scenario

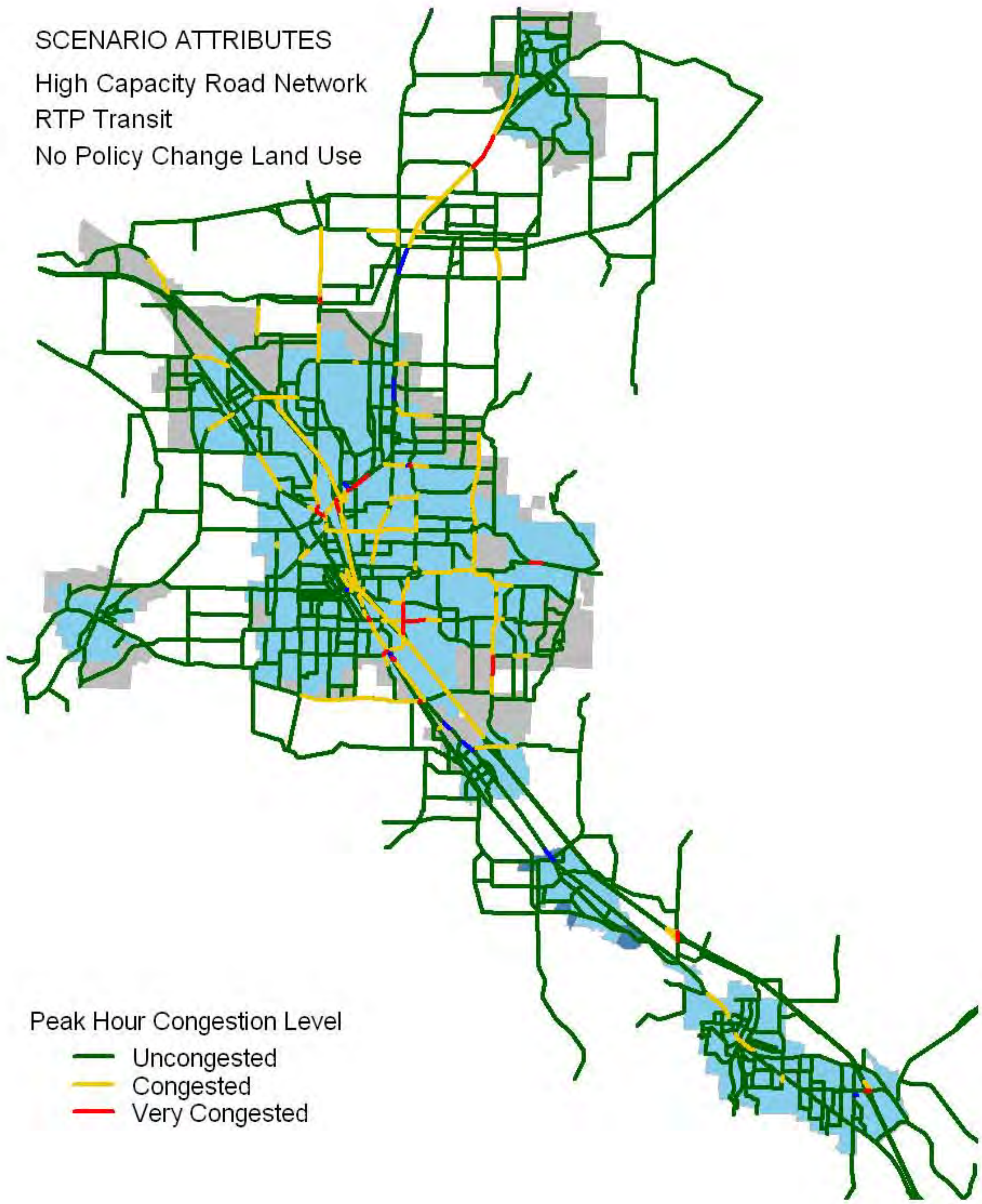


FIGURE B7 Peak Hour Congestion Levels for High Capacity Road Network, RTP Transit Network and No Policy Change Land Use Scenario

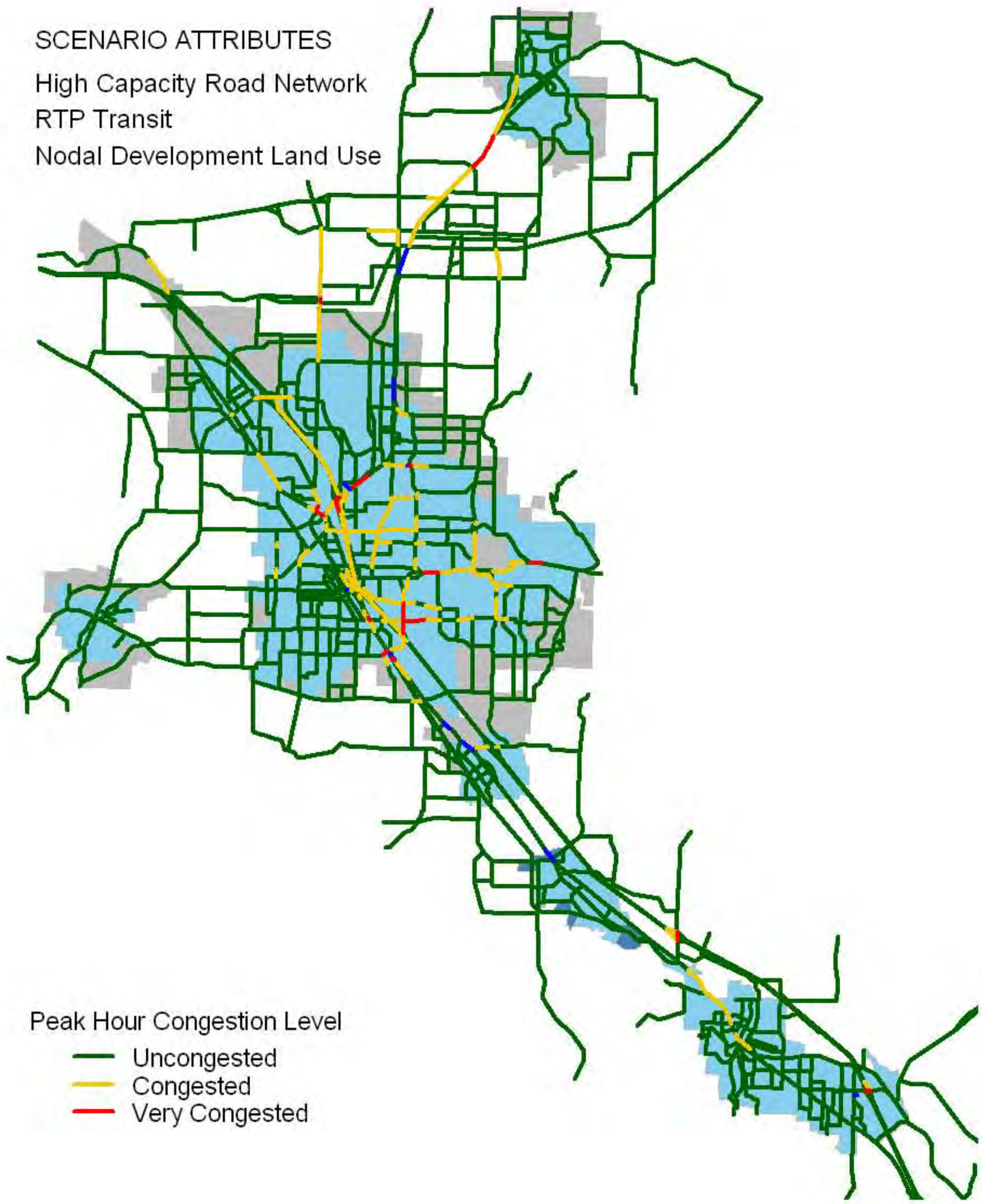


FIGURE B8 Peak Hour Congestion Levels for High Capacity Road Network, RTP Transit Network and Nodal Development Land Use Scenario

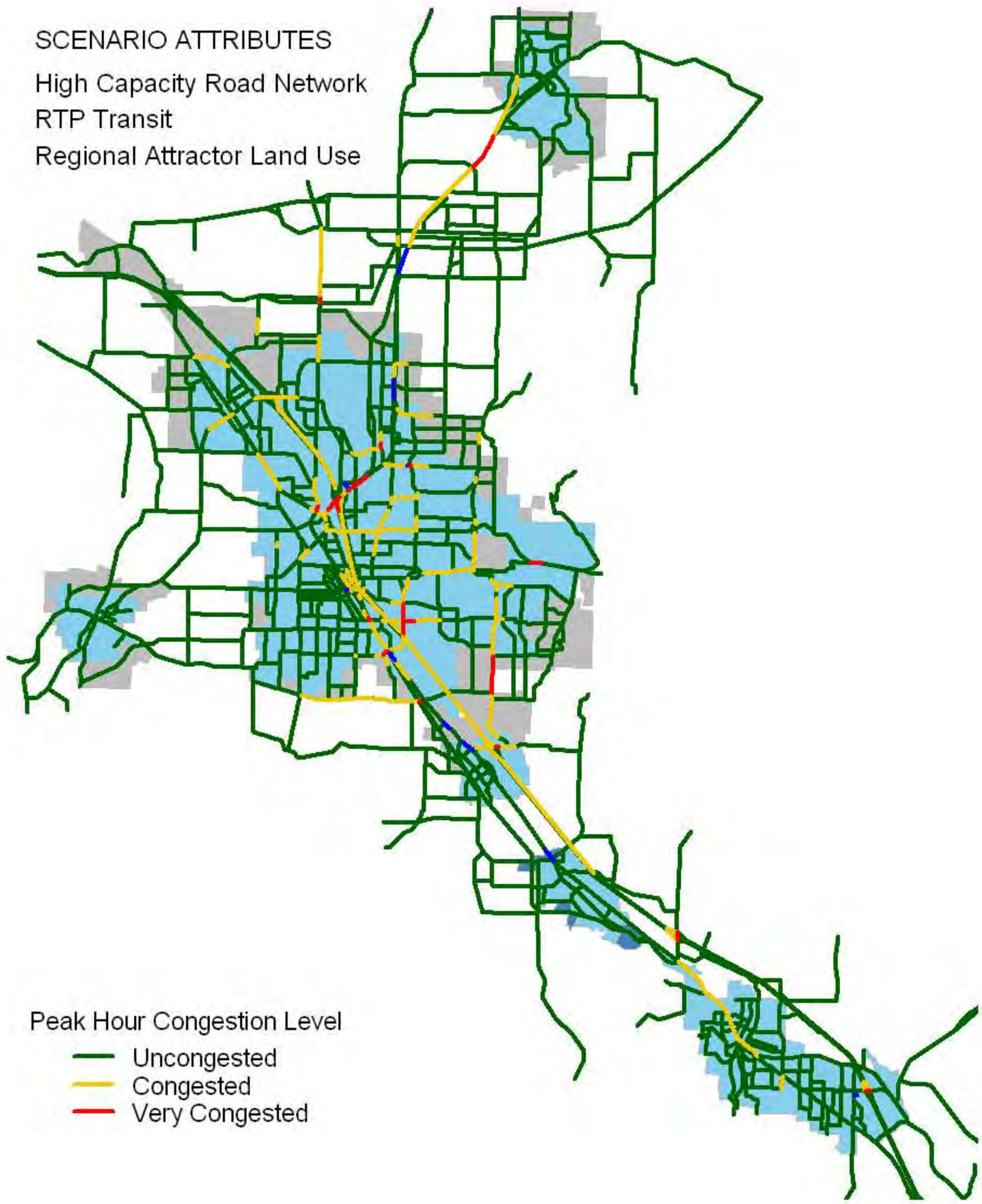


FIGURE B9 Peak Hour Congestion Levels for High Capacity Road Network, RTP Transit Network and Regional Attractor Land Use Scenario

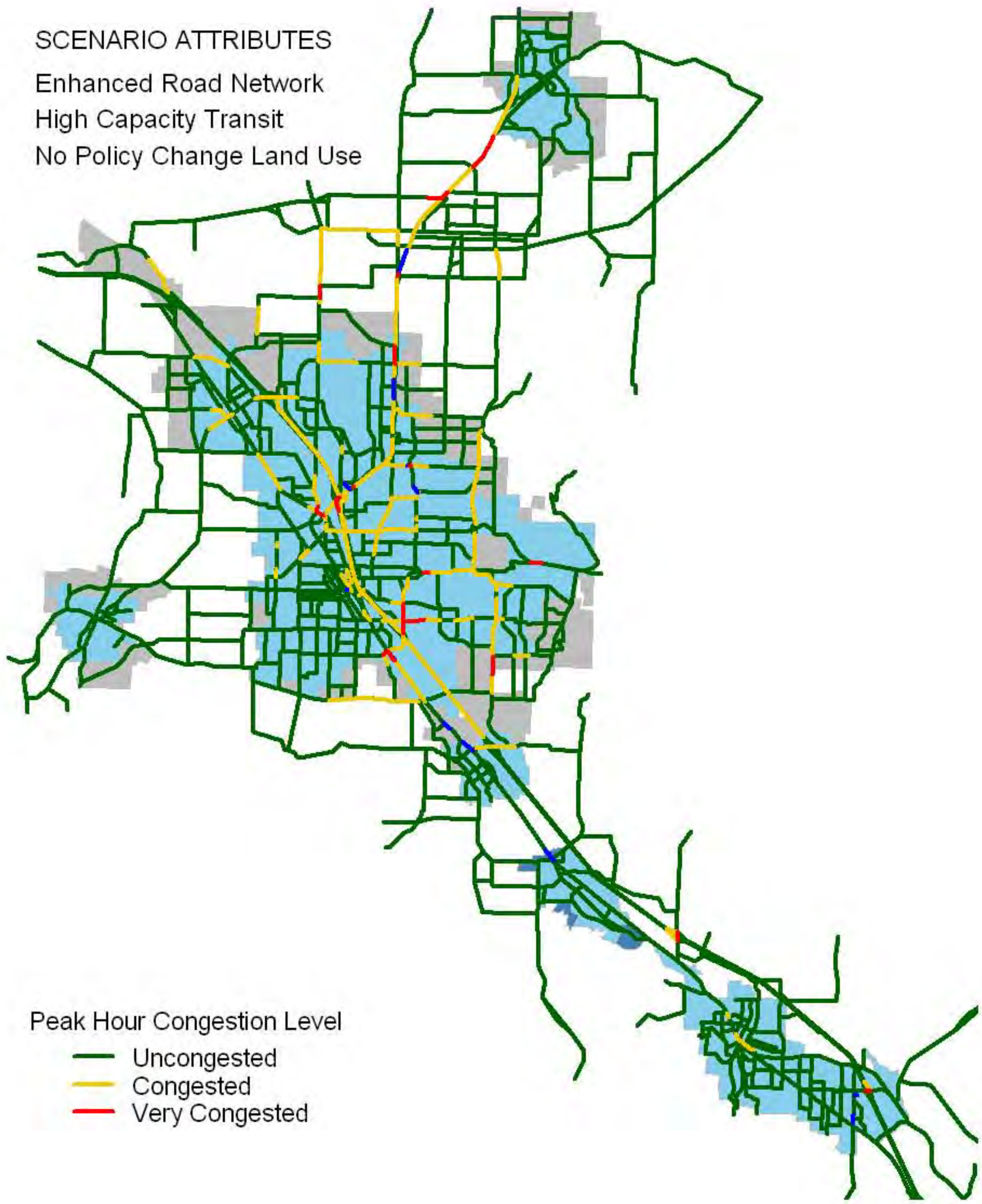


FIGURE B10 Peak Hour Congestion Levels for Enhanced Road Network, High Capacity Transit Network and No Policy Change Land Use Scenario

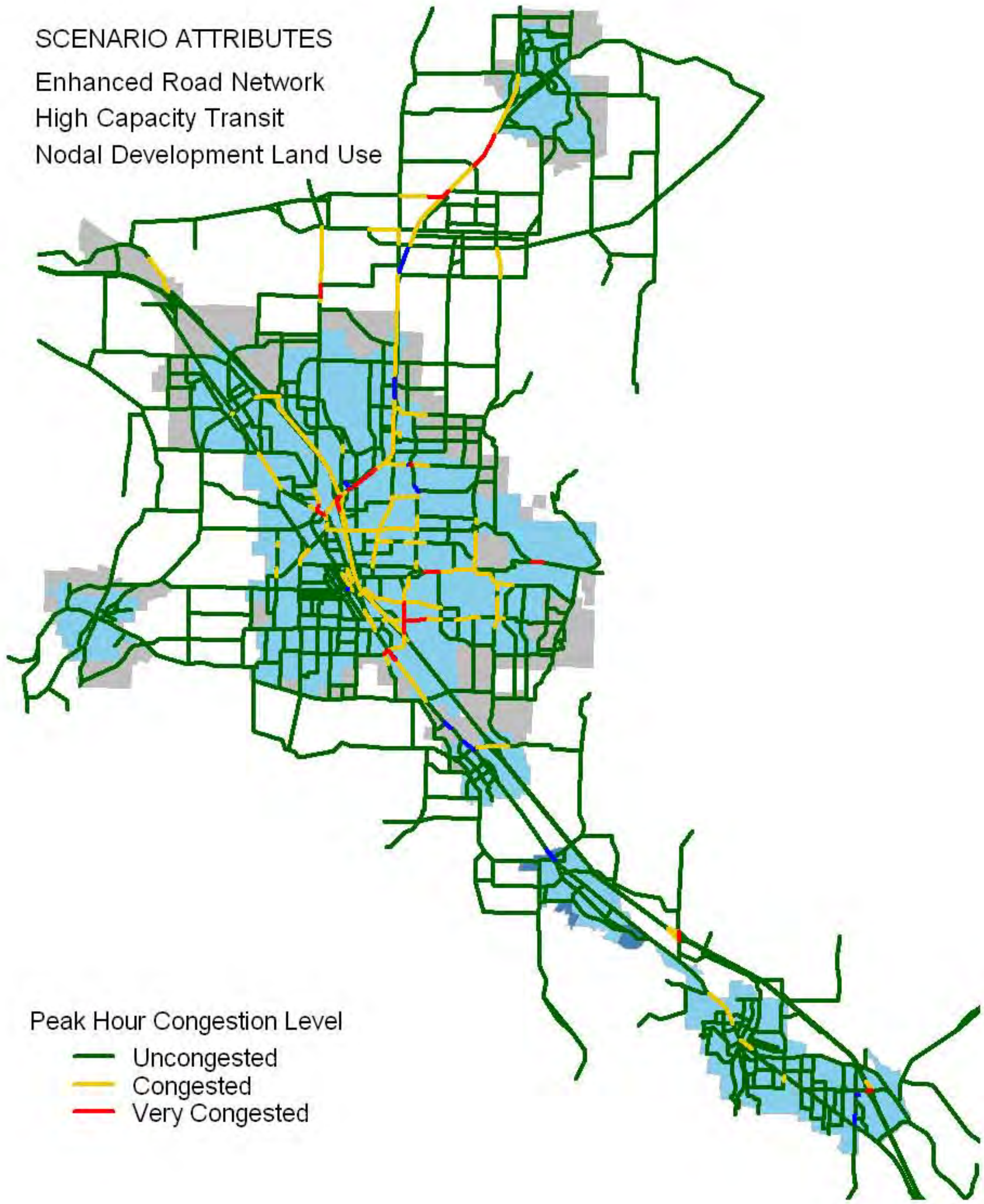


FIGURE B11 Peak Hour Congestion Levels for Enhanced Road Network, High Capacity Transit Network and Nodal Development Land Use Scenario

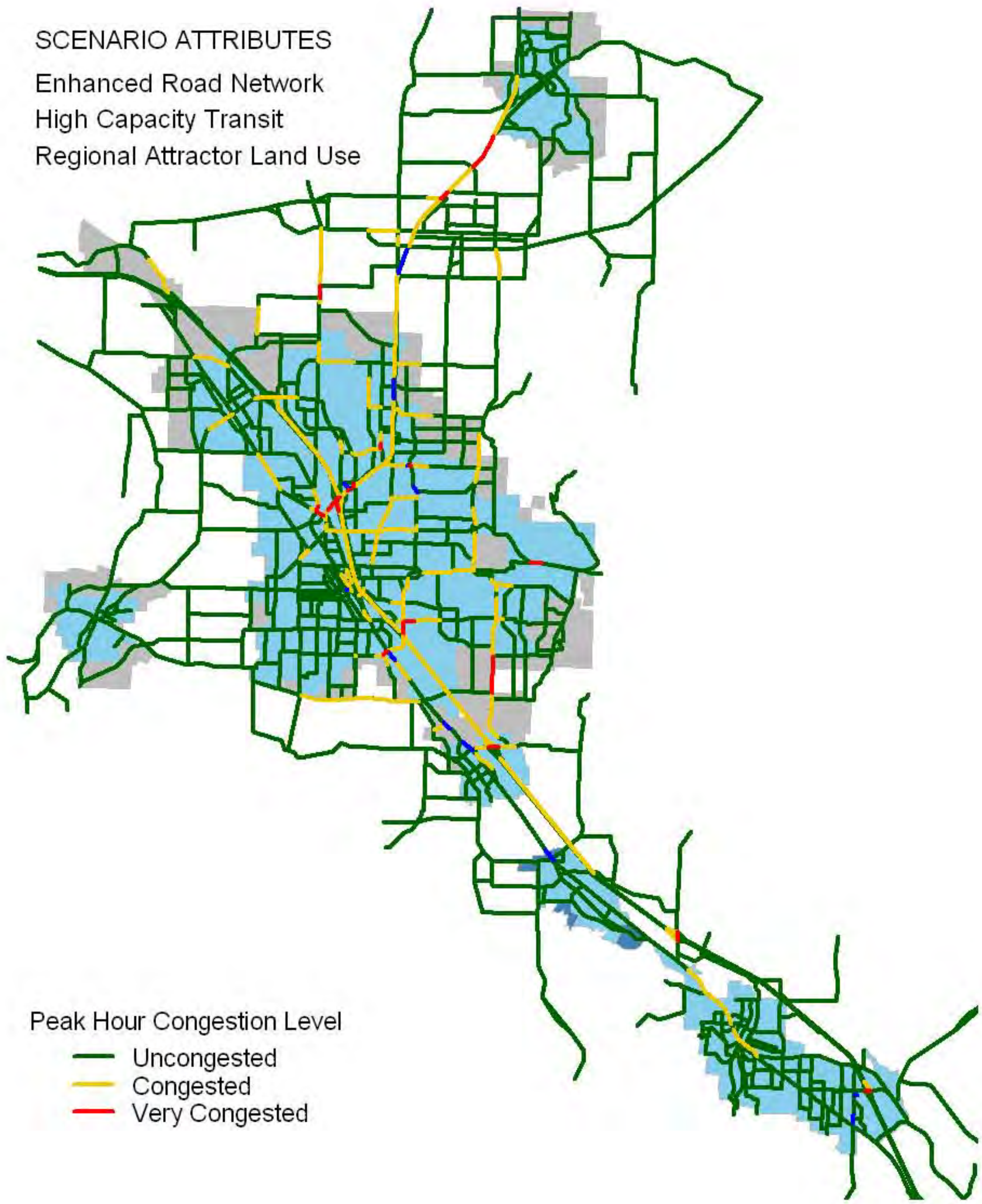


FIGURE B12 Peak Hour Congestion Levels for Enhanced Road Network, High Capacity Transit Network and Regional Attractor Land Use Scenario

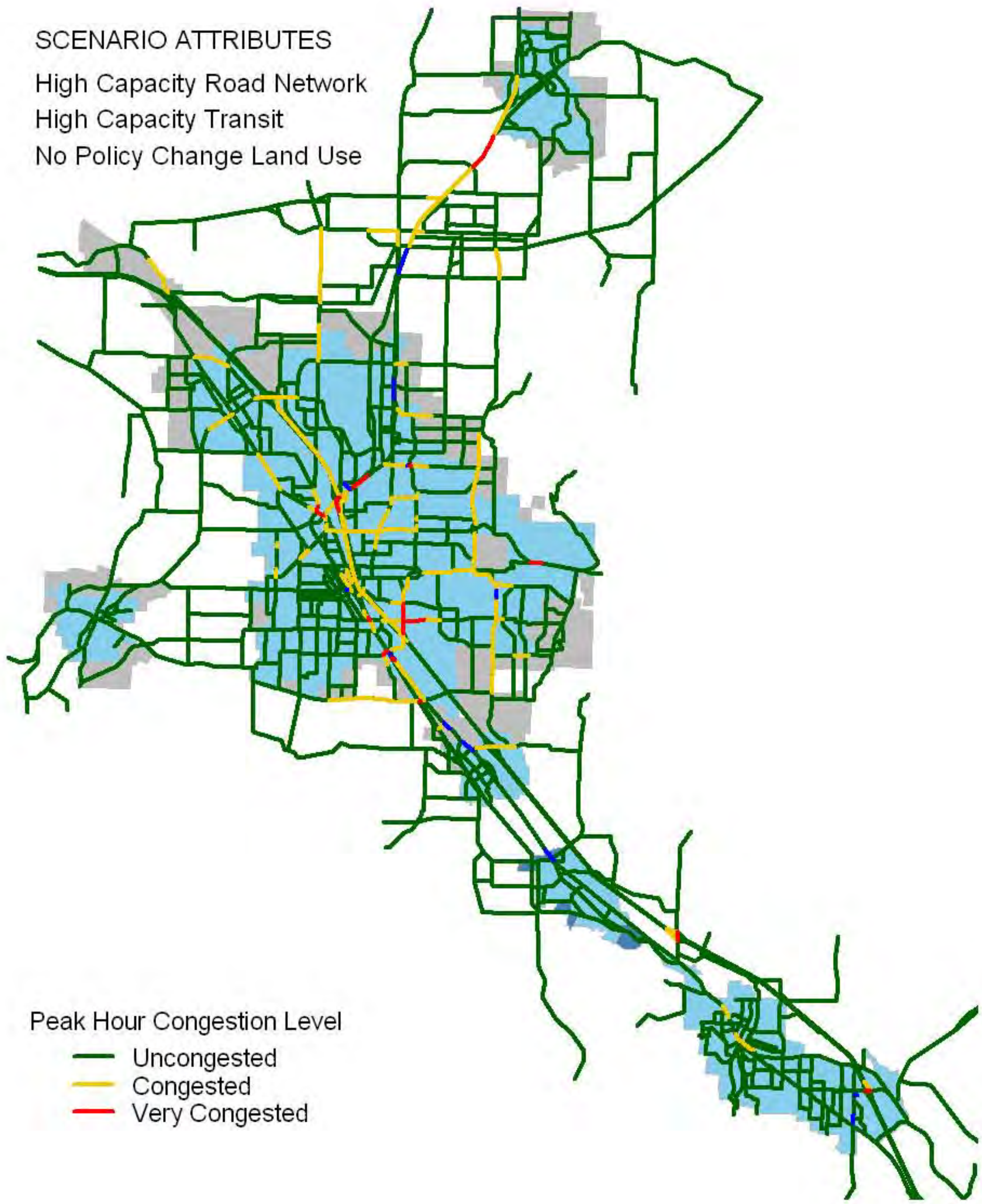


FIGURE B13 Peak Hour Congestion Levels for High Capacity Road Network, High Capacity Transit Network and No Policy Change Land Use Scenario

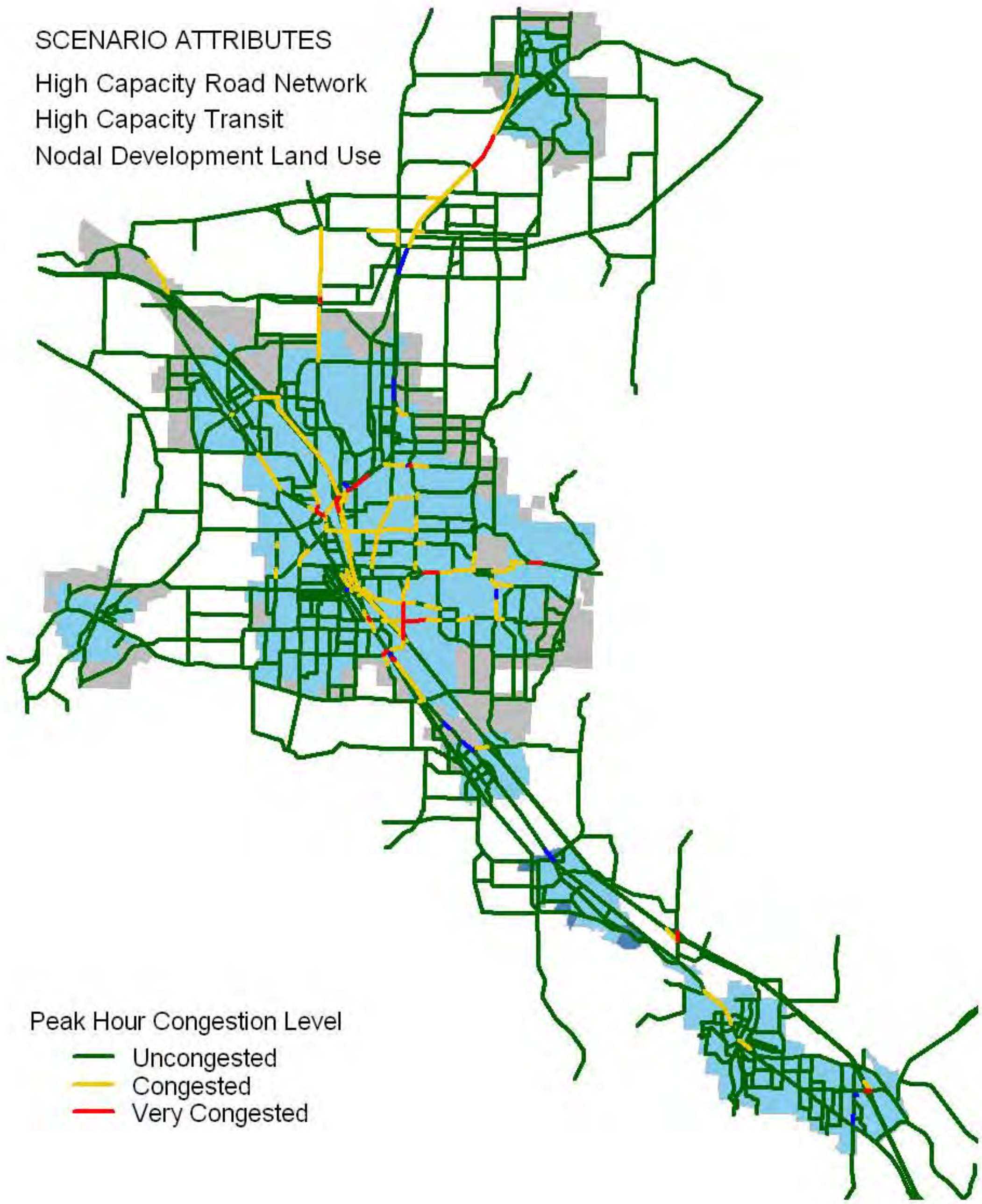


FIGURE B14 Peak Hour Congestion Levels for High Capacity Road Network, High Capacity Transit Network and Nodal Development Land Use Scenario

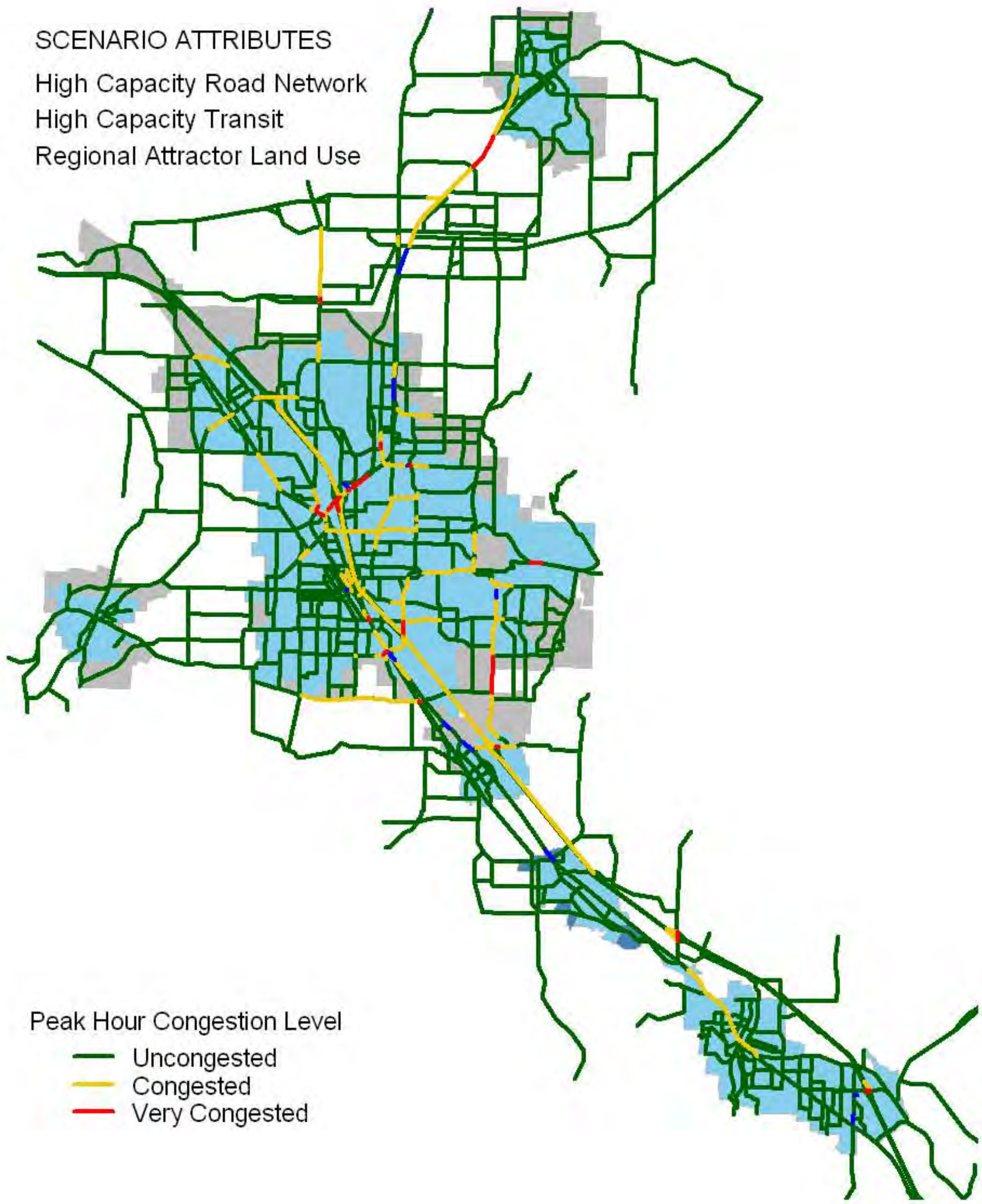


FIGURE B15 Peak Hour Congestion Levels for High Capacity Road Network, High Capacity Transit Network and Regional Attractor Land Use Scenario

APPENDIX VII

REGIONAL ECONOMIC OPPORTUNITIES ANALYSIS

Bear Creek Valley Regional Problem Solving Project:

Economic Opportunities Analysis

Prepared for

Rogue Valley Council of Governments

by

ECONorthwest
99 W. Tenth, Suite 400
Eugene, OR 97401
(541) 687-0051

Final Report

May 2007

This project was funded in part by a Department of Land Conservation and Development Technical Assistance Grant

Table of Contents

Executive Summary

This report is part of the larger Bear Creek Valley Regional Problem Solving (RPS) project. It presents a regional economic opportunities analysis consistent with the requirements of statewide planning Goal 9 and the Goal 9 administrative rule (OAR 660-009) as revised in December 2005. It includes a 20-year and 50-year forecast of employment for the Bear Creek Valley and an estimate of how much employment capacity exists within UGBs and proposed expansion areas. This study is intended to provide technical information for the regional growth management strategy being developed through the RPS project. While it provides a lot of data useful to local Economic Planning as required by Goal 9, it does *not* provide all the elements for Goal 9 compliant economic opportunities analyses for the participating municipalities.

FINDINGS

Many industries have shown growth and business activity in the Bear Creek Valley over the past few years. These industries are indicative of businesses that might locate or expand in the Bear Creek Valley. The characteristics of the Bear Creek Valley make the following businesses most likely to locate in the Bear Creek Valley:

- **Manufacturing**. The type of manufacturing businesses likely to locate in the Bear Creek Valley are those that need easy access to transportation, clean water, skilled workers, and a semi-rural setting. Examples include: food processing, high-tech electronics, recreation equipment and apparel, and other specialty manufacturing. Manufacturing is typically associated with Industrial land use types.

- **Warehousing and transportation**. The Bear Creek Valley's location and access to I-5 make it attractive for regional warehousing and distribution firms that serve the population located in the Bear Creek Valley and the southern Oregon region. The Bear Creek Valley's proximity to the California border and location on I-5 will also help the region attract truck terminals and warehousing facilities. Warehousing and Transportation is associated with Industrial land use types.

- **Retail**. Population growth will drive the growth of retail and local government. The type and location of retail development will vary within the region. Large scale retailers, like big box retailers, are likely to locate in more urban areas, such as Medford or Central Point. The smaller cities are likely to have growth in small scale retailers to serve people living within the city and tourists. Retail is associated with the Retail and Services land use type.

- **Professional, Scientific, and Technical Services.** The Bear Creek Valley's high quality of life and semi-rural setting could attract software design, engineering, research, and other professional services that are attracted to high-quality settings. Professional, Scientific, and Technical Services is typically associated with the Retail and Service land use type (some firms in this industry could locate in Industrial areas).

Table S-1 summarizes the inventory of buildable industrial and other employment lands in the Greater Bear Creek Valley. The results show that the region has about 2,296 vacant unconstrained acres that are designated for industrial or other uses within UGBs and White City. Additional lands are available in unincorporated areas.

Table S-1. Summary of vacant, unconstrained commercial and industrial land, Bear Creek Valley AQMA, 2006

Location	Business Park	Commercial	Industrial	Total
Ashland	0.0	74.1	0.0	74.1
Central Point	0.0	42.8	70.1	112.8
Eagle Point	13.8	18.6	0.0	32.4
Jacksonville	0.0	1.1	0.8	1.9
Medford	0.0	257.7	1,009.5	1,267.2
Phoenix	0.0	52.0	33.0	85.0
Talent	0.0	71.2	22.1	93.3
White City	0.0	52.2	576.6	628.8
Total	**13.8**	**569.6**	**1,712.1**	**2,295.5**

Note: Estimates do not include land zoned for employment uses in unincorporated areas including areas in proposed urban reserves identified for employment.

Table S-2 shows the result of applying these assumptions to the level of total employment growth we expect in the Bear Creek Valley. Table S-2 shows that growth will be led by jobs in Retail & Services, which will add over 45,000 jobs between 2006 and 2026. Industrial employment will increase by nearly 9,000 and Government employment will add nearly 4,000 jobs during the 2006-2026 period.

Table S-2. Distribution of employment by land use type in the Bear Creek Valley, 2006-2026 and 2006-2056

							Growth			
Land Use Type	2006		2026		2056		2006-2026		2006-2056	
Retail & Services	74,008	67%	99,677	67%	138,399	67%	25,669	67%	64,391	67%
Industrial	25,406	23%	34,218	23%	47,510	23%	8,812	23%	22,104	23%
Government	11,046	10%	14,877	10%	20,657	10%	3,831	10%	9,611	10%
Total	**110,459**	**100%**	**148,772**	**100%**	**206,565**	**100%**	**38,313**	**100%**	**96,106**	**100%**

Source: ECONorthwest.

Table S-3 shows a comparison of demand and capacity under the low, medium, and high-density scenarios. The low-density scenario results in a slight deficit of employment capacity over the 50-year planning period, while the medium and high-density scenarios result in a surplus.

Table S-3. Employment capacity: comparison of low-, medium-, and high-density scenarios

	Density Scenario		
Variable	**Low**	**Medium**	**High**
Job Growth			
2006-2026	34,482	32,566	30,650
2006-2056	86,495	81,690	76,885
Capacity			
UGBs	40,791	47,736	54,697
URAs	38,652	45,040	51,427
Total	79,443	92,776	106,124
Surplus (deficit)			
2006-2026	44,961	60,210	75,474
2006-2056	(7,052)	11,086	29,239

Source: ECONorthwest.

Table 6-4 shows a comparison of land supply and need in terms of acres. The results show a deficit of about 1,251 acres under the low density scenario, a small surplus (271 acres) under the medium density scenario, and a surplus of 1,363 acres under the high density scenario. The comparison does not distinguish between industrial and other employment uses. Site needs are discussed at the end of chapter 4.

Table 6-4. Comparison of land supply and demand (gross acres), Bear Creek Valley, 2006-2026 and 2006-2056

	Scenario		
Variable	**Low Density**	**Medium Density**	**High Density**
Job Growth			
2006-2026	3,158	2,551	2,116
2006-2056	7,921	6,399	5,307
Acres			
UGBs	3,477	3,477	3,477
URAs	3,193	3,193	3,193
Total	6,670	6,670	6,670
Surplus (deficit)			
2006-2026	3,512	4,119	4,554
2006-2056	(1,251)	271	1,363

Source: ECONorthwest.

IMPLICATIONS

The economic opportunities analysis has several implications for the RPS process—and for any participating jurisdiction that is considering a UGB expansion. Following are the key implications:

- **Distribution of growth**. The distribution of growth is an overriding regional issue. Businesses choose locations within a region based on many factors. It is probably reasonable to assume that for most firms and businesses, the decision about a regional location comes first: what state or metropolitan area is most desirable? Having made that choice, businesses then make a more specific (intra-regional) location choice based on some similar, and some different or more detailed, criteria. For example, a business may move to the Rogue Valley primarily for access to the labor pool (and the general quality of life benefits of southern Oregon). But once that decision is made, it then considers things like land availability, cost of services, and taxes can make a difference.

  The RPS process is concerned with the second, more specific type of location decisions. Though the term "jobs-housing balance" implies that one would measure a relationship between housing units and number of jobs, it is more commonly measured as a ratio between the number of jobs in an area and the number of employed residents, the assumption being that a working resident needs (or at least, should have the opportunity to acquire) a job in the jurisdiction in which he or she lives. A ratio of 1.0 implies some theoretical balance in the sense that there is a job for every working resident, or, alternatively, that there is a residence for every worker.

- **Employment centers.** The analysis addresses both the Tolo and South Valley Employment Centers. ECO's analysis suggests that both of these areas may meet the specialized site needs of certain types of industries. Moreover, the South Valley Employment Center would provide opportunities for employment growth in the southern part of the region—providing opportunities for residents of that area to live closer to work.

- **Local policy**. Local policy also has an affect on the type and distribution of employment. Beyond the land allocation issue described above, jurisdictions that are looking at UGB expansions will be required under Goal 9 to provide a 20-year supply of industrial and other employment land. Moreover, because the Bear Creek Valley is an MPO, 25% of the land must be provided as short-term supply (unless the region chooses to adopt a different standard).

The Economic Opportunities Analysis suggests that the region will need to plan for a significant amount of new employment—and land to accommodate that employment. The RPS regional plan can address some of the larger issues that pertain to distribution of growth; it will not obviate the need for local municipalities to complete additional analysis to comply with Goal 9.

This document presents a regional Economic Opportunities Analysis. Appropriately, this study used a broad regional approach to the EOA. While the data and analysis included in this contains a lot of data that is useful to municipalities, it is not intended to substitute for a local EOA. A lot of the data needed for a local EOA is provided in this document. Cities that want to prepare local EOAs, however, should consider starting by developing an economic development vision with community input. Moreover, cities may want to conduct refined land supply analyses, develop a more detailed discussion of local comparative advantages, and conduct additional analysis that matches local site needs with the economic development vision. Finally, cities should review and revise economic development policies and implementing ordinances as necessary to implement the economic development vision.

Chapter 1

Introduction

This report is part of the larger Bear Creek Valley Regional Problem Solving (RPS) project. It presents a regional economic opportunities analysis consistent with the requirements of statewide planning Goal 9 and the Goal 9 administrative rule (OAR 660-009) as revised in December 2005. It includes a 20-year and 50-year forecast of employment for the Bear Creek Valley and an allocation of that employment to the participating cities and rural areas within the Bear Creek Valley Air Quality Management Area (AQMA). This study is intended to provide technical information for the regional growth management strategy being developed through the RPS project. While it provides a lot of data useful to local Economic Planning as required by Goal 9, it does *not* provide all the elements for Goal 9 compliant economic opportunities analyses for the participating municipalities.

BACKGROUND

The Bear Creek Valley is growing. Population grew by 40% during the 1970's, which slowed to 11% in the 1980s, and then increased again in the 1990s. Most of the growth has occurred in the core I-5 cities (Medford, Phoenix, Central Point, Talent, and Ashland). The regional economy is also growing—between 2001 and 2005 employment in the Medford MSA grew nearly 10%. This growth has a broad range of impacts—it creates demand for housing and built space, demand for cultural amenities and a broader range of shopping opportunities. Growth also creates congestion, consumes land, and can increase housing prices.

In 1995, the Rogue Valley Council of Governments (RVCOG) responded to a community initiative to establish a regional planning project in Jackson County called OurRegion.[1] The Oregon Legislature passed the Regional Problem Solving (RPS) statute in 1996 (ORS 197.652-658). RPS is intended to provide regions flexibility in addressing growth issues and still comply with statutory requirements. Given the regional nature of growth issues in the Bear Creek Valley, local governments opted to use the Regional Problem Solving process to provide flexibility in approaching growth management and to allow local governments input into addressing regional issues.

The foundation of any long-term regional planning process is estimating how much growth will occur. How population and employment are dispersed within a region can make a big difference in how growth impacts the region. This report provides an Economic Opportunities Analysis (EOA) for the Bear Creek Valley and the participating jurisdictions.[2] It includes a forecast of employment for the regional as well as an allocation of the employment forecasts to cities. It takes a

[1] This section is summarized from the RVCOG's Regional Problem Solving website: http://www.rvcog.org/MN.asp?pg=rps_main_page

[2] The EOA presented in this report is intended to comply with the December 2005 amendments to the Goal 9 Administrative Rule (OAR 660-009).

regional perspective: in many respects the Bear Creek Valley can be thought of as an integrated economy.

FRAMEWORK FOR ECONOMIC DEVELOPMENT PLANNING IN OREGON

The content of this report is designed to meet the requirements of Oregon Statewide Planning Goal 9 and the administrative rule that implements Goal 9 (OAR 660-009). The Land Conservation and Development Commission adopted amendments to this administrative rule in December 2005.[3] The amendments are effective on January 1, 2007, but a provision of the amended rule allows cities and counties to voluntarily comply with the amendments. The analysis in this report is designed to conform to the requirements for an Economic Opportunities Analysis in OAR 660-009 as amended.

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

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

   Finally, cities within a Metropolitan Planning Organization (which includes the cities in the Bear Creek Valley) must adopt policies that identify having a competitive short-term supply of land for desired industrial and other employment uses as an economic development objective.

3. *Designation of lands for industrial and commercial uses (OAR 660-009-0025.* Cities and counties must adopt measures adequate to implement policies

[3] The amended OAR 660-009, along with a Goal 9 Rule Fact Sheet, are available from the Oregon Department of Land Conservation and Development at http://www.oregon.gov/LCD/econdev.shtml.

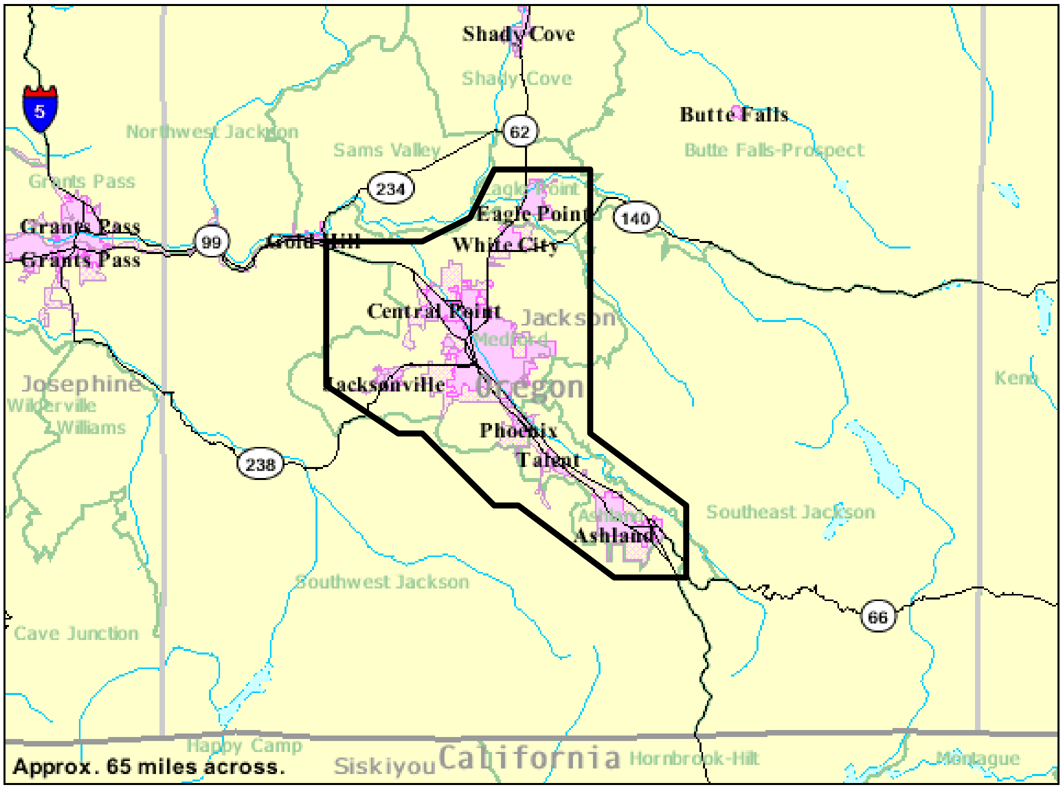
> adopted pursuant to OAR 660-009-0020. Appropriate implementing measures include amendments to plan and zone map designations, land use regulations, public facility plans, and transportation system plans. More specifically, plans must identify the approximate number, acreage and site characteristics of sites needed to accommodate industrial and other employment uses to implement plan policies, and must designate serviceable land suitable to meet identified site needs.
>
> Plans for cities and counties within a Metropolitan Planning Organization or cities and counties that adopt policies relating to the short-term supply of land must designate suitable land to respond to economic development opportunities as they arise.

This report is an Economic Opportunities Analysis, the first key element required by Goal 9. This EOA includes an analysis of national, state, regional, and county trends as well as an employment forecast that leads to identification of needed development sites. It also includes a generalized inventory of buildable commercial and industrial land in the Bear Creek Valley. These elements of the EOA will address part of the third key element required by Goal 9.

An issue ECO faced in completing the Economic Opportunities Analysis was related to geography and standard data sets. The RPS planning area is the Bear Creek Air Quality Management Area (AQMA). All of the jurisdictions participating in the RPS process are fully within the AQMA. The AQMA also includes a lot of land outside municipal boundaries and UGBs.

None of the standard data sets aggregate data for the AQMA. The Quarterly Census of Employment and Wages (QCEW), however, is geocoded so ECO was able to identify all of the employers that fall within the AQMA as well as UGBs. Some of the data required for a economic opportunities analysis is available at the city or county level. Census data is available at various geographies, including county subdivisions. . Figure 1-1 shows the county subdivision boundaries. The AQMA (approximated by the bold line) does not precisely follow the boundaries of the county subdivisions.

Figure 1-1. County subdivision boundaries, RPS planning area



Source: American Factfinder, U.S. Bureau of the Census

PURPOSE

The regional economy and the regional distribution of employment have important implications for a long-term regional growth strategy in the Bear Creek Valley. OAR 660-009-0030 encourages regional coordination and allows development of a regional economic opportunities analysis. Individual municipalities then have the option of using data from the regional analysis as the foundation for local compliance with Goal 9.

This study provides an economic opportunities analysis for the Regional Problem Solving process in the greater Bear Creek Valley. This study is intended to provide technical information for the regional growth management strategy. It does *not* (nor is it intended to) provide Goal 9 compliant analysis for the participating jurisdictions. Moreover, it is not intended as a tool for evaluating impacts of local land use or transportation decisions. It does, however, provide a lot of the foundational data required for local EOAs and is intended to be used by cities that want to complete local EOAs.

The Bear Creek Valley does not have an assessment of its economic development opportunities, an updated inventory of its buildable land supply, or an assessment of potential economic development policies it could implement to encourage desired growth in the community. Oregon Statewide Planning Goal 9 requires comprehensive plans to:

- Include an analysis of the community's economic patterns, potentialities, strengths, and deficiencies as they relate to state and national trends;
- Contain policies concerning the economic development opportunities in the community; and
- Provide for at least an adequate supply of sites of suitable sizes, types, locations, and service levels for a variety of industrial and commercial uses consistent with plan policies.

This project is intended to meet the requirements of OAR 660-009-0015. This report has the following components:

- An assessment of national, state, regional and local economic trends that lead to an estimate of short- and long-term demand for commercial and industrial land in the Bear Creek Valley.
- A determination of the supply of industrial and other employment land in acres by type that is available to accommodate growth in the Bear Creek Valley.
- A comparison of land demand and supply.

ORGANIZATION OF THIS REPORT

The remainder of this report is organized as follows:

- **Chapter 2, Context for Economic Growth in the Bear Creek Valley** presents a demographic and socio-economic profile of the Bear Creek Valley. It also profiles major employers and presents national and state economic trends that will influence the Bear Creek Valley's economy.
- **Chapter 3, Factors Affecting Future Economic Growth in the Bear Creek Valley** describes national, state, and local economic trends that will influence the regional economy. It reviews local factors affecting economic development in Bear Creek Valley and advantages, opportunities, disadvantages, and constraints these factors may present. It ends with a discussion of the comparative advantages formed by the mix of factors present in Bear Creek Valley and the implications for the types of firms most likely to locate in Bear Creek Valley.
- **Chapter 4, Demand for Non-Residential Land in the Bear Creek Valley** presents a projection of future employment levels in Bear Creek Valley for the purpose of estimating demand for commercial and industrial land. The forecast includes an allocation of employment and estimates of industrial and other land needs to cities.
- **Chapter 5, Land Available for Industrial and Other Employment Uses** presents a regional inventory of industrial and other employment lands. The inventory uses the generalized plan designation data provided in the Jackson County *Smartmap* datasets.
- **Chapter 6, Implications for the RPS process** compares land supply and demand and describes some of the key issues related to economic

development and land use planning in the greater Bear Creek Valley region.

Chapter 2 Context for Economic Growth in the Bear Creek Valley

This chapter presents a demographic and socioeconomic profile of the Bear Creek Valley and describes external (national, state, and regional) trends that will influence the potential for economic growth in the Bear Creek Valley. This chapter covers recent and current economic conditions in the Valley, long-run national and statewide economic trends that affect local growth, and forecasts from State for growth in the Bear Creek Valley.

The RPS planning area is the Bear Creek Air Quality Management Area (AQMA). This chapter presents data for the AQMA using different geographies to define the Bear Creek Valley because standard data sources do not provide information for the AQMA.

- **Census.** For data from the Census, we defined the Bear Creek Valley using the Ashland, Eagle Point, and Medford county subdivisions. Figure 1-1 (Chapter 1) shows these subdivisions with the outline of the AQMA.

- **Bureau of Economic Analysis (BEA) and Office of Economic Analysis (OEA).** BEA and OEA data are produced at the county level. Since the Bear Creek Valley has about 80% of the Jackson County's population, many of the trends that are true for the County will also be true for the Valley.

- **Oregon Employment Department.** The Oregon Employment Department produces data at multiple levels: forecasts for Region 8 (Jackson and Josephine Counties), summaries at the county level, and geocoded confidential employment data that was aggregated by city, Urban Growth Boundary, and the AQMA. We used data at each of these levels in this chapter.

ECONOMIC CONDITIONS IN THE BEAR CREEK VALLEY

Current and historical economic conditions are a reasonable place to start in evaluating future economic growth in a region. While history is not the only factor that should be considered in this evaluation, it is a foundational step in such an analysis. Although economic development planning and other factors influence economic development, future economic growth in the Bear Creek Valley will be affected in part by demographic and economic trends within the Valley. This section addresses the following trends within the Bear Creek Valley: population and demographics, household and personal income, employment, and business activity.

POPULATION AND DEMOGRAPHICS

Population growth in Oregon tends to follow economic cycles. Historically, Oregon's economy is generally more cyclical than the nation's, growing faster than the national economy during expansions and contracting more rapidly than the nation during recessions. Oregon grew more rapidly than the U.S. in the 1990s (which was generally an expansionary period) but lagged behind the U.S. in the 1980s. Oregon's slow growth in the 1980s was primarily due to the nationwide recession early in the decade. Oregon's population growth regained momentum beginning in 1987, growing at annual rates of between 1.4% and 2.9% between 1988 and 1996.

Population growth for Oregon and its regions slowed to 1.1% statewide in 1997, the slowest rate since 1987. Net migration into Oregon, which is the largest component of population growth, dropped from 35,000 in 1996 to 18,000 in 1999. Net migration averaged about 22,800 people annually between 2000 and 2004. The reasons most often cited for this slowing of population growth are the recovery of the California economy, the combination of a high cost of living (especially housing) and low wages in Oregon, and a perceived decline in the quality of Oregon's schools.

Table 2-1 shows population trends from 1980 to 2005 for the Bear Creek Valley, the cities within the Bear Creek Valley, Jackson County, Oregon, and the U.S. In 2005, the Bear Creek Valley had 157,641 residents, more than 80% of the population in Jackson County. Medford is the largest city in the Bear Creek Valley with 45% of the Valley's population. Ashland, the second largest city in the Valley, has 13% of the Valley's residents.

Population in the Bear Creek Valley grew at an average annual rate of 1.65% between 1980 and 2005, which was faster than Jackson County, Oregon or the U.S. The majority of this growth occurred in Medford. Table 2-1 shows that the average annual population growth rate in Central Point, Eagle Point, Talent, and Phoenix outpaced both county and statewide growth rates over this period. The combined increase in population accounted for more than one-third of the population increase in the Bear Creek Valley between 1980 and 2005. Ashland and Jacksonville had the lowest population growth rates for this period.

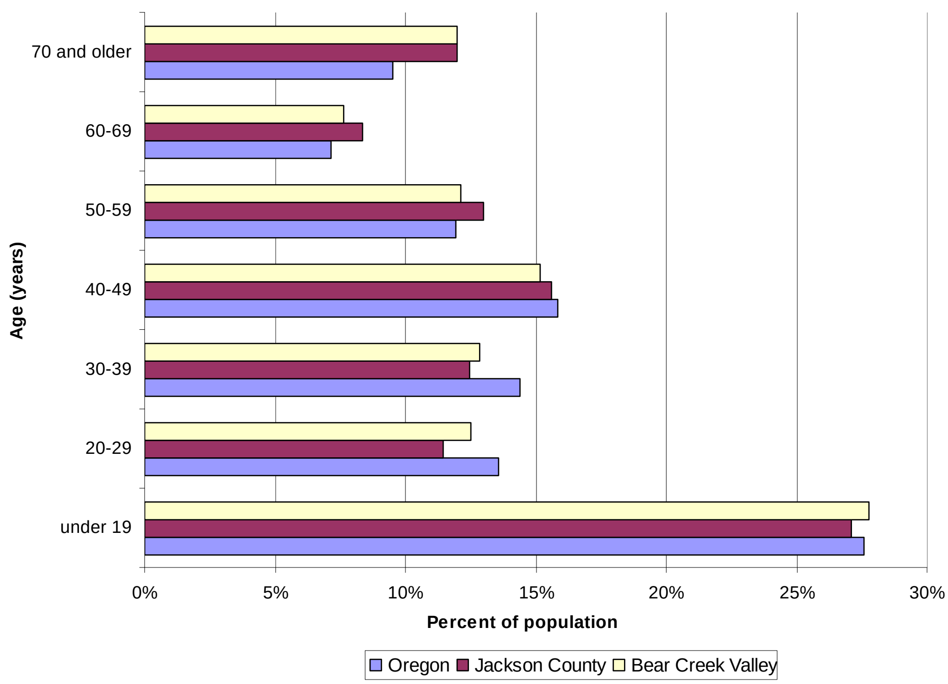
Table 2-1. Regional population trends, 1980-2005

	Population				Change 1980 to 2005		
Area	**1980**	**1990**	**2000**	**2005**	**Number**	**Percent**	**AAGR**
U.S.	226,545,805	248,709,873	281,421,906	296,410,404	69,864,599	30.84%	1.08%
Oregon	2,639,915	2,842,321	3,421,399	3,628,700	988,785	37.46%	1.28%
Jackson County	132,456	146,389	181,269	194,515	62,059	46.85%	1.55%
Bear Creek Valley*	104,722	117,208	147,665	157,641	52,919	50.53%	1.65%
Medford	39,746	46,951	63,154	70,855	31,109	78.27%	2.34%
Ashland	14,943	16,234	19,522	20,880	5,937	39.73%	1.35%
Central Point	6,357	7,509	12,493	15,640	9,283	146.03%	3.67%
Eagle Point	2,764	3,008	4,797	7,585	4,821	174.42%	4.12%
Talent	2,577	3,274	5,589	6,255	3,678	142.72%	3.61%
Phoenix	2,309	3,239	4,060	4,660	2,351	101.82%	2.85%
Jacksonville	2,030	1,896	2,235	2,490	460	22.66%	0.82%

Source: U.S. Census and Population Research Center at Portland State University
*Note: Bear Creek Valley population figures for 1980, 1990, and 2000 are derived from the Ashland, Eagle Point, and Medford County subdivisions defined by the U.S. Census Bureau. . 2005 population for Bear Creek Valley from a 1/31/2006 memorandum from ECONorthwest to the RPS Policy Committee on population forecasting methods. The forecasts in the 1/31/2006 memorandum were provisional forecasts (e.g., they have not been formally adopted by the Cities or County for planning purposes).

Figure 2-1 shows the populations of Oregon, Jackson County, and the Bear Creek Valley by age for 2000. The age distribution is similar for Jackson County and the Bear Creek Valley. The Bear Creek Valley has a greater proportion of its population aged 50 and older than Oregon. The Valley has a comparatively fewer residents aged 20 to 49.

Figure 2-1. Population distribution by age, Oregon, Jackson County, and the Bear Creek Valley, 2000



Source: U.S. Census, 2000

Table 2-2 shows the change in age distribution for the Bear Creek Valley between 1990 and 2000. Population in all groups has increased, with the greatest increase in residents aged 45 to 64 years. The smallest increase was in residents under 5 years. These changes indicate that the population of the Bear Creek Valley is aging.

Table 2-2. Change in age distribution, Bear Creek Valley, 1990-2000

	1990		2000		Change		
Age Group	**Number**	**Percent**	**Number**	**Percent**	**Number**	**Percent**	**Share**
Under 5	8,024	7%	9,380	6%	1,356	17%	0%
5-17	21,425	18%	27,419	19%	5,994	28%	0%
18-24	10,762	9%	13,873	9%	3,111	29%	0%
25-44	35,488	30%	38,813	26%	3,325	9%	-4%
45-64	22,634	19%	35,115	24%	12,481	55%	4%
65 and over	18,875	16%	23,065	16%	4,190	22%	0%
Total	**117,208**	**100%**	**147,665**	**100%**	**30,457**	**26%**	**0%**

Source: U.S. Census, 2000

Table 2-3 shows the household composition for the Bear Creek Valley, Jackson County, and Oregon. Household composition is very similar for each of these areas, with no notable differences. The range of household and family sizes in the Bear Creek Valley tend to be larger than in Jackson County or Oregon. Household sizes are largest in White City and Eagle Point and smallest in Ashland and Jacksonville.

Table 2-3. Household composition, Bear Creek Valley, Jackson County, and Oregon, 2000

	Bear Creek Valley		Jackson County		Oregon	
Household Type	**Number**	**Percent**	**Number**	**Percent**	**Number**	**Percent**
Households with children	**18,149**	**31%**	**21,663**	**30%**	**410,803**	**31%**
Married couples	12,378	21%	15,032	21%	296,404	22%
Female householder, no husband present	4,325	7%	4,865	7%	83,131	6%
Other families	1,446	2%	1,766	2%	31,268	2%
Households without children	**39,940**	**69%**	**49,869**	**70%**	**922,920**	**69%**
Married couples	17,385	30%	23,021	32%	396,128	30%
Other families	3,078	5%	3,739	5%	70,740	5%
Nonfamilies	19,477	34%	23,109	32%	456,052	34%
Total Households	**58,089**	100%	**71,532**	100%	**1,333,723**	100%
Average Household Size	2.24 to 2.79		2.48		2.51	
Average Family Size	3.80 to 3.14		2.95		3.02	

Source: U.S. Census, 2000

HOUSEHOLD AND PERSONAL INCOME

Table 2-4 shows the median household income in 1999 for Oregon, Jackson County, and each of the cities within the Bear Creek Valley. The median income in Jackson County was 89% of Oregon's median income. Central Point and Jacksonville had the highest incomes and Talent and White City had the lowest incomes.

Table 2-4. Median household income, 1999 (in 1999 dollars)

	Median income	Percent of State Median
Oregon	$40,916	100%
Jackson County	$36,461	89%
Ashland	$32,670	80%
Central Point	$40,622	99%
Eagle Point	$37,557	92%
Jacksonville	$41,250	101%
Medford	$36,481	89%
Phoenix	$31,701	77%
Talent	$29,063	71%
White City	$29,342	72%

Source: U.S. Census, 2000

Table 2-5 shows the distribution of household income for Oregon and Jackson County in 2005. Compared with Oregon, Jackson County has a larger share of households with income less than $50,000 and smaller share of households with annual income over $50,000. In 2005 the median income in Jackson County increased to $41,605.[4]

Table 2-5. Distribution of household income by number and percentage of households, Oregon and Jackson County, 2005

	Oregon		Jackson County	
	Number	Percent	Number	Percent
< $15,000	182,691	13%	11,245	15%
$15,000 - $24,999	165,057	12%	10,553	14%
$25,000 - $34,999	173,597	12%	10,278	13%
$35,000 - $49,999	243,064	17%	13,405	17%
$50,000 - $74,999	286,558	20%	14,442	19%
$75,000 - $99,999	160,479	11%	7,730	10%
$100,000 - $124,999	89,729	6%	4,111	5%
$125,000 - $149,999	45,239	3%	1,886	2%
$150,000 - $199,999	32,747	2%	1,437	2%
$200,000+	35,784	3%	1,828	2%
Total	**1,414,945**	**100%**	**76,915**	**100%**

Source: Claritas, 2005

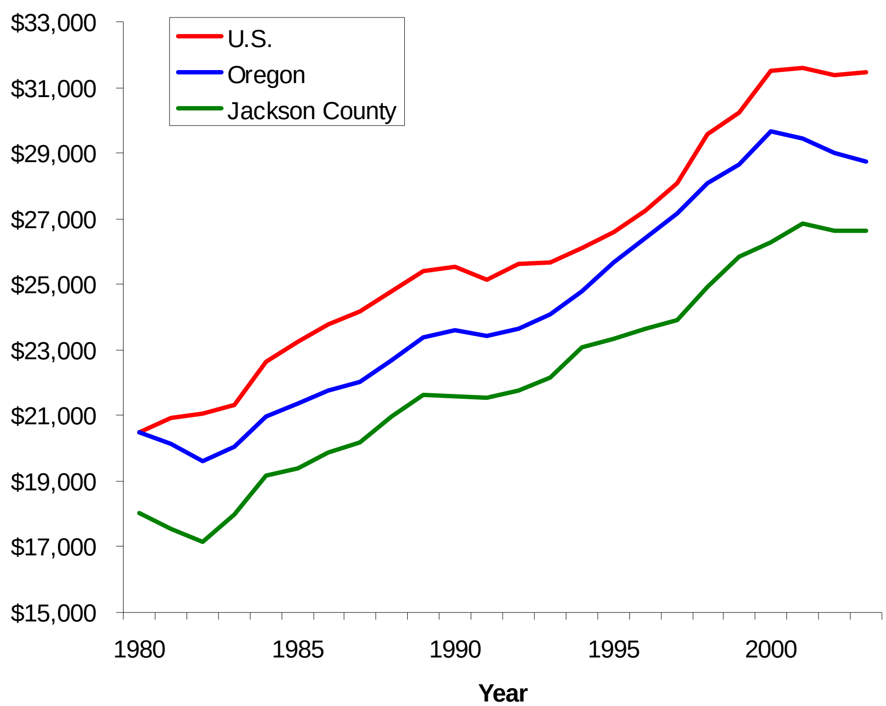
Figure 2-2 shows the change in per capita personal income for the U.S., Oregon, and Jackson County between 1980 and 2003. Oregon's per capita personal income is consistently lower than the U.S. personal income. Jackson County's personal income is consistently lower than Oregon's personal income. Over the twenty-three year period, per capita personal income grew at nearly the same pace in each of these areas. Fluctuations in the national economy generally resulted in larger changes in per capita personal income in Oregon and Jackson

[4] Claritas, 2005.

County than for the entire U.S. Jackson County's per capita personal income grew by nearly 50% during the time period, while personal income grew by 40% in Oregon and 54% nationally.

There are four basic reasons that per capita earnings are lower in Oregon and Jackson County than in the U.S.: (1) wages for similar jobs are lower; (2) the occupational mix of employment is weighted towards lower paying occupations; (3) a higher proportion of the population has transfer payments (e.g. social security payments for retirees), which are typically lower than earnings; and (4) there is a lower proportion of working age residents. To a certain degree, these factors are all true for Oregon and Jackson County. The combination of these factors results in lower per capita income for Oregon and Jackson County.

Figure 2-2. Per capita personal income, U.S., Oregon, and Jackson County, 1980-2003 (in 2003 dollars)



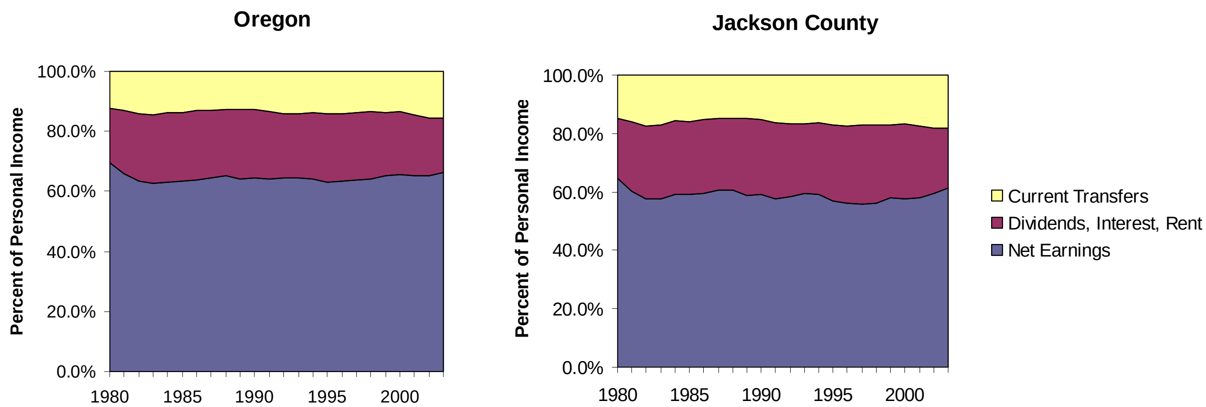
Source: Regional Economic Information System, Bureau of Economic Analysis, U.S. Department of Commerce

Figure 2-3 shows the major sources of per capita personal income for Oregon and Jackson County between 1980 and 2003. The distribution of major sources of income was relatively stable over the twenty-three year period and was similar between Oregon and Jackson County. In general, Jackson County's share of personal income from net earnings was lower than for Oregon. The County's share of personal income from current transfers, as well as dividends, interest, and rent, was higher than for Oregon.

The people most likely to have personal income from current transfers and dividends, interest, and rent are retirees. Figure 2-1 shows that Jackson County has a higher percentage of residents over 60 years old than the State average.

Table 2-2 shows that the share of population aged 65 and older increased by 22% between 1990 and 2000 in Jackson County, compared with a 12% statewide increase in population 65 and older. Census data show that 26% of people who moved to Jackson County between 1995 and 2000 were aged 50 or older. Three quarters of whom came from out-of-state, including 25% who moved to Jackson County from California.

Figure 2-3 . Per capita personal income by major sources, Oregon and Jackson County, 1980-2003



Source: Regional Economic Information System, Bureau of Economic Analysis, U.S. Department of Commerce

The implications of the demographic data presented in this section are that (1) the increasing age distribution and popularity of the region for retirees will create additional demand for retail and service industries, and (2) this demand, coupled with external economic trends will continue to hold wages below the national and state averages.

EMPLOYMENT

In 2000, the sectors with the most employment in Jackson County were Services, Retail Trade, Government, and Manufacturing. Together these industries accounted for 58,667 jobs or 80% of the total employment in Jackson County. Government and Manufacturing were the highest paying sectors, while Services and Retail Trade were the lowest paying sectors. The Finance, Insurance, and Real Estate; Mining; Transportation, Communication, and Utilities; Wholesale Trade; and Construction sectors all had annual payrolls higher than the County average.

Tables 2-6 though 2-9 present data from the Quarterly Census of Employment and Wages (QCEW) that show changes in sectors and industries in Jackson County between 1980 to 2004. The changes in sectors and industries shown in two tables: (1) between 1980 and 2000 and (2) between 2001 and 2004. The analysis is divided in this way because of changes in industry and sector classification that made it difficult to compare information about employment collected after 2001 with information collected prior to 2000.

Table 2-6 shows the changes in covered employment by sector and industry for Jackson County for between 1980, 1990 and 2000. Total employment in the County grew from 42,626 to 73,614, adding 30,988 jobs. Moreover, every sector added jobs during this period. The sectors with the greatest change in share of employment were Services and Retail Trade, adding 22,295 jobs. The sectors that grew slowest during this period were Wholesale Trade, Government, and Manufacturing.

Table 2-6. Change in covered employment by sector in Jackson County, 1980 to 2000

				Change from 1980 to 2000			
Industry	**1980**	**1990**	**2000**	**Difference**	**Percent**	**AAGR**	**Share**
Agriculture, Forestry and Fishing	881	1,475	2,223	1,342	152%	4.7%	1%
Mining	86	83	159	73	85%	3.1%	0%
Construction	1,997	2,100	3,646	1,649	83%	3.1%	0%
Manufacturing	7,604	8,840	9,231	1,627	21%	1.0%	-5%
Trans., Comm., and Utilities	2,182	2,827	3,834	1,652	76%	2.9%	0%
Wholesale Trade	2,352	2,472	2,512	160	7%	0.3%	-2%
Retail Trade	9,752	13,647	18,865	9,113	93%	3.4%	3%
Finance, Insurance and Real Estate	1,659	2,018	2,544	885	53%	2.2%	0%
Services	7,203	12,021	20,385	13,182	183%	5.3%	11%
Nonclassifiable/all others	2	32	29	27	1350%	14.3%	0%
Government	8,908	8,704	10,186	1,278	14%	0.7%	-7%
Total	**42,626**	**54,219**	**73,614**	**30,988**	**73%**	**2.8%**	**0%**

Source: Oregon Employment Department

Table 2-7 shows the average annual growth rates of sectors in Jackson County for 1980 to 1990 and 1990 to 2000. The sectors that grew fastest during the 1980's were Services, Agriculture, Forestry, and Fishing, Retail Trade, and Nonclassifiable and other sectors. The sectors that grew fastest during the 1990's were Mining, Construction, Services, and Agriculture, Forestry, and Fishing. These differences reflect the trend in employment in Oregon away from a resource-based economy but reflect the continued importance of resource-based sectors in the state and local economy.

Table 2-7. Average annual growth rate by decade by sector, Jackson County, 1980-2000

Industry	1980 to 1990	1990 to 2000
Agriculture, Forestry and Fishing	5.3%	4.2%
Mining	-0.4%	6.7%
Construction	0.5%	5.7%
Manufacturing	1.5%	0.4%
Trans., Comm., and Utilities	2.6%	3.1%
Wholesale Trade	0.5%	0.2%
Retail Trade	3.4%	3.3%
Finance, Insurance and Real Estate	2.0%	2.3%
Services	5.3%	5.4%
Nonclassifiable/all others	32.0%	-1.0%
Government	-0.2%	1.6%
Total	**2.4%**	**3.1%**

Source: Oregon Employment Department

Table 2-8 shows change in covered employment by sector for Jackson County between 2001 and 2004. Annual employment growth slowed during this period, from an average annual growth rate of 2.8% between 1980 and 2000 to an average annual growth rate of 1.7%. Jackson County added 5,266 jobs during this period, which is slower growth than Jackson County experienced during the 1990's. This slowing in employment growth is related to the nation-wide recession and slow growth at the beginning of this decade. The sectors that added the most employees were Management Companies, Construction, and Health & Social Assistance. Manufacturing lost the most employees.

Table 2-8. Change in covered employment by sector in Jackson County, 2001 to 2004

			Change from 2001 to 2004			
Industry	**2001**	**2004**	**Difference**	**Percent**	**AAGR**	**Share**
Agriculture, Forestry, Fishing & Hunting	2,218	2,738	520	23%	5.4%	0.5%
Mining	158	154	(4)	-3%	-0.6%	0.0%
Construction	3,640	4,617	977	27%	6.1%	0.9%
Manufacturing	7,702	6,768	(934)	-12%	-3.2%	-1.9%
Utilities	255	267	12	5%	1.2%	0.0%
Wholesale	2,131	2,339	208	10%	2.4%	0.1%
Retail	13,238	13,591	353	3%	0.7%	-0.7%
Transportation & Warehousing	2,049	2,343	294	14%	3.4%	0.2%
Information	1,815	1,805	(10)	-1%	-0.1%	-0.2%
Finance & Insurance	1,845	2,200	355	19%	4.5%	0.3%
Real Estate Rental & Leasing	1,062	1,345	283	27%	6.1%	0.3%
Professional, Scientific & Technical Services	2,061	1,932	(129)	-6%	-1.6%	-0.3%
Management of Companies	801	1,801	1,000	125%	22.5%	1.2%
Admin. Support & Cleaning Services	3,486	3,818	332	10%	2.3%	0.1%
Education	508	538	30	6%	1.4%	0.0%
Health & Social Assistance	9,643	10,530	887	9%	2.2%	0.3%
Arts, Entertainment & Recreation	1,330	1,379	49	4%	0.9%	-0.1%
Accomodations & Food Services	7,182	7,592	410	6%	1.4%	-0.1%
Other Services (except Public Admin.)	2,770	2,990	220	8%	1.9%	0.0%
Private Non-Classified	25	20	(5)	-20%	-5.4%	0.0%
Government	10,189	10,607	418	4%	1.0%	-0.4%
Total Covered Employment & Payroll	**74,108**	**79,374**	**5,266**	**7%**	**1.7%**	**0.0%**

Source: Oregon Employment Department

Table 2-9 shows covered employment by sector for the Bear Creek Valley in 2004. The table shows that the Bear Creek Valley had 6,416 establishments and 76,829 covered employees. The average pay per employee was $30,132.

The sectors with the largest share of employment were: retail trade (17%), health care and social assistance (13%), government (13%), accommodation and food services (10%), and manufacturing (8%). Of these sectors, health care and social assistance and government were among the sectors with the highest average pay per employee. The retail and accommodation and food services sectors paid less than average. Compared with the Valley's average pay per employee, retail paid about $6,000 less per employee and accommodation and food services paid about $17,000 less per employee.

Table 2-9. Covered employment by sector in the Bear Creek Valley, 2004

Sector/Industry	Est.	Annual Average Emp	Annual Payroll	% of total Emp	Average Pay/Emp
Agriculture, Forestry, Mining	**155**	**2,797**	**$72,782,992**	**4%**	**$26,022**
Construction and Utilities	**826**	**4,533**	**$151,469,371**	**6%**	**$33,415**
Manufacturing	**337**	**6,507**	**$233,771,957**	**8%**	**$35,926**
Wood Product Manufacturing	46	2,272	$84,475,863	3%	$37,181
Chemical Manufacturing	14	600	$31,594,260	1%	$52,657
Nonmetallic Mineral Product Manufacturing	15	517	$20,914,650	1%	$40,454
Food Manufacturing	29	448	$12,955,476	1%	$28,918
Other Manufacturing	233	2,670	$83,831,708	3%	$31,398
Wholesale Trade	**314**	**2,407**	**$92,350,876**	**3%**	**$38,368**
Merchant Wholesalers, Durable Goods	138	1,350	$52,621,734	2%	$38,979
Merchant Wholesalers, Nondurable Goods	81	877	$29,878,861	1%	$34,069
Wholesale Electronic Markets and Agents and Brokers	95	180	$9,850,281	0%	$54,724
Retail Trade	**824**	**13,354**	**$323,677,185**	**17%**	**$24,238**
General Merchandise Stores	29	2,201	$48,104,173	3%	$21,856
Food and Beverage Stores	75	1,942	$41,324,480	3%	$21,279
Motor Vehicle and Parts Dealers	114	1,757	$63,136,232	2%	$35,934
Clothing and Clothing Accessories Stores	102	854	$12,272,550	1%	$14,371
Other Retail Trade	504	6,600	158,839,750	0%	$24,067
Transportation and Warehousing	**181**	**2,351**	**$78,064,223**	**3%**	**$33,205**
Information	**118**	**1,785**	**$64,648,689**	**2%**	**$36,218**
Finance and Insurance	**348**	**2,161**	**$90,803,088**	**3%**	**$42,019**
Credit Intermediation and Related Activities	161	1,165	$46,089,661	2%	$39,562
Other Finance and Insurance	187	996	$44,713,427	1%	$44,893
Real Estate, Rental, and Leasing	**293**	**1,216**	**$27,149,462**	**2%**	**$22,327**
Professional, Scientific, and Technical Services	**465**	**1,931**	**$64,972,397**	**3%**	**$33,647**
Management of Companies and Enterprises	**43**	**1,797**	**$96,368,180**	**2%**	**$53,627**
Administrative Services and Waste Management	**313**	**3,726**	**$74,351,604**	**5%**	**$19,955**
Private Educational Services	**59**	**518**	**$10,317,977**	**1%**	**$19,919**
Health Care and Social Assistance	**594**	**10,588**	**$390,480,707**	**14%**	**$36,880**
Ambulatory Health Care Services	383	4,027	$187,284,942	5%	$46,507
Hospitals	7	3,423	$144,035,109	4%	$42,079
Nursing and Residential Care Facilities	112	2,056	$40,091,247	3%	$19,500
Social Assistance	92	1,082	$19,069,409	1%	$17,624
Arts, Entertainment, and Recreation	**106**	**1,369**	**$26,319,394**	**2%**	**$19,225**
Accommodation and Food Services	**524**	**7,318**	**$93,679,343**	**10%**	**$12,801**
Food Services and Drinking Places	438	6,218	$76,564,347	8%	$12,313
Accommodation	86	1,100	$17,114,996	1%	$15,559
Other Services	**619**	**2,910**	**$56,788,050**	**4%**	**$19,515**
Not Elsewhere Classified	**25**	**14**	**$450,038**	**0%**	**$32,146**
Government	**272**	**9,547**	**$366,578,861**	**12%**	**$38,397**
Federal Government	36	1,647	$87,973,202	2%	$53,414
State Government	46	1,646	$59,378,897	2%	$36,075
Local Government	190	6,254	$219,226,762	8%	$35,054
Total	**6,416**	**76,829**	**$2,315,024,395**	**100%**	**$30,132**

Source: Oregon Employment Department, Confidential ES-202 Employment Data provided to ECONorthwest.

Table 2-10 shows Covered employment by UGB in the Bear Creek Valley by UGB. The data show that 83% of employment in the region is within UGBs. Moreover, 63% of the employment in the region is within the Medford UGB. About 8% of the employment is within the White City and Medford-Phoenix urban containment boundaries (UCB), while the remaining 9% is in other unincorporated areas of the County.

Table 2-10. Current covered employment by UGB in the Bear Creek Valley, 2004

Location	Number of Firms	Covered Employment
Within Urban Growth Boundaries		
Ashland UGB	1,008	9,037
Central Point UGB	348	3,356
Eagle Point UGB	117	861
Jacksonville UGB	105	622
Medford UGB	3,342	48,027
Phoenix UGB	143	1,275
Talent UGB	96	945
Subtotal	**5,159**	**64,124**
Within Urban Containment Boundaries		
Medford Phoenix UCB	206	3,428
White City UCB	68	2,571
Subtotal	**274**	**5,999**
Other Unincorporated	**983**	**6,706**
Total	**6,416**	**76,829**

Source: Oregon Employment Department, Confidential ES-202 Employment Data provided to ECONorthwest.

BUSINESS ACTIVITY

The Goal 9 administrative rule (specifically, OAR 660-009-0015(2)) suggests that local governments take into consideration expansion plans of major employers when determining the site requirements of major employers. ECONorthwest interviewed 19 major employers in the Bear Creek Valley about their plans for the next twenty years, including: (1) their plans for adding employees, plans for expanding their facilities, whether they would need to purchase land for expansion, whether they have plans to move their facilities outside of the Bear Creek Valley, and whether there are infrastructure deficiencies that affect their ability to continue operations in the Bear Creek Valley.

Table 2-11 presents a summary of the firms' plans to add jobs and expand their facilities. A number of the major employers plan to expand their workforce and/or expand their facilities. Of the 19 firms interviewed, eight firms have expansion plans and expect to add employees over the next twenty years. Eight firms have no plans to add employees or expand their facilities. Of the remaining six firms, half plan to add employees and the other half plan to expand their facilities.

Most firms did not expect to add a large number or employees or purchase significant amounts of land for expansion. Most firms did not have an estimate of the number of employees they expected to hire but most firms did not expect to hire a large number of new employees. Five of the eleven firms with expansion plans expect to purchase five acres or less of land for their expansion.

Table 2-11. Summary of firms' plans to add jobs and expand their facilities in the Bear Creek Valley, 2006

Firm name	Plans to add jobs	Plans to expand facility	Plans purchase land for expansion
Bear Creek Operations (Harry and David)	No	Yes	Yes, agricultural land
Asante Health System	Yes	Yes	No
Barrett Business Service, Inc.	No	No	N/A
Jackson County	No	Yes	Yes
Boise Cascade Corporation	No	Yes	No
Southern Oregon University (SOU)	Yes	Yes	Probably
Erickson Air-Crane Inc.	Yes	Yes	No
Oregon Shakespeare Festival Association	Yes	Yes	Yes
Rogue Valley Manor	Yes	No	N/A
Veterans Administration (VA) Domiciliary	Yes	Maybe	No
Eastman Kodak Company	No	No	No
Ashland Community Hospital	No	No	No
Cascade Wood Products	Yes	Yes	No
Phoenix-Talent School District #4	Yes	Yes	Yes
Johnny Cat Inc.	No	No	N/A
Jacksonville Inn Inc.	No	No	N/A
Advanced Business Teleservices Inc.	No	No	N/A
Summitt Forests Inc.	Yes	No	N/A
Cutting Edge Forestry Inc.	Maybe	No	N/A

Source: ECONorthwest, 2006.

Four of the firms interviewed have a significant number of seasonal employees. These firms are all agricultural (e.g., timber production or fruit processing). The number of seasonal employees varies from 11,000 for Bear Creek Operations to 100 employees at Cutting Edge Forestry Inc.

The following is a list of the major employers interviewed, and their responses regarding firm expansion plans.

- **Bear Creek Operations (Harry and David) (1,700+ employees):** Harry and David have about 1,700 year-round employees and about 11,000 seasonal employees. They are in the process of moving some of their operations, such as office operations, to Ohio. They expect the number of people that they employ in the Bear Creek Valley to remain stable. But they may change their workforce mix, adding more agricultural jobs and moving office and other production jobs to other parts of the country.

  In the 1990's, Bear Creek Operations started land banking agricultural land for future production needs. They are beginning to sell the less productive agricultural land and purchasing more productive land. They do not expect to expand their warehousing or office facilities within the Bear Creek Valley within the next 20-years.

- **Asante Health System (2,200+ employees):** Asante Health Systems operates the Rogue Valley Medical Center hospital, which has about 2,200 employees. They have plans to expand their workforce but were not specific about the amount that their workforce will expand. When they recently expanded their facilities, their workforce expanded by about 100 employees. They expect to expand their facilities again by 2010 and may add a similar number of new employees. The expansion will occur on the existing hospital site or on property they currently own.

- **Barrett Business Service, Inc. (1500+ employees):** The size of Barrett's workforce changes in response to the demand in Southern Oregon for temporary workers. They have seven permanent staff and a pool of about 1,500 staff that work temporary assignments all over Southern Oregon, including in the Bear Creek Valley. Barrett expects that their staffing needs will change in response to the staffing needs of the Valley's businesses. They plan to add staff as needed to meet demand. Barrett does not foresee any additional land needs beyond their current office space, which is leased.

- **Jackson County (1,050+ employees):** Jackson County does not expect to expand employment. They expect to expand their facilities. They expect to need about one-third of an acre for new planning facilities and may need about two acres for a new jail.

- **Boise Cascade Corporation (900+ employees):** Boise Cascade does not expect employment to change in their Medford and White City locations. They plan to expand their facilities by one acre on land they currently own.

- **Southern Oregon University (SOU) (725+ employees):** SOU does not have immediate plans for increasing employment. The University currently has about 5,000 to 5,500 students and may have 7,000 students within ten years. If student enrollment continues to grow, they will add faculty and build additional facilities. The University is currently planning to build new facilities. These facilities and potential future facilities will either be located on land that SOU currently owns or on land adjacent to current facilities, which the University would purchase.

- **Erickson Air-Crane Inc. (550+ employees):** They expect their workforce to grow over the next 20 years but did not specify the amount of growth they expect. They recently purchased 40 acres of land in White City, which should provide sufficient space for their expected facilities expansions. This site has a 50,000 square foot warehouse on it and they expect to build additional facilities over the next five years.

- **Oregon Shakespeare Festival Association (550+ employees):** The Shakespeare Festival expects to add 10 to 20 employees over the next 20 years. They expect to replace the Black Swan Theatre with a new building on their current site that will include additional rehearsal, classroom, and office space. They also expect to expand their scenery construction shop and will need to purchase land for this expansion.

- **Rogue Valley Manor (500+ employees):** They expect to expand employment to meet demand. Their workforce has doubled over the last twenty years and may do the same in the next twenty years.

Rogue Valley Manor recently purchased about 100 acres near their existing facility, as well as additional land elsewhere in Medford. They recently completed expansion of office space and are in the process of expanding other facilities, including adding office space, developing a new golf course and planning to build additional residential facilities.

- **Veterans Administration (VA) Domiciliary (420+ employees)**: The VA typically adds about four staff per year. They expect the number of people they serve to increase as the number of veterans in the Bear Creek Valley increases. If the VA does serve more people, they expect to hire more staff than usual.

  VA owns about 143 acres of land, which is more than sufficient to meet their current and future needs. If demand for services increases, the VA may build new facilities on part of this land. They are also considering leasing the land to complementary businesses, such as assisted living facilities, residential care facilities, or transitional housing.

- **Eastman Kodak Company (410+ employees):** They have no plans to expand their workforce or their facilities. If they choose to expand their facilities in the future, they have developed 20 of the 80 acres of land that they own.

- **Ashland Community Hospital (400+ employees):** The hospital does not expect to hire more employees. They are currently in the process of expanding by adding new surgical facilities. They have no other expansion plans. If they were to need to expand, they own about 1 acre of land adjacent to their current facilities that they would expand onto.

- **Cascade Wood Products (400+ employees):** Employment at Cascade Wood Products fluctuates seasonally between 400 to 500 employees. They expect to hire about 50 non-seasonal employees over the next 20 years. Their seasonal employment needs will vary from year to year. Their plans for expansion are still preliminary but they own 15 acres of vacant land and plan to do their expansions on this land.

- **Phoenix-Talent School District #4 (250+ employees):** The School District has no immediate plans to add employees. They expect employment to grow as student enrollment grows. They are in the process of purchasing land for a new school. If enrollment continues to increase, they expect to build an elementary school on this site, which will require adding new employees.

- **Johnny Cat Inc. (130+ employees):** Johnny Cat does not plan to expand its workforce or facilities in the near future. If they were to expand it would probably be on their existing ten-acre site, five acres of which are developed.

- **Jacksonville Inn Inc. (130+ employees):** They have no plans to expand their workforce or facilities in the near future.

- **Advanced Business Teleservices Inc. (110+ employees):** Advanced Business Teleservice has no plans to expand their workforce or their facilities in the near future.

- **Summitt Forests Inc. (50+ employees):** Employment at Summitt Forests Inc. fluctuates with the seasons and the availability of governmental contracts. During the off season, they have 50 to 75 employees and during the peak season, they have 150 to 200 employees. Over the next 20 years, they expect to add between 50 and 100 employees during peak seasons. They have no plans to expand their facilities.

- **Cutting Edge Forestry Inc. (50+ employees):** Their employment is seasonal and dependent on governmental contracts. During the off-season, they employ as few as 2 people. During the peak season they employ as many as 100 people. Their average employment is about 50 people. As a result of the volatile nature of their business, they cannot predict future employment needs. They do not expect to expand their facilities.

In addition to what we learned from interviews, information available on the Oregon Labor Market Information System (OLMIS) web site indicates that other firms plan to expand or add jobs. The types of business expansion include:

- **Retail firms.** The Bear Creek Valley has both large scale and smaller scale firms expanding or locating in the area. Some retail firms include: Wal-Mart in Eagle Point, Kohl's in Medford, Gallery of Nations in Phoenix, Whimsy Bug Inc in Central Point, and Lotus Imports in Medford.

- **Manufacturing.** The Bear Creek Valley has had a number of manufacturing firms recently locate or expand in the region: Amy's Kitchen in White City, Performance Engine in Medford, Brammo Motorsports in Ashland, and the Rogue Creamery in Central Point.

- **Food services and accommodations.** A number of restaurants and hotels have opened in the Bear Creek Valley, including: Wild River Brewery & Pizza Company in Medford, Las Coronas Baja Mexican Grill in Medford, and La Quinta Inns and Suites in White City.

The Bear Creek Valley is likely to see expansion in jobs from existing businesses and businesses that choose to locate in the Valley. The areas with the greatest expectation of expansion are in health care, specialty manufacturing, and food services and accommodations.

LONG-RUN NATIONAL AND STATE TRENDS AFFECTING GROWTH IN THE BEAR CREEK VALLEY

Economic development in the Bear Creek Valley over the next twenty years will occur in the context of long-run national trends. The most important of these trends includes:

- Continued westward migration of the U.S. population
- An increasing role of amenities and other non-wage factors as determinants of the location decisions of households and firms.
- Growth in Pacific Rim trade.
- The growing importance of education as a determinant of wages and household income.
- A continued shift of employment from resource-intensive industries to service-oriented and high-tech manufacturing sectors of the economy.
- The increasing integration of non-metropolitan and metropolitan areas.

Short-term national trends will also affect economic growth in the region, but these trends are difficult to predict. At times these trends may run counter to the long-term trends described above. A recent example is the downturn in economic activity in 2001 following the collapse of Internet stocks and the attacks of September 11. The resulting recession cause Oregon's employment in the Information Technology and high-tech Manufacturing industries to decline. Employment these industries has partially recovered, however, and these industries will continue to play a significant role in the national, state, and local economy over the long run. This report takes a long-run perspective on the Bear Creek Valley economy (as the Goal 9 requirements intend) and does not attempt to predict the impacts of short-run national business cycles on employment or economic activity.

OUTLOOK FOR GROWTH IN THE BEAR CREEK VALLEY

The State's long-term forecast of population change in Oregon and Jackson County is shown in Table 2-12. Table 2-12 shows that population in Oregon is expected to grow at an average annual rate of 1.16% over the 2005-2040 period. Growth in Jackson County is expected to exceed the State average, with an average annual growth rate of 1.23% over the same period. Jackson County is expected to add more than 103,000 residents over the thirty-five year 2005-2040 period.

Table 2-12. Population forecast for Oregon and Jackson County, 2000-2040

Year	Oregon	Jackson
2000	3,436,750	182,200
2005	3,618,200	194,005
2010	3,843,900	208,370
2015	4,095,708	223,464
2020	4,359,258	238,865
2025	4,626,015	253,881
2030	4,891,225	268,385
2035	5,154,793	282,669
2040	5,425,408	297,496
AAGR 2005-2040	**1.16%**	**1.23%**
AAGR 2005-2010	1.22%	1.44%
AAGR 2010-2015	1.28%	1.41%
AAGR 2015-2020	1.26%	1.34%
AAGR 2020-2025	1.19%	1.23%
AAGR 2025-2030	1.12%	1.12%
AAGR 2030-2035	1.06%	1.04%
AAGR 2035-2040	1.03%	1.03%

Source: Office of Economic Analysis, 2004. Average annual growth rate (AAGR) calculated by ECONorthwest

Table 2-13 shows the Oregon Employment Department's ten-year forecast for employment by industry for Oregon and Region 8, which is a combination of Jackson and Josephine Counties. Table 2-13 shows that Oregon Employment Department forecasts that nonfarm employment growth for 2004-2014 will be faster in Region 8 than the State average. The sectors that will lead employment growth in Oregon for the ten-year period are Professional and Business Services, Health Care & Social Assistance, Leisure & Hospitality, and Retail Trade. Together, these four sectors are expected to add 146,900 new jobs or 61% of employment growth in Oregon. Employment growth in Region 8 is expected to be led by these same three sectors over the 2004-2014 period, which are expected to add 13,050 jobs or 66% of employment growth in Jackson and Josephine Counties.

Table 2-13. Nonfarm employment forecast by industry in Oregon and Region 8, 2004-2014

	Oregon				Region 8*			
Sector/ Industry	**2004**	**2014**	**Growth**	**% Growth**	**2004**	**2014**	**Growth**	**% Growth**
Natural Resources & Mining	9,600	9,400	-200	-2.1%	970	990	20	2.1%
Construction	82,300	97,200	14,900	18.1%	5,940	7,270	1,330	22.4%
Manufacturing	199,500	205,500	6,000	3.0%	10,010	10,870	860	8.6%
Durable Goods	147,600	154,300	6,700	4.5%	7,640	8,160	520	6.8%
Wood Product Manufacturing	32,000	30,200	-1,800	-5.6%	3,030	2,940	-90	-3.0%
Other Manufacturing	51,900	51,200	-700	-1.3%	2,370	2,710	340	14.3%
Transportation, & Utilities	56,800	65,700	8,900	15.7%	3,080	3,660	580	18.8%
Wholesale Trade	75,400	85,300	9,900	13.1%	3,130	3,590	460	14.7%
Retail Trade	188,200	215,400	27,200	14.5%	17,010	20,270	3,260	19.2%
Information	33,000	38,200	5,200	15.8%	2,170	2,570	400	18.4%
Leisure & Hospitality	155,800	184,400	28,600	18.4%	11,410	14,030	2,620	23.0%
Accomodation & Food Services	135,100	160,500	25,400	18.8%	9,730	12,120	2,390	24.6%
Other Leasure & Hospitality	20,700	23,900	3,200	15.5%	1,680	1,910	230	13.7%
Financial Activities	96,700	108,100	11,400	11.8%	5,480	6,340	860	15.7%
Professional & Business Services	176,800	225,700	48,900	27.7%	9,100	11,740	2,640	29.0%
Education	26,100	32,300	6,200	23.8%	690	920	230	33.3%
Health Care & Social Assistance	166,900	209,100	42,200	25.3%	13,870	18,400	4,530	32.7%
Other Services	57,400	63,700	6,300	11.0%	3,650	4,190	540	14.8%
Government	269,800	293,900	24,100	8.9%	15,110	16,600	1,490	9.9%
Federal Government	30,200	29,200	-1,000	-3.3%	2,040	2,050	10	0.5%
State Government	62,100	65,100	3,000	4.8%	2,780	3,010	230	8.3%
State Education	26,700	28,200	1,500	5.6%	1,480	1,580	100	6.8%
Other State Government	35,400	36,900	1,500	4.2%	1,300	1,430	130	10.0%
Local Government	177,500	199,600	22,100	12.5%	10,290	11,540	1,250	12.1%
Local Education	93,900	104,000	10,100	10.8%	6,030	6,650	620	10.3%
Other Local Government	83,600	95,600	12,000	14.4%	4,260	4,890	630	14.8%
Total Nonfarm Payroll Employment	**1,594,300**	**1,833,900**	**239,600**	**15.0%**	**101,620**	**121,440**	**19,820**	**19.5%**

Source: Oregon Employment Department. Employment Projections by Industry 2004-2014. Projections summarized by ECONorthwest.
*Note: The Oregon Employment Department issues employment forecasts by region. Region 8 is Jackson and Josephine Counties combined.

Chapter 3 Factors Affecting Future Economic Growth in the Bear Creek Valley

Economic development opportunities in the Bear Creek Valley will be affected by local conditions as well as the national, state, and regional economic conditions that were addressed in Chapter 2. Factors affecting future economic development in the Bear Creek Valley include its location, buildable land, labor force, housing, public services, transportation, natural resources, and quality of life. Economic conditions in Bear Creek Valley relative to these conditions in other portions of the southern Oregon form Bear Creek Valley's comparative advantage for economic development. Bear Creek Valley's comparative advantages have implications for the types of firms most likely to locate and expand in Bear Creek Valley.

This chapter begins with a description of comparative advantage and why it is relevant for the Economic Opportunity Analysis. This chapter then reviews local factors affecting economic development in Bear Creek Valley and any advantages, opportunities, disadvantages, and constraints these factors may present. It ends with a discussion of the comparative advantages formed by the mix of factors present in Bear Creek Valley and the implications for the types of firms most likely to locate in Bear Creek Valley.

There is little that Bear Creek Valley can do to influence national and regional conditions that affect economic development. The Bear Creek Valley, however, can influence local factors that affect economic development. The review of local factors in this chapter will form a basis for developing economic development strategies for Bear Creek Valley later in this study.

WHAT IS COMPARATIVE ADVANTAGE?[5]

Each economic region has different combinations of productive factors: land (and natural resources), labor (including technological expertise), and capital (investments in infrastructure, technology, and public services). While all areas have these factors to some degree, the mix and condition of these factors vary. The mix and condition of productive factors may allow firms in a region to produce goods and services more cheaply, or to generate more revenue, than firms in other regions.

By affecting the cost of production and marketing, comparative advantages affect the pattern of economic development in a region relative to other regions. Goal 9 and OAR 660-009-0015(4) recognizes this by requiring plans to include an

[5] This section is adapted from previous work by ECONorthwest.

analysis of the relative supply and cost of factors of production.[6] An analysis of comparative advantage depends on the geographic areas being compared. Economic conditions in the Bear Creek Valley will be largely shaped by national and regional economic conditions affecting Southern Oregon. Chapter 2 presents forecasts of conditions in Oregon and the Bear Creek Valley to help establish the context for economic development in the Bear Creek Valley. Local economic factors will help determine the level and type of development in the Bear Creek Valley relative to other regions and communities Oregon.

This chapter focuses on the comparative advantages of the Bear Creek Valley and its cities relative to the rest of Oregon. There are two types of comparative advantage in the Bear Creek Valley: comparative advantage for the region compared with other regions in Oregon and the Pacific Northwest; and comparative advantage for each of the cities within the Bear Creek Valley compared with the other cities in the Valley. The implications of the factors that contribute to the Bear Creek Valley and each city's overall comparative advantage are discussed at the end of this chapter.

LOCATION

The Bear Creek Valley's location will have a substantial influence on its future development. The Bear Creek Valley is located in Jackson County in Southern Oregon, along the border with California. The location of the Bear Creek Valley has played a critical role in the growth of the Bear Creek Valley and will continue to have implications for economic development in the region:

- Interstate 5 runs through the Bear Creek Valley. Five of the cities in the Bear Creek Valley are located along I-5, including Ashland, Talent, Phoenix, Medford, and Central Point. Jacksonville is located about five miles southwest of I-5 and Eagle Point is located about 10 miles northeast of I-5.

- The Bear Creek Valley has access to workers and markets of the cities within the Valley, as well as in other parts of Southern Oregon and Northern California.

- Residents of the Bear Creek Valley have access to shopping, cultural activities, recreational activities, and other amenities within the region.

- The Bear Creek Valley offers access to rural housing and recreational opportunities in the smaller cities and unincorporated areas of the Valley.

- Tourism plays an important part of the economy of the Bear Creek Valley. Tourist draws to the region include: outdoor recreational opportunities, viticulture, events such as the Shakespeare Festival or the Britt Music Festival; and the historic character of cities in the Valley.

[6] OAR 660-009-0015(4) requires assessment of the "community economic development potential." This assessment must consider economic advantages and disadvantages—or what Goal 9 broadly considers "comparative advantages."

- The Bear Creek Valley is located near the mid-point between Portland and San Francisco. The proximity to California and access to I-5 makes the cities of the Bear Creek Valley a logical place to locate warehousing and freight operations.

- The Rogue River runs along the northern edge of Bear Creek Valley. The Rogue plays an important role in the Valley. It provides economic opportunities for natural resource industries, such as fishing, and it provides a draw for tourism. The Rogue also enhances the quality of life in the Valley by providing recreational opportunities and scenic beauty.

- The climate in the Bear Creek Valley is relatively mild and sunny. The region's climate is well suited to agriculture, especially the fruit industry.

The Bear Creek Valley's location, proximity to I-5, and mixture of urban and rural amenities are primary comparative advantages for economic development in the region.

Each city within the Bear Creek Valley shares in the comparative advantages from its location. The cities with locational comparative advantages are those located near Interstate 5. The cities located further from I-5, namely Jacksonville and Eagle Point, are at a disadvantage compared with the other cities.

INVENTORY OF LANDS AVAILABLE FOR INDUSTRIAL AND OTHER EMPLOYMENT

Chapter 5 of this report presents a generalized inventory of lands available for industrial and other employment. Table 3-1 summarizes the inventory of industrial and other employment lands in the Greater Bear Creek Valley. The results show that the region has about 2,296 vacant unconstrained acres that are designated for industrial or other uses within UGBs or White City.

Table 3-1. Summary of vacant, unconstrained commercial and industrial land, Bear Creek Valley AQMA, 2006

Location	Business Park	Commercial	Industrial	Total
Ashland	0.0	74.1	0.0	74.1
Central Point	0.0	42.8	70.1	112.8
Eagle Point	13.8	18.6	0.0	32.4
Jacksonville	0.0	1.1	0.8	1.9
Medford	0.0	257.7	1,009.5	1,267.2
Phoenix	0.0	52.0	33.0	85.0
Talent	0.0	71.2	22.1	93.3
White City	0.0	52.2	576.6	628.8
Total	**13.8**	**569.6**	**1,712.1**	**2,295.5**

Revisions to OAR 660-009-0025 require that the cities and counties within a Metropolitan Planning Organization maintain 25% of their buildable land for short-term development, or select a different local target. Sites that are Certified by the State of Oregon as project-ready satisfy part of this requirement. Table 3-1 shows that the Bear Creek Valley has three Certified sites, ranging in size from 34.4 acres to 59 acres.

Table 3-2. Project certified industrial sites in the Bear Creek Valley, 2006

City	Site size (acres)	Type	Description
Central Point	34.4	Industrial	Located less than 1 mile from Interstate 5 interchange and Rogue Valley International Airport. It is part of an industrial park subdivision
Medford	59	Vacant land	Located 2.5 miles from Interstate 5 interchange and Rogue Valley International Airport.
White City	8.61	Vacant land	Located in the Urban Renewal District.

Source: www.oregonprospector.com, accessed 4/21/2006

LABOR FORCE

The availability of labor is critical for economic development. Availability of labor depends not only on the number of workers available, but the quality, skills, and experience of available workers as well. This section examines the availability of workers to the Bear Creek Valley.

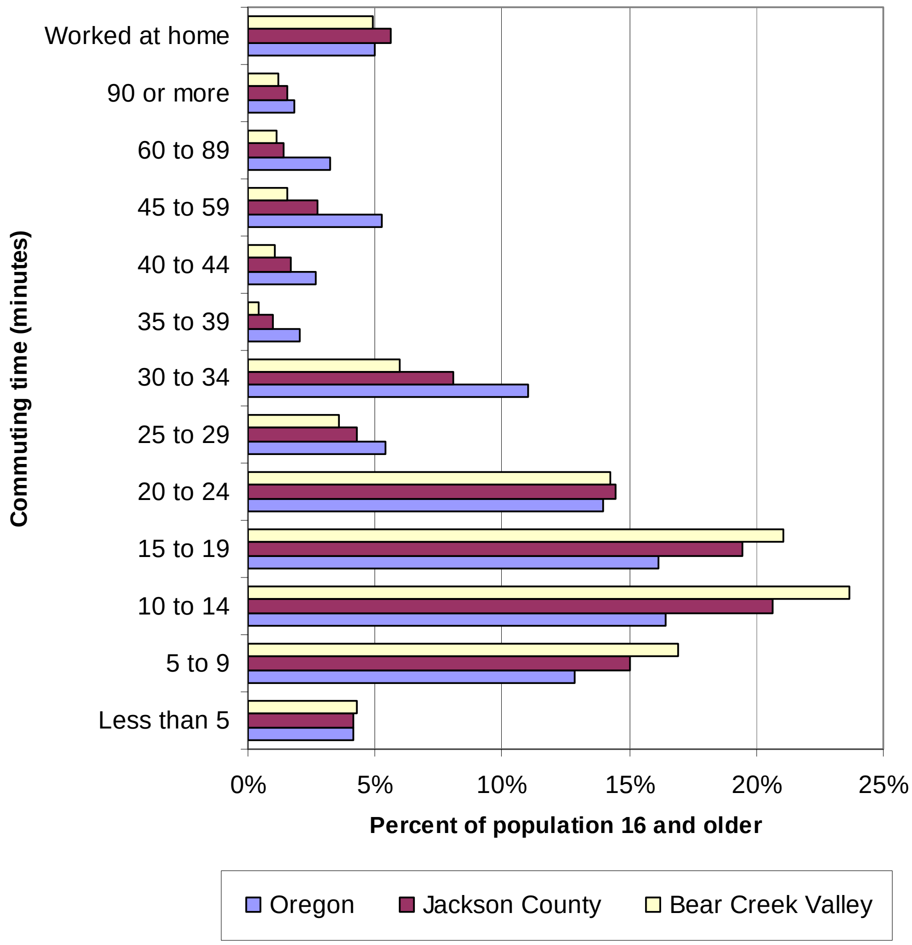
The labor force in any market consists of the adult population (16 and over) who are working or actively seeking work. The labor force includes both the employed and unemployed. Children, retirees, students, and people who are not actively seeking work are not considered part of the labor force.

The unemployment rate is one indicator of the relative number of workers who are actively seeking employment. Labor force data from the Oregon Employment Department shows that unemployment in Jackson County was 6.0% of the labor force, compared with 6.1% in Oregon.[7]

Figure 3-1 shows a comparison of the commute time to work for residents 16 years and older for Oregon, Jackson County, and the Bear Creek Valley. Residents of the Bear Creek Valley spend less time commuting to work than all residents of Jackson County or Oregon. Sixty-six percent of residents of the Bear Creek Valley commute 19 minutes or less, compared with 59% of Jackson County residents and 50% of residents of Oregon. In general, residents of Medford and Central Point have the shortest commutes and residents of Eagle Point have the longest commutes.

[7] The data in Table 3-3 show that unemployment was 4.2% in Jackson County and 4.4% in Oregon in 2005. This information was produced by Claritis. ECO has presented the official unemployment rate, which is calculated by The Bureau of Labor Statistics in the U.S. Department of Labor.

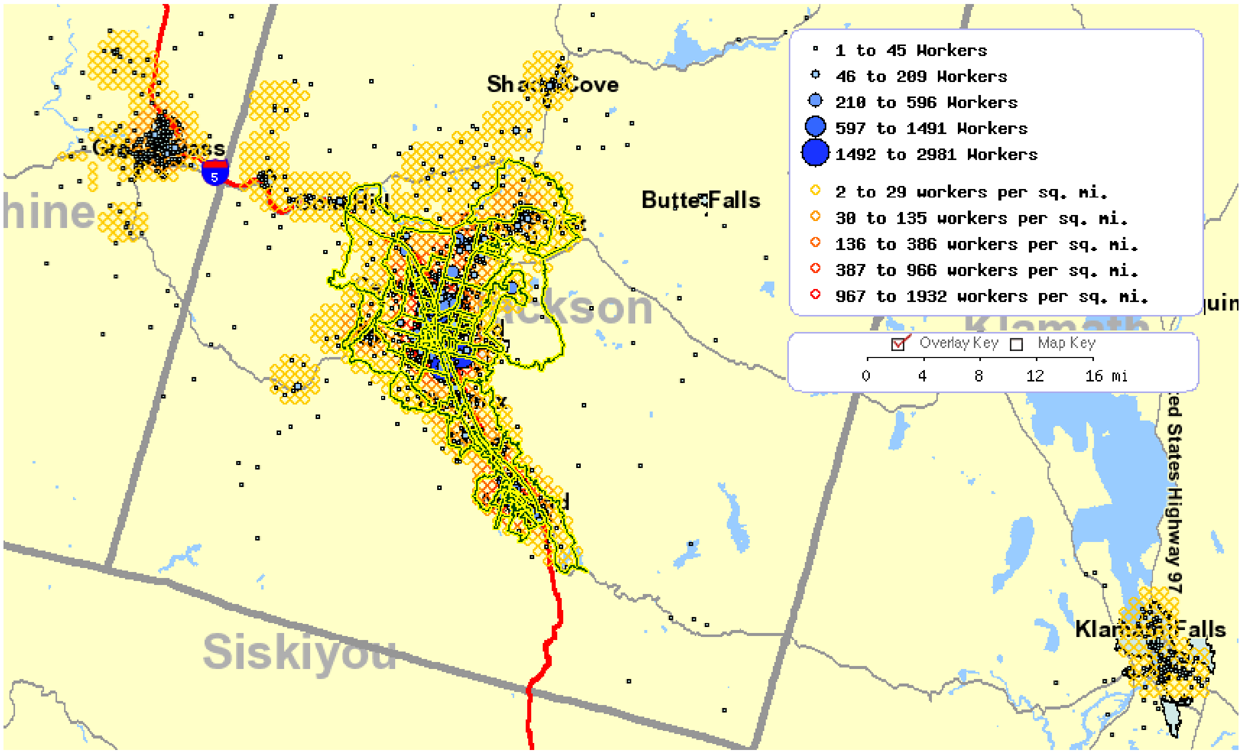
Figure 3-1. Commuting time to work in minutes for residents 16 years and older, Oregon, Jackson County, and the Bear Creek Valley, 2000



Source: U.S. Census, 2000

Figure 3-2 and Table 3-3 show the where residents of the Bear Creek Valley work in 2003. Figure 3-2 and Table 3-3 show that the Bear Creek Valley is the regional employment center. About 60% of the residents of Medford, Ashland, and Central Point were employed by firms located in the Bear Creek Valley. Some residents of the Valley were employed in firms located in Grants Pass, Lane County, Multnomah, or Washington Counties.

Figure 3-2 Places that residents of the Bear Creek Valley were employed, 2003



Sources: US Census Bureau, LED Origin-Destination Data Base (2nd Quarter 2003)
Notes: No census designated geography available through the On the Map website approximates the Bear Creek Valley. ECONorthwest used the freehand tool in the On the Map Website to specify a geography which approximates the Valley for the purposes of calculating a labor and commute sheds.

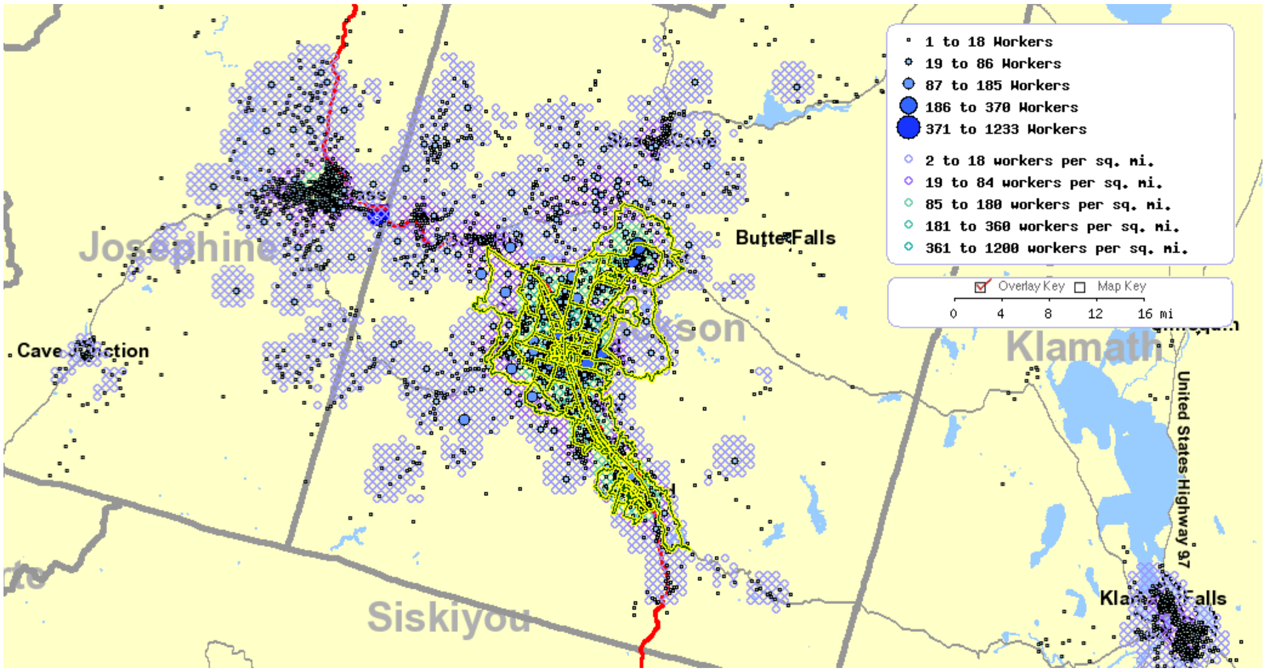
Table 3-3 Places that residents of the Bear Creek Valley were employed, 2003

	Number	Percent
Jackson County	**40,484**	**81%**
Medford	22,933	46%
Ashland	4,932	10%
Central Point	1,153	2%
Josephine County	**1,341**	**3%**
Lane County	**1,343**	3%
Multnomah or Washington County	**2,788**	6%
All Other Locations	**3,997**	**8%**
Total	**49,953**	**100%**

Sources: US Census Bureau, LED Origin-Destination Data Base (2nd Quarter 2003)
Notes: No census designated geography available through the On the Map website approximates the Bear Creek Valley. ECONorthwest used the freehand tool in the On the Map Website to specify a geography which approximates the Valley for the purposes of calculating a labor and commute sheds.

Figure 3-3 and Table 3-4 show where employees of firms located in the Bear Creek Valley lived in 2003. Nearly 60% of workers lived in the Bear Creek Valley, in Medford, Ashland, or Central Point. About 8% of the people who worked in the Valley commuted from Grants Pass or other areas of Josephine County.

Figure 3-3. Places where workers in the Bear Creek Valley lived, 2003



Sources: US Census Bureau, LED Origin-Destination Data Base (2nd Quarter 2003)
Notes: No census designated geography available through the On the Map website approximates the Bear Creek Valley. ECONorthwest used the freehand tool in the On the Map Website to specify a geography which approximates the Valley for the purposes of calculating a labor and commute sheds.

Table 3-4. Places where workers in the Bear Creek Valley lived, 2003

	Number	Percent
Jackson County	**47,143**	**94%**
Medford	19,508	39%
Ashland	4,642	9%
Central Point	4,352	9%
Josephine County	**3,763**	**8%**
Lane County	**1,327**	3%
Multnomah County	**1,333**	3%
All Other Locations	**9,060**	**18%**
Total	**62,626**	**125%**

Sources: US Census Bureau, LED Origin-Destination Data Base (2nd Quarter 2003)
Notes: No census designated geography available through the On the Map website approximates the Bear Creek Valley. ECONorthwest used the freehand tool in the On the Map Website to specify a geography which approximates the Valley for the purposes of calculating a labor and commute sheds.

The implication of Figure 3-1 through 3-3 and Tables 3-3 and 3-4 is that the Bear Creek Valley is a regional employment center. Residents of the Bear Creek Valley are likely to work within the Valley. In addition, residents of other areas in Jackson County and parts of eastern Josephine County along I-5 are a source of labor for the Bear Creek Valley.

Table 3-5 shows the percent of population by education level completed in the Bear Creek Valley, Jackson County, and Oregon. Table 3-3 shows that residents of the Bear Creek Valley have similar levels of education as all residents of

Oregon or Jackson County. The majority of the Bear Creek Valley's residents cluster around being a high school graduate, having some college, or having an associate's degree (62%). Jackson County and the Bear Creek Valley's share of population with a Bachelor's or graduate degree is near the state average.

Table 3-5. Educational Attainment for the population 25 years and over, Oregon, Jackson County, and the Bear Creek Valley, 2000

Educational Attainment	Oregon	Jackson County	Bear Creek Valley
Less than 9th grade	5%	4%	4%
9th to 12th grade, no diploma	10%	11%	11%
High school graduate (includes equivalency)	26%	30%	29%
Some college, no degree	27%	27%	27%
Associate degree	7%	6%	6%
Bachelor's degree	16%	15%	15%
Graduate or professional degree	9%	8%	8%
Total population	**100%**	**100%**	**100%**

Source: U.S. Census, SF-3 2000

Table 3-6 shows the percent of population by race/ethnicity in Oregon, Jackson County, and Bear Creek Valley. This table shows that the Bear Creek Valley has a higher proportion of Hispanic or Latino residents than Jackson County and a lower proportion than Oregon in 2000. Between 1990 to 2000, the Hispanic and Latino population grew at a faster rate in the Bear Creek Valley than in Jackson County but slower than in the state average.

Table 3-6. Percent of population by race/ethnicity in Oregon, Jackson County, and Bear Creek Valley, 1990 and 2000

	Oregon	Jackson County	Bear Creek Valley
1990			
Total Population	2,842,321	140,440	112,021
Hispanic or Latino	112,707	5,949	5,187
Percent Hispanic or Latino	4.0%	4.2%	4.6%
2000			
Total Population	3,421,399	181,269	147,665
Hispanic or Latino	275,314	12,126	11,088
Percent Hispanic or Latino	8.0%	6.7%	7.5%
Change 1990-2000			
Hispanic or Latino	162,607	6,177	5,901
Percent Hispanic or Latino	144%	104%	114%

Source: U.S. Census

Table 3-7 shows the total employment by occupation for persons 16 years and older in Jackson County and Oregon in 2005. This table shows that the distribution of occupations for residents of Jackson County was roughly similar to that of Oregon. Jackson County has a larger share of residents who are not in the labor force than Oregon. The occupations with the largest percentage of employment were Sales and related Fields or Office and Administration Services, accounting for approximately 15% of employment for both Jackson County and Oregon.

Table 3-7. Total employment by occupation, 16 years and older, in Jackson County and Oregon, 2005

	Jackson County		Oregon	
Occupation	**Number**	**Percent**	**Number**	**Percent**
Not in Labor Force	59,751	38%	994,491	35%
In Armed Forces	104	0%	2,811	0%
Civilian, Unemployed	6,916	4%	119,592	4%
Civilian, Employed	88,765	57%	1,750,955	61%
Management, except Farmers and Farm Managers	7,163	5%	153,247	5%
Farmers and Farm Managers	493	0%	14,097	0%
Business Operation Specialists	1,429	1%	34,676	1%
Financial Specialists	1,345	1%	32,915	1%
Computer and Mathematical	1,045	1%	40,058	1%
Architecture and Engineering	1,062	1%	39,781	1%
Life, Physical, and Social Science	1,006	1%	18,161	1%
Community and Social Services	1,627	1%	29,427	1%
Legal	566	0%	16,228	1%
Education, Training, and Library	5,078	3%	94,464	3%
Arts, Design, Entertainment, Sports, Media	2,060	1%	36,320	1%
Healthcare Practitioners and Technical	4,191	3%	72,370	3%
Healthcare Support	1,971	1%	32,688	1%
Protective Service	1,214	1%	27,297	1%
Food Preparation and Serving	5,117	3%	88,607	3%
Building and Grounds Cleaning, and Maintenance	3,515	2%	58,756	2%
Personal Care and Service	3,520	2%	57,962	2%
Sales and Related	11,423	7%	199,759	7%
Office and Administration Services	12,295	8%	258,309	9%
Farming, Fishing, and Forestry	1,320	1%	29,513	1%
Construction and Extraction	4,840	3%	94,585	3%
Installation, Maintenance, and Repair	3,655	2%	65,401	2%
Production	6,464	4%	142,688	5%
Transportation and Material Moving	6,366	4%	113,646	4%
Total	**155,536**	**100%**	**2,867,849**	**100%**

Source: Claritas, 2005. Percentages calculated by ECONorthwest.

The implications of the workforce analysis reinforce the point made earlier in this chapter that the majority of working age residents of Bear Creek Valley work within the Valley. The labor force in the Bear Creek Valley is mobile and available to each city within the Valley. No city has a particular comparative advantage for labor force over any other cities in the Valley.

In addition, it appears that the workforce in the Bear Creek Valley is similar to the workforce in Jackson County and Oregon in terms of educational attainment and race/ethnicity. It does not appear that workforce will be a constraint on employment growth in the Bear Creek Valley or have a substantial impact on the type of employment growth likely to occur.

HOUSING

Housing is an important component of any economic development strategy because it affects the type of residents and employers who may be attracted to a region. Housing and economic development strategies should consider the availability of affordable housing for all income levels.

Housing choices includes choices about location and the type of housing. When making location decisions, households may consider many factors: views, neighborhood characteristics, quality of schools, tax rates, commute times, and other quality of life issues. Housing type is defined by many attributes, the most important of which are structure type (e.g., single-family, multi-family) and size, lot size, quality and age, price, and tenure (own/rent).

Housing type and tenure are important components of housing choice. Table 3-8 shows dwelling units by type in the Bear Creek Valley, Jackson County and Oregon in 2000 as reported by the Census. The Bear Creek Valley has the same proportion of single-family dwelling units as Jackson County and Oregon. It has a larger share of manufactured and mobile dwellings and smaller share of multifamily dwellings than Oregon. Homeownership rates in the Bear Creek Valley are the same as Oregon and slightly lower than Jackson County.

Table 3-8. Dwelling units by type and tenure, Bear Creek Valley, Jackson County and Oregon, 2000

	Bear Creek Valley		Jackson County		Oregon	
	Number	Percent	Number	Percent	Number	Percent
Total Housing Units	61,069	100%	75,737	100%	1,452,709	100%
Single-family	40,309	66%	50,159	66%	959,266	66%
Multifamily	12,976	21%	13,624	18%	334,897	23%
Manufactured/Mobile	7,784	13%	11,954	16%	158,546	11%
Occupied Housing Units	58,089	100%	71,532	100%	1,333,723	100%
Owner Occupied	36,936	64%	47,564	66%	856,951	64%
Renter Occupied	21,153	36%	23,968	34%	476,772	36%

Source: US Census of Population and Housing

Housing prices are an important factor in a business's choice about where to locate. Businesses may choose to relocate from an area with high housing costs to an area with lower housing costs. An analysis of the affect of housing prices on comparative advantage in the Bear Creek Valley should include the following: (1) a comparison of housing costs for the Bear Creek Valley with other metropolitan areas and (2) a comparison of housing costs within the cities of the Bear Creek Valley.

Table 3-9 shows a comparison of the median sales price of homes for selected MSAs in the West, including the Medford-Ashland MSA (which includes Jackson County). Table 3-9 shows that the median sales price in the Medford-Ashland MSA was *lower* than the median sales price in the following MSAs: Seattle, WA; Sacramento, CA; Los Angeles, CA; and San Francisco, CA. As a result, Medford has a comparative advantage over these cities because a business that wants to relocate, may choose to locate in Jackson County because housing costs are lower.

Table 3-9. Median sales price residences for selected Metropolitan Statistical Areas, fourth quarter 2004 and 2005

Area	Median Sales Price 4th Quarter 2004	Median Sales Price 4th Quarter 2005
San Francisco-San mateo-Redwood City, CA	$680,000	$750,000
Los Angeles-Long Beach-Glendale, CA	$415,000	$500,000
Sacramento--Arden-Arcade--Roseville, CA	$360,000	$415,000
Seattle-Bellevue-Everett, WA	$274,000	$324,000
Medford-Ashland, OR*	**$215,000**	**$270,000**
Phoenix-Mesa-Scottsdale, AZ	$183,000	$255,000
Portland-Vancouver-Beaverton, OR-WA	$201,000	$244,000
Denver-Aurora, CO	$220,000	$230,000
Boise City-Nampa, ID	$181,000	$222,000
Salt Lake City, UT	$183,000	$218,000

Source: National Association of Home Builders, 2006
*Note: the Medford-Ashland MSA includes all of Jackson County.

An examination of housing prices within the Bear Creek Valley shows that housing prices have increased significantly over the past five years, making housing less affordable in the Bear Creek Valley. A recent housing needs analysis that ECONorthwest conducted for the Bear Creek Valley showed that one-third of Jackson County's households paid 30% or more of their income for housing. The rate was much higher for renters (47%) than for homeowners (25%).[8]

Table 3-10 shows changes in the sales price of single-family residences by year in Jackson County between 2002 and 2005. The results show a substantial increase in sales prices between 2002 and 2005. The *average* sales price of single-family residences increased by nearly $95,000 from $184,283 in the last two months of 2002 to nearly $279,000 in 2005. The *median* sales price increased from just under $150,000 in 2002 to $241,000 in 2005. The U.S. Census reported the median value of homes in 2000 was $140,000 and the median price asked was about $148,000. This suggests that most of the increase in housing price has occurred since 2002.

[8] U.S. Census, 2000

Table 3-10. Median recorded sales price of single-family residences by year, Jackson County, 11/02 – 12/05

Year	Number of Sales	Average Price ($)	Median Price ($)
2002 (Nov-Dec)	822	184,283	149,650
2003	5965	186,977	162,000
2004	6407	266,524	193,900
2005	6071	278,834	241,000
Change 2002-2005			
Price		94,551	91,350
Percent		51%	61%

Source: Jackson County Assessor; analysis by ECONorthwest
Note: includes property classifications 101 – 109, includes sales outside the AQMA

A breakdown by location provides a better picture of how sales prices are changing within the region. Table 3-11 shows the recorded sales price of single-family residences by city and year. The results show that single-family home prices increased in all cities.

The results show that median single-family home prices increased in all cities. Of the seven RPS cities, Ashland saw the smallest percentage increase (55%) and Jacksonville saw the largest increase (87%). The dollar figures are more telling—average sales prices increased between $91,100 in Phoenix and $194,000 in Jacksonville. By any measure the sales data show a substantial increase between the end of 2002 and 2005.

The trends are generally the same with average sales prices. Not surprisingly, average sales prices were higher than median sales prices. Average sales price increases in Ashland and Phoenix were lower than median sales price increases.

Table 3-11. Median and average recorded sales price of single-family residences by city and year, Jackson County, 11/02 – 4/06

	Year				Increase (2002-2005)	
CITY	**2002**	**2003**	**2004**	**2005**	**Dollars**	**Percent**
Median Sales Price						
Ashland	251,000	277,000	315,000	389,000	138,000	55%
Central Point	143,900	156,000	198,000	242,000	98,100	68%
Eagle Point	142,700	139,900	194,000	259,900	117,200	82%
Jacksonville	223,000	269,950	343,667	417,000	194,000	87%
Medford	145,250	161,000	190,000	245,000	99,750	69%
Phoenix	150,900	178,800	195,750	242,000	91,100	60%
Talent	149,900	160,000	181,450	250,000	100,100	67%
Rest of County	125,000	127,555	158,900	201,500	76,500	61%
Average Sales Price						
Ashland	300,897	310,437	360,637	428,058	127,161	42%
Central Point	142,548	161,582	293,489	261,578	119,031	84%
Eagle Point	170,932	165,350	233,984	295,074	124,142	73%
Jacksonville	269,918	271,656	361,739	534,588	264,670	98%
Medford	164,875	179,774	239,041	273,474	108,599	66%
Phoenix	159,521	175,964	206,800	248,892	89,371	56%
Talent	145,670	176,891	188,177	266,182	120,512	83%
Rest of County	150,457	153,087	197,561	237,345	86,887	58%

Source: Jackson County Assessor; analysis by ECONorthwest
Note: includes property classifications 101 – 109, includes sales outside the AQMA
The Talent 2006 data does not include one sale for $2.7 million that skews the average

The implication of this housing analysis is that housing may be a constraint on the availability of workers. The increase in housing prices and lack of workforce housing may constrain the types of people who move to the Bear Creek Valley, making it difficult for employers to fill lower paying jobs. Workers may have to live in communities further from the Bear Creek Valley, causing an increase in commuting.

TRANSPORTATION

A number of transportation options are available in the Bear Creek Valley, including Interstate 5 and multiple State highways, Central Oregon and Pacific Railroad, the Rogue Valley International-Medford Airport, and the Rogue Valley Transportation System.

The Bear Creek Valley is located on Interstate 5, a primary north-south transportation corridor linking the Bear Creek Valley to domestic markets in the United States and international markets via west Coast ports. The cities of Ashland, Talent, Phoenix, Medford, and Central Point are located along I-5 and have at least one interchange on I-5.

State highways also play an important role in transportation in the Bear Creek Valley. State highways within the Bear Creek Valley include: Highway 99, Highway 238, Highway 62, and Highway 140. Eagle Point is connected to I-5 via Highway 62. Jacksonville is connected to I-5 via Highway 238.

Traffic congestion is a problem on I-5 and several of the State highways. ODOT is working with local agencies to increase capacity on the roads within the Bear Creek Valley by replacing or upgrading highway interchanges, widening roads and bridges, and building new roads. According to RVCOG, some of the worst traffic problems include:

- The entire I-5 corridor in the Bear Creek Valley
- The I-5 interchange at Phoenix
- The south Medford I-5 interchange
- The I-5 interchange in Central Point.
- Highway 99 through Phoenix
- Highway 99 through Ashland
- Highway 62 from the north Medford interchange to White City
- Highway 238 in Jacksonville

Other transportation opportunities in the Bear Creek Valley include: the Central Oregon and Pacific Railroad, the Rogue Valley International-Medford Airport, and the Rogue Valley Transportation System.

- The Central Oregon and Pacific Railroad provides freight service for the Bear Creek Valley. The rail line runs approximately parallel to I-5 and runs between Northern California and Eugene, Oregon.

- The Rogue Valley International-Medford Airport is serviced by four air carriers and has approximately 56 arriving and departing flights per day.

- The Rogue Valley Transportation District (RVTD) serves each of the cities in the Bear Creek Valley, except for Eagle Point. It provides 8 fixed bus routes that operate Monday through Friday. RVTD offers a wheelchair accessible shared ride service for people whose disabilities prevent them from using the fixed route bus system.

Transportation is a comparative advantage that primarily affects the overall type of employment and its growth for the region. Comparative advantage from transportation does not generally affect the type and amount of employment each city will attract, except where there are transportation deficiencies or other problems or where firms need direct access to rail, air, or Interstate 5. In those cases, firms are likely to locate in the cities with access to these forms of transportation, such as Medford, White City, or Central Point.

PUBLIC SERVICES

Public services provide comparative advantages for the region and for the cities within the Valley. Wastewater services are provided on a regional level (except for Ashland, which provides its own wastewater services). Water is provided by the Medford Water Commission, which serves all the urban areas in the Valley except Ashland. Each of the cities is in the process of obtaining water rights to provide water for future growth, except for Medford, which appears to have sufficient water rights for the planning period. They provide comparative advantages for the region rather than the cities because the distribution of water and wastewater services is not likely to affect the type or distribution of employment within the region unless respective cities fail to obtain sufficient water rights to support growth within their boundaries. Issues related to maximum expansion capacities of water treatment facilities may also result in servicing challenges within the study period,

Planning and public policy support for economic development generally takes place at the local level. The individual cities' economic development policies and planning can provide comparative advantages to each city because these policies may affect whether a firm locates in a particular city within the Valley.

PLANNING AND SUPPORT FOR ECONOMIC DEVELOPMENT

Public policy support for economic development includes policies that local governments have to support economic activity, such as economic development policies and local tax policies. This section discusses economic goals including (1) broad economic development policies from the comprehensive plans of the seven cities within the Bear Creek Valley and (2) other goals economic development goals for each city. Finally, the section will discuss local tax rates for the cities in the Bear Creek Valley.

Each of the seven cities in the Bear Creek Valley have economic elements of their Comprehensive Plans, which contain a range of goals and policies supportive of economic development. This section presents these goals, grouping goals that the cities have in common, then listing out some of the goals that are unique to each city.

When comparing the comprehensive plans of the seven cities within the Bear Creek Valley, several commonalities emerged.[9] The comprehensive plans contain a range of goals and policies supportive of economic development in Bear Creek Valley. Some of the common goals and policies include:

- Cities shall encourage local economic expansion by attracting, maintaining, and assisting businesses

[9] Most of the comprehensive plans were old and might be considered outdated in some areas. Eagle Point's comprehensive plan is in the process of being updated, and some of the policies studied for this section, while proposed, have not been approved and cannot be considered final.

- Cities shall provide adequate land for industrial business, which should be clustered and not negatively affect the livability of the communities

- Cities shall promote city centers (or employment centers), and make them easily accessible and concentrated in central areas

- Cities shall encourage commercial development along highways

- Cities shall encourage and attract business that will pay living, family wages to community members.

The Cities' approach to their comprehensive plans ranged from the specific to the general. Below is a sample of some goals and policies by city[10]:

- **Ashland**. In its comprehensive plan, Ashland lists the types of economic activity that the City does not want:
    - *The City is clearly unsuitable for the following types of businesses:*
        - *Businesses, which use large amounts of water…*
        - *Businesses that emit significant amounts of air pollution*
        - *Businesses that create toxic wastes that require specialized disposal techniques not available locally.*

- **Talent.** The City of Talent stresses downtown mixed use-development that focused on specific design standards including:
    - *Orient all new buildings to sidewalks, and encourage "streetscape" amenities that will encourage pedestrians in downtown neighborhoods.*
    - *Provide adequate facilities for bus patrons and bicyclists in placement of buildings and other features.*
    - *Promote mixed-use, with residential uses encouraged on upper stories and on local streets.*

- **Phoenix**. The City of Phoenix's comprehensive plan a goal to formalize its partnerships with Rogue Community College. Another goal is to encourage the development of local businesses by focusing on double the number of people working at home.

[10] Medford and Central Point's policies are not listed below because their economic development goals are summarized above in the list of goals common to all cities in the Bear Creek Valley.

- **Eagle Point.** One of the proposed goals in the draft version of Eagle Point's updated comprehensive plan is to raise the family median income to be competitive with other cities in Southern Oregon.

- **Jacksonville.** Jacksonville created a special zone (Cottage Industry) to supply alternatives to traditional commercial activity. In addition, Jacksonville's plan acknowledged the growing trend of ecotourism in Southern Oregon.

ECO conducted interviews about economic development with staff at each of the cities in the Bear Creek Valley. Staff were asked about their communities' economic development policies. Their answers included policies that are not in the city's comprehensive plan.

- **Medford.** Medford wants to attract or develop small businesses, rather than heavy industry, which might contribute to the City's air quality problems. According to the Medford Economic Market Analysis from 2003, the following industries growth industries represent Medford's best opportunities for economic growth: Instruments, Transit, Transportation Services, Communications, Retail Trade, and Banking.

- **Jacksonville.** In addition to policies that promote small businesses and cottage industries, Jacksonville is promoting tourism through a "linger longer" policy that encourages tourists to stay longer in Jacksonville.

- **Eagle Point.** Eagle Point is focusing on revitalizing their downtown and attracting more tourism by promoting the recreational outdoor activities around the City, including fishing and golfing.

- **Central Point.** Central Point is trying to encourage innovative growth and help develop small businesses through the following programs: a vertical development zone in downtown, a small loan program to improve building façades in key areas, and low interest loans for small business expansion. Central Point has a project ready site.

- **Phoenix.** Phoenix is promoting the idea of the South Valley Employment Center, which is a business park that would help bring jobs to the southern end of the Bear Creek Valley. The Center would be located on about 400 acres of industrial land that could be made shovel ready, with help from the State.

These goals and policies show that the cities in Bear Creek Valley support economic development and are willing to take steps to accommodate and encourage employment growth in the region. The types of industrial and commercial businesses specified in the comprehensive plants reflect the existing mix of employers and educational level of the citizens.

The tax policy of a jurisdiction is an important factor in economic development policy. Table 3-12 shows the property tax rates per $1,000 assessed value for the cities within the Bear Creek Valley. The property tax rates vary between $11.64 and $17.27 per $1,000 of assessed value. Talent has the highest property tax rate and Jacksonville has the lowest property tax rate.

Table 3-12. Property tax rate per $1,000 assessed value for the cities in the Bear Creek Valley, 2005

City	Property Tax Rate (per $1,000 assessed value)
Ashland	$14.33-$14.51
Central Point	$16.40 to $17.21
Eagle Point	$16.81 to $16.99
Jacksonville	$11.64
Medford	$14.59 to $15.75
Phoenix	$16.46
Talent	$17.27

Source: Oregon Department of Revenue, Property Tax Annual Stats
Note: Some jurisdictions have different property tax rates for different real market areas. We have represented these differences by showing the range of property tax rates for these cities.
Note: Any city with a property tax rate over $15 per $1,000 of assessed value has a local tax levy that goes beyond the Measure 5 limitations.

WATER

The Medford Water Commission provides drinking water to all the cities in the Bear Creek Valley on a contractual basis, except for Ashland. The Commission also provides drinking water to White City and four rural water districts.

According to Laura Hodnett with the Medford Water Commission the Bear Creek Valley's drinking water is taken from the Big Butte Springs aquifer and the Rogue River:

- Big Butte Springs provides up to 26.4 million gallons of water per day. The water from Big Butte Springs is high quality and requires no treatment except for disinfection. Water from these springs is used year round.

- During peak months for water usage (May through October), the Commission also draws water from the Rogue River. They have water rights to 65 million gallons per day and a current treatment capacity for 45 million gallons per day.

The Medford Water Commission has sufficient access to water and water treatment to meet current demands. The water treatment facility on the Rogue River is currently only used between May and October. The peak water usage in 2005 was about 58 to 60 million gallons per day. About 26 million gallons came from Big Butte Springs and the remaining 35 million gallons came from the Rogue River. The water treatment facility could have treated approximately an additional 10 million gallons per day.

The Medford Water Commission is requiring cities to acquire additional water rights to provide water to their growing populations. All cities in the Bear Creek Valley are in the process of purchasing water rights from the Lost Creek Reservoir and other sources. The Commission will continue providing treatment and transportation for the additional water that the cities purchase, subject to eventual infrastructure limitations. The Commission is in the process of updating their Facilities Plan to assess future water treatment and distribution needs. They note that limitations to the expansion of existing treatment facilities will also be evaluated.

The future availability of water will be influenced by available water rights and public policies, such as conservation and business attraction policies. The Medford Water Commission is emphasizing the need to conserve water as the population increases. Of particular concern is the amount of water required for irrigation of landscaping. The type of industries attracted to the region will also be a factor in water availability. Over the last 20-years, the amount of water used by industries has decreased and residential uses have increased. Industries use less water now than they did in the past. If the region attracts water intensive industries (or gains are not made in water use efficiency), availability of water could become a problem.

The water provided by the Medford Water Commission is very high quality and is currently inexpensive. The areas served by the Medford Water Commission pay some of the lowest water rates in the nation because of the low cost (minimal treatment and pumping demands) for the Big Butte Spring water, and the fact that most of the major infrastructure was constructed decades ago and debt payment has been retired.

Ashland is the only city in the Bear Creek Valley that does not get its water from the Medford Water Commission. According to Mike Morrison with the City of Ashland's Water Treatment Department, Ashland gets the majority of its water from Reeder Reservoir, which can provide 18 million gallons per day. They can also get one million gallons per day from the Talent Irrigation district.

Ashland's water treatment facility can treat up to 10 million gallons per day when operating at full capacity. It is currently operating at a reduced capacity and can treat about 8 million gallons per day. The City recently upgraded the pipeline between Reeder Reservoir and the treatment facility so that it is able to transport at least 10 million gallons per day, up from 8 million gallons per day. If necessary, they will operate the treatment facility to produce up to 10 million gallons per day.

Ashland can meet current demands for water. During the summer peak, Ashland uses about 8 million gallons of water per day. The new pipeline should be able to bring more water the to treatment facility (the volume of water is unknown because the pipeline has not been tested yet). In the future, Ashland will address increases in water needs in the following ways: (1) expand its treatment facility to increase its capacity, (2) promote water conservation, and (3) possibly complete a connection with the Medford Water Commission to provide additional water in the event of a drought. Water service in Ashland costs more than from the Medford Water Commission, in part because Ashland's water requires more treatment.

WASTEWATER

The Medford Regional Water Reclamation Facility provides wastewater treatment to all cities in the Bear Creek Valley, except for Ashland. According to Jim Hill, the facility processes about 17 million gallons of wastewater per day in dry weather and 80 million gallons per day in wet weather. Their peak load in the winter of 2005 was 106 million gallons per day. The increase in wastewater load during wet weather was caused by infiltration and inflow into the collection system.

The Medford Regional Water Reclamation Facility is planning to increase capacity to meet future demands. Rather than increasing capacity once every 10 or 20 years, they increase the capacity of the facility yearly. They also revise their 20-year Capital Improvements Plan frequently. As a result of the incremental upgrades, they expect to be able to meet the demands of the growing population.

The Department of Environmental Quality (DEQ) is expected to change the standards for effluent they release into the Rogue River. The DEQ is several years overdue in releasing the new standards, which are now expected in 2007. The Medford Regional Water Reclamation Facility may need to make upgrades to the plant to meet the new standards. They are especially concerned about changes in the standards for the amount of ammonia discharge allowed and requirements for lowering the temperature of the effluent.

The cost of waste treatment from the Medford Regional Water Reclamation Facility is lower than the costs that neighboring cities pay for waste treatment.

Ashland's wastewater plant is operated by the City of Ashland's Public Works Department. According to Terry Ellis, the plant has a dry weather capacity of 2.3 million gallons per day and a wet weather capacity of 3.3 million gallons per day. Their peak flow was 8.5 million gallons per day.

Ashland expanded the capacity of the wastewater plant three years ago. Based on a study from July 2005, they expect to have sufficient capacity to meet demands until 2025. They expect future demand increases to come primarily from residential customers, rather than industrial users.

The City's main concerns are focus on removing phosphorus from effluent and cooling the temperature of the effluent before releasing it into the river. They are working to address these issues.

PRIVATE UTILITIES

With a few exceptions, each of the cities in the Bear Creek Valley are served by the same private utilities. Power is provided by Pacific Power and Light, natural gas is from Avista, phone service is provided by Qwest, and cable television is provided by Charter Cable. The exceptions are as follows: Ashland's electricity is provided by the City of Ashland's Electric Department, Ashland also has cable access from Ashland Fiber Network, and Eagle Point's phone service is provided by Sprint.

RENEWABLE AND NON-RENEWABLE RESOURCES

Goal 9 requires economic development plans to be based on a consideration of the availability of renewable and non-renewable resources and pollution control requirements in the planning jurisdiction. Goal 9 goes on to state that economic projections should take into account the availability of natural resources to support the expanded development, and that plans to improve the economy should consider a major determinant the carrying capacity of the air, land, and water resources of the planning area.

The carrying capacity of land and water have been addressed in this chapter with the discussion of buildable lands, water supply, and wastewater treatment capacity. This section focuses on air quality and agricultural production in the Bear Creek Valley.

AIR QUALITY

The Environmental Protection Agency (EPA) has established health standards for six outdoor air pollutants (criteria pollutants): particulate matter (PM_{10} and $PM_{2.5}$), ozone (O_3), carbon monoxide (CO), sulfur dioxide (SO_2), nitrogen dioxide (NO_2) and lead (Pb). These National Ambient Air Quality Standards (NAAQS) are based on protection against adverse health and environmental effects. The concentrations of criteria pollutants must be continually measured to ensure the standards are met. Areas that fail to meet the NAAQS are designated as federal "non-attainment" areas by EPA and are required, by law, to have strategic plans developed to bring the areas back into compliance with the standards and maintain compliance.

The Oregon Department of Environmental Quality (DEQ) has historically been concerned about the following air quality problems in Jackson County: ozone, particulate matter (PM_{10}) and carbon monoxide. Problems with ozone and carbon monoxide are primarily related to automobile emissions. Pollution from particulate matter (PM_{10}) is caused by industry, wood burning stoves, and open burning. Improvements in automotive emissions, higher emission standards for industry, and better monitoring of woodstoves and open burning have helped bring the air quality in the Bear Creek Valley into compliance with DEQ standards.

In the future, the DEQ is concerned that the Bear Creek Valley may have problems meeting increasingly stringent air quality standards for particulate matter ($PM_{2.5}$). The DEQ is also concerned that air pollution from automobiles and woodstoves may negatively impact air quality as the region continues to develop. The implications of this analysis suggest that air quality may be a limiting factor for the recruitment or expansion of industries that emit high levels of particulates.

AGRICULTURAL PRODUCTION

Agricultural production is a component of the Bear Creek Valley's economy. Pears are the primary agricultural product of the Bear Creek Valley. According to Phil van Beskirk with the Oregon State University Extension Office in Jackson County, the three largest producers of pears in the nation operate in Southern Oregon. About 6,000 acres of land in the Bear Creek Valley is used for pear production.

There is ongoing tension between urban growth and agricultural uses of land in the Bear Creek Valley. Urban growth often comes at the expense of agricultural, as resource lands are converted to urban uses. The RPS process is using a sophisticated methodology to determine where cities should grow in the long-term and to minimize impacts to the agricultural land base (as required by Goal 14 and ORS 197.298). While any urban expansion into resource land will increase the potential of conflicts between the two uses, not only will the long planning horizon help provide certainty to cities and farmers about where urban growth will and will not occur, but the adoption of regional agricultural buffering standards will mitigate the new urbanizing areas' negative impacts on the ability of the adjoining resource land to produce at its capacity.

QUALITY OF LIFE

Quality of life is difficult to assess because it is subjective—different people will have different opinions about factors affect quality of life, desirable characteristics of those factors, and the overall quality of life in any community. Economic factors such as income, job security, and housing cost are often cited as important to quality of life. These economic factors and overall economic conditions are the focus of this report, so this section will focus on non-economic factors that affect quality of life.

The Bear Creek Valley's quality of life, combined with it location and access to transportation, is a key comparative advantage for economic development. In interviews with staff at each city within the Bear Creek Valley, ECO asked staff to identify the key quality of life factors for each city. The following list summarizes the quality of life factors that affect the region:

- *Mixture of rural and urban places to live.* The Bear Creek Valley includes smaller, more rural cities and larger, more urban cities. This allows residents to choose to live in more urban or rural areas based on their preference.

- *Small town atmosphere.* Even the largest town in the Bear Creek Valley, Medford, has an element of a small town atmosphere.

- *Sunny, mild weather.* The weather in the Bear Creek Valley is generally sunny and mild.

- *Outdoor recreational activities.* There are a number of outdoor recreational opportunities available in the Bear Creek Valley, including:

hiking, fishing and boating on the Rogue River, the Bear Creek Greenway (which runs along the Bear Creek from Ashland to the Rogue River), skiing, and other activities.

- *Ease of auto access.* Although some of the roads in the region suffer from congestion, the Bear Creek Valley has excellent automobile access, especially to I-5.

- *Cultural amenities and events.* The Bear Creek Valley has a number of cultural amenities, such as museums and wine tasting and vineyard activities. The region is home to a number of events, including: the Shakespeare Festival, the Britt Music Festival, the Jackson County Fair, and other events.

- *Shopping opportunities.* Medford provides larger scale shopping opportunities, such as the Rogue Valley Mall. The smaller cities provide different shopping opportunities.

- *Access to the Oregon Coast and Crater Lake.* The Bear Creek Valley is located a few hours drive from the Oregon Coast and Crater Lake.

- *Access to higher education.* Southern Oregon University, located in Ashland, and Rogue Community College, located in Medford and White City, provide access to higher education.

- *Regional hospitals.* The Bear Creek Valley has two regional medical centers: the Rogue Valley Medical Center, and the Providence Medford Medical Center.

Each city within the Bear Creek Valley shares in the quality of life attributes for the region. Clearly there are differences among the cities. For example, Medford has access to more urban amenities such as shopping and regional hospitals. Smaller towns like Jacksonville or Central Point provide a small town atmosphere.

The region's advantages from quality of life and location suggest that the Bear Creek Valley and its cities will continue to attract residents and businesses that are attracted to Southern Oregon and Northern California.

COMPARATIVE ADVANTAGE IN THE BEAR CREEK VALLEY

The mix of productive factors present in the Bear Creek Valley and its cities, relative to other communities and regions in Oregon, are the foundation of the region's comparative advantage. A primary comparative advantage in the Bear Creek Valley is its location on I-5, proximity to California, and high quality of life. This makes the Bear Creek Valley attractive to residents and businesses that want a high quality of life where they live and work. The Bear Creek Valley provides a mixture of urban amenities and communities with a small town feel, as well as access to major transportation networks.

The Bear Creek Valley's comparative advantages are similar to Oregon's comparative advantages. The Valley's labor force has similar levels of education and occupations as Oregon. Most businesses moving to the Bear Creek Valley would likely be able to find skilled workers. The Bear Creek Valley's economy is diverse and has a similar mixture of industries as Oregon's economy. The Valley has a full range of services to support businesses and a full range of amenities to create a high quality of life.

The Bear Creek Valley may also have some factors that constrain future employment growth. Water availability and air quality could affect some types of industries in certain locations. Transportation could also be an issue in some locations. Housing affordability—particularly workforce housing—is likely to continue to be an issue in the region.

Chapter 2 reports industries that have shown growth and business activity in the Bear Creek Valley over the past few years. These industries are indicative of businesses that might locate or expand in the Bear Creek Valley. The characteristics of the Bear Creek Valley will affect the *types of businesses most likely to locate* in the Bear Creek Valley:

- **Manufacturing**. The type of manufacturing businesses likely to locate in the Bear Creek Valley are those that need easy access to transportation, clean water, skilled workers, and a semi-rural setting. Examples include: food processing, high-tech electronics, recreation equipment and apparel, and other specialty manufacturing.

- **Warehousing and transportation**. The Bear Creek Valley's location and access to I-5 make it attractive for regional warehousing and distribution firms that serve the population located in the Bear Creek Valley and the southern Oregon region. The Bear Creek Valley's proximity to the California border and location on I-5 will also help the region attract truck terminals and warehousing facilities.

- **Retail**. Population growth will drive the growth of retail and local government. The type and location of retail development will vary within the region. Large scale retailers, like big box retailers, are likely to locate in more urban areas, such as Medford or Central Point. The smaller cities are likely to have growth in small scale retailers to serve people living within the city and tourists.

- **Professional, Scientific, and Technical Services.** The Bear Creek Valley's high quality of life and semi-rural setting could attract software design, engineering, research, and other professional services that are attracted to high-quality settings.

Table 3-13 shows a summary of the comparative advantage for the cities within the Bear Creek Valley and the types of industries that are likely to located in each city.

Table 3-13. Comparative advantage for the seven cities in the Bear Creek Valley

Community	Comparative advantage
Ashland	Ashland's proximity to I-5, high quality of life, the presence of Southern Oregon University, and abundance of cultural amenities and events make it attractive to businesses that need access to educated workers and want a high quality of life. These types of businesses could include software design, engineering, research, and other professional services that are attracted to high-quality settings. Ashland's cultural amenities and events are likely to attract high-end retailers, lodging, and food service firms. The high cost of housing and a limited land supply in Ashland may be a constraining factor for future employment growth.
Central Point	Central Point is located along I-5 and has easy access to the airport. Central Point has a project ready industrial site. These factors make Central Point attractive to industrial firms. Central Point's public policies focus on attracting and developing small businesses. These policies may attract small retail businesses and specialty manufacturing.
Eagle Point	Eagle Point is located about ten miles from Medford and I-5. This distance makes it likely that Eagle Point will attract retail to serve the existing population, such as a community shopping center. Services like banking, real estate, and construction services may be attracted to Eagle Point as the population grows. Eagle Point's small town atmosphere and quality of life may attract specialty manufacturing or entrepreneurs that are attracted to a high quality of life.
Jacksonville	Jacksonville's combination of small town atmosphere, cultural amenities, and public policies that promote small business and attract small retail and small-scale manufacturing businesses.
Medford	Medford has a diverse economy, with a similar mixture of industries as Oregon. Medford is located along I-5 and has a project ready site. Medford is likely have a mixture of types of employment growth. Medford is likely to attract large scale retail, such as big-box retailers, light industrial employers, health services, high-tech firms, manufacturing, and agricultural related firms.
Phoenix	Phoenix's location on I-5 between Ashland and Medford may attract regional retailers, such as big box retailers, discount retail, or factory outlets. Phoenix will probably attract firms that want a location near I-5 but a small-town atmosphere. These types of businesses could include services, such as local contractors and builders, and specialty manufacturing.
Talent	Talent's location on I-5 between Ashland and Medford may attract regional retailers, such as big box retailers, discount retail, or factory outlets. Talent may attract businesses to serve local needs, such as local contractors, small scale retailers, banking, real estate, and other services.
White City	White City has the largest concentration of industrial land within the Bear Creek Valley. It is located along I-5 and it has a project ready industrial site. These factors make White City attractive to industrial firms.

Chapter 4

Demand for Employment Land in the Bear Creek Valley

To provide for an adequate supply of commercial and industrial sites, the Bear Creek Valley needs to have an estimate of the amount of commercial and industrial land that will be needed over the planning period. Demand for commercial and industrial land will be driven by the expansion and relocation of existing businesses and new businesses locating in the Bear Creek Valley. The level of this business expansion activity can be measured by employment growth in Bear Creek Valley. This chapter presents a projection of future employment levels in Bear Creek Valley for the purpose of estimating demand for commercial and industrial land.

The projection of employment in this chapter has three major steps:

1. **Establish base employment for the projection.** We start with the estimate of covered employment in the Bear Creek Valley (both inside and outside of UGB areas) presented in Chapter 2. Covered employment does not include all workers, so we adjust covered employment to reflect total employment in Bear Creek Valley. Employment by sector will be summarized into employment by land use type for the purposes of estimating land demand by type.
2. **Project total employment.** The projection of total employment will consider a variety of factors, including historical growth rates and projections for growth in Jackson County and the Bear Creek Valley.
3. **Identify potential growth industries in Bear Creek Valley.** Given trends in economic activity and expected growth in Oregon, and the Bear Creek Valley's comparative advantages relative to other regions in Oregon, we identify the types of firms and industries that are likely to locate or expand in Bear Creek Valley over the forecast period.

The remainder of this chapter is organized by headings that correspond to these three major steps for the projection.

EMPLOYMENT BASE FOR PROJECTION

Chapter 2 presents an estimate of 2004 covered employment in the Bear Creek Valley. Covered employment refers to employment that is covered by unemployment insurance laws. Covered employment does not include jobs that are not covered by unemployment insurance laws; this group consists primarily self-employed proprietors. To estimate the share of total employment in the Bear Creek Valley that is not included in covered employment, we compared estimates for total and covered employment for Jackson County. The U.S. Bureau of Economic Analysis (BEA) provides estimates of total employment by county that include self-employed proprietors. We compared the estimates of total employment from the BEA to covered employment reported by the Oregon

Employment Department. The resulting percent of total employment included in covered employment in shown in Table 4-1.

Table 4-1. Comparison of covered and total employment by sector in Jackson County, 2003

Land Use Type / Sector	**Covered**	**Total**	**Covered % of Total**
Industrial	**18,227**	**24,610**	
Agriculture, Forestry, Fishing & Hunting	2,499	3,108	80%
Mining	136	213	64%
Utilities	255	260	98%
Construction	4,133	7,277	57%
Manufacturing	6,828	8,056	85%
Wholesale Trade	2,171	2,617	83%
Transportation & Warehousing	2,205	3,079	72%
Retail and Commercial	**47,748**	**70,295**	
Retail	12,849	16,022	80%
Information	1,823	2,144	85%
Finance & Insurance	2,121	3,482	61%
Real Estate Rental & Leasing	1,194	4,643	26%
Professional, Scientific & Technical Services	1,898	4,868	39%
Management of Companies	2,026	2,088	97%
Admin. Support & Cleaning Services	3,429	5,179	66%
Education	500	1,157	43%
Health & Social Assistance	10,143	12,938	78%
Arts, Entertainment & Recreation	1,388	2,970	47%
Accomodations & Food Services	7,457	8,259	90%
Other Services (except Public Admin.)	2,920	6,545	45%
Public	**10,628**	**11,478**	
Government	10,628	11,478	93%
Total Non-Farm Employment	**76,603**	**106,383**	**72%**

Source: Covered employment from the Oregon Employment Department, Covered Employment and Wages, http://www.qualityinfo.org/olmisj/CEP (accessed 2/14/06). Total employment from the U.S. Department of Commerce, Bureau of Economic Analysis, http://www.bea.gov/bea/regional/reis/default.cfm#a (accessed 4/14/06).

Table 4-1 shows that covered employment includes 72% of total employment in Jackson County, based on our comparison of covered and total employment data. The share of total employment included in covered employment varies by sector, from a low of 26% in Real Estate to a high of 97% in Management of Companies. The percentages shown in Table 4-1 correspond with our expectation that sectors with a higher share of self-employed proprietors, like Real Estate, Professional Services, and Construction, have a lower share of jobs in covered employment than sectors where most employees earn a wage or salary, such as Manufacturing and Accommodation & Food Services.

Table 4-1 also classifies sectors into three land use types: Industrial, Retail and Commercial, and Public. Sectors with similar land use types are grouped together in Table 4-1. For example, Transportation & Warehousing is included in the Industrial land use type because most businesses in this sector will locate in buildings that are industrial in character and primarily on land zoned for industrial uses. These land use types are the categories that will be used to project employment growth for the purposes of estimating land demand in the Bear Creek Valley.

Table 4-2 shows the result of applying the adjustment factors for converting covered to total employment in Table 4-1 to the amount of covered employment in the Bear Creek Valley. The data in Table 4-2 is summarized by land use type and community.

Table 4-2. Total employment by land use type in the Bear Creek Valley, 2004

	Employment Land Use Type			
Community	**Retail and Services**	**Industrial**	**Government**	**Total Employment**
Within Urban Growth Boundaries				
Ashland UGB	9,414	1,761	1,644	**12,819**
Central Point UGB	1,844	2,096	689	**4,629**
Eagle Point UGB	549	512	222	**1,284**
Jacksonville UGB	648	271	50	**969**
Medford UGB	50,365	11,737	5,127	**67,229**
Phoenix UGB	987	590	195	**1,772**
Talent UGB	736	477	168	**1,381**
Subtotal	**64,542**	**17,444**	**8,096**	**90,082**
Within Urban Containment Boundaries				**0**
Medford Phoenix UCB	981	2,751	607	**4,340**
White City UCB	736	2,063	456	**3,254**
Subtotal	**1,717**	**4,814**	**1,063**	**7,594**
Other Unincorporated	2,157	6,049	1,336	**9,542**
Total	**68,417**	**28,307**	**10,494**	**107,218**

Source: ECONorthwest.
Note: Estimated using confidential employer records from the Oregon Employment Department and the ratio of covered to total employment by sector shown in Table 4-1.

PROJECTION OF TOTAL EMPLOYMENT

The review of historical trends and expected growth of population and employment in Chapter 2 shows several indicators of future employment growth in the Bear Creek Valley:

- Population in the Bear Creek Valley grew at an average annual rate of 1.7% between 1980 and 2005, which was faster than the rate in Jackson County, Oregon or the U.S.
- Total covered employment in Jackson County grew at an average annual rate of 2.8% between 1980 and 2000, compared to only 1.6% for population growth in the State over the same period.
- The ratio of total employment to population in Jackson County grew from 0.45 in 1980 to 0.56 in 2000. Increased labor force participation by women, more workers with several part-time jobs, and workers commuting in from areas outside of Jackson County are the most likely reasons for this shift. We expect the ratio of jobs to population to decline

slightly over the forecast period due primarily to an aging population in the region.

- The current ratio of total employment to population in the Bear Creek Valley is approximately 0.68, higher than for the County as a whole. This suggests that the Bear Creek Valley has more workers who commute in from outside the region than it has residents that work outside of the region. We expect the ratio of employment to population in the Bear Creek Valley to fall as increased population growth allows more of the Valley's workers to live inside the region.

- The State of Oregon's Office of Economic Analysis projects that population in Jackson County will grow at an average annual rate of 1.4% between 2005 and 2025, faster than the 1.2% annual growth rate projected for Oregon as a whole over the same period.

- The Oregon Employment Department projects that total covered employment in Jackson and Josephine County combined will grow at an average annual rate of 1.8% between 2004 and 2014.

- Given our expectation that the ratio of jobs to population in Jackson County and the Bear Creek Valley will fall over the forecast period, employment will have to grow at a rate less than population. With a 1.7% rate of population growth in the Bear Creek Valley over the forecast period, this suggests that total employment will grow at an average annual rate of 1.5% over the forecast period.

Table 4-3 shows the result of applying the assumed employment growth rate to total employment in the Bear Creek Valley. An average annual growth rate of 1.5% results in total employment in the Bear Creek Valley increasing from 110,459 in 2006 to 148,772 in 2026, an increase of 38,313 jobs over the twenty-year forecast period. Consistent with OEA population forecasts, ECO assumed that the rate of employment growth will slow to 1.1% annually after 2026. Over the fifty-year period between 2006 and 2056, the forecast results in an increase in employment of 96,106 jobs.

Table 4-3. Total employment in the Bear Creek Valley, 2005–2056

Year	Total Employment
2006	110,459
2011	118,996
2016	128,192
2021	138,099
2026	148,772
2036	165,971
2046	185,159
2056	206,565
2006-2026	
Growth	38,313
% Growth	35%
AAGR	1.5%
2006-2056	
Growth	96,106
% Growth	87%
AAGR	1.3%

Source: ECONorthwest.

ALLOCATION OF EMPLOYMENT BY LAND-USE TYPE

One of the purposes of the regional EOA is to estimate the future distribution of employment by land use type This section takes the regional employment forecast and allocates it by land use type. This step, in turn, allows an estimate of land needed for industrial and other employment over the planning period.

The location needs of firms in various sectors of the economy will affect the distribution of employment within the Valley. Key **location factors** for businesses that are likely to generate employment growth in the Valley include the following:

- Small manufacturers, professionals, and entrepreneurs are attracted to communities with quality of life.
- Access to shipping services is critical for many businesses in Manufacturing and Services.
- Retail trade, banking, real estate, insurance, and similar services for the local market will grow and locate along with population.
- Growth in Business Services and Health Services will concentrate in the larger urban areas of the Valley.
- The availability of suitable sites is crucial for businesses with special site needs such as a large parcel, vehicular access, railroad access, visibility, separation from other uses, or high utility demands. Some of these

businesses will be in Retail Trade, Services, or institutions that are tied to the local market; these uses will compete for key sites in the region. Some of the firms with special site needs will be in Manufacturing, Services, and Wholesale Trade businesses that are not tied to the region; the availability of suitable sites can attract or retain these businesses, and the lack of suitable sites may cause them to avoid or leave the Valley.

As these factors show, the pattern of population growth and the availability of buildable land in the Bear Creek Valley will have an effect on the distribution of employment growth in the region.

POTENTIAL GROWTH INDUSTRIES

Chapter 2 reviews historical growth trends by industry in Jackson County since 1980. While all sectors of the economy in the County experienced growth over this period, some sectors grew faster than others, resulting in a shift in the distribution of employment by sector. Key **historical trends** include:

- A substantial increase in the share of employment in Services, which increased from 17% to 28% of total employment.
- A small increase in the share of employment in Retail Trade, from 23% to 26%.
- A decline in the share of employment in Government, which fell from 21% to 14% of total employment.
- A decline in the share of employment in Manufacturing, which fell from 18% to 13% of total employment.

Together, these sectors represent about 80% of employment in the County. Other sectors of the County's economy have a relatively stable and small share of the County's employment. Since the Bear Creek Valley has a substantial share of the County's employment, trends for the County apply to the Valley as well.

Historical employment trends show a substantial shift in the Valley's economy that mirrored shifts in the State and national economies, specifically the substantial growth in Services and decline of Manufacturing. While we expect these trends to continue into the future, we do not expect **future shifts** to be as dramatic as those experienced over the past twenty years. There are several reasons for this expectation (e.g., that the future will be somewhat different that the past):

- Growth in the Services sector has matured and should track more closely with overall employment growth rather than continuing to gain a substantial share of total employment.
- The decline in Manufacturing was primarily due to decreased timber harvests and the outsourcing of production to facilities in countries with lower costs. ECO expects timber harvests to level off and increase in the

future as commercial forests that were replanted since the 1970s grow to a harvestable size. While outsourcing will continue, much of what can be outsourced has already gone. Remaining Manufacturing firms are tied to their region to be near supplies or markets, or manufacture specialized goods were small production quantities, fast turn-around times, and the need for quality limit the ability to outsource.

- Jackson County and the Valley had a relatively large share of employment in Government in 1980 due to the presence of SOU and employment in the Forest Service in an otherwise small economy. Growth of employment at SOU has not kept pace with the rest of the economy, and a reduction in the number of Forest Service employees limited the growth of Federal Government. We expect Government to retain a relatively stable share of the Valley's employment in the future as population growth drives growth in Local Government jobs in schools, police and fire services, public works, planning, and other functions.

Table 4-4 shows the result of applying these assumptions to the level of total employment growth ECO projects in the Bear Creek Valley. Table 4-4 shows that growth will be led by jobs in Retail & Services, which will add over 25,000 jobs between 2006 and 2026. Industrial will add nearly 9,000 jobs and Government employment will add nearly 4,000 jobs during the 2006-2026 period.

Table 4-4. Distribution of employment by land use type in the Bear Creek Valley, 2006-2026 and 2006-2056

							Growth			
Land Use Type	**2006**		**2026**		**2056**		**2006-2026**		**2006-2056**	
Retail & Services	74,008	67%	99,677	67%	138,399	67%	25,669	67%	64,391	67%
Industrial	25,406	23%	34,218	23%	47,510	23%	8,812	23%	22,104	23%
Government	11,046	10%	14,877	10%	20,657	10%	3,831	10%	9,611	10%
Total	**110,459**	**100%**	**148,772**	**100%**	**206,565**	**100%**	**38,313**	**100%**	**96,106**	**100%**

Source: ECONorthwest.

COMPARATIVE ADVANTAGES OF COMMUNITIES IN THE BEAR CREEK VALLEY

The existing distribution of employment by community in the Bear Creek Valley reflects the comparative advantages of each community and their effect on the location decisions of businesses in the region. Thus a review of the existing distribution of employment in the region can help inform judgments about the distribution of future employment growth inn the region.

Table 4-2 shows the amount of employment by community in the Bear Creek Valley, with employment summarized into three land use types: Retail and Services, Industrial, and Government. Table 4-5 shows the distribution of employment by community in the Bear Creek Valley in 2004.

Table 4-5. Distribution of employment by land use type by community in the Bear Creek Valley, 2004

Community	Employment Land Use Type: Retail and Services	Industrial	Government	Total Employment
Within Urban Growth Boundaries				
Ashland UGB	14%	6%	16%	12%
Central Point UGB	3%	7%	7%	4%
Eagle Point UGB	1%	2%	2%	1%
Jacksonville UGB	1%	1%	0%	1%
Medford UGB	74%	41%	49%	63%
Phoenix UGB	1%	2%	2%	2%
Talent UGB	1%	2%	2%	1%
Subtotal	**94%**	**62%**	**77%**	**84%**
Within Urban Containment Boundaries				
Medford/Phoenix UCB	1%	10%	6%	5%
White City UCB	3%	7%	4%	3%
Subtotal	**3%**	**17%**	**10%**	**7%**
Other Unincorporated	**3%**	**21%**	**31%**	**9%**
Total	**100%**	**100%**	**100%**	**100%**

Source: ECONorthwest, from confidential employer records provided by the Oregon Employment Department.

The distribution of employment shown in Tables 4-5 shows several important characteristics that may be reflected in the pattern of future employment growth in the region.

- Table 4-5 shows that Medford has 63% of the region’s total employment. Medford has a larger share of the region’s Retail and Services employment and smaller shares of the region’s Industrial and Government employment.

- Ashland is the region’s second-largest employment center, with 13% of the total employment in 2004.

- Retail and Services employment compose over 2/3 of total employment in the region and in the communities of Medford, Ashland, and Jacksonville. Retail and Services employment in other communities is in the range of 40% to 56% of total employment except in White City, where Retail and Services are only 23% of total employment.

- Almost 2/3 of employment in White City is Industrial, a higher concentration than any other community in the Bear Creek Valley. White City has only 3% of total employment in the region but 7% of the region’s Industrial employment.

- Central Point, Eagle Point, Jacksonville, Phoenix, and Talent all have a larger share of their employment in Industrial jobs than the region as a whole. Central Point has 4% of the region's total employment and 7% of the region's Industrial employment.

DEMAND FOR EMPLOYMENT LAND

Employment growth in the Bear Creek Valley will drive demand for industrial, commercial, and public land. To estimate the demand for land generated by employment growth, ECO used factors for the number of employees per acre for each of the three land use types used in the employment forecast. ECO began this step by making a 15% deduction from total new employment (we refer to this as the "refill" assumption). This deduction accounts for:

- **Percent of total employment growth that requires no commercial or industrial built space or land.** Some new employment will occur outside commercial and industrial built space or land. For example, some construction contractors may work out of their homes, with no need for a shop or office space on non-residential land.
- **Percent of employment growth on non-residential developed land currently developed.** Some employment growth will be accommodated on existing developed or redeveloped land, as when an existing firm adds employees without expanding space.

The next assumption needed to estimate non-residential land need is employees per acre (EPA). This variable is defined as the number of employees per acre on non-residential land that is developed to accommodate employment growth. There are few empirical studies of the number of employees per acre, and these studies report a wide range of results. Ultimately the employees/acre assumptions reflect a judgment about average densities and typically reflect a desire for increased density of development. High and low EPA assumptions were used to reflect the high level of variation that exists in employment densities. The final assumption is a net to gross factor. The EPA assumptions are employees per *net* acre (e.g., acres that are in tax lots). As land gets divided and developed, some of the land goes for right-of-way and other public uses. The net to gross factor varies by land use, but 20% is a typical value seen in employment lands.

Recognizing that there is a lot of variability in employment densities and that the percent of "refill" could vary, ECO developed three land need scenarios that build from the employment forecast. Table 4-6 summarizes the assumptions used for the baseline estimates of land needed for industrial and other employment land. The assumptions are consistent with the discussion above. The employee per acre (EPA) assumptions are based on guidelines described in DLCD's *Industrial and Other Employment Lands Guidebook*.

Table 4-6. Summary of baseline assumptions

Assumption	Scenario: Low Density	Medium Density	High Density
Percent of employment that will require no new land	90%	85%	80%
Total Employment Change			
2006-2026	38,313	38,313	38,313
2006-2056	96,106	96,106	96,106
Employment allocated to land base			
2006-2026	34,482	32,566	30,650
2006-2056	86,495	81,690	76,885
Employee Per Acre Assumptions			
Retail/Services	18	20	22
Industrial	10	12	14
Public	8	10	12
Net to Gross Factor	25%	20%	15%

Table 4-7 shows ECO's baseline land needs estimates for industrial and other employment. The medium density scenario indicates that the greater Bear Creek Valley will need about 2,551 gross acres for the 2006-2026 period. Total land demand for the 2006-2056 period under the medium density scenario is estimated at 6,399 gross acres.

Table 4-7. Baseline estimate of Industrial and Other Employment land demand (gross acres), Bear Creek Valley, 2006–2026 and 2006-2056

Land Use Type	Gross Acres by Scenario: Low Density	Medium Density	High Density
2006-2026			
Retail & Services	1,616	1,364	1,167
Industrial	999	780	629
Government	543	407	319
2006-2026 Total	**3,158**	**2,551**	**2,116**
2006-2056			
Retail & Services	4,054	3,421	2,927
Industrial	2,505	1,957	1,579
Government	1,362	1,021	801
2006-2056 Total	**7,921**	**6,399**	**5,307**

Source: ECONorthwest.
EPA – Employees per acre

SITE NEEDS

Firms wanting to expand or locate in the Bear Creek Valley will be looking for a variety of site and building characteristics, depending on the industry and specific circumstances. Previous research conducted by ECO has found that while there are always specific criteria that change from firm to firm, many firms share at least a few common site criteria. In general, all firms need sites that are relatively flat, free of natural or regulatory constraints on development, with good transportation access and adequate public services. The exact amount, quality, and relative importance of these factors vary among different types of firms. This section discusses the site requirements for firms in industries with growth potential in southern Oregon.

The site requirements discussed below will be important for the region to consider not only for expected growth sectors, but they are also important factors in the successful development of the site identified as industrial lands of statewide significance.

Employment growth in the Bear Creek Valley is expected in the each of the categories defined by type of land use: Retail and Services, Industrial, and Government. There are a wide variety of firms within each of these categories, and the required site and building characteristics for these firms range widely. As such, a variety of parcel sizes, building types, and land use designations in the Bear Creek Valley are required to accommodate expected growth.

Table 4-8 summarizes the lot sizes typically needed for firms in selected industries with growth potential in southern Oregon. The emphasis in Table 4-8 is on new large firms that have the most potential to generate employment growth. For example, while the number of convenience stores in the region is likely to grow, the site needs for these stores is not included in Table 4-8 because they are unlikely to generate substantial employment growth. Large food stores, which are typically 50,000 to 100,000 sq. ft. in size, are more likely to generate substantial employment growth in the region, and these stores require sites of 5 to 10 acres.

Table 4-8. Typical lot size requirements for firms in selected industries

Industry	Lot Size (acres)
Manufacturing	
Printing & Publishing	5 - 10
Stone, Clay & Glass	10 - 20
Fabricated Metals	10 - 20
Industrial Machinery	10 - 20
Electronics - Fab Plants	50 - 100
Electronics - Other	10 - 30
Transportation Equipment	10 - 30
Transportation & Wholesale Trade	
Trucking & Warehousing	varies
Retail Trade	
General Merchandise & Food Stores	5-10
Eating & Drinking Places	0.5-5
FIRE & Services	
Non-Depository Institutions	1 - 5
Business Services	1 - 5
Health Services	1 - 10
Engineering & Management	1 - 5

Source: ECONorthwest.

More specific site needs and locational issues for firms in potential growth industries include the following issues:

- **Flat sites:** Flat topography (slopes with grades below 10%) is needed by almost all firms in every industry except for small Office and Commercial firms that could be accommodated in small structures built on sloped sites. Flat sites are particularly important for Industrial firms in manufacturing, trucking, and warehousing, since these firms strongly prefer to locate all of their production activity on one level with loading dock access for heavy trucks.

- **Parcel configuration and parking:** Large Industrial and Commercial firms that require on-site parking or truck access are attracted to sites that offer adequate flexibility in site circulation and building layout. Parking ratios of 0.5 to 2 spaces per 1,000 square feet for Industrial and 2 to 3 spaces per 1,000 square feet for Commercial are typical ratios for these firms. In general rectangular sites are preferred, with a parcel width of at least 200-feet and length that is at least two times the width for build-to-suit sites. Parcel width of at least 400 feet is desired for flexible industrial/business park developments and the largest Commercial users.

- **Soil type:** Soil stability and ground vibration characteristics are fairly important considerations for some highly specialized manufacturing processes, such as microchip fabrications. Otherwise soil types are not very important for Commercial, Office, or Industrial firms—provided that drainage is not a major issue.

- **Road transportation:** All firms are heavily dependent upon surface transportation for efficient movement of goods, customers, and workers. Access to an adequate highway and arterial roadway network is needed for all industries. Close proximity to a highway or arterial roadway is critical for firms that generate a large volume of truck or auto trips or firms that rely on visibility from passing traffic to help generate business. This need for proximity explains much of the highway strip development prevalent in urban areas today.

- **Rail Transportation**: Rail access can be very important to certain types of heavy industries. The region has good rail access to many industrial sites.

- **Air transportation:** Proximity to air transportation is important for some firms engaged in manufacturing, finance, or business services.

- **Transit:** Transit access is most important for businesses in Health Services, which has a high density of jobs and consumer activity, and serves segments of the population without access to an automobile.

- **Pedestrian and bicycle facilities:** The ability for workers to access amenities and support services such as retail, banking, and recreation areas by foot or bike is increasingly important to employers, particularly those with high-wage professional jobs. The need for safe and efficient bicycle and pedestrian networks will prove their importance overtime as support services and neighborhoods are developed adjacent to employment centers.

- **Labor force.** Firms are looking at reducing their workforce risk, that is, employers want to be assured of an adequate labor pool with the skills and qualities most attractive to that industry. Communities can address this concern with adequate education and training of its populace. Firms also review turnover rates, productivity levels, types and amount of skilled workers for their industry in the area, management recruitment, and other labor force issues in a potential site area.

- **Amenities.** According to the International Economic Development Council[11], attracting and retaining skilled workers requires that firms seek out places offering a high quality of life that is vibrant and exciting for a wide range of people and lifestyles.

- **Fiber optics and telephone:** Most if not all industries expect access to multiple phone lines, a full range of telecommunication services, and high-speed internet communications.

[11] International Economic Development Council. "Economic Development Reference Guide," http://www.iedconline.org/hotlinks/SiteSel.html. 10/25/02.

- **Potable water:** Potable water needs range from domestic levels to 1,000,000 gallons or more per day for some manufacturing firms. However, emerging technologies are allowing manufacturers to rely on recycled water with limited on-site water storage and filter treatment. The demand for water for fire suppression also varies widely.

- **Power requirements:** Electricity power requirements range from redundant (uninterrupted, multi-sourced supply) 115 kva to 230 kva. Average daily power demand (as measured in kilowatt hours) generally ranges from approximately 5,000 kwh for small business service operations to 30,000 kwh for very large manufacturing operations. The highest power requirements are associated with manufacturing firms, particularly fabricated metal and electronics. For comparison, the typical household requires 2,500 kwh per day.

- **Land use buffers:** According to the public officials and developers/brokers ECO has interviewed, Industrial areas have operational characteristics that do not blend as well with residential land uses as they do with Office and Commercial areas. Generally, as the function of industrial use intensifies (e.g., heavy manufacturing) so to does the importance of buffering to mitigate impacts of noise, odors, traffic, and 24-hour 7-day week operations. Adequate buffers may consist of vegetation, landscaped swales, roadways, and public use parks/recreation areas. Depending upon the industrial use and site topography, site buffers range from approximately 50 to 100 feet. Selected commercial office, retail, lodging and mixed-use (e.g., apartments or office over retail) activities are becoming acceptable adjacent uses to light industrial areas.

In summary, there is a wide range of site requirements for firms in industries with potential for growth in the Bear Creek Valley. While firms in all industries rely on efficient transportation access and basic water, sewer and power infrastructure, they have varying need for parcel size, slope, configuration, and buffer treatments. Transit, pedestrian and bicycle access are needed for commuting, recreation and access to support amenities.

One way of looking at site needs is to assume the structure future employment will be more or less like the past. Table 4-9 shows the distribution of employment by firm size in Jackson County for 2004. In 2004, 22 employers with 250 or more employees accounted for 16% of employment in the region. About 76% of the firms had fewer than 25 employees and accounted for 38% of total employment. The employment forecasts presented in the previous section indicate that the Bear Creek Valley will add 38,000 new jobs over the 2006-2026 period.

Table 4-9. Distribution of employment by firm size, Jackson County, 2004

Number of Employees	Number of Firms	Percent of Firms	Total Employment	Percent of Employment
1-9	5,126	76%	13,765	18%
10-24	979	15%	15,395	20%
25-49	391	6%	13,564	18%
50-99	157	2%	11,158	14%
100-249	75	1%	11,022	14%
>250	22	0%	12,588	16%
Total	**6,750**	**100%**	**77,493**	**100%**

Source: Oregon Employment Department, analysis by ECONorthwest

Table 4-10 shows the distribution of developed industrial and other employment lands by plan designation and lot size. Data from the buildable lands inventory indicate that the largest industrial site in the region is less than 50 acres. Thus, even large employers in the region are using relatively small sites.

Table 4-10. Distribution of developed industrial and other employment by plan designation and lot size, Bear Creek Valley, 2006

	Lot Size (Gross Buildable Acres)									
Plan Designation	**<0.25**	**0.25-0.49**	**0.50-0.99**	**1.00-1.99**	**2.00-4.99**	**5.00-9.99**	**10.00-19.99**	**20.00-50.00**	**50+**	**Total**
Number of Tax Lots										
Business Park		3	1	2						6
Commercial	1,797	696	361	244	162	36	20	8	1	3,325
Industrial	353	241	259	206	173	48	20	15	8	1,323
Mixed Use	6	15	4	11	13	3	1			53
Total	**2,156**	**955**	**625**	**463**	**348**	**87**	**41**	**23**	**9**	**4,707**
Percent of tax lots	3.1%	1.5%	31.6%	19.7%	21.3%	9.9%	5.9%	5.4%	1.6%	100.0%

Source: SmartMap.org; analysis by ECONorthwest

Several factors complicate this analysis. First, not every employer requires a separate site. Many types of employment—especially retail uses—cluster on sites with similar uses. The data in Tables 4-9 and 4-10 indicate the ratio of firms to developed sites in the Bear Creek Valley was 1.43. Second, large employers do not necessarily require large sites (and smaller employers do not necessarily require small sites). Office uses in multi-story buildings can easily achieve employment densities of 100 jobs per acre. Conversely, a self-storage unit could have densities as low as one employee per acre or lower.

Table 4-11 provides an estimated distribution of future employers by size, employment density and land needs. ECO used an average ratio of 1.43 firms per site to estimate the number of needed sites by size. The analysis does not distinguish between industrial and other employment types; it is likely that many larger employers (>50 employees) will generally want industrial sites. The results suggest the Bear Creek Valley will need 12-18 sites of 50 acres or larger, and 50-60 sites of 20-50 acres. While the region appears to need a lot of smaller sites, it is likely that many of the smaller uses will co-locate in office buildings or on retail sites. Some may be uses that do not require new buildable land (the analysis in

Table 4-11 assumes that 15% of new employment will not require commercial or industrial land).

Table 4-11. Estimated distribution of future employers by size, density and land need, Bear Creek Valley, 2006-2056

Number of Employees	Est # of Firms	Est. Emp 2006-2056	Sites Needed	Avg. Site Size
1-9	5,404	14,511	3,600-3,800	<1 ac
10-24	1,032	16,229	700-750	1-2 ac
25-49	412	14,299	250-300	2-5 ac
50-99	166	11,763	100-125	5-20 ac
100-249	79	11,619	50-60	20-50 ac
>250	23	13,270	12-18	50+ ac

Source: estimates by ECONorthwest

A final question with respect to site needs is where within the region sites for various employment uses should be designated. In many respects the land use pattern for the region is already defined by existing development. The RPS process, however, has an opportunity to make adjustments to that land use pattern that will be implemented over the next 50 years. ECO uses the same land use categories used for the land supply analysis for this discussion.

- **Retail and Services**. Retail and service uses have a broad range of site needs. Many of these uses, however, serve local populations. Thus, cities should develop tools to ensure that neighborhood retail and service "nodes" exist within a reasonable distance from major residential centers. Some service uses will want to locate in higher density or amenity office locations such as downtowns or office parks. Finally, regional retail uses will want large sites with good auto access and visibility.

  In general, we think that cities can be more selective about where retail and service employers get located. Retail and service structures tend to have a shorter usable life and a higher rate of redevelopment. They also tend to have higher vacancy rates in areas where a lot of vacant land is available. With the exception of regional retail uses, municipalities participating in the RPS process should be responsible for ensuring adequate sites for these uses.

- **Industrial**. As described in this section, industrial uses have a broad range of site needs. In general, major industrial employers will be looking for sites that have good access to transportation (highway and rail), services (water, sewer, etc.), and labor. Thus, sites along the I-5 corridor, as well as other major highways will be attractive to large industry. Sites in the Tolo area as well as White City might be attractive to such employers.

  Smaller industrial uses tend to be much more flexible in their locations and in many respects do not differ substantially from "heavier" retail uses such as automotive repair shops.

- **Government**. Government uses also have a wide range of site needs. Because the amount of new government employment forecast is comparatively small, existing commercial and industrial sites should be able to accommodate these uses.

- **Institutional**. These uses include schools, colleges, hospitals, and related uses. We discuss these separately because some jurisdictions are finding siting such uses problematic. A regional hospital may require a site as large as 100 acres. High schools commonly locate on sites as large as 50 acres. Moreover, institutional uses frequently seek sites in residential areas.

The analysis of site needs suggests that the region has a variety of site needs. ECO identified two additional areas that could meet some of the more specialized site needs in the region: Tolo and South Valley. Each is discussed in greater detail below.

- **Tolo.** The proposed Tolo expansion area is located at the Seven Oaks I-5 Interchange. The proposed expansion area includes a total of 1,539 acres of which 1,307 are proposed for industrial uses and 233 for residential uses.

  The Seven Oaks Interchange is a strategic transportation hub where the Central Oregon & Pacific Railroad (COPR), two State Highways (SR99 and Interstate 5) and various county roads converge. The Central Point Comprehensive Plan cites proximity to the interchange as an opportunity to develop transportation-dependent uses in the area. The area has long been recognized as an Area of Mutual Planning Interest for the City and for Jackson County. The Erickson Air Crane manufacturing facility has operated at the interchange for a decade and there is presently a City-County effort underway to create a truck-train freight transfer site on the north side of Seven Oaks.

  Both Jackson County and Central Point have included Tolo in their long-range Urban Reserve proposals. There is general agreement about the amount and the classification of future urban uses as it involves industrial acreage. The two major categories upon which the County and Central Point agree are the Freight Node (218 acres) and the High Tech Industrial Park (323 acres) totaling ***541*** acres.

  In the Central Point (CP-1B) urban reserve proposal, the City identified 478 acres (45%) for industrial development and another 53 acres (5%) for commercial development totaling ***531*** acres. It is reasonable to assume that the High Tech Industrial Park designation will integrate some commercial uses in it that would be designed to serve the industrial businesses. Continued aggregate mining proposed by Jackson County can be continued outside of the urbanized area of Tolo.

- **South Valley Employment Center.** The proposed South Valley Employment Center expansion area is located near the I-5/Phoenix

Interchange. The proposed South Valley Employment Center includes lands in three separate urban expansion study areas and as proposed would include 315 acres for industrial uses and 50 acres for commercial uses. The proposed South Valley Employment Center includes lands in study area PH-1 (157 acres for industrial), PH-5 (150 acres for industrial and 50 acres for commercial), and PH-9 (8 acres for industrial).

Proposed expansion areas PH-1 and PH-9 are located west of the railroad tracks and has potential for transportation and rail-dependent industries. The proposed designations should take advantage of this opportunity by focusing on rail dependent industries, heavy/light manufacturing, distribution centers, auto and large engine repair centers, etc. Proposed expansion PH-5 is located east of I-5. As proposed, this study area would include a mixture of land designations, including 100 acres for residential and about 150 acres for parks and institutional uses. This area would be appropriate for light manufacturing such as electronic equipment, printing, bindery, furniture, light fabrication, etc. The area could also accommodate research facilities, offices when integral to primary industrial use. Heavy Commercial uses could include theatres, amusement centers, big box retail, wholes sale trade centers, etc.

ECO's regional buildable lands inventory did not identify a large inventory of commercial or industrial sites in the southern portions of the region. Thus, designating the South Valley Center for a mixture of industrial and other employment uses makes sense from a regional perspective.

In closing, it is worth noting that the employment forecasts and site needs analysis in this chapter do not take into account a major increase in employment that could result from the location of one or more large employers in the region during the planning period. Major economic events such as the successful recruitment of a very large employer are very difficult to include in a study of this nature. The implications, however, are relatively predictable: more demand for land (of all types) and public services—and redistribution of regional demand.

Chapter 5 Land Available for Industrial and Other Employment Uses

This chapter presents an inventory of land available for industrial and other employment uses for the Bear Creek Valley. The results are based on analysis of Geographic Information System data provided by the Jackson County GIS Department via SmartMap.org. The chapter begins with a discussion of the inventory methodology, then presents maps and tables summarizing the inventory.

METHODS

As required by OAR 660-009-0015(3), the Economic Opportunities Analysis (EOA) for the Bear Creek Valley includes an estimate of the regional supply of commercial and industrial land. The initial geographic scope of the study is all land designated for commercial or industrial uses inside the Bear Creek Valley Air Quality Management Area (AQMA).

ECO began the land inventory with a tax lot database provided by the Jackson County GIS Department. The tax lot database originated from the Jackson County Assessor and was current as of March 2006. The land inventory builds from the tax lot-level database to estimates of land by plan designation.

The method applied by ECONorthwest resulted in a database structure that facilitates a summary of land supply that can be cross-referenced geographically, by plan designation, and other variables. The steps and sub-steps in the supply inventory are:

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

The next step in the supply inventory was to classify each tax lot into a set of mutually exclusive categories. ECO developed a set of working definitions that specify the rules based on definitions in the revised Goal 9 Rule. As a first step, we classified all tax lots in the UGB into one of the following categories:

- *Vacant land.* OAR 660-009-0005(14) defines vacant land as means a lot or parcel: (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.

- *Undevelopable land.* ECO used a threshold of 2,500 square feet to identify undevelopable land.
- *Developed land.* OAR 660-009-0005(1) defines developed land as non-vacant land that is likely to be redeveloped during the planning period.[12]
- *Public land.* Land that is tax exempt as indicated by property classifications in the 900 series.

The land classifications result in identification of lands that are vacant or partially vacant. The inventory includes all lands identified by the Smartmap GIS data as designated for commercial or industrial uses within the Bear Creek Valley AQMA.

Table 5-1 shows land by generalized plan designation and location within the Bear Creek Valley AQMA. The data indicate the region had about 12,760 acres that are designated for industrial and other employment uses. Of total acres in the AQMA, about 26% are in unincorporated Jackson County and 41% are within the Medford UGB and city limits. The majority of land in incorporated areas is in White City (18% of total acres in the region). The data also show that nearly two-thirds of the employment land base is designated for industrial uses.

[12] This chapter includes an analysis of "redevelopment potential." ECO, however, uses a demand side approach to addressing redevelopment consistent with Demand Task 4 described in DLCD's *Industrial and Other Employment Land Needs Workbook.*

Table 5-1. Land by generalized plan designation, Bear Creek Valley AQMA, 2006

Location	Business Park	Commercial	Industrial	Total	Percent of Total
Acres					
Ashland		65.9		65.9	0.5%
Ashland UGB		98.4		98.4	0.8%
Central Point		192.1	91.2	283.3	2.2%
Central Point UGB		65.0	174.7	239.6	1.9%
Eagle Point	18.5	217.1	57.8	293.4	2.3%
Eagle Point UGB		37.2	14.4	51.6	0.4%
Jacksonville		124.0	18.3	142.3	1.1%
Jacksonville UGB		46.4		46.4	0.4%
Medford		1,790.0	1,710.5	3,500.5	27.4%
Medford UGB		535.3	1,261.5	1,796.9	14.1%
Phoenix		23.6		23.6	0.2%
Phoenix UGB		11.7	117.3	129.0	1.0%
Talent		192.9	61.2	254.1	2.0%
Talent UGB		144.4	27.9	172.3	1.4%
White City		193.5	2,134.2	2,327.8	18.2%
Jackson County		766.8	2,569.5	3,336.3	26.1%
TOTAL ACRES	**18.5**	**4,504.4**	**8,238.4**	**12,761.4**	**100.0%**
Number of Tax Lots					
Ashland		191		191	3.0%
Ashland UGB		32		32	0.5%
Central Point		394	178	572	8.9%
Central Point UGB		27	117	144	2.2%
Eagle Point	10	213	11	234	3.6%
Eagle Point UGB		6	2	8	0.1%
Jacksonville		255	10	265	4.1%
Jacksonville UGB		1		1	0.0%
Medford		2,584	968	3,552	55.0%
Medford UGB		130	220	350	5.4%
Phoenix		7		7	0.1%
Phoenix UGB		4	9	13	0.2%
Talent		233	32	265	4.1%
Talent UGB		43	1	44	0.7%
White City		126	283	409	6.3%
Jackson County		221	150	371	5.7%
TOTAL TAX LOTS	**10**	**4,467**	**1,981**	**6,458**	**100.0%**
Percent of Total					
Acres	0.1%	35.3%	64.6%	100.0%	
Tax Lots	0.2%	69.2%	30.7%	100.0%	

Source: Smartmap.org GIS data; analysis by ECONorthwest

FINDINGS

LAND BY CLASSIFICATION

Table 5-2 shows non-residential land by classification for the Bear Creek Valley AQMA. The data show the Bear Creek Valley has 6,458 tax lots with 12,761 acres designated for industrial and other employment uses. Of these, nearly 700 tax lots with over 3,000 acres are classified as public (tax exempt). Of the 12,761 acres designated for non-residential use, 11 acres with 438 tax lots were classified as undevelopable (less than 2500 in an employment designation). The inventory classified 614 tax lots as vacant with about 3,828 acres. Of these 352 acres were in areas with constraints (wetlands, floodplains, and floodways) leaving about 3,477 unconstrained acres. Map 5-1 shows industrial and other employment land by classification.

Table 5-2. Industrial and other employment land by classification, Bear Creek Valley AQMA, 2006

Classification	Number of Tax Lots	Total Acres	Constrained Acres	Unconstained Acres
Developed	4,707	5,903.4	309.2	5,594.2
Public	699	3,018.7	486.3	2,532.4
Undevelopable	438	11.0	0.0	11.0
Vacant	614	3,828.4	351.8	3,476.6
Total	**6,458**	**12,761.4**	**1,147.3**	**11,614.1**

Source: Smartmarp.org GIS data; analysis by ECONorthwest
Note: Unconstrained means lands that do not have floodway, floodplain, or wetland constraints. Unconstrained lands may still be unbuildable due to a variety of factors that were not considered in this generalized land inventory.

Map 5-1. Non-residential land by classification, Bear Creek Valley AQMA, 2006

Table 5-3 shows vacant, unconstrained employment land by plan designation in the Bear Creek Valley AQMA. The results show that about 74% of all vacant, unconstrained employment land is designated for industrial uses, about 25% for commercial uses, and less than 1% for business park uses. Table 5-3 does not include land in unincorporated areas. Of the 3,476 acres, 2,296 are within designated UGBs or White City.

Table 5-3. Vacant industrial and other employment land by plan designation and location, unconstrained acres, by City, Bear Creek Valley AQMA, 2006

Location	Business Park	Commercial	Industrial	Total
Ashland	0.0	74.1	0.0	74.1
Central Point	0.0	42.8	70.1	112.8
Eagle Point	13.8	18.6	0.0	32.4
Jacksonville	0.0	1.1	0.8	1.9
Medford	0.0	257.7	1,009.5	1,267.2
Phoenix	0.0	52.0	33.0	85.0
Talent	0.0	71.2	22.1	93.3
White City	0.0	52.2	576.6	628.8
Total	**13.8**	**569.6**	**1,712.1**	**2,295.5**

Source: Smartmarp.org GIS data; analysis by ECONorthwest
Note: Table 5-3 does not include lands in incorporated Jackson County

Table 5-4 shows vacant and partially vacant employment land by plan designation and tax lot size in the Bear Creek Valley AQMA. The acreage figures include the only the *vacant, unconstrained* portions of tax lots classified as vacant. The results show that about 35% of vacant tax lots are under one acre in area, and 87% are under five acres in area. In terms of acres, however, 53% of the total land area is in 43 tax lots over 20 acres in size. Most of the tax lots over 20 acres in area are designated for industrial uses.

Table 5-4. Vacant industrial and other employment land by plan designation and tax lot size, Bear Creek Valley AQMA, 2006

Plan Designation	Lot Size (Gross Buildable Acres)									Total
	<0.25	0.25-0.49	0.50-0.99	1.00-1.99	2.00-4.99	5.00-9.99	10.00-19.99	20.00-50.00	50+	
Vacant, Unconstrained Acres										
Business Park			0.6		7.1	6.1				13.8
Commercial	0.2	0.8	52.1	78.8	131.9	104.7	146.7	176.1	53.2	744.3
Industrial	0.3	2.9	84.4	89.8	255.9	298.4	357.4	823.8	805.6	2,718.5
Total	**0.5**	**3.7**	**137.1**	**168.6**	**394.9**	**409.2**	**504.0**	**999.9**	**858.8**	**3,476.6**
Number of Tax Lots										
Business Park			1		2	1				4
Commercial	4	2	74	56	46	16	10	6	1	215
Industrial	15	7	119	65	83	44	26	27	9	395
Total	**19**	**9**	**194**	**121**	**131**	**61**	**36**	**33**	**10**	**614**
Percent of acres	0.0%	0.1%	3.9%	4.8%	11.4%	11.8%	14.5%	28.8%	24.7%	100.0%
Percent of tax lots	3.1%	1.5%	31.6%	19.7%	21.3%	9.9%	5.9%	5.4%	1.6%	100.0%
Average tax lot size	0.0	0.4	0.7	1.4	3.0	6.7	14.0	30.3	85.9	5.7

Source: Smartmarp.org GIS data; analysis by ECONorthwest

Map 5-2 shows vacant employment lands within the Bear Creek Valley AQMA by plan designation.

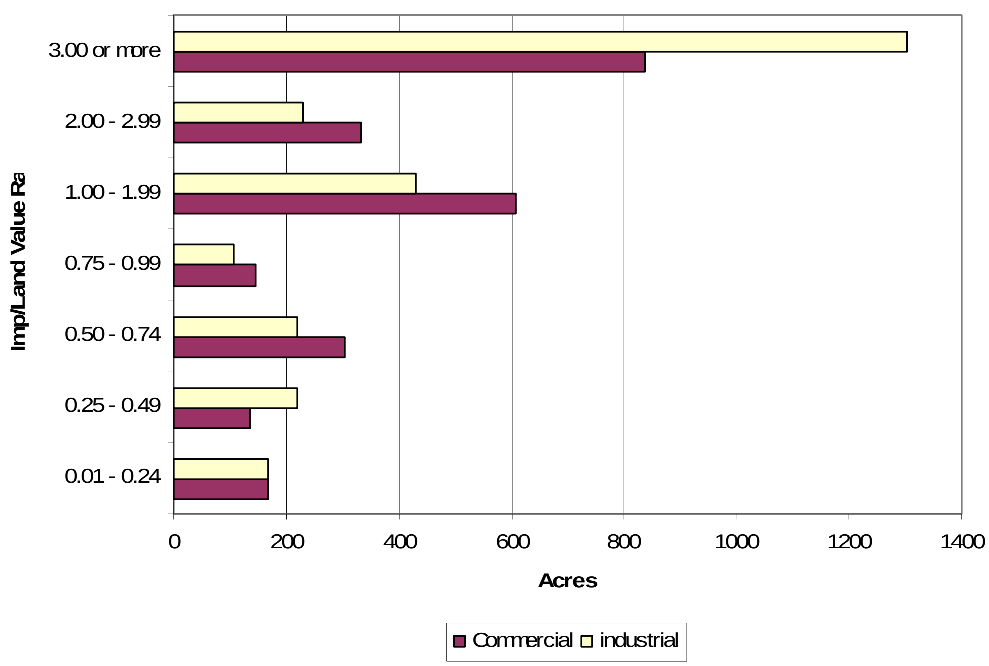
Map 5-2. Vacant land by plan designation, Bear Creek Valley AQMA

REDEVELOPMENT POTENTIAL

Redevelopment potential deals primarily with developed land where the ratio of improvement-to-land value is less than 1:1[13]. Not all, or even a majority of parcels that meet these criteria for redevelopment *potential* will be assumed to redevelop during the planning period. The issue of *how much* land might redevelop over the planning period is discussed in Chapter 6.

As a starting point, ECO plotted the distribution of improvement-to-land-value ratios for all tax lots with commercial and industrial plan designations that classified as developed.[14] Figure 5-1 shows the distribution of improvement-to-land values for developed commercial and industrial land in the Bear Creek Valley. The data show that about 756 commercial acres and 713 industrial acres have improvement-to-land value ratios of less than 1:1. The figure shows that the largest category of land with improvement-to-land value ratios of less than 1:1 is in the 0.50-0.75 category.

Figure 5-1. All developed non-residential parcels by improvement-to-land value ratio, Bear Creek Valley UGB



Source: Smartmarp.org GIS data; analysis by ECONorthwest

Table 5-5 shows a summary of potentially redevelopable parcels by improvement-to-land value ratio in 2006. A ratio of less than 1:1 is a typical, but arbitrary, standard for estimating lands with redevelopment potential. The results show that few industrial parcels have improvement-to-land value ratios of less than 1:1—parcels totaling less than one acre. About 756 acres zoned for

[13] In the context of a buildable lands inventory, we are only interested in redevelopment that increases the density or intensity of use.

[14] Developed parcels include parcels that are fully developed, and the developed portion of partially developed parcels.

commercial uses have improvement-to-land value ratios of less than 1:1, while nearly 713 designated for industrial have improvement-to-land value ratios of less than 1:1.

Table 5-5. Developed employment lands by improvement/ land value ratio and plan designation, Bear Creek Valley AQMA, 2006

Imp/Land Value Ratio	Business Park	Commercial	industrial	Mixed Use	Total
Land with more redevelopment potential					
0.01 - 0.24	0.3	168.7	167.7	14.9	351.7
0.25 - 0.49		136.8	218.7	6.5	362.1
0.50 - 0.74		305.1	219.1		524.2
0.75 - 0.99		146.0	107.9	7.9	261.9
Subtotal	**0.3**	**756.7**	**713.5**	**29.3**	**1,499.8**
Land with less redevelopment potential					
1.00 - 1.99	0.8	607.2	430.6	23.9	1,062.5
2.00 - 2.99	1.3	332.6	230.9	0.6	565.4
3.00 or more		835.9	1,302.2	30.4	2,168.5
No Data	2.3	118.2	476.3	10.4	607.1
Subtotal	**4.4**	**1,893.9**	**2,439.9**	**65.3**	**4,403.6**
Total	**4.7**	**2,650.5**	**3,153.4**	**94.7**	**5,903.4**

Source: Smartmarp.org GIS data; analysis by ECONorthwest

EMPLOYMENT CAPACITY

The final step in the inventory of industrial and other employment lands was to estimate the “holding” capacity of vacant lands. Holding capacity refers to how much employment land could accommodate at some assumed employment density.

ECO used density assumptions consistent with the medium range estimates used in Chapter 4: 20 employees per acre for commercial and 12 employees per acre for industrial.[15] Table 5-6 shows that at the assumed densities, vacant lands could accommodate approximately 32,000 new jobs within UGBs and White City.

A key observation is that 64% of the capacity is on industrial lands. However, Chapter 4 concluded that about 70% of the new employment would be in the retail and service sector.

[15] The land inventory did not include public uses—government employment typically locates on lands designated for commercial or industrial uses (and sometimes residential uses).

Table 5-6. Estimated employment capacity, vacant employment lands, Bear Creek Valley AQMA, 2006

Location	Business Park	Commercial	Industrial	Total
Ashland	-	1,482	-	1,482
Central Point	-	855	841	1,696
Eagle Point	276	371	-	647
Jacksonville	-	22	10	32
Medford	-	5,154	12,114	17,268
Phoenix	-	1,040	396	1,436
Talent	-	1,425	265	1,690
White City	-	1,044	6,919	7,963
Total	**276**	**11,393**	**20,545**	**32,214**

Source: ECONorthwest.

The land supply inventory in this chapter did not include lands under consideration in the Tolo or South Valley Employment Center areas. The Tolo area encompasses 1,307 acres that are proposed for industrial uses, while the South Valley area includes a proposed 315 industrial acres, and 50 commercial acres. Inclusion of these sites would increase the overall employment capacity.

Chapter 6

Implications for the RPS Process

This chapter provides a brief summary of the implications of the economic opportunities needs analysis for the broader Regional Problem Solving process. This study looked at economic trends and land needs from a regional perspective. This chapter includes a general comparison of land supply and demand by jurisdiction. While it presents city-specific data, local jurisdictions may want to refine the analysis—particularly the land inventory.

All the preceding technical work contained in this report has been structured to comply with the Goal 9 requirements for an "Economic Opportunity Analysis." That information and structure is useful to the region for procedural reasons: it provides most of the data that local governments will be needed to assemble to comply with statewide planning requirements.

COMPARISON OF LAND CAPACITY AND DEMAND

This section compares land demand and capacity. The comparison is based on data presented in this chapter and does not consider local policies or economic development strategies that may imply different site requirements and land needs. OAR 660-009-0025(2) requires cities to designate sufficient land in each site category to accommodate, at a minimum, the projected land needs for each category during the 20-year planning period.

The analysis that follows is a *baseline* analysis. It assumes that employment will continue to distribute itself the way it was distributed in 2004. The regional forecasts assume a modest shift towards the service sector (e.g. toward service industries and away from manufacturing industries).

Table 6-1 shows a comparison of land demand and capacity for the Bear Creek Valley AQMA for the period 2006-2026 and the 2006-2056. The results show surplus capacity for the 2006-2026 and an overall deficit for the 2006-2056 period. Considered in aggregate, the region has a surplus of industrial land and deficits of commercial and government land.[16] When all employment types are considered, the region has a surplus land capacity of about 15,000 jobs for the 2006-2026 period and a deficit of about 34,000 jobs for the 2006-2056 period.

[16] It is probable that some government uses (e.g., schools, etc.) will locate on land not designated for employment uses. A more detailed analysis would be required to determine how much government employment will locate on industrial and other employment lands.

Table 6-1. Comparison of land demand and capacity, Bear Creek Valley AQMA, 2006-2026 and 2006-2056

	Employment Land Use Type			
Variable	**Retail and Services**	**Industrial**	**Government**	**Total Employment**
Job Growth				
2006-2026	21,819	7,491	3,256	32,566
2006-2056	54,732	18,789	8,169	81,690
Capacity	15,059	32,677	na	47,736
Surplus (deficit)				
2006-2026	(6,760)	25,186	(3,256)	15,170
2006-2056	(39,673)	13,888	(8,169)	(33,954)

Source: ECONorthwest.

Table 6-2 shows estimated employment capacity for the proposed urban reserve expansion areas. The estimates are based on acreages provided by the RVCOG and the "percent use map" that shows proposed allocations of lands within urban reserve areas. The results show capacity for about 45,000 jobs in the proposed expansion areas using the medium employee per acre assumptions (20 for retail and services, 12 for industrial). These assumptions provide an excess capacity of about 28,000 employees between vacant lands within UGBs and lands proposed for employment uses in urban reserve expansion areas.

The capacity estimates in Table 6-2 include figures for both the Tolo and South Valley Employment Center. The Tolo figures do not include land that is proposed for Central Point to avoid double counting. Similarly, the Phoenix figures do not include lands proposed for the South Valley Employment Center to avoid double counting. The attributes of these two sites were discussed at the end of chapter 4. Both provide land that could accommodate identified site needs in the region. Moreover, the South Valley Employment Center would provide additional capacity in the southern areas of the region—creating opportunities for residents of that area to live closer to work.

Table 6-2. Employment capacity estimate in proposed Urban Reserve expansion areas

	Capacity (jobs)		
URAs	**Commercial**	**Industral**	**Total**
Ashland	-	-	-
Central Point	1,835	5,854	7,688
Eagle Point	6,582	1,837	8,419
Jacksonville	566	529	1,096
Medford	6,514	5,992	12,506
Phoenix[1]	129	40	169
Talent	167	387	554
White City	-	-	-
Tolo[2]	-	9,828	9,828
South Valley	1,000	3,780	4,780
Total	**16,793**	**28,248**	**45,040**

Source: ECONorthwest.
1 Capacity estimates for Phoenix does not include areas proposed for the South Valley Employment Center
2 Capacity estimates for Tolo exclude portions proposed for Central Point

Table 6-3 shows a comparison of demand and capacity under the low-, medium-, and high-density scenarios. The low-density scenario results in a slight deficit of employment capacity over the 50-year planning period, while the medium- and high-density scenarios result in a surplus.

Table 6-3. Employment capacity (in jobs): comparison of low-, medium-, and high-density scenarios

	Density Scenario		
Variable	**Low**	**Medium**	**High**
Job Growth			
2006-2026	34,482	32,566	30,650
2006-2056	86,495	81,690	76,885
Capacity			
UGBs	40,791	47,736	54,697
URAs	38,652	45,040	51,427
Total	79,443	92,776	106,124
Surplus (deficit)			
2006-2026	44,961	60,210	75,474
2006-2056	(7,052)	11,086	29,239

Source: ECONorthwest.

Table 6-4 shows a comparison of land supply and need in terms of acres. The results show a deficit of about 1,251 acres under the low density scenario, a small surplus (271 acres) under the medium density scenario, and a surplus of 1,363 acres under the high density scenario. The comparison does not distinguish between industrial and other employment uses. Site needs are discussed at the end of chapter 4.

Table 6-4. Comparison of land supply and demand (gross acres), Bear Creek Valley, 2006-2026 and 2006-2056

	Scenario		
Variable	**Low Density**	**Medium Density**	**High Density**
Job Growth			
2006-2026	3,158	2,551	2,116
2006-2056	7,921	6,399	5,307
Acres			
UGBs	3,477	3,477	3,477
URAs	3,193	3,193	3,193
Total	6,670	6,670	6,670
Surplus (deficit)			
2006-2026	3,512	4,119	4,554
2006-2056	(1,251)	271	1,363

Source: ECONorthwest.

IMPLICATIONS

The economic opportunities analysis has several implications for the RPS process—and for any participating jurisdiction that is considering a UGB expansion. Following are the key implications:

- **Distribution of growth**. The distribution of growth is an overriding regional issue. Businesses choose locations within a region based on many factors. It is probably reasonable to assume that for most firms and businesses, the decision about a regional location comes first: what state or metropolitan area is most desirable? Having made that choice, businesses then make a more specific (intra-regional) location choice based on some similar, and some different or more detailed, criteria. For example, a business may move to the Rogue Valley primarily for access to the labor pool (and the general quality of life benefits of southern Oregon). But once that decision is made, it then considers things like land availability, cost of services, and taxes can make a difference.

  The RPS process is concerned with the second, more specific type of location decisions. Though the term "jobs-housing balance” implies that one would measure a relationship between housing units and number of jobs, it is more commonly measured as a ratio between the number of jobs in an area and the number of employed residents, the assumption being that a working resident needs (or at least, should have the opportunity to acquire) a job in the jurisdiction in which he or she lives. A ratio of 1.0 implies some theoretical balance in the sense that there is a job for every working resident, or, alternatively, that there is a residence for every worker.

This report provides a baseline allocation of employment that assumes the 2004 distribution of will continue throughout the planning period. This is a reasonable assumption for a baseline assumption, but the regional distribution of employment over the planning period could change for many reasons.

- **Local policy**. Local policy also has an affect on the type and distribution of employment. Beyond the land allocation issue described above, jurisdictions that are looking at UGB expansions will be required under the under Goal 9 to provide a 20-year supply of industrial and other employment land. Moreover, because the Bear Creek Valley is an MPO, 25% of the land must be available as short-term supply.

The Economic Opportunities Analysis suggests that the region will need to plan for a significant amount of new employment—and land to accommodate that employment. The RPS regional plan can address some of the larger issues that pertain to distribution of growth; it will not obviate the need for local municipalities to complete additional analysis to comply with Goal 9.

This document presents a regional Economic Opportunities Analysis. Appropriately, this study used a broad regional approach to the EOA. While the data and analysis included in this contains a lot of data that is useful to municipalities, it is not intended to substitute for a local EOA. A lot of the data needed for a local EOA is provided in this document. Cities that want to prepare local EOAs, however, should consider starting by developing an economic development vision with community input. Moreover, cities may want to conduct refined land supply analyses, develop a more detailed discussion of local comparative advantages, and conduct additional analysis that matches local site needs with the economic development vision. Finally, cities should review and revise economic development policies and implementing ordinances as necessary to implement the economic development vision.

APPENDIX VIII

REGIONAL HOUSING NEEDS ANALYSIS

Bear Creek Valley Regional Problem Solving Project:

Housing Needs Analysis

Prepared for

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Final Report

May 2007

Table of Contents

Executive Summary

This report is part of the larger Bear Creek Valley Regional Problem Solving (RPS) project. It presents a regional housing needs analysis consistent with many of the requirements of statewide planning Goal 10 and ORS 197.296. It includes a 20-year and 50-year forecast of housing needs for the Bear Creek Valley and three subregions within the valley. This study is intended to provide technical information for the regional growth management strategy. It does *not* provide Goal 10 compliant housing needs analyses for the participating municipalities.

FINDINGS

Table S-1 shows forecast population for the greater Bear Creek Valley and three subareas between 2006 and 2056. The regional population forecast is for population to increase from 160,376 in 2006, to 226,200 in 2026, and 331,369 in 2056. The forecasts assume that the rate of population growth will slow in the latter portions of the forecasting period (after 2030).

Table S-1. Population forecast, Bear Creek Valley, 2006-2056

Year	South Valley	Central Valley	North Valley	Total
2006	36,985	106,748	16,642	160,376
2026	49,126	150,694	26,400	226,220
2056	67,794	220,020	43,855	331,669
Change (2006-2026)				
Number	12,141	54,619	9,757	65,844
Percent	33%	51%	59%	41%
AAGR	1.43%	2.09%	2.33%	1.73%
Change (2006-2056)				
Number	30,809	113,272	27,213	171,293
Percent	83%	106%	164%	107%
AAGR	1.22%	1.46%	1.96%	1.46%

Note: the forecasts presented in Table S-1 were developed for the RPS process and are not fully coordinated as required by ORS 195.036.

Key trends that will affect housing need and choice are summarized below:

- *The Bear Creek Valley has an aging population.* The Bear Creek Valley has a higher percentage than Jackson County of people in the following age classes: 50-54 years and 70-74 years. The fastest growing age groups are people aged 45 to 64 and 65 and over. This indicates that retirees or people nearing retirement are moving to Jackson County. The slowest growing groups were people 5 to 17 years and 25 to 44 years.

- *Migration is an important component of the Bear Creek Valley recent growth and will continue to be a key factor in future population growth.* In-migration accounted for 87% of population growth in Jackson County between 1990 and 2000. This figure increased to 91% for the 2000-2004 period. Only 44% of the residents of the Bear Creek Valley lived in the same house in 2000 as they did in 1995. Fifteen percent of residents of the Bear Creek Valley lived in a different state and 22% lived in a different county.

- *The Bear Creek Valley is becoming more ethnically diverse*. The Bear Creek Valley's Hispanic/Latino population grew by 114% between 1990 and 2000, compared with 104% growth in Jackson County's Hispanic/Latino population during the same period. The majority of Jackson County's Hispanic/Latino population resides in the Bear Creek Valley.

- *Hispanic/Latino residents have more people per household than non-Hispanic residents.* The average size of a Hispanic/Latino household in 2000 in Jackson County was 3.7 people, compared with 2.48 people in non-Hispanic households. Household sizes in the Bear Creek Valley were similar in size to Jackson County.

- *Housing types are trending towards larger units on smaller lots.* Between 1994 and 2004 the median size of new single-family dwellings increased 14%, from 1,900 sq. ft. to 2,169 sq. ft. nationally and 17% in the western region from 1,810 sq. ft. to 2,126 sq. ft. Between 1994 and 2004 the percentage of lots under 7,000 sq. ft. increased 6% from 29% of lots to 35% of lots. A corresponding 6% decrease in lots over 11,000 sq. ft. is seen.

- *Since 1990, housing starts in Jackson County have been dominated by single-family types.* The greater Bear Creek Valley had 67,605 dwelling units as of January 1, 2005. About 80% of these dwelling units were single-family housing types (detached, attached, and mobile/ manufactured). The data show that new housing development in the 2000-2004 period was predominately single-family housing types. In fact, only 16% of all building permits issues were for multifamily housing types.

- *Housing prices have increased substantially in the past five years.* According to the Office of Federal Housing Enterprise Oversight, the average sales price of a single-family home in the Medford MSA increased 215% between 2000 and 2006. Table S-2 shows the recorded median sales price of single-family residences by city and year. The results show that median single-family home prices increased in all cities. Of the seven RPS cities, Ashland saw the smallest percentage increase (55%) and Jacksonville saw the largest increase (87%). The dollar figures are more telling—average sales prices increased between $91,100 in Phoenix and $194,000 in Jacksonville. By any measure the sales data show a substantial increase between the end of 2002 and 2005.

Table S-2. Median recorded sales price of single-family residences by city and year, Jackson County, 11/02 – 12/05

	Year				Increase (2002-2005)	
CITY	2002	2003	2004	2005	Dollars	Percent
Median Sales Price						
Ashland	251,000	277,000	315,000	389,000	138,000	55%
Central Point	143,900	156,000	198,000	242,000	98,100	68%
Eagle Point	142,700	139,900	194,000	259,900	117,200	82%
Jacksonville	223,000	269,950	343,667	417,000	194,000	87%
Medford	145,250	161,000	190,000	245,000	99,750	69%
Phoenix	150,900	178,800	195,750	242,000	91,100	60%
Talent	149,900	160,000	181,450	250,000	100,100	67%
Rest of County	125,000	127,555	158,900	201,500	76,500	61%

Source: Jackson County Assessor; analysis by ECONorthwest
Note: includes property classifications 101 – 109, includes sales outside the AQMA

- *Rental rates increased, but not as fast as housing prices.* According to data from Streetrents.com, the average rental rate for a 2-bedroom apartment was $659 in Medford and $673 in Ashland in March 2006. The median contract rent in 1999 for Jackson County was $520; the median gross rent was $597.

As part of the housing needs analysis ECO completed two runs of the HCS housing needs model. The first run used baseline data from the 2000 Census. The Policy Committee expressed concerns that the model output did not reflect recent housing cost increases, so ECO gathered recent sales data and reran the model. The results that follow represent assumptions that reflect the recent housing cost increases.

Table S-2 shows current unmet housing needs as indicated by the HCS model. The results indicate a deficit of more than 8,500 rental units in the under $509 price level. The model output also indicates a deficit of rental units for prices above $1,360. The output shows that 17% of the need is met for $0 - $235 price range, and 44% for the $225 - $509 price range. The model indicates a total unmet rental need of 1,198 units. In other words, as of 2005, the Bear Creek Valley needed 1,198 additional rental units to meet the needs of households that rent or would be predicted to rent based on the expected tenure composite from the model base data. The model also indicates a deficit of 12,665 ownership units at prices less than $167,200.

Table S-2. Current unmet housing needs; Model Run #2, 2006, HCS Model Output

Rental				Ownership			
Rent	**Current Unmet Need / (Surplus)**	**% of Need Met**	**Cumulative Units Needed**	**Price**	**Current Unmet Need / (Surplus)**	**% of Need Met**	**Cumulative Units Needed**
0 - 235	4,339	11.5%	4,339	**<66.9k**	1,816	30.1%	1,816
236 - 509	4,143	35.3%	8,483	**66.9k < 100.3k**	4,747	14.1%	6,562
510 - 784	(348)	105.2%	8,135	**100.3k < 133.7k**	3,549	30.6%	10,111
785 - 1074	(6,752)	231.8%	1,382	**133.7k < 167.2k**	2,545	51.8%	12,655
1075 - 1359	(620)	114.8%	762	**167.2k <250.8k**	(3,285)	134.2%	9,371
1360 +	436	79.6%	1,198	**250.8k +**	(10,359)	204.2%	(989)

Source: Oregon Housing and Community Services Housing Needs Model; output for the Bear Creek Valley
Note: rents and values in 2006 dollars.

The HCS Housing Needs Model also outputs estimates of future housing needs. Table S-3 shows that greater Bear Creek Valley will need 31,633 new dwelling units between 2006 and 2026. The model output shows the following needed housing characteristics:

Table S-3. Future dwelling units needed by type and price, Model Run #2, 2006-2026, greater Bear Creek Valley, HCS Model Output

New Rental Units Needed							
Rent	**Needed Units**	**Single Family Units**	**Manufactd Dwelling Park Units**	**Duplex Units**	**Tri-Quadplex Units**	**5+ Multi-Family Units**	**Total Units**
0 - 235	6,762	1,691	335	543	407	3,787	6,762
236 - 509	7,363	3,765	991	543	692	1,371	7,363
510 - 784	2,347	940	234	234	352	586	2,347
785 - 1074	(4,315)	(1,455)	(367)	(496)	(291)	(1,705)	(4,315)
1075 - 1359	1,328	2,769	(96)	(240)	(144)	(961)	1,328
1360 +	1,428	741	(27)	0	0	714	1,428
Totals	14,912	8,450	1,071	584	1,016	3,792	14,912
Percentage		56.7%	7.2%	3.9%	6.8%	25.4%	100.0%
New Ownership Units Needed							
<66.9k	7,666	5,561	2,105	0	0	0	7,666
66.9k < 100.3k	5,965	5,148	519	300	0	0	5,967
100.3k < 133.7k	5,289	4,702	277	121	0	190	5,289
133.7k < 167.2k	4,522	3,980	(47)	46	46	498	4,523
167.2k <250.8k	1,674	1,865	(482)	0	0	291	1,674
250.8k +	(8,398)	(7,942)	(694)	0	0	238	(8,398)
Totals	16,719	13,315	1,677	467	46	1,217	16,721
Percentage		79.6%	10.0%	2.8%	0.3%	7.3%	100.0%
Total New Rental and Ownership Units							
Totals	31,631	21,765	2,748	1,050	1,061	5,009	31,633
% of Total Units		68.8%	8.7%	3.3%	3.4%	15.8%	100.0%

Source: Oregon Housing and Community Services Housing Needs Model; output for the Bear Creek Valley
Note: rents and values in 2006 dollars.

Table S-4 shows a forecast of needed housing units in the greater Bear Creek Valley for the period 2006-2026 and 2006-2056 (we call this the “midrange” forecast because it uses mid-range assumptions and is one of three scenarios ECO ran). Based on output from the HCS housing needs model presented in the previous section, the assumed residential mix is 57% single-family, 17% manufactured (mobile home), and 25% multiple family (3% condo/townhomes and 22% multi-family). The overall single-family/multifamily split from the HCS model is the same as the baseline forecast. The assumed distribution of housing types was adjusted to reflect output from the HCS model (a higher percentage of manufactured housing units).

The midrange forecast assumes an average density of 6.9 dwelling units per net acre (about 5.6 dwelling units per gross acre). Based on the mix and density assumptions, the greater Bear Creek Valley will need about 5,322 gross residential acres to accommodate new housing between 2006 and 2026. About 13,122 gross residential acres would be required to accommodate new housing between 2006 and 2056. The midrange forecast increases average residential from 6.6 dwelling units per net acre (5.1 gross) to 6.9 dwelling units per net acre (5.6 gross).

Table S-4 shows a summary of the three alternative forecasts of needed housing units. The low density forecast results an average density of 5.1 dwelling units per gross residential acre (6.6 dwelling units per net residential acre). The medium density assumptions increase density to 5.6 dwelling units per gross residential acre (6.9 dwelling units per net residential acre) over the 2006-2056 period—or about 9%. This corresponds to a 9% (1,200 acre) decrease in land needed for housing. The high-density scenario increases density to 6.1 dwelling units per gross residential acre (7.5 dwelling units per net residential acre). This results in an 8% decrease in land need over the medium density assumptions, and a 17% decrease (2,230 acres) over the low density assumptions.

Table S-4. Summary of alternative forecasts of acres needed for housing units, greater Bear Creek Valley, 2006-2026 and 2006-2056

	Low-Density		Medium-Density		High Density	
Housing Type	**Gross Ac**	**Density (DU/ Gross Ac)**	**Gross Ac**	**Density (DU/ Gross Ac)**	**Gross Ac**	**Density (DU/ Gross Ac)**
Acres, 2006-2026						
Single-family	4,626.8	4.2	4,762.2	4.1	4,255.2	4.7
Multi-family	886.5	10.1	560.5	16.0	617.8	13.3
Total	5,513.4	5.1	5,322.6	5.3	4,873.1	5.8
Acres, 2006-2056						
Single-family	12,036.8	4.2	11,269.6	4.5	10,070.0	4.7
Multi-family	2,306.4	10.1	1,853.2	12.6	2,042.9	13.3
Total	14,343.1	5.1	13,122.8	5.6	12,112.9	6.1

Source: ECONorthwest
Note: the results do not include approximately 50 acres needed for group quarters during the 2006-2026 period and 130 acres needed during the 2006-2056 period.

IMPLICATIONS

The housing needs analysis has several implications for the RPS process—and for any participating jurisdiction that is considering a UGB expansion. Following are the key implications:

- *Housing mix.* The housing needs assessment suggests that RPS jurisdictions may have to plan for a different mix of housing than has been built in the recent past. Recent development has trended towards more than 80% single-family housing types. The housing needs assessment implies a regional mix of 75% single-family (including condominiums and townhomes) and 25% multifamily. ECO estimates that 10% to 15% of new housing in the Bear Creek Valley during the 50-year planning period could be in higher density single-family attached (e.g., condominiums and townhomes) housing types.

- *Manufactured housing*. The HCS housing needs model suggests that the region needs a much higher percent of manufactured homes than it has seen in recent development. ECO questions this finding—our research suggests that manufactured housing, while an affordable alternative, is a less attractive option for many households.

- *Increased densities*. The preliminary capacity modeling for the RPS process assumed an average density of 5.4 dwelling units. ECO's need analysis pushes densities to 7.0 dwellings per net residential acre; or between 5.4 and 5.7 dwelling units per gross acre.

- *Housing prices.* The needs analysis found needs at the lower cost and higher cost ends of the range. From a land use perspective, cities need to plan for sufficient land to accommodate identified housing needs.

- *Local policy*. Local policy also has an affect on housing. Beyond the land allocation issue described above, jurisdictions that are looking at UGB expansions will be required under the new Goal 14 to review measures to increase land use efficiency (e.g., densities) within UGBs *prior* to expanding the UGB.

The housing needs analysis suggests that the region will need to plan for a significant amount of new housing—and land to accommodate that housing. The RPS regional plan can address some of the larger issues that pertain to distribution of growth; it will not obviate the need for local municipalities to complete additional analysis to comply with Goal 10.

Introduction

This report is part of the larger Bear Creek Valley Regional Problem Solving (RPS) project. It presents a regional housing needs analysis consistent with many of the requirements of statewide planning Goal 10 and ORS 197.296. It includes a 20-year and 50-year forecast of housing needs for the Bear Creek Valley and three subregions within the valley. This study is intended to provide technical information for the regional growth management strategy. It does *not* provide Goal 10 compliant housing needs analyses for the participating municipalities.

BACKGROUND

The Bear Creek Valley is growing. The County grew by 40% during the 1970's, which slowed to 11% in the 1980s, and then increased again in the 1990s. Most of the growth has occurred in the core I-5 cities (Medford, Phoenix, Central Point, Talent, and Ashland). This growth has a broad range of impacts—it creates employment opportunities, demand for cultural amenities and a broader range of shopping opportunities. Growth also creates congestion, consumes land, and can increase housing prices.

In 1995, the Rogue Valley Council of Governments (RVCOG) responded to a community initiative to establish a regional planning project in Jackson County called OurRegion.[1] The Oregon Legislature passed the Regional Problem Solving (RPS) statute in 1996 (ORS 197.652-658). RPS is intended to provide regions flexibility in addressing growth issues and still comply with statutory requirements.

The foundation of any long-term regional planning process is estimating how much growth will occur. How population and employment are dispersed within a region can make a big difference in how growth impacts the region. This report provides an analysis of housing needs in the Bear Creek Valley and the participating jurisdictions. It takes a regional perspective: in many respects the Bear Creek Valley can be thought of as an integrated housing market.

PURPOSE

The purpose of this technical report is to provide a housing needs analysis for the greater Bear Creek Valley consistent with statewide planning Goal 10. Specifically, this report presents:

- A forecast of population for the Bear Creek Valley;
- A housing needs analysis consistent with Goal 10;

[1] This section is summarized from the RVCOG's Regional Problem Solving website: http://www.rvcog.org/MN.asp?pg=rps_main_page

This study provides a housing needs analysis for the Regional Problem Solving process in the greater Bear Creek Valley. This study is intended to provide technical information for the regional growth management strategy. It does *not* provide Goal 10 compliant analysis for the participating jurisdictions.

Statewide Planning Goal 10 addresses housing in Oregon and provides guidelines for local governments to follow in developing their local comprehensive land use plans and implementing policies. At a minimum, local housing policies must meet the requirements of Goal 10. Goal 10 requires incorporated cities to complete an inventory of buildable residential lands and to encourage the availability of adequate numbers of housing units in price and rent ranges commensurate with the financial capabilities of its households.

Goal 10 defines needed housing types as "housing types determined to meet the need shown for housing within an urban growth boundary at particular price ranges and rent levels." This definition includes government-assisted housing and mobile home or manufactured dwelling parks as provided in ORS 197.303 and ORS 197.475 to 197.490. For communities with populations greater than 2,500 and counties with populations greater than 15,000, needed housing types include (but are not limited to):

- Attached and detached single family housing and multiple-family housing for both owner and renter occupancy; and

- Manufactured homes on individual lots planned and zoned for single-family residential use.

The Bear Creek Valley meets the population threshold for these statutory requirements; Goal 10 requires all incorporated cities to address housing need in their comprehensive plans. The housing needs analysis in this report addresses these housing types.

In 1996, the Oregon legislature passed House Bill 2709 which is now codified as ORS 197.296. Because of its size and growth rate, the greater Bear Creek Valley (and possibly all of the participating municipalities) is required to comply with the provisions of ORS 197.296.

METHODS

ECONorthwest generally followed the methodology described in the DLCD report *Planning for Residential Development*, referred to as the "workbook." The workbook generally describes seven steps in conducting a housing needs analysis:

1. Determine the number of new housing units needed in the next 20 years.

2. Identify relevant national, state, and local demographic trends that will affect the 20-year projection of structure type mix.

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

4. Determine the types of housing that are likely to be affordable to the projected households.

5. Estimate the number of additional new units by structure type.

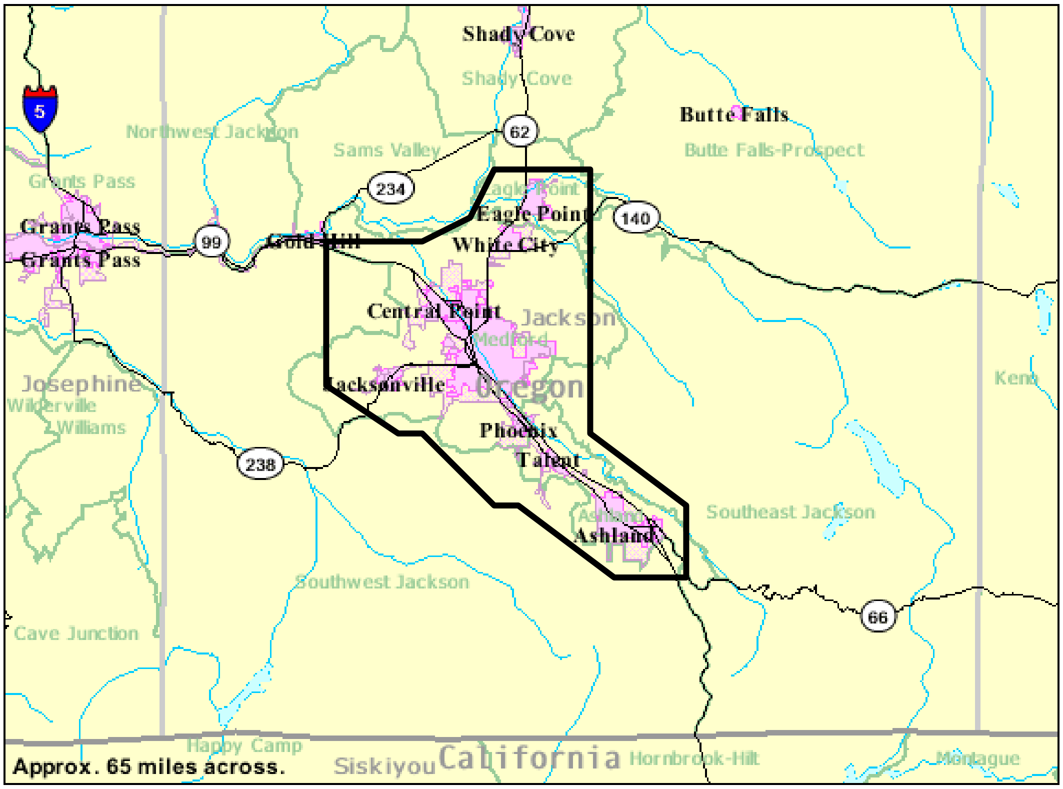
6. Determine the density ranges for all plan designations and the average net density for all structure types.

7. Evaluate unmet housing needs and the housing needs of special populations (Goal 10 needs).

A final issue ECO faced in completing the housing needs analysis was related to geography and standard data sets. The RPS planning area is the Bear Creek Air Quality Management Area (AQMA). All of the jurisdictions participating in the RPS process are fully within the AQMA. The AQMA also includes a lot of land outside municipal boundaries.

None of the standard data sets aggregates data for the AQMA. A lot (not all) of the data required for a housing needs analysis is available at the city or county level. Census data is available at various geographies, including county subdivisions. ECO uses county subdivisions as a proxy for the AQMA for several variables. Figure 1-1 shows the county subdivision boundaries. The AQMA (approximated by the bold line) does not precisely follow the boundaries of the county subdivisions.

Figure 1-1. County subdivision boundaries, RPS planning area



Source: American Factfinder, U.S. Bureau of the Census

ORGANIZATION OF THIS REPORT

The remainder of this report is organized as follows:

- **Chapter 2, Baseline Projection of New Housing Units** relates to step 1 of the Workbook—project the number of new housing units needed in the next 20 years.
- **Chapter 3, National, State, and Local Demographic and Housing Trends**, describes trends that will influence housing in the Bear Creek Valley.
- **Chapter 4, Housing Needs Analysis**, presents a housing needs analysis consistent with Goal 10. It also includes a summary of results from the HCS housing needs model.
- **Chapter 5, Implications for Regional Problem Solving** provides interpretation of the housing results in terms of addressing regional housing issues.

The report also includes an appendix:

- **Appendix A, HCS Housing Needs Model Output** presents a description of the model, and a summary of the HCS model output.
- **Appendix B, City Data** provides data tables for the participating cities.

Chapter 2 Baseline Projection of New Housing Units

This chapter presents a provisional projection of new housing units for the Greater Bear Creek Valley for two time periods: 2006-2026 (a 20-year period), and 2006-2056 (a 50-year period). The baseline project builds from historical data on housing density and mix. In summary, it assumes a continuation of historical trends—trends that reflect housing demand rather than housing need.

NEW DWELLING UNITS NEEDED, 2006-2026 AND 2006-2056

Estimating total new dwelling units needed during the planning period is a relatively straightforward process. Demand for new units is based on the county coordinated population forecast as required by ORS 195.036 and ORS 197.296. Persons in group quarters are then subtracted from total persons to get total persons in households. Total persons in households is divided by persons per household to get occupied dwelling units. Occupied dwelling units are then inflated by a vacancy factor to arrive at total new dwelling units needed.

The following sections step through that logic and describe the basis for the assumptions applied to the estimate of demand for new dwelling units.

POPULATION

Table 2-1 shows forecast population for the greater Bear Creek Valley and three subareas between 2005 and 2056. The regional population forecast is for population to increase from 160,376 in 2006, to 226,200 in 2026, and 331,369 in 2056. The forecasts assume that the rate of population growth will slow in the latter portions of the forecasting period (after 2030).

Table 2-1. Regional population forecast, Greater Bear Creek Valley, 2005-2056

Year	South Valley	Central Valley	North Valley	Total
2005	36,471	104,912	16,259	157,641
2006	36,985	106,748	16,642	160,376
2010	39,126	114,407	18,265	171,798
2015	41,992	124,730	20,504	187,226
2020	45,086	135,947	23,006	204,039
2025	48,426	148,134	25,802	222,362
2026	49,126	150,694	26,400	226,220
2030	52,034	161,367	28,930	242,331
2035	54,732	171,336	31,338	257,407
2040	57,580	181,894	33,946	273,420
2045	60,585	193,073	36,772	290,430
2050	63,756	204,906	39,836	308,498
2055	67,103	217,429	43,158	327,690
2056	67,794	220,020	43,855	331,669
Change (2006-2026)				
Number	12,141	54,619	9,757	65,844
Percent	33%	51%	59%	41%
AAGR	1.43%	2.09%	2.33%	1.73%
Change (2006-2056)				
Number	30,809	113,272	27,213	171,293
Percent	83%	106%	164%	107%
AAGR	1.22%	1.46%	1.96%	1.46%

Source: ECONorthwest, January 2006
Notes: South Valley includes Ashland and Talent; Central Valley includes Central Point, Jacksonville, Medford, and Phoenix; North Valley includes Eagle Point and White City. Unincorporated population was allocated to each region using the following ratios: South Valley – 15%; Central Valley – 50%; North Valley – 35%.
The forecasts presented in Table 2-1 were developed for the RPS process and are not fully coordinated as required by ORS 195.036.

PERSONS IN GROUP QUARTERS

Persons in group quarters do not consume standard housing units: thus, any forecast of new people in group quarters is typically backed out of the population forecast for the purpose of estimating housing demand. Group quarters can have a big influence on housing in cities with colleges (dorms), prisons, or a large elderly population (nursing homes). In general, one assumes that any new requirements for these housing types will be met by institutions (colleges, government agencies, health-care corporations) operating outside what is typically defined as the housing market. Group quarters, however, require land and are typically built at densities that are comparable to multiple-family dwellings.

According to Census data, 3,677 persons resided in group quarters in 2000 in Jackson County. The majority of those people (3,631) resided in group quarters in the three Census county subdivisions ECO used to approximate the AQMA. Of those 3,631, about one-third were in nursing homes, one-quarter in dormitories (SOU), and 32% in other non-institutionalized group quarters. The key area where one would expect changes in group quarters are in nursing homes. Consistent with the overall aging of the population, this analysis expects persons in nursing homes to increase at a faster rate than the overall population.

Approximately 2% of the region's population resided in group quarters in 2000. ECO's evaluation is that persons in correctional facilities will not increase substantially and that persons in non-institutionalized group quarters will not increase substantially. Thus, we assume that 1.5% of the new population added between 2006 and 2026 (and 2006-2056) will be in group quarters. These persons would primarily be persons that reside in nursing homes and related retirement facilities.[2]

AVERAGE HOUSEHOLD SIZE

In the 1980s, traditional families (married couple, with one or more children at home) accounted for 29% of all households in Oregon. In 1990 that percentage had dropped to 25%; which further decreased to 23% in 2000. It will probably continue to fall in the future, but not as dramatically. Moreover, the average household size has decreased over the past five decades and is likely to continue decreasing. The average household size in Oregon was 2.60 in 1980, 2.52 in 1990, and 2.51 in 2000. The direct impact of decreasing household size on housing demand is that smaller households means more households, which means a need for more housing units.

Consistent with national and state trends, household sizes in Jackson County decreased from 2.62 in 1980 to 2.49 in 1990, and 2.48 in 2000. The 1990 and 2000 data show that household sizes are stabilizing. The RVCOG used an average household size assumption of 2.4 persons per household for its Phase I housing capacity analysis.

Further analysis of the Census data shows that household sizes vary by housing type. In 2000, the average household size of single-family dwellings in Jackson County was about 2.5 persons; multifamily units averaged 1.85 persons. For the purpose of this study, ECO assumed an average household size of 2.6 persons for single-family units and of 1.9 for multifamily units. Depending on the assumed mix of housing, this results in an average household size of 2.35 to 2.45. The average household size for the baseline analysis in Table 2-2 is 2.38.

VACANCY RATES

Vacant units are the final variable in the basic housing demand model. Vacancy rates are cyclical and represent the lag between demand and the market's response to demand in additional dwelling units. Analysts consider a 2%-4% vacancy rate typical for single-family units; 4%-6% is typical for multifamily residential markets. According to the Census, Jackson County had an overall vacancy rate of 5.8% in 1980 and 1990. This decreased slightly to 5.6% in 2000.

[2] Note that this only includes retirement "institutions." It does not include active living communities and other non-institutional developments that cater to senior citizens. These facilities are addressed in the estimate of needed housing units.

ECO assumed a vacancy rate of 3% for single-family units and 5% for multifamily units for the purpose of the baseline forecast.

BASELINE FORECAST OF NEW HOUSING UNITS

The preceding analysis leads to a forecast of new housing units likely to be built in Bear Creek Valley for the period 2006-2026 and 2006-2056. Table 2-2 summarizes the analysis. Based on the assumptions shown in Table 2-2, the region will need 28,280 new dwelling units to accommodate population growth between 2006 and 2026 and 73,545 dwelling units to accommodate growth between 2006 and 2056. Consistent with historical housing mix, the baseline forecast assumes 75% will be single-family housing types (single-family detached and manufactured) and 25% will be multifamily.

The forecast of new units does not include dwellings that will be demolished and replaced. This analysis does not factor those units in; it assumes they will be replaced at the same site and will not create demand for residential land.

Table 2-2. Demand for new housing units, Baseline Assumptions Bear Creek Valley, 2006-2026 and 2006-2056

Variable	Baseline Estimate of Housing Units (2006-2026)	Baseline Estimate of Housing Units (2006-2056)
Change in persons, 2006-2026	65,844	171,293
-Change in persons in group quarters	988	2,569
=Persons in households	64,856	168,724
Single-family dwelling units		
Percent single-family DU	75%	75%
Persons in single-family households	48,642	126,543
÷Persons per occupied single family DU	2.60	2.60
New occupied single-family DU	18,709	48,670
Vacancy rate	3.0%	3.0%
Total new single-family DU	19,287	50,176
Multiple family dwelling units		
Percent multiple family DU	25%	25%
Persons in multiple-family households	16,214	42,181
÷Persons per occupied multiple family DU	1.90	1.90
New occupied multiple-family DU	8,534	22,201
Vacancy rate	5.0%	5.0%
New multiple family DU	8,983	23,369
Totals		
=Total new occupied dwelling units	27,242	70,871
Aggregate household size (persons/occupied DU)	2.38	2.38
+ Vacant dwelling units	1,028	2,674
=Total new dwelling units	28,270	73,545
Dwelling units needed annually 2006-2026	1,285	3,343

Source: Calculations by ECONorthwest based on RPS population forecasts and US Census data.
Note: the estimates in Table 2-2 do not include *units* needed for group quarters.

The next step in the process is to develop a forecast of new housing units by type (e.g., single-family, multiple family, manufactured, etc.). It is useful to consider the mix and density of housing types built in the recent past.

The baseline forecast uses data on the mix and density that is reflected by the region's current housing stock. The average density assumptions are roughly consistent with those used in the Phase I RPS capacity analysis.[3] Table 2-3 shows the baseline forecast of new dwelling units and land need by type. The historical residential mix was 63% single-family, 12% manufactured (mobile home), and 25% multiple family. The baseline forecast indicates that Bear Creek Valley will need about 4,286 net residential acres, or about 5,513 gross residential acres to

[3] The report assumed an average density of 5.4 units per acre, but was not explicit on whether the density was net or gross. We assume the Phase I report was presenting densities in *net* residential acres.

accommodate new housing between 2006 and 2026.[4] The acreage requirements are considerably higher for the 2006-2056 period—11,150 net residential acres and 14,343 gross residential acres.

Table 2-3. Baseline forecast of new dwelling units and land need by type, Bear Creek Valley, 2006-2026 and 2006-2056

Housing Type	New DU	Percent	Density (DU/net res ac)	Net Res. Acres	Net to Gross Factor	Gross Res. Acres	Density (DU/gross res ac)
Needed Units, 2006-2026							
Single-family types							
Single-family detached	16,201	63%	5.3	3,056.8	25%	4,075.8	4.0
Manufactured	3,086	12%	7.0	440.8	20%	551.1	5.6
Subtotal	19,287	75%	5.5	3,497.7		4,626.8	4.2
Multi-family							
Condo/Townhomes	1,437	4%	9.0	159.7	15%	187.9	7.7
Multifamily	7,546	21%	12.0	628.8	10%	698.7	10.8
Subtotal	8,983	25%	11.4	788.5		886.5	10.1
Total	**28,270**	**100%**	**6.6**	**4,286.2**		**5,513.4**	**5.1**
Needed Units, 2006-2056							
Single-family types							
Single-family detached	42,148	63%	5.3	7,952.4	25%	10,603.2	4.0
Manufactured	8,028	12%	7.0	1,146.9	20%	1,433.6	5.6
Subtotal	50,176	75%	5.5	9,099.2		12,036.8	4.2
Multi-family							
Condo/Townhomes	3,739	4%	9.0	415.4	15%	488.8	7.7
Multifamily	19,630	21%	12.0	1,635.8	10%	1,817.6	10.8
Subtotal	23,369	25%	11.4	2,051.3		2,306.4	10.1
Total	**73,545**	**100%**	**6.6**	**11,150.5**		**14,343.1**	**5.1**

Source: ECONorthwest
Note: the land need estimates in Table 2-3 do not include land needed for group quarters. Assuming a density of 20 dwelling units per gross acre, about 50 acres would be required to accommodate group quarters in the 2006-2026 period and about 130 acres would be required in the 2006-2056 period.

The baseline forecast does not recognize demographic trends, and policies the County and cities may adopt to encourage a different mix of housing than was built in the past. The second allocation (in the next chapter) represents an alternative simulation of how local policies that address housing need (and are consistent with Goal 10) could affect housing mix (the Alternative Forecast).

[4] A *Gross Vacant Acre* is an acre of vacant land before land has been dedicated for public right-of-way, private streets, or public utility easements. For example, a standard assumption is that about 20% of land in a subdivision is used for streets and utilities: if so, then a gross vacant acre will yield only about 35,000 sq. ft. (80% of a full acre) for lots.

A *Net Vacant Acre* is an acre of vacant land after land has been dedicated for public right-of-way, private streets, or utility easements. A net vacant acre has 43,560 square feet available for construction, because no further street or utility dedications are required: all the land is in lots.

Chapter 3

National, State, and Local Demographic and Housing Trends

This chapter presents data on national, and local demographic and housing trends. The analysis addresses steps 1 and 2 of the housing needs analysis process. Moreover, the analysis provides the foundation for making judgments about how historical housing and demographic trends will affect future housing needs.

STEP 1. IDENTIFY RELEVANT NATIONAL, STATE, AND LOCAL DEMOGRAPHIC AND ECONOMIC TRENDS AND FACTORS THAT MAY AFFECT THE 20-YEAR PROJECTION OF STRUCTURE TYPE MIX

The first step in a housing needs assessment is to identify relevant national, state, and local demographic and economic trends and factors that affect local housing markets. The evaluation that follows is based on previous research conducted by ECONorthwest for other housing needs studies as well as new research to update the evaluation of trends that may affect housing mix. Previous work by ECO and conclusions from *The State of the Nation's Housing, 2005* report from the Joint Center for Housing Studies of Harvard University[5] inform the national, state, and local housing outlook for the next decade. The Joint Center for Housing Studies of Harvard University's *The State of the Nation's Housing, 2005* report summarizes the national housing outlook for the next decade as follows:

> "In 2004, many households rushed to take advantage of still attractive interest rates and buy in advance of potentially higher prices. As a result, homeownership posted an all-time high of 69 percent last year, with households of all ages, races, and ethnicities joining in the home-buying boom.
>
> House prices, residential investment, and home sales all set records again in 2004. But higher short-term interest rates and the strongest one-year price appreciation since 1979 made it more difficult for first-time buyers to break into the market. With low-wage jobs increasing and wages for those jobs stagnating, affordability problems will persist even as strong fundamentals lift the trajectory of residential investment."

While this presents a relatively optimistic outlook for housing markets and for homeownership, it points to the significant difficulties low- and moderate-income households face in finding affordable housing. The following sections describe specific trends in more detail.

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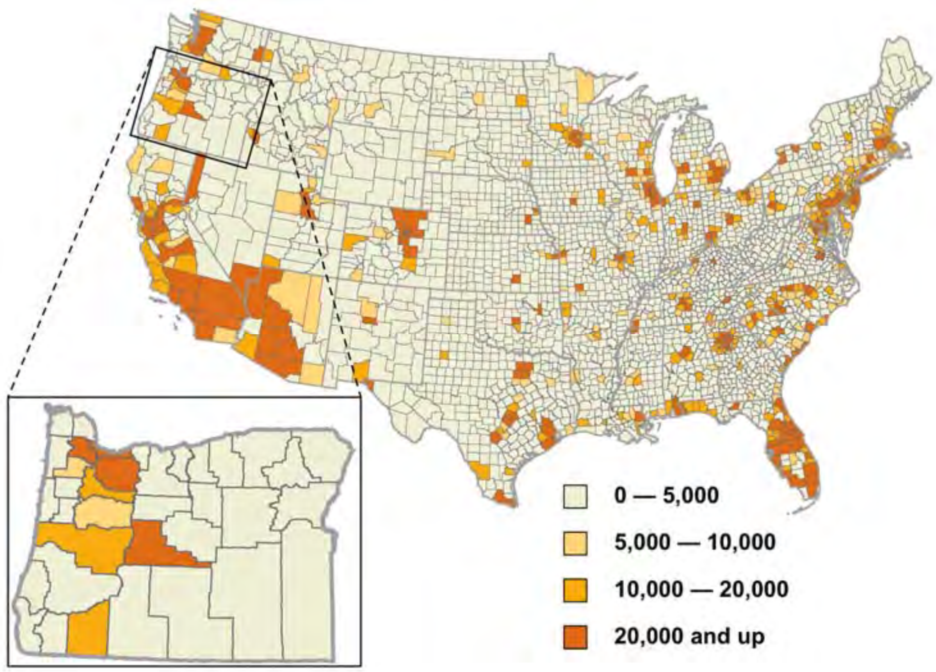
[5] *The State of The Nation's Housing, 2005,* The Joint Center for Housing Studies of Harvard University. Available on-line at http://www.jchs.harvard.edu/publications/markets/son2005/index.html.

Trends in home ownership and demand

In 2004, many households took advantage of still attractive interest rates and to buy in advance of potentially higher prices. As a result, homeownership increased to an all-time high of 69% in 2004, with households of all ages, races, and ethnicities participating in the home-buying boom. House prices, residential investment, and home sales all set records in 2004. Regionally, using housing permits issued as a proxy for new home ownership, Jackson County is among the more robust housing markets in the nation and in Oregon, issuing between 10,000 to 20,000 building permits over the 1994-2003 period (see Figure 3-1).

Figure 3-1. Housing permits issued by county, U.S., 1994-2003



Source: Census Bureau, Construction Statistics, Building Permits by County. As cited in *The State of The Nation's Housing, 2005*, The Joint Center for Housing Studies of Harvard University, p. 9

Demographic trends in home ownership

According to the Joint Center for Housing Studies, an aging population, and of baby boomers in particular, will drive changes in the age distribution of households in all age groups over 55 years. Baby boomers, however, do not appear to be in a rush to downsize. While more than half of the oldest boomers (aged 45 to 54 in 2000) moved during the 1990s, they typically traded up to newer homes with more amenities.

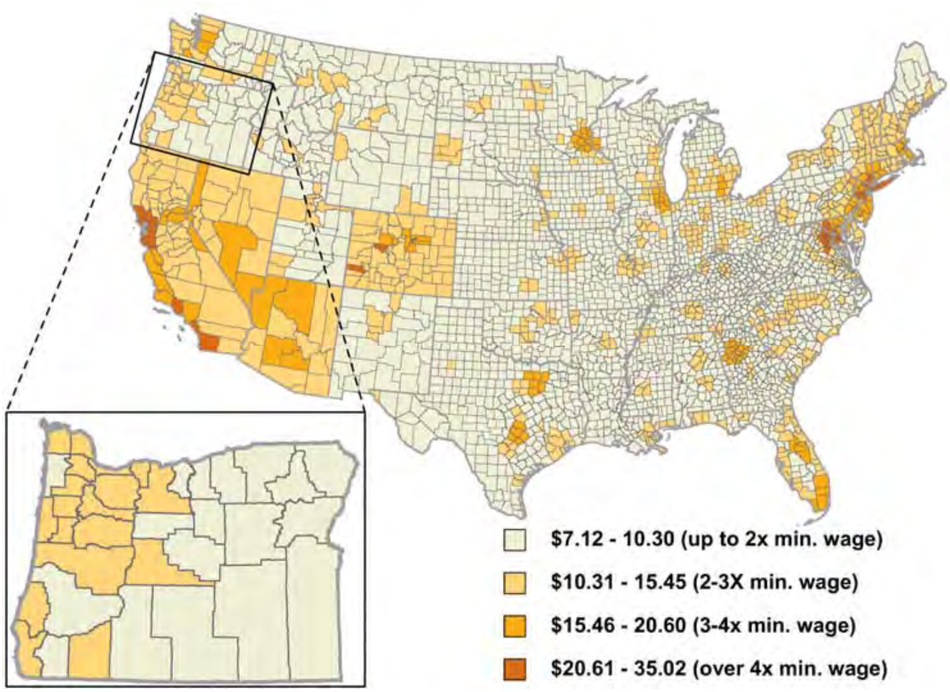
Home rental trends

Over the longer term, the Joint Center for Housing studies expects rental housing demand to grow even if the national homeownership rate continues to increase. Growth in young adult households will increase demand for moderately priced rentals, in part due to the fact that echo boomers will reach their mid-20s after 2010. Meanwhile growth among those between the ages of 45 and 64 will lift demand for higher-end rentals.

Despite only modest increases in rents in recent years, growing shares of low- and moderate-wage workers, as well as seniors with fixed incomes, can no longer afford to rent even a modest two-bedroom apartment anywhere in the country. In 2005, nearly one in three American households spent more than 30% of income on housing, and more than one in eight spent upwards of 50%. The national trend towards increased rent to income ratios is mirrored regionally in that a salary of two to three times minimum wage is needed to afford rents in Jackson County (see Figure 3-2).

According to the Joint Center for Housing Studies, these statistics understate the true magnitude of the affordability problem because they do not capture the tradeoffs people make to hold down their housing costs. For example, these figures exclude the 2.5 million households that live in crowded or structurally inadequate housing units. They also exclude the growing number of households that move to locations distant from work where they can afford to pay for housing, but must spend more for transportation to work. Among households in the lowest expenditure quartile, those living in affordable housing spend an average of $100 more on transportation per month than those who are severely housing cost-burdened. With total average monthly outlays of only $1,000, these extra travel costs amount to 10 percent of the entire household budget.

Figure 3-2. Hourly wages needed to afford rent by county, U.S., 2004



Source: HUD's Fair Market Rents for 2004, based on methodology developed by the National Low Income Housing Coalition. As cited in *The State of The Nation's Housing, 2005*, The Joint Center for Housing Studies of Harvard University, p. 4
Notes: Federal minimum wage in 2004 was $5.15 per hour. Hourly wage needed to afford the Fair Market Rent on a modest 2-bedroom unit assumes paying 30% of income on housing and working 40 hours a week for 52 weeks a year.

Trends in housing affordability

The record breaking housing prices, residential investment, and home sales of 2004 mentioned above, although indicative of strong housing demand nationally, have negative implications for lower income populations and first time home buyers. Higher short-term interest rates and the strongest one-year price appreciation since 1979 made it more difficult for first-time buyers to break into the market. With low-wage jobs increasing and wages for those jobs stagnating, affordability problems will persist even as strong fundamentals lift the trajectory of residential investment. While the Harvard report presents a relatively optimistic outlook for housing markets and for homeownership, it points to the significant difficulties low- and moderate-income households face in finding affordable housing.

Long run trends in home ownership and demand

Aside from modest pullbacks in starts and sales, the current housing boom has lasted for 13 consecutive years. By comparison, the next-longest expansion since 1970 with no significant drop in starts lasted just five years. In addition to record-setting length of this expansion, this is also the first time in postwar history when the housing sector did not lead the economy into recession.

The Joint Center for Housing Studies concludes that the housing boom of the past 13 years has established a momentum that should keep homeownership rates headed higher. If conditions remain favorable and the momentum persists, as many as 11.0 million more households will join the homeowner ranks between 2000 and 2010. While further homeownership gains are likely during this decade, they are not assured. Additional increases depend, in part, on finding ways to ease the difficulties faced by low and moderate income households in purchasing a home. It also rests on whether the conditions that have led to homeownership growth can be sustained.

The unprecedented length and strength of the boom has also created fears that the rate of construction far exceeds long run demand. While averaging more than 1.9 million units annually since 2000, housing starts and manufactured home placements appear to have been roughly in line with household demand. As evidence, the inventory of new homes for sale relative to the rate of home sales was near its lowest level ever. According to the Joint Center for Housing Studies, new home sales would have to retreat by more than a third—and stay there for a year or more—to create anywhere near a buyer's market.

The Joint Center for Housing Studies indicates that demand for new homes could total as many as 20 million units nationally between 2005 and 2015. The vast majority of these homes will be built in lower-density areas where cheaper land is in greater supply. People and jobs have been moving away from central business districts (CBDs) for more than a century: the number of the country's largest metropolitan areas with more than half of their households living at least 10 miles from the CBD has more than tripled from 13 in 1970 to 46 in 2000; in six metropolitan areas more than a fifth of households live at least 30 miles out.

The Joint Center for Housing Studies also indicates that demand for higher density housing types exists among certain demographics. They conclude that because of persistent income disparities, as well as the movement of the echo boomers into young adulthood, housing demand may shift away from single-family detached homes toward more affordable multifamily apartments, town homes, and manufactured homes. Supply-side considerations, however, outweigh these demographic forces.

Long run demographic trends in home ownership

Nationally, the Joint Center for Housing Studies suggests that immigration will play a key role in accelerating household growth over the next 10 years. Between 1991 and 2003, the minority share of first-time homebuyers increased from 22 percent to 35 percent, of new homebuyers from 13 percent to 24 percent, and of home remodelers from 12 percent to 19 percent. The children of immigrants who arrived in the 1980s and 1990s now account for 21 percent of children between the ages of 1 and 10, and 15 percent of those between the ages of 11 and 20. Members of this generation will probably earn more than their parents becoming an even greater source of housing demand in the coming decades.

STEP 2. DESCRIBE THE DEMOGRAPHIC CHARACTERISTICS OF THE POPULATION AND, IF POSSIBLE, HOUSING TRENDS THAT RELATE TO DEMAND FOR DIFFERENT TYPES OF HOUSING

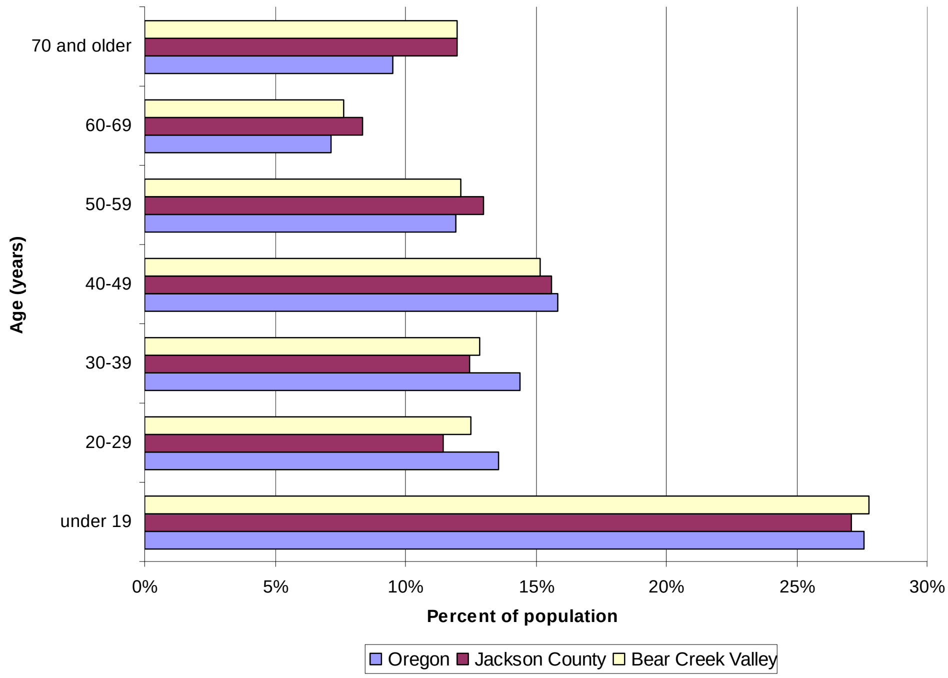
The literature shows that there are statistically significant relationships between certain demographic variables and housing choice. The key variables are age and household type. The broad intent of step 2 is to relate those demographic variables to trends in housing markets to assess demand for different types of housing.

DEMOGRAPHIC TRENDS

This section reviews historical demographic trends in the Bear Creek Valley. Socioeconomic trends provide a broader context for growth in a region; factors such as age, income, migration and other trends show how communities have grown and shape future growth. To provide context, we compare the Bear Creek Valley with Jackson County and Oregon where appropriate. Characteristics such as age and ethnicity are indicators of how population has grown in the past and provide insight into factors that may affect future growth.

Figure 3-3 shows the populations of Oregon, Jackson County, and the Bear Creek Valley by age for 2000. The age distribution is similar for Jackson County and the Bear Creek Valley. The Bear Creek Valley has a greater proportion of its population aged 50 and older than Oregon. The Valley has a comparatively fewer residents aged 20 to 49 than the state.

Figure 3-3. Population distribution by age, Oregon, Jackson County, and the Bear Creek Valley, 2000



Source: U.S. Census, 2000

Table 3-1 shows population by age for Jackson County for 2000 and 2005. The data show that Jackson County grew by 13,096 people between 2000 and 2005, which is a 7% increase. The age breakdown shows that the County experienced an increase in population for every age group. The fastest growing age groups were aged 18 to 24 years and 45 to 64 years. The under 5 years, 5 to 17 years, and 25 to 44 years were the slowest growing groups.

Table 3-1. Population by Age, Jackson County, 2000 and 2005

	2000		2005		Change		
Age Group	**Number**	**Percent**	**Number**	**Percent**	**Number**	**Percent**	**Share**
Under 5	10,880	6%	10,860	6%	(20)	0%	0%
5-17	33,380	18%	33,667	17%	287	1%	-1%
18-24	15,730	9%	18,335	9%	2,605	17%	1%
25-44	46,260	26%	47,980	25%	1,720	4%	-1%
45-64	46,028	25%	52,144	27%	6,116	13%	1%
65 and over	28,991	16%	31,379	16%	2,388	8%	0%
Total	**181,269**	**100%**	**194,365**	**100%**	**13,096**	**7%**	**0%**

Source: U.S. Census, 2000 and Claritas, 2005

Table 3-2 shows Claritas Inc. population forecast by age for Jackson County from 2005 to 2010. The data show that, with the exception of the 5-17 year old group, each age group will experience growth and that groups aged 65 years and older and 45 to 64 years will grow at the fastest rates. The forecast shows that the 5 to 17 year age group will decline.

Table 3-2. Claritas Inc. population projection by age, Jackson County, 2005 and 2010

	2005		2010		Change		
Age Group	Number	Percent	Number	Percent	Number	Percent	Share
Under 5	10,860	6%	11,699	6%	839	8%	0%
5-17	33,667	17%	32,933	16%	(734)	-2%	-2%
18-24	18,335	9%	19,674	9%	1,339	7%	0%
25-44	47,980	25%	50,890	24%	2,910	6%	0%
45-64	52,144	27%	57,051	27%	4,907	9%	1%
65 and over	31,379	16%	35,926	17%	4,547	14%	1%
Total	**194,365**	**100%**	**208,173**	**100%**	**13,808**	**7%**	**0%**

Source: Claritas, 2005
Note: The Claritas population projection assumes a significant slowing of the rate of population growth between the 2000-2005 and 2005-2010 periods.

The data in Table 3-1 and 3-2 suggest that Jackson County is attracting older people and experiencing comparatively slow growth in people under 44 years old. The age distribution in Figure 3-3 suggests that a higher percentage of people between 50 and 74 years old live in the Bear Creek Valley, rather than other parts of Jackson County.

Between 1990 and 1999, almost 70% of Oregon's total population growth was from net migration (in-migration minus out-migration), with the remaining 30% from natural increase (births minus deaths).[6] Migrants to Oregon tend to have many characteristics in common with existing residents, with some differences—recent in-migrants to Oregon are, on average, younger and more educated, and are more likely to hold professional or managerial jobs, compared to Oregon's existing population. The race and ethnicity of in-migrants generally mirrors Oregon's established pattern, with one exception: Hispanics make up more than 7% of in-migrants but only 3% of the state's population. The number-one reason cited by in-migrants for coming to Oregon was family or friends, followed by quality of life and employment.[7]

Migration is a significant component of population growth in Jackson County. Eighty-seven percent of population growth in Jackson County between 1990 and 2000 was from in-migration. This figure increased to 91% for the 2000-2004 period.[8]

The U.S. Census collects information about migration patterns. Specifically, it asks households where their residence was in 1995 (5 years prior to the Census count). Table 3-3 shows place of residence in 1995 for Oregon, Jackson County, and the Bear Creek Valley. The data show that Bear Creek Valley residents are equally mobile as Jackson County and Oregon residents. Less than half of residents in Oregon, Jackson County or the Bear Creek Valley lived in the same residence in 1995 as in 2000. Twenty-four percent of Oregonians and 22% of

[6] Portland State University, Population Research Center, 2000. *1990-2000 Components of Population Change*

[7] State of Oregon, Employment Department. 1999. *1999 Oregon In-migration Study*.

[8] Portland State University, Population Research Center, 2004. *2004 Oregon Population Report and contents*

residents of Jackson County and the Bear Creek Valley lived in a different county in 1995. Fifteen percent of residents of Jackson County and the Bear Creek Valley lived in a different state in 1995, compared with 12% of Oregonians.

Table 3-3. Place of residence in 1995, Oregon, Jackson County, and the Bear Creek Valley, persons 5 years and over

	Oregon		Jackson County		Bear Creek Valley	
Location	Persons	Percent	Persons	Percent	Persons	Percent
Population 5 years and older	3,199,323	100%	170,324	100%	138,158	100%
Same house in 1995	1,496,938	47%	79,138	46%	60,737	44%
Different house in 1995	1,702,385	53%	91,186	54%	77,421	56%
Same county	863,070	27%	51,851	30%	44,902	33%
Different county	755,954	24%	37,536	22%	30,916	22%
Same state	356,626	11%	11,766	7%	9,853	7%
Different state	399,328	12%	25,770	15%	21,063	15%

Source: U.S. Census, 2000

Table 3-4 shows the number of persons of Hispanic or Latino origin for Oregon, Jackson County, and the Bear Creek Valley for 1990 and 2000. The Bear Creek Valley has a similar proportion of Hispanic/Latino residents as Oregon and a higher proportion than Jackson County. In 2000, the Bear Creek Valley's population was 7.5% Hispanic/Latino, compared with 6.7% of residents in Jackson County. Eighty-one percent of all residents in Jackson County live in the Bear Creek Valley but 91% of Hispanic/Latino residents of Jackson County live in the Bear Creek Valley.

The Hispanic/Latino population grew faster in the Bear Creek Valley than in Jackson County from 1990 to 2000. The Bear Creek Valley's Hispanic/Latino population grew by 114% between 1990 and 2000. During the same period, Jackson County's Hispanic/Latino population grew by 104% and Oregon' Hispanic/Latino population grew by 144%.

Table 3-4. Persons of Hispanic or Latino origin, Oregon, Jackson County, and the Bear Creek Valley, 1990 and 2000

	Oregon	Jackson County	Bear Creek Valley
1990			
Total Population	2,842,321	140,440	112,021
Hispanic or Latino	112,707	5,949	5,187
Percent Hispanic or Latino	4.0%	4.2%	4.6%
2000			
Total Population	3,421,399	181,269	147,665
Hispanic or Latino	275,314	12,126	11,088
Percent Hispanic or Latino	8.0%	6.7%	7.5%
Change 1900-2000			
Hispanic or Latino	162,607	6,177	5,901
Percent Hispanic or Latino	144%	104%	114%

Source: U.S. Census, 2000

Table 3-5 shows household size by ethnicity for Oregon, Jackson County, and the Bear Creek Valley. Household size for the Bear Creek Valley is shown as a range for the Census subdivisions that make up the Bear Creek Valley in this study. The number of people per household are similar for Oregon, Jackson County, and the Bear Creek Valley for non-Hispanic households and Hispanic households. In each area, non-Hispanic households have about 2.5 people per household. Households for Hispanic residents are larger, with about 3.7 people per household. The data show that Hispanic residents have about 1.2 additional people per household than non-Hispanic residents.

Table 3-5. Household size by ethnicity for Oregon, Jackson County, and the Bear Creek Valley, 2000

			Bear Creek Valley	
	Oregon	Jackson County	Low	High
Non-Hispanic/Latino	2.51	2.48	2.24	2.79
Hispanic/Latino	3.7	3.7	3.26	3.87

Source: U.S. Census, 2000

HOUSING TRENDS

ECONorthwest reviewed data from the U.S Bureau of Census *Current Construction Reports*[9] to identify national, state, and local trends in the characteristics of new housing. From the *Current Construction Report*, several trends in the characteristics of housing are evident:

- *Larger single-family units on smaller lots*. Between 1994 and 2004 the median size of new single-family dwellings increased 14%, from 1,900 sq. ft. to 2,169 sq. ft. nationally and 17% in the western region from 1,810 sq. ft. to 2,126 sq. ft. Moreover, the percentage of units under 1,200 sq. ft. nationally decreased from 5% in 1999 to 3% in 2004. The percentage of units greater than 3,000 sq. ft. increased from 16% in 1999 to 21% of new one-family homes sold in 2004. In addition to larger homes, a move towards smaller lot sizes is seen nationally. Between 1994 and 2004 the percentage of lots under 7,000 sq. ft. increased 6% from 29% of lots to 35% of lots. A corresponding 6% decrease in lots over 11,000 sq. ft. is seen.

- *Larger multifamily units.* Between 1994 and 2004, the median size of new multiple family dwelling units increased. The percentage of multifamily units with more than 1,200 sq. ft. increased from 11% to 34% in the western region and from 11% to 38% nationally. Moreover, the percentage of units with less than 600 sq. ft. decreased from 6% to 4% in the western region and from 4% to 3% nationally.

[9] http://www.census.gov/const/www/charindex_excel.html

- *More household amenities.* Between 1994 and 2004 the percentage of single-family units built with amenities such as central air conditioning, fireplaces, brick exteriors, 2 or more car garages, or 2 or more baths all increased. The same trend in increased amenities is seen in multiple family units.

A clear linkage exists between demographic characteristics and housing choice. This is more typically referred to as the linkage between life-cycle and housing choice and is documented in detail in several publications.[10] ECONorthwest used Public Use Microsample (PUMS) data from the 2000 Census to describe the relationship between selected demographic characteristics and housing choice.[11] This analysis identified several key relationships:

- Homeownership rates increase as income increases;
- Homeownership rates increase as age increases;
- Choice of single-family detached housing types increases as income increases;
- Renters are much more likely to choose multiple family housing types than single-family; and
- Income is a stronger determinate of tenure and housing type choice for all age categories.

ORS 197.296 requires an evaluation of the housing type mix and density of residential development during the past five years or since the last periodic review, whichever is longer. While the RPS process is not bound to comply with this requirement, an evaluation of recent development trends is useful in developing a better understanding of development trends in the local housing market. Moreover, some cities in the region probably will have to respond to the requirements.

LOCAL DEVELOPMENT ACTIVITY

Table 3-6 shows dwelling units by type in Jackson County in 1980, 1990 and 2000 as reported by the Census. According to the Census, Jackson County had 52,024 dwelling units in 1980 and 60,376 dwelling units in 1990—an increase of about 10,250 dwelling units. More than 50% of the new housing units added in Jackson County during the 1980s were mobile homes.

The rate of housing development increased during the 1990s—Jackson County added more than 15,000 new dwelling units during the 1990s. Moreover,

[10] This linkage is identified in the DLCD Workbook. It is described in detail in *Households and Housing: Choice and Outcomes in the Housing Market,* Clark and Dieleman, Center for Policy Research, 1996.

[11] ECO used the 5% Public Use Microsample (PUMS) data set for this analysis. A description of the PUMS data can be found at www.census.gov.

the mix of new housing units changed substantially. Multifamily units grew at a rate far faster than other housing types and accounted for 42% of all new dwellings.

With respect to tenure, the rate of home ownership decreased from about 65% to less 63% during the 1980s. Homeownership rates held steady during the 1990s.

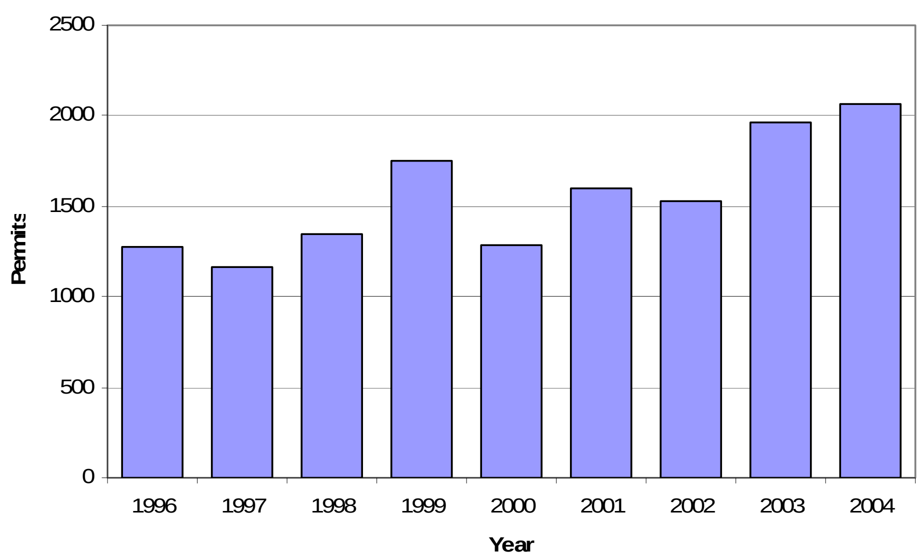
Table 3-6. Dwelling units by type and tenure, Jackson County, 1980, 1990 and 2000

	1980		1990		2000		Change 1980-1990		Change 1990-2000	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Total Housing Units	52,024	100.0%	60,376	100.0%	75,737	100.0%	8,352	16%	15,361	25%
Single-Family	36,205	69.6%	39,827	66.0%	47,715	63.0%	3,622	10%	7,888	20%
Multifamily	9,179	17.6%	10,032	16.6%	16,494	21.8%	853	9%	6,462	64%
Manufactured/Mobile	6,640	12.8%	10,517	17.4%	11,528	15.2%	3,877	58%	1,011	10%
Occupied Housing Units	49,011	94.2%	57,238	94.8%	71,532	94.4%	8,227	17%	14,294	25%
Owner Occupied	33,781	64.9%	37,920	62.8%	47,574	62.8%	4,139	12%	9,654	25%
Renter Occupied	15,230	29.3%	19,318	32.0%	23,958	31.6%	4,088	27%	4,640	24%

Source: US Census of Population and Housing

Figure 3-4 shows building permits issued for new residential construction within the incorporated boundaries of cities in the Bear Creek Valley between 1996 and 2004. The data show a marked increase -in development activity between 1996 and 2004. Total permits issued increased from 951 in 1996 to 1,650 in 2004.

Figure 3-4. Building permits issued in incorporated cities, Bear Creek Valley, 1996-2004



Source: Current Construction Reports, U.S. Census Bureau.

Table 3-7 shows building permits issued in RPS cities and unincorporated Jackson County by type for the period 1996-2004. The data shows that Medford had the highest volume of building permit activity—and the highest ratio of multifamily permit activity. It also shows that the majority of permits issued in all of the jurisdictions was for single-family housing types. It is notable that 75% of the multifamily units built in the region were located in Medford.

Figure 3-7. Building permits issued, cities and unincorporated areas, 1996-2004

Year	1996	1997	1998	1999	2000	2001	2002	2003	2004
Ashland									
Single-family	111	119	136	180	168	171	106	N/A	145
Duplex	30	4	2	10	4	2	0	N/A	2
3-4 units	38	0	3	0	1	6	0	N/A	6
5 or more units	40	12	12	52	2	59	0	N/A	25
Subtotal	**219**	**135**	**153**	**242**	**175**	**238**	**106**	**N/A**	**178**
Central Point									
Single-family	156	169	181	261	204	251	304	211	267
Duplex	34	10	2	0	0	0	6	2	2
3-4 units	3	15	3	0	0	0	3	4	16
5 or more units	0	0	6	0	48	0	0	38	8
Subtotal	**193**	**194**	**192**	**261**	**252**	**251**	**313**	**255**	**293**
Eagle Point									
Single-family	41	61	101	118	166	193	177	292	223
Duplex	4	2	2	4	2	14	6	2	6
3-4 units	0	4	0	6	0	4	4	0	0
5 or more units	0	0	0	0	0	0	0	0	0
Subtotal	**45**	**67**	**103**	**128**	**168**	**211**	**187**	**294**	**229**
Jacksonville									
Single-family	10	25	45	45	99	23	19	27	21
Duplex									
3-4 units									
5 or more units			12			20			100
Subtotal	**10**	**25**	**57**	**45**	**99**	**43**	**19**	**27**	**121**
Medford									
Single-family	328	366	471	410	269	328	432	657	577
Duplex	30	28	40	12	16	4	8	18	34
3-4 units	7	34	60	64	44	69	56	142	164
5 or more units	0	75	38	280	30	155	24	113	23
Subtotal	**365**	**503**	**609**	**766**	**359**	**556**	**520**	**930**	**798**
Pheonix									
Single-family	38	26	40	43	75	32	36	28	27
Duplex	0	4	0	2	4	0	0	0	0
3-4 units	8	0	4	4	0	0	0	0	0
5 or more units	0	0	0	7	0	0	0	0	0
Subtotal	**46**	**30**	**44**	**56**	**79**	**32**	**36**	**28**	**27**
Talent									
Single-family	81	49	23	0	0	0	42	84	117
Duplex	2	0	0	0	0	0	0	0	8
3-4 units	0	0	0	0	0	0	0	28	0
5 or more units	0	0	0	0	0	0	0	0	0
Subtotal	**83**	**49**	**23**	**0**	**0**	**0**	**42**	**112**	**125**
Unincorporated County									
Single-family	241	191	212	299	256	307	327	314	411
Duplex	8	0	2	0	0	0	0	0	0
3-4 units	0	0	9	0	0	0	0	0	0
5 or more units	72	0	0	0	0	0	0	0	0
Subtotal	**321**	**191**	**223**	**299**	**256**	**307**	**327**	**314**	**411**

Source: Census Current Construction Reports.
Note: Unincorporated includes all permits issued in unincorporated Jackson County; the Census did not report any permit data for Jackson, the reported data for Jacksonville was provided by City of Jacksonville

Table 3-8 provides an estimate of housing units by type in the Bear Creek Valley as of January 1, 2005. ECO developed the estimate by adding building permits reported for the period between 2000 and 2004 to the 2000 Census counts. The figures probably underestimate total dwelling units in 2005 because ECO was unable to determine the number of permits issued in unincorporated areas.

The results indicate that the greater Bear Creek Valley had 67,605 dwelling units as of January 1, 2005. About 80% of these dwelling units were single-family housing types (detached, attached, and mobile/manufactured). The data show that new housing development in the 2000-2004 period was predominately single-family housing types. In fact, only 16% of all building permits issues were for multifamily housing types.

Table 3-8. Housing units by type, Bear Creek Valley, Jan. 1, 2005

	2000		2000-2004		Jan 1, 2005	
Housing Type	Number	Percent	Number	Percent	Number	Percent
Single-family	48,093	79%	5,362	82%	53,455	79%
Duplex	2,467	4%	134	2%	2,601	4%
3-4 units	3,518	6%	536	8%	4,054	6%
5 or more units	10,509	17%	505	8%	11,014	16%
Total	61,069	100%	6,536	100%	67,605	100%

Source: 2000 figures from U.S. Census of Population and Housing; 2000-2004 building permit data from U.S. Census *Current Construction Reports*.

ORS 197.480 requires local governments to plan for mobile home parks—including allowing mobile home parks in certain residential zones, and estimating the need for mobile homes over the planning period. Table 3-9 shows the number of mobile home parks in the Bear Creek Valley as identified by building class codes.[12] The data show that the region had 99 mobile home parks in 2005 on about 762 acres. Because mobile homes are taxed as personal property, the GIS data does not have a count of dwellings. To provide an estimate of the number of dwellings, ECO used 2000 Census data. The region had about 4,550 mobile homes in 2000.

ORS 197.480(4)(2) requires local governments to conduct "an inventory of mobile home or manufactured dwelling parks sited in areas planned and zoned or generally used for commercial, industrial or high density residential development." According to generalized zoning in the Smartmap GIS data, 20 of the 99 mobile home parks are in commercial, industrial, or high-density residential zones. The implication of this finding is that the region will need to plan for new manufactured/mobile home parks. ORS 197.480 requires cities to allow such developments in certain residential zones; cities should already have ordinances that comply with this legal requirement. The data in Table 4-9 suggest

[12] According to the Jackson County Assessor, Building Classifications of 570-575 are mobile home parks.

that the region will need to plan for 200-300 acres to accommodate mobile home park displacements (in addition to identified need for new mobile home parks).

Table 3-9. Mobile home parks, Bear Creek Valley, 2005

City	Number of Tax Lots	Acres	DU in 2000	Tax Lots in Comm, Ind, or High Den Res Zones
Ashland	7	44.3	225	3
Central Point	7	41.2	430	3
Eagle Point	7	27.0	390	0
Jacksonville	2	27.0	158	1
Medford	23	224.7	985	6
Pheonix	16	119.3	477	5
Talent	8	65.5	605	0
Outside City Limits	29	213.3	1280	2
Bear Creek Valley	99	762.3	4550	20

Source: 2000 figures from U.S. Census of Population and Housing; inventory data analyzed by ECONorthwest from Smartmap.org

IMPLICATIONS FOR HOUSING NEED

The Bear Creek Valley has an aging population.

- The Bear Creek Valley has a higher percentage than Jackson County of people in the following age classes: 50-54 years and 70-74 years.
- Between 2000 and 2005, Jackson County experienced changes in the age structure of its residents. While all age groups grew, the fastest growing age groups were people aged 45 to 64 and 65 and over. This indicates that retirees or people nearing retirement are moving to Jackson County. The slowest growing groups were people 5 to 17 years and 25 to 44 years.
- The forecast for population growth by age group for 2005 to 2010 suggests that the fastest growing age groups in Jackson County will be 45 to 64 years and over 65 years.

Migration is an important component of the Bear Creek Valley recent growth and will continue to be a key factor in future population growth.

- In-migration accounted for 87% of population growth in Jackson County between 1990 and 2000. This figure increased to 91% for the 2000-2004 period.
- Only 44% of the residents of the Bear Creek Valley lived in the same house in 2000 as they did in 1995. Fifteen percent of residents of the Bear Creek Valley lived in a different state and 22% lived in a different county.

The Bear Creek Valley is becoming more ethnically diverse.

- The Bear Creek Valley's Hispanic/Latino population grew by 114% between 1990 and 2000, compared with 104% growth in Jackson County's Hispanic/Latino population during the same period.

- The majority of Jackson County's Hispanic/Latino population resides in the Bear Creek Valley.

Hispanic/Latino residents have more people per household than non-Hispanic residents.

- The average size of a Hispanic/Latino household in 2000 in Jackson County was 3.7 people, compared with 2.48 people in non-Hispanic households. Household sizes in the Bear Creek Valley were similar in size to Jackson County.

Housing types are trending towards larger units on smaller lots.

- Between 1994 and 2004 the median size of new single-family dwellings increased 14%, from 1,900 sq. ft. to 2,169 sq. ft. nationally and 17% in the western region from 1,810 sq. ft. to 2,126 sq. ft. Between 1994 and 2004 the percentage of lots under 7,000 sq. ft. increased 6% from 29% of lots to 35% of lots. A corresponding 6% decrease in lots over 11,000 sq. ft. is seen.

Since 1990, housing starts in Jackson County have been dominated by single-family types.

- The greater Bear Creek Valley had 67,605 dwelling units as of January 1, 2005. About 80% of these dwelling units were single-family housing types (detached, attached, and mobile/manufactured). The data show that new housing development in the 2000-2004 period was predominately single-family housing types. In fact, only 16% of all building permits issues were for multifamily housing types.

The region will need to plan for new manufactured/mobile home parks.

- ORS 197.480 requires cities to allow such developments in certain residential zones; cities should already have ordinances that comply with this legal requirement. The data in Table 4-9 suggest that the region will need to plan for 200-300 acres to accommodate mobile home park displacements (in addition to identified need for new mobile home parks).

The purpose of the analysis thus far has been to give some background on the kinds of factors that influence housing choice, and in doing, to convey why the number and interrelationships among those factors ensure that generalizations about housing choice are difficult and prone to inaccuracies.

There is no question that age affects housing type and tenure. Mobility is substantially higher for people aged 20 to 34. People in that age group will also have, on average, less income than people who are older. They are less likely to have children. All of these factors mean that younger households are much more likely to be renters; renters are more likely to be in multi-family housing.

The data illustrate what more detailed research has shown and what most people understand intuitively: life cycle and housing choice interact in ways that are predictable in the aggregate; age of the household head is correlated with household size and income; household size and age of household head affect housing preferences; income affects the ability of a household to afford a preferred housing type. The connection between socioeconomic and demographic factors, on the one hand, and housing choice, on the other, is often described informally by giving names to households with certain combinations of characteristics: the "traditional family," the "never marrieds," the "dinks" (dual-income, no kids), the "empty nesters."[13] Thus, simply looking at the long wave of demographic trends can provide good information for estimating future housing demand.

Thus, one is ultimately left with the need to make a qualitative assessment of the future housing market. Following are a set of assumptions, consistent with the theory of housing choice are reasonable for making a 20-year forecast of future housing demand:

- *On average, future housing will look a lot like past housing.* That is the assumption that underlies any trend forecast, and one that allows some quantification of the composition of demand for new housing. As a first approximation, the next five years, and maybe the first 10 years, of residential growth will look a lot like the last five years.

- *If the future differs from the past, it is likely to move in the direction (on average) of smaller units and less expensive construction techniques.* Most of the evidence suggests that the bulk of the change will be in the direction of smaller average house and lot sizes for single-family housing, and for an increase in the percentage of new housing that is manufactured housing. In summary, smaller households, an aging population, increasing housing costs, and other variables are factors that support the conclusion of smaller and less expensive units.

- *If population and employment are assumed to grow, average incomes will probably be growing also.* The long run trends in Oregon have been for average real incomes to grow slightly relative to average real incomes in the US. Thus, the best assumption for long-run forecasting of housing is that real incomes will stay constant. The distribution of those incomes, however, may become increasingly polarized. Past trends suggest that the real price of housing (holding size and quality constant) is more likely to

[13] See *Planning for Residential Growth: A Workbook for Oregon's Urban Areas* (June 1997).

increase than to decrease, which is consistent with the prediction of smaller average house and lot sizes.

- *No amount of analysis is likely to make the long-run future any more certain: the purpose of the housing forecasting in this study is to get an approximate idea about the long run so policy choices can be made today.* It is axiomatic among economic forecasters that any economic forecast more than three (or at most five) years out is highly speculative. At one year one is protected from being disastrously wrong by the shear inertia of the economic machine. But a variety of factors or events could cause growth forecasts to be substantially different.

Chapter 4 presents the housing needs analysis for the greater Bear Creek Valley. The needs analysis is based on the HCS Housing Needs Model. The model runs completed by ECONorthwest build from the assumptions above as well as empirical data on the existing income distribution and housing stock in the region.

Chapter 4 Housing Needs Analysis

This chapter summarizes housing needs for the greater Bear Creek Valley. It includes a discussion of income and affordability, as well as the alternative analysis of needed housing units by cost and type. It also addresses steps 3 through 6 of the process described in the DLCD Workbook. Moreover, the housing needs analysis makes use of the HCS Housing Needs Model (see Appendix A for a discussion of the HCS Model). ECO conducted model runs for the region as well as for the three subareas (south, central, and north).

STEP 3. DETERMINE THE TYPES OF HOUSING THAT ARE LIKELY TO BE AFFORDABLE TO THE PROJECTED HOUSEHOLDS BASED ON HOUSEHOLD INCOME

Step three of the housing needs assessment results in an estimate of need for housing by income and housing type. This requires some estimate of the income distribution of future households in the community. ECO developed these estimates based on estimated incomes of households that live in Jackson County.

A typical standard used to determine housing affordability is that a household should pay no more than 30% of its total monthly household income for housing, including utilities. According to the U.S. Census, nearly 19,000 households in the region—about one-third—paid more than 30% of their income for housing in 2000.

One way of exploring the issue of financial need is to review wage rates and housing affordability. Table 4-1 shows an analysis of affordable housing wage and rent gap for households in Jackson County at different percentages of median family income (MFI). The data are for a typical family of four. The results indicate that a household must earn about $12.60 an hour to afford a two-bedroom unit according to HUD's market rate rent estimate.

Table 4-1. Analysis of affordable housing wage and rent gap by HUD income categories, Jackson County, 2005

Value	Minimum Wage	30% MFI	50% MFI	80% MFI	100% MFI	120% MFI
Annual Hours	2086	2086	2086	2086	2086	2086
Derived Hourly Wage	$7.25	$7.49	$12.49	$19.98	$24.98	$29.97
Annual Wage At Minimum Wage	$12,504	$15,630	$26,050	$41,680	$52,100	$62,520
Annual Affordable Rent	$3,751	$4,689	$7,815	$12,504	$15,630	$18,756
Monthly Affordable Rent	$313	$391	$651	$1,042	$1,303	$1,563
HUD Fair Market Rent(2 Bedroom)	$657	$657	$657	$657	$657	$657
Is HUD Fair Market Rent Higher Than The Monthly Affordable	Yes	Yes	Yes	No	No	No
Rent Paid Monthly OVER 30% of Income	$344	$266	$6	na	na	na
Rent Paid Annually OVER 30% of Income	$4,133	$3,195	$69	na	na	na
Percentage of Income Paid OVER 30% of Income for Rent	33%	20%	0%	na	na	na
Total Spent on Housing	63%	50%	30%	19%	15%	13%
For this area what would the "Affordable Housing Wage" be?	$12.60	$12.60	$12.60	$12.60	$12.60	$12.60
The Affordable Housing Wage Gap IS:	**$5.35**	**$5.11**	**$0.11**	**na**	**na**	**na**

Source: HUD, Oregon office; analysis by ECONorthwest
MFI: Median family income

The total amount a household spends on housing is referred to as cost burden. Total housing expenses are generally defined to include payments and interest or rent, utilities, and insurance. HUD guidelines indicate that households paying more than 30% of their income on housing experience "cost burden" and households paying more than 50% of their income on housing experience "severe cost burden." Using cost burden as an indicator is consistent with the Goal 10 requirement of providing housing that is affordable to all households in a community.

Table 4-2 shows housing costs as a percent of income by tenure for Jackson County households in 2000. The data show that about 34% of Jackson County households experienced cost burden in 2000. The rate was much higher for renters (47%) than for homeowners (25%).

Table 4-2. Housing cost as a percentage of household income, Jackson County, 2000

	Owners		Renters		Total	
Percent of Income	**Number**	**Percent**	**Number**	**Percent**	**Number**	**Percent**
Less than 20%	16,719	50%	6,289	28%	23,008	42%
20% - 24%	4,924	15%	2,733	12%	7,657	14%
25% - 29%	3,158	10%	2,691	12%	5,849	11%
30% - 34%	2,367	7%	2,055	9%	4,422	8%
35% or more	6,017	18%	8,398	38%	14,415	26%
Total	33,185	100%	22,166	100%	55,351	100%
Cost Burden	**8,384**	**25%**	**10,453**	**47%**	**18,837**	**34%**

Source: 2000 Census

Table 4-3 shows a rough estimate of affordable housing cost and units by income levels for the county subdivisions that compose the Bear Creek Valley in 2000. Several points should be kept in mind when interpreting this data:

- Because all of the affordability guidelines are based on median family income, they provide a rough estimate of financial need and may mask other barriers to affordable housing such as move-in costs, competition for housing from higher income households, and availability of suitable units. They also ignore other important factors such as accumulated assets, purchasing housing as an investment, and the effect of down payments and interest rates on housing affordability.

- Households compete for housing in the marketplace. In other words, affordable housing units are not necessarily *available* to low income households. For example, if an area has a total of 50 dwelling units that are affordable to households earning 30% of median family income, 50% of those units may already be occupied by households that earn more than 30% of median family income.

The data in Table 4-3 indicate that in 2000:

- About 15% of Bear Creek Valley households could not afford a studio apartment according to HUD's estimate of $378 as fair market rent;

- Approximately one-third of Bear Creek Valley households could not afford a two-bedroom apartment at HUD's fair market rent level of $610;

- A household earning median family income ($38,300) could afford a home valued up to about $95,750.

Table 4-3. Rough estimate of housing affordability, Bear Creek Valley county subdivisions, 2000

Income Level	Number of HH	Percent	Affordable Monthly Housing Cost	Crude Estimate of Affordable Purchase Owner-Occupied Unit	Est. Number of Owner Units	Est. Number of Renter Units	Surplus (Deficit)	Notes
Less than $10,000	5,567	9.6%	$0 to $250	$0 to $25,000	104	1,766	-3,696	
$10,000 to $14,999	4,564	7.8%	$250 to $375	$25,000 to $37,000	82	1,709	-2,773	HUD FMR Studio: $348
$15,000 to $24,999	9,341	16.1%	$375 to $625	$37,500 to $62,500	457	9,818	935	HUD FMR 1 bdrm: $456; 2 bdrm: $610
$25,000 to $34,999	8,549	14.7%	$625 to $875	$62,500 to $87,500	2,917	6,792	1,160	HUD FMR 3 bdrm: $848
$35,000 to $49,999	10,114	17.4%	$875 to $1,250	$87,500 to $125,000	9,997	2,897	2,780	HUD FMR 4 bdrm: $945
Jackson County median (2000): $38,300			$958	$95,750				
$50,000 to $74,999	10709	18.4%	$1,250 to $1,875	$125,000 to $187,500	11,903	672	1,866	
$75,000 to $99,999	4733	8.1%	$1,875 to $2,450	$187,500 to $245,000	4,258	500	25	
$100,000 to $149,999	2751	4.7%	$2,450 to $3,750	$245,000 to $375,000	2,737	197	183	
$150,000 or more	1824	3.1%	More than $3,750	More than $375,000	1,345	0	-479	
Total	58,152	100.0%			33,800	24,352	0	

Sources: 2000 Census, HUD Section 8 Income Limits, HUD Fair Market Rent. Based on Oregon Housing & Community Services. Housing Strategies Workbook*: Your Guide to Local Affordable Housing Initiatives*, 1993.
Notes: FMR-Fair market rent

The conclusion based on the data presented in this section is that in 2000 the Bear Creek Valley had a significant deficit of affordable housing for households that earn less than $37,000 annually (about $16.00 per hour). Housing prices have increased significantly in the past five years; the affordability gap for lower income households has probably increased considerably.

Changes in housing cost, 2000-2005

According to the Office of Federal Housing Enterprise Oversight, the average sales price of a single-family home in the Medford MSA increased 215% between 2000 and 2006. A key concern expressed by the Regional Problem Solving Policy Committee was that the housing needs analysis and runs of the HCS housing needs model reflect recent trends in the regional housing market. The Policy Committee indicated that prices in some areas may have increased by more than 50% since 2003. To quantify these trends, ECO analyzed data from two sources: (1) sales data from the Jackson County Assessor; and (2) rental data from StreetRents.com, an Ashland-based real estate analysis firm that conducts rent surveys.

The sales database provided to ECO by the County included 19,780 property sales. The majority (nearly 17,000) of sales fell within the city limits of the seven RPS jurisdictions.

Table 4-4 shows changes in the sales price of single-family residences by year in Jackson County between 2002 and 2005. The results show a substantial increase in sales prices between 2002 and 2005. The *average* sales price of single-family residences increased by nearly $95,000 from $184,283 in the last two months of 2002 to nearly $279,000 in 2005. The *median* sales price increased from just under $150,000 in 2002 to $241,000 in 2005. The U.S. Census reported the median value of homes in 2000 was $140,000 and the median price asked was about $148,000. This suggests that most of the increase in housing price has occurred since 2002.

Table 4-4. Median recorded sales price of single-family residences by year, Jackson County, 11/02 – 12/05

Year	Number of Sales	Average Price ($)	Median Price ($)
2002 (Nov-Dec)	822	184,283	149,650
2003	5965	186,977	162,000
2004	6407	266,524	193,900
2005	6071	278,834	241,000
Change 2002-2005			
Price		94,551	91,350
Percent		51%	61%

Source: Jackson County Assessor; analysis by ECONorthwest
Note: includes property classifications 101 – 109, includes sales outside the AQMA

A breakdown by location provides a better picture of how sales prices are changing within the region. Table 4-5 shows the recorded sales price of single-family residences by city and year. The results show that single-family home prices increased in all cities.

The results show that median single-family home prices increased in all cities. Of the seven RPS cities, Ashland saw the smallest percentage increase (55%) and Jacksonville saw the largest increase (87%). The dollar figures are more telling—average sales prices increased between $91,100 in Phoenix and $194,000 in Jacksonville. By any measure the sales data show a substantial increase between the end of 2002 and 2005.

The trends are generally the same with average sales prices. Not surprisingly, average sales prices were higher than median sales prices. Average sales price increases in Ashland and Phoenix were lower than median sales price increases.

Table 4-5. Median and average recorded sales price of single-family residences by city and year, Jackson County, 11/02 – 4/06

	Year				Increase (2002-2005)	
CITY	**2002**	**2003**	**2004**	**2005**	**Dollars**	**Percent**
Median Sales Price						
Ashland	251,000	277,000	315,000	389,000	138,000	55%
Central Point	143,900	156,000	198,000	242,000	98,100	68%
Eagle Point	142,700	139,900	194,000	259,900	117,200	82%
Jacksonville	223,000	269,950	343,667	417,000	194,000	87%
Medford	145,250	161,000	190,000	245,000	99,750	69%
Phoenix	150,900	178,800	195,750	242,000	91,100	60%
Talent	149,900	160,000	181,450	250,000	100,100	67%
Rest of County	125,000	127,555	158,900	201,500	76,500	61%
Average Sales Price						
Ashland	300,897	310,437	360,637	428,058	127,161	42%
Central Point	142,548	161,582	293,489	261,578	119,031	84%
Eagle Point	170,932	165,350	233,984	295,074	124,142	73%
Jacksonville	269,918	271,656	361,739	534,588	264,670	98%
Medford	164,875	179,774	239,041	273,474	108,599	66%
Phoenix	159,521	175,964	206,800	248,892	89,371	56%
Talent	145,670	176,891	188,177	266,182	120,512	83%
Rest of County	150,457	153,087	197,561	237,345	86,887	58%

Source: Jackson County Assessor; analysis by ECONorthwest
Note: includes property classifications 101 – 109, includes sales outside the AQMA
The Talent 2006 data does not include one sale for $2.7 million that skews the average

Rental rates have also increased in the past five years. Outside the decennial Census, however, comprehensive rental data is often difficult to find. This is the case in the Bear Creek Valley. ECO identified a local real estate consultant, Streetrents.com, that conducts rent surveys for jurisdictions in the Bear Creek Valley. Streetrents.com provided ECO with access to their rent survey data.

Table 4-6 shows data from Streetrents.com compared to the 2000 Census for selected cities. The data suggest that rents have increased in the Bear Creek Valley—but not as fast as ownership products. The data also suggest that rent increases have been higher for larger units.

Table 4-6. Average rent by type, selected cities, March 2006

City	Studio	1 bdrm	2 bdrm	3 bdrm
HUD 2000 FMR	$345	$452	$604	$840
Streetrents.com 2006				
Ashland	$446	$537	$673	$1,135
Medford	$345	$586	$659	$740
Talent	na	na	na	$1,100

Source: Streetrents.com

STEP 4: ESTIMATE THE NUMBER OF ADDITIONAL NEEDED UNITS BY STRUCTURE TYPE

Step four of the housing needs assessment results in an estimate of need for housing by income and housing type. This requires some estimate of the income distribution of future households in the community. ECO developed these estimates based on (1) secondary data from the Census, and (2) the HCS Housing Needs Model.

It is difficult, if not impossible, to develop a defensible forecast of the key variables that will affect housing choice in the Bear Creek Valley: age, income, and household size. Based on the analysis of PUMS data, however, a general trend becomes evident: households with lower incomes tend to have much higher incidence of renting, and lower cost units have a higher percentage of renters than higher cost units.

It is reasonable to assume that if more affordable housing were available, that some households with employees would choose to live closer to where they work. Policies that encourage a range of housing types, densities, and price ranges will provide local workers with more housing options. Such policies would help decrease (but not eliminate) the jobs-housing imbalance that currently exists in the region. Thus, prevailing wage rates of local employers provide a good place to start when developing estimates of future housing need by type.

HCS housing Model forecast by cost and type mix

ECONorthwest used the HCS Housing Needs Model to identify current affordability gaps and address the ORS 197.296 requirements. The model considers the current and projected demographics, existing housing inventory, and regional tenure choices, to arrive at the number of needed housing units by tenure, price point, and housing type. Table 4-7 shows the current value input assumptions from the two model runs. The baseline assumptions were derived from analysis of 2000 Census data, the current cost assumptions from analysis of single-family sales data from the County Assessor and from rental values from Streetrents.com.

Table 4-7. HCS Housing Needs Model, current housing distribution assumptions

Rental Units			Ownership Units		
Rent	Run #1: Baseline	Run #2: Current Cost	Value	Run #1: Baseline	Run #2: Current Cost
0 - 235	3%	2%	<66.9k	1%	2%
236 - 509	10%	8%	66.9k < 100.3k	5%	2%
510 - 784	35%	25%	100.3k < 133.7k	10%	4%
785 - 1074	35%	42%	133.7k < 167.2k	25%	7%
1075 - 1359	13%	17%	167.2k <250.8k	35%	33%
1360 +	4%	6%	250.8k +	24%	52%
Total	100%	100%	Total	100%	100%

Note: distribution of rent and housing values were adjusted to 2006 values

The following sections summarize the output from the HCS Housing Needs Models.

Run #1: Baseline assumptions

Table 4-8 shows current unmet housing needs as indicated by the HCS model. The results indicate a deficit of more than 7,500 rental units in the under $509 price level. The model output also indicates a deficit of rental units for prices above $1,075. The output shows that 17% of the need is met for $0 - $235 prices range, and 44% for the $235 - $509 price range. The model indicates a total unmet rental need of 1,198 units. In other words, as of 2005, the Bear Creek Valley needed 1,198 additional rental units to meet the needs of households that rent or would be predicted to rent based on the expected tenure composite from the model base data.

The model also indicates a deficit of ownership units at prices less than $133,700 and at prices more than $250,800. The model, however, indicates a total surplus of nearly 1,000 ownership units based on a conclusion that the market has overproduced units in the $133,700 - $250,800 range.

Table 4-8. Baseline Model Run: Current unmet housing needs, 2006, HCS Model Output

Rental				Ownership			
Rent	**Current Unmet Need / (Surplus)**	**% of Need Met**	**Cumulative Units Needed**	**Price**	**Current Unmet Need / (Surplus)**	**% of Need Met**	**Cumulative Units Needed**
0 - 235	4,056	17.3%	4,056	**<66.9k**	2,205	15.1%	2,205
236 - 509	3,576	44.2%	7,633	**66.9k < 100.3k**	3,576	35.3%	5,780
510 - 784	(3,174)	147.2%	4,459	**100.3k < 133.7k**	1,208	76.4%	6,988
785 - 1074	(4,772)	193.2%	(314)	**133.7k < 167.2k**	(4,482)	185.0%	2,505
1075 - 1359	510	87.8%	196	**167.2k <250.8k**	(4,066)	142.4%	(1,560)
1360 +	1,002	53.0%	1,198	**250.8k +**	572	94.3%	(989)

Source: Oregon Housing and Community Services Housing Needs Model; output for the Bear Creek Valley
Note: rents and values in 2006 dollars.

The HCS Housing Needs Model also outputs estimates of future housing needs. Table 4-9 shows that greater Bear Creek Valley will need 31,924 new dwelling units between 2006 and 2026. The model output shows the following needed housing characteristics:

- 53% of new housing units (17,013 dwellings) should be ownership units. This figure is significantly lower than the 63% observed by the 2000 Census. The implications of this output are that the model predicts many more households in the Bear Creek Valley will choose to rent in the 20-year planning period.

- 74% of needed units (23,151 dwellings) should be single-family types (this figure includes manufactured housing in parks).

- More than 14,000 dwelling units should rent for less than $509 (in 2006 dollars).

- If forecast trends continue, the Bear Creek Valley will have a surplus of 479 rental units in the $510-$784 range and 2,335 units in the $785-$1,075 range.

- The Bear Creek Valley needs 12,851 ownership units that are priced less than $100,300 (in 2006 dollars).

- The Bear Creek Valley will need a significant number of higher end rental units—the model predicts a need for 3,452 rental units that rent for more than $1,075 (in 2006 dollars).

- The Bear Creek Valley will need more higher end ownership units. The model predicts a need for 2,533 dwellings priced at more than $250,800 (in 2006 dollars).

- The model projects a need for more than 5,000 manufactured dwelling units in parks. This figure could overestimate the need given that no new parks are being considered in the short term. The high cost of land and financing could be additional factors that reduce demand for manufactured homes.

Table 4-9. Baseline Model Run: Future dwelling units needed by type and price, 2006-2026, greater Bear Creek Valley, HCS Model Output

Rent	Needed Units	Single Family Units	Manufactd Dwelling Park Units	Duplex Units	Tri-Quadplex Units	5+ Multi-Family Units	Total Units
New Rental Units Needed							
0 - 235	6,479	1,620	321	520	390	3,629	6,479
236 - 509	6,796	2,719	1,358	543	680	1,495	6,796
510 - 784	(479)	(192)	(48)	(48)	(72)	(120)	(479)
785 - 1074	(2,335)	(1,751)	(70)	(140)	(93)	(280)	(2,335)
1075 - 1359	2,458	2,458	0	0	0	0	2,458
1360 +	1,994	598	399	0	0	997	1,994
Totals	14,912	5,451	1,960	875	905	5,721	14,912
Percentage		36.6%	13.1%	5.9%	6.1%	38.4%	100.0%
New Ownership Units Needed							
<66.9k	8,055	4,469	3,586	0	0	0	8,055
66.9k < 100.3k	4,794	3,933	622	241	0	0	4,796
100.3k < 133.7k	2,948	2,506	178	98	0	167	2,948
133.7k < 167.2k	(2,505)	(2,004)	(739)	(25)	(25)	288	(2,504)
167.2k <250.8k	893	1,131	(238)	0	0	291	1,184
250.8k +	2,533	2,432	(137)	0	0	238	2,533
Totals	16,719	12,467	3,273	314	(25)	984	17,013
Percentage		73.3%	19.2%	1.8%	-0.1%	5.8%	100.0%
Total New Rental and Ownership Units							
Totals	31,631	17,919	5,232	1,188	879	6,705	31,924
% of Total Units		56.1%	16.4%	3.7%	2.8%	21.0%	100.0%

Source: Oregon Housing and Community Services Housing Needs Model; output for the Bear Creek Valley
Note: rents and values in 2006 dollars.

Run #2: Recent Housing Cost Increase

Data collected by ECONorthwest suggest that housing prices increased significantly in the region between 2002 and 2006. ECO developed a second model run to account for the price increase (see Table 4-7 for the value assumptions). Based on comments from the Policy Committee and others, ECO also made adjustments to the future planned supply of housing—most notably by decreasing the assumed percentage of manufactured homes.

Table 4-10 shows current unmet housing needs as indicated by the HCS model. The results indicate a deficit of nearly 8,500 rental units in the under $509 price level—nearly 1,000 more than the baseline model run. The model output also indicates a deficit of rental units for prices above $1,360. The output shows that 12% of the need is met for $0 - $235 prices range, and 35% for the $236 - $509 price range. Consistent with the baseline run, the model indicates a total unmet rental need of 1,198 units. In other words, as of 2005, the Bear Creek Valley needed 1,198 additional rental units to meet the needs of households that rent or would be predicted to rent based on the expected tenure composite from the model base data.

The biggest change in output comes on the ownership side. Data collected by ECONorthwest suggest that housing prices have increased much faster than rents. The model also indicates a deficit of 12,655 ownership units at prices less than $167,200. The model, however, indicates a total surplus of more than 13,000 ownership units for prices above $167,200.

Table 4-10. Cost Increase Model Run: Current unmet housing needs, 2006, HCS Model Output

Rental				Ownership			
Rent	Current Unmet Need / (Surplus)	% of Need Met	Cumulative Units Needed	Price	Current Unmet Need / (Surplus)	% of Need Met	Cumulative Units Needed
0 - 235	4,339	11.5%	4,339	**<66.9k**	1,816	30.1%	1,816
236 - 509	4,143	35.3%	8,483	**66.9k < 100.3k**	4,747	14.1%	6,562
510 - 784	(348)	105.2%	8,135	**100.3k < 133.7k**	3,549	30.6%	10,111
785 - 1074	(6,752)	231.8%	1,382	**133.7k < 167.2k**	2,545	51.8%	12,655
1075 - 1359	(620)	114.8%	762	**167.2k <250.8k**	(3,285)	134.2%	9,371
1360 +	436	79.6%	1,198	**250.8k +**	(10,359)	204.2%	(989)

Source: Oregon Housing and Community Services Housing Needs Model; output for the Bear Creek Valley
Note: rents and values in 2006 dollars.

The HCS Housing Needs Model also outputs estimates of future housing needs. Table 4-11 shows that greater Bear Creek Valley will need 31,633 new dwelling units between 2006 and 2026. The model output shows the following needed housing characteristics:

- 53% of new housing units (16,721 dwellings) should be ownership units. This figure is significantly lower than the 63% observed by the 2000 Census. The implications of this output are that the model predicts many more households in the Bear Creek Valley will choose to rent in the 20-year planning period.[14]

- 77% of needed units (24,512 dwellings) should be single-family types (this figure includes single-family attached and manufactured housing).

- More than 14,000 dwelling units should rent for less than $509 (in 2006 dollars).

- If forecast trends continue, the Bear Creek Valley will have a surplus of 4,315 rental units in the $785-$1,075 range.

- The Bear Creek Valley needs 23,445 ownership units that are priced less than $167,200 (in 2006 dollars).

- The Bear Creek Valley has a large surplus of higher end ownership units. The model estimates a surplus of nearly 8,400 dwellings priced at more than $250,800 (in 2006 dollars).

[14] Tenure is based on input data from the Census provided by HCS. It is not a variable that can be modified in the model.

- The model projects a need for nearly 2,750 manufactured dwelling units in parks under the cost increase assumptions. While this is considerably lower than the baseline run, it may still overestimate the number of units for the same reasons (high land costs and difficulties in financing).

Table 4-4. Cost Increase Model Run: Future dwelling units needed by type and price, 2006-2026, greater Bear Creek Valley, HCS Model Output

Rent	Needed Units	Single Family Units	Manufactd Dwelling Park Units	Duplex Units	Tri-Quadplex Units	5+ Multi-Family Units	Total Units
New Rental Units Needed							
0 - 235	6,762	1,691	335	543	407	3,787	6,762
236 - 509	7,363	3,765	991	543	692	1,371	7,363
510 - 784	2,347	940	234	234	352	586	2,347
785 - 1074	(4,315)	(1,455)	(367)	(496)	(291)	(1,705)	(4,315)
1075 - 1359	1,328	2,769	(96)	(240)	(144)	(961)	1,328
1360 +	1,428	741	(27)	0	0	714	1,428
Totals	14,912	8,450	1,071	584	1,016	3,792	14,912
Percentage		56.7%	7.2%	3.9%	6.8%	25.4%	100.0%
New Ownership Units Needed							
<66.9k	7,666	5,561	2,105	0	0	0	7,666
66.9k < 100.3k	5,965	5,148	519	300	0	0	5,967
100.3k < 133.7k	5,289	4,702	277	121	0	190	5,289
133.7k < 167.2k	4,522	3,980	(47)	46	46	498	4,523
167.2k <250.8k	1,674	1,865	(482)	0	0	291	1,674
250.8k +	(8,398)	(7,942)	(694)	0	0	238	(8,398)
Totals	16,719	13,315	1,677	467	46	1,217	16,721
Percentage		79.6%	10.0%	2.8%	0.3%	7.3%	100.0%
Total New Rental and Ownership Units							
Totals	31,631	21,765	2,748	1,050	1,061	5,009	31,633
% of Total Units		68.8%	8.7%	3.3%	3.4%	15.8%	100.0%

Source: Oregon Housing and Community Services Housing Needs Model; output for the Bear Creek Valley
Note: rents and values in 2006 dollars.

Summary

The HCS Housing Needs Model is one method of estimating housing needs by housing type and price. The model has many limitations, however. One is that it is virtually impossible to forecast income distributions 20 years out. The base model input used by ECONorthwest assumes that incomes will remain constant in real terms over the 20-year analysis period.

Moreover, our understanding is that the model uses regional data to forecast future need by tenure. In the instance of the model run just presented, the model forecasts a significant tenure shift. It is difficult to determine the basis for this shift, particularly in light of the fact that the model suggests there will be a large need for high priced rental units. We do not think the shift suggested by the model is representative of choices that households will make in the greater Bear Creek Valley. For example, Census data indicate that far fewer manufactured homes were built in the 1990s (1,011) than in the 1980s (3,877). The baseline model run forecast a manufactured housing share that was higher than the share in 2000—an output inconsistent with development trends. ECO made adjustments to the future housing mix in the “Cost Increase” model run to account for this trend.

Some of the model outputs are difficult to interpret. For example, the model indicates that the Bear Creek Valley has a surplus of rental units in the $785-$1,075 range. It appears to implicitly redistribute those units to other categories. The fact is that those units will likely still exist in the Bear Creek in 2026 and be rented in comparable price ranges.

Another limitation of the model is that it does not allow for allocation to single-family attached housing products (ownership units that achieve multifamily densities). ECO estimates that as much as 10% to 15% of housing need could be single-family attached housing types either as townhouse style, row-house style or multi-story products. The model rolls single-family attached units into the single-family category.

Finally, the model identifies considerable need in the lowest price ranges. We agree that these needs exist and will probably exist during the 2006-2026 planning period, but it seems unlikely that the market will produce these units without significant financial incentives or subsidies. Based on existing program support, however, it appears the amount of funds available for government-assisted housing subsidies will be sufficient to build only a small fraction of these dwellings.[15] Moreover, inclusionary zoning, one of the more effective affordable housing strategies is prohibited in Oregon under ORS 197.309. In other words, it is our opinion that unless government allocation of funds to housing significantly increases, or the law prohibiting inclusive zoning is repealed, these low rent/price units will not be available. Moreover, land use policy is relatively limited in its ability to dictate what the market builds. The primary intent of land use planning and conducting a housing needs assessment is to ensure that local governments designate enough land for different housing types—particularly higher density housing types.

STEP 5: DETERMINE THE NEEDED DENSITY RANGES FOR EACH PLAN DESIGNATION AND THE AVERAGE NEEDED NET DENSITY FOR ALL STRUCTURE TYPES

This section summarizes the forecast of needed housing units in the greater Bear Creek Valley for the period 2006-2026 and 2006-2056 (we call this the "alternative" forecast). ECO ran three scenarios of the "alternative" forecast. The scenarios use the assumptions shown in Table 4-6.

[15] ORS 197.309 prohibits local governments from adopting local ordinances or approval conditions that effectively establish housing sale price or designate class of purchasers. In short, state statutes prohibit inclusionary zoning.

Table 4-5. Assumptions used for the Alternative housing need forecasts

Housing Type	Low Density		Mid Range		High Density	
	Percent	(DU/net res ac)	Percent	(DU/net res ac)	Percent	(DU/net res ac)
Single-family types						
Single-family detached	67%	5.0	63%	5.3	60%	6.0
Manufactured	15%	6.0	12%	7.0	11%	7.5
Multi-family						
Condo/Townhomes	3%	8.0	4%	9.0	6%	10.0
Multifamily	15%	10.0	21%	12.0	23%	14.0

Based on output from the HCS housing needs model presented in the previous section, the assumed residential mix is 57% single-family, 17% manufactured (mobile home), and 25% multiple family (3% condo/townhomes and 22% multi-family). The overall single-family/multifamily split from the HCS model is the same as the baseline forecast. The assumed distribution of housing types was adjust to reflect output from the HCS model (a higher percentage of manufactured housing units).

Table 4-7 shows the results of the *mid-range* density scenario. The *mid-range* (what ECO considers most likely) alternative forecast assumes an average density of 6.9 dwelling units per net acre (about 5.6 dwelling units per gross acre). Based on the mix and density assumptions, the greater Bear Creek Valley will need about 5,322 gross residential acres to accommodate new housing between 2006 and 2026. About 13,120 gross residential acres would be required to accommodate new housing between 2006 and 2056. The alternative forecast increases average residential from 6.6 dwelling units per net acre to 6.9 dwelling units per net acre.

The acreage estimates in Table 4-7 do not include other land needs such as churches, parks, and schools that frequently locate on residential land. Based on work ECO previously completed for other Oregon cities, other land needs average between 20 and 30 acres per 1,000 persons. Applying these ratios to population growth in the Bear Creek Valley suggests that between 1,300 and 2,000 acres will be needed for these public and semi-public uses between 2006 and 2026. Between 3,500 and 5,000 acres will be needed for public and semi-public uses between 2006 and 2056.

Table 4-7. Alternative forecast of needed housing units, greater Bear Creek Valley, 2006-2026 and 2006-2056, Mid-Range Assumptions

Housing Type	New DU	Percent	Density (DU/net res ac)	Net Res. Acres	Net to Gross Factor	Gross Res. Acres	Density (DU/gross res ac)
Needed Units, 2006-2026							
Single-family types							
Single-family detach	16,397	58%	5.6	2,928.0	25%	3,904.0	4.2
Manufactured	4,806	17%	7.0	686.6	20%	858.2	5.6
Subtotal	19,287	75%	5.3	3,614.5		4,762.2	4.1
Multi-family							
Condo/Townhomes	848	3%	10.0	84.8	15%	99.8	8.5
Multifamily	6,219	22%	15.0	414.6	10%	460.7	13.5
Subtotal	8,983	25%	18.0	499.4		560.5	16.0
Total	**28,270**	**100%**	**6.9**	**4,114.0**		**5,322.6**	**5.3**
Needed Units, 2006-2056							
Single-family types							
Single-family detach	38,803	58%	5.6	6,929.0	25%	9,238.7	4.2
Manufactured	11,373	17%	7.0	1,624.7	20%	2,030.9	5.6
Subtotal	50,176	75%	5.3	8,553.8		11,269.6	4.5
Multi-family							
Condo/Townhomes	2,804	3%	10.0	280.4	15%	329.9	8.5
Multifamily	20,565	22%	15.0	1,371.0	10%	1,523.3	13.5
Subtotal	23,369	25%	18.0	1,651.4		1,853.2	12.6
Total	**73,545**	**100%**	**6.9**	**10,205.2**		**13,122.8**	**5.6**

Source: ECONorthwest

Table 4-8 shows the results of the *low-density* scenario. The *low-density* (using the Baseline Assumptions) forecast assumes an average density of 6.6 dwelling units per net acre (about 5.1 dwelling units per gross acre). Based on the mix and density assumptions, the greater Bear Creek Valley will need about 5,513 gross residential acres to accommodate new housing between 2006 and 2026. Nearly 14,350 gross residential acres would be required to accommodate new housing between 2006 and 2056.

Table 4-8. Alternative forecast of needed housing units, greater Bear Creek Valley, 2006-2026 and 2006-2056, Low Density Assumptions

Housing Type	New DU	Percent	Density (DU/net res ac)	Net Res. Acres	Net to Gross Factor	Gross Res. Acres	Density (DU/gross res ac)
Needed Units, 2006-2026							
Single-family types							
Single-family detached	16,201	63%	5.3	3,056.8	25%	4,075.8	4.0
Manufactured	3,086	12%	7.0	440.8	20%	551.1	5.6
Subtotal	19,287	75%	5.5	3,497.7		4,626.8	4.2
Multi-family							
Condo/Townhomes	1,437	4%	9.0	159.7	15%	187.9	7.7
Multifamily	7,546	21%	12.0	628.8	10%	698.7	10.8
Subtotal	8,983	25%	11.4	788.5		886.5	10.1
Total	**28,270**	**100%**	**6.6**	**4,286.2**		**5,513.4**	**5.1**
Needed Units, 2006-2056							
Single-family types							
Single-family detached	42,148	63%	5.3	7,952.4	25%	10,603.2	4.0
Manufactured	8,028	12%	7.0	1,146.9	20%	1,433.6	5.6
Subtotal	50,176	75%	5.5	9,099.2		12,036.8	4.2
Multi-family							
Condo/Townhomes	3,739	4%	9.0	415.4	15%	488.8	7.7
Multifamily	19,630	21%	12.0	1,635.8	10%	1,817.6	10.8
Subtotal	23,369	25%	11.4	2,051.3		2,306.4	10.1
Total	**73,545**	**100%**	**6.6**	**11,150.5**		**14,343.1**	**5.1**

Source: ECONorthwest

Table 4-9 shows the results of the *high-density* scenario. The *high-density* scenario forecast assumes an average density of 7.5 dwelling units per net acre (about 6.1 dwelling units per gross acre). Based on the mix and density assumptions, the greater Bear Creek Valley will need about 4,873 gross residential acres to accommodate new housing between 2006 and 2026. About 12,100 gross residential acres would be required to accommodate new housing between 2006 and 2056.

Table 4-9. Alternative forecast of needed housing units, greater Bear Creek Valley, 2006-2026 and 2006-2056, High Density Assumptions

Housing Type	New DU	Percent	Density (DU/net res ac)	Net Res. Acres	Net to Gross Factor	Gross Res. Acres	Density (DU/gross res ac)
Needed Units, 2006-2026							
Single-family types							
Single-family detached	16,962	60%	6.0	2,827.0	25%	3,769.3	4.5
Manufactured	3,110	11%	8.0	388.7	20%	485.9	6.4
Subtotal	20,072	71%	6.2	3,215.7		4,255.2	4.7
Multi-family							
Condo/Townhomes	1,696	6%	12.0	141.4	15%	166.3	10.2
Multifamily	6,502	23%	16.0	406.4	10%	451.5	14.4
Subtotal	8,198	29%	15.0	547.7		617.8	13.3
Total	**28,270**	**100%**	**7.5**	**3,763.4**		**4,873.1**	**5.8**
Needed Units, 2006-2056							
Single-family types							
Single-family detached	40,141	60%	6.0	6,690.1	25%	8,920.1	4.5
Manufactured	7,359	11%	8.0	919.9	20%	1,149.9	6.4
Subtotal	47,500	71%	6.2	7,610.0		10,070.0	4.7
Multi-family							
Condo/Townhomes	5,609	6%	12.0	467.4	15%	549.9	10.2
Multifamily	21,499	23%	16.0	1,343.7	10%	1,493.0	14.4
Subtotal	27,108	29%	15.0	1,811.1		2,042.9	13.3
Total	**73,545**	**100%**	**7.5**	**9,421.1**		**12,112.9**	**6.1**

Source: ECONorthwest

Table 4-10 shows a summary of the three alternative forecasts of needed housing units. The low density forecast results an average density of 5.1 dwelling units per gross residential acre (6.6 dwelling units per net residential acre). The medium density assumptions increase density to 5.6 dwelling units per gross residential acre (6.9 dwelling units per net residential acre) over the 2006-2056 period—or about 9%. This corresponds to a 9% (1,200 acre) decrease in land needed for housing. The high-density scenario increases density to 6.1 dwelling units per gross residential acre (7.5 dwelling units per net residential acre). This results in an 8% decrease in land need over the medium density assumptions, and a 17% decrease (2,230 acres) over the low density assumptions.

Table 4-10. Summary of alternative forecasts of areas needed for housing units, greater Bear Creek Valley, 2006-2026 and 2006-2056

	Low-Density		Medium-Density		High Density	
Housing Type	**Gross Ac**	**Density (DU/ Gross Ac)**	**Gross Ac**	**Density (DU/ Gross Ac)**	**Gross Ac**	**Density (DU/ Gross Ac)**
Acres, 2006-2026						
Single-family	4,626.8	4.2	4,762.2	4.1	4,255.2	4.7
Multi-family	886.5	10.1	560.5	16.0	617.8	13.3
Total	5,513.4	5.1	5,322.6	5.3	4,873.1	5.8
Acres, 2006-2056						
Single-family	12,036.8	4.2	11,269.6	4.5	10,070.0	4.7
Multi-family	2,306.4	10.1	1,853.2	12.6	2,042.9	13.3
Total	14,343.1	5.1	13,122.8	5.6	12,112.9	6.1

Source: ECONorthwest
Note: the results do not include approximately 50 acres needed for group quarters during the 2006-2026 period and 130 acres needed during the 2006-2056 period.

Chapter 5

Implications for the RPS Process

This chapter provides a brief summary of the implications of the housing needs analysis for the broader Regional Problem Solving process. This study looked at housing needs from a regional perspective. It presents estimates of needed units by type, density, tenure, and price ranges. It did not include a place-specific housing needs analysis, nor is intended to substitute for a local Goal 10 study.

The housing needs analysis has several implications for the RPS process—and for any participating jurisdiction that is considering a UGB expansion. Following are the key implications:

- *Housing mix.* The housing needs assessment suggests that RPS jurisdictions may have to plan for a different mix of housing than has been built in the recent past. Recent development has trended towards more than 80% single-family housing types. The housing needs assessment implies a regional mix of 75% single-family (including condominiums and townhomes) and 25% multifamily. ECO estimates that 10% to 15% of future housing in the Bear Creek Valley could be in higher density single-family attached housing types (condominiums and townhomes).

- *Manufactured housing*. The HCS housing needs model suggests that the region needs a much higher percent of manufactured homes than it has seen in recent development. ECO questions this finding—our research suggests that manufactured housing, while an affordable alternative, is a less attractive option for many households. From a land use perspective, all of the participating jurisdictions should have complied with ORS 197.480 which requires cities to allow manufactured homes outright in certain low-density residential zones.

- *Increased densities*. The preliminary capacity modeling for the RPS process assumed an average density of 5.4 dwelling units. It is not clear whether this is in gross or net residential acres; ECO assumed it was in gross acres. The bottom line is that there is a significant link between lot size and housing price.[16] ECO's need analysis pushes densities to 7.0 dwellings per net residential acre; or between 5.4 and 5.7 dwelling units per gross acre.

- *Housing prices.* ECO has long discussed the distinction between housing demand and need (*demand* being what the market builds and *need* being what households can afford). The needs analysis found needs at the lower

[16] ECO demonstrated this empirically in the 2002 Ashland Housing Needs Analysis (see Table 3-6). http://www.ashland.or.us/Files/Housing_Needs_Analysis_final.pdf

cost and higher cost ends of the range. Local governments' ability to address housing cost through land use policy is relatively constrained. Data suggest that land costs account for roughly 25% of the total cost of a housing unit. At a minimum, cities need to plan for sufficient land to accommodate identified housing needs. This ensures that cities have sufficient land for different housing *types*. We highlight types, because ORS 197.309 includes a statutory restriction that prevents cities from adopting local ordinances or approval conditions that effectively establish housing sale price or designate class of purchasers. Given the established link between lot size and housing costs, one tangible thing cities can do is to reduce minimum lot size requirements.

- *Distribution of Growth.* The distribution of growth is an overriding regional issue. The choice between location and housing type, and the geographic level of location choice, overlap. It is probably reasonable to assume that for most firms and businesses, the decision about a regional location comes first: what state or metropolitan area is most desirable? Having made that choice, households and businesses then make a more specific (intra-regional) location choice based on some similar, and some different or more detailed, criteria. For example, a household may move to the Rogue Valley primarily for a job opportunity (and the general quality of life benefits of southern Oregon). But once that decision is made, it then considers things like community, school districts, lot size, housing price, and proximity to work and shopping locations.

  The RPS process is concerned with the second, more specific type of location decisions. Though the term "jobs-housing balance" implies that one would measure a relationship between housing units and number of jobs, it is more commonly measured as a ratio between the number of jobs in an area and the number of employed residents, the assumption being that a working resident needs (or at least, should have the opportunity to acquire) a job in the jurisdiction in which he or she lives. A ratio of 1.0 implies some theoretical balance in the sense that there is a job for every working resident, or, alternatively, that there is a residence for every worker.

  The Economic Opportunities Analysis will address the jobs side of this issue. The EOA will include a regional employment forecast as well as some sub-regional allocation of employment.

- *Local policy*. Local policy also has an affect on housing. Beyond the land allocation issue described above, jurisdictions that are looking at UGB expansions will be required under the new Goal 14 to review measures to increase land use efficiency (e.g., densities) within UGBs *prior* to expanding the UGB.

The housing needs analysis suggests that the region will need to plan for a significant amount of new housing—and land to accommodate that housing. The RPS regional plan can address some of the larger issues that pertain to distribution of growth; it will not obviate the need for local municipalities to complete additional analysis to comply with Goal 10.

Appendix A HCS Housing Needs Model Output

ECONorthwest used the HCS Housing Needs Model to address the ORS 197.296 requirements. The results of that analysis are summarized in Chapter 4. This appendix provides additional background and the complete analysis. It has two sections:

- **Detailed methodology** provides a complete description of the methodology for the development of the model, as well as a description of the model inputs for the Bear Creek Valley results.
- **Detailed results** provides most of the results from the HCS model that were not included in Chapter 4.

DETAILED METHODOLOGY[17]

BACKGROUND AND ASSUMPTIONS IN THE MODEL

ECONorthwest used the HCS Housing Needs Model to address the ORS 197.296 requirements. The model considers the current and projected demographics, existing housing inventory, and regional tenure choices, to arrive at the number of needed housing units by tenure, price point, and housing type.

The methodology that the model uses to calculate housing needs is driven by the demographics of the study area (in this case, the Ashland, Medford, and Eagle Point County subdivisions) rather than past trends in housing production. In other words, the model assumes that people with similar demographic characteristics will make similar housing choices. The model uses demographic data in conjunction with current regional housing tenure data to calculate the housing needs for that study area. The model was designed to use Census data as a major input.

Two demographic variables—age of head of household and household income—demonstrated significantly stronger correlation with housing tenure than other variables (including household size); they were consequently selected as the primary demographic variables for the model. In addition, the model uses household income as the key variable in determining the affordability component of housing needs.

The model assumes that the demographic and income structure of a study area will not significantly change over the planning period, though it does account for growth in population. The model also assumes that housing need for a study area

[17] This section summarizes the methodological description that accompanies the HCS Housing Needs Model. That document (A Housing and Land Needs Analysis Methodology and Model, Richard Bjelland, State Housing Analyst, OHCS) is available on-line at: http://www.ohcs.oregon.gov/OHCS/PPR_HousingNeedsModel.shtml.

can be derived from the actual cohort tenure data of a larger regional area. While the local supply of rental versus ownership housing may not represent housing need for that locality, it is assumed that on a larger regional basis, need and supply are in balance. The model compares local level data to regional data is one method of deriving need.

A major assumption in the model is that housing need is defined by cohort tenure choices and is equivalent to the actual cohort tenure data found within a large regional area. While the local supply of rental versus ownership housing may not be in equilibrium with tenure need in some markets, it is assumed that on a larger regional basis it is in equilibrium. The initial version of the model used all of Oregon as the regional area for parameter calculation and assignment.

The model defined that larger region differently for some communities than for others because significantly different housing choice decisions are made in urban communities that in rural communities. To account for these differences in choice, three versions of the model are in available—Version U for communities that are either urban, college oriented, or resort oriented; Version M for rural communities between the size of 6,750 and 22,500; and Version S for rural communities under 6,750 in population. The analysis in this document is based on Version U.

The model examines housing and land needs for two time periods: current and future. In the case of the Bear Creek Valley, the current housing needs are calculated for February, 2006 and the future needs are estimated for February, 2026. The model has an additional module to estimate buildable land needs that was not used in this analysis. Additionally, the analysis in this appendix and in Chapter 4 describes just one model run; ECO did not run multiple scenarios.

CURRENT HOUSING STATUS ANALYSIS

The model first calculates the total number of housing units needed for the planning period using population estimates, number of people in group quarters, number of occupied housing units and/or number of households, average household size, and desired vacancy rate for the study area. Price points for rental and ownership units were determined as follows:

- For rental units, housing costs were assumed to take no more than 30% of the household's income. Utilities were not included in rent.
- For owned units, three price points were selected. The model assumes that home owners will pay between 2.5 and 3 times their annual income for ownership units; thus, 2.5 times annual income was used as a low estimate and 3 times annual income as a high estimate. The average historical interest rate was used to arrive at a third ownership price range.

The next step in the model accounts for the fact that some households choose to live in a unit at a lower price point than they might be able to afford. This removes a unit from the supply of units at the lower price point. The model adjusts for these choices with an estimate of the percent of households that will chose to rent or buy a home at a lower price point than they might otherwise be able to afford. The model refers to this as an *out factor*. The user of the model estimates the out factor appropriate for the study area.

Recipients of tenant-based subsidies (such as Section 8 vouchers) require an additional off-setting variable: an estimate of the number of units which are rented to households that can only afford those units because they receive tenant-based subsidies. These households tend to occupy units in the lower price points.

The last step in the current housing status portion of the model requires the user to develop data on their current housing inventory for input into the *current inventory of dwelling units* template. The existing inventory of units must be categorized into the five housing types established for the model. Each of these housing types can be owner or renter occupied.

The five classifications of dwelling units are:

- Single family units—either site built or manufactured single family dwellings on their own lot
- Manufactured dwelling park unit—a single family dwelling unit located in a rental park
- Duplex unit—a two-family dwelling unit located on its own lot
- Tri-plex or Quad-plex unit—a three or four-family dwelling unit
- 5+ Multi-family unit—dwelling units in buildings with 5 or more units per building

FUTURE HOUSING STATUS ANALYSIS

In order to determine the future housing needs for a projected population, users of the model must estimate the demographic composition of that population and make some assumptions regarding their housing type choices by price point. These assumptions include future age-income cohort percentages and future out factors. Once the user has completed the Current Inventory of Dwelling Units template and the Housing Units Planned allocation, the model calculates the number of new units needed by price point, tenure, and housing type to bring the market into balance with the projected need at the end of the planning period. The model summarizes the new needs by housing type, which can then be used by the community to drive their land use planning and housing policy decisions.

DETAILED RESULTS

MODEL RUN #1: BASELINE SCENARIO PARAMETERS AND DATA SOURCES

This section details the data inputs that were used as the basis of the HCS model run for the greater Bear Creek Valley. Where possible, the section provides the numbers inputted into the model.

ECONorthwest based all model input assumptions (forecast population, vacancy rates, population in group quarters, etc.) on analysis of Census and other data. Additionally, ECONorthwest has supplemented model outputs with analysis of Census data, and Census permit data.

Table A-1. Data inputs and assumptions used for the model run

Parameter or data required by the model	Input or assumption
Time frame of data used	
Beginning of planning period	2006
End of planning period	2026
Vacany factor for ownership units	3%
Vacany factor for rental units	6%
Mortgage assumption	average historical rates
Current population	160,376
Future population	226,220
Current persons in group quarters	3150
Future persons in group quarters	4050
Occupied dwelling units	64605
Vacant units	2700
Future persons per household	2.38
Dwelling units removed	0
Estimated number of tenants with Section 8 vouchers	700
Number of renters who could afford to rent at a given price point, but choose to rent a lower priced unit (now and in the future)	From 5% for low-rents, to 50% for high rents
Number of home buyers who could afford to buy at a given price point, but choose to buy a lower priced unit (now and in the future)	From 5% for low cost units to 15% for high cost units

Source: ECONorthwest
Note: Out factor assumptions used were the nominal model values provided by HCS

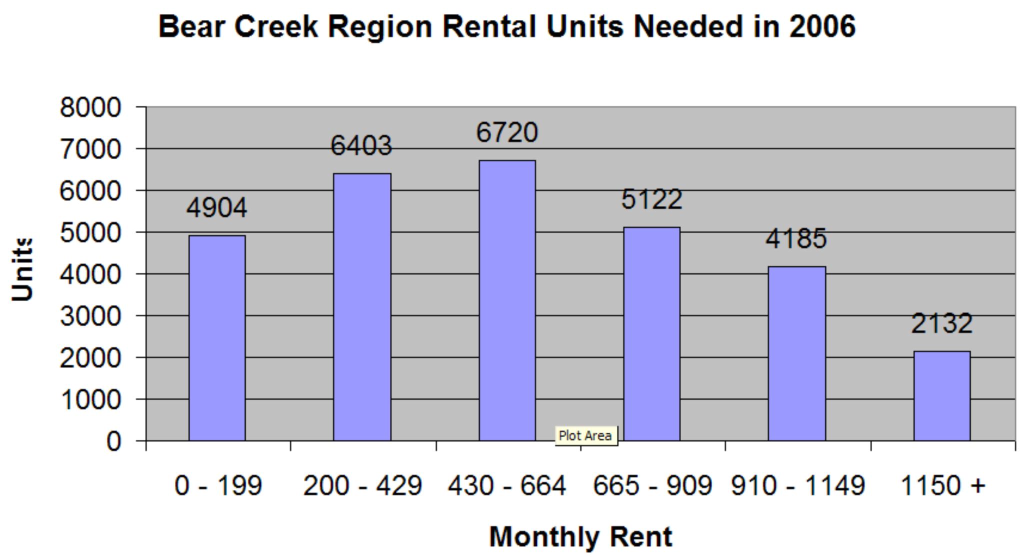
Other data inputs included Census 2000 Summary File 3 and Public Use Microsample data for the following:

- Percentage of households in given age/income cohorts
- Percentage of households in given age/income cohorts that will own or rent
- Actual number of units of various housing types (for rent and for sale) at various price points
- The percentage of Households that are in this Age / Income cohort as of the scenario's time frame
- The percentage of Households in this Age / Income cohort that will own or rent
- The planned percentage of dwelling units needed of this housing type at this price point in the region

CURRENT HOUSING NEEDS

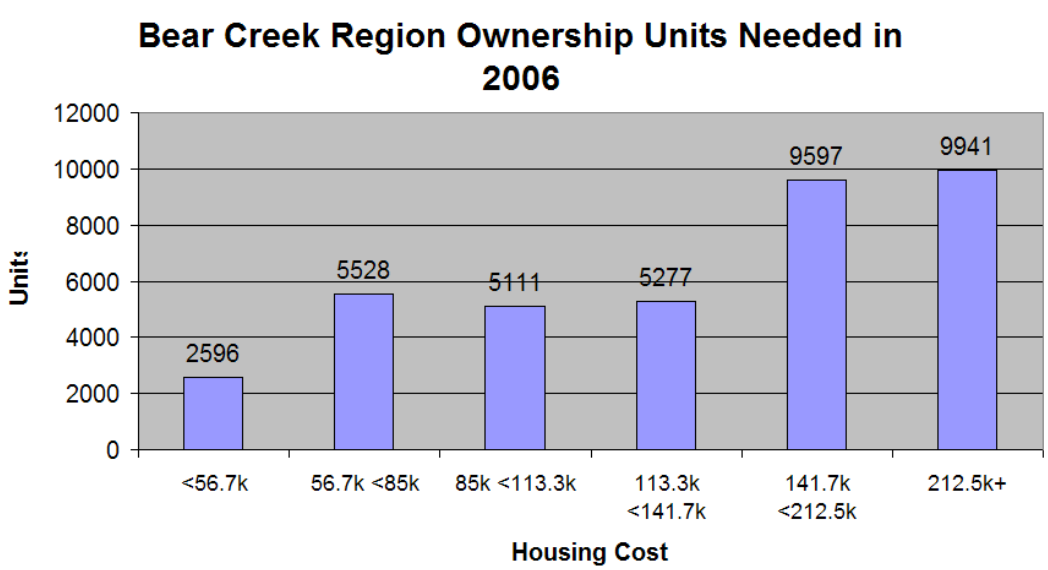
Figures A-1 and A-2 describe the estimated number of rental and ownership units needed at various price points in the Bear Creek Valley in April 2006.

Figure A-1. Run #1: Rental units needed, 2006, HCS Model Output



Source: Oregon Housing and Community Services Housing Needs Model; output for the City of Bear Creek Valley
Note: Values in 1999 dollars

Figure A-2. Run #1: Ownership units needed, 2006, HCS Model Output



Source: Oregon Housing and Community Services Housing Needs Model; output for the City of Bear Creek Valley
Note: Values in 1999 dollars

Figure A-1 estimates that the greatest number of rental units is in the mid-price range: $430 to $664 per month. Figure A-2 estimates that greatest number of ownership units is in the upper mid-price ranges: $140,000 and up.

Table A-2 (below) compares those housing needs with the supply available in the Bear Creek Valley. It indicates a total unmet need of 1,195 rental units. The model shows the largest deficit in the lowest price range; just 17% of the need is met for units price under $199 per month, and the model estimates a total deficit of 7,633 units priced under $430. The model estimates a surplus of units in the mid price ranges ($430 - $909).

For ownership units, Table A-2 estimates a total surplus of 989 units. Despite this overall surplus, the model estimates a deficit of lower-priced homes; 2,205 units are needed below $57,000 and 3,576 units priced between $57,000 and $85,000 are needed. At the same time, the model estimates a deficit of homes is in the upper-price range; 572 homes are needed that are priced above $212,000. Table A-2 indicates that the market has overproduced homes in the mid-price range.

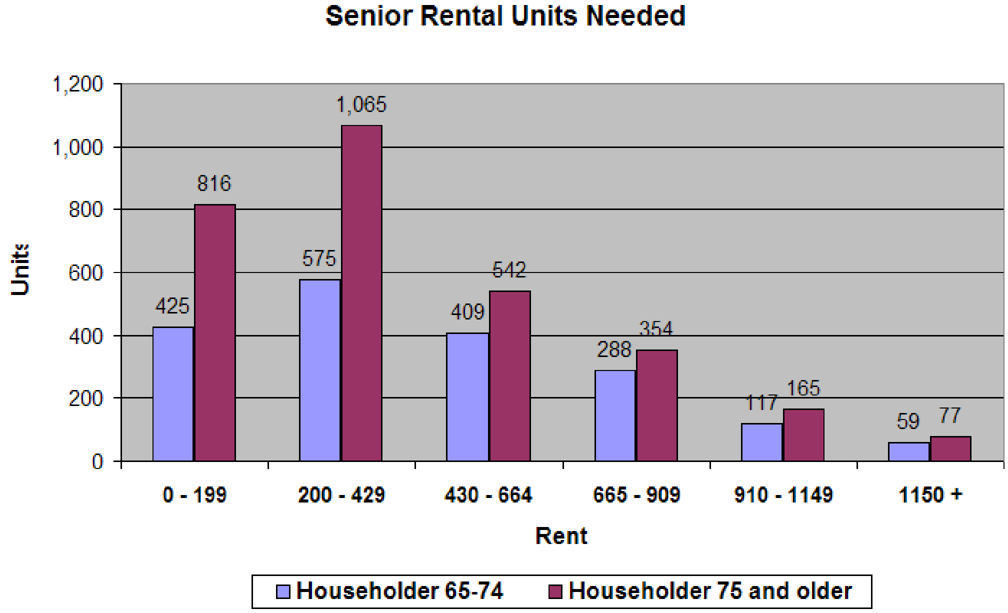
Table A-2. Run #1: Current unmet housing needs, 2006, HCS Model Output

Rental				Ownership			
Rent	**Current Unmet Need / (Surplus)**	**% of Need Met**	**Cumulative Units Needed**	**Price**	**Current Unmet Need / (Surplus)**	**% of Need Met**	**Cumulative Units Needed**
0 - 199	4,056	17.3%	4,056	**<56.7k**	2,205	15.1%	2,205
200 - 429	3,576	44.2%	7,633	**56.7k <85k**	3,576	35.3%	5,780
430 - 664	(3,174)	147.2%	4,459	**85k <113.3k**	1,208	76.4%	6,988
665 - 909	(4,772)	193.2%	(314)	**113.3k <141.7k**	(4,482)	185.0%	2,505
910 - 1149	510	87.8%	196	**141.7k <212.5k**	(4,066)	142.4%	(1,560)
1150 +	1,002	53.0%	1,198	**212.5k+**	572	94.3%	(989)

Source: Oregon Housing and Community Services Housing Needs Model; output for the City of Bear Creek Valley
Note: Values in 1999 dollars

The model also estimates the units needed for special populations. Figure A-3 shows the units needed to house the region's senior population.

Figure A-3. Run #1: Rental units needed for the senior population, 2006, HCS Model Output



Source: Oregon Housing and Community Services Housing Needs Model; output for the City of Bear Creek Valley
Note: Values in 1999 dollars

FUTURE HOUSING NEEDS

Using the current housing needs as a baseline, the HCS model estimates the number of housing units that will be needed in the future (in this case, in 2026). The model results include rental and ownership units needed and new rental and ownership units needed by price point and by housing type.

Table A-3 shows the total number of rental and ownership units needed in the Bear Creek Valley in 2026 at various price points. About 44% of all new units will be rental units, and 64% will be ownership units. The greatest need for rental units will be in the lower and middle price range; the model indicates that nearly 60% of the total units needed in 2026 should be priced below $665 per month. Conversely, the greatest need for ownership units will be in the mid- to upper-price range; as in 2006, the greatest need for ownership units will be in the $212,000+ range.

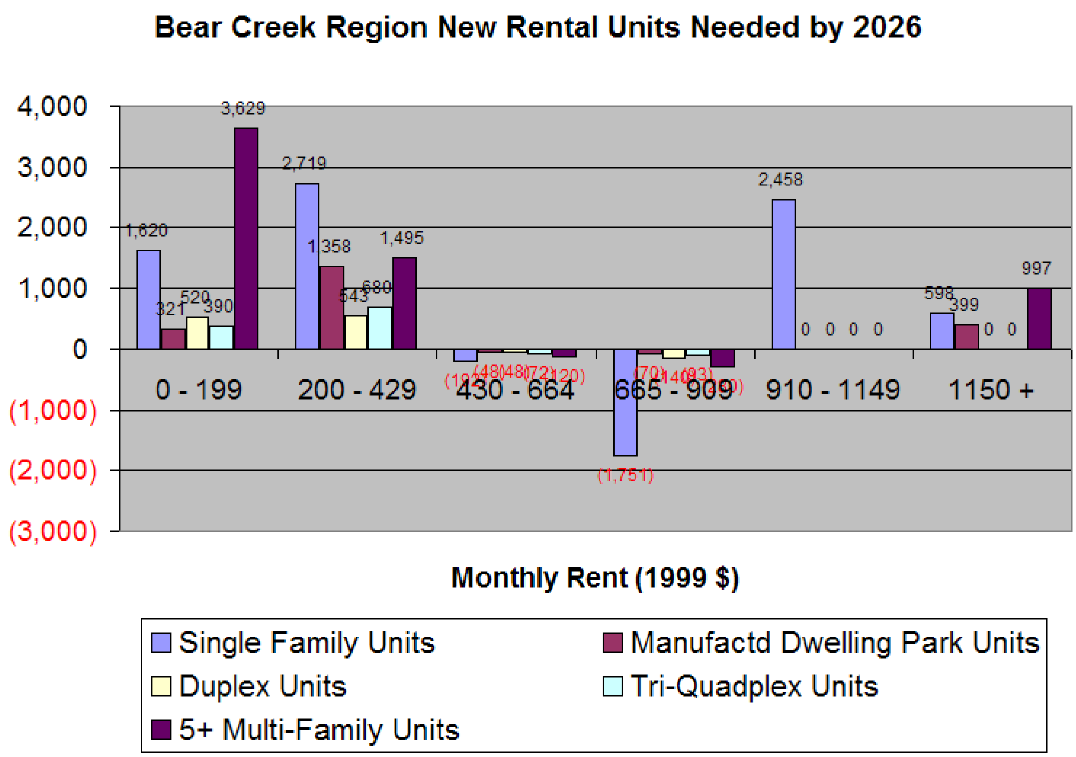
Table A-3. Run#1: New rental and ownership units needed, 2025, HCS Model Output

	Rental				Ownership		
Rent*	**# Units**	**% of Units**	**Cum %**	**Price***	**# Units**	**% of Units**	**Cum %**
0 - 199	7,133	16.5%	16.5%	<28.3k	2,431	4.4%	4.4%
200 - 429	9,874	22.9%	39.4%	28.3k <56.7k	5,678	10.2%	14.5%
430 - 664	8,851	20.5%	59.9%	56.7k <85k	6,748	12.1%	26.6%
665 - 909	7,062	16.4%	76.2%	85k <113.3k	6,722	12.1%	38.7%
910 - 1149	4,012	9.3%	85.5%	113.3k <141.7k	6,636	11.9%	50.6%
1150 - 1764	4,576	10.6%	96.1%	141.7k <212.5k	13,539	24.3%	74.9%
1765+	1,671	3.9%	100.0%	212.5k+	14,003	25.1%	100.0%
Totals	**43,180**	**% of All**	**43.6%**	**Totals**	**55,756**	**% of All**	**56.4%**

Source: Oregon Housing and Community Services Housing Needs Model; output for the City of Bear Creek Valley
Note: Values in 1999 dollars

The HCS Model also outputs an estimate of the number of new housing units that should be provided in each of five housing types. Figure A-3 shows that output for needed new rental units.

Figure A-3. Run #1: New rental units needed by housing type, 2026, HCS Model Output



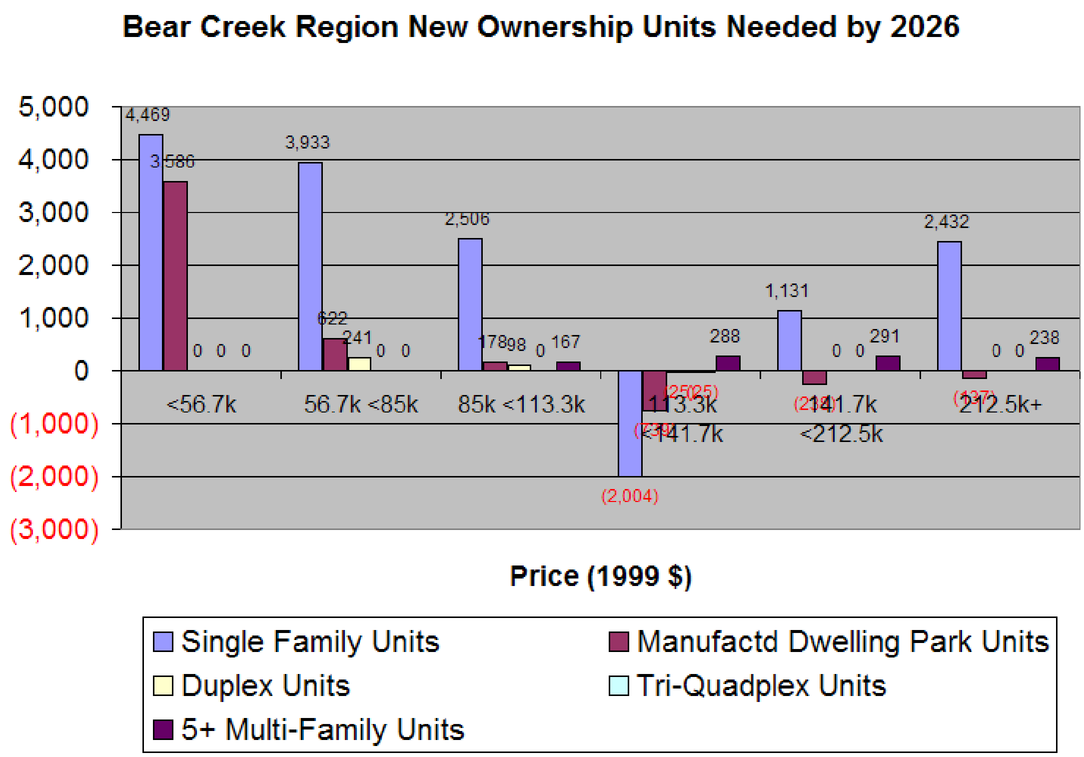
Source: Oregon Housing and Community Services Housing Needs Model; output for the City of Bear Creek Valley
Note: Values in 1999 dollars

The model output for rental units shows the following needed housing characteristics:

- The Bear Creek Valley will have a surplus of all rental unit types in the $430 $909 range. The surplus for single-family rental units will be largest.
- There is a deficit of units in larger multi-family structures (5+ units) is the greatest of all housing types
- The model indicates that the Bear Creek Valley will need a substantial number of new family rental units priced below $200.
- The model estimates moderate need for duplex and tri- or quad-plex units at price points under $430.

Figure A-4 shows the model output for ownership units needed by housing type. It indicates that the Bear Creek Valley will need nearly 10,000 new single-family units at all price points below $113,000. Under $57,000, most (more than 80%) of the new ownership units should be manufactured dwelling units.

Figure A-4. Run #1: New ownership units needed by housing type, 2026, HCS Model Output



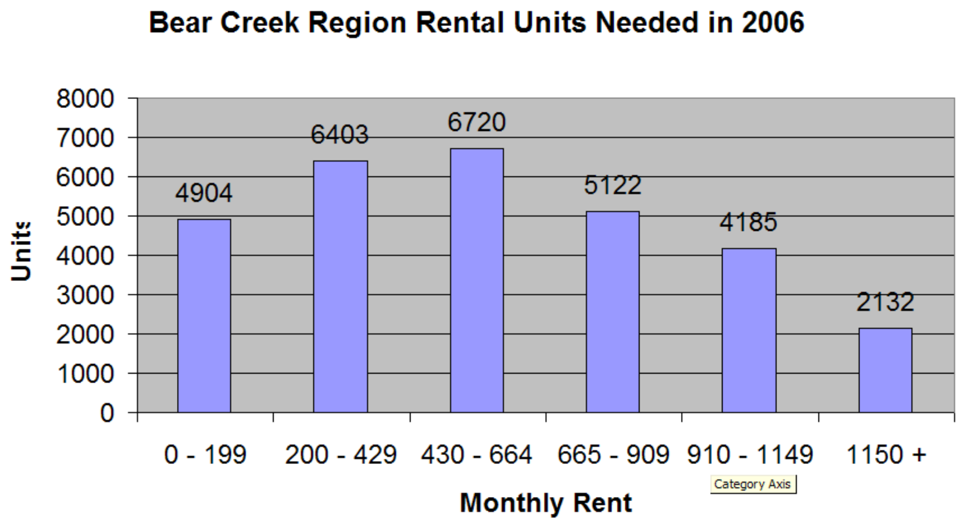
Source: Oregon Housing and Community Services Housing Needs Model; output for the City of Bear Creek Valley
Note: Values in 1999 dollars

MODEL RUN #2: COST INCREASE SCENARIO PARAMETERS AND DATA SOURCES

CURRENT HOUSING NEEDS

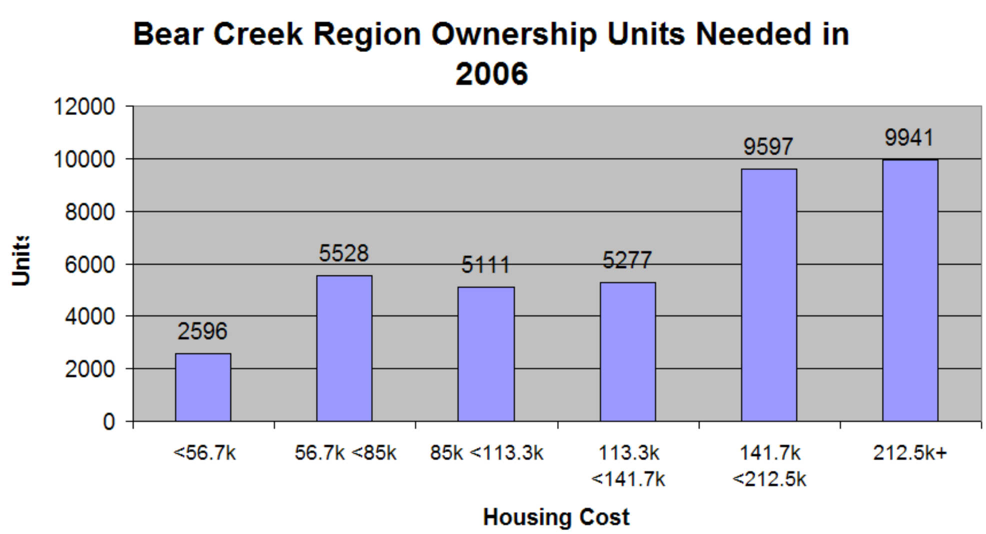
Figures A-5 and A-6 describe the estimated number of rental and ownership units needed at various price points in the Bear Creek Valley in April 2006.

Figure A-5. Run #2: Rental units needed, 2006, HCS Model Output



Source: Oregon Housing and Community Services Housing Needs Model; output for the City of Bear Creek Valley
Note: Values in 1999 dollars

Figure A-6. Run #2: Ownership units needed, 2006, HCS Model Output



Source: Oregon Housing and Community Services Housing Needs Model; output for the City of Bear Creek Valley
Note: Values in 1999 dollars

Figure A-5 estimates that the greatest number of rental units is in the mid-price range: $430 to $664 per month. Figure A-6 estimates that greatest number of ownership units is in the upper mid-price ranges: $140,000 and up.

Table A-4 (below) compares those housing needs with the supply available in the Bear Creek Valley. It indicates a total unmet need of 1,198 rental units. The model shows the largest deficit in the lowest price range; just 12% of the need is met for units price under $199 per month, and the model estimates a total deficit of 8,483 units priced under $430. The model estimates a surplus of units in the mid price ranges ($430 - $909).

For ownership units, Table A-4 estimates a total surplus of 989 units. Despite this overall surplus, the model estimates a deficit of lower-priced homes; 12,665 units are needed below $142,000. Table A-4 indicates that the market has overproduced homes in the mid- and upper-price ranges.

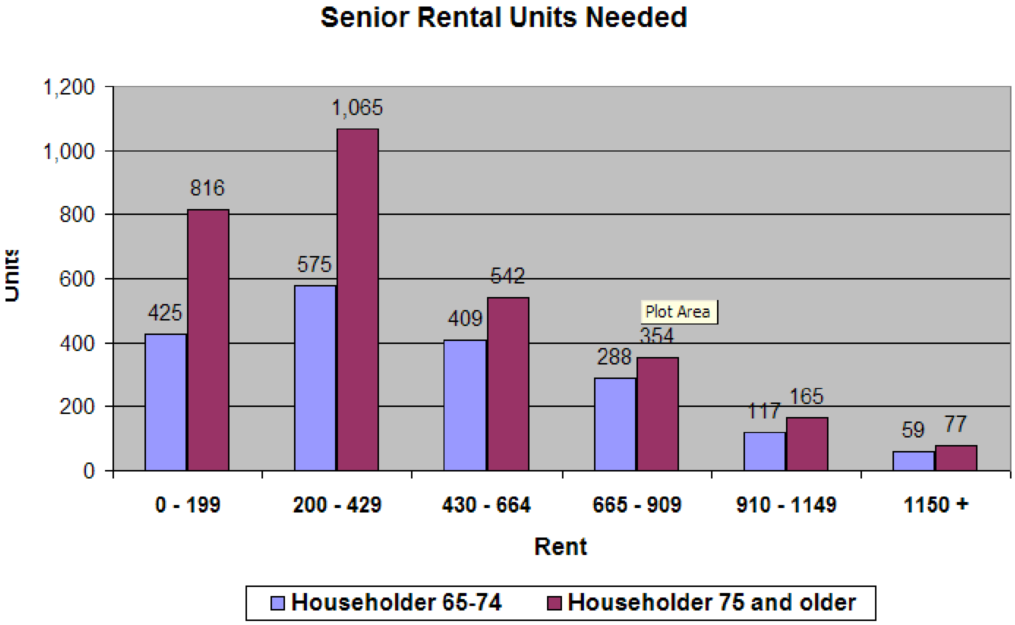
Table A-4. Run #2: Current unmet housing needs, 2006, HCS Model Output

Rental				Ownership			
Rent	**Current Unmet Need / (Surplus)**	**% of Need Met**	**Cumulative Units Needed**	**Price**	**Current Unmet Need / (Surplus)**	**% of Need Met**	**Cumulative Units Needed**
0 - 199	4,339	11.5%	4,339	**<56.7k**	1,816	30.1%	1,816
200 - 429	4,143	35.3%	8,483	**56.7k <85k**	4,747	14.1%	6,562
430 - 664	(348)	105.2%	8,135	**85k <113.3k**	3,549	30.6%	10,111
665 - 909	(6,752)	231.8%	1,382	**113.3k <141.7k**	2,545	51.8%	12,655
910 - 1149	(620)	114.8%	762	**141.7k <212.5k**	(3,285)	134.2%	9,371
1150 +	436	79.6%	1,198	**212.5k+**	(10,359)	204.2%	(989)

Source: Oregon Housing and Community Services Housing Needs Model; output for the City of Bear Creek Valley
Note: Values in 1999 dollars

The model also estimates the units needed for special populations. Figure A-7 shows the units needed to house the region's senior population.

Figure A-7. Run #2: Rental units needed for the senior population, 2006, HCS Model Output



Source: Oregon Housing and Community Services Housing Needs Model; output for the City of Bear Creek Valley
Note: Values in 1999 dollars

FUTURE HOUSING NEEDS

Using the current housing needs as a baseline, the HCS model estimates the number of housing units that will be needed in the future (in this case, in 2026). The model results include rental and ownership units needed and new rental and ownership units needed by price point and by housing type.

Table A-5 shows the total number of rental and ownership units needed in the Bear Creek Valley in 2026 at various price points. About 44% of all new units will be rental units, and 56% will be ownership units. The need for rental units is relatively evenly distributed throughout the range; the model indicates that more than 60% of the total units needed in 2026 should be priced below $665 per month. Conversely, the greatest need for ownership units will be in the mid- to upper-price range; as in 2006.

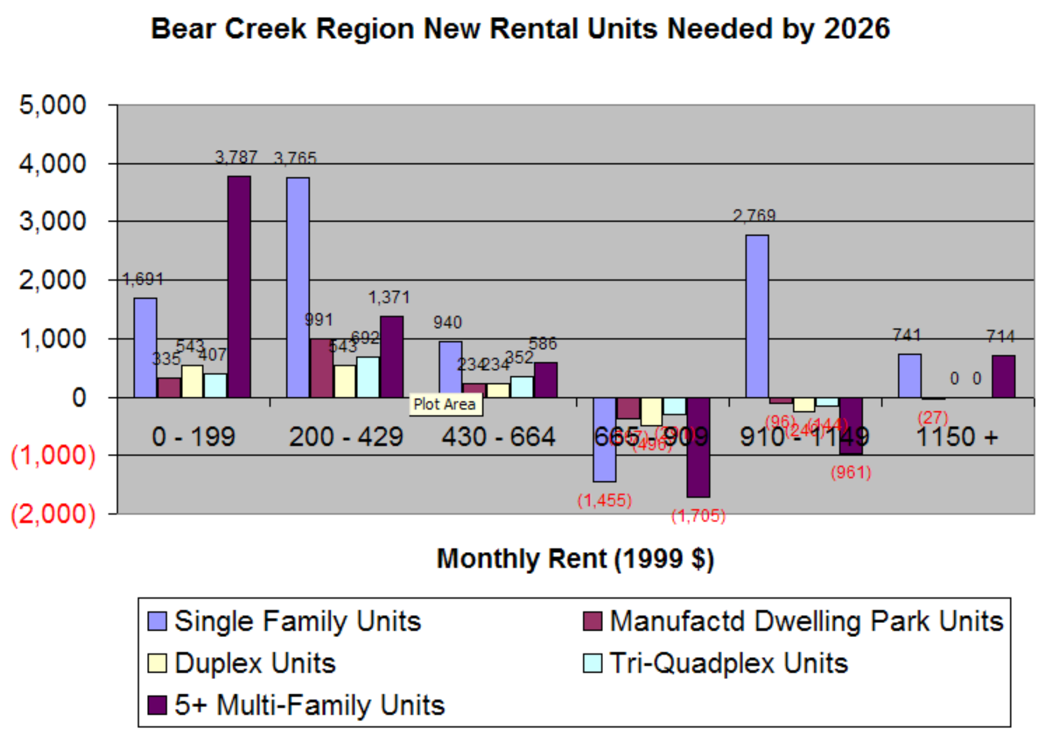
Table A-5. Run #2: New rental and ownership units needed, 2025, HCS Model Output

Rent*	Rental # Units	% of Units	Cum %	Price*	Ownership # Units	% of Units	Cum %
0 - 199	7,327	17.0%	17.0%	<28.3k	8,446	15.1%	15.1%
200 - 429	9,623	22.3%	39.3%	28.3k <56.7k	6,746	12.1%	27.2%
430 - 664	9,415	21.8%	61.1%	56.7k <85k	6,851	12.3%	39.5%
665 - 909	7,559	17.5%	78.6%	85k <113.3k	7,254	13.0%	52.5%
910 - 1149	6,133	14.2%	92.8%	113.3k <141.7k	14,556	26.1%	78.7%
1150 - 1764	3,124	7.2%	100.0%	141.7k <212.5k	11,902	21.3%	100.0%
Totals	**43,180**	**% of All**	**43.6%**	**Totals**	**55,756**	**% of All**	**56.4%**

Source: Oregon Housing and Community Services Housing Needs Model; output for the City of Bear Creek Valley
Note: Values in 1999 dollars

The HCS Model also outputs an estimate of the number of new housing units that should be provided in each of five housing types. Figure A-8 shows that output for needed new rental units.

Figure A-8. Run #2: New rental units needed by housing type, 2026, HCS Model Output



Source: Oregon Housing and Community Services Housing Needs Model; output for the City of Bear Creek Valley
Note: Values in 1999 dollars

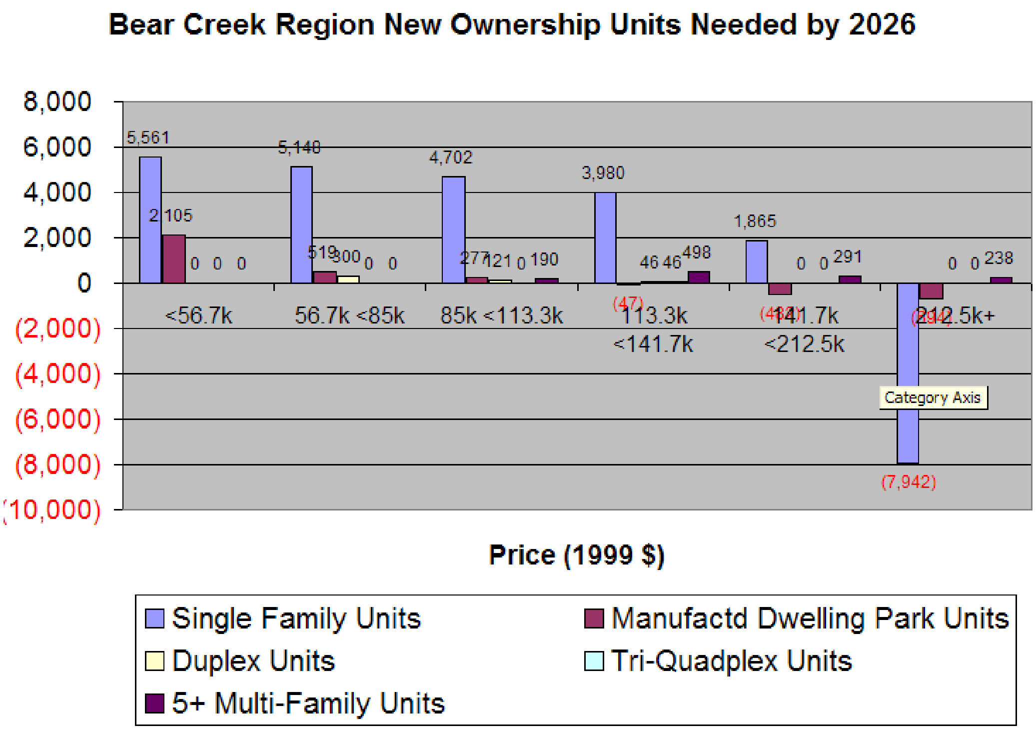
The model output for rental units shows the following needed housing characteristics:

- The Bear Creek Valley will have a surplus of all rental unit types in the $665 $909 range. The surplus for apartment units will be largest.

- There is a deficit of units in larger multi-family structures (5+ units) is the greatest of all housing types
- The model indicates that the Bear Creek Valley will need a substantial number of new family rental units priced below $200.
- The model estimates moderate need for duplex and tri- or quad-plex units at price points under $430 and a big need for single-family types.

Figure A-9 shows the model output for ownership units needed by housing type. It indicates that the Bear Creek Valley will need 23,000 new single-family units at all price points below $212,000.

Figure A-4. Run #2: New ownership units needed by housing type, 2026, HCS Model Output



Source: Oregon Housing and Community Services Housing Needs Model; output for the City of Bear Creek Valley
Note: Values in 1999 dollars

Appendix B

Local Demographic and Housing Data

This appendix presents local demographic and housing data from dataplace.org (www.dataplace.org).

Table B-1. Housing and demographic overview, Bear Creek Valley cities

	Medford	Ashland	Central Point	Jacksonville	Talent	White City	Eagle Point	Phoenix
Population, total and by age								
Total population (2000)	63,436	19,511	12,438	2,245	5,486	5,153	4,665	4,139
Estimated population (2004)	68,099	20,755	15,152	2,242	5,813	N/A	6,959	4,379
Projected population (2030)	N/A	N/A	N/A	n/a	N/A	N/A	N/A	N/A
Population density (people per square mile) (2000)	2,924	3,001	4,056	1,236	4,352	2,787	1,818	3,313
Pct. population under 18 years old (2000)	25.40%	18.60%	29.60%	21.00%	25.10%	32.80%	30.60%	20.40%
Pct. population 65 years old and over (2000)	16.60%	14.90%	13.70%	23.80%	17.30%	9.60%	10.10%	22.50%
Population by race/ethnicity (2000 def.)								
Pct. non-Hispanic White alone population (2000)	85.40%	89.40%	90.60%	93.40%	83.00%	78.30%	89.00%	87.10%
Pct. non-Hispanic Black/African American alone population (2000)	0.40%	0.60%	0.50%	0.70%	0.30%	0.00%	0.30%	0.20%
Pct. non-Hisp. Asian, Hawaiian and Pacific Islander alone pop. (2000)	1.20%	1.90%	0.50%	0.40%	0.70%	0.50%	0.90%	1.30%
Pct. non-Hispanic American Indian/Alaska Native alone population (2000)	1.10%	1.70%	0.50%	0.90%	0.40%	1.30%	1.50%	0.20%
Pct. non-Hispanic other race alone population (2000)	0.20%	0.60%	0.00%	0.20%	0.70%	0.00%	0.40%	0.00%
Pct. non-Hispanic multiracial population (2000)	2.20%	2.60%	2.70%	2.00%	1.70%	1.90%	3.10%	0.50%
Pct. Hispanic/Latino population (2000)	9.40%	3.20%	5.20%	2.40%	13.20%	17.90%	5.00%	10.70%
Household size and type								
Total households (2000)	25,250	8,552	4,524	1,002	2,293	1,700	1,694	1,771
Average household size (2000)	2.5	2.1	2.7	2.2	2.4	3	2.8	2.3
Pct. married-couple hhlds. with own children under 18 years old (2000)	21.90%	15.00%	29.70%	19.00%	18.20%	31.60%	29.10%	17.60%
Pct. single-parent-headed hhlds. with own children under 18 years (2000)	10.30%	11.00%	9.50%	5.20%	11.20%	15.60%	11.50%	8.60%
Pct. family households without own children under 18 years old (2000)	34.00%	27.50%	35.30%	40.30%	32.70%	31.40%	36.00%	36.20%
Pct. nonfamily households (2000)	33.70%	46.50%	25.50%	35.50%	37.90%	21.30%	23.40%	37.70%
Education								
Pct. persons 25+ yrs. old with no high school diploma or GED (2000)	16.70%	5.40%	13.30%	7.80%	17.50%	33.40%	15.40%	18.30%
Pct. pers. 25+ yrs. old with a bachelors or graduate/prof. degree (2000)	21.10%	50.60%	14.90%	38.40%	20.80%	4.40%	10.00%	17.00%
Income/employment of residents								
Median household income last yr ($) (2000)	$36,481	$32,670	$40,622	$41,250	$29,063	$29,342	$37,557	$31,701
Poverty rate (2000)	13.90%	19.60%	6.60%	660.00%	15.40%	21.10%	12.80%	11.60%
Pct. pop. 16 years old and over who are employed (2000)	57.30%	59.50%	61.60%	55.00%	56.00%	53.90%	61.10%	53.20%
Unemployment rate (2000)	7.40%	7.40%	5.40%	3.50%	8.40%	14.00%	10.10%	9.40%
Income/credits for tax filers								
Average Adjusted Gross Income (2002)	$41,528	$42,290	N/A	N/A	N/A	N/A	N/A	N/A
Pct. of low-income returns that receive EITC (2002)	27.40%	21.20%	N/A	N/A	N/A	N/A	N/A	N/A
Average dollar amount received from EITC (2002)	$1,710	$1,315	N/A	N/A	N/A	N/A	N/A	N/A
Economy								
Total number of establishments (2002)	2,315	796	N/A	N/A	N/A	N/A	N/A	N/A
Number of establishments per 1,000 population (2002)	36	41	N/A	N/A	N/A	N/A	N/A	N/A
Estimated employment (2002)	31,633	6,596	N/A	N/A	N/A	N/A	N/A	N/A
Estimated employment per 1,000 population (2002)	499	338	N/A	N/A	N/A	N/A	N/A	N/A
Housing								
Total housing units (2000)	26,310	9,071	4,720	1,120	2,420	1,831	1,834	1,892
Estimated housing units (2004)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total new manufactured home placements for residential use (2004)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Median year structure built (2000)	1975	1973	1981	1974	1986	1977	1980	1978
Pct. housing units in single-family detached homes (2000)	63.80%	59.30%	70.80%	72.10%	45.90%	42.10%	56.10%	48.40%
Vacancy rate (2000)	4.40%	5.70%	3.80%	7.10%	4.60%	4.90%	8.10%	5.90%
Homeownership rate (2000)	57.10%	52.00%	70.90%	76.20%	57.70%	82.70%	70.90%	67.20%
Housing costs								
Median value for specified owner-occupied housing units ($) (2000)	$132,400	$188,400	$125,300	$194,700	$114,900	$88,900	$116,400	$114,800
Median gross rent of specified renter-occ. units with rent ($) (2000)	$605	$582	$663	$675	$656	$519	$605	$564
Housing hardship								
Pct. hhlds. with inc. 0-80% of area median with hsg. cost burden (2000)	61.10%	68.80%	61.70%	58.80%	59.40%	59.40%	53.00%	56.10%
Pct. hhld. w/inc. 0-80% of area median w/severe hsg. cost burden (2000)	32.30%	40.90%	31.00%	28.10%	29.90%	32.60%	25.60%	24.70%
Pct. housing units that are overcrowded (2000)	5.20%	2.50%	4.20%	0.90%	7.10%	14.60%	7.50%	4.90%
Mortgage lending								
Mortgage loans (all purposes) (2003)	5,685	1,867	1,667	435	469	684	867	N/A
Home purchase mortgage loans per 1,000 housing units (2003)	74	56	94	44	57	97	146	N/A
Median amount of mortgage loans for home purchase ($) (2003)	$130,000	$200,000	$136,000	$200,500	$122,000	$123,000	$140,000	N/A
Pct. of conv. home purchase mortgage loans by subprime lenders (2003)	16.40%	8.40%	14.70%	7.50%	13.00%	20.00%	13.20%	N/A
Pct. of conv. refinancing mortgage loans by subprime lenders (2003)	8.20%	4.50%	8.20%	4.30%	7.70%	7.50%	6.60%	N/A
Borrower characteristics								
Median borrower income for owner-occupied home purchase loans (2003)	$53,000	$73,000	$54,000	$70,000	$47,500	$48,000	$52,000	N/A
Pct. of owner-occ. home purchase loans to low-income borrowers (2003)	24.30%	12.40%	23.80%	8.10%	31.70%	35.50%	20.30%	N/A

Source: www.dataplace.org

APPENDIX IX

REGIONAL LAND NEEDS SIMULATOR

Number	Name	Description	Land Need Scenarios			Subcommittee Recommendations	
			Low	Medium	High	Low	High
1	Employment by land use type	Distribution of employment by land use type	Retail and Services: 70% Industrial: 20% Government: 10%	Retail and Services: 67% Industrial: 23% Government: 10%	Retail and Services: 65% Industrial: 25% Government: 10%	Retail and Services: 65% Industrial: 25% Government: 10%	
2	Percent of Employment that requires no vacant land	Adjustment factor for employment that locates on already developed land or does not require land	20%	15%	10%	18%	12%
3	Employees per acre	Employment density assumptions in employees per acre	Retail and Services: 20 Industrial: 12 Government: 10	Retail and Services: 17 Industrial: 10 Government: 8	Retail and Services: 14 Industrial: 8 Government: 6	Retail and Services: 18 Industrial: 11 Government: 9	Retail and Services: 16 Industrial: 9 Government: 7
4	Employment net to gross factor	Adjustment to accommodated streets and other right of ways	10%	15%	20%	13%	17%
5	Percent of persons in group quarters	New persons in group quarters	2.0%	1.5%	1.0%	2%	1%
6	Housing Mix	Percent of single-family and multifamily housing	Single-family: 65% Multifamily: 35%	Single-family: 70% Multifamily: 30%	Single-family: 75% Multifamily: 25%	Single-family: 65% Multifamily: 35%	
7	Average household size	Household size by housing type	Single-family: 2.50 Multifamily: 1.85	Single-family: 2.50 Multifamily: 1.85	Single-family: 2.60 Multifamily: 1.9	Single-family: 2.50 Multifamily: 1.85	
8	Average residential density	Overall residential density in dwelling units per gross residential acre.	7.5	6.7	6	7.5	
9	Existing density in UGBs and URAs	Existing residential density by jurisdiction in dwelling units per gross acre	See Table 6	See Table 6	See Table 6	See Table 6	See Table 6
10	Percent of housing that requires no new residential land	Infill and Redevelopment factor	Infill and Redevelopment is factored in to each city's UGB buildout calculations				
11	Other land needs	Factor to account for parks, schools and other lands that are not housing or employment	8%-13%	10%-15%	12%-18%	aspirational, jurisdiction specific	aspirational, jurisdiction specific

Assumptions

This sheet includes all of the assumptions for the land supply/demand simulator. Changes to assumptions here will affect the output in other sheets. Highlighted cells are assumptions that can be changed in the simulator.

Model Scenario: **PSU 2007 HIGHER LAND NEEDS**
Model Date: **12/11/2009**

Employment Density Assumptions

	Baseline	This Run				
Percent of employment that will require no new land	15%	12%				
Percent of future employment by land use type						
Retail & Services	67%	65%				
Industrial	23%	25%				
Government	10%	10%				
Total Employment Change		100%				
2006-2026	38,313	38,313				
2006-2056	96,106	96,106	No Land Demand Employment			
Employment allocated to land base						
2006-2026	32,566	33,715				
2006-2056	81,690	84,573	11,533			
Employee Per Net Acre Assumptions						
Retail/Services	20	16	DLCD handbook ranges:	14-20	Handbook	17
Industrial	12	9		8-12	Mean	10
Public	10	7		6-10		8
Gross to net factor	20%	17%				

Note: Baseline assumptions are from the medium density scenario in the EOA

Other Land Need Assumptions

In acres per 1000 population

Jurisdiction	Baseline	Assumption
Ashland	10.0	10.0
Central Point	10.0	10.0
Eagle Point	15.0	15.0
Jacksonville	15.0	15.0
Medford	10.0	10.0
Phoenix	10.0	10.0
Talent	10.0	10.0

Note: Other land need assumptions includes parks, public and semi-public facilities that do not have employment

Housing Density and Household Size

From standard number sheets provided by cities

	UGBs		URAs[1]	
Jurisdiction	Density (DU/Gross Ac)	Persons Per Household	Density (DU/Gross Ac)	Persons Per Household
Ashland	**6.60**	2.15	n/a	n/a
Central Point	**6.90**	2.69	**7.40**	**2.50**
Eagle Point	**6.50**	2.82	**7.00**	2.82
Medford	**6.60**	**2.47**	**7.10**	2.41
Phoenix	**6.60**	2.30	**7.10**	2.30
Talent	**6.60**	2.25	**7.10**	2.30
South Valley	na	na		
Tolo	na	na		
Weighted Average	**6.62**		**7.1**	

[1] Density (DU/Gross Ac) assumptions here reflect an average of the 2010-2035 and 2036-2060 density commitments found in Regional Plan, Volume 1, Chapter 5, Section 2.5

	Eagle Point	Medford	Central Point	Phoenix	Talent	Ashland	Jackson County	TOTALS
1) TARGET POPULATION								
Base Target Population	8,992	80,590	17,832	5,404	6,716	21,947	24,804	141,481
City Limits (2010 PSU estimate)	8,855	77,485	17,205	4,910	6,680	21,460		
UGB and county (2000 census)	137	3,105	627	494	36	487		
2) BUILD-OUT POTENTIAL - CITY and UGB							(Net Growth in Unincorporated Area)	
Within City & UGB, in persons	5,664	42,255	7,536	1,268	1,548	4,425		62,695
Actual average density	6.50	6.60	6.90	6.60	6.60	6.60		
Projected average pph	2.82	2.47	2.69	2.30	2.25	2.15		
3) BUILDOUT POTENTIAL - URBAN RESERVES[1]								
Population Transfer (existing population inside URAs)	156	766	1,104	2,730	115	n/a	n/a	
Available URA Acres for New Residential Use	480	2,168	746	124	115	n/a	n/a	3,633
Land need capacity at buildout (pop)	9,635	37,856	14,905	4,749	2,000	n/a	n/a	69,145
Committed Density	7.00	7.10	7.40	7.10	7.10	n/a	n/a	
Projected pph	2.82	2.41	2.50	2.30	2.30	n/a	n/a	
4) TOTAL UGB, URA CAPACITY FOR ADDITIONAL POPULATION								
With HIGHER land need assumptions	15,299	80,111	22,441	6,016	3,548	4,425	2,719	134,559
5) PERCENT ALLOCATION OF ADDITIONAL CITY POPULATIONS (FROM JACKSON COUNTY COMP PLAN POP ELEMENT)								
Comp plan population increases (2005 - 2040)	13,864	62,542	15,597	3,372	3,562	7,790		106,727
% distribution of increased pop (2005 - 2040)	13.0%	58.6%	14.6%	3.2%	3.3%	7.3%		100%
County Comprehensive Plan plus URA Transfer from County	14,020	63,308	16,701	6,102	3,677	7,790		111,598
% Distribution of increase from Comp Plan + Transfer	12.6%	56.7%	15.0%	5.5%	3.3%	7.0%		100%
Extrapolated Future RPS Population Growth allocation	17,433	78,718	20,766	7,587	4,572	9,686	2,719	141,482

1 Buildout capacity of urban reserve lands is overestimated, as restrictions due to natural constraints, existing development, and the land necessary for agricultural buffers, have not been factored in. In addition, Urban Reserve buildout capacity density, pph, and vacancy rate assume a 65% single family and 35% multifamily split

2 Densities are modified gross densities (park acreages are NOT included) correlated to buildable land to be designated for residential use, consistent with the Buildable Land

Employment Forecasts and Land Need for Employment

Model Scenario: PSU 2007 HIGHER LAND NEEDS

12/11/2009

This sheet compares demand (employment growth) with capacity in UGBs and URAs

Employment Forecast (from EOA)

Year	Total Employment
2006	110,459
2011	118,996
2016	128,192
2021	138,099
2026	148,772
2036	165,971
2046	185,159
2056	206,565
2006-2026	
Growth	38,313
% Growth	35%
AAGR	1.5%
2006-2056	
Growth	96,106
% Growth	87%
AAGR	1.3%

UGB_LOC	SumOfANNUAL	
	4723.045517	6%
Ashland UGB	9037.389475	12%
Central Point UGB	3356.251167	5%
Eagle Point UGB	861.2009667	1%
Jacksonville UGB		0%
Medford Phoenix UCB	6059.923467	8%
Medford UGB	48026.92108	65%
Phoenix UGB	1274.6697	2%
Talent UGB	944.8205417	1%
	74284.22192	100%

Assumptions (from Assumptions Sheet)

Assumption	Assumption
Percent of employment that will require no new land	12%
Percent of future employment by land use type	
Retail & Services	65%
Industrial	25%
Government	10%
Total Employment Change	
2006-2026	38,313
2006-2056	96,106
Employment allocated to land base	
2006-2026	33,715
2006-2056	84,573
Employee Per Acre Assumptions	
Retail/Services	16.0
Industrial	9.0
Public	7.0
Net to gross factor	17%

Employment Capacity/Growth Comparision

	Employment Land Use Type			
Variable	Retail and Services	Industrial	Government	Total Employment
Job Growth				
2006-2026	21,915	8,429	3,372	33,715
2006-2056	54,973	21,143	8,457	84,573
Capacity				
UGB	12,315	19,316	6	31,636
URA	11,649	10,487	3,349	25,485
Total	23,963	29,803	3,355	57,121
Surplus (deficit)				
2006-2026	2,048	21,374	(17)	23,405
2006-2056	(31,009)	8,660	(5,103)	(27,452)

Land Need Capacity/Growth Comparision

Gross Acres

Land Use Type	Retail & Services	Industrial	Government / Institutional	Total
Needed Gross Acres				
2006-2026	1,650	1,128	580	3,359
2006-2056	4,140	2,830	1,456	8,426
Land Supply (Gross Acres)				
UGB	705	1,051	1	1,758
URA	877	1,404	576	2,857
Total	**1,583**	**2,455**	**577**	**4,615**
Surplus (deficit)				
2006-2026	(68)	1,327	(3)	1,256
2006-2056	(2,557)	(375)	(878)	(3,810)

Other Land Need

City	Population			Other Land Need			Other Land Supply			Surplus (deficit)		
	UGB	URA	TOTAL	UGB	URA	TOTAL	UGB	URA	TOTAL	UGB	URA	TOTAL
Ashland	5,534	-	5,534	55	-	55	-	-	-	(55)	-	(55)
Central Point	7,536	13,801	21,337	75	138	213	-	219	219	(75)	81	6
Eagle Point	5,664	9,478	15,142	85	142	227	-	151	151	(85)	9	(76)
Medford	42,255	39,561	81,815	423	396	818	5	638	643	(418)	243	(175)
Phoenix	1,268	2,018	3,286	13	20	33	9	49	58	(4)	29	26
Talent	1,548	1,885	3,433	15	19	34	22	10	32	7	(9)	(2)
County										-	-	-
TOTAL	63,805	66,744	130,548	666	715	1,381	36	1,068	1,104	(630)	353	(277)

Land in "Special Other" category

City	Acres
Ashland	0
Central Point	0
Eagle Point	0
Medford	1,877
Phoenix	0
Talent	0
County	0
Total	**1,877**

City Capacity Summaries

Updated data from Central Point, Eagle Point, Medford and Talent, August 2006

This sheet provides employment and housing capacity estimates for lands within UGBs. Capacity figures are based on assumptions provided by cities and are not included as model variables.

Employment Capacity (in jobs)

Input Assumptions (from Assumptions sheet)

Employee per net acre assumptions	
Retail/Services	16
Industrial	9
Public	7
Gross to net factor	17%

	Employment Capacity (jobs)			
Jurisdiction	Ind	Comm	Inst	Total
Ashland	418	1,647	0	2,065
Central Point	**926**	**1,766**	**6**	**2,698**
Eagle Point	**149**	**226**	0	**375**
Medford	5,939	3,440	0	9,378
Phoenix	248	1,381	0	1,629
Talent	172	909	0	1,080
White City	11,463	2,947	0	14,409
TOTAL UGB Employment Capacity	**19,316**	**12,315**	**6**	**31,636**

Notes:

Capacity is calculated as (Acres*(1-Net to Gross Factor))*EPA assumption

Instutional uses assume public densities

Housing Capacity (in Dwellings and Population)

Input Assumptions

Jurisdiction	Density (DU/Gross Ac)	Persons Per Household
Ashland	**6.60**	2.15
Central Point	**6.90**	**2.69**
Eagle Point	**6.50**	2.82
Medford	**6.60**	2.47
Phoenix	**6.60**	2.30
Talent	**6.60**	2.25
Average Density	**6.62**	

Housing Capacity (Dwelling Units and Population)

Jurisdiction	Res Acres	DU	Population
Ashland	390	**2,574**	**5,534**
Central Point	**406**	**2,801**	**7,536**
Eagle Point	**309**	**2,009**	**5,664**
Medford	**2,592**	**17,107**	**42,255**
Phoenix	84	**551**	**1,268**
Talent	102	**673**	**1,548**
TOTAL	**3,883**	**25,715**	**63,805**

Note: DU caculated by population capacity/PPH. ECO assumed that City's made population capacity adjustments to reflect physical land constraints

Base Data from Cities, provided August 3, 2006 (Updated November/December, 2010)

	Ashland	Central Point	Eagle Point	Medford	Phoenix	Talent	Unincorp (White City)	Total
(1) EXISTING LAND USE AND POPULATION								
Existing Acres	5,565	**2,247**	**1,690**	**18,091**	918	1,120		**29,631**
Existing Developed Residential Acres	4,315	**1,105**	**1,393**	**8,332**	359	578		**16,082**
Average Density (Units/Acre)		**5.77**	**5.30**	**4.16**		5.31		
Average pph	2.15	**2.69**	2.82	**2.48**	2.32	2.25		
Population		**17,160**	**8,565**	**77,485**	5,004	6,398		**114,612**
Existing Developed Commercial Acres	1,240	**114**	**77**	**2,030**	143	155		**3,759**
Existing Developed Business Park Acres			**11**					**11**
Existing Developed Industrial Acres	10	**93**	**37**	**2,170**	18	39		**2,367**
Existing Parks Acres		**165**	**41**			90		**296**
Existing Institutional Acres*		**107**		**577**		43		**727**
Existing Other Acres			**-**	**1,330**				**1,330**
(2) UGB BUILDOUT POTENTIAL								
Fully & Partially Vacant Buildable Lands	**590**	**663**	**278**	**3,651**	**230**	**193**		**5,605**
Residential Acres	390	**406**	**309**	**2,592**	**84**	102		**3,883**
Average Projected Density	**6.60**	**6.90**	**6.50**	**6.60**	**6.60**	**6.60**		
Average Projected pph	2.15	2.69	2.82	2.47	2.30	2.30		
Projected Population	**5,534**	**7,536**	**5,664**	**42,255**	**1,268**	**1,548**		**63,805**
Commercial Acres	124	**133**	**17**	**259**	104	68	221.9	**705**
Business Park Acres			**11**					**11**
Industrial Acres	56	**124**	**20**	**795**	33	23	1,534.5	**1,051**
Parks Acres		**-**	-			22		**22**
Institutional Acres		**1**	-					**1**
"Other" Acres				**5**	9			**14**

URA Capacity Summary

This worksheet applies assumptions to estimate employment and housing capacity in the URAs.

Acreages (from URA Base Data Sheet)

Jurisdiction	Res	Ind	Comm	Parks	Inst	Special Other	Total
Ashland	0	0	0	0	0	0	0
Central Point	746	445	33	164	42	0	1,431
Eagle Point	480	270	184	151	68	0	1,154
Medford	2,168	430	601	638	325	1,877	6,039
Phoenix	124	234	51	49	91	0	549
Talent	115	24	7	3	50	0	200
South Valley	0	151	50	0	0	0	201
Tolo							
Totals							
ALL URAs, NO OVERLAP	**3,633**	**1,404**	**877**	**1,006**	**576**	**1,877**	**9,373**

South Valley figures provided by City of Phoenix, and overlap with Phoenix URAs

Employment Capacity (in jobs)

Input Assumptions (from Assumptions sheet)

Employee per net acre assumptions	
Retail/Services	16
Industrial	9
Public	7
Gross to net factor	17%

Jurisdiction	Employment Capacity (jobs) Ind	Comm	Inst	Total	
					<<-total
Ashland	0	0	0	0	
Central Point	3,327	444	246	4,018	
Eagle Point	2,016	2,445	397	4,858	
Medford	3,215	7,981	1,887	13,083	
Phoenix	1,748	679	527	2,954	
Talent	181	100	291	572	
Totals					
ALL URAs, NO OVERLAP	**10,487**	**11,649**	**3,349**	**25,485**	<--Summary figures used in all other calculations

Notes:

Capacity is calculated as (Acres*(1-Net to Gross Factor))*EPA assumption
Instutional uses assume public densities

Housing Capacity (in Dwellings and Population)

Input Assumptions

Jurisdiction	Density (DU/Gross Ac)	Persons Per Household
Ashland	n/a	n/a
Central Point	7.4	2.50
Eagle Point	7.0	2.82
Medford	7.1	2.41
Phoenix	7.1	2.30
Talent	7.1	2.30
South Valley	0.0	0.00
Tolo	0.0	0.00
Weighted Density	7.1	

Housing Capacity (Dwelling Units and Population)

Jurisdiction		Residential Acres Gross	DU	Population
Ashland		-	-	-
Central Point		746	5,521	13,801
Eagle Point		480	3,361	9,478
Medford		2,312	16,415	39,561
Phoenix		124	878	2,018
Talent		115	819	1,885
South Valley		0	-	0
	0	0	-	0
				66,744

This Sheet is an input to all subsequent supply-side calculations and is from GIS data and City's contemplated uses.

Regional Problem Solving Proposed Urban Reserve Acres and Land Uses

City	Code	Acres	res.	ind.	comm.	parks	inst.	*RLRC*
Eagle Point	**EP - 1A**	**146**	0	146	0	0	0	
	EP - 2	**339**	149	0	75	71	44	
	EP - 3	**399**	147	124	72	56	0	
	EP - 4	**270**	184	0	38	24	24	
Eagle Point Total		**1,154**	480	270	184	151	68	***0***
Central Point	**CP -1B**	**442**	0	415	22	0	4	*(56)*
	CP -1C	**60**	60	0	0	0	0	*(36)*
	CP - 2B	**282**	229	14	0	17	23	*(197)*
	CP - 3	**27**	0	0	11	16	0	
	CP - 4D	**53**	1	0	0	52	0	
	CP - 5	**19**	18	0	0	2	0	
	CP - 6A	**386**	293	0	0	77	15	*(301)*
	CP - 6B	**162**	146	16	0	0	0	
Central Point Total		**1,431**	746	445	33	164	42	***(590)***
Medford	**MD - 1**	**491**	123	167	162	29	10	
	MD - 2	**316**	158	0	104	35	19	
	MD - 3	**915**	595	0	91	146	82	
	MD - 4	**271**	171	0	35	41	24	*(274)*
	MD - 5	**1,656**	927	132	149	315	132	
	MD - 6	**131**	0	131	0	0	0	*(23)*
	MD - 7n	**36**	0	0	30	0	6	*(37)*
	MD - 7m	**140**	69	0	15	31	25	*(142)*
	MD - 7s	**29**	9	0	14	4	3	
	MD - 8	**53**	26	0	0	15	12	
	MD - 9	**124**	91	0	0	22	11	*(20)*
	MD - P	**1,877**	two existing parks owned by Medford					
Medford Total		**6,039**	2,168	430	601	638	325	***(496)***
		4,162						

City	Code	Acres	res.	ind.	comm.	parks	inst.	*RLRC*
Phoenix	**PH - 1**	**55**	0	55	0	0	0	
	PH - 1a	**43**	0	43	0	0	0	
	PH - 3	**250**	**built out, no development capacity**					
	PH - 5	**412**	91	136	45	49	91	
	PH -10	**39**	33	0	6	0	0	
Phoenix Total		**799**	124	234	51	49	91	***0***
Talent	**TA - 1**	**43**	0	0	0	0	43	
	TA - 2	**5**	4	0	0	1	0	*(6)*
	TA - 3	**105**	100	0	4	0	1	
	TA- 4	**21**	0	20	1	0	0	*(21)*
	TA - 5	**26**	11	5	2	2	6	
Talent Total		**200**	115	24	7	3	50	***(27)***

	Acres	res.	ind.	comm.	parks	inst.	*RLRC*
Totals (minus PH-3 and MD-P)	7,496	3,633	1,404	877	1,006	576	*-1,113*
	7,496	3,633	1,404	877	1,006	576	***(1,113)***

res. = residential + normal public infrastructure (except parks)
ind. = industrial + normal public infrastructure
comm. = commercial + normal public infrastructure
parks (parks and open space) = parks, open space, and recreational areas
inst. (public & community institutional) = schools, churches, governmental and quasi-gov. facilities

POPULATION GROWTH 2010 - 2060 IN RPS PLANNING AREA								
City	**Ashland**	**Central Point**	**Eagle Point**	**Medford**	**Phoenix**	**Talent**	**Jackson County**	**TOTAL w/o County**
BASE POPULATION - 2010								
Base Population by City	**21,947**	**17,832**	**8,992**	**80,590**	**5,404**	**6,716**	**24,804**	**141,481**
City Limits (2010 PSU estimate)	21,460	17,205	8,855	77,485	4,910	6,680		**TOTAL**
UGB and county (2000 census)	487	627	137	3,105	494	36		**w/ County**
Percentage of Total Planning Area Population	13.2%	10.7%	5.4%	48.5%	3.2%	4.0%	14.9%	**166,285**
								TOTAL
TOTAL UGB + URA + COUNTY POPULATION - 2060								
2060 Population by City	**31,633**	**39,702**	**26,581**	**160,073**	**15,722**	**11,403**	**22,652**	**307,766**
Existing Population	21,947	17,832	8,992	80,590	5,404	6,716	24,804	166,285
Population Transfer [1]	0	1,104	156	766	2,730	115	(4,871)	0
Extrapolated Future RPS Pop. Growth allocation	9,686	20,766	17,433	78,718	7,587	4,572	2,719	141,481
Percentage of Total Planning Area Population	10.3%	12.9%	8.6%	52.0%	5.1%	3.7%	7.4%	100.0%

[1] *(existing population inside URAs-County to city)*

1 Buildout capacity of urban reserve lands is overestimated, as restrictions due to natural constraints, existing development, and the land necessary for agricultural buffers, have not been factored in. In addition, Urban Reserve buildout capacity density, pph, and vacancy rate assume a 65% single family and 35% multifamily split

2 Densities are modified gross densities (park acreages are NOT included) correlated to buildable land to be designated for residential use, consistent with the Buildable Land definition established at OAR 660-008-0005(2)

	Eagle Point	Medford	Central Point	Phoenix	Talent	Ashland	Jackson County	TOTALS
Within City & UGB, in persons	5,664	42,255	7,536	1,268	1,548	4,425	0	**62,695**
Actual average density	6.50	6.60	6.90	6.60	6.60	6.60		
Projected average pph	2.82	2.47	2.69	2.30	2.25	2.15		
Urban Reserve Allocated Growth[1]	11,769	36,463	13,230	5,561	2,661	9,686	2,719	**82,089**
Committed Density	7.00	7.10	7.40	7.10	7.10			
Projected pph	2.82	2.41	2.50	2.30	2.30			
Lower Land Need	7.74	7.87	7.26	7.50	7.50			
UGB Land Demand	309	2,592	406	84	104	312		**3,807**
URA Land Demand	596	2,131	715	341	163	-		**3,946**

	Ashland	Central Point	Eagle Point	Medford	Phoenix	Talent
UGB Land Demand	312	406	309	2,592	84	104
URA Land Demand	-	715	596	2,131	341	163
	6.60	6.90	6.50	6.60	6.60	6.60
	2.15	2.69	2.82	2.47	2.25	2.15
	0.00	7.26	7.74	7.87	7.50	7.50
	0	7.40	7.00	7.10	7.10	7.10
	0	2.50	2.82	2.41	2.30	2.30
		-2%	11%	11%	6%	6%

[1] Besides the cities of Talent and Phoenix, Infill was factored into the growth allocated to each of the cities. As such, a 12% infill rate was subtracted for the cities of Phoenix and Talent.

EMPLOYMENT LAND DEMAND WORKSHEET BY JURISDICTION

JOBS

UGB Capacity				
Jurisdiction	Comm	Ind	Inst	Total
Ashland	1,647	418	0	2,065
Central Point	1,766	926	6	2,698
Eagle Point	226	149	0	375
Medford	3,440	5,939	0	9,378
Phoenix	1,381	248	0	1,629
Talent	909	172	0	1,080
White City	2,947	11,463	0	14,409
TOTAL UGB Employment Capacity	12,315	19,316	6	31,636

URA Capacity				
Jurisdiction	Comm	Ind	Inst	Total
Ashland	0	0	0	0
Central Point	444	3,327	246	4,018
Eagle Point	2,445	2,016	397	4,858
Medford	7,981	3,215	1,887	13,083
Phoenix	679	1,748	527	2,954
Talent	100	181	291	572
Totals	0	0	0	0
ALL URAs, NO OVERLAP	11,649	10,487	3,349	25,485

Total Capacity (Supply)

Jurisdiction	Comm	Ind	Inst	**Total**
Ashland	1,647	418	0	**2,065**
Central Point	2,210	4,254	252	**6,716**
Eagle Point	2,671	2,165	397	**5,233**
Medford	11,421	9,153	1,887	**22,461**
Phoenix	2,060	1,997	527	**4,583**
Talent	1,008	353	291	**1,652**
White City	2,947	11,463	0	**14,409**
Totals	23,963	29,803	3,355	**57,121**
ALL URAs, NO OVERLAP	0	0	0	

Employment Capacity/Growth Comparision				
	Employment Land Use Type			
Variable	Retail and Services	Industrial	Government	Total Employment
Job Growth				
2006-2026	21,915	8,429	3,372	33,715
2006-2056	54,973	21,143	8,457	84,573
Capacity				
UGB	12,315	19,316	6	31,636
URA	11,649	10,487	3,349	25,485
Total	23,963	29,803	3,355	57,121
Surplus (deficit)				
2006-2026	2,048	21,374	-17	23,405
2006-2056	-31,009	8,660	-5,103	-27,452

Percent of total employment expected to demand land that is allocated by RPS	**68%**

Total Demand (Acres)	Employment Land Use Type			
	Retail and Services	Industrial	Government	Total Acres
2006-2056	4,140	2,830	1,456	8,426

City	Code	Original RPS UR Acres	GIS Acres*	Vacant, Redevelopable & Generally Unconstrained
Eagle Point	EP - 1A	153	152	146
	EP - 2	408	397	339
	EP - 3	439	430	399
	EP - 4	286	284	270
Eagle Point Total		1,285	1,263	1,154
			-22	-131
Central Point	CP -1B	617	544	442
	CP -1C	76	70	60
	CP - 2B	329	325	282
	CP - 3	41	36	27
	CP - 4D	86	82	53
	CP - 5	33	31	19
	CP - 6A	457	444	386
	CP - 6B	200	188	162
Central Point Total		1,839	1,720	1,431
			-119	-408
Medford	MD - 1	596	568	491
	MD - 2	360	358	316
	MD - 3	972	961	915
	MD - 4	274	276	271
	MD - 5	1,748	1,728	1,656
	MD - 6	147	143	131
	MD - 7n	36	37	36
	MD - 7m	142	128	140
	MD - 7s	32	45	29
	MD - 8	55	56	53
	MD - 9	133	133	124
		4,495	4,432	4,162
	MD - P	1,877	1,877	1,877
Medford Total		6,372	6,310	6,039
			-62	-333

City	Code	Acres	GIS Acres*	Vacant, Redevelopable & Generally Unconstrained
Phoenix	PH - 1	58	58	55
	PH-1a	52	52	43
	PH - 3	250	250 built out, no development ca	
	PH - 5	427	427	412
	PH -10	43	43	39
Phoenix Total		830	778	755
			-52	-74
Talent	TA - 1	43	43	43
	TA - 2	6	6	5
	TA - 3	116	124	105
	TA- 4	22	22	21
	TA - 5	28	28	26
Talent Total		215	223	200
			8	-15

Estimate Transfer Population From County To Cities Via Urban Reserves

UR_Area	Lots	Dwelling Units	People	subtotal by jurisdiction
CP-1B	102	101	232	
CP-1C	25	26	60	
CP-2B	70	81	186	
CP-3	9	7	16	
CP-4D	6	0	0	
CP-5	9	11	25	
CP-6A	165	164	377	
CP-6B	94	90	207	Central Point
		480		1104
EP-1A	7	3	7	
EP-2	35	30	69	
EP-3	39	25	58	
EP-4	11	13	30	Eagle Point
		71		156
MD-1	113	121	278	
MD-2	19	14	32	
MD-3	53	43	99	
MD-4	5	11	25	
MD-5	106	67	154	
MD-6	31	35	81	
MD-7mid	9	7	16	
MD-7n	3	0	0	
MD-7s	2	0	0	
MD-8	8	8	18	
MD-9	27	27	62	
MD-P Chrsy	2	0	0	
MD-P Prsct	5	0	0	Medford
		333		766
PH-1	1	0	0	
PH-2	1	1	2	
PH-3				2714
PH-5	13	3	7	
PH-10	3	3	7	Phoenix
				2730
T-1 row	2	2	5	
TA-1	1	1	2	
TA-2	10	8	18	
TA-3	33	30	69	
TA-4	8	3	7	
TA-5	8	6	14	Talent
				115
	1035	1825	2157	
				4871
				5590
				2000
				7590
				2719

APPENDIX X

PARTICIPANTS' AGREEMENT

GREATER BEAR CREEK VALLEY
REGIONAL PROBLEM SOLVING AGREEMENT

This REGIONAL PROBLEM SOLVING AGREEMENT (the "Agreement") is entered into this 2nd day of December, 2009 by and between Jackson County, the duly incorporated Oregon municipalities of Medford, Phoenix, Central Point, Jacksonville, Talent, Eagle Point, and Ashland, the Land Conservation and Development Commission (LCDC), the Department of Land Conservation and Development (DLCD), the Oregon Department of Transportation (ODOT), the Oregon Department of Housing and Community Services (ODHCS), the Oregon Economic and Community Development Department (OECDD), the Oregon Department of Environmental Quality (DEQ), the Oregon Department of Agriculture (ODA), the Rogue Valley Metropolitan Planning Organization (RVMPO), and Rogue Valley Sewer Services (RVS).

RECITALS

WHEREAS Jackson County and the cities of Phoenix, Medford, Central Point, Eagle Point, Jacksonville, Ashland, and Talent (each a "Local Jurisdiction" and collectively, the "Region") are part of the Greater Bear Creek Valley, described more particularly in the draft Plan, attached hereto as Exhibit A, and incorporated by this reference, that expects to see a doubling of the population over the long-term future; and

WHEREAS the increasing population in the Region will create an ongoing demand for additional lands available for urban levels of development; and

WHEREAS that demand for urbanizable land will have to be balanced with the Region's need to maintain its high-quality farm and forest lands, as well as to protect its natural environment; and

WHEREAS the Local Jurisdictions recognize that long-term planning for which lands in the Region are most appropriate for inclusion in each municipality's urban reserve areas (URAs) in light of the Region's social, economic, and environmental needs is best determined on a regional basis; and

WHEREAS the draft Plan is the RPS Policy Committee's recommended means of elaborating the regional solutions to the identified regional problems; and

WHEREAS the State's Regional Problem Solving (RPS) statute provides a special process for addressing regional land use issues that allows the Local Jurisdictions, upon the satisfaction of certain conditions, to implement regional strategies through the adoption of post-acknowledgement comprehensive plan amendments that do not fully comply with the otherwise applicable regulations (the "Regulations") of the Land Conservation and Development Commission (LCDC) to implement the Statewide Planning Goals (the "Goals"); and

WHEREAS one of the conditions the Local Jurisdictions must satisfy in order to deviate from the Regulations is that all the participants in the RPS process enter into an agreement that identifies: the problem faced by the Region; the goals that will address the problem; the mechanisms for achieving those goals; and the system for monitoring the implementation and effectiveness of those goals; and

WHEREAS various entities were identified as potential stakeholders within the regional planning process, and invitations were extended to every incorporated jurisdiction (Jackson County, Eagle Point, Medford, Jacksonville, Central Point, Phoenix, Talent, and Ashland), school district (Ashland School District No. 5, Central Point School District No. 6, Jackson County School District No. 9, Medford School District 549C, and Phoenix-Talent School District No. 4), and irrigation district (Eagle Point, Medford, Rogue River, and Talent Irrigation Districts) in the Region, plus the Medford Water Commission, the Rogue Valley Metropolitan Planning Organization, Rogue Valley Sewer Services, Rogue Valley Transportation District, and the appropriate state agencies (DLCD, ODOT, ODA, ODHCS, OECDD, and DEQ); and

WHEREAS the stakeholders mentioned above chose to exercise different levels of participation and responsibility within the planning process, the "participants" (as the term is employed in ORS 197.656(2)(b)), are those jurisdictions and agencies that elect, by signing this Agreement, to implement the regional solutions to the regional problems identified hereinafter; and

WHEREAS signatory participants (Signatories) have chosen to exercise different levels of activity and responsibility within the implementation phase of the adopted Plan, Implementing Signatories are those participants which will amend their comprehensive plans per Section VI (3) of this Agreement to implement the adopted Plan, and Supporting Signatories are those participants which will otherwise support the implementation of the adopted Plan; and

WHEREAS the Implementing Signatories are Jackson County and the cities of Eagle Point, Medford, Central Point, Phoenix, Talent, Jacksonville, and Ashland; and Supporting Signatories are the Rogue Valley Sewer Services (RVS), the Rogue Valley Metropolitan Planning Organization (RVMPO), the Land Conservation and Development Commission (LCDC), and signatory state agencies; and

WHEREAS this Agreement is intended to serve as the basis for amendments to the comprehensive plans and land use regulations of the Implementing Signatories in compliance with ORS 197.656.

AGREEMENT

NOW, THEREFORE, the parties to this Agreement agree to propose comprehensive plan and land use regulation amendment processes based on the attached draft Plan (Exhibit A). With this agreement, participants acknowledge that, notwithstanding the fact that the draft Plan is the result of eight years of collaborative and jurisdiction-specific planning, it may become necessary to make adjustments to the draft Plan as a result of the comprehensive plan amendment process.

I. Recitals

The recitals set forth above are true and correct and are incorporated herein by this reference.

II. General Agreement

Signatories to this Agreement agree to abide by a Plan developed under Regional Problem Solving, as adopted by Implementing Signatories into their comprehensive plans, and acknowledged by the State of Oregon. Implementing Signatories agree to maintain internal consistency with the adopted Plan on an ongoing basis, and when necessary and appropriate, either to amend their comprehensive plans and related policies, codes, and regulations to be consistent with the adopted Plan, or to pursue amendments to the adopted Plan. The Land Conservation and Development Commission (LCDC) agrees to review the Implementing Signatories' comprehensive plan and land use regulation amendments under ORS 197.656(2), and agrees that this Agreement contains the elements required by ORS 197.656(2)(b). Notwithstanding the generality of the foregoing provision and any other provision of this Agreement, however, LCDC retains its full discretion and authority with respect to its review of the adopted Plan, or any amendments to the adopted Plan, and with respect to its review of the amendments to comprehensive plans and land use regulations that the Implementing Signatory Jurisdictions adopt to implement the adopted Plan. The adopted Plan shall be what is adopted as a result of Jackson County's comprehensive plan amendment process.

The process for amending the comprehensive plans of Jackson County and Implementing Signatories is described in the attached work program (Exhibit B), which details the tasks and timing necessary to coordinate the initial comprehensive plan amendments necessary to adopt the Plan.

Per ORS 197.656, all amendments to the adopted Plan will be subject to review by LCDC in the manner of periodic review or as set forth in ORS 197.251.

III. Statement of Problems to be Addressed [ORS 197.656]

The parties to the Greater Bear Creek Valley RPS process (the "Project") identified three problems to be addressed by the Project:

Problem No. 1

Lack of a Mechanism for Coordinated Regional Growth Planning

The Region will continue to be subjected in the future to growth pressures that will require the active collaboration of jurisdictions within the Greater Bear Creek Valley. A mechanism is needed that accomplishes this without infringing on individual jurisdictional authority and/or autonomy. This Problem No. 1 shall be referred to hereinafter as "Coordinated Growth Management."

Problem No. 2

Loss of Valuable Farm and Forest Land Caused by Urban Expansion

As our communities have expanded incrementally, there has been a tendency to convert important farm and forest lands to urban uses while bypassing lands with significantly less value as resource lands. This has been exacerbated by the Region's special characteristics and historic settlement patterns, which can cause some state regulations governing urban growth to have unintended consequences, some of them contrary to the intent of Oregon's Statewide Planning Goals. This Problem No. 2 shall be referred to hereinafter as the "Preservation of Valuable Resource Lands."

Problem No. 3

Loss of Community Identity

Urban growth boundary expansions have contributed to a decreasing separation between some of the communities in the Region, which jeopardizes important aspects of these jurisdictions' sense of community and identity. This Problem No. 3 shall be referred to hereinafter as the "Preservation of Community Identity."

IV. Project Goals [ORS 197.656(2)(A)]

The parties to this Agreement have adopted the following Goals with respect to the Problems:

Goal No. 1

Manage future regional growth for the greater public good.

Goal No. 2

Conserve resource and open space lands for their important economic, cultural, and livability benefits.

Goal No. 3

Recognize and emphasize the individual identity, unique features, and relative comparative advantages and disadvantages of each community within the Region.

V. Optional Techniques for Implementation[1] [ORS 197.656(2)(B)]

These optional techniques for implementation are those identified as appropriate for implementation of the draft Plan. As stated in the Recitals, it may become necessary to make adjustments to the draft Plan, and potentially these optional techniques for implementation, as a result of the public comprehensive plan amendment process.

A. **Problem No. 1** *Lack of a Mechanism for Coordinated Regional Growth Planning*

Goal No. 1 *Manage future regional growth for the greater public good.*

Optional Implementation Techniques

(1) **Coordinated Periodic Review**

Implementing Signatories may engage in a coordinated schedule of regular Periodic Reviews following the adoption of the Plan. This regionally coordinated Periodic Review will begin in 2012, will take place every 10 years, and will coincide with the ten-year regular review of the adopted Plan. This coordinated Periodic Review will provide an opportunity to take advantage of an economy of scale in generating technical information, and to incorporate a regional perspective in the Periodic Review process, but it does not mandate a simultaneous or linked process among jurisdictions.

(2) **Ten-year RPS Review**

Implementing Signatories will abide by the review process described in Section VI of this Agreement. The review process complies with the monitoring requirement in the RPS statute, and affords participating jurisdictions flexibility in responding to changing regional and local circumstances by establishing a process and venue for amending the adopted Plan.

(3) **Coordinated Population Allocation**

Jackson County's allocation of future population growth, a state-mandated responsibility of the County, will reflect the Implementing Signatories' proportional allocation of future population within the adopted Plan and its future amendments consistent with statute.

(4) **Greater Coordination with the RVMPO**

As a proven mechanism of regional collaborative planning in the study area, the RVMPO, as the federally designated transportation planning entity, will plan and coordinate the regionally significant transportation strategies critical to the success of the adopted Plan. Of special focus will

[1] Where "optional techniques for implementation" refers to strategies and mechanisms to implement regional solutions that are in compliance with the statewide goals and statutes, but which may not strictly adhere to Oregon Administrative Rules.

be the development of mechanisms to preserve rights-of-way for major transportation infrastructure, and a means of creating supplemental funding for regionally significant transportation projects.

B. **Problem No. 2** *Loss of Valuable Farm and Forest Land Caused by Urban Expansion*

Goal No. 2 *Conserve resource and open space lands for their important economic, cultural, and livability benefits.*

Optional Implementation Techniques

(1) **Long-Range Urban Reserves**

The establishment of Urban Reserves sufficient to serve a doubling of the Region's urban population will allow long-term production decisions to be made on agricultural land not included in urban reserves.

(2) **Regional Agricultural Buffering Standards**

Implementing Signatories will apply the adopted Plan's set of agricultural buffering standards as a means of mitigating negative impacts arising from the rural/urban interface.

(3) **Critical Open Space Area (COSA) Preservation**

The COSA strategies outlined in Appendix IX of the draft Plan are available as an option to Signatory jurisdictions interested in further accentuating or more permanently preserving areas of separation between communities (community buffers). These COSA strategies are not mandatory for any jurisdiction, and may be refined or expanded as individual jurisdictions see fit.

C. **Problem No. 3** *Loss of Community Identity*

Goal No. 3 *Recognize and emphasize the individual identity, unique features, and relative comparative advantages and disadvantages of each community within the Region.*

Optional Implementation Techniques

(1) **Community Buffers**

The establishment of Urban Reserves outside of recommended areas of critical open space provides for a basic level of preservation for the Region's important areas of community separation.

(2) **Allocating to Comparative Advantages**

The Region agrees to a distribution of the calculated need of residential and employment lands among Implementing Signatories necessary to support a regional doubling of the population. This distribution, which depends on a number of factors that relate to the comparative strengths and weaknesses of Implementing Signatories, will allow each community to develop its own balance of viability and individuality within the larger regional matrix.

(3) **Critical Open Space Area (COSA) Preservation**

The COSA strategies outlined in Appendix IX of the draft Plan are available as an option to Signatory jurisdictions interested in further accentuating or more permanently preserving areas of separation between communities (community buffers). These COSA strategies are not mandatory for any jurisdiction, and may be refined or expanded as individual jurisdictions see fit.

VI. Measurable Performance Indicators [ORS 197.656(2)(C)]

These measurable performance indicators are those identified as appropriate for monitoring purposes of the adopted Plan. As stated in prior sections, it may become necessary to make adjustments to the draft Plan, and potentially these measurable performance indicators, as a result of the comprehensive plan amendment process.

The following are measurable performance indicators:

1) On a regular basis, every 10 years starting in 2012, the Implementing Signatories may participate in a process of coordinated Periodic Review.

2) On a regular basis, every 10 years starting in 2012, Implementing Signatories to this Agreement will be subject to the regular RPS review process. Jackson County shall initiate the RPS review process by providing notice of the RPS review to Signatories to this Agreement and requiring that each Implementing Signatory submit a self-evaluation monitoring report addressing compliance with the performance indicators set out in this Section to the County within 60 days after the date of the notice. Jackson County will distribute these monitoring reports to all Signatories.

3) Implementing Signatory cities will incorporate the portions of the RPS adopted Plan that are applicable to each individual Implementing Signatory city into that city's comprehensive plan and implementing ordinances, and will reference the larger regional Plan as an adopted element of Jackson County's comprehensive plan. To incorporate applicable portions of the RPS adopted Plan into their comprehensive plans and implementing ordinances, Implementing Signatory cities will adopt at least the following:

   a) RPS Plan policies adopted to comply with Section X(2) of this Agreement;

   b) 10-year mandated review period;

   c) urban reserve areas (if appropriate);

d) target residential densities (for the urban reserve areas);

e) agricultural buffering standards (for the urban reserve areas);

f) implementing ordinances (for the urban reserve areas).

4) Implementing Signatories will comply with the general conditions as listed in Section X of this Agreement, and, as appropriate, the specific conditions of approval for selected urban reserves, as described in the adopted Plan.

5) Implementing Signatory jurisdictions serving or projected to serve a designated urban reserve will adopt an Urban Reserve Management Agreement (URMA) jointly with Jackson County.

6) Urban reserves identified in the adopted Plan are the *first-priority* lands used for UGB expansions by Implementing Signatories.

7) Implementing Signatory cities, when applying urban designations and zones to urban reserve land included in UGB expansions, will achieve, on average over a 20-year planning horizon, at least the "higher land need" residential densities in the adopted RPS Plan for buildable land as defined by OAR 660-008-0005(2). The density offset strategy outlined in the draft Plan is an acceptable mechanism to assist in meeting density targets.

8) Implementing Signatory cities, when applying urban designations and zones to urban reserve land included in a UGB expansion, will be guided by the general distribution of land uses proposed in the adopted RPS Plan, especially where a specific set of land uses were part of a compelling urban-based rationale for designating RLRC land as part of a city's set of urban reserves.

9) Conceptual plans for urban reserves will be developed in sufficient detail to allow the Region to determine the sizing and location of regionally significant transportation infrastructure. This information should be determined early enough in the planning and development cycle that the identified regionally significant transportation corridors can be protected as cost-effectively as possible by available strategies and funding. Conceptual plans for an urban reserve in the RPS Plan are not required to be completed at the time of adoption of a comprehensive plan amendment incorporating urban reserves into a city or county comprehensive plan.

10) The county's population element is updated per statute to be consistent with the gradual implementation of the adopted Plan.

VII. Incentives and Disincentives to Achieving Goals

[ORS 197.656(2)(D)]

These incentives and disincentives are those identified as appropriate to the draft Plan. As stated in prior sections, it may become necessary to make adjustments to the draft Plan, and potentially these incentives and disincentives, as a result of the public comprehensive plan amendment process.

Incentives

1) Continued regional cooperation through the 10-year review process and coordinated Periodic Review may improve the Region's ability to respond to challenges and opportunities more effectively than it does presently.

2) Adherence to the adopted Plan may provide the Region with a competitive advantage, increase the attractiveness of the Region to long-term investment, and improve southern Oregon's profile in the state.

3) Adherence to the adopted Plan may produce significant reductions in transportation infrastructure costs by minimizing future right-of-way acquisition costs and by improving the overall long-range coordination of transportation and land use planning.

4) Adherence to the adopted Plan will provide Signatory jurisdictions with population allocations that are predictable, transparent, and based on the relative strengths of the different participating jurisdictions.

5) The adopted Plan will offer compelling regional justifications and state agency support for Tolo and the South Valley Employment Center that may not have been available to an individual city's proposal.

6) Adherence to the adopted Plan will permit Implementing Signatories to implement the flexibility provided by the concept of the "Regional Community", in which cities, in the role of "regional neighborhoods", enjoy a wide latitude in their particular mix, concentration, and intensity of land uses, as long as the sum of the regional parts contributes to a viable balance of land uses that is functional and attractive to residents and employers and in compliance with statewide goals.

Disincentives

1) Implementing Signatories that choose to expand their UGBs into land not designated as urban reserve will be required to go through the RPS Plan minor or major amendment process prior to or concurrent with any other process.

2) The Region's failure to adhere to the adopted Plan may damage its competitive advantage, the attractiveness of the Region to long-term investment, and southern Oregon's profile in the state.

3) Adherence to the RPS adopted Plan may be a rating factor for RVMPO Transportation Funding. Transportation projects of Implementing Signatories not adhering to the adopted Plan may be assigned a lower priority by the RVMPO when considered for funding.

4) Jackson County may reconsider the population allocations of Implementing Signatories that do not adhere to the adopted Plan.

5) Implementing Signatories not adhering to the adopted Plan may face issues over failing to observe their comprehensive plans, or may find it difficult to make modifications to their comprehensive plans that deviate from the adopted Plan.

6) The Region's failure to adhere to the adopted Plan will compromise its ability to implement the concept of the "Regional Community", and will not provide the Implementing Signatory cities with as wide a latitude in their desired individual mix, concentration, and intensity of land uses.

VIII. Progress Monitoring System & Amendment Process

[ORS 197.656(2)(E) and (F)]

This progress monitoring system and amendment process is that which is identified as appropriate to the draft Plan. As stated in prior sections, it may become necessary to make adjustments to the draft Plan, and potentially this progress and monitoring system and amendment process, as a result of the public comprehensive plan amendment process.

Monitoring

Monitoring to ensure compliance with the adopted Plan will be a shared responsibility. Each Implementing Signatory city will be responsible for monitoring its adherence to the portion of the adopted Plan that is incorporated into its comprehensive plan. Jackson County, which will have the full adopted Plan incorporated into its comprehensive plan, will be responsible for overall monitoring.

Adherence to the RPS Plan

The adopted RPS Plan is directly applicable to comprehensive plan amendments, land use regulation amendments, and the adoption of new land use regulations that affect land in urban reserve areas and/or URA designation changes. The adopted RPS Plan shall not be directly applicable to other land use decisions by Implementing Signatories. Adherence to relevant RPS Plan provisions adopted by Implementing Signatories as part of their comprehensive plan or implementing ordinances will be addressed by the existing state and local mechanisms for ensuring jurisdictional compliance with acknowledged comprehensive plans and implementing ordinances.

RPS Plan Amendments

Processing amendments to the adopted Plan will be the responsibility of Jackson County, and can only be proposed by the governing authority of an Implementing Signatory jurisdiction. In acknowledgement of the collaborative process by which the adopted Plan was created, Jackson County will have available the assistance of the signatories to this Agreement through a Technical Advisory Committee and Policy Committee. Both committees serve on an as-needed basis, and both serve in an advisory capacity to Jackson County.

(a) Technical Advisory Committee

The TAC will comprise planners and senior-level staff from signatory jurisdictions and agencies, and each signatory will have one vote, irrespective of the number of participating representatives. Recommendations to the Policy Committee or directly to Jackson County will be made by at least a supermajority vote (simple majority plus one) of attending signatory jurisdictions and agencies.

(b) Policy Committee

The Policy Committee will comprise elected officials or executive staff from signatory jurisdictions and agencies. Each Implementing Signatory jurisdiction will designate a voting and alternate voting member, and each Implementing Signatory jurisdiction will have one vote. Recommendations to Jackson County will be made by at least a supermajority vote (simple majority plus one) of attending Implementing Signatories. Attending jurisdictions must constitute a quorum of Implementing Signatories. Supporting Signatories (State agencies, the RVMPO, LCDC, and Rogue Valley Sewer Services), while Signatories, will not be voting members of the Policy Committee.

When an amendment to the adopted RPS Plan is proposed, Jackson County will make a preliminary determination regarding whether the proposed amendment is a Minor Amendment or Major Amendment, as defined below, and will notify signatory jurisdictions of the County's preliminary determination. Based on its preliminary determination, Jackson County will review the proposed amendment according to the procedures for Minor Amendments or Major Amendments set out below.

Per ORS 197.656, all amendments to the adopted Plan will be subject to review by LCDC in the manner of periodic review or as set forth in ORS 197.251.

Proposed amendments to the adopted Plan will adhere to the following provisions:

1) Minor Amendment

A minor amendment is defined as any request for an amendment to the adopted Plan that:

a) does not conflict with the general conditions listed in Section X of this Agreement or specific conditions of approval described in the adopted RPS Plan; and

b) does not propose an addition of more than 50 acres to a city's urban reserves established for a city in the adopted RPS Plan or more than a 50-acre expansion of the UGB into non-urban reserve rural land.

In the case of Ashland, which did not establish urban reserves during the development of the Plan process, a proposal to establish an urban reserve or expand its UGB of not more than 50 acres will be considered a minor amendment.

Should a city exceed its limit of 50 acres for adding *to its urban reserves* during the term of the Agreement, it may not use the minor amendment process for further alterations to its urban reserves. Should a city exceed its limit of 50 acres for expanding its UGB into non-urban reserve rural land during the planning horizon, it may not use the minor amendment process for further expansions of its UGB into non-urban reserve land.

Any Implementing Signatory may initiate a minor amendment to the adopted Plan. The Implementing Signatory must clearly identify the nature of the minor amendment, and specify whether the minor amendment would require any other Implementing Signatory to amend its comprehensive plan. Should any Implementing Signatory other than the proposing jurisdiction and Jackson County be required to amend their comprehensive plans as a result of the proposed minor amendment, the affected Implementing Signatory will be a party to the minor amendment proceeding.

Jackson County's process for a minor amendment to the Plan will be equivalent to the state and local required processes for a comprehensive plan amendment.

Signatory jurisdictions and agencies shall be provided with notice of the County's final decision on each minor amendment request within five working days of the adoption of the final decision.

2) Major Amendment

A major amendment is defined as any requested amendment to the adopted Plan that does not meet the definition of a Minor Amendment.

a) If multiple signatory jurisdictions are involved in a single request for a major amendment, a lead jurisdiction will be selected by the affected jurisdictions;

b) notice containing a detailed description of the proposed change will be forwarded by Jackson County to all signatory jurisdictions and agencies;

c) staff from signatory jurisdictions and agencies will be noticed, and will meet as a Technical Advisory Committee and generate a recommendation to the Policy Committee by vote of at least a supermajority of those present (simple majority plus one);

d) decision-makers from signatory jurisdictions and agencies will be noticed, and will meet as a Policy Committee and consider the proposal and the Technical Advisory Committee recommendation. Attending jurisdictions will constitute a quorum; and

e) the Policy Committee will generate a recommendation to Jackson County by vote of at least a supermajority of those present (simple majority plus one).

Jackson County's process for a major amendment to the Plan will be equivalent to the state and local required process for a comprehensive plan amendment in addition to the above provisions. Noticing will be in compliance with State statutes.

All parties to this agreement and any additional affected agencies shall be provided with notice of the County's final decision on each major amendment request within five working days of the adoption of the final decision.

IX. Newly Incorporated City

Should White City or some other area of Jackson County within the area of the adopted Plan incorporate while the adopted Plan is in effect, and should the newly incorporated city desire to become a signatory to the Agreement, increased population will be added to the regional target population adequate to accommodate the projected population growth of the newly incorporated city for the remainder of the adopted Plan's planning horizon. The addition of a newly incorporated city to the adopted Plan, the establishment of urban reserves, and other such actions shall be accomplished through the major amendment process.

X. Conditions to Agreement

General Conditions

The Signatories agree that the adopted Plan shall comply with the general conditions listed below, which apply to all Implementing Signatories. These general conditions are those which have been identified as appropriate to the adopted Plan. As stated in prior sections, it may become necessary to make adjustments to the draft Plan, and potentially these general conditions, as a result of the public comprehensive plan amendment process.

1) Agricultural Buffering

Where appropriate, Implementing Signatories shall apply the agricultural buffering guidelines developed through the Regional Problem Solving process.

2) Transportation

The adopted Plan shall include policies to:

a) Identify a general network of locally owned regionally significant north-south and east-west arterials and associated projects to provide mobility throughout the Region.

b) Designate and protect corridors for locally owned regionally significant arterials and associated projects within the RVMPO to ensure adequate transportation connectivity, multimodal use, and minimize right of way costs.

c) Establish a means of providing supplemental transportation funding to mitigate impacts arising from future growth.

These policies shall be implemented by ordinance upon the adoption of the latest update of the Rogue Valley Metropolitan Planning Organization's Regional Transportation Plan and the local adoption of the RPS Plan through individual city and county Comprehensive Plan amendments. Implementing Signatory cities will incorporate the portions of the RPS Plan relative to transportation that are applicable to each individual city into that city's comprehensive plan and implementing ordinances, and will reference the larger regional plan as an adopted element of Jackson County's comprehensive plan.

Conditions of Approval

Specific conditions of approval apply to selected urban reserve areas, and are described in the adopted Plan. The Implementing Signatories agree to abide by these conditions. As stated in prior sections, it may become necessary to make adjustments to the draft Plan, and potentially the conditions of approval, as a result of the public comprehensive plan amendment process.

XI. Amendments to the Agreement

For the purpose of maintaining consistency with the RPS Statue (ORS 197.656) amendments to the Agreement can be made at any time by consensus (all parties in agreement) of the Signatories to the Agreement.

Under this section, "signatories" refers to all signatories to the Agreement except the Land Conservation and Development Commission (LCDC). In addition, nothing in this section, or this Agreement, is intended to affect the authority of LCDC to review an amendment to this Agreement as required under ORS 197.656.

XII. Termination of Participation

A signatory to the Agreement may petition Jackson County for termination of its participation in the Agreement. Jackson County will convene a meeting of the Policy Committee to consider such a petition. A signatory's petition may be granted by a supermajority (simple majority plus one) of the Signatories to the Agreement. A signatory that has terminated its participation with the consent of a supermajority of the signatories to the Agreement shall not be considered to have failed to adhere to the adopted Plan.

Should an Implementing Signatory terminate its participation in the Agreement without approval of the supermajority of signatories to the Agreement, it will be considered to have failed to adhere to the adopted Plan, and may be subject to the Disincentives in Section VII and applicable legal and legislative repercussions. For remaining signatories, the validity of this Agreement will not be adversely impacted by an Implementing Signatory's termination of participation, by supermajority decision or otherwise.

Under this section, "signatories" refers to all signatories to the Agreement except the Land Conservation and Development Commission (LCDC).

XIII. Termination of the Agreement

This agreement may be terminated when one or more of the following occur(s):

1) A supermajority (simple majority plus one) of Signatories agree that the Agreement is terminated;

2) LCDC denies acknowledgment of the Plan;

3) The doubled regional population is reached;

4) 50 years have passed since the Agreement was signed.

No signatory will be penalized under the conditions of this Agreement due to a supermajority decision to terminate.

Under this section, "signatories" refers to all signatories to the Agreement except the Land Conservation and Development Commission (LCDC).

XIV. Applicability

Implementing Signatories to this agreement agree that necessary amendments to their comprehensive plans will occur as required by the Plan, and that the Plan is in effect for each jurisdiction at the time that its and Jackson County's implementing comprehensive plan amendments and land use regulations are adopted and acknowledged.

Once the RPS plan is implemented by the appropriate comprehensive plan amendments and land use regulations, an Implementing Signatory's failure to adhere to the Plan as adopted or subsequently amended will expose that jurisdiction to the usual legal and legislative repercussions from non-compliance with acknowledged comprehensive plans.

Signatories to this agreement acknowledge that statutory authority over land use regulation ultimately resides with the Oregon legislature. Additionally, signatories to this agreement recognize that the provisions of the Plan may be determined in the future to be in conflict with existing or yet to be adopted statutes or administrative rules.

Signatories to this agreement expressly recognize that land use regulations and actions must otherwise comport with the statutes and other applicable regulations of the State of Oregon other than those LCDC regulations for which the adopted RPS Plan authorizes less than full compliance.

Therefore, Signatories agree that, when conflicts between statute and other applicable regulations of the State of Oregon (other than those LCDC regulations for which the adopted Plan authorizes less than full compliance) and the Plan arise, Oregon statute shall prevail.

XV. Severability

Any provision or part of the Agreement held to be void or unenforceable under any Law or Regulation shall be deemed stricken and all remaining provisions shall continue to be valid and binding upon the parties. The Agreement shall be reformed to replace such stricken provision or part thereof with a valid and enforceable provision that comes as close as possible to expressing the intention of the stricken provision.

XVI. Entire Agreement

This Agreement contains the entire agreement between the parties and supersedes all prior negotiations, discussions, obligations, and rights of the parties regarding the subject matter of this agreement. There is no other written or oral understanding between the parties. No modification, amendment or alteration of this Agreement shall be valid unless it is in writing and signed by the parties hereto.

XVII. Counterparts

This Agreement may be signed in counterpart by the parties, each of which shall be deemed original, but all of which together shall constitute one and the same instrument, binding on all parties hereto.

XVIII. Authority to Execute Agreement

Each person signing of behalf of a governmental entity hereby declares that he or she, or it has the authority to sign on behalf of his or her or its respective entity and agrees to hold the other party or parties hereto harmless if he or she or it does not have such authority.

Implementing Signatories

Chairman,
Jackson County Board of Commissioners

Mayor, City of Ashland

Mayor, City of Talent

Mayor, City of Phoenix

Mayor, City of Medford

Mayor, City of Jacksonville

Mayor, City of Central Point

Mayor, City of Eagle Point

Supporting Signatories

Director, Oregon Department of Land Conservation and Development

Director, Oregon Department of Transportation

Director, Oregon Department of Environmental Quality

Director, Oregon Economic and Community Development Department

Director, Oregon Department of Agriculture

Director, Oregon Housing and Community Development Department

Chair, Rogue Valley Metropolitan Planning Organization

Chair, Rogue Valley Sewer Services

Chair, Land Conservation and Development Commission

General Manager, Rogue Valley Sewer Services