UGB – Rulemaking Advisory Committee

Meeting: July 15, 2015, 1pm – 4:30pm

Location: Department of Agriculture, Basement Hearing Room, 635 Capitol Street, Salem

Zoom: Join from PC, Mac, iOS or Android: https://zoom.us/j/978422440

Or join by phone:

+1 888 683 5191 (US Toll Free)
Meeting ID: 978 422 440

Agenda:

1:00 – 1:10	**Welcome and Introductions** Confirm next meeting date (late August/September)	all
1:10 – 2:40	**Employment Need Path Decision** RAC review of revised employment need path and buildable lands inventory. Discussion by RAC of remaining policy issues. Materials: · Employment Path Questions for RAC · Draft 3: Employment Land Path · BLS Standard for Sector Aggregation Titles for NAICS · Employment Regions Maps (delivered under separate cover) · Considerations for a Path to Determine Employment Land Need Outcome: consensus by RAC	Bob R.
2:40 – 3:10	**U of O Research Task #2** Presentation by U of O (Bob Parker and Rebecca Lewis) of final report on redevelopment, infill, and development of exception areas. Materials: · Analysis of Land Use Efficiency in Oregon Cities · Analysis of Mixed-Use Development and Redevelopment in Oregon Cities Outcome: discussion and acceptance by RAC	Gordon, Bob P., Rebecca
3:10 – 3:20	**Break**	all
3:20 – 3:50	**U of O Research Task #3** Presentation by U of O (Terry Moore) regarding white paper on market trends. Materials: · White Paper on Market Trends Outcome: discussion and acceptance by RAC	Terry
3:50 – 4:20	**Serviceability Discussion** Presentation by staff of definitions for defining serviceability. Materials: to be delivered prior to or at meeting Outcome: discussion by RAC	Matt, Rob
4:20 – 4:25	**Periodic Review Replacement Workgroup Update** Staff status update.	Rob
4:25 – 4:30	**Wrap-up**	all
4:30	**Adjourn**	

July 10, 2015

Employment path questions for the RAC

1. The proposed path requires cities to consider only two categories – commercial and industrial. There could be a more detailed set of categories, for example, DLCD's work group suggested four categories – retail, office, manufacturing and warehouse. However, many city plans and ordinances have only two (commercial and industrial). Furthermore, the UO research only determined densities for two categories. Question: Is it ok to use only two categories, or will that create too many problems with the method? If we only use two, how should we distribute NAICS coded sectors into those two categories?
2. The proposed path provides two methods to forecast long term employment need, one using population and one using the OED forecast (HB 2254 requires these two options). The population-driven method is very simple; it assumes the current mix of employment categories will stay the same over 14 years. The employment forecast method allows a city to use the OED forecast for industrial land need long term, but does not let that forecast drive commercial need. Furthermore, the OED forecast method constrains the use of the forecast so that only the predicted regional mix is used, and that is moderated by the city's current mix compared to the region's mix. Question: Is the RAC comfortable with these assumptions, or should we explore other methods?
3. It is likely that some "growing" cities would find they have an employment land need but do not have a housing land need (for example, a city might have an ample supply of vacant residential in the UGB, but an insufficient supply of employment land). Question: Can a city with sufficient residential land nevertheless use the new method to add employment land only? If "yes," would that city need to demonstrate they went through all the steps of the housing analysis in order to use the method for employment land only?
4. UO research found that about 20% jobs in cities occur on land that is not zoned commercial and industrial but does not provide detailed information as to which types of jobs those are (i.e., commercial and industrial). The DLCD proposed method therefore requires that the city assume 20% of forecast jobs will occur on residential land, and suggests the city presume they are equally distributed between commercial and industrial jobs. Question: does the RAC support this recommendation?
5. The department suggests 15% rather than the 25% as an add on for streets, parks, schools, and other public facility. The RAC agreed to 25% in part because UO research determined that number. However, the department suggests there is no need for additions related to parks or schools when dealing with employment land and therefore recommends reducing this to 15%. Question: does the RAC agree with this?
6. Related to a question the RAC considered regarding residential land, a city may find that it needs land in one particular category, commercial or industrial, but has excess land in another category. DLCD has not proposed clear policies on whether a city should redesignate excess land from one category to another. Question: Should industrial land be preserved rather than converted to commercial? How should the rule instruct cities to consider whether to rezone land in one category to another?

Draft Employment Land Path

The proposed path is divided into five tasks, as follows:

TASK ONE: Forecast 14-year Employment (job) growth in the UGB.

TASK TWO: Translate job forecast to Employment Land Need

TASK THREE: Buildable Land Inventory for Employment land within the UGB

TASK FOUR: Adjust BLI to Account for Constrained Lands

TASK FIVE – Determine whether UGB expansion is necessary

TASK ONE: FORECAST 14-YEAR EMPLOYMENT

NOTE: Two options are provided; the city may use either of the two options, or any amount between them. As such, the two options provide a "range" for cities to use.

Option A: Population forecast method

1. Determine the population that PSU's Population Research Center has forecast for the city's urban growth boundary for the 14-year period from the year in which the urban growth boundary analysis is begun.

2. Determine the current population of the city (most recent PSU population estimate).[1]

3. Determine the jobs currently in the city, sorted into two categories: "commercial" and "industrial."[2] This would be from a "look-up table" provided to DLCD by OED.[3]

4. Determine the current jobs/population ratio, for each of the two categories, from steps 2 and 3.

5. Multiply the forecasted population of the UGB (step 1) by the current ratio of jobs to population in the city, for each of the two categories (step 4).[4] The result is the projected number of new jobs in the UGB for the 14-year planning period for each category. Note that this method presumes that the mix will stay the same throughout the planning period.

[1] PSU will only estimate city limits population, not UGB population.
[2] See attached recommendation about which NAICS sectors are combined to make up these two categories.
[3] The table would be adopted as an attachment to the rule and would be updated every year (or two?) under an agreement between OED and DLCD.
[4] Note that we are using the current jobs/population of city limits only and projecting it long term to apply to the entire UGB. This is because we cannot (easily) obtain an estimate of the current population of the UGB.

6. Presume that 20% of the total forecasted jobs will occur on residential or other land. Reduce the forecast by that amount divided equally among sectors.[5]

Option B: OED Employment Forecast Method

Explanation: See attached narrative about the problems with using the OED forecast as a way to forecast long term local employment. The Oregon Employment Department (OED) expresses more confidence in their forecast of the long term mix of employment categories in a region than for the job amounts forecast.[6] As such, this method allows a city to use the long term mix to determine a long term job forecast for each of the two categories, but with a key assumption being that the long term number of "commercial" jobs is forecast in the same manner as in Option A, above, rather than by the OED forecast. The method produces a long term ratio of commercial to industrial, but allows the city to predict only industrial jobs (not commercial jobs) based on the mix. Finally, the long term mix generated by this method is not the same as the long term regional mix in the OED forecast. Rather, it is "moderated" by a factor that is based on comparing the city's current mix to the region's current mix. The steps in the method are as follows:

1. Determine the number of jobs currently in the city, sorted into two categories: "commercial" and "industrial." (From a "look-up table" provided by DLCD and OED).

2. Based on step 1, determine the mix of commercial and industrial jobs currently in the city. Convert this to a decimal; for example, a mix of 60% commercial and 40% industrial would be expressed as 1.5.

3. Determine the number of jobs currently in the OED region[7] that includes the city, sorted into "commercial" and "industrial." This would be from a "look-up table" provided to DLCD by OED.

4. Based on step 3, determine the mix of commercial and industrial jobs currently in the region. Convert this to a decimal; for example, a mix of 55% commercial and 45% industrial would be expressed as 1.22.

5. Determine the projected 10-year[8] employment mix of the two employment types ("commercial" and "industrial") for the OED region that includes the city, using the OED

[5] The RAC should discuss whether to divide this equally or distribute it in a different manner.
[6] Because of the uncertainty associated with converting the forecasted numbers to 14-years and translating them to individual cities in the region, and due to the past history showing forecast numbers tend to greatly exceed actual jobs that occur.
[7] These aren't actually OED regions, they are WIOA (Workforce Innovation and Opportunity Act) areas.

long term employment forecast. This would be from a "look-up table" created by the department and OED, updated periodically by DLCD as OED issues a long term forecast.

6. Based on step 5, determine the mix of commercial and industrial jobs currently in the region. Convert this to a decimal; for example, a mix of 40% commercial and 60% industrial would be expressed as .66.

7. Multiply the percentage of current jobs in the city by the long term forecasted regional percentage (step 2 times step 6) and divide the product by the current regional mix (step 4). In the example above, 1.5 X .66 divided by 1.22 = .73. This result is the forecasted mix expressed as a decimal.

8. Determine the amount of commercial jobs as per Step 5 of Option A, above.

9. Divide the number of commercial jobs from Step 8 by the number determined in Step 7. The result is the number of industrial jobs that will occur over the planning period.

10. As in Option A, presume that 20% of the total number of forecasted jobs (the sum of step 8 and Step 9) will occur on residential or other land. Reduce the total forecast by that amount divided equally among commercial and industrial categories.[9]

TASK TWO: Translate job forecast to Employment Land Need

Note: this method relies on statewide employee density determinations from UO research for two categories of land – commercial and industrial (UO research did not provide density information for a more detailed set of categories.)

1. Determine the amount of industrial employment land need as follows:[10]

   a. Cities with population of less than 10,000 shall determine industrial land need by dividing the projected number of industrial jobs determined under TASK ONE by a number between five and seven employees per acre to determine the net acres of industrial land needed. Add an amount of land equal to 15% of the needed amount of net acres to determine the needed amount of gross acres.[11]

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[8] OED will be moving to 8-years

[9] The RAC should discuss whether to divide this equally or distribute it in a different manner.

[10] The ranges of industrial employment density per acre are based upon the University of Oregon research results (SOURCE: TABLE 5-13).

[11] This would account for streets and public rights of way. The department suggests 15% rather than the 25% agreed to in the residential path because that number is a combination of land for streets, parks, schools and other public facilities. There is no need for additions related to parks or schools when dealing with employment land.

b. Cities with population of 10,000 or greater shall determine industrial land need by dividing the number determined under TASK ONE by a number between 10 and 12 employees per acre to determine the net amount of industrial land needed. Add an amount of land equal to 15% of the needed amount of net acres to determine the needed amount of gross acres.

2. Determine the amount of commercial employment land need as follows:[12]

a. Cities with a population of less than 10,000: determine commercial land need by dividing the commercial job forecast number determined under TASK ONE by a number between 12 and 15 employees per acre to determine the net amount of commercial land needed. Add an amount of land equal to 15% of the needed amount of net acres to determine the needed amount of gross acres.

b. Cities with a population of 10,000 or greater: determine commercial land need by dividing the number determined under TASK ONE by a number between 18 and 22 employees per acre to determine the amount of commercial land needed. Add an amount of land equal to 15% of the needed amount of net acres to determine the needed amount of gross acres.

TASK THREE: Buildable Land Inventory for Employment land within the UGB[13]

1. Identify all vacant parcels with an employment comprehensive plan designation ("commercial" or "industrial"). A vacant parcel is defined as a parcel of greater than ¼ acre with an assessed improvement value of less than $10,000.[14]

2. Identify all partially vacant parcels with an employment ("commercial" or "industrial") comprehensive plan designation. A partially vacant parcel is defined as a parcel of greater than one acre with at least one-half acre that is not improved.[15]

[12] The ranges of commercial employment density per acre are based upon the University of Oregon research results (SOURCE: TABLE 5-13).

[13] This method is supposed to be more thorough for larger cities. Also, the factors for forecasting the development and redevelopment capacity of lands in the UGB that have not yet been planned and zoned are supposed to be more refined. This draft does not propose any difference for large and small cities - the RAC should discuss whether there are ways to modify it so as to make such a distinction.

[14] These figures are based upon those used in most BLIs done in Oregon cities in the past 10 years. Some planners have expressed concern that the current safe harbors for employment land in UGB rules (OAR 660-024-0050(3)) set minimum parcel sizes for vacant and partially vacant land that are too high.

[15] "Improvements" needs definition. This step will require an aerial survey.

3. If the city has more employment plan categories than "commercial" or "industrial", the rule should provide a "rule of thumb" to sort other categories into either of these two categories.

4. Note that there is no adjustment for redevelopment. The UO research has not been able to provide information necessary to determine this.

TASK FOUR: Adjust BLI to Account for Constrained Lands

1. Identify the following physical constraints on land identified as buildable in TASK THREE:

a. Floodways and water bodies.

b. Significant flood hazard areas (areas within the 100-year floodplain).[16]

c. Lands within the tsunami inundation zone.[17]

d. For lands designated in the plan for commercial use, contiguous lands of at least one acre with slope greater than 25%. Slope shall be measured as the increase in elevation divided by the horizontal distance at maximum ten-foot contour intervals.[18]

e. For lands designated for industrial use, contiguous lands of at least one acre with slope greater than 5%. Slope shall be measured as the increase in elevation divided by the horizontal distance at maximum ten-foot contour intervals.[19]

2. Reduce the employment development capacity on physically constrained lands by the following factors[20]:

a. For lands within floodways and water bodies – 100% reduction.

b. For lands within significant flood hazard areas – 50% reduction.[21]

c. For lands within the tsunami inundation zone – no reduction unless the city's existing zoning classification of such areas prohibits or reduces employment development, in

[16] This may need proper terminology. LCDC administrative rules do not currently preclude employment land within 100-year floodplains.
[17] Will have to determine which of several types (or "T-shirt sizes") of inundation zone boundary to use.
[18] This should include instructions on how to measure slope, and also a minimum area of measurement. There has been some RAC discussion about different ways to measure slope.
[19] Five percent slope is a general cut-off for industrial land suitability.
[20] Reductions are considered in acres because the unit of measurement at this point in the calculation is area, not number of units.
[21] It is expected that development in floodplains will become more difficult in future years due to new federal regulations. However, there are generally fewer constraints on new floodplain development for employment uses as opposed to residential uses.

which case the reduction shall be based upon the maximum development intensity allowed by the city's existing zoning classification.[22]

d. For commercially-designated lands with greater than 25% slopes- 100% reduction.[23]

e. For industrially-designated lands with greater than 5% slopes – 100% reduction.

4. Reduce the amount of each type of needed employment buildable land determined in TASK THREE by the amounts determined above in TASK FOUR to determine the amount of buildable employment land in the UGB, both commercial and industrial.

TASK FIVE – Determine if UGB Expansion is Necessary

1. Compare the amount of land needed for commercial and industrial development in TASK TWO with the amount of buildable land available for commercial and industrial development as determined in TASK FOUR.

2. If the amount of buildable land available is greater than the amount of land needed for both commercial and industrial development, then no urban growth boundary expansion for employment land is necessary.

3. If the amount of buildable land available is less than the amount of land needed for both commercial and industrial development, then the urban growth boundary may be expanded by the combined amount of land needed for employment development.

4. If the amount of buildable land available is less than the amount of land needed for industrial development, but is greater than the amount of land needed for commercial development, then the city may expand urban growth boundary by the amount of land needed for industrial development, or may redesignate surplus commercially-designated land within the existing urban growth boundary for industrial development, or may combine an expansion and redesignation so that the land need for both types of employment land is satisfied.

5. If the amount of buildable land available is less than the amount of land needed for commercial development, but is greater than the amount of land needed for industrial development, then the city may expand urban growth boundary by the amount of land needed for commercial development, or may redesignate surplus industrial-designated land within the existing urban growth boundary for commercial development, or may combine an expansion and redesignation so that the land need for both types of employment land is satisfied.

[22] There is a policy question regarding tsunami inundation areas within existing UGBs.
[23] Based upon Metro analysis that commercial development on slopes greater than 25% generally does not occur.

BLS Standard for Sector Aggregation Titles for NAICS

G - Goods-Producing

A - Natural Resources and Mining
Sector 11 (Agriculture, Forestry, Fishing and Hunting),
Sector 21 (Mining)

B - Construction
Sector 23 (Construction)

C - Manufacturing
Sectors 31, 32, 33 (Manufacturing)

S - Service-Providing

D - Trade, Transportation, and Utilities
Sector 42 (Wholesale Trade),
Sectors 44, 45 (Retail Trade),
Sectors 48, 49 (Transportation and Warehousing),
Sector 22 (Utilities)

E - Information
Sector 51 (Information)

F - Financial Activities
Sector 52 (Finance and Insurance),
Sector 53 (Real Estate and Rental and Leasing)

G - Professional and Business Services
Sector 54 (Professional, Scientific, and Technical Services),
Sector 55 (Management of Companies and Enterprises),
Sector 56 (Administrative and Support and Waste Management and Remediation Services)

H - Education and Health Services
Sector 61 (Educational Services),
Sector 62 (Health Care and Social Assistance)

I - Leisure and Hospitality
Sector 71 (Arts, Entertainment, and Recreation),
Sector 72 (Accommodation and Food Services)

J - Other Services
Sector 81 (Other Services, except Public Administration)

K - Public Administration
Sector 92 (Public Administration)

Z - Unclassified
***Sector 99* (Unclassified)**

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CONSIDERATIONS FOR A PATH TO DETERMINE EMPLOYMENT LAND NEED

Below are some basic considerations in crafting a "path" for determining employment land need under the new streamlined method.

1. There must be at least two options for forecasting employment growth, one using the PSU Population Research Center long-range population forecast and one using the Oregon Employment Department (OED) long range employment forecast.

2. Forecasting employment land need for a city based on the OED long term forecast is problematic for a number of reasons. The forecast is a 10-year forecast (according to OED staff, they will be changing to an 8-year forecast in the near future). If we try and extend this to 14-years, OED has asserted that they will not do so (and don't recommend it) so DLCD would need to provide a method or must arrange for other expertise in extending the forecast. OED does not recommend a simple straight-line extrapolation to 14 years.

3. The OED forecast is issued for nine regions rather than for individual cities (actually for nine WIOA – Workforce Innovation and Opportunity Act areas (not set by OED). The regional forecast is strongly influenced by particular employment centers within any one region and as such the forecast cannot accurately predict long term employment for cities that are not near those centers. The long term forecast is broken down by sectors, for the region, but the distribution of jobs by sector would vary from city to city within a region – the forecast does not inform this. The OED forecast has historically over-estimated employment, sometimes by a large amount.

4. Population growth is an imperfect indicator of long term employment. We may assume that the ratio of jobs-to-population in a city today will stay the same over the 14-year forecast period, but this is not necessarily the case, and some cities may expect (or desire) this ratio to change over time.

5. Job forecasts such as OEDs are useful for UGB planning purposes in that they also forecast distribution of forecast jobs by various sectors. One simple way to forecast job growth by sectors is to assume that the long term trend will reflect the same pattern in the city today. OED has data about jobs in various sectors for cities today (actually 2014), and some data for distribution over the past 10 years. However, a table displaying the detailed mix of these sectors may not be authorized due to confidentiality constraints on OED (generally but not necessarily for smaller cities). Alternatively, the method could assume that job growth in various sectors will track the predicted change in those sectors in the OED employment forecast for that city's region. However, the department does not recommend this, since the forecast is not intended to apply to any city. Rather, the department recommends a method that is a mix of the forecasted mix and the city's current mix compared to the region's current mix.

DRAFT

6. UO research suggests around 20% of jobs occur on residential or other land that is not designated for commercial or industrial use. This needs to be taken into account when forecasting long term employment land need based on the jobs forecast.

7. There are a large number of employment sectors and we should therefore combine them in some manner in order to work with a smaller set of categories. The department's work group suggested we consider four basic categories: Retail, manufacturing, services (including office) and warehousing. We could combine manufacturing and warehouse into a single "industrial" category, and have a second category consist of retail and service jobs Many small city zoning ordinances have only two broad categories – commercial and industrial. Since the UO data provides information by commercial and industrial categories only, when we try and project employment density it is recommended that we confine the method to these two categories, and somehow fit all the sectors accordingly. However, we should bear in mind that many city zoning ordinances allow a wide range of uses in commercial and industrial zones.

8. In general, a city's population growth is a much better predictor of long-term job growth for retail and service jobs than for other sectors. The method suggests predicting long term retail and service employment using the population forecast but allowing industrial need to be predicted by the long term OED forecast.

9. Similar to the residential need path, the method would add an overall amount of land necessary for roads and other public facilities. While the recommended add for the residential land path is 25% of the overall land need, this includes schools and parks. The department recommends 15% for employment land since generally this add-on is not intended for schools and parks.

10. Since both options described in #1 above result in a long-term job forecast, the department suggests that the two methods should converge once a forecast is arrived at, such that there would be only one method to convert the job forecast to land need.

11. Employee density is usually thought about in terms of jobs in a particular building or set of buildings. But in order to forecast employment <u>land need</u> from a job forecast, the method should use a job-to-land ratio. These ratios vary by regions and by employment sectors. UO research provided information to help the RAC estimate current employment density for commercial and industrial land. The proposed path uses this data. Employment density will probably become more efficient in the future but there is not agreement in predicting the magnitude of this change and the department does not have any data to help with this.

12. The rules must provide direction regarding the inventory of buildable employment land already in the UGB. For example, under LCDC's current safe harbor rule for land inventory, a city may assume that a lot or parcel is vacant if it is equal to or larger than one-half acre if the lot or parcel does not contain a permanent building, or if it is equal to or larger than five acres if less than one-half acre of the lot or parcel is occupied by a permanent building. The method would also include directions regarding parcels that are constrained by hazards or slopes.

Date: 17 June 2015
To: Bob Rindy, DLCD
From: Terry Moore
Subject: WHITE PAPER ON MARKET TRENDS [1]

House Bill 2254 requires the LCDC to establish new rules by which cities can determine and justify their needs for urban land, and for Urban Growth Boundary expansions that would provide that land. In establishing those rules, it must consider "significant changes occurring or expected to occur in the markets for urban land uses in … major region[s] of the state." DCLD staff believe this consideration of market changes should be supported by evidence. They commissioned this white paper to provide that evidence.

Conclusions with respect to the LCDC rule-making start on page 23. At the broadest level I conclude that:

- Many types of changes in urban land markets are already considered by local jurisdictions and the LCDC as part of current UGB amendment procedures.
- In developing simplified amendment procedures, the Rules Advisory Committee (RAC) is considering, at some level, most of these market changes.
- Thus, I do not find strong evidence to suggest that the LCDC would need to adjust the suggested rules being developed by the RAC to further consider market changes.

1. Background

Both inside and outside Oregon the most notable feature of the statewide land-use program is the requirement that every city have an Urban Growth Boundary (UGB). The purpose of a UGB is to (1) protect resource lands outside the boundary, and (2) encourage more efficient development patterns inside the boundary.

A fundamental interpretation of the law has been that a UGB must have a supply of buildable land sufficient to accommodate approximately 20 years of development. But cities used differing techniques to forecast growth, development, and buildable land; had different local goals; and had different interpretations of the requirements during the 10 years after the program started, when almost all of the initial UGBs were established.

With UGBs established and almost no new cities being created,[2] UGB procedures and issues for the last 30 years have been exclusively about how to *amend* (expand) UGBs. The legislation that created the Oregon land use program and UGBs in 1973 listed seven principles[3] for establishing and justifying UGBs in less than 100 words. Today there are hundreds of pages of court cases,

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[1] The opinions in this white paper are those of the author and do not necessarily reflect those of the LCDC, DLCD staff, or the members of the UGB Rules Advisory Committee. Thanks to Ali Danko for help with the research

[2] Four in the 40-year history of the program: two were splits from existing UGBs (Keizer and Westfir) and two were in previously rural areas that had increased urbanization (Damascus and La Pine).

[3] Need to accommodate long-range urban population growth; need for housing, employment opportunities, and livability; efficient provision of public facilities and services; efficiency of land uses in and at the fringe of existing urban areas; consideration of environmental, energy, economic and social consequences; retention of agricultural land; and compatibility of the proposed urban uses with nearby agricultural activities.

guidebooks, statutes, and administrative rules that try to explain all the details that address issues that arose inevitably as the principles were implemented. My generalization of the process has parallels in many other areas of public policy:

- The State adopts statutes with broad statements of purpose and goals, and a little high-level guidance on procedures.
- Cities applying for UGB acknowledgment and DLCD staff reviewing the applications create ad hoc procedures to fill-in the blanks.
- People unhappy with outcomes appeal to the LCDC and, ultimately, the courts. Court decisions sometimes clarify and sometimes confuse the process, but they usually make it bigger and longer. Some boundary reviews take five or 10 years as the process of analysis, findings, review, and adjudication repeats itself.
- Occasionally the LCDC adopts administrative rules to try to consolidate and clarify court decisions into procedures that will avoid or reduce further litigation.[4]

The 2013 legislature enacted HB 2254 (codified at ORS 197A) to create simplified methods for growing cities *not in the Portland Metro UGB*[5] to evaluate and justify additions to their UGBs. The law requires the LCDC to adopt rules to establish these methods before January 1, 2016. LCDC appointed a Rules Advisory Committee (RAC) to assist in development of these rules.

Among many other things, HB 2254 requires the LCDC to give guidance to cities on two aspects of their analysis of need for a UGB expansion: (1) converting forecasted population and employment growth into forecasts of land need for housing, employment, and other categories of uses, and (2) determining the supply and development capacity of lands already within an urban growth boundary (i.e., the Buildable Lands Inventory). In both cases, HB 2254 says that *the LCDC must establish factors by rule that "reflect consideration by the commission of any significant changes occurring or expected to occur in the markets for urban land uses in that major region of the state."* Though there are many references to "market conditions" throughout HB 2254, they all refer to these two issues.

DCLD staff believe this consideration of market changes "expected to occur" should be supported by evidence. It commissioned me (Terry Moore) to provide that evidence in this white paper. The white paper has three sections in addition to this introduction and some appendices:

Section 2, Framework. What are land markets, how do they work, how do they fit in the context of the requirements of HB 2254.

Section 3, Land Markets: Conditions and Potential Changes. Trends and expectations for factors relating to land markets (e.g., population and employment growth, demographics, income, public services).

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[4] Recent changes to the legal process associated with UGBs (1) lowered the court's standards of review, and (2) eliminated requirement for LCDC review—all decisions go to LUBA, with the Court of Appeals required to respond to appeals of LUBA decisions in a timely way.

[5] The Portland Metro region has its own process for amending the regional UGB.

Section 4, Implications. Comments about the implications of the information in Sections 2 and 3 for the two questions posed in HB 2554: (a) implications for converting population forecasts to land consumption (i.e., likely changes in density), and (b) implications for the supply and development capacity of lands already within an urban growth boundary (i.e., the Buildable Lands Inventory).

Appendices. My scope of work specifies a white paper of approximately 10 – 20 pages. I kept it to 25 pages only by summarizing from other research, and by putting detailed information in appendices. My assessment was that it would be useful to look at research at a national level regarding development trends (Appendix A), and also at research done for Oregon communities (Appendices B and C). Appendix D gives some recent information about development markets in Oregon, but I do not find it very useful for the purposes of HB 2254.

2. Framework

2.1 Land markets in general

UGBs define land that state policy requires and local policy will allow to be developed to urban densities. Land is, of course, essential to that development. It is a *factor of production* in any model of economic activity. It is the base on which all real estate products (houses, stores, factories, schools, etc.) are built. It is fundamental to basic theories of urban and regional economics, and to how urban real estate markets find prices to match supply to demand.

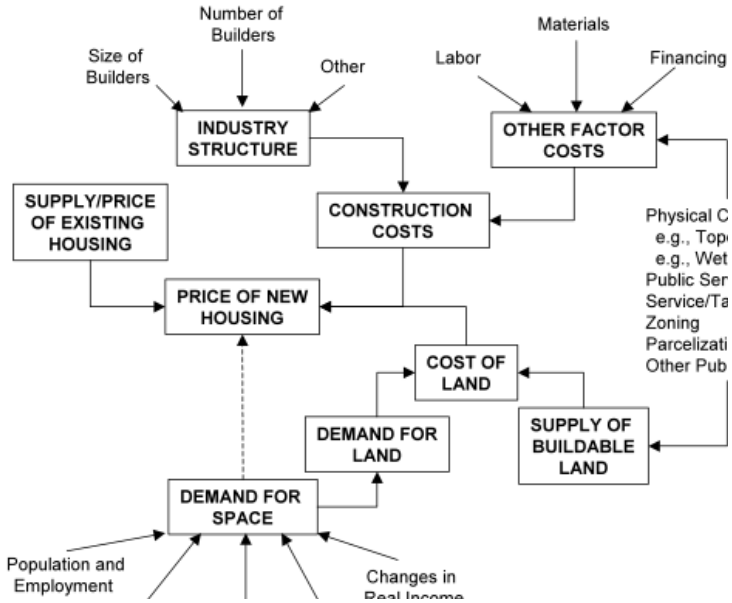
For some people land has intrinsic value. For the purposes of market analysis and this white paper, however, one can think of land as factor necessary for fulfilling broader demands: for residential, commercial, and industrial space; for recreation; for ecosystem services; and more. Economists use the term "bundle of goods" to reflect the idea that the value of land derives from all the goods and services it offers to fulfill those demands. Those demands are affected by many factors. In my prior work I have grouped these factors as "the six Ps" which I illustrate using residential demand:

- **Population.** Even if none of the subsequent factors changed, housing demand will change, all else being equal, if population (i.e., the *number of households*) changes. Population grows either when people move to a region (in-migration) or through natural increase (births minus deaths). The *demographic characteristics* (e.g., age) of new population affect housing demand.
- **Purchasing power.** Even without population growth, if an existing population were to suddenly get richer, it would spend more on housing—housing demand would increase. That demand could manifest itself in some combination of demand for more units (e.g., increased household formation as people living together can now afford separate dwelling units; second homes), for different unit types (e.g., shift from MF to SF), for larger units, for higher quality units, for different locations, and more. The amount that a household can spend on housing is predominantly dependent on household *income* and *wealth*.

- **Preferences.** Households have preferences about: (1) *types of housing* (e.g., single-family detached or apartments), (2) *size of house and lot*, (3) *housing amenities* (e.g., fireplaces or multiple-car garages), and (4) and *locational amenities* (e.g., distance from work, quality of schools, or access to shopping). Housing preferences are linked to demographic characteristics and purchasing power.
- **Prices (and costs) of housing.** Households have money to pay for housing, and preferences about the kind of housing they want to pay for. Prices tell them how much of what they want they can afford to get. If there are reasons to believe, for example, that the real price of residential land or housing construction will be rising, then one would expect housing developers and purchasers to begin to economize on lot size (land) or built space. *Development costs* describe the costs of building a house, including construction costs, land costs, and public services and infrastructure. Costs are strongly related to prices, but are not identical. For example, in a strong market with excess demand, a developer may be able to command a price that is in excess of development costs and a standard rate of return. In addition, certain advances in the technology of building housing or infrastructure may reduce costs. M*ortgage financing* also affects costs of housing.
- **Prices of housing substitutes.** One important substitute for housing is *transportation*. For example, historical choices to purchase housing in suburban locations were influenced by the price of travel: if it had been very much higher, fewer households could have afforded to move to suburban locations. *Telecommunications* is a substitute for proximity and is a technology whose prices have dropped substantially in the last three decades.
- **Policy.** Governments affect the housing market through policies and actions that encourage or discourage development of certain types of housing in certain locations.

The relative importance of many of these factors to different households is different. Some like the excitement, diversity, and opportunities of an urban location; others like the quiet and feeling of security of a suburban cul-de-sac. Some may want a big yard; some want no maintenance responsibilities. Children and pets make a difference. Similar tradeoffs apply for own vs. rent; close-in vs. far out; amount of space vs. price; and quality vs. price.

Exhibit 1. Factors affecting the price of housing and residential land



Those are a lot of factors and sub-factors to consider just for residential real estate markets. Exhibit 1 illustrates the point.

To the previous points add these:

- Housing markets have several different product types (combinations of building type, size, density, lot size, and price).
- There are more uses for urban land than housing (office, retail, and industrial development; public facilities; open space).
- Land markets are not the same across regions or cities (by size or location) in Oregon.
- Land markets also have a temporal dimension: what they looked like in the past, look like now, and might look like in the future will be different.

Taken together, these points lead me to this conclusion: describing urban land markets in Oregon for all types of uses, by region, is beyond the scope of a 10-to-20-page white paper. The way I condense the paper is to focus on the two specific requirements of HB 2254 to consider market factors when making rules relating to (1) converting forecasted population and employment growth into forecasts of land need, and (2) determining the supply and development capacity of lands within UGBs.

2.2 Land markets in the context of HB 2254

The previous points are context and support for this one: the RAC, DLCD, and the LCDC have to make a decision about the scope of the HB 2254 requirement that the LCDC consider future market conditions as part of its rule-making. Such consideration could be a multi-year research effort, but it need not be. The fact that DLCD has asked me to write this white paper is evidence that the decision about scope has been made: this white paper, when reviewed and approved, will be the fact basis for "…consideration by the commission of any significant changes occurring or expected to occur in the markets for urban land uses in … major region[s] of the state."

The decision to have a white paper to meet the requirement does not, however, specify its content, length, or format. I had to make decisions about how to balance competing goals: longer, broader, and more detailed might be better for fully addressing the legal requirement and technical issues, but shorter and focused is likely to be more manageable and useful for the LCDC when it gets to rule-making. There is also a choice about whether this white paper is providing just the data for the LCDC to consider, or conclusions about those data. The advantage of the latter is that the white paper, by itself, becomes the DLCD / LCDC documentation that such consideration has occurred in establishing its rules.

Here is another important consideration. People familiar with the Oregon planning process in general and the UGB process in particular are used to thinking of market considerations as things that change over time. If a city does some planning and then updates its plan a few years later, it would be expected to update its market information. But for HB 2254, the LCDC is making a one-time effort related to its initial setting the required rules. The implication is that this white paper has a one-time purpose, and that it can be written not as "data for your information" but as documentation for DLCD / RAC recommendations to the LCDC about how this review of market conditions should influence the LCDC rule-making in 2016. [Section 3.5 of

HB 2544 requires that the LCDC evaluate the impacts of its rulemaking every five years. Presumably that evaluation would include some assessment of market effects and forecasts. But this whitepaper cannot serve for a market assessment that would not occur until 2023. Thus, I think my point stands: this whitepaper serves (primarily) a one-time effort by the DLCD, the RAC, and LCDC to draft and adopt the required rule.]

Thus, this white paper is not a comprehensive description of all factors affecting all types of urban lands in all regions of Oregon. It focuses on information that I believe is most relevant to the LCDC's rule-making. I think the Commission's thinking should go something like this:

> Cities in Oregon have been doing Housing Needs Analyses, Economic Opportunity Analysis, and UGB amendments for decades. The Commission has clarified those processes with rules. State and local government planners have a lot of experience with the factors that go into estimating needs for residential and employment land: they have a lot of data and generally approved techniques and rules of thumb for converting forecasted population and employment growth into land need.
>
> Now the University of Oregon is providing new and detailed information about how land in cities has been developed. That information can help adjust the old methods to make better forecasts of land needs.
>
> The Commission will use all that historical information to support its decisions about how to meet the fundamental requirement of HB 2254: to simplify and, in doing so, to expedite the process by which cities outside the Portland Metro region get UGB amendments approved by the Commission.
>
> But HB 2254 requires the Commission to also consider that the historical relationships that are the basis for some of the specifics in the new rules may change in response to future market conditions. The DLCD commissioned a white paper to address that point.

In other words, current rules, and almost certainly the new ones that the LCDC will adopt per HB 2254, *already require local governments to consider market forces when adopting UGBs.* Thus, I narrow the question for this white paper to this one:

> Is there evidence strongly suggesting that (1) historical trends (nationally, in Oregon, or in regions of the state) relating to the efficiency of land development (i.e., density)[6] will change in particular direction, (2) those changes cannot or are unlikely to be accounted for as Oregon cities make UGB amendments in the future, and (3) the change would be of a type and magnitude that it should affect the rules that the LCDC will adopt relating to (a) converting population and employment forecasts into "land needs" both for small cities (Section 4 below) and large cities (Section 5), and (b) determining the supply and development capacity of lands already within its urban growth boundary (i.e., the Buildable Lands Inventory)?

[6] Section 3.2, following, discusses the HB 2254 definition of "land use efficiency" and its problems.

2.3 Methods for this white paper

In summary, I (1) searched of recent academic and popular literature relating to real estate development and trends, (2) reviewed Oregon studies (many of which I had available; some of which were sent to me at my request) that talk about potential changes in real estate market conditions, (3) assembled some information on recent development activity in Oregon, (4) reviewed recent work by the University of Oregon on historical trends in land absorption in Oregon, and (5) thought about the implications of that information for the requirements of HB 2254 that this white paper is supposed to address.

Because HB 2254 requires that "a city's determination of the amount of buildable lands needed for housing, employment and other urban uses must be based on the population and employment growth forecast to occur over a 14-year period," I did not go out farther into yet greater speculation about how markets might change in the longer run. Most of the literature on real estate market analysis is short run (two to five years). I looked at that literature and at planning literature that has a longer horizon (five to 20 years).

3. Land Markets: Conditions and Potential Changes

3.1 Introduction

Section 2 makes that points that (1) markets for urban land are composed of factors relating to supply and factors relating to demand, (2) these factors can change over time, and (3) the interaction of these factors results in market-clearing prices and absorption. My discussion of market conditions and potential changes follows that logic:

- Section 3.2. Supply: vacant and buildable land in Oregon UGBs
- Section 3.3. Demand for land: population and employment growth in Oregon
- Section 3.4. Possible changes in urban land markets
- Section 3.5. Recent land absorption in Oregon.

On the one hand, I acknowledge that (1) HB 2254 applies only outside the Portland Metro region, (2) the Portland Metro region has roughly half of the state's development, and thus (3) reporting state averages for market conditions will suggest faster and denser development for other parts of the state than is likely. On the other hand, (1) data at the regional level are harder to come by, (2) the amount of work in collecting, evaluating, (3) reporting them is beyond the scope of work for this white paper, and (4) the recent report from the University of Oregon suggests no strong correlation between urban density and region of the state. My compromise is to try to comment occasionally on the implications for different types of regions in the state.

3.2 Supply: vacant and buildable land in Oregon UGBs

The HB 2254 requirements regarding market conditions apply to only two decisions: (1) a demand-side consideration about converting official population and employment forecasts into an estimate of land needs, and (2) a supply-side consideration about the development capacity of lands already within UGBs. This section deals only with the second, supply-side

consideration about "development capacity" (section 3.2 and 3.3 deal with demand-side considerations).

The issue for UGBs and HB 2254 is not *total* land in Oregon. The issue is land that is *buildable* and *within UGBs*.[7]

As a first approximation the land supply problems for local UGBs are what state policy intended. By that I mean though Oregon planning law restricts urban land supply through the use of UGBs, it also requires that cities maintain a 20-year supply of buildable land inside UGBs.

Moreover, the current work for DLCD by the University of Oregon provides empirical evidence for the existence of vacant land. Exhibit 2 shows that for a sample of 120 cities in Oregon,[8] 28% of the land that is inside city limits *and* inside UGBs is vacant (unimproved), and most of that land is buildable (in the sense the it does not have "prohibitive constraints").

Exhibit 2: Residential acreage by improvement status by city size, Tier 3 Cities, 2012

		Residential (Class 1XX) Acres						
City Size	Number of Cities	Total	Improved		Unimproved		Unimproved Unprohibitive	
<1,000	20	2,053	1,272	62%	781	38%	761	37%
1,000-4,999	45	14,551	10,180	70%	4,371	30%	4,232	29%
5,000-9,999	27	21,988	14,956	68%	7,033	32%	6,843	31%
10,000-24,999	17	24,467	16,963	69%	7,504	31%	7,403	30%
25,000-49,999	4	10,037	8,410	84%	1,627	16%	1,592	16%
50,000 or more	7	51,358	38,336	75%	13,022	25%	12,603	25%
All Cities	**120**	**124,455**	**90,116**	**72%**	**34,338**	**28%**	**33,434**	**27%**

Source: From Rebecca Lewis, co-author of *Analysis of Land Use Efficiency in Oregon Cities: A Report to the HB 2254 Rulemaking Committee*. University of Oregon Community Service Center, final draft May 2015.

Note that Exhibit 2 understates, probably substantially, the total amount of vacant and buildable land in UGBs because it does not count some amount of land that is most likely to be vacant: land inside UGBs but *outside* city limits.

Exhibit 3 shows data for the same cities, but organized by region instead of by city size. On average, about 1/3 of the land inside city limits and inside UGBs in cities in every region except Central Oregon is vacant.

[7] I acknowledge that there is a supply of land outside UGBs that is used for residential purposes (in residential exception areas, which includes unincorporated communities; and on farm or forest land, since landowners and developers have found multiple ways to develop houses on resource land). This white paper does not address those markets.

[8] Tier 3 Cities are ones that have populations greater than 1,000, are growing, and have data adequate to support the kind of analysis the U of O is doing.

Exhibit 3: Residential acreage by improvement status by region, Tier 3 Cities, 2012

City Size	Number of Cities	Residential (Class 1XX) Acres: Total	Improved		Unimproved		Unimproved Unprohibitive	
Central Oregon	9	13,178	11,143	85%	2,035	15%	2,027	15%
North Coastal Oregon	12	7,262	4,540	63%	2,723	37%	2,656	37%
Northeast Oregon	12	7,525	4,860	65%	2,665	35%	2,635	35%
South Coastal Oregon	6	5,984	3,676	61%	2,308	39%	2,280	38%
Southeast Oregon	6	3,720	2,358	63%	1,362	37%	1,357	36%
Southern Oregon	17	22,776	16,373	72%	6,403	28%	6,229	27%
Willamette Valley	58	64,009	47,166	74%	16,842	26%	16,250	25%
All Cities	**120**	**124,455**	**90,116**	**72%**	**34,338**	**28%**	**33,434**	**27%**

Source: From Rebecca Lewis, co-author of *Analysis of Land Use Efficiency in Oregon Cities: A Report to the HB 2254 Rulemaking Committee*. University of Oregon Community Service Center, final draft May 2015.

The data suggest that there is no absolute shortage of vacant land in cities. Other research I have done suggests that the number of new residential building permits per year in moderately growing cities average around 1% of the existing housing stock. Recent U of O research demonstrates that new units are built at a higher average density than that of existing stock. That evidence, together with the high percentage of vacant land that is buildable (not prohibitively constrained), suggests that *the amount of potentially buildable land in UGBs is high relative to the annual conversion of vacant (unimproved) land to developed (improved) land.*

But critics of UGBs argue that UGBs do not provide *enough buildable land that is readily available at reasonable prices*. Supporters of UGBs argue that a 20-year supply of *vacant* land should provide enough *buildable, serviced, and marketed* land for at least a few years of demand, and that should be enough market choice to keep prices from rising (or from rising "too much").[9]

Definitions and threshold values of all of the underlined terms in the previous paragraph are at the heart of debates about UGB policy in Oregon. Moreover, data about some of these terms are scarce: without any systematic measurement of availability and price of parcels, it is hard to assess their readiness and reasonableness.

Basic principles of urban economics are (1) for a given level of demand, if land supply is more scarce, the price of land will increase (other things being equal); and (2) as the price of land increases it will make sense for developers to substitute capital for land: i.e., to build more

[9] Neither Oregon-based policy analysis nor the professional literature is definitive about what the proper amount of *buildable, serviced, and marketed* land (a subset of all vacant land that I will call *ready* land) is to allow a land market to function without big increases in price due to land scarcity. Everyone agrees that the supply of ready land should be greater than what is needed for one-year of development: if not, at the end of 9 months there is almost not choice left in the market and land owners can charge higher prices to ration short supply against constant or growing demand. At the low end, I have heard some land economist argue for a 2 – 3 year supply. I think most would agree that a five-year supply of ready land would be adequate to avoid monopsony power. I admit these are my impressions—I can find no literature to cite, and am aware of no studies in Oregon addressing this issue. Finally, even if a five-year supply of *ready* land were the right answer (approximately), no studies have addressed consolidated information about *buildable* land and *ready* land to make estimates of the relationship between the two (i.e., how many years of vacant does a city need to make sure that it has a five-year supply of ready land?), though there are some studies in Oregon (typically of industrial land) that may have the data to address this question.

intensively / densely (unless regulations or public objections prohibit or restrict it). Increasing density is the equivalent of increasing "development capacity;" it also seems to be consistent with the HB 2254 focus on increasing the efficiency of land use.[10]

Or is it? Back to economic principles: government can cause any good to be used "more efficiently" (less input per unit of output) by adopting policies that make it more scarce or its use more expensive. In cases where there are obvious and big external costs (e.g., water pollution), such regulation can improve efficiency in the way economists think about it: the *total* cost of producing a specific output is reduced (or the value of the output is increased for a given amount of cost).

But for economists, using less of something in a production process does not necessarily mean that the production process is more efficient. Efficiency is achieved by having prices right and then letting the market find an efficient (optimal) balance of factor inputs based on those prices. If such regulation provides small benefits but has big costs to development, however, then the cost increase to use an otherwise plentiful resource means, in economic terms, that the overall production function has become less efficient (as other factors get substituted for the now-more-expensive factor) and the use of that resource has become less efficient.

Economic efficiency in a market setting is unlikely to be achieved by setting regulatory limits on the use of certain factors of production. In a market economy, a better role of policy and regulation is usually to identify costs that are significant to society and that are not being counted by businesses in their production (i.e., *external costs* or *externalities*), and to set policies that compel businesses to include those costs. If the regulations are "efficient" they will cause prices of some factors of production to increase to reflect external social costs. Then it is up to businesses to look at these new prices and find an efficient mix of types and amounts of factors for their production functions.

That sounds theoretical because it is. But it has implications for the LCDC's rule-making because it raises the possibility that increased density is not necessarily the proper prescription for getting land use efficiency. There is an extensive literature on both sides of the issue about whether strong regulatory policy in land use increases the cost of housing. In my opinion, it almost certainly does: in attempting to internalize external costs it would be the rare regulation that made the internal costs cheaper.

But the real question—and the harder one to answer—is about whether the increased costs are worth it; about whether the regulation is efficient. That is not a question I risk answering here. I'm only noting that, just as when density gets very low it is easier to see that it is an inefficient

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[10] "Land use efficiency" is a term used frequently in HB 2254. It is not explicitly defined, but the connection to density is clearly implied. Section 4 (2) (b) says the commission shall design its methods so that "the urban population per square mile will continue, subject to market conditions, to increase over time on a statewide basis and in major regions of the state." The empirical work being done by the University of Oregon for DLCD on land use efficiency operationalizes the term as "density."

way to provide urban-level services, there can also be inefficiency when required density is much higher than what market conditions suggest real-estate users want.[11]

As often happens when one parses legislative language, ambiguities emerge. The development capacity of any particular parcel of land will tend to increase as supply is constrained (other things being equal). But if supply is constrained "too much" without "offsetting" benefits (the magnitudes of the italicized terms are uncertain and debated) then prices may rise to the point where development just does not happen on many parcels: the theoretical capacity may have increased, but the practical capacity (at least in the short run) has decreased.

Related to this point are ones about public policies regarding incentives and fees for infrastructure and development. Those incentives and fees affect the cost of buildable land, the cost affects price, and the price affects the intensity of development capacity and the feasibility of development. In other words, the development capacity of *buildable land* may be more sensitive to incentives, fees, and regulations than it is to the total supply of buildable land.

In summary, regarding the supply of vacant and buildable land in UGBs in Oregon:

- There is no absolute shortage of vacant land in Oregon cities, on average.
- The amount of potentially buildable land in UGBs in Oregon cities is high relative to the annual conversion of vacant (unimproved) land to developed (improved) land.
- More difficult to measure is whether UGBs provide enough buildable land that is readily available at reasonable prices. That depends on perceptions and predilections of property owners and developers and on public policy (especially regarding zoning, permitting, and infrastructure provision and pricing). I have assembled no evidence, but I would expect that at least some cities in Oregon have supplies of buildable land that are small relative to a five- or 10-year estimate of market demand.
- For the purposes of this requirement of HB 2254 to consider "any significant changes occurring or expected to occur in the markets for urban land uses," I conclude that there is nothing exceptional *on the supply side* of the market that is not already being considered through current UGB practices or through the simplified practices now being considered by DLCD and the RAC.

3.3 Demand for land: population and employment growth in Oregon

The need for and absorption of urban land result primarily from a demand for built space and public facilities. Both in theory and in planning practice, the demand for built space is assumed

[11] As is common with public policy in general and land-use policy in particular, more analysis can create less certainty rather than more. In *Zoned Out* (2006, RFF Press) professor Jonathan Levine argues, with supporting data, that local government regulation has been inefficient because it has *discouraged* density that the market would otherwise provide. Oregon can point to the Goal 10 and Metro housing rule as a regulation that tried to undo the inefficiency of local regulations that did not permit density. But finding just the right point of regulation is difficult: what if a government requires more density than the market wants to provide? Levine's answer, and that of many urban economists, is that "Use regulation to correct clear price distortions and control obvious externalities, and then let the market produce the development that makes sense given those (correct) prices and (efficient) regulations."

to be well correlated with the growth of population (households needing housing) and employment (as a proxy for economic activity). The correlation, though good, is not inevitable. On the housing side for example, changes in the rate of household formation, household size, and income can all change the demand for new housing even if there were no population growth. On the commercial and industrial side, changes in technology and labor force productivity, or in consumer income, can change the demand for space even without changes in economic output or employment.

Nonetheless, the evidence is that population and employment growth are correlated with urban land absorption, and they are measurable historically and typically the subject of official forecasts. Thus, they are a good place to start a discussion of demand for urban land.

Exhibit 4 shows *historical* **population** growth in Oregon. Different parts of the state have grown at different rates. Exhibit 5 shows the *forecasted* population growth. Key points:

- The Portland Metro region accounted for **44%** of total population in Oregon in 2013, and for **44%** of total population growth in Oregon from 1940-2013. It is forecasted to account for **44%** of total Oregon population in 2035 and for **47%** of total population growth in Oregon from 2015-2035.
- The Willamette Valley region accounted for **48%** of the rest of Oregon's population (per HB 2254, the rest of the state does not include the Portland Metro region), and accounted for **52%** of population growth in the rest of Oregon from 1940-2013. It is forecasted to account for **49%** of the rest of Oregon's population in 2035 and for **53%** of total population growth in the rest of Oregon from 2015 to 2035.

Exhibit 4: Historical population for Oregon by region, 1940-2013

						% of Population	Change	% of Change	AAGR		
Region	1940	1960	1980	2000	2013	2013	1940-2013	2013	1940-2013	1980-2013	2000-2013
Metro	451,423	728,088	1,050,418	1,444,219	1,709,394	43.50%	1,257,971	44.29%	1.84%	1.49%	1.31%
Rest of State (Per HB 2254)	638,261	1,040,653	1,582,738	1,977,180	2,220,671	100.00%	1,582,410	100.00%	1.72%	1.03%	0.90%
Valley	239,781	440,811	738,159	936,387	1,062,701	47.85%	822,920	52.00%	2.06%	1.11%	0.98%
Northwest	72,480	93,349	124,563	147,931	158,255	7.13%	85,775	5.42%	1.08%	0.73%	0.52%
Southwest	115,009	241,302	366,098	441,310	483,412	21.77%	368,403	23.28%	1.99%	0.85%	0.70%
Central	26,206	39,660	86,832	153,558	207,914	9.36%	181,708	11.48%	2.88%	2.68%	2.36%
East	184,785	225,531	267,086	297,994	308,389	13.89%	123,604	7.81%	0.70%	0.44%	0.26%
Oregon	1,089,684	1,768,741	2,633,156	3,421,399	3,930,065		2,840,381		1.77%	1.22%	1.07%

Source: Portland State University Population Research Center, United States Census. Retrieved February 22, 2015. Analysis by ECONorthwest.

Exhibit 5: Forecasted population for Oregon by Region, 2015-2035

Region	2015	2020	2025	2030	2035	% of Population 2035	Change 2015-2035	% of Change 2015-2035	AAGR 2015-2035
Metro	1,732,521	1,852,141	1,976,683	2,096,166	2,204,994	44.14%	472,473	47.55%	1.21%
Rest of State (per HB 2254)	2,269,078	2,399,959	2,539,518	2,671,835	2,790,208	100.00%	521,130	100.00%	1.04%
Valley	1,086,965	1,155,049	1,227,847	1,298,230	1,363,478	48.87%	276,513	53.06%	1.14%
Northwest	162,246	169,273	176,532	182,924	188,031	6.74%	25,786	4.95%	0.74%
Southwest	491,510	517,531	545,809	571,161	591,925	21.21%	100,415	19.27%	0.93%
Central	210,640	228,442	247,035	265,104	281,713	10.10%	71,073	13.64%	1.46%
East	317,718	329,664	342,296	354,415	365,061	13.08%	47,343	9.08%	0.70%
Oregon	4,001,600	4,252,100	4,516,200	4,768,000	4,995,203		993,603		1.12%

Source; State of Oregon Office of Economic Analysis.
http://www.oregon.gov/DAS/OEA/Pages/demographic.aspx#Long_Term_County_Forecast. Analysis by ECONorthwest. Retrieved February 22, 2015.

Exhibits 6, 7, and 8 show historical and forecasted **employment** in Oregon, by region. Key points:

- The Portland Metro region accounted for **51%** of total employment in Oregon in 2013 and **89%** of total employment growth in Oregon from 2005-2014. It is forecasted to account for **51%** of total Oregon employment in 2022 and for **56%** of total employment growth in Oregon from 2012-2022.
- The Willamette Valley region accounted for **49%** of the rest of Oregon's total employment, and accounted for **64%** of employment growth in the rest of Oregon from 2005-2014. It is forecasted to account for **52%** of the rest of Oregon's employment in 2022 and for **56%** of total employment growth in the rest of Oregon from 2012-2022.

Exhibit 6: Historical employment for Oregon by Region, 2005-2014

	2005	2007	2009	2011	2013	2014, Q3	% of Employment 2014	Change 2005-2014	% of Change 2005-2014	AAGR 2005-2014
Metro	807,118	848,845	795,096	811,124	851,792	874,716	51.14%	67,598	88.87%	0.90%
Rest of State (per HB 2254)	827,100	858,787	793,305	785,736	806,943	835,565	100.00%	8,465	100.00%	0.11%
Valley	404,697	421,220	391,652	388,174	398,042	410,156	49.09%	5,459	64.49%	0.15%
Northwest	53,013	55,171	52,324	51,431	52,448	54,157	6.48%	1,144	13.51%	0.24%
Southwest	176,458	178,672	161,187	159,148	163,273	166,261	19.90%	-10,197	-120.46%	-0.66%
Central	76,321	82,837	71,481	70,622	75,291	80,783	9.67%	4,462	52.71%	0.63%
East	116,611	120,887	116,661	116,361	117,889	124,208	14.87%	7,597	89.75%	0.70%
Oregon	1,634,218	1,707,632	1,588,401	1,596,860	1,658,735	1,710,281		76,063		0.51%

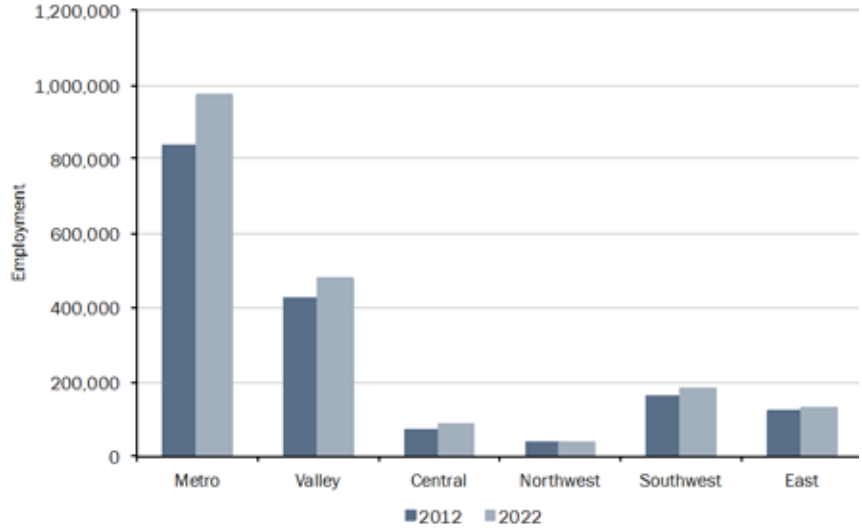
Source: State of Oregon Employment Department. Retrieved February 22, 2015. https://www.qualityinfo.org/ed-ewind/?at=1&t1=0~4101000000~00~5~0000~00~00000~2014~03.

Exhibit 7: Forecasted employment for Oregon by Region, 2012-2022

Region	2012	2022	% of Employment 2022	Change 2012-2022	% of Change 2012-2022	AAGR 2012-2022
Metro	837,290	974,410	51.38%	137,120	55.97%	1.53%
Rest of State (per HB 2254)	814,360	922,210	100.00%	107,850	100.00%	1.25%
Valley	422,470	481,440	52.21%	58,970	54.68%	1.32%
Northwest	35,100	39,210	4.25%	4,110	3.81%	1.11%
Southwest	162,150	181,990	19.73%	19,840	18.40%	1.16%
Central	73,620	85,760	9.30%	12,140	11.26%	1.54%
East	121,020	133,810	14.51%	12,790	11.86%	1.01%
Oregon	1,651,650	1,896,620		244,970		1.39%

Source: State of Oregon Employment Department.
https://www.qualityinfo.org/documents/10182/92203/Oregon+Employment+Projections+2012-2022?version=1.0.
Retrieved February 22, 2015.

Exhibit 8: Forecasted employment for Oregon by Region, 2012-2022



Source: State of Oregon Employment Department.
https://www.qualityinfo.org/documents/10182/92203/Oregon+Employment+Projections+2012-2022?version=1.0.
Retrieved February 22, 2015.

With respect to the requirements of HB 2254, there is nothing in these data about population or employment growth rates to suggest special adjustments for market conditions: the future is expected to closely follow past trends.

I noted in section 2.1 that it is not just *population* growth that drives demand for housing and retail space: the *purchasing power* and *preferences* of the population matter as well.

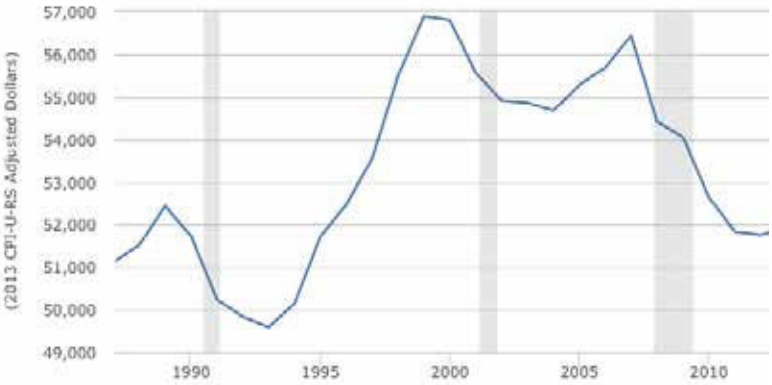
Regarding purchasing power (income), average real incomes (i.e., incomes adjusted for inflation with constant purchasing power) have not grown much nationally or in Oregon. The St. Louis Federal Reserve keeps data on hundreds of economic indicators. Exhibit 9 shows that income real median household income in the nation is about the same now as it was 20 years ago.

Data for Oregon (U.S. Census ACS 1-year survey) show all measures of real income (median household, median family, and per capita) essential flat since 2005, and below national averages (http://www.deptofnumbers.com/income/oregon/). Short-run (three year) forecasts by the State

Economist are for personal income to increase by around 5% per year (in nominal, not real, terms…that would mean a smaller annual growth [1 – 2%] of real income).

In short, there are no expectations of big gains or drops in purchasing power that would cause any significant shifts in consumer demand (for housing most importantly, and retail secondarily).

Exhibit 9: Real median household income in the US, 1993-2013



US. Bureau of the Census, Real Median Household Income in the United States[MEHOINUSA672N], retrieved from FRED, Federal Reserve Bank of St. Louis https://research.stlouisfed.org/fred2/series/MEHOINUSA672N/, February 21, 2015

One exception is that behind the averages (medians and means) is a different story. Incomes for the top 10% of households have been growing, while incomes for many other groups have been declining. Housing has historically been a good place for wealthy households to park increasing wealth. They get mortgage interest tax deductions, untaxed capital gains on appreciation, and the pleasure of enjoying more and higher-quality space. Combined with rising costs for and prices of new housing units, *these trends suggest increasing difficulties for building new housing affordable to middle-income households, and a continued demand for (1) new, high-end units, both single-family and condo, and (2) vacation homes (for the top 10% of households).*

Overall, my assessment is that *recent trends and current conditions are likely to continue: there will be demand for both smaller (less expensive units) and demand for larger, single-family units; for many, probably most, cities, this will mean that the share of new dwelling units that are multi-family units or single-family units on smaller lots will increase.*

The topic of housing price and affordability is a central one to debates about Oregon's UGBs. Of the several indices, the Case-Shiller index is probably the one cited most by economists and market analysts. It typically works with data available in metropolitan areas and, thus, reports on affordability in larger cities. A recent version of the index shows the Portland Metro region to be right at the average of a 20-city composite index, and Seattle at the same place, but large California cities (LA, SF, SD) much higher (less affordable).[12]

Additionally, the National Housing Conference's Center for Housing Policy completes a national Housing Landscape each year to assess housing affordability by state. The Housing Landscape reports the percentage of severely cost-burdened working households in each state (a cost-burdened household is one that spends more than half its income for housing costs). The

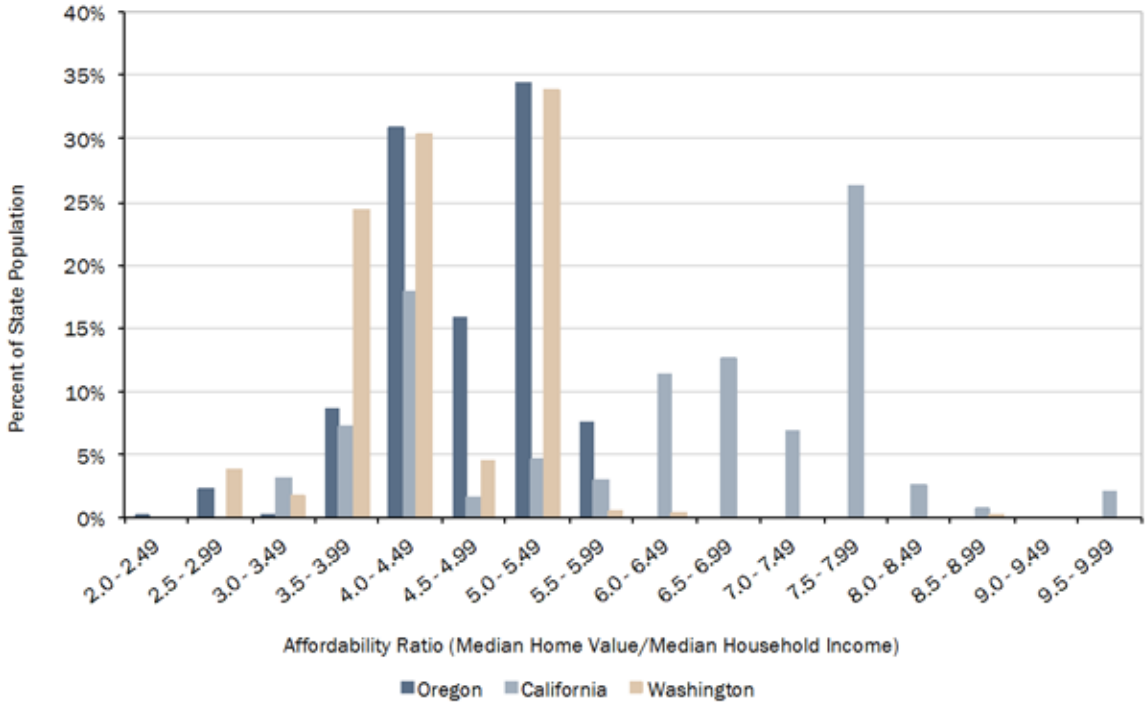
[12] S&P-Case-Shiller 20-City#CCE63D

2014 Housing Landscape reported that 20 percent of Washington's, 25 percent of Oregon's, and 32 percent of California's working households were severely cost-burdened.[13]

To further compare housing affordability among regions in Oregon and among Oregon, Washington, and California, I created my own index. I used recent county and city level data to divide median home value by median household income. showing housing affordability by county. The higher the number, the less affordable the housing.[14]

I used this ratio to address some common questions. Exhibit 10 addresses affordability in Oregon compared to other west coast states.[15] It shows the percent of the population in each state living in counties with different affordability ratios.

Exhibit 10: Distribution of affordability ratio by percent of state population for Oregon, California, and Washington



Source: 2013 5-Year American Community Survey, Analysis by ECONorthwest.

Exhibit 11 rolls up the data into statewide averages.

---

[13] National Housing Conference, Center for Housing Policy. 2014 Housing Landscape. http://www.nhc.org/media/files/Landscape2014.pdf

[14] Data was obtained from American Community Survey 5-year data, 2009-2013. We use this estimate of median household income and median housing price as an approximate midpoint of the five years, 2011.

[15] The ratio is built from county-level data, by state, and weighted by population.

Exhibit 11: Weighted affordability ratio by population for Oregon, California, and Washington

State	Weighted Median Household Income	Weighted Median Home Value	Weighted Affordability Ratio
Oregon	$51,193	$238,797	4.67
California	$62,150	$390,373	6.15
Washington	$60,413	$272,508	4.45

Source: 2013 5-Year American Community Survey, Analysis by ECONorthwest.

My conclusions:

- California is clearly less affordable than Oregon or Washington on this measure.
- Though Oregon and Washington look similar, Washington is more affordable because it has a larger percentage of people in the 3.5 to 3.99 category, and a smaller percentage in the 4.5 6to 4.99 category.
- My index ranks states consistently with the 2014 Housing Landscape reported above.

Exhibit 12 looks at affordability in more detail in Oregon.[16] The East is the most affordable region. The other regions are relatively clustered and I see little reason or practical way for the LCDC to include speculations about future housing affordability by region into adjustments to its new UGB rules.

Exhibit 12: Weighted affordability ratio by region in Oregon

Region	Median Household Income	Median Home Value	Affordability Ratio
Metro	$58,988	$281,711	4.81
Valley	$46,857	$210,424	4.51
Northwest	$47,059	$232,528	5.03
Southwest	$41,145	$206,307	5.02
Central	$48,311	$232,781	4.80
East	$43,482	$161,268	3.70

Source: 2013 5-Year American Community Survey, Analysis by ECONorthwest.

I looked at data on affordability because housing affordability is one of five to 10 issues that are almost always brought up in debates about Oregon UGBs. My conclusions:

- Given forecasted changes in the U.S. and Oregon economies in general, potential in-migration to the U.S. and Oregon, Oregon and local housing policies, and other factors, the problem of housing affordability is more likely to get worse than better.
- Goal 10 already requires cities to provide housing of all types for all income levels. In their UGB findings cities have to make the case that they are doing that.
- If my speculation that measures of housing affordability in Oregon may get worse in the future is correct (and it may not be), what does that mean about the LCDC rule-making for HB 2254? I can create several ad hoc arguments:

[16] Each value was calculated by a weighted average of each county within the region by population. Larger counties within each region had a greater influence on the region's affordability ratio.

- Contributing to the cost of housing is the cost of land and permitting. Simplifying the rules is likely to make housing more affordable.
- A counterpoint: if simplification means that cities no longer have to be explicit about what they are going to do to provide affordable housing, then that could be bad for affordable housing.
- Counterpoint to the counterpoint: what gets done directly for affordable housing through a UGB amendment process is modest. The main thing a state can do, which is important, is to put pressure on local governments to allow and provide land for multi-family housing. Multi-family housing of some types is more affordable, other things being equal, because it has less land and (usually) less built space. But multi-family housing can also be expensive (e.g., downtown or vacation condominiums). Oregon backed away from requirements for inclusionary zoning; other states (e.g., New Jersey) have not. Further, any new housing, without subsidy, is unlikely to be affordable to a large segment of the population with lower household incomes.

I think the market information about affordability can be used to make either of two opposite cases: (1) that the state should do less (simplify the rules), or (2) that the state should do more (e.g., more planning requirements for affordable housing; more state resources to subsidize affordable housing). *Regarding affordable housing, if there is an implication for the LCDC rule-making on HB 2254 it seems to be equivocal: the LCDC should decide how it wants to address affordable housing in its rule-making: the market data are open to different policy prescriptions.*

Regarding current regional variations in affordability by region in Oregon (Exhibit 12): (1) those are current conditions, not forecasts, and this part of HB 2254 is about forecasted market conditions; and (2) even if we forecasted current affordability by indices to remain relatively the same or to change, I don't see any clear recommendation for how that should influence DCLD's rule-making.

3.4 Possible changes in urban land markets

This section summarizes key information about possible changes in urban land markets contained in Appendices A, B, and C. To make this section a little more readable, I skip the citations: they can be found in the appendices. It addresses the three broad land use types that cover most of private, market-based land development: residential, commercial, and industrial.

In all cases I am talking about broad trends and general tendencies. Even if, for example, "Boomers are downsizing" or "Millennials prefer urban environments" in general, there will be hundreds of thousands of households in the U.S. for whom this will not be true. I think the correct interpretation is about the direction of change, not that there will be a quick and huge flip. Market prices and changes in public policy and investment will dampen the swings.

In this section I just summarize what my research found other researchers saying about future land markets. I discuss implications in Chapter 4.

3.4.1 Residential land markets

- **The Baby Boomers are aging.** Seniors (age 65 and over) made up between 20 and 25 percent of the U.S. population in 1970, and are expected to make up over 40 percent by 2040. The 78 million boomers, born between 1946 and 1964, are projected to account for about 20% of the U.S. population, up from 12% in 2000. While many Boomers will choose to remain in their houses as long as possible, many will seek to downsize to smaller single-family homes or multifamily homes, rent, or live in retirement communities or assisted living homes. One survey found 72 percent of Boomers would trade a large home for a shorter commute, and 51% prefer mixed-use walkable communities.
- **Generation X can't buy all the Boomers' homes.** Most of Generation X, a much smaller generation born between 1961 and 1981, have plateaued in their careers and were those who were hit the hardest during the recession. On average those between 45 to 54 years old saw a decrease in their real median incomes of 6 percent over 10 years. This decline in household income contributes to declining household net worth which, along with having children, decreases available funds for down payments on the Boomers' single-family homes. Because Generation X is a smaller generation, this further decreases the demand for the Boomers' single-family houses. Some analysts predict the an excess of suburban single-family houses as Boomers choose or are compelled to downsize.
- **Millennials are entering their prime earning years.** Millennials (or the Echo Boomers, the majority of whom are born between 1982 and 1995) will all be older than 25 by 2030, with the majority being between 35 and 48 years old. Thus, the Millennial generation will enter their prime earning years in the next fifteen to twenty years, and would be the generation expected to purchase a portion of the r the Boomers' houses.
- **Millennials prefer urban environments (at least now).** The suburban lifestyle is less attractive to Millennials, whose preferred residential characteristics include multiple and high-quality transit options, walkability, parks, technology, excitement, and cool and fun factors. In one survey, fifty-four percent of Millennials stated they would give up a larger home for a shorter commute, 62% prefer mixed-use communities, and 52% prefer mixed-income communities. Since 2000, 37% more college-educated people age 25-34 are living within three miles of a city center, and 25% more live in major metropolitan areas. Urban characteristics will continue to draw people to urban areas. The big debate about Millennials is whether their choices are driven by underlying and lasting changes in values, or are a practical response to the fact that they have less income.
- **Millennials still want to own a house, eventually.** While Millennials are moving to urban areas, studies and surveys show that many Millennials are still likely to seek homeownership down the road. The delay is due to several factors including delays in marriage and starting families, student debt, the Great Recession. In a survey from the Demand Institute, 75% of Millennial respondents cited homeownership as a long term goal. Given their higher preference for urban areas (compared to the same age group 20 years ago) it is reasonable to expect that Millennials that do go to the suburbs will place more value on places that are walkable, have open space, and have gathering places.

- **The changing family and changing energy prices will decrease demand for single-family homes.** Many of the suburban single-family homes were built when the nuclear family was typical and energy prices were low. With increases in a family structure variety, race and ethnic diversity, and energy prices, the demand for large single-family houses is expected to decrease.
- **Continued increases in the immigrant population will increase demand for multifamily housing and eventually homeownership.** Recent immigrants are likely to choose more affordable multifamily housing initially. Homeownership increases, however, for second-generation immigrant households. The growth in the Hispanic population (resulting from immigration and natural increases) is projected to result in the country's Hispanic and Latino population increasing to 20% of the U.S. population by 2020, up from 13% in 2000.

3.4.2 Commercial land markets

Office Space

- **Telecommuting has become more accepted, and even encouraged, especially in large and congested metropolitan areas**. Remote work will continue to become a larger percentage of all office work.
- **More efficient use of office space is leading to downsized offices.** Traditionally, most employees have an assigned office or desk, leading to a 50 percent utilization rate. Now, companies are moving towards office-sharing, tolerating less underutilized or wasted space in the office. This shared office space has, in some cases, increased office utilization rates to 95%. With increased office utilization rates, companies are able to downsize their rented office space to decrease costs.
- **Increased efficiency and utilization has increased employment density**. About ten years ago, 250 square feet per office employee was the norm. Now, the average is closer to 195 square feet or less per office employee. Can that decrease in space per employee continue—can they be packed any tighter? The answer is that these averages are not based on the employment density of a typical day at the office, but are derived by dividing estimates of total office space by total employees. Shift work and telecommuting can allow that average space per employee to continue to drop.
- **Young employees are attracted to modern office space**. The same Millennials who seek an urban lifestyle are more attracted to newer and more modern office spaces with natural light, more technology, and an increased sense of collaboration.

Retail

- **As the Millennials replace the Boomers as shoppers, priorities will shift.** Both luxury stores and value stores are expected to do well, but mid-priced stores will lose market share as consumers "trade up and down."
- **Continued increases in online sales will lead to increased mall and retail vacancy rates.** Long-term leases on large retail spaces will make it difficult for businesses to downsize when faced with decreased sales, forcing them to locate in less desirable areas, which will

further increase online shopping. Hundreds of retail stores are closing around the country after facing decreased sales. In 2013, sales dropped over five percent, following a continued downward trend.

- **Some retail sectors will do better than others.** Sectors like health, beauty, and home are expected to be stronger than sectors like music, books, and video in the future, because personal interaction is more likely to be required before purchase.

3.4.3 Industrial land markets

- **Recent technological improvements in industrial robots and automation will affect manufacturing and industrial markets.** In previous years, robots have been used in the more dangerous or precise processes of manufacturing, but have been excluded from performing human tasks. New technologies have made it realistic for relatively inexpensive robots (who do not require wages or healthcare) to perform those human tasks. The relative inexpensiveness of robots like this will reduce industry costs and continue to make manufacturing in the United States more economically feasible.
- **Additive technology has potential to reduce manufacturing costs.** 3D printing is highly customizable, so can reduce development costs, customize goods for specific consumers, reduce waste, and simplify manufacturing processes.
- **Outsourced production will begin to be brought back to the United States.** With increased technological innovation in the coming years that will reduce production costs and make domestic production economically feasible, re-shoring is expected to occur.

3.5 Recent land absorption in Oregon

One way to think about the future conversion of vacant land to developed land is to look at factors that create a demand for development, how they have changed in the past, and how they might change in the future. That is what I did in Sections 3.3 and 3.4. But another way to predict future land conversion is to look at past land conversion. In the absence of direct data about land conversion (such data exist for some cities, but they are not comprehensive and consistent), one can look at data that are indirect and partial: namely, at the construction / absorption of new housing units.

There are good reasons to be ambivalent about using recent absorption to forecast future absorption. On the negative side (1) short-run absorption may be low or high because of business cycles, and (2) even long-run trends can change in response to fundamental changes in economic, demographic, technological, and regulatory conditions. On the positive side, the trend of absorption can be very stable for jurisdictions over the long run, and all jurisdictions need some solid, empirical basis from which to start their thinking about future absorption.

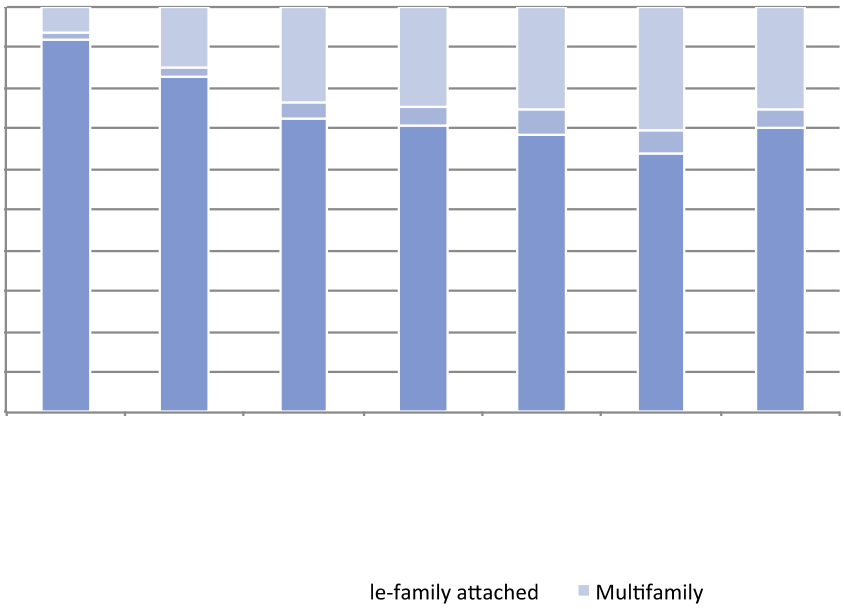
I provide some information about recent trends in Appendix D, but I do not find it of much use for this assignment. Short-run information available from standard real-estate sources tells the expected story that real-estate markets are better now than they were when the bursting real-estate bubble triggered a multi-year recession in 2008. It does not provide information about

longer-run trends in product mix or density, and it is those longer-run trends that are more germane to the HB 2254 questions.

I did not assemble data on long-run trends in the absorption of employment land. To get a sense of the longer-run trends in residential product type and density in Oregon, I turned to the recent work by the University of Oregon done for DLCD.[17] Detail is available in the report.

Exhibits 13 shows the current housing mix for non-Metro cities in Oregon, and the expected correlation: the larger the city, the larger the percent of housing that is multifamily.

Exhibit 13: Housing mix by city size, all non-Metro cities in Oregon, 2012



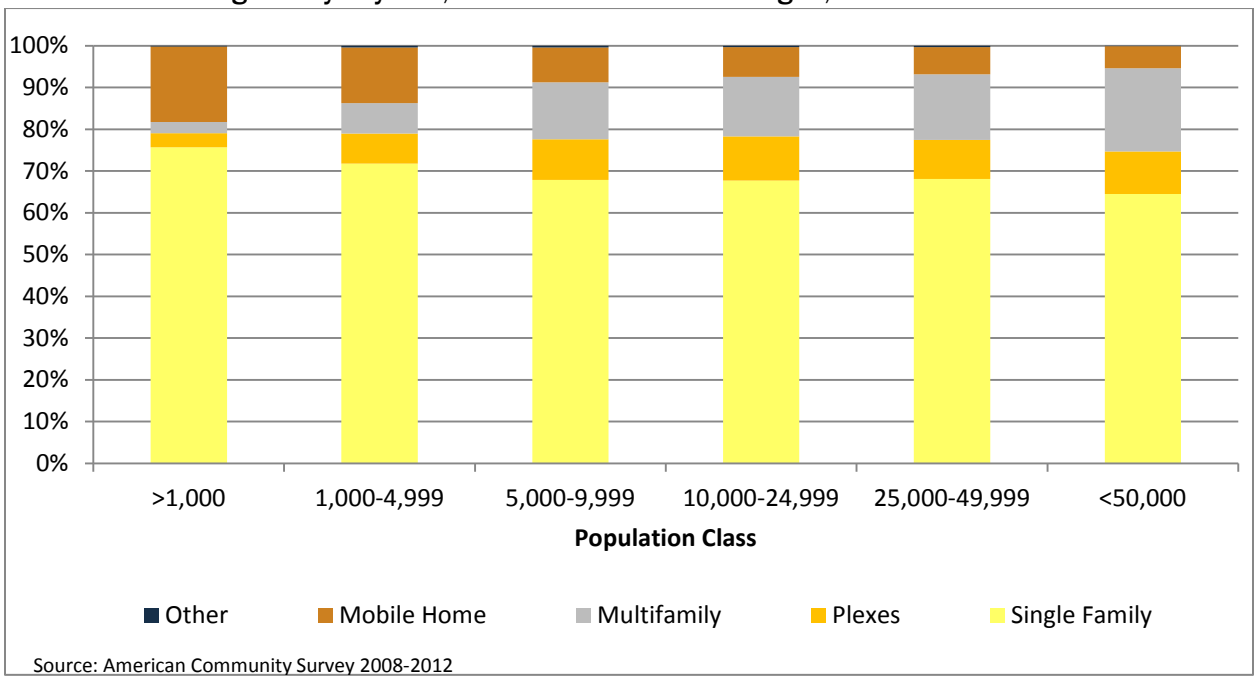
Source: From Rebecca Lewis, co-author of *Analysis of Land Use Efficiency in Oregon Cities: A Report to the HB 2254 Rulemaking Committee*. University of Oregon Community Service Center, final draft May 2015.

Exhibits 14 shows the recent trend in absorption, by housing type, for non-Metro cities in Oregon, and the expected correlations: the larger the city, the larger the percent of housing that is multifamily, and the smaller the percentage that is mobile home.

I discuss my ideas about the implications of these data for the LCDC's HB 2254 rule-making in the next section.

[17] Analysis of Land Use Efficiency in Oregon Cities: A Report to the HB 2254 Rulemaking Committee. University of Oregon Community Service Center, final draft May 2015.

Exhibit 14: Housing mix by city size, all non-Metro cities in Oregon, 2008-2012



Source: From Rebecca Lewis, co-author of *Analysis of Land Use Efficiency in Oregon Cities: A Report to the HB 2254 Rulemaking Committee*. University of Oregon Community Service Center, final draft May 2015.

4. Implications

4.1 Regarding the logic of the requirement

A lot goes into writing rules. They are complicated. HB 2254 is about simplification and it is complicated. Inconsistencies and unintended consequences are inevitable. I would not want to be a rule writer.

I was on the DLCD committee that reviewed work in progress as the language that eventually became HB 2254 was being drafted. I don't remember a lot of discussion about the "changes in markets for urban land" section. It probably seemed logical to everyone: yes, the LCDC should have some flexibility to adjust its rules based on future changes to urban land markets.

The rule did not foresee this situation: I am writing a white paper about market forces that will go the RAC. The RAC and DLCDC staff might consider the evidence I have presented as it creates the rules it will recommend to the LCDC for consideration. In other words, it is possible (likely) that the rule that goes to the LCDC will already have considered much of what is important about market changes, and that additional adjustments made by the LCDC would be unnecessary and, perhaps, redundant.

I cannot know now the extent to which that hypothetical will prove true. I note it to remind DLCD staff to evaluate that point as it prepares it recommended rules for the LCDC.

4.2 Regarding supply and development capacity

What are the implications for the HB 2254 requirement that the LCDC consider urban land markets when determining the supply and development capacity of lands already within an urban growth boundary (i.e., the Buildable Lands Inventory)? My conclusions:

- There is no absolute shortage of vacant land in Oregon cities, on average.
- The amount of potentially buildable land in UGBs in Oregon cities is high relative to the annual conversion of vacant (unimproved) land to developed (improved) land .
- More difficult to measure is whether UGBs provide enough buildable land that is readily available at reasonable prices. That depends on perceptions and predilections of property owners and developers and on public policy (especially regarding zoning, permitting, and infrastructure provision and pricing).
- For the purposes of this requirement of HB 2254, I conclude that there is nothing exceptional *on the supply side* of the market that is not already being considered through current UGB practices or through the simplified practices now being considered by DLCD and the RAC.

4.3 Regarding forecasting land need

What are the implications for the HB 2254 requirement that the LCDC consider urban land markets when converting forecasted population and employment growth into forecasts of land need? My conclusions:

- Regarding population and employment forecasts, the primary drivers of demand for new development and the land to build it on, there is nothing in the data about historical or forecasted rates of population or employment to suggest a need for special adjustments for market conditions: the future is expected to closely follow past trends.
- Regarding housing cost, price, and preference, trends suggest increasing difficulties for building new housing affordable to middle-income households (much less low-income households). That problem suggests one solution: reducing cost by reducing floor space and lot size (i.e., increasing density). Recent trends are consistent with the speculation that national housing markets and Oregon land-use policy are shifting in the same direction: slowly toward an increased share of new housing that is multifamily and small-lot single family. But I expect a continued market demand for (1) new, high-end units, both single-family and condominium, and (2) vacation homes.
- I found no data to make a compelling argument for regional differences in policy based on market conditions, and certainly not for ones that go beyond whatever DLCD staff and the RAC are already considering.
- If the LCDC wants to address affordable housing in its rule-making, the market data are open to different policy prescriptions. I don't see any clear recommendation for how the evidence I presented should influence LCDC's rule-making.

4.4 Closing comments

In general, I expect that the work of DLCD staff and the RAC, as they work on drafting rules over the next six months for the LCDC to deliberate, will considered (explicitly or implicitly) all of the market factors I discuss in this white paper. In other words, the consideration of these factors that HB 2254 requires of the LCDC is likely to have been mainly done and incorporated into the draft rules that DLCD and the RAC forward to the LCDC.

If DLCD staff reject that version of my conclusions and believe that the LCDC will need to do more review , then I have presented evidence to limit that review.

- No market information I reviewed about the *amount of land* or the *amount of population and employment growth* make a compelling case the LCDC needs to make special adjustment to its rules. I do not expect DLCD staff and the RAC to get stuck on recommendations about rules of land supply (which is mainly factual and does not have to be forecasted), population growth (which now has PSU implementing a standardized procedures), or employment growth (staff at DLCD and the Oregon Employment Department are working out standard procedures now).
- The more likely area for difficulty is the conversion of expected (and agreed upon) population and employment growth into land need—in other words, the problem will be assumptions about future density.

  The University of Oregon has done what its budget will allow regarding historical residential density. That provides a good base for discussion. But after that, one can make theoretical arguments on why future development might occur at densities different from those of current development. In theory, there are arguments for less density. But (1) the market arguments for greater average density are, in my opinion, stronger than those for less density, (2) HB 2254 implies, and all the RAC discussions have been explicit, that the idea of "land use efficiency" should mean that most cities in Oregon have to be, at least modestly, increasing their densities.

  Thus, the RAC debate over the next few months will be about how to balance the goals of simplification and uptake (in other words, the goal is to have a rule that a lot of cities use—no matter how simple it is, if jurisdictions do not use it because they think it requires them to plan for unmarketable and unachievable densities, then simplification has no practical effect) against the goal of increasing density. Most RAC members, myself included, probably already have opinions about how far to push density, and we can probably find something in this white paper to support those opinions.

Analysis of Land Use Efficiency in Oregon Cities

A Report to the HB 2254 Rulemaking Committee

June 2015

Final Report

Prepared for:

HB 2254 Rulemaking Advisory Committee

Department of Land Conservation & Development

Prepared by:

University of Oregon
Community Service Center
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EXECUTIVE SUMMARY

This report presents analysis of historic land use efficiency in Oregon cities to support development of a simplified land need methodology for use in urban growth boundary (UGB) review. The analysis is intended to address parts of the research requirements stated in House Bill 2254 (codified as ORS 197A) relating to historic land use efficiency.[1]

Overview

In response to the growing complexity of UGB amendment process, the 2013 legislature enacted HB 2254 (codified at ORS 197A) to provide for new, simplified methods for growing cities to evaluate the capacity of their UGBs. The law requires the LCDC to adopt rules to establish these methods before January 1, 2016. LCDC appointed a Rulemaking Advisory Committee (RAC) to assist in development of these rules.

HB 2254 requires that the LCDC produce an administrative rule that implements the legislation. As part of that rulemaking process, the bill requires that the LCDC establish factors for converting forecasted population and employment growth into estimates of land need for housing, employment and other categories of uses. The bill requires the factors in part "be based on an empirical evaluation of the relation between population and employment growth and the rate and trends of land utilization in the recent past in the applicable major region of the state…"

Based on these requirements, DLCD staff identified the following objectives for this research:

1. Determine the historical rate of "land efficiency" and land consumption (per person/acre).
2. Determine past employment growth rates/trends of land utilization.

This research was primarily conducted through analysis of Geographic Information System (GIS) data. The UO research team collected data for as many cities as possible.

For the purpose of this research, we define the *urban area* as areas within city limits that are also inside urban growth boundaries in 216 cities outside of the Portland UGB. We use the annual population estimates from Portland State University as a proxy for urban population (the annual population estimates are for areas within city limits). Because of data availability and population levels and growth rates (described further on page 9), the cities are divided into Tiers. Tier 1 (130 cities) includes all cities outside Portland Metro UGB except cities that are growing by less than 1% in average annual growth rate per year between 2003-2012 with a population under 5,000. Tier 2 (127 cities) includes cities for which

[1] https://www.oregonlegislature.gov/bills_laws/lawsstatutes/2013ors197A.html

ORMAP taxlot data were available. Tier 3 (122 cities) includes cities for which county level assessor's data was obtained.

Findings

Following are key findings of the UO Team's research:

- **Larger cities account for the majority of population growth.** Between 2005 and 2012, nearly 60% of the population growth in cities outside the Portland Metro UGB occurred in cities over 25,000 (11 cities) and 75% occurred in cities over 10,000 (28 cities).

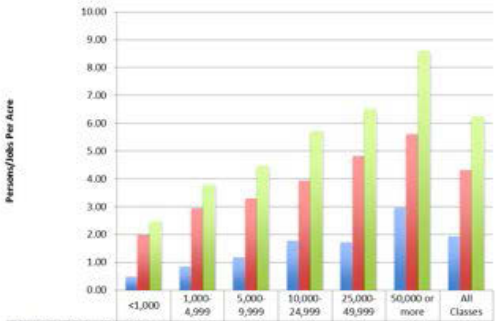
- **Between 2005 and 2012, population increased faster than employment**. Based on covered employment data, the 216 cities outside of the Portland Metro UGB added about 5,900 jobs between 2005 and 2012. Employment grew at a rate much slower than population. Between 2005 and 2012, employment for the 216 cities outside the Portland Metro UGB increased 1.1%; population increased 7.9%. This difference can largely be attributed to the Great Recession.

- **As defined by HB 2254 and by this study, the use of land in cities became more "efficient" between 2005 and 2012.** For the 130 cities outside the Portland Metro UBG included in the study, population density within city limits (total people divided by total acres) increased by 12%. Population density for all land in city limits increased from 3.86 persons per acre (2,474 persons per square mile) to 4.32 persons per acre (2,763 persons per square mile).

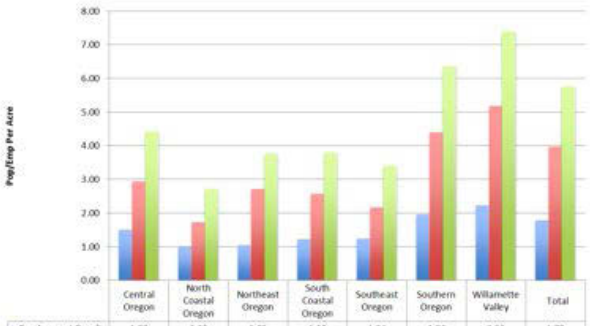
- **Employment densities increased between 2005 and 2012**. For the 130 cities outside the Portland Metro UBG included in the study, employment density within city limits increased by 4%. Employment density for all land within city limits increased from 1.86 employees per acre (1,188 employees per square mile) to 1.94 employees per acre (1,240 employees per square mile). Note that the *density* of employment increased slightly despite the fact that total employment grew slowly.

- **Smaller cities, on average, are less dense than larger cities.** For the 216 cities outside the Portland Metro UGB, cities with populations less than 1,000 averaged 679 persons per acre, while cities over 50,000 averaged 3,202 persons per acre. Figure S-1 shows population and employment density by city size and region.

Figure S-1. Population and Employment Density (persons and jobs per acre) for Tier 1 Cities By City Size and Region, 2012, Non-Prohibitive Acres in City Limits (n=130)



	<1,000	1,000-4,999	5,000-9,999	10,000-24,999	25,000-49,999	50,000 or more	All Classes
Employment Density	0.49	0.85	1.18	1.78	1.71	2.97	1.94
Population Density	1.99	2.95	3.30	3.94	4.81	5.62	4.32
Pop+Emp Density	2.48	3.80	4.48	5.72	6.52	8.59	6.25



	Central Oregon	North Coastal Oregon	Northeast Oregon	South Coastal Oregon	Southeast Oregon	Southern Oregon	Willamette Valley	Total
Employment Density	1.50	0.98	1.05	1.22	1.24	1.96	2.23	1.78
Population Density	2.93	1.73	2.72	2.58	2.17	4.40	5.18	3.98
Pop+Emp Density	4.44	2.72	3.77	3.80	3.41	6.36	7.41	5.76

- **Regional differences exist**. Cities in rural regions generally have lower population and employment densities (as measured in persons or employees per acre). Cities in the Willamette Valley and Southern Oregon region have higher average population and employment densities than other regions.

- **On average, single-family/plex[2] development became more efficient**. For the 120 cities included in the single-family density analysis, the data show a trend of increasing density over time. Average single-family density in the period between 2008-2012 was 22% higher than average density between 1993-1997. Single-family/plex density was 5.22 taxlots per unprohibitive acre[3] in 1993-1997 and increased to 6.38 taxlots per unprohibitive acre in 2008-2012. The trend of increasing single-family and plex densities is seen for all city sizes.

- **Multifamily residential densities are difficult to analyze due to data constraints**. Most assessors do not include counts of multifamily dwelling units in their assessment databases. Multifamily development in the 26 cities the research team had data for averaged about 12 dwelling units per net acre. To supplement the small sample, the research team reviewed Goal 10 housing studies. The weighted average for the 18 cities that included unit counts was 15.3 dwelling units per net acre. Time series data for multifamily residential density was not available.

[2] Oregon Department of Revenue defines Property Classifications. This analysis includes residential (class 100) which includes single family, duplexes, triplexes, and quadplexes. Parcels with 5 or more units are classified as multifamily. Thus, our analysis refers to "single family and plex"

[3] In this analysis, our denominator is the number of Unprohibitive land, which excludes water and floodways. We further describe our methods for considering land on page 12.

- **Employment densities fall within expected ranges**. The analysis of employment density showed an average density of 17.2 employees per net acre for commercial employment, and 8.7 employees per net acre for industrial employment. These results are in the range of those reported in the Goal 9 workbook.

- **Land for roads, parks, and schools accounts for a significant portion of land in city limits.** On average, acreage not in tax lots or on exempt land in governmental uses constitute 29% of acres in city limits. The research team used land not in tax lots in city limits as a proxy for roads. Land not in taxlots averaged 18% for the 180 cities included in the analysis.

- **Statistical analysis shows that no simple relationship exists between city size and density or between region and density**. While average densities increase by city size, simple empirical models show only slight correlation between city size and density because of the high degree of variability in smaller cities.

Implications

A fundamental purpose of HB 2254 is to make the process for adding land to UGBs simpler. One way to make things simpler would have been to find strong relationships between a relatively easily measured or estimated variable (e.g., population) and land use / need.

The results clearly show that cities are becoming more efficient over time. But the relationships are not consistently simple and uniform:

- **Smaller cities, on average, are less dense than larger cities.** This suggests that methodologies that incorporate city size may be appropriate.

- **The density analysis provides baseline data that can inform density thresholds.** No previous studies in Oregon have included such a broad and comprehensive review of land use efficiency.

- **Larger cities account for the majority of population growth**. Between 2005 and 2012, 75% of the state's population growth occurred in cities over 10,000. Because these cities are growing, they are candidates to use the simplified UGB methodology authorized by HB 2254. If the intent of UGB streamlining is to develop simpler methods to estimate land need, methodologies that are focused on larger cities will be most effective in implementing a UGB streamlining process.

- **Regional differences exist, and could be incorporated into a simplified methodology**. The results show that cities in the Willamette Valley and Southern Oregon (and to a lesser extent, Central Oregon) have achieved higher residential and employment densities than other regions. A simplified methodology could recognize these differences and establish density thresholds based on location.

- **Limits to efficiency increases should be recognized and incorporated into the methodology**. Focusing on one element of the analysis—single-family

and plex efficiency—the data clearly show that on average cities are generally becoming more efficient, but there are likely upper bounds of efficiency. Few cities averaged over 8 units per acre in any time period, and those are outliers.

- **Methodologies for roads and public lands should apply to all lands, not only residential lands**. Current state policy (OAR 660-024) allows cities to use a safe harbor assumption of 25% for roads, schools and parks. The research suggests that these uses do not always occur in residential areas and that a factor applied to all land might provide a more consistent and accurate approach.

- **Simplified methods that use a population or employment factor per improved acre are possible**. Distilling the numbers to a persons per acre for residential land and employees per acre for employment land and then adding land for roads, schools, and parks would be the simplest available method, and should be further analyzed for its effectiveness.

In summary, the analysis presented in this report represents the most comprehensive and accurate analysis possible in the context of the objectives outlined in HB 2254. To the extent the data allow, it provides the foundation to address the requirement that the method:

> *Be based on an empirical evaluation of the relation between population and employment growth and the rate and trends of land utilization in the recent past in the applicable major region of the state.*

CHAPTER 1: INTRODUCTION

This report presents analysis of historic land use efficiency in Oregon cities to support development of a simplified land need methodology for use in urban growth boundary (UGB) review. The analysis is intended to address parts of the research requirements stated in House Bill 2254 (codified as ORS 197A) relating to historic land use efficiency.[4]

Background

With the passage of Senate Bill 100, the Oregon statewide land-use program became law in 1973. Its iconic requirement is that every city have an Urban Growth Boundary (UGB) to (1) protect resource lands outside the boundary, and (2) encourage more efficient (denser) development patterns inside the boundary. Subsequent interpretations and expansions of the UGB and related requirements by the Land Conservation and Development Commission (LCDC), its staff (DLCD), and the courts addressed the pattern of development inside the UBGs (e.g., mixed-use, transit-oriented).

As of 2015, there were 242 incorporated cities and 36 counties in Oregon, with 217 UGBs. We were unable to find data on the number of acres within UGBs in the mid-1980s, after all the UGBs had been adopted and approved. In 2012, there were 570,896 acres in UGBs and 447,400 acres in city limits, not including the Portland Metro UGB.[5]

When the architects of SB100 established UGBs 40 years ago, they had little guidance. Guidance in the bill led to an interpretation that the law required cities to draw a boundary with a supply of buildable land sufficient to accommodate approximately 20 years of development. But cities used different techniques to forecast growth, development, and buildable land; had different goals; and had different interpretations of the requirements in the 10 years after the program started, when almost all of the initial UGBs were established.

Since then many procedures have been standardized by administrative rules. Since UGBs get established only once, those rules are about the process for *amending* UGBs (OAR 660-024 and to a lesser extent, OAR 660-009 and OAR 660-010). While the rules clarified some aspects of UGB amendments, they also had the effect of making the process more complex. This complexity has resulted in many boundary reviews taking five or ten years (current record: almost 20 years and counting) as the process of analysis, findings, review, and adjudication repeats itself. A stated purpose of ORS 197a is that the methods "Become, as a result of reduced costs, complexity and time, the methods that are used by most cities with growing populations to manage the urban growth boundaries of the cities."

[4] https://www.oregonlegislature.gov/bills_laws/lawsstatutes/2013ors197A.html

[5] We do not include the Portland Metro figures here because HB 2254 does not apply to Portland Metro.

UGB requirements are always at the front of critiques of the Oregon land-use program. They were a major impetus for several statewide ballot measures in the 1980s and 1990s to repeal the state's planning program (all unsuccessful), Ballot Measures 7 and 37 (2000 and 2004), the "Big Look" review of the program ten years ago, and DLCD's almost continuous UGB committees for the last seven years. Despite the critique, little has been done to simplify the process.

In response to the growing complexity of UGB amendment process, the 2013 legislature enacted HB 2254 (codified at ORS 197A) to provide for new, simplified methods for growing cities to evaluate the capacity of their UGBs. The law requires the LCDC to adopt rules to establish these methods before January 1, 2016. LCDC appointed a Rulemaking Advisory Committee (RAC) to assist in development of these rules.

Purpose and Methods

HB 2254 requires that the LCDC produce an administrative rule that implements the legislation. As part of that rulemaking process, the bill requires that the LCDC establish factors for converting forecasted population and employment growth into estimates of land need for housing, employment and other categories of uses. The bill requires the factors:

- Be based on an empirical evaluation of the relation between population and employment growth and the rate and trends of land utilization in the recent past in the applicable major region of the state;
- Reflect consideration by the Commission of any significant changes occurring or expected to occur in the markets for urban land uses in that major region of the state;
- Be designed to encourage an increase in the land use efficiency of a city, subject to market conditions; and
- Provide a range of policy choices for a city about the form of its future growth. [6]

Based on these requirements, DLCD staff identified the following objectives for this research:

1. Determine the historical rate of "land efficiency" and land consumption (per person/acre).
2. Determine past employment growth rates/trends of land utilization.

This research was primarily conducted through analysis of Geographic Information System (GIS) data. The UO research team collected data for as many cities as possible. Chapter 2 describes the specific methods in more detail.

[6] The rule also requires other research tasks; our research focuses narrowly on this requirement.

Organization of Report

The remainder of this report is organized as follows:

- **Chapter 2: Framework for Analysis of Land Use Efficiency** presents a description of how the UO research team operationalized the concept of land use efficiency and a list of metrics used to measure land use efficiency.
- **Chapter 3: Characteristics of Land Within City Limits** presents data on various characteristics of land for all cities outside the Portland Metro UGB.
- **Chapter 4: Residential Land Use Efficiency** presents analysis of residential densities by housing type and time period for all cities outside the Portland Metro UGB.
- **Chapter 5: Employment Land Use Efficiency** presents analysis of employment densities by type and time period for all cities outside the Portland Metro UGB.
- **Chapter 6: Conclusions and Implications** summarizes the conclusions of the research and describes the implications for development of a simplified land need methodology for all cities outside the Portland Metro UGB.

This study also contains the following appendices:

- **Appendix A: ORS 197A** presents the codified language of HB 2254 that guided the research presented in this report.
- **Appendix B: List of Cities by Tier** presents a list of all cities included in the study and information about their relationship to counties, regions, city size classes and analysis tiers.
- **Appendix C: Effect of Constraints on Residential Density** presents an analysis of single-family and plex densities on constrained, partially constrained, and unconstrained lands.
- **Appendix D: Additional Data** includes data on City Characteristics, data on Residential Development and Density, and data on Employment Development and Density.

CHAPTER 2: FRAMEWORK FOR ANALYSIS OF LAND USE EFFICIENCY

This chapter presents the framework used by the UO research team for this analysis. It begins with an overview of definitional issues related to implementation of research on land use efficiency. It concludes with a description of metrics evaluated by the UO research team.

What HB 2254 Requires

Following is text from HB 2254 relevant to research on land use efficiency:

> Section 2(2): Encourage, to the extent practicable given market conditions, the development of urban areas in which individuals desire to live and work and that are *increasingly efficient in terms of land uses and in terms of public facilities and services.*

and

> Section 2(4): Encourage cities to *increase the development capacity* within the urban growth boundaries of the cities.

and

> Section 3(5)(a): Evaluate, every five years, the impact of the implementation of sections 4 (2) and 5 (2) of this 2013 Act on *the population per square mile, livability in the area, the provision and cost of urban facilities and services*, the rate of conversion of agriculture and forest lands and other considerations.

and

> Section 4(2)(B)(b) The urban *population per square mile* will continue, subject to market conditions, to increase over time on a statewide basis and in major regions of the state, including that portion of the Willamette Valley outside of Metro.

[emphasis added]

These passages highlight at least one specific indicator (population per square mile) and several other concepts (public facilities service efficiency, development capacity, livability, cost of urban facilities and services). Our scope of work for DLCD was intended to focus narrowly on analysis of land use efficiency; other parts of the analysis are being completed through other studies.

Section 4(2)(B)(b) also refers to “urban” population. In the context of the Oregon land use program, urban has typically been defined as the developed area within a UGB. Our analysis shows that the city limits of many jurisdictions extend outside the UGB. The nature of development in unincorporated areas of UGBs tends to be a mixture of lower density uses. As such, one would expect that the efficiency of land

use in these areas would be lower than in city limits. In short, our interpretation of HB 2254 is that section 4(2)(B)(b) refers to urban in the context of Goal 14 (e.g., developed lands within the UGB).

For the purpose of this research, we define the *urban area* as areas within city limits that are also inside urban growth boundaries. We use the annual population estimates from Portland State University as a proxy for urban population (the annual population estimates are for areas within city limits).

It is essential that we be clear about the operational definition of "efficiency" for the purpose of this research. Our interpretation of the legislative purpose of this part of the HB 2254 research (note that the bill identifies other research tasks) is to develop a simplified methodology for determining land need. This is articulated in Section 4(3)(b) of the bill which requires that the determination of supply and development capacity within UGBs:

> Be based on an empirical evaluation of the relation between population and employment growth and the rate and trends of land utilization in the recent past in the applicable major region of the state.

Thus, we have a numerator (population and employment) and a denominator (land area). **In short, the legislation points to an operational definition that equates measures of land use efficiency to measures of density** (e.g., people or dwelling units per acre)**.** The following section describes how the UO research team operationalized the concept of land use efficiency for the purpose of this study.

Definitions

Central to the idea of empirical research is measurement. In a statistical analysis sense, **measurement** is the assignment of numbers to a phenomenon that one is interested in analyzing. Often the phenomenon of concern is a broad one that does not have any single, accepted measure (e.g., patriotism, altruism, livability). Thus, to do empirical work about important concepts researchers must **operationalize** them: i.e., they must define the process they will use to measure the concepts. Before addressing key definitions for this study, it is useful to revisit definitional linkages in measurement.

- **Concepts** are measured indirectly through **indicators** specified by **operational definitions**

- **Operational definitions** are statements that specify how a concept will be measured

- **Metrics** refer to things that can be measured directly and are linked to a concept through an operational definition. The key concept in HB 2254 that our research addresses is "efficiency." The statute does not define how to measure land use efficiency. Absent an operational definition, one could identify many different measures of efficiency. A logical starting point is the dictionary and common usage: efficiency means either (1) maximizing a

desired output for some given amounts of input, or (2) minimizing inputs for some given amount of output.

Economists think of efficient use of resources as multidimensional: both the desired outputs and the required inputs are many, and efficient production of those benefits requires an optimization, not a simple maximization or minimization. Economists (and the public, for that matter) would typically measure the efficiency of a public policy as the ratio of benefits to costs: a higher ratio means more efficiency.

That notion can be found in Oregon land use law: in Senate Bill 100 and its subsequent interpretation. The LCDC is supposed to balance "conservation and development," and potentially the performance of a plan or program on all the statewide goals.

HB 2254 is focused on just one of those goals (Goal 14). Its definition of efficiency is more narrow, and almost certainly should be interpreted to mean that it is focused on just one of the inputs (land) to one of the desired factors of livability (built space that provides shelter for residential, business, and social purposes).

Operational definitions

That focus suggests various possible operational definitions of *land use efficiency.* Most posit some desired population, employment, land, or built-space outcome (the numerator) relative to some input of land (denominator). Efficiency then means "more output, less input." Since the input (denominator) to be economized is land, any efficiency measure of this type is some form of a measure of *density*.

- Density or intensity of land use
- Density of population or employment (people per area)
- Density of housing (dwelling units per area)
- Density of economic activity (built space per area, business establishments per area, output per area)

There are potentially measures of land use efficiency that are not density based. They would presumably be trying to economize on inputs other than land. For example:

- How well land could be serviced (efficiency means reducing service *costs*)
- How well land development patterns create desirable communities or enhance community livability.

In short, this report operationalizes land use efficiency through a range of density estimates: generally, population per square mile or acre, dwelling units per acre, and employees per acre. Variations on all of these general metrics are possible through use of different numerators and denominators.

Metrics

The measurement of land use efficiency requires a specific set of defined variables or metrics. For the purposes of this study we use the following definitions:

- **Metrics** is a broad term to cover, in general, everything related to collecting, analyzing, interpreting, and benchmarking data.
- **Data** are also defined broadly to mean anything that can be described (preferably and usually, but not necessarily, measured).
- **Indicators** are data that relate in some logical way to a **concept** (as defined above).
- **Benchmarks** or **Targets** are normative judgments about a desirable level for an indicator, now or in the future. Our research does not involve the development of benchmarks or targets—that is the work of the RAC.
- **Measures,** for the purpose of this study, are indicators that relate to land efficiency and density. In other words, we try to limit our use of the term "measurement" to those that are measurements of land efficiency / density.

To obtain measures of efficiency, we rely on a variety of datasets to obtain several potential numerators and denominators that offer numerous measures of efficiency.

Our metrics include indicators and efficiency measures. We classify **indicators** as static (one year of data) or dynamic (change over time) metrics that define the numerator or denominator. **Efficiency measures** are normalized metrics, meaning that we divide a static numerator (population, housing units, or employment) by a static denominator (area.) The rest of this section discusses broad categories of metrics used for this study (in some way related to the concept of land efficiency).

Land characteristics

Land characteristics include basic area metrics (e.g., city limits within UGBs), as well as identification of lands that are not available for development (e.g., water bodies or areas outside of tax lots). These measures also address constrained and unconstrained land (and prohibitive land—land with constraints deemed so binding that no development can occur) based on development constraints including slopes over 25%, floodways, water bodies, and wetlands (using state-level data sources).

Residential Uses

Data from PSU Population Estimates, U.S. Census, and County Property Assessors are used to calculate these indicators. Population may be defined directly as the number of persons or indirectly based on the number of households or housing units. Population, housing units, and residential parcels are used to compute indicators and efficiency measures related to residential uses. These metrics convey the number of persons and housing units within the city limits, providing several potential numerators for calculating efficiency measures.

Non-residential uses

Total employment and establishments from the statewide Quarterly Census of Employment and Wages (QCEW) are used to estimate employees. Data from county assessors are used to estimate the amount of employment and "other" land[7] within city limits. These indicators provide the numerators and denominators for calculating efficiency measures related to employment and "other" uses.

Dimensions of Analysis

This section describes key dimensions of analysis included in the research. This includes study area definitions, dates for time-series data, and constraints.

Units of Analysis and Samples

The unit of analysis for the study is city limits within urban growth boundaries (UGBs) excluding the Portland Metro UGB.[8] The research team selected this geography after consultation with DLCD staff and the Working Group. The emphasis of this research is on measuring efficiency of urban land uses. The research team determined that including unincorporated areas within UGBs would yield unreliable results. Areas within city limits that are outside of UGBs were also excluded; these lands cannot be developed to urban standards because they are outside a UGB.

There are 216 cities in Oregon that are outside the Portland Metro UGB. The study excludes all cities under 5,000 population that had average annual growth rates of less than 1% between 2003 and 2012.[9] That excludes 86 cities. The rationale for excluding these cities is (1) they are not growing and will be unlikely to seek a boundary expansion in the foreseeable future (we note that the legislation focuses on cities that are growing), and (2) they have developed a small number of parcels in recent years. We also excluded a subset of counties for which nearly all cities were below 5,000 in population with average annual growth rates of less than 1% between 2003 and 2012 and for which data was not readily available. These counties included: Gilliam, Grant, Harney, Lake, Sherman, Wallowa, and Wheeler.

That exclusion leaves 130 cities for evaluation. For these cities, the research team did three types of analysis (which it called "tiers"):

- Tier 1: Analysis by city limit (130 cities). This is the coarsest level of analysis and provides metrics using city limit boundaries, PSU Population Estimate data and Census data. Tier 1 analysis includes static (point in time) and dynamic (trend) analysis.

[7] "Other" land includes public and institutional uses such as parks, schools, religious institutions, nonprofit groups, etc. In property assessor's databases, it is designated as "exempt."

[8] Metro is explicitly excluded in HB 2254 and will not be eligible to use a simplified review methodology.

[9] Some larger cities may not be included in the final study due to data availability. The final report will list all of the cities included in the study by Tier.

- Tier 2: Static Analysis of tax lots within city limits (127 cities). This is based on ORMAP taxlot data from the Oregon Geospatial Data Service Center, and supplemented with select county assessor's data that are not available in ORMAP. ORMAP allows a fine level of analysis at the tax lot level, but does not include key attributes such as year built that allow analysis of trends.

- Tier 3: Dynamic analysis of tax lots within city limits (122 cities). This is based on county level tax assessor's GIS data that allows detailed analysis of residential densities over time.

Analysis presented within this report uses Tier 1, 2 and 3 data. We took the approach of including as many cities as possible for each table based on available data. Each figure and table identifies the number of cities and tier of data used. Map 2-1 shows cities outside of the Metro UGB that were included in the Tier 1 analysis. Appendix C provides a list of the cities by tier.

Map 2-1. Cities included in the land use efficiency analysis (Tier 1)

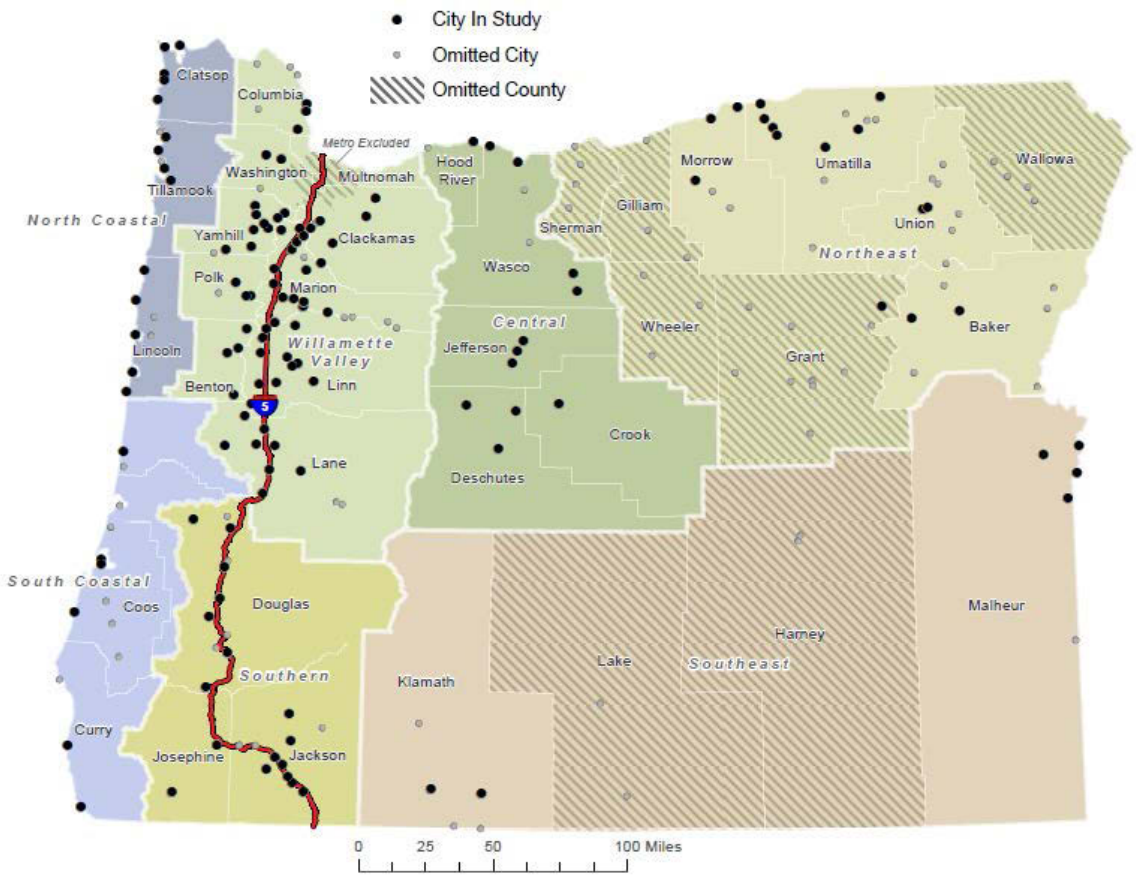
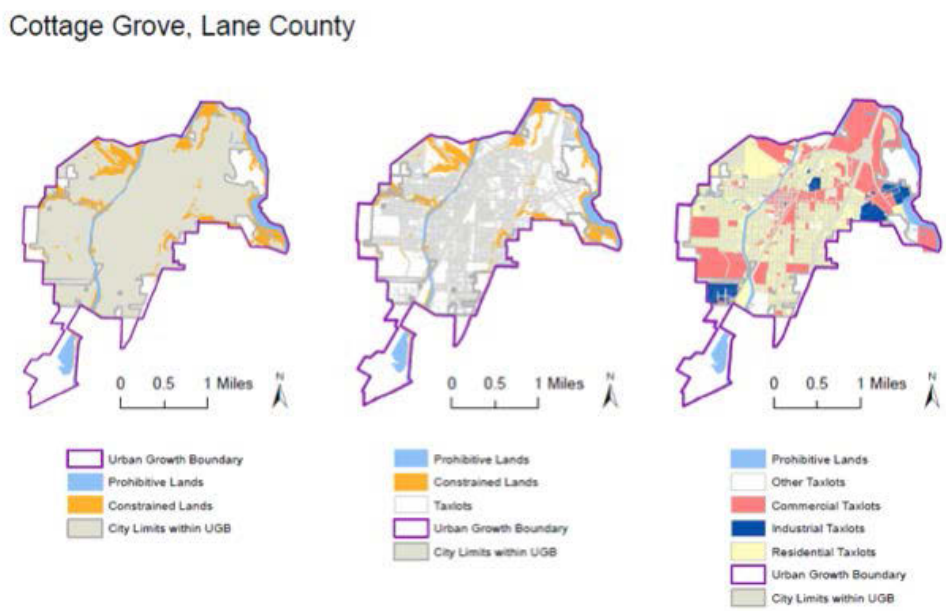


Figure 2-1 provides a conceptual overview of the way the research team approached the tiered analysis. The image on the left in Figure 2-1 shows a Tier 1

analysis – all land in the city limit within the UGB. Tier 1 efficiency measures include population and employment per non-prohibitively constrained acre.[10] The middle image shows tax lots in the city limit (Tier 2). Key indicators are the number of employees and population on tax lots or on tax lots with improvements. The image on the right shows tax lots by property classification (Tier 3). Key indicators include the size of tax lots with improvements and the density of single-family/plex housing

Figure 2-1. Sample Tier Analysis



Geography and City Size

The research team also conducted analysis by geographic region and city size, as directed by the statute which discusses different rules for cities greater and less than 10,000, and discusses key trends in “major" regions of the state. Table 2-1 shows cities by size class and tier. The total number of incorporated cities outside the Metro UGB is 216. A total of 130 cities are included in Tier 1, 127 in Tier 2, and 122 in Tier 3. The number of cities in each size class decreases as population increases.

[10]Figure 2-1 shows constrained lands to illustrate the location. The Research Team conducted a separate analysis of constrained lands.

Table 2-1. Cities by Size Class and Tier

	Number of Cities			
City Size	Total Cities	Tier 1 Cities	Tier 2 Cities	Tier 3 Cities
<1,000	81	26	25	23
1,000-4,999	79	48	46	44
5,000-9,999	28	28	28	27
10,000-24,999	17	17	17	17
25,000-49,999	4	4	4	4
50,000 or more	7	7	7	7
Total	**216**	**130**	**127**	**122**

Table 2-2 shows cities by region and tier. The research team used seven regions for most of the analysis; we collapse these regions for the purpose of some of the statistical analysis included in Chapter 6. The region with the most cities is the Willamette Valley.

Table 2-2. Cities by Region and Tier

	Number of Cities			
Region	Total Cities	Tier 1 Cities	Tier 2 Cities	Tier 3 Cities
Central Oregon	15	12	12	9
North Coastal Oregon	19	14	14	12
Northeast Oregon	56	15	12	12
South Coastal Oregon	13	6	6	6
Southeast Oregon	14	6	6	6
Southern Oregon	24	17	17	17
Willamette Valley	75	60	60	60
Grand Total	**216**	**130**	**127**	**122**

Based on input from the Rulemaking Advisory Committee (RAC), we conducted analysis by fewer regions (two variations: Coast, Central, Eastern, I-5 and Coast; Central/Eastern, I-5) and size classes (Under 10,000 population and Above 10,000).

Time Series

A key objective of this research is to analyze *trends* in land use efficiency. By definition, trend analysis requires time-series data. As a baseline, the research team needed a clean and consistent UGB and city limit boundary layer for the same year. We obtained the data from Oregon Explorer and determined that 2005 was as far back as we could go and still have reliable data. The research team used 2012 as the most recent year because that is the most recent year that the Quarterly Census of Employment and Wage (QCEW) data are available. Thus, time series analysis for most of the metrics is for the 2005-2012 time period. The analysis of single-family and plex densities is for the 1993-2012 period.

Constraints

Constraints play a role in land use efficiency. The research team hypothesized that development on constrained lands would be less efficient than on unconstrained lands.

As a starting point for our analysis, we used the direction provided in the Goal 9 and 10 administrative rules to select constraints. Because the analysis is statewide, data sets that are consistent across the state were required.

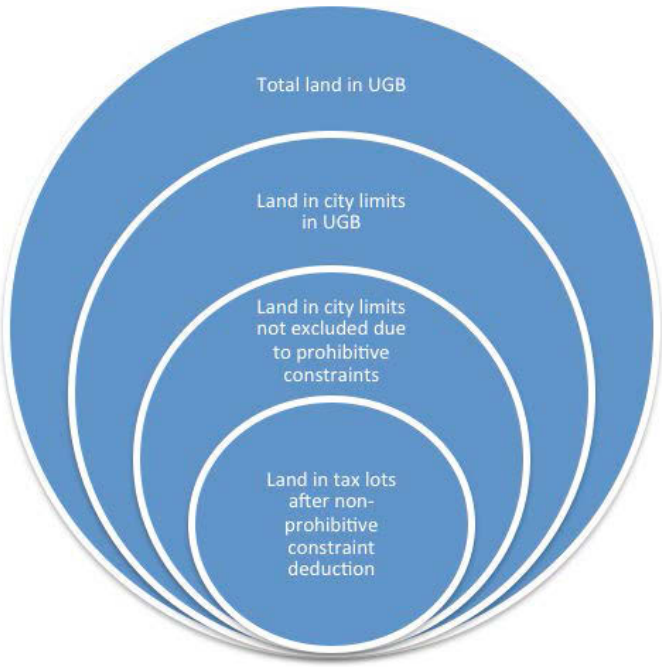
To calculate constrained and prohibitive lands for the city limits the research team, in consultation with DLCD staff, included water features, floodways, 100-year flood zone, wetlands, and slopes greater than 25% as constraints. Not all constraints, however, have the same impact on land use efficiency. The research team hypothesized that areas in water, for example, have very little development potential. To recognize this fact, we classified constraints as either (1) completely prohibitive, or (2) constrained:

> **Completely Prohibitive**: The water features and floodways were clipped to the city limits, merged, and calculated to determine the land area completely unavailable for development.
>
> **Constrained**: The 100-year flood zone, wetlands, and slopes greater than 25% were clipped to the city limits, merged, and the prohibited areas subtracted out to accurately calculate the percent and acres constrained within each city.

Completely prohibitive lands were removed from all density calculations. The research team analyzed the effect of constrained lands on land use efficiency for single-family and plex housing, as discussed further in appendix C.

Figure 2-2 shows how different land areas can be used as denominators for density calculations. At the broadest level, densities could be calculated on all land within UGBs, acreage within city limits, and acres available for development (e.g., non-prohibitive acres in city limits).

Figure 2-2. Potential Denominators for Density Calculations Based on Land Area



CHAPTER 3: CHARACTERISTICS OF LAND WITHIN CITY LIMITS

This chapter summarizes data describing general characteristics of Oregon cities outside the Metro boundary. The intent is to provide context for the detailed analysis of residential and employment density presented in chapters four and five. Portions of the analysis presented in this chapter are also responsive to the HB 2254 requirement that speak to land use efficiency in terms of increased population per square mile over time (e.g., the Tier 1 analysis). We look at city limits inside UGBs and ignore the 28 cities for which city limits extend beyond UGBs. **All depictions of land and density inside the city limit exclude area outside UGBs.**

Chapter 2 described how the research team sorted cities into tiers, depending on the availability of information. This chapter includes analysis for all cities outside the Metro UGB, Tier 1 cities, and Tier 2 cities. To ease confusion, section headings, tables and charts are labeled with the tier that corresponds with the data. The remainder of this chapter is divided into five subsections, with the corresponding tiers used for analysis in parentheses:

- Population and Employment Density (all cities)
- Housing Mix (all cities)
- Public Land and Roads (ORMAP cities)
- Constrained & Prohibited Lands (Tier 1 cities)
- Summary of Findings

Population and Employment Density (All Cities)

Table 3-1 displays the total acres within UGBs in Oregon for 2012, sorted by city size. The data show that Oregon cities outside the Metro UGB had a total of 571,030 acres within their UGBs in 2012. The data show that the number of cities by size class decreases as population increases.

Oregon remains a relatively rural state, with 160 of the 216 (75%) cities having a population of less than 5,000 residents, but accounting for 27% of the total acres within UGBs. Conversely, 11 cities have a population over 25,000 people, and represent a combined 34% of acreage within UGBs. Cities with populations between 5,000 and 25,000 contain 40% of the acreage in UGBs.

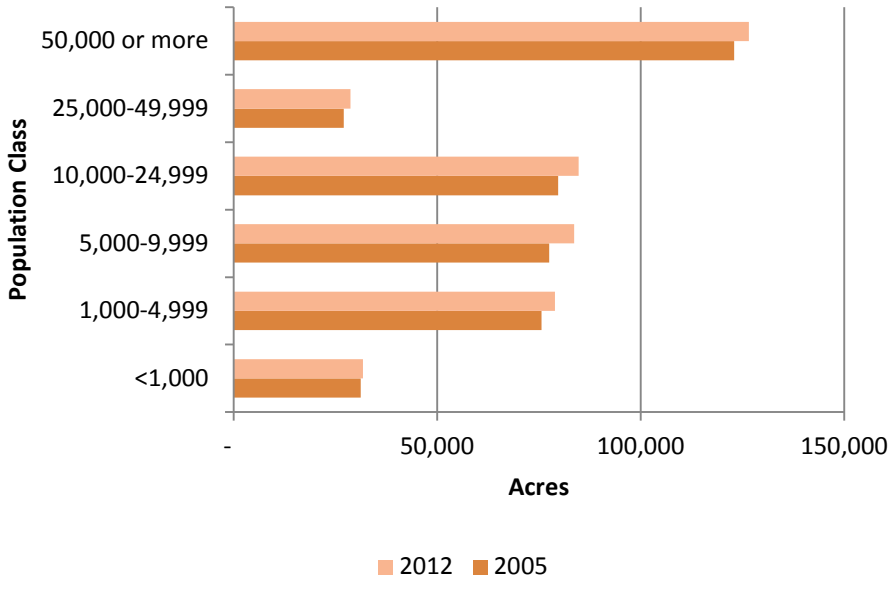
Table 3-1. Acres in UGB by City Size, all non-Metro cities, 2012 (n=216)

City Size	Number of Cities	Percent of Cities	Acres in UGB	Percent of Acres
<1,000	81	38%	38,253	7%
1,000-4,999	79	37%	112,271	20%
5,000-9,999	28	13%	111,008	19%
10,000-24,999	17	8%	117,974	21%
25,000-49,999	4	2%	33,234	6%
50,000 or more	7	3%	158,290	28%
Total	**216**	**100%**	**571,030**	**100%**

Note: Percents may sum to more than 100 due to rounding error

Figure 3-2 presents the total acreage within city limits and within UGBs for 2005 and 2012 by city size. In 2005, the 216 cities outside the Metro UGB had a total of 414,259 acres within city limits and UGBs. In 2012, that number was 434,490 acres.[11] Thus, non-Metro cities added 20,231 acres between 2005 and 2012 through annexation or UGB expansion—an increase of 4.9%. The largest change in acres within city limits was for cities with a population between 5,000 and 25,000 residents. Cities with less than 1,000 residents saw the smallest increase in acreage within their city limits.

Figure 3-2. Acres in City Limits within UGBs by City Size, all non-Metro cities 2005 and 2012 (n=216)



[11] In 2012, Non-Metro cities had 793 acres in city limits that were outside of the UGB.

Table 3-3 shows population change between 2005 and 2012 for all non-Metro cities. The smallest cities (less than 1,000 residents) saw a decrease in population while all other cities saw at least a 6.5% growth in population. While cities of 50,000 or more saw the highest number of new residents (coinciding with nationwide trends), cities between 25,000 and 50,000 saw the highest increase as a percentage of city population.

Nearly 60% of the population growth in the state occurred in cities over 25,000 and 75% occurred in cities over 10,000. Seventy-one percent of the 2012 population was in cities over 10,000. In this sense, those cities are growing faster on a per unit basis (for example, more residents per 1,000 existing residents).

Table 3-3. Population Change, 2005-2012, by City Size, all Non-Metro cities (n=216)

City Size	Number of Cities	2005	2012	2005-12 Change	2005-12 Percent Change	Share of Total Growth
<1,000	79	34,550	33,772	-778	-2.3%	-1%
1,000-4,999	81	170,460	181,620	11,160	6.5%	10%
5,000-9,999	28	201,795	218,885	17,090	8.5%	16%
10,000-24,999	17	268,645	285,375	16,730	6.2%	15%
25,000-49,999	4	110,850	130,255	19,405	17.5%	18%
50,000 or more	7	588,975	633,395	44,420	7.5%	41%
Total	**216**	**1,375,275**	**1,483,302**	**108,027**	**7.9%**	**100.0%**

Table 3-4 shows population change for all non-Metro cities between 2005 and 2012 by region. Central Oregon had the highest percentage change in population, while the Willamette Valley accounted for the highest total population increase. The Willamette Valley accounted for 61% of the non-Metro population growth between 2005 and 2012. Southern Oregon also experienced significant growth, with a slightly higher growth rate than the Willamette Valley (but a much lower share of statewide growth).

Table 3-4. Population Change, 2005-2012, by Region, all Non-Metro Cities (n=216)

Region	Number of Cities	2005	2012	2005-12 Change	2005-12 Percent Change	Share of Total Growth
Central Oregon	15	130,175	148,015	17,840	13.7%	17%
North Coastal Oregon	19	58,435	60,910	2,475	4.2%	2%
Northeast Oregon	56	101,876	104,362	2,486	2.4%	2%
South Coastal Oregon	13	60,515	61,355	840	1.4%	1%
Southeast Oregon	14	47,747	48,195	448	0.9%	0%
Southern Oregon	24	205,982	224,510	18,528	9.0%	17%
Willamette Valley	75	770,545	835,955	65,410	8.5%	61%
Total	**216**	**1,375,275**	**1,483,302**	**108,027**	**7.9%**	**100.0%**

Population increased at a faster rate (7.9%) than acres in city limits (4.9%) between 2005 and 2012. This suggests that cities became more efficient in terms of population per acre—in fact, population density measured in persons per square mile increased 2.8% between 2005 and 2012 (Table 3-5). Increases in population density did not occur uniformly during this period—cities less than 1,000 showed a

decline in population density, while larger cities generally experienced an increase in population density. Cities between 25,000 and 49,000 showed the greatest increase in population density between 2005 and 2012: 10.9%.

Table 3-5. Population Density (persons per square mile), 2005-2012, by City Size, all Non-Metro cities, all Land Within City Limits in UGBs (n=216)

City Size	Number of Cities	Population Density (persons/sq mi) 2005	2012	Percent Change 2005-2012
<1,000	79	709	679	-4.1%
1,000-4,999	81	1,442	1,473	2.2%
5,000-9,999	28	1,666	1,674	0.5%
10,000-24,999	17	2,156	2,155	0.0%
25,000-49,999	4	2,618	2,904	10.9%
50,000 or more	7	3,065	3,202	4.5%
Total	**216**	**2,125**	**2,185**	**2.8%**

Table 3-6 shows changes in population density did not occur uniformly by region. The Northeast and Southeast Oregon regions both show decreases in population density. These regions both experienced net population increases, thus annexations occurred at a rate faster than population growth. The remaining regions show population density increases of between 0.3% (South Coastal Oregon) and 4.4% (Central Oregon).

Table 3-6. Population Density (persons per square mile), 2005-2012, by Region, all Non-Metro Cities, all Land Within City Limits in UGBs (n=216)

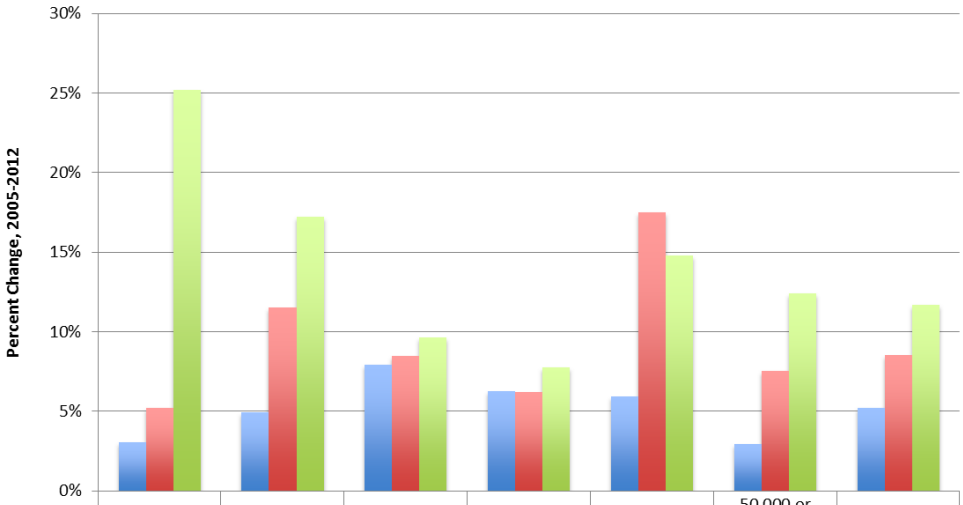
Region	Number of Cities	Population Density (persons/sq mi) 2005	2012	Percent Change 2005-2012
Central Oregon	15	1,676	1,749	4.4%
North Coastal Oregon	19	930	953	2.5%
Northeast Oregon	56	1,328	1,297	-2.4%
South Coastal Oregon	13	1,206	1,209	0.3%
Southeast Oregon	14	1,240	1,175	-5.3%
Southern Oregon	24	2,576	2,658	3.2%
Willamette Valley	75	2,947	3,055	3.7%
Total	**216**	**2,125**	**2,185**	**2.8%**

Tables 3-5 and 3-6 show population density for all acres within city limits. To further refine this analysis, the research team calculated density using non-prohibitive acres within city limits (e.g., lands not in water or floodways). The results (Figure 3-3) show that excluding prohibitive areas impacts density.

Overall, cities in Oregon are increasing in population, but adding land to their city limits slower than population. In short, they are becoming denser. Figure 3-3 shows a 12% increase in population density between 2005 and 2012 statewide with the

highest gains seen in cities with less than 5,000 residents, and more than 25,000 residents. It should be noted that fewer overall residents are needed to increase the density in smaller cities compared to larger cities. This is evidenced by the decrease in both population and people per square mile for cities less than 1,000 (Tables 3-4 and 3-5), but increase in density shown in Figure 3-3.

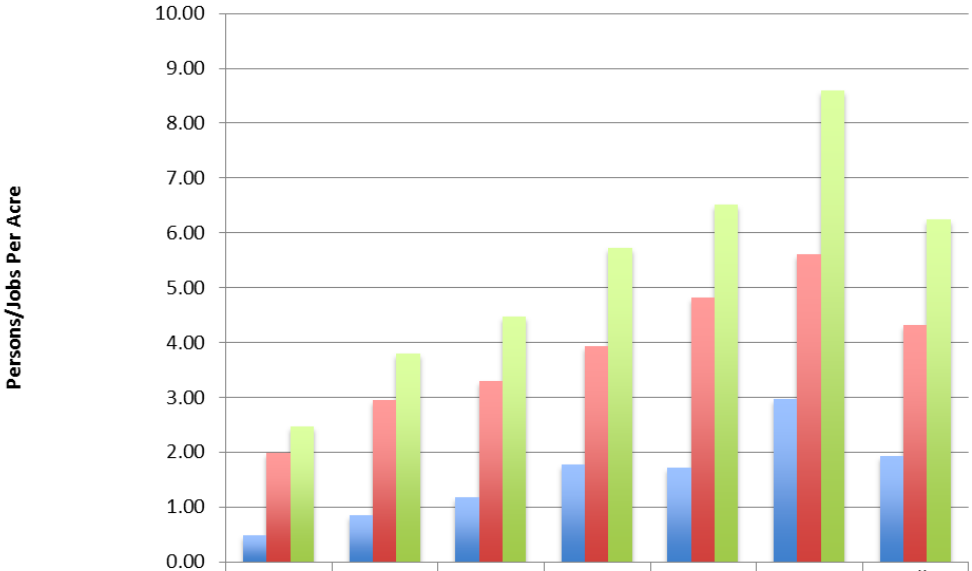
Figure 3-3. Acres, Population and Population Density Change for Tier 1 Cities by City Size, 2005-2012, all non-Metro cities, Non-Prohibitive Acres in City Limits in UGB (n=130)



	<1,000	1,000-4,999	5,000-9,999	10,000-24,999	25,000-49,999	50,000 or more	All Classes
Acres	3%	5%	8%	6%	6%	3%	5%
Pop	5%	11%	8%	6%	18%	8%	9%
Pop Den	25%	17%	10%	8%	15%	12%	12%

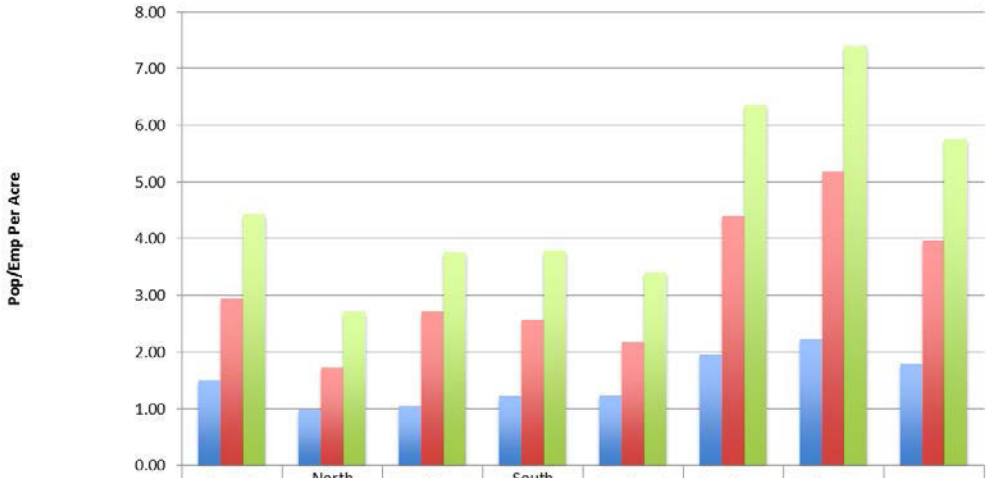
Figure 3-4 shows the population and employment density by city size, while Figure 3-5 shows it by region. Both population and employment density are highest in cities with 50,000 or more residents. Overall, Oregon had a population density of 4.3 people and 1.9 jobs per acre in 2012. The Willamette Valley has the highest density of people and jobs followed by Southern Oregon.

Figure 3-4. Population and Employment Density (persons and jobs per acre) for Tier 1 Cities By City Size, 2012, Non-Prohibitive Acres in City Limits in UGB (n=130)



	<1,000	1,000-4,999	5,000-9,999	10,000-24,999	25,000-49,999	50,000 or more	All Classes
Employment Density	0.49	0.85	1.18	1.78	1.71	2.97	1.94
Population Density	1.99	2.95	3.30	3.94	4.81	5.62	4.32
Pop+Emp Density	2.48	3.80	4.48	5.72	6.52	8.59	6.25

Figure 3-5. Population and Employment Density for Tier 1 Cities By Region, in City Limits in UGB, 2012 (n=130)



	Central Oregon	North Coastal Oregon	Northeast Oregon	South Coastal Oregon	Southeast Oregon	Southern Oregon	Willamette Valley	Total
Employment Density	1.50	0.98	1.05	1.22	1.24	1.96	2.23	1.78
Population Density	2.93	1.73	2.72	2.58	2.17	4.40	5.18	3.98
Pop+Emp Density	4.44	2.72	3.77	3.80	3.41	6.36	7.41	5.76

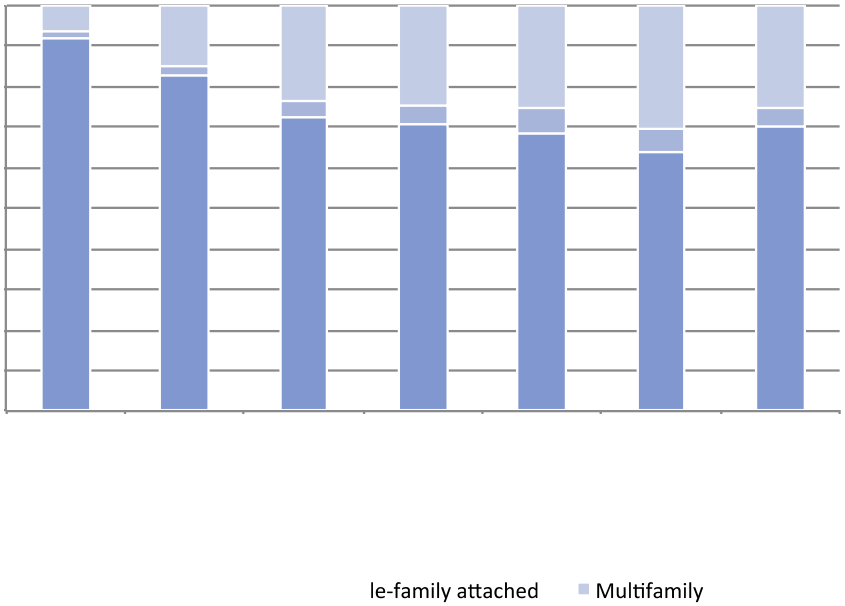
Housing Mix (All Cities)

A key consideration for determining land need is housing mix (percent of housing by type). Moreover, housing mix plays prominently in Goal 10 and the Goal 10 Administrative Rule (OAR 660-010). The key relationship from a land need perspective is that single-family detached housing will have significantly lower density than multifamily housing types.

Figures 3-6 and 3-7 display the housing mix by city size and region, respectively, for all 216 cities outside the Portland Metro UGB. As shown in Figure 3-6, as city size increases, the share of multifamily units increases. In cities of 50,000 or more residents, multifamily comprises 30% of dwelling units. The statewide average is 27%.

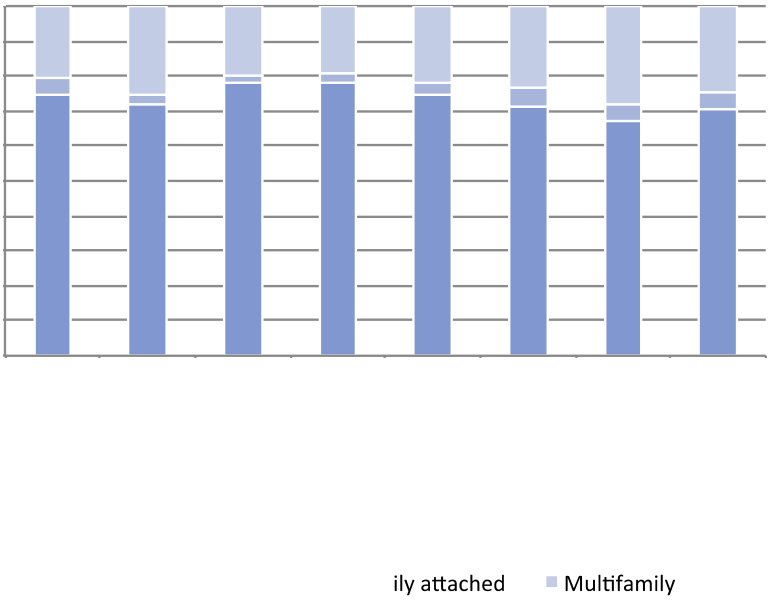
The amount of single-family attached dwellings remains the smallest share across Oregon, and never accounts for more than 10% of overall units.

Figure 3-6. Housing Mix by City Size, all Non-Metro Cities, 2012 (n=216)



When summarized by region, the amount of multifamily units shows more variation across the state. Not surprisingly, the Willamette Valley has the lowest share of single family detached housing among all regions because a higher share of the Willamette Valley lives in larger cities which have a higher share of multifamily housing.

Figure 3-7. Housing Mix by Region, all Non-Metro Cities, 2012 (n=216)



Public Lands and Roads (ORMAP Cities)

An additional consideration is developing factors to account for land needed for roads or public and semi-public uses. This section includes analysis of lands that are either (1) classified as exempt (from property taxation), or (2) outside of tax lot boundaries. Most counties do not include water, roads and other rights-of-way such as railroads in tax lot coverages. Property assessors include classification codes that identify whether exempt land is publicly or privately held. The Division 24 rule outlines a safe harbor assumption for public lands and roads:

> (10) As a safe harbor during periodic review or other legislative review of the UGB, a local government may estimate that the 20-year land needs for streets and roads, parks and school facilities will together require an additional amount of land equal to 25 percent of the net buildable acres determined for residential land needs under section (4) of this rule, and in conformance with the definition of "Net Buildable Acre" as defined in OAR 660-024-0010(6).

Many cities have chosen not to use this assumption and in most instances an empirical analysis of these uses has shown a higher percentage of land in public and semi-public uses. Two elements to this exist: roads (which are generally not included in taxlots) and other public and semi-public uses. Note that the safe harbor only accounts for public uses.

Note also that the safe harbor focuses on residential land. Using the available data sources, there is no simple way of separating out residential lands (we do not have reliable zoning or plan designation data). Moreover, property classifications are

specific to uses and not zoning or plan designation. Thus the analysis that follows is based on all land within city limits.

To develop estimates of how much land is in roads, parks, and schools, we used ORMAP taxlot data and property classifications. Of the 130 Tier 1 cities, 105 had data that allowed analysis of exempt lands.

Roads

Most GIS databases do not include polygons for roads, however, the research team developed a methodology that provides a reasonable proxy for lands in roads. The first step was to subtract the area in taxlots from the area in city limits, yielding a detailed estimate of land not in taxlots. The second step was to subtract areas in mapped waterbodies from areas not in taxlots. This provides an accurate estimate of areas that are right-of-ways. The limitation is that some right-of-ways are not public. This includes areas used for railroads and other transportation or energy transmission uses (note that most powerlines and pipelines have easements and are therefore included in the taxlot base). The research team conducted this "area not in tax lots" analysis on 180 of the 216 cities.

Water and other undevelopable areas present complications in analyzing land not in taxlots. Table 3-7 shows the total amount of land not in taxlots and the total amount of land in city limits. In other words, the data do not exclude areas with prohibitive constraints—which are considerable in some cities, particularly cities with ports. The results show that, on average, about 64% of land in city limits is in tax lots. Note that the figures in Table 3-7 include areas in cities that are in water or floodways (e.g., prohibitive acres).

Table 3-7. Analysis of land not in tax lots inside city limits, by city size, ORMAP cities, 2012 (n=180)

			Land in Tax Lots and Not in Water				
City Size	Number of Cities	Acres in City Limit	Acres	Average Percent	High Percent	Low Percent	Standard Dev Percent
<1,000	55	22,743	15,468	67%	95%	26%	17%
1,000-4,999	70	93,006	53,680	62%	95%	22%	17%
5,000-9,999	27	107,173	65,999	63%	83%	27%	14%
10,000-24,999	17	117,974	71,218	64%	97%	40%	14%
25,000-49,999	4	32,969	24,145	74%	82%	66%	7%
50,000 or more	7	163,021	104,009	64%	82%	42%	13%
All Cities	**180**	**536,886**	**334,520**	**64%**	**97%**	**22%**	**16%**

Source: Oregon Explorer; county tax lot and assessment data; analysis by University of Oregon

Table 3-8 shows the amount of land not in taxlots excluding water by city size class in 2012. The sample includes 180 Tier 2 cities (e.g., cities that the UO Team has data for). The results are considerable different than those presented in Table 3-7 and shows that the average percentage of land in city limits not in taxlots excluding water is 18%. The results are surprisingly consistent across city size; the values range from 15% for cities with populations between 5,000 and 9,999 to 19% for

cities less than 1,000. Smaller cities tend to show more variability as expressed by the standard deviation of percentages.

Table 3-8. Analysis of land not in tax lots excluding mapped waterbodies, by city size, ORMAP cities, 2012 (n=180)

			Land in Tax Lots and Not Water				
City Size	Number of Cities	Acres in City Limit	Acres	Average Percent	High Percent	Low Percent	Standard Dev Percent
<1,000	55	18,181	15,091	81%	96%	67%	7%
1,000-4,999	70	60,827	50,759	83%	95%	57%	6%
5,000-9,999	27	69,970	59,665	85%	95%	73%	4%
10,000-24,999	17	78,425	67,851	83%	95%	74%	5%
25,000-49,999	4	28,031	23,680	84%	87%	82%	2%
50,000 or more	7	121,453	100,195	82%	84%	80%	1%
All Cities	**180**	**376,888**	**317,241**	**82%**	**96%**	**57%**	**6%**

Source: Oregon Explorer; county tax lot and assessment data; analysis by University of Oregon

Public and semi-public uses

Public and semi-public uses include lands owned by government agencies such as parks, public buildings, and land for other types of infrastructure. Semi-public uses include uses like churches and fraternal organizations. The research team used property classifications in the 900 series (lands that are exempt from taxation) to develop an estimate of public and semi-public land use. Of the 180 cities shown in Tables 3-7 and 3-8, the UO research team had taxlot data for 105.

Table 3-9 shows that in the 105 Tier 2 cities a total of 42,979 acres in 14,381 taxlots are classified exempt—14% of the 308,032 acres within city limits. The results also show considerable variation by city size. For example, cities with populations over 50,000 had 6% of the total city area in exempt classifications, while cities with populations between 5,000 and 9,999 had 26% of the land in their city limits classified exempt.

Note that we used area in city limits rather than area in taxlots as the denominator for this analysis. We chose acres in city limits because it is consistent with the analysis in Tables 3-7 and 3-8 and the analysis is looking at roads and public uses.

Table 3-9. Analysis of exempt land (property class 9xx), by city size, non-prohibitive acres in city limits and tax lots, ORMAP cities, 2012 (n=146)

			Exempt Taxlots		
City Size	Number of Cities	Non-Prohibitive Acres in City Limit	Taxlots	Non-prohibitive Acres in Taxlots	Percent of Total Acres in City limits
<1,000	45	5,730	365	1,178	21%
1,000-4,999	58	33,967	1,845	3,999	12%
5,000-9,999	20	58,097	4,308	14,862	26%
10,000-24,999	15	60,754	4,037	12,486	21%
25,000-49,999	3	28,031	1,022	3,436	12%
50,000 or more	5	121,453	2,804	7,018	6%
All Cities	**146**	**308,032**	**14,381**	**42,979**	**14%**

Source: Oregon Explorer; county tax lot and assessment data; analysis by University of Oregon
Note: Clackamas, Lane and Marion have no land coded as property class "9XX"

The data in Table 3-9 raise questions about why cities in the 5,000 to 9,999 population range have such a high percentage of land in exempt classifications. Further review by the UO research team found that several cities in the Coastal regions had significant areas platted into estuaries or the Pacific Ocean.

Table 3-10 shows exempt land by region. The results show much higher percentages of exempt land in coastal regions. The North Coast Region has 37% of the area in exempt and the South Coast 29%. Further analysis by city shows that Astoria has 58% of its land area in exempt classifications, Coos Bay 48% and Newport 38%. A closer review of data from Newport indicates that 85% of exempt land is government owned.

Table 3-10. Analysis of exempt land (property class 9xx), by region, Tier 2 cities, 2012 (n=146)

			Exempt Land (Property Class 9XX)		
Region	Cities	Acres in City Limits	Tax Lots	Acres	Percent of Total Acres
Central Oregon	12	45,826	1,273	7,827	17%
North Coastal Oregon	14	28,316	3,666	10,587	37%
Northeast Oregon	32	9,516	469	1,680	18%
South Coastal Oregon	11	13,863	934	3,994	29%
Southeast Oregon	10	17,797	1,005	3,261	18%
Southern Oregon	24	35,540	2,557	4,819	14%
Willamette Valley	43	157,174	4,477	10,811	7%
Total	**146**	**308,032**	**14,381**	**42,979**	**14%**

Source: Oregon Explorer; county tax lot and assessment data; analysis by University of Oregon
Note: Clackamas, Lane and Marion have no land coded as property class "9XX"

Property classifications allow further disaggregation of uses; the 900 property classification has codes that are specific to government (local, state, and federal), schools, and other exempt uses such as government-assisted housing, cemeteries, etc.

Table 3-11 shows the exempt land from Tables 3-9 and 3-10 broken down by government, school, and semi-public uses. The Division 24 safe harbor specifically references parks and schools; however, property classifications are not specific to the type of government use. The results show that two-thirds of the exempt lands are classified as government or school uses.

Table 3-11. Total acres of exempt land (property class 9xx) by use and by city size, non-prohibitive land in tax lots, Tier 2 cities, 2012 (n=146)

		Government		School		Semi-Public		All Exempt	
City Size	Number of Cities	Tax Lots	Acres	Tax Lots	Acres	Tax Lots	Acres	Tax Lots	Acres
<1,000	45	255	966	44	155	66	58	365	1,178
1,000-4,999	58	1,327	2,714	148	763	370	521	1,845	3,999
5,000-9,999	20	3,333	12,915	228	972	747	975	4,308	14,862
10,000-24,999	15	2,800	10,006	270	1,482	967	998	4,037	12,486
25,000-49,999	3	601	2,450	112	665	309	321	1,022	3,436
50,000 or more	5	1,941	5,127	153	1,019	710	872	2,804	7,018
All Cities	**146**	**10,257**	**34,179**	**955**	**5,056**	**3,169**	**3,745**	**14,381**	**42,979**
Average Percent of Acres			**80%**		**12%**		**9%**		**100%**

Source: Oregon Explorer; county tax lot and assessment data; analysis by University of Oregon
Note: Clackamas, Lane and Marion have no land coded as property class "9XX"

Roads, government use, and schools

The UO research team combined the results of Tables 3-7 and 3-10 to develop an estimate of the amount of land in city limits that is used for "public" uses. Table 3-12 shows that about 29% of the non-prohibitive land in the Tier 2 city sample could be considered as roads, government uses, or schools. Some variability exists by city size, but with the exception of cities in the 5,000 to 9,999 population class, the results are remarkably consistent.

The research team looked more closely at the exempt land; following are some of the key findings:

- Federal lands within city limits accounts for less than 1% of all exempt land
- Land owned by government entities (city, county, state and federal, but not schools) accounts for 87% of all exempt land
- Land owned by city governments accounts for 43% of all example lands
- Schools accounted for 18% of all exempt land
- Ports account for 26% of all exempt land; more in cities that have ports
- Semi-public uses (cemeteries, churches, fraternal organizations, and student housing) accounted for 13% of all exempt land

Table 3-12. Analysis of land not in tax lots and exempt land classified as government and school by city size, non prohibitive land in city limits and tax lots, Tier 2 cities, 2012 (n=146)

		Non Prohibitive Land				
City Size	Number of Cities	Acres in City Limit	Acres not in tax lots (roads)	Gov/ School Acres	Est Road/Public Total Ac	Percent of Acres in City Limits
<1,000	45	5,730	966	1,121	2,087	36%
1,000-4,999	58	33,967	5,332	3,478	8,810	26%
5,000-9,999	20	58,097	8,760	13,887	22,647	39%
10,000-24,999	15	60,754	9,490	11,488	20,978	35%
25,000-49,999	3	28,031	4,351	3,115	7,466	27%
50,000 or more	5	121,453	21,258	6,146	27,404	23%
All Cities	**146**	**308,032**	**50,157**	**39,235**	**89,391**	**29%**

Source: Oregon Explorer; county tax lot and assessment data; analysis by University of Oregon

Constrained and Prohibited Lands (Tier 1 Cities)

The amount of land within a UGB, or within the city limits, is not equal to the amount of land available for development, and can thereby affect density calculations. Chapter 2 outlined the two classifications used in this study to refine the amount of available land, constrained, and prohibited. Prohibited land is, simply, unbuildable. This includes water features and floodways. Constrained lands *may* be buildable, but would be difficult to develop. This includes 100-year flood zones, wetlands, and slopes greater than 25%.

Table 3-13 shows acres in city limits by constraint status for the 130 Tier 1 cities.

Table 3-13. Acres in city limits by size class and constraint status, Tier 1 Cities, 2012 (n=130)

				Unprohibitive Land			Unprohibitive/ Unconstrained Land	
City Size	Number of Cities	Acres in City Limits	Prohibitive Acres	Unprohibitive Acres	Percent Unprohibitive Acres	Prohibitive+ Constrained Acres	Acres	Percent of Acres in City Limits
<1,000	26	10,021	420	9,602	2%	2,248	7,773	78%
1,000-4,999	48	59,483	3,377	56,106	12%	10,438	49,045	82%
5,000-9,999	28	111,008	10,580	100,428	22%	27,867	83,141	75%
10,000-24,999	17	117,974	6,329	111,645	24%	18,633	99,341	84%
25,000-49,999	4	28,369	673	27,697	6%	2,309	26,060	92%
50,000 or more	7	163,021	5,141	157,880	34%	18,948	144,073	88%
Total	**130**	**489,876**	**26,519**	**463,357**	**100%**	**80,442**	**409,434**	**84%**

Source: Oregon Explorer; analysis by University of Oregon

The results do not show any clear pattern of constraints by city size. A similar analysis by region is shown in Table 3-14. The results show that coastal areas have higher portions of their city limits in constrained areas than other regions of the state. The North Coast Region shows 52% of land is unconstrained; the South Coast

Region shows 71% is unconstrained. The other regions show less variation—from 85% to 91%.

Table 3-14. Acres in city limits by region and constraint status, Tier 1 Cities, 2012 (n=130)

				Unprohibitive Land			Unprohibitive/ Unconstrained Land	
Region	Number of Cities	Acres in City Limits	Prohibitive Acres	Unprohibitive Acres	Percent Unprohibitive Acres	Prohibitive+ Constrained Acres	Acres	Percent of Acres in City Limits
Central Oregon	12	57,578	1,296	56,282	12%	4,931	52,646	91%
North Coastal Oregon	14	43,353	8,207	35,146	8%	20,886	22,467	52%
Northeast Oregon	15	46,108	816	45,292	10%	4,331	41,778	91%
South Coastal Oregon	6	32,956	5,361	27,595	6%	9,489	23,467	71%
Southeast Oregon	6	32,603	690	31,913	7%	3,738	28,865	89%
Southern Oregon	17	62,094	1,567	60,527	13%	9,174	52,920	85%
Willamette Valley	60	215,185	8,583	206,602	45%	27,894	187,291	87%
Total	**130**	**489,876**	**26,519**	**463,357**	**100%**	**80,442**	**409,434**	**84%**

Source: Oregon Explorer; analysis by University of Oregon

CHAPTER 4: RESIDENTIAL LAND USE EFFICIENCY

This chapter presents an analysis of land use efficiency on residential lands. The analysis generally reports residential densities in taxlots per unprohibitive acre, though some data are reported as housing units per acre.[12]

Findings

The core of the HB 2254 research is related to "land use efficiency" which is measured through density. This Chapter presents analysis of residential densities for the 120 Tier 3 cities[13]. This sample represents cities from counties for which we could obtain taxlot data with necessary fields: year built, improvement value, and property classification.

Using Tier 3 cities, the research team was able to analyze changes in residential density over time for all land within city limits. In this section of the report, we show static data for 2012 or data in five year increments between 1993 and 2012.

Single-Family and Plex Density

Table 4-1 shows average density of single-family and plex units by city size for four five-year periods (e.g., each period represents the average density of all dwellings for that period). We include all taxlots in the Residential (100) Property Classification that are considered improved (with improvement value greater than $10,000) and land classification code of improved. We exclude parcels greater than 0.5 acres in size in order to capture residential development at urban densities.

For all cities, the data show a trend of increasing density, from 5.22 taxlots per unprohibitive acre in 1993-1997 to 6.38 taxlots per unprohibitive acre in 2008-2012. The trend of increasing single-family and plex densities is seen for all city sizes.

In terms of trends, the results show that densities for all cities increased an average of 22% over the analysis periods, or 1.16 dwelling units per net acre. Average density increases by size class ranged from a low of 10% for cities in the 25,000-49,999 class to 29% in the 50,000 or more and 5,000-9,999 size classes.

Using averages, the data generally show that single-family and plex densities increase as city size increases. Cities under 1,000 population (for the 2008-2012 period) averaged 4.84 dwelling units per net acre while cities over 50,000 averaged 6.79 dwelling units per net acre.

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[12] In this sense, parcels per acre equates to net residential density. None of the analysis included in this chapter assesses public and semi-public uses in residential areas.

[13] Waterloo and Sodaville are in Tier 3 counties but do not contain any land classified as Residential (Property Class=100,) so these cities do not appear in data analyses.

Table 4-1. Improved Single Family and Plex Average Density by City Size, by five-year periods, Tier 3 cities (n=120)

		Improved Single Family & Plex Parcels/Unprohibited Acres				Change 1993-97 to 2008-12	
City Size	Number of Cities	1993-1997	1998-2002	2003-2007	2008-2012	DU/Acre	Percent
<1,000	20	4.22	4.59	5.55	4.84	0.62	15%
1,000-4,999	45	5.02	5.30	5.59	5.51	0.50	10%
5,000-9,999	27	5.01	5.39	6.49	6.46	1.45	29%
10,000-24,999	17	5.31	5.81	6.36	6.23	0.91	17%
25,000-49,999	4	5.42	5.62	5.90	6.02	0.60	11%
50,000 or more	7	5.26	5.71	6.43	6.79	1.53	29%
All Cities	**120**	**5.22**	**5.61**	**6.25**	**6.38**	**1.16**	**22%**

Source: Oregon Explorer; county tax lot and assessment data; analysis by University of Oregon
Description: Count of Parcels (Residential Class 100)/Unprohibitive Acres. Data is filtered on Yr Built, Improved and General Land Classification. The Yr Built Filter excludes Null and 0. Improved: property classification code improved AND assessed improved value >$10,000. The Generalized Land Classification filter keeps Residential, which includes structures with <5 units. Parcels >0.5 acres are excluded.

Variability among cities is a key consideration related to simplified methods. More variation makes developing simplified methods more difficult. Table 4-2 shows central tendency data (e.g., averages, maximum, minimum, and standard deviation) for improved single-family and plex densities in the 120 sample cities for 2008-2012. The results are interesting: cities over 25,000 show considerably less variability than cities below 25,000. This may be, in part, due to a smaller number of cities, but it suggests that cities tend to get more similar in terms of single-family and plex density as they get bigger.

Table 4-2. Central tendencies, Improved Single Family and Plex Average Density by City Size, 2003-2007, Tier 3 cities (n=120)

		2003-2007			
City Size	Number of Cities	Average	Maximum	Minimum	Standard Deviation
<1,000	20	4.80	8.29	2.90	1.53
1,000-4,999	45	5.32	8.44	2.06	1.29
5,000-9,999	27	6.46	15.54	3.83	2.22
10,000-24,999	17	6.10	9.38	3.81	1.60
25,000-49,999	4	6.05	6.56	5.68	0.39
50,000 or more	7	6.49	7.17	5.98	0.37
All Cities	**120**	**5.71**	**15.54**	**2.06**	**1.67**

Source: Oregon Explorer; county tax lot and assessment data; analysis by University of Oregon
Description: Count of Parcels (Residential Class 100)/Unprohibitive Acres. Data is filtered on Yr Built, Improved and General Land Classification. The Yr Built Filter excludes Null and 0. Improved: property classification code improved AND assessed improved value >$10,000. The Generalized Land Classification filter keeps Residential, which includes structures with <5 units. Parcels >0.5 acres are excluded.

Tables 4-1 and 4-2 include single-family and plex units combined. Table 4-3 disaggregates the densities for 51 cities where the research team had data that allowed separation of single-family and plex units. The results show that plex densities are typically higher than single-family densities. They also show a general trend of increasing density by city size. Because one-unit single family parcels are dominant, using parcels to convey density rather than units illustrates that single family density and single family+plex density using parcels are very similar.

Table 4-3. Improved Single Family and Plex Average Density by City Size, 2012, Cities in Clackamas, Coos, Deschutes, Jackson, Linn, Polk, Washington, Yamhill (n=51)

		Coos, Clackamas, Deschutes,Hood River, Jackson, Josephine, Lane, Linn, Washington, Yamhill			
City Size	Number of Cities	Single Family	Single Family+ Plex (Using Units)	Single Family + Plex (Using Parcels)	Plex
<1,000	2	3.59	3.65	3.59	9.01
1,000-4,999	24	3.30	3.37	3.24	5.89
5,000-9,999	11	4.62	4.83	4.60	10.03
10,000-24,999	6	4.92	5.14	4.88	9.53
25,000-49,999	3	4.17	4.39	4.22	9.73
50,000 or more	5	4.40	4.89	4.43	11.25
All Cities	**51**	**4.33**	**4.68**	**4.35**	**10.34**

Source: Oregon Explorer; county tax lot and assessment data; analysis by University of Oregon
Description: Count of Parcels (Residential Class 100)/Unprohibitive Acres. Data is filtered on Yr Built, Improved and General Land Classification. The Yr Built Filter excludes Null and 0. Improved: property classification code improved AND assessed improved value >$10,000. The Generalized Land Classification filter keeps Residential, which includes structures with <5 units. Parcels >0.5 acres are excluded. Includes cities in counties with address point or unit count data.

Table 4-4 shows average density of single-family and plex units by region for four five-year periods (e.g., each period represents the average density of all dwellings for that period). The results show that more variability exists in single-family/plex densities by region than by city size. As a result, the predictive value of regions is less useful.

Table 4-4. Improved Single Family and Plex Average Density by Region, by five-year periods, Tier 3 cities (n=120)

		Improved Single Family & Plex Parcels/Unprohibited Acres				Change 1993-97 to 2008-12	
City Size	Number of Cities	1993-1997	1998-2002	2003-2007	2008-2012	DU/Acre	Percent
Central Oregon	9	4.77	5.19	6.27	6.48	1.70	36%
North Coastal Oregon	12	5.92	5.55	7.65	6.20	0.28	5%
Northeast Oregon	12	4.51	4.80	4.73	4.86	0.36	8%
South Coastal Oregon	6	4.60	4.49	5.71	5.53	0.93	20%
Southeast Oregon	6	4.44	4.46	4.42	4.92	0.49	11%
Southern Oregon	17	5.34	5.41	6.14	6.01	0.67	12%
Willamette Valley	58	5.35	6.01	6.34	6.69	1.34	25%
All Cities	**120**	**5.22**	**5.61**	**6.25**	**6.38**	**1.16**	**22%**

Source: Oregon Explorer; county tax lot and assessment data; analysis by University of Oregon
Description: Count of Parcels (Residential Class 100)/Unprohibitive Acres. Data is filterd on Yr Built, Improved and General Land Classification. The Yr Built Filter excludes Null and 0. Improved: property classification code improved AND assessed improved value >$10,000. The Generalized Land Classification filter keeps Residential, which includes structures with <5 units. Parcels >0.5 acres are excluded.

Table 4-5 shows central tendency data (e.g, averages, maximum, minimum, and standard deviation) for improved single-family and plex densities in the 120 sample cities for 2008-2012. Cities in Southeast Oregon show less variation than other regions. Cities in North Coastal Oregon show the greatest variation.

Table 4-5. Central tendencies, Improved Single Family and Plex Average Density by Region, 2008-12, Tier 3 cities (n=120)

		2008-2012			
City Size	Number of Cities	Average	Maximum	Minimum	Standard Deviation
Central Oregon	9	6.45	10.08	3.90	2.03
North Coastal Oregon	12	6.67	14.88	3.99	2.90
Northeast Oregon	12	4.68	6.88	2.97	1.27
South Coastal Oregon	6	4.97	7.16	2.99	1.39
Southeast Oregon	6	4.60	5.20	4.16	0.51
Southern Oregon	17	5.41	7.98	3.48	1.40
Willamette Valley	58	6.06	13.98	2.06	1.75
All Cities	**120**	**5.80**	**14.88**	**2.06**	**1.85**

Source: Oregon Explorer; county tax lot and assessment data; analysis by University of Oregon
Description: Count of Parcels (Residential Class 100)/Unprohibitive Acres. Data is filtered on Yr Built, Improved and General Land Classification. The Yr Built Filter excludes Null and 0. Improved: property classification code improved AND assessed improved value >$10,000. The Generalized Land Classification filter keeps Residential, which includes structures with <5 units. Parcels >0.5 acres are excluded.

Multifamily Density

Multifamily densities present an analytical challenge. Most assessors do not include counts of multifamily dwelling units in their assessment databases. We present two levels of data: multifamily counts from assessor's data and address files when available (Tables 4-6 and 4-7) and Goal 10 Housing studies (Table 4-8s and 4-9.)

Due to data limitations, the tax assessor's sample represents 26 cities from counties for which we could obtain taxlot data with necessary fields: improvement value, property classification, and number of units or addresses associated with each taxlot. Table 4-6 shows that multifamily development for all developments in the 26 cities averaged about 12 dwelling units per net acre. Density was highest in cities 10,000-24,999 and cities over 50,000.

Table 4-6. Average density of multifamily housing by city size, 2012 (n=26)

City Size	Number of Cities	Number of Units	Density (DU/Net Ac)
<1,000	0	na	na
1,000-4,999	11	1,260	5.34
5,000-9,999	8	2,963	6.36
10,000-24,999	3	3,172	11.58
25,000-49,999	1	1,560	7.94
50,000 or more	3	31,717	14.47
Total	26	40,672	12.09

Source: City Goal 10 Housing Needs Analysis Studies collected by DLCD and the UO research team.

Table 4-7 shows multifamily density for 26 cities in four regions. Unsurprisingly, density was highest in the Willamette Valley. Several regions have very small samples, making it difficult to generalize about trends in densities.

Table 4-7 Average density of multifamily housing by region, 2012 (n=26)

City Size	Number of Cities	Number of Units	Density (DU/Net Ac.)
Central Oregon	1	213	3.65
North Coastal Oregon			
Northeast Oregon			
South Coastal Oregon	1	558	14.36
Southeast Oregon			
Southern Oregon	10	7,110	8.13
Willamette Valley	14	32,791	13.70
All Cities	**26**	**40,672**	**12.09**

Source: City Goal 10 Housing Needs Analysis Studies collected by DLCD and the UO research team.

To supplement the small sample size in Tables 4-6 and 4-7, the research team reviewed Goal 10 housing studies. We reviewed about 30 studies completed since 2000; 22 of those studies included analysis of multifamily densities. Consistent with the definition of needed housing types in ORS 197.303, the results presented in the following tables include all forms of multifamily housing (duplexes, other plexes, multifamily units, etc.).

While the analysis shown in Table 4-6 and Table 4-7 suggests that densities increase as population increases, the size of the samples do not allow any reliable conclusions to be drawn based on city size or region. Our assessment is that the Goal 10 studies provide more reliable results than the tax lot analysis. Our rationale is that those studies used more rigorous review of the data for quality. That said, we believe the average densities from both methods provide a reasonable basis for development assumptions for incorporation into a simplified land need method.

Table 4-8 shows the results of our review of these studies. We included the number of units and density, the time period for the analysis, and whether the city was in the original pool of 26 cities. The results show an unweighted average density of 13.3 dwelling units per net acre. Because the number of units varied considerably by city, and some studies did not include a unit count, we also calculated a weighted average for those cities with unit counts. The weighted average for the 18 cities that included unit counts was 15.3 dwelling units per net acre.

Table 4-8. Average Density of multifamily housing as reported in Goal 10 studies (n=22)

City	Units	Density (DU/net ac)	Time Period	In Tier 3 Analysis
Albany	1,321	15.3	1990-2001	N
Ashland	167	9.3	1990-2001	Y
Aumsville		8.0	1986-1996	N
Bend		17.7	1998-2008	N
Columbia City	16	6.7	1992-2000	N
Eugene	2,029	14.1	2001-2008	Y
Grants Pass	740	10.0	1999-2006	N
Harrisburg	67	9.3	all housing	N
Hermiston		15.3	1999-2004	N
Independence		9.9	1987-1999	N
Junction City	76	17.5	2000-2008	Y
La Grande	385	14.6	1990-2000	N
Medford	2,564	16.6	1996-2009	Y
Monmouth	231	12.6	1990-2000	N
Newberg	516	15.7	1990-2003	N
Newport	226	18.7	2000-2010	N
Ontario	65	12.1	1996-2004	N
Redmond	533	8.8	2000-2004	N
Salem	2,506	18.3	1999-2009	N
Keizer	2,833	17.8	1999-2009	N
Sandy	672	11.0	1998-2006	Y
Springfield	1,051	11.1	1999-2008	Y
Average	**889**	**13.2**		
Weighted Average (for cities with unit counts)		**15.3**		
Minimum		6.7		
Maximum		18.7		
St.Dev.		3.8		

Source: City Goal 10 Housing Needs Analysis Studies collected by DLCD and the UO research team
NOTE: These averages do not separate medium- and high-density residential development, so the averages reported in this table reflect all multifamily housing units. The inconsistent categorization in Goal 10 studies made separation infeasible.

To better understand relationships between density and city size and region, we cross-tabulated the data from the 18 studies that included unit counts. Table 4-9 presents data from the studies by city size. While the sample size is small for each size class, the results follow the general pattern of increasing density with more population that we observed with single-family densities. Densities for cities over 10,000 persons averaged very close to 15 dwelling units per net acre.

Table 4-9, Density of multifamily housing as reported in Goal 10 studies, by city size (n=18)

Population	Number of Cities	Units	Weighted Density (DU/net ac)
<1,000	0	-	na
1,000-4,999	2	83	8.8
5,000-9,999	3	979	11.9
10,000-24,999	5	1,359	14.9
25,000-49,999	3	4,106	15.2
50,000 or more	5	9,471	15.7
Total/Average	**18**	**15,998**	**15.3**

Source: City Goal 10 Housing Needs Analysis Studies collected by DLCD and the UO research team O

Because 14 of 18 Goal 10 housing studies were located in the Willamette Valley, we have limited variation among regions and refrain from reporting regional data on multifamily housing from Goal 10 studies.

The results of our review of multifamily densities reported in Goal 10 studies shows that the studies generally reported densities higher than what we found in the taxlot analysis. This could be explained by the fact that most Goal 10 studies use building permits for the density analysis and go through a more rigorous review than we have conducted to date. The results of the studies are in line with our expectations: densities increase with city size; larger cities average around 15 dwelling units per net acre.

The tax lot level analysis of 26 cities resulted in an average multifamily density of 12 dwelling units per net acre. The 18 Goal 10 studies show an average weighted density of about 15 dwelling units per net acre. The two methods begin to suggest a range of 12 to 15 units per acre for average multifamily densities, though the studies did not separate medium and high density residential.

CHAPTER 5: EMPLOYMENT LAND USE EFFICIENCY

This chapter presents an analysis of land use efficiency on employment lands. The analysis generally reports employment densities in employees per acre (EPA).

Findings

This chapter presents analysis of employment densities for Tier 1 and Tier 2 cities. Using Tier 1 cities, the research team was able to analyze changes in employment density over time for all land within city limits. Using Tier 2 data, we were able to analyze employment density for land that had employment in 2012.[14]

Note that all of the analysis in this section is based on data from the Quarterly Census of Employment and Wages (QCEW) and only includes employees "covered" by unemployment insurance. Total employment is typically about 25% higher than covered employment, and typically undercounts agricultural employment, real estate, and services, which are less likely to be considered "covered" and include a higher proportion of self-proprietors. It is not possible to estimate where uncovered employment is located but many of the underreported fields occur in areas outside UGBs or in home occupations. In the counties in our study, the share of total employment included in QCEW data ranges from 57% in Curry County to 84% in Marion County.

The research team decided to not make adjustments to covered employment data to reflect total employment. Our rationale is that (1) we observe wide variations in the ratio of covered to total employment by county, and (2) these ratios include employment outside city limits. It is reasonable to assume that in rural agricultural counties a higher proportion of non-covered employment exists outside city limits. Without a more accurate method of allocating non-covered employment, we chose to not make covered to total employment adjustments.

Employment Trends

Table 5-1 shows a summary of covered employment by city size in 2005 and 2012. The data show that more than 90% of covered employment is in cities of 5,000 population and larger. More than 50% of covered employment is in the seven cities over 50,000 population. The results show that employment grew only 1% during this period. Growth was uneven by size class, with cities less than 1,000 population experiencing the highest growth rate (32%) and cities over 50,000 losing employment. In 2012, there were 651,491 covered employees in the 216 cities outside the Metro UGB.

[14] We did not have historic taxlot data, so dynamic analysis (e.g., analysis over time) of employment densities at the tax lot level was not possible.

Table 5-1. Covered employment for all non-Metro cities, 2005 and 2012 (n=216)

City Size	Number of Cities	2005 Employment	2005 Percent of Emp	2012 Employment	2012 Percent of Emp	Change, 2005-12 Number	Change, 2005-12 Percent	Change, 2005-12 AAGR
<1,000	81	6,952	1%	9,178	1%	2,226	32%	4.0%
1,000-4,999	79	52,379	8%	53,269	8%	890	2%	0.2%
5,000-9,999	28	76,949	12%	78,566	12%	1,617	2%	0.3%
10,000-24,999	17	125,433	19%	128,840	20%	3,407	3%	0.4%
25,000-49,999	4	44,187	7%	46,297	7%	2,110	5%	0.7%
50,000 or more	7	338,690	53%	335,341	51%	(3,349)	-1%	-0.1%
All Classes	**216**	**644,590**	**100%**	**651,491**	**100%**	**6,901**	**1%**	**0.2%**

Source: Quarterly Census of Employment and Wages, Oregon Explorer, analysis by University of Oregon

Table 5-2 shows basic employment statistics for the 130 Tier 1 cities in 2012. Table 5-2 shows that the 130 Tier 1 cities had 627,441 covered employees, or 96% of all employment within city limits of all 216 cities outside Metro. The results also show considerable variation in the amount of employment exists in cities of all sizes (see maximum, minimum and standard deviation values).

Table 5-2. Covered employment statistics for Tier 1 cities by city size, 2012 (n=130)

City Size	Number of Cities	Total Employment	Average by City	Maximum	Minimum	St. Dev.
<1,000	26	3,220	124	401	4	114
1,000-4,999	48	35,177	733	3,713	98	656
5,000-9,999	28	78,566	2,806	6,214	676	1,468
10,000-24,999	17	128,840	7,579	16,586	3,262	3,254
25,000-49,999	4	46,297	11,574	17,068	5,614	4,896
50,000 or more	7	335,341	47,906	96,570	20,577	29,467
All Classes	**130**	**627,441**	**4,826**	**96,570**	**4**	**12,552**

Source: Quarterly Census of Employment and Wages, Oregon Explorer, analysis by University of Oregon

Table 5-3 shows population, covered employment, and population/employment ratio by city size for 2005 and 2012. Overall, the population/employment ratio trends towards 2:1.The results show that the population/employment ratio generally decreases as population increases. The results suggest that most small cities are “bedroom” communities, with population/employment ratios in the 5:1 range. Cities over 50,000 are employment centers, with population/employment ratios below 2:1. Between 2005 and 2012, population/employment ratios increased for all cities with the exception of cities under 1,000 population. This is consistent with job loss that occurred during the Great Recession.

Table 5-3. Population, covered employment, and population/employment ratio by city size, Tier 1 Cities, 2005 and 2012 (n=130)

City Size	Number of Cities	2005 Population	2005 Employment	2005 Pop/Emp Ratio	2012 Population	2012 Employment	2012 Pop/Emp Ratio
<1,000	26	13,914	2,444	5.7	14,805	3,220	4.6
1,000-4,999	48	102,190	34,691	2.9	114,025	35,177	3.2
5,000-9,999	28	201,795	76,949	2.6	218,885	78,566	2.8
10,000-24,999	17	268,645	125,433	2.1	285,375	128,840	2.2
25,000-49,999	4	110,850	44,187	2.5	130,255	46,297	2.8
50,000 or more	7	588,975	338,690	1.7	633,395	335,341	1.9
All Classes	**130**	**1,286,369**	**622,394**	**2.1**	**1,396,740**	**627,441**	**2.2**

Source: Quarterly Census of Employment and Wages, Oregon Explorer, analysis by University of Oregon

Employment by Land Use Classification

This section presents analysis of employment by property classifications. Table 5-4 shows that the majority of covered employment in all of the study cities is in lands with commercial property classifications (59% for all 127 Tier 2 cities). Exempt land accounted for 18% of employment, and industrial land 14%. Seven percent of employment was on land with residential property classifications (note this is not the same as plan designations or zoning), and 2% on other (farm, forest, tract).

Table 5-4. Covered employment by generalized property classification by city size, Tier 2 Cities, 2012 (n=127)

City Size	Number of Cities	Generalized Property Classification: Services	Industrial	Residential	Exempt	Other	Total
Total Employment							
<1,000	25	1,072	194	156	625	91	2,138
1,000-4,999	46	14,540	4,463	2,042	5,176	1,874	28,095
5,000-9,999	28	33,723	6,463	7,121	12,048	1,536	60,891
10,000-24,999	17	47,487	10,623	5,347	19,618	1,099	84,174
25,000-49,999	4	20,160	5,461	2,816	8,698	867	38,002
50,000 or more	7	143,596	35,410	13,005	31,612	2,419	226,042
All Classes	**127**	**260,578**	**62,614**	**30,487**	**77,777**	**7,886**	**439,342**
Percent of Employment							
<1,000	20%	50%	9%	7%	29%	4%	100%
1,000-4,999	36%	52%	16%	7%	18%	7%	100%
5,000-9,999	22%	55%	11%	12%	20%	3%	100%
10,000-24,999	13%	56%	13%	6%	23%	1%	100%
25,000-49,999	3%	53%	14%	7%	23%	2%	100%
50,000 or more	6%	64%	16%	6%	14%	1%	100%
All Classes	**100%**	**59%**	**14%**	**7%**	**18%**	**2%**	**100%**

Source: Quarterly Census of Employment and Wages, Oregon Explorer, analysis by University of Oregon
Note: only includes employment that was associated with a taxlot.

A key issue related to developing a simplified employment land need methodology is the relationship between employment by industry and land use (as indicated by

property classifications). This analysis allowed the research team to better understand the mix of industries that occurs by within cities as well as land use types. The research team used North American Industrial Classification System (NAICS) codes to conduct the analysis. To simplify the analysis, we created four meta-groupings of industries:

- Industrial: 11, 21, 22, 23, 31-33, 42, 48
- Retail: 44-45
- Services: 51, 52, 53, 54, 55, 56, 61, 62, 71, 72, 81
- Government: 92 and Public Ownership

To conduct this analysis, the research team used a different analysis than for the previous analyses in this section. To retain the industry codes, the research team joined tax lot data to the employment records (the other Tier 2 analysis joined employment data to tax lots).

Table 5-5 shows covered employment for all 216 cities outside of Metro by property classification and generalized employment sector. The results show a high degree of mixing of employment by land use (all of the generalized sectors except government had some employment in every property classification) as well as a high degree of employment sectors within individual land use categories. For example, 9% of industrial employment as measured by NAICS codes was on land classified as commercial; 18% of commercial employment was on land classified as industrial.

Table 5-5. Covered employment by generalized employment sector and property classification, Tier 2 cities, 2012 (n=127)

	Generalized Employment Sector					
Property Classification	**Services**	**Government**	**Industrial**	**Retail**	**Total Employment**	**Percent by Prop Class**
Covered Employment						
Commercial	214,158	14,380	29,900	79,545	337,983	62%
Exempt	63,701	13,414	5,605	615	83,335	15%
Farm	287	47	1,195	40	1,569	0%
Forest	79		25	1	105	0%
Industrial	13,120	776	57,837	3,098	74,831	14%
Misc	3,158	123	4,283	276	7,840	1%
Multi-Family	8,675	12	861	230	9,778	2%
Recreation	182		5	21	208	0%
Residential	17,839	636	9,628	1,587	29,690	5%
Tract	2,123		896	67	3,086	1%
Total	**323,322**	**29,388**	**110,235**	**85,480**	**548,425**	**100%**
Percent of Covered Employment by Employment Sector						
Commercial	63%	4%	9%	24%	100%	
Exempt	76%	16%	7%	1%	100%	
Farm	18%	3%	76%	3%	100%	
Forest	75%		24%	1%	100%	
Industrial	18%	1%	77%	4%	100%	
Misc	40%	2%	55%	4%	100%	
Multi-Family	89%		9%	2%	100%	
Recreation	88%		2%	10%	100%	
Residential	60%	2%	32%	5%	100%	
Tract	69%		29%	2%	100%	
Total	**59%**	**5%**	**20%**	**16%**	**100%**	

Source: Quarterly Census of Employment and Wages, Oregon Explorer, analysis by University of Oregon
Note: only includes employment that was associated with a taxlot

Tables 5-5 and 5-6 show covered employment by generalized employment sector and city size. The results show some interesting patterns. First, commercial employment both in real terms and as a percent of total employment increases as city size increases. Retail follows a similar pattern, with the exception of cities over 50,000. This suggests that as cities grow they provide a broader spectrum of commercial services. Industrial employment decreases as a percentage of total employment as city size increases. Government accounts for a pretty consistent percentage of employment for all cities—between 6% and 10%.

Table 5-6. Covered employment by generalized employment sector by city size, Tier 2 cities, 2012 (n=127)

	Generalized Employment Sector				
Population Class	**Services**	**Retail**	**Industrial**	**Government**	**Total Employment**
Total Employment					
<1,000	4,799	773	2,996	967	9,535
1,000-4,999	27,759	7,145	19,585	4,370	58,859
5,000-9,999	46,603	13,552	17,286	4,847	82,288
10,000-24,999	78,940	22,111	27,374	9,491	137,916
25,000-49,999	26,514	8,147	8,953	3,047	46,661
50,000 or more	217,240	45,603	60,049	27,679	350,571
All Classes	**401,855**	**97,331**	**136,243**	**50,401**	**685,830**
Percent of Employment					
<1,000	50%	8%	31%	10%	100%
1,000-4,999	47%	12%	33%	7%	100%
5,000-9,999	57%	16%	21%	6%	100%
10,000-24,999	57%	16%	20%	7%	100%
25,000-49,999	57%	17%	19%	7%	100%
50,000 or more	62%	13%	17%	8%	100%
All Classes	**59%**	**14%**	**20%**	**7%**	**100%**

Source: Quarterly Census of Employment and Wages, Oregon Explorer, analysis by University of Oregon
Note: only includes employment that was associated with a taxlot.

The research team also analyzed employment by region. The results show a high degree of consistency in the mix of employment by region (Table 5-7).

Table 5-7. Covered employment by generalized employment sector by region, Tier 2 cities, 2012 (n=127)

	Generalized Employment Sector				
Region	Services	Retail	Industrial	Government	Total Employment
Total Employment					
Central Oregon	45,144	12,198	14,783	4,107	76,232
North Coastal Oregon	20,593	5,774	5,365	2,701	34,433
Northeast Oregon	20,575	5,690	11,083	4,192	41,540
South Coastal Oregon	16,582	4,502	4,357	1,685	27,126
Southeast Oregon	16,652	4,925	6,342	2,797	30,716
Southern Oregon	63,423	16,801	17,181	6,213	103,618
Willamette Valley	218,886	47,441	77,132	28,706	372,165
Total	**401,855**	**97,331**	**136,243**	**50,401**	**685,830**
Percent of Covered Employment by Sector					
Central Oregon	59%	16%	19%	5%	100%
North Coastal Oregon	60%	17%	16%	8%	100%
Northeast Oregon	50%	14%	27%	10%	100%
South Coastal Oregon	61%	17%	16%	6%	100%
Southeast Oregon	54%	16%	21%	9%	100%
Southern Oregon	61%	16%	17%	6%	100%
Willamette Valley	59%	13%	21%	8%	100%
Total	**59%**	**14%**	**20%**	**7%**	**100%**

Source: Quarterly Census of Employment and Wages, Oregon Explorer, analysis by University of Oregon
Note: only includes employment that was associated with a taxlot.

Density of Lands Used for Employment

Table 5-8 shows acres in city limits (excluding prohibitively constrained acres), covered employment, and covered employment per acre by city size in 2005 and 2012. This analysis allows analysis of relative employment densities over time, but is limited in that it includes all land in city limits, not just land in employment uses.

The results show that employment density increases by city size, with employment density in cities over 50,000 persons being nine times the density in cities under 1,000 in 2012. The results also show that overall employment density decreased between 2005 and 2012. This is consistent with the employment data presented in Table 5-3.

Table 5-8. Covered employment density for all acres in city limits by city size, all cities outside the Portland Metro UGB, 2005 and 2012 (n=216)

		2005			2012			Change 2005-12		
City Size	Number of Cities	Acres in City Limit *	Covered Emp	Emp/Ac	Acres in City Limit *	Covered Emp	Emp/Ac	Acres in City Limit *	Employment	Emp/Ac
<1,000	81	29,401	6,952	0.24	30,086	9,178	0.31	685	2,226	0.069
1,000-4,999	79	69,059	52,379	0.76	72,407	53,269	0.74	3,348	890	(0.023)
5,000-9,999	28	67,119	76,949	1.15	73,108	78,566	1.07	5,989	1,617	(0.072)
10,000-24,999	17	73,488	125,433	1.71	78,425	128,840	1.64	4,937	3,407	(0.064)
25,000-49,999	4	26,442	44,187	1.67	28,031	46,297	1.65	1,589	2,110	(0.019)
50,000 or more	7	117,882	338,690	2.87	121,453	335,341	2.76	3,571	(3,349)	(0.112)
All Classes	**216**	**383,391**	**644,590**	**1.68**	**403,510**	**651,491**	**1.61**	**20,118**	**6,901**	**(0.067)**

Source: Quarterly Census of Employment and Wages, Oregon Explorer, analysis by University of Oregon
Note: Acres in city limit excludes acres that are "prohibitively constrained." Prohibitively constrained acres are acres in water (lakes, rivers, etc.) or FEMA floodways. The methodology uses property classifications and improvement values to identify improvements. As such, the analysis does not make any judgments about the development status of land (e.g., whether any of the land would be classified as "partially vacant" as some land inventories do. We note that OAR 660-009-0005 does not include any provisions for assessment of partially vacant land.

A more useful measure of employment density is based on employees per developed acre of employment land. The research team used Tier 2 data for 127 cities to conduct this analysis. It is based on covered employment as reported by the Quarterly Census of Employment and Wages (QCEW) and taxlot data. The acreages are acres in taxlots with employment, excluding prohibitive constraints.

Table 5-9 shows covered employment density for developed commercial and industrial land by city size in 2012. The results show an average density of 17.2 employees per net acre for commercial employment, and 8.7 employees per net acre for industrial employment. These results are in the range of those reported in the Goal 9 workbook.[15]

Unlike residential densities, the results do not show any discernable pattern by city size. In fact, the results show that cities under 1,000 population had densities that are similar to larger cities.

[15] The Goal 9 workbook suggests the following density assumptions: commercial – 12 to 20; light industrial – 10 to 15; heavy industrial – 7 to 12

Table 5-9. Covered employment density for developed commercial and industrial land by city size, Tier 2 cities, 2012 (n=127)

		Commercial			Industrial		
City Size	Number of Cities	Developed Acres *	Employment	Emp/Dev Ac	Developed Acres *	Employment	Emp/Dev Ac
<1,000	25	67	1,072	16.1	20	194	9.7
1,000-4,999	46	1,314	14,578	11.1	1,027	4,471	4.4
5,000-9,999	28	2,547	33,730	13.2	1,071	6,480	6.0
10,000-24,999	17	2,789	47,607	17.1	1,241	10,623	8.6
25,000-49,999	4	1,352	20,160	14.9	438	5,461	12.5
50,000 or more	7	7,116	143,596	20.2	3,364	35,410	10.5
All Classes	**127**	**15,184**	**260,743**	**17.2**	**7,161**	**62,639**	**8.7**

Source: Quarterly Census of Employment and Wages, Oregon Explorer, analysis by University of Oregon
Note: Developed acres excludes acres that are "prohibitively constrained." Prohibitively constrained acres are acres in water (lakes, rivers, etc.) or FEMA floodways. We use developed to indicate taxlots with improvements.

Table 5-10 shows statistics for employment density for commercial land by city size. The results show considerable variation by city size (as evidenced by the maximum, minimum and standard deviations). The results also clearly show that variation decreases as size increases (as measured by standard deviation).

Table 5-10. Covered employment statistics for developed commercial land by city size, Tier 2 cities, 2012 (n=101)

City Size	Number of Cities	Developed Acres *	Employment	Emp/Dev Ac	Max EPA	Min EPA	Std. Dev EPA
<1,000	13	67	1,072	16.1	81.9	9.6	18.8
1,000-4,999	41	1,314	14,578	11.1	104.8	2.2	17.7
5,000-9,999	22	2,547	33,730	13.2	37.9	4.7	8.9
10,000-24,999	15	2,789	47,607	17.1	27.9	10.0	5.1
25,000-49,999	3	1,352	20,160	14.9	17.1	12.9	2.2
50,000 or more	7	7,116	143,596	20.2	24.6	15.4	3.2
All Classes	**101**	**15,184**	**260,743**	**17.2**	**104.8**	**2.2**	**14.1**

Source: Quarterly Census of Employment and Wages, Oregon Explorer, analysis by University of Oregon
Note: Developed acres excludes acres that are "prohibitively constrained." Prohibitively constrained acres are acres in water (lakes, rivers, etc.) or FEMA floodways. We use developed to indicate taxlots with improvements.
Note: 101 of 127 Tier 2 cities had land with a commercial property classification (2XX)

Table 5-11 shows statistics for employment density for industrial land by city size. The results show considerable variation by city size (as evidenced by the maximum, minimum and standard deviations). The results also clearly show that variation decreases as size increases (as measured by standard deviation).

Table 5-11. Covered employment statistics for developed industrial land by city size, Tier 2 cities, 2012 (n=77)

City Size	Number of Cities	Developed Acres *	Employment	Emp/Dev Ac	Max EPA	Min EPA	Std. Dev EPA
<1,000	5	20	194	9.7	60.7	0.7	25.8
1,000-4,999	28	1,027	4,471	4.4	89.8	0.4	17.7
5,000-9,999	20	1,071	6,480	6.0	33.5	1.6	7.4
10,000-24,999	14	1,241	10,623	8.6	28.1	2.1	6.8
25,000-49,999	3	438	5,461	12.5	23.2	9.3	7.0
50,000 or more	7	3,364	35,410	10.5	18.2	6.7	3.6
All Classes	**77**	**7,161**	**62,639**	**8.7**	**89.8**	**0.4**	**13.2**

Source: Quarterly Census of Employment and Wages, Oregon Explorer, analysis by University of Oregon
Note: Developed acres excludes acres that are "prohibitively constrained." Prohibitively constrained acres are acres in water (lakes, rivers, etc.) or FEMA floodways. We use developed to indicate taxlots with improvements.
Note: 77 or 127 Tier 2 cities had an industrial property classification (3XX)

Table 5-12 shows covered employment density for developed commercial and industrial land by region in 2012. The results show that commercial densities are more consistent across regions than industrial densities. Central Oregon shows the highest commercial density (20.3 employees per net developed acre), while the South Coastal region shows the lowest (12.1 employees per net developed acre). The South Coastal region showed the highest industrial density (18.9 employees per net developed acre), while the Southeast region showed the lowest (4.5 employees per net developed acre).

Table 5-12. Covered employment density for developed commercial and industrial land by region, Tier 2 cities, 2012 (n=127)

		Commercial			Industrial		
City Size	Number of Cities	Developed Acres *	Employment	Emp/Dev Ac	Developed Acres *	Employment	Emp/Dev Ac
Central Oregon	12	1,597	32,484	20.3	1,299	11,440	8.8
North Coastal Oregon	14	794	15,574	19.6	159	1,338	8.4
Northeast Oregon	12	312	4,290	13.7	74	451	6.1
South Coastal Oregon	6	887	10,702	12.1	58	1,086	18.9
Southeast Oregon	6	486	7,934	16.3	450	2,026	4.5
Southern Oregon	17	2,953	46,914	15.9	386	4,644	12.0
Willamette Valley	60	8,155	142,845	17.5	4,736	41,654	8.8
Total	**127**	**15,184**	**260,743**	**17.2**	**7,161**	**62,639**	**8.7**

Source: Quarterly Census of Employment and Wages, Oregon Explorer, analysis by University of Oregon
Note: Developed acres excludes acres that are "prohibitively constrained." Prohibitively constrained acres are acres in water (lakes, rivers, etc.) or FEMA floodways. We use developed to indicate taxlots with improvements.

CHAPTER 6: FINDINGS AND IMPLICATIONS

This chapter summarizes the key findings of our research and discusses some of the implications for development of a simplified land need methodology. It begins with a discussion regarding the scope of the research and how the UO research team worked to ensure that the work is as comprehensive and accurate as possible. It then discusses the key findings of the research in the context of the HB 2254 requirements. It concludes with a discussion of the implications of our research and how the results might be applied to development of a simplified land need methodology.

Scope of the Research

It is helpful to put the scope of this project in context of previous research efforts in Oregon and of how other states have addressed the issue of monitoring and evaluation of land use and growth management policies.

In Oregon, the most comprehensive evaluation of land use efficiency was completed in 1991. The **Urban Growth Management Study**, conducted by ECONorthwest, used a case study approach, in part due to the limitations of data at that time. The case studies included Portland Metro, Bend, Brookings, and Medford. The conclusions were that significant residential development was occurring outside some of the case study UGBs. The study found that 70% of new residential development was occurring in areas the study defined as "contiguous to the urban core." More important to our study, residential densities were less than those allowed by comprehensive plans. Between 1985 and 1989, single-family development in the "Urban Area" (the incorporated area within the UGB) averaged 3.6 dwelling units per net acre in Medford, 2.5 dwelling units per net acre in Bend, and 3.6 dwelling units per net acre in Medford. While a small sample, the case study results compared to the results of this study suggest Oregon cities have increased residential densities since the late 1980s.

In 2007, DLCD sponsored a project called the "Big Look," which was intended as a comprehensive review of the statewide land use program. While considerable effort was put into the work, it did not include any empirical analysis of land use efficiency. It did include a literature review that was coordinated by the Institute for Natural Resources (INR) at Oregon State University. The INR published "**The Oregon Land Use Program: An Assessment of Selected Goals**" in 2008. The study concluded:

> "Studies of urban form vary greatly in their methodology; they utilize different measures (e.g., density, street connectivity) and different techniques (e.g., cross-sectional and longitudinal data comparisons, econometric modeling; GIS-based analyses.) Judging just on the criterion of population density (as an indicator of more compact urban form), most studies find positive impacts (that is, increasing or more slowly decreasing population densities) either for the UGBs under study or for the type of growth management

implemented by the State of Oregon. The GIS-based studies find some physical evidence for compact urban form (greater connectivity, pedestrian-accessible commercial development)—these studies, however, have been only conducted for the Portland region (Washington County) and cannot be used as evidence for the other UGBs of the state as local level implementation has been shown (at least in 1991) to play a critical role in physical outcomes. The literature does raise continued concern about the performance of the Bend UGB in achieving higher densities and compact urban form."

Outside of Oregon, **Washington's Buildable Lands Program** is a review and evaluation program that requires certain counties and their cities to evaluate whether they have an adequate amount of residential, commercial, and industrial land to meet the forecasted growth. The Buildable Lands Program requires counties and cities to collect data to evaluate the amount and density of development occurring within their jurisdictions. The purpose of the analysis is to determine if jurisdictions are achieving targeted urban densities within urban growth areas consistent with county policies and density targets.[16]

Relying on statewide parcel data (Maryland PropertyView), the **Maryland Department of Planning** publishes annual data on the parcels and acres of residential development inside and outside Priority Funding Areas.[17]

In 2009, the Lincoln Institute of Land Policy published a book called ***Smart Growth Policies: An Evaluation of Programs and Outcomes***. In this study, scholars from across the country examined four states with growth management programs and four states without growth management programs, focusing on several key evaluation areas including population and employment growth patterns, natural resources and environmental quality, transportation, affordable housing, and fiscal dimensions. The section on population and employment growth patterns parallels our work in this report. Relying on nationally available consistent data for 1990-2000, authors considered the change in population and employment density, land consumption, and concentration. The data on population and employment growth patterns convey evidence of declining land consumption in Oregon. The authors conclude, "Data on development patterns in Oregon may indicate more smart growth success there than in any other state. While not among the fastest-growing states, Oregon posted a decade-long decline in developed land per capita. In addition, it was the only state where population and employment became more concentrated during the 1990s and where employment deconcentrated the least." (Ingram et. al, 2009, p. 43.) While these data provided a consistent method for measuring differences across the states, the study was limited to relying on population from Census data at the block group level. In this study, we use tax lot

[16] See http://www.commerce.wa.gov/Services/localgovernment/GrowthManagement/Growth-Management-Planning-Topics/Pages/Buildable-Lands.aspx.

[17] See: http://www.mdp.state.md.us/msdc/PFA/Resid_Growth/PFA_resid_growth_idx.shtml .

data from County Assessor offices to examine the development of parcels, offering a more refined measure of density.

In short, this research represents the most detailed analysis of land use efficiency in the history of the Oregon land use program. The analysis is based on extensive analysis of about 750,000 tax lots in about 130 Oregon cities outside the Portland Metro UGB.

Quality Control

The UO research team took painstaking effort to ensure the accuracy of the data and analysis presented in this report. The quality review process extended through all phases of the research. Quality review began during the data collection process; the team spent considerable time reviewing the data sets and evaluating their potential for use in the research. We concluded that several data sets (including the statewide zoning layer) were not suitable for use in the study. We also eliminated cities that were under population 5,000 and grew less than 1% annually to reduce the effects of development on legacy lands (e.g., lots that were previously platted).

After conducting the analysis, we reviewed several cities that were outliers in terms of land use efficiency and other measures.

- **Residential Density**. A few cities were outliers on single-family residential density. For example, the results show that Seaside had an average single-family and plex density of over 15 dwelling units per net acre. Upon further review, the research team discovered that some types of condominiums had single-family property classifications. Thus, our analysis is correct in the sense that it accurately represents how the Clatsop County Assessor classified those lands, but if these condominiums are in multi-family buildings they would be classified for planning purposes in Oregon as multi-family. On the low side, Lyons had a single-family/plex density of around two units per net acre. Upon review, the research team confirmed that finding; the City has allowed very low-density subdivisions in the recent past.

- **Constraints**. The research team's analysis of residential densities on constrained lands produced an unexpected result: densities on fully constrained tax lots (e.g., lots that are 100% within a constrained area) had higher overall densities than those on partially-constrained or unconstrained land. Upon review, the research team discovered that the higher densities are a result of legacy development that occurred primarily in floodplains in the early 20th century. Development on partially constrained lands appears to result in lower densities (see Appendix C). We note that a relatively small percentage (~2%) of recent development has occurred on constrained lands.

- **Exempt land**. The research team's analysis of exempt lands identified several cities that had high percentages of exempt lands. Upon review, the results are correct and reflect how those lands are classified. Cities with airports, ports, beaches or other large publicly held lands have more land in exempt classifications.

The research team's quality assurance efforts identified some anomalies in the data, but verified that the analysis of the data is correct. Those efforts suggest that some variations exist in how county assessors are classifying land. More important, we confirmed that the outliers represent such a small portion of the overall development analyzed that they do not have a significant influence on the results.

In summary, the analysis presented in this report represents the most comprehensive and accurate analysis possible in the context of the objectives outlined in HB 2254.

Key Findings

This section presents the key findings of our research on land use efficiency. Section 4(3)(b) of the bill requires that the determination of supply and development capacity within UGBs:

> *Be based on an empirical evaluation of the relation between population and employment growth and the rate and trends of land utilization in the recent past in the applicable major region of the state.*

In Chapter 2 we described the framework the UO research team used to measure land use efficiency and trends in land use efficiency. The simplest way to measure land use efficiency is in persons or employees per unit area (typically square miles or acres). Following are conclusions about population and employment densities by type:

- **Smaller cities have a proportionally larger share of land in their city limits**. In 2012, 160 of the 216 (75%) cities had a population of less than 5,000 residents. Those cities accounted for 15% of the population and 25% of the total acres within city limits in UGBs. Conversely, 11 cities had a population over 25,000 people 34% of acreage within UGBs. Cities with populations between 5,000 and 25,000 contain 40% of the acreage in UGBs.

- **Smaller cities have lower population and employment densities**. Table 6-1 shows that population density increases as city size increases.

Table 6-1. Population Density by City Size, All Cities Outside the Portland Metro UGB, 2012

	2012 Population		2012 City Limit		
City Size	Number	Percent	Sq Mi	Percent	Persons Per Acre
<1,000	33,772	2%	49.73	7%	679
1,000-4,999	181,620	12%	123.32	18%	1,473
5,000-9,999	218,885	15%	130.76	19%	1,674
10,000-24,999	285,375	19%	132.43	20%	2,155
25,000-49,999	130,255	9%	44.85	7%	2,904
50,000 or more	633,395	43%	197.80	29%	3,202
Total	**1,483,302**	**100%**	**678.89**	**100%**	**2,185**

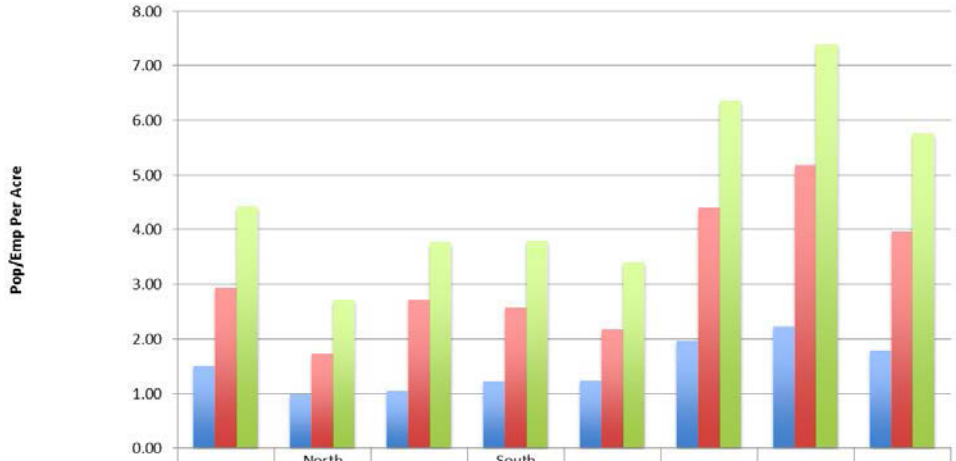
- **Between 2005 and 2012, population increased faster than employment**. Based on covered employment data, the 216 cities outside of the Portland Metro UGB added about 5,900 jobs between 2005 and 2012. Employment grew at a rate much slower than population. Between 2005 and 2012, employment for the 216 cities outside the Portland Metro UGB increased 1.1%; population increased 7.9%. This difference is certainly influenced by the Great Recession, where employment dropped while population remained about the same.

- **Population densities within city limits increased over the 2005 through 2012 period**. For the 130 cities outside the Portland Metro UBG included in the study, population density within city limits (inside UGBs) increased by 12%. Population density for all land in city limits increased from 3.86 persons per acre (2,474 persons per square mile) to 4.32 persons per acre (2,763 persons per square mile).

- **Employment densities within city limits increased over the 2005 through 2012 period.** For the 130 cities outside the Portland Metro UBG included in the study, employment density within city limits increased by 4%. Employment density for all land within city limits increased from 1.86 employees per acre (1,188 employees per square mile) to 1.94 employees per acre (1,240 employees per square mile).

- **Regional differences exist**. Figure 6-1 shows that cities in rural regions generally have lower population and employment densities (as measured in persons or employees per acre). Cities in the Willamette Valley and Southern Oregon region had higher average population and employment densities than other regions. Those regional differences, however, do not control for size or other variables that might explain density.

Figure 6-1. Population and Employment Density for Tier 1 Cities By Region, 2012 (n=130)



	Central Oregon	North Coastal Oregon	Northeast Oregon	South Coastal Oregon	Southeast Oregon	Southern Oregon	Willamette Valley	Total
Employment Density	1.50	0.98	1.05	1.22	1.24	1.96	2.23	1.78
Population Density	2.93	1.73	2.72	2.58	2.17	4.40	5.18	3.98
Pop+Emp Density	4.44	2.72	3.77	3.80	3.41	6.36	7.41	5.76

- **Larger cities account for the majority of population growth.** Between 2005 and 2012, nearly 60% of the population growth in the 216 cities outside the Portland Metro UGB occurred in cities over 25,000 (11 cities) and 75% occurred in cities over 10,000 (28 cities). Seventy-one percent of the 2012 population in cities that are not in the Portland Metro UGB was in cities over 10,000. In this sense, those cities are growing faster on a per unit basis (more new residents per 1,000 existing residents).

- **Population and employment per developed acre vary by city size.** Table 6-2 shows population and employment per improved acre by city size in 2012. The data show that population per improved residential acre generally increases as city size increases. Employment densities show more variation by city size and do not reveal any clear pattern. Analysis by region did not identify any clear patterns in population and employment per improved acre.

Table 6-2. Population and Employment Per Improved Acre by City Size, 2012

City Size	Pop/Ac	Emp/ Comm Ac	Emp/ Ind Ac
<1,000	5.9	16.1	9.7
1,000-4,999	8.3	11.1	4.4
5,000-9,999	11.4	13.2	6.0
10,000-24,999	13.4	17.1	8.6
25,000-49,999	13.0	14.9	12.5
50,000 or more	15.7	20.2	10.5
All Classes	**12.8**	**17.2**	**8.7**

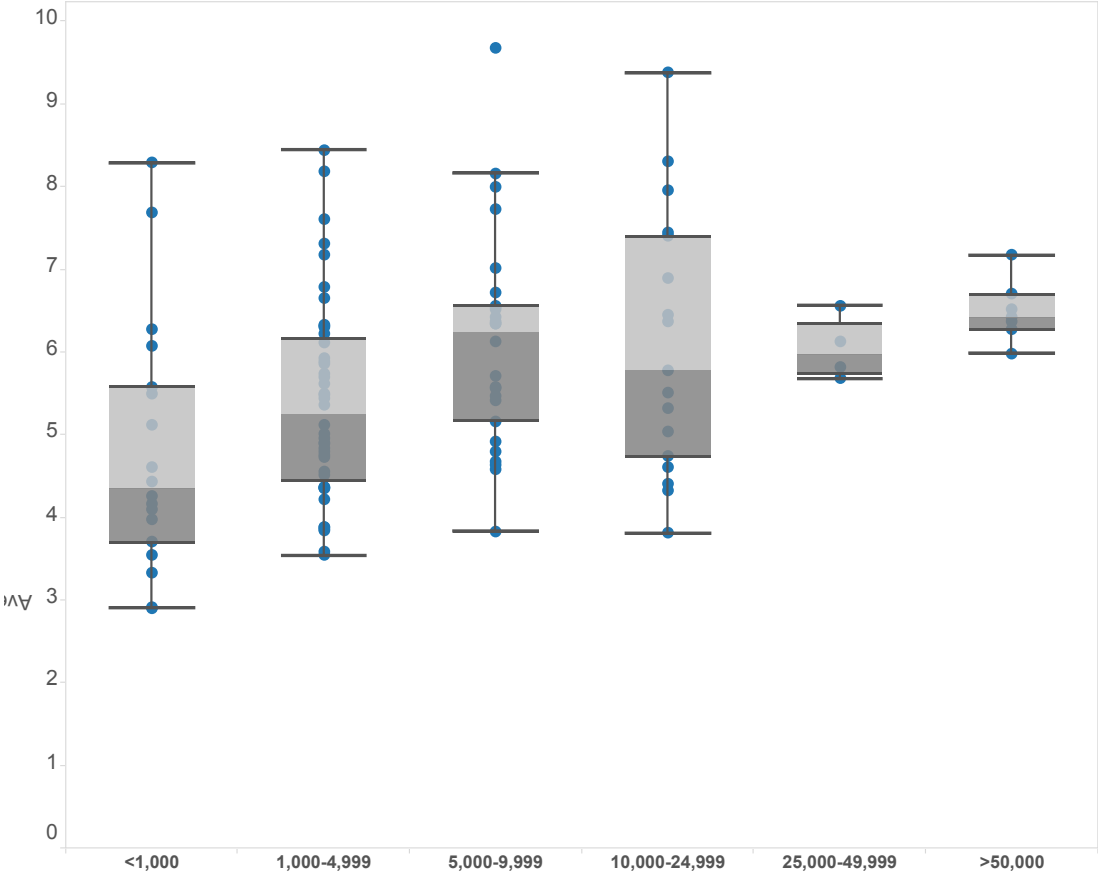
Note: Population density represents 159 cities; commercial employment 101; industrial employment 77

Residential Land Use Efficiency

The analysis of residential densities generally shows that single-family and plex densities have increased over time—for all city sizes and all regions. It also shows that considerable variation exists in single-family and plex densities among cities. Due to data limitations, the research team was not able to analyze trends in multifamily density.

Figure 6-2 shows box-and-whisker plots for single-family and plex density by city size for the 120 Tier 3 cities. Each point represents a city; high and low outliers, including Seaside and Lyons, were excluded. The observations (cities) are divided into quartiles, where each bar represents a quartile and the line between the light and dark gray represents the median value. The narrow bands around values for cities between 25,000-49,999 and cities over 50,000 in population reiterates that larger cities convey less variation than smaller cities. However, these graphics show that densities across the state exist in a narrow band – most cities range from 5 to 7 parcels per unprohibitive acre.

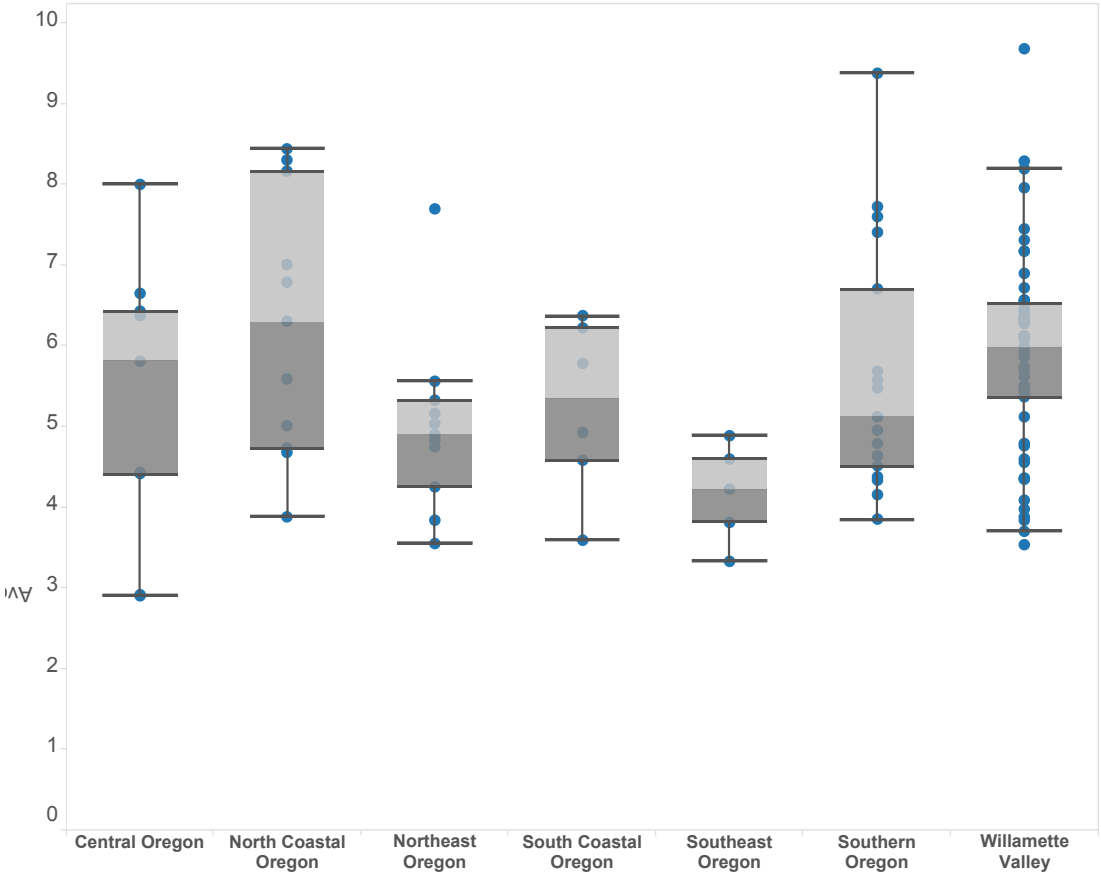
Figure 6-2. Box and Whisker Plot of Single Family & Plex Density by City Size, 2003-2007, Tier 3 cities (n=118)



Excludes Outliers: Lyons, Seaside.

Figure 6-3 shows a box-and-whisker plot by region. The graphic illustrates great variation by region, particularly in the Willamette Valley and Southern Oregon. Northeast and Southeast Oregon show less variation overall, as cities have a narrow range of values.

Figure 6-3. Box and Whisker Plot of Single Family & Plex Density by Region, 2003-2007 (n=118)



Excludes Outliers: Lyons, Seaside

Employment Land Use Efficiency

Chapter 5 provided a detailed analysis of employment densities. Drawing trend conclusions from the employment data are limited by (1) the data, and (2) the impact of the Great Recession on employment in Oregon. The employment data presented in this report only represent so-called "covered" employment—employment that is covered by unemployment insurance. Covered employment represents about 75% of total employment in Oregon. Thus, the employment densities in this report are systematically low.

Figure 6-4 shows box-and-whisker plots for **commercial** employment density by city size for 128 Tier 2 cities. The narrow bands around values for cities between 25,000-49,999 and cities over 50,000 in population underscores that larger cities have less variation than smaller cities. The graphic shows that commercial densities across the state have considerable variation. Looking at averages by city size, most cities range from 11 to 21 employees per net acre. Commercial employment densities averaged 17.1 employees per net acre for all 128 cities and ranged from a low of 11.1 employees per net acre for cities with populations between 1,000 and 4,999, to a high of 20.9 for cities with populations over 50,000.

Figure 6-4. Box and Whisker Plot of <u>Commercial</u> Employment Density by City Size, 2003-2007 (n=128)

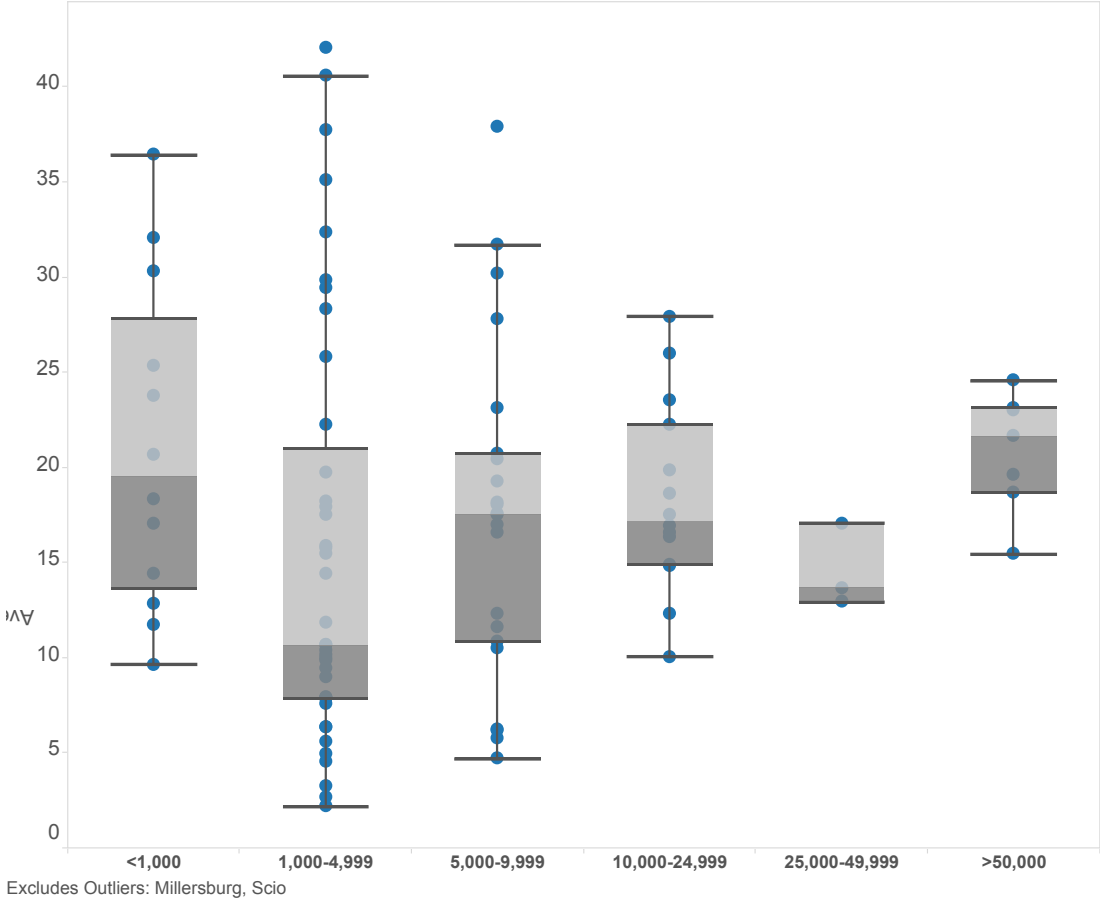


Figure 6-5 shows box-and-whisker plots for **industrial** employment density by city size for 128 Tier 2 cities. The shaded bands around values for cities between 25,000-49,999 and cities over 50,000 in population shows that the smallest and largest cities have less variation than smaller cities. The graphic shows that industrial densities across the state show considerable variation. Averages by population class show that industrial densities generally range from 4.4 to 12.5 employees per net acre. Industrial employment densities averaged 8.7 employees per net acre for all 128 cities and ranged from a low of 4.4 employees per net acre for cities with populations less than 1,000, to a high of 12.5 for cities with populations between 25,000 and 49,999.

Figure 6-5. Box and Whisker Plot of <u>Industrial</u> Employment Density by City Size, 2003-2007 (n=128)

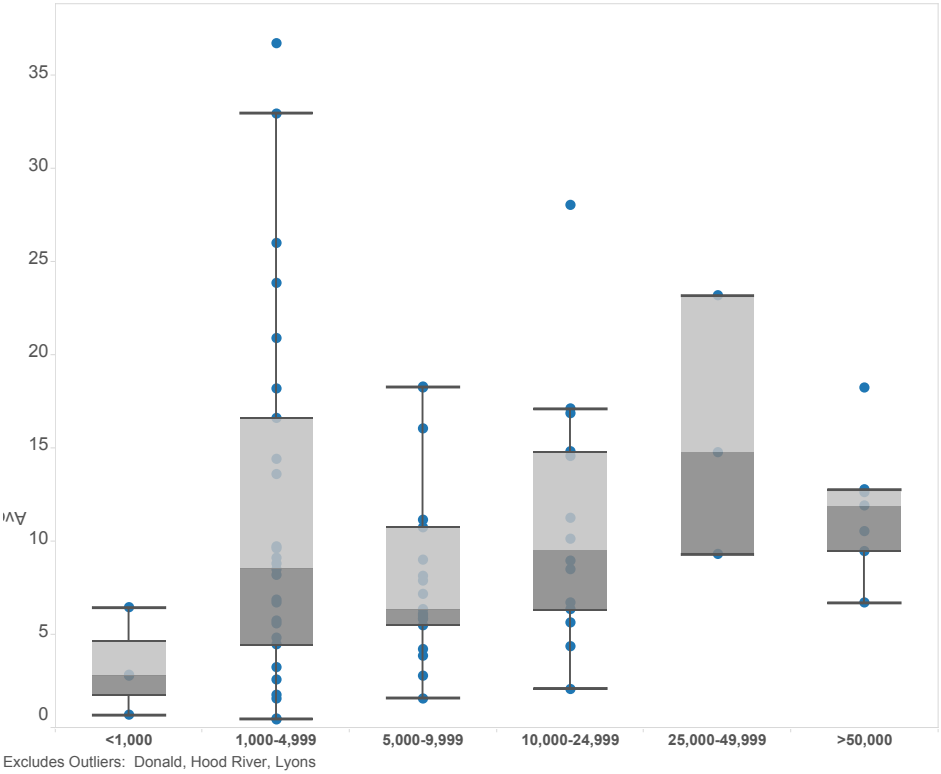


Figure 6-6 shows a box-and-whisker plot of **commercial** employment density by region. The graphic illustrates great variation by region, particularly in the Willamette Valley and North Coast regions.

Figure 6-6. Box and Whisker Plot of <u>Commercial</u> Employment Density by Region, 2003-2007 (n=128)

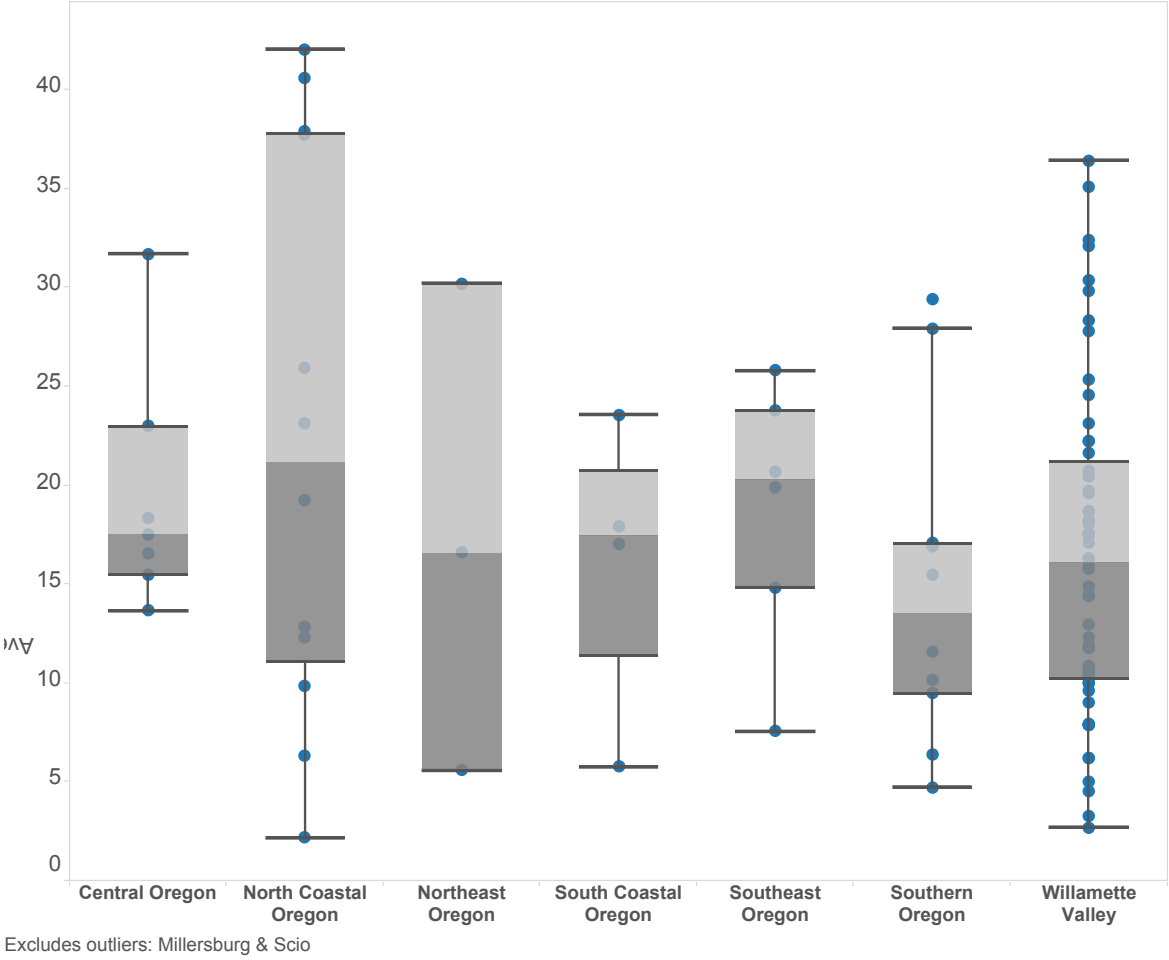
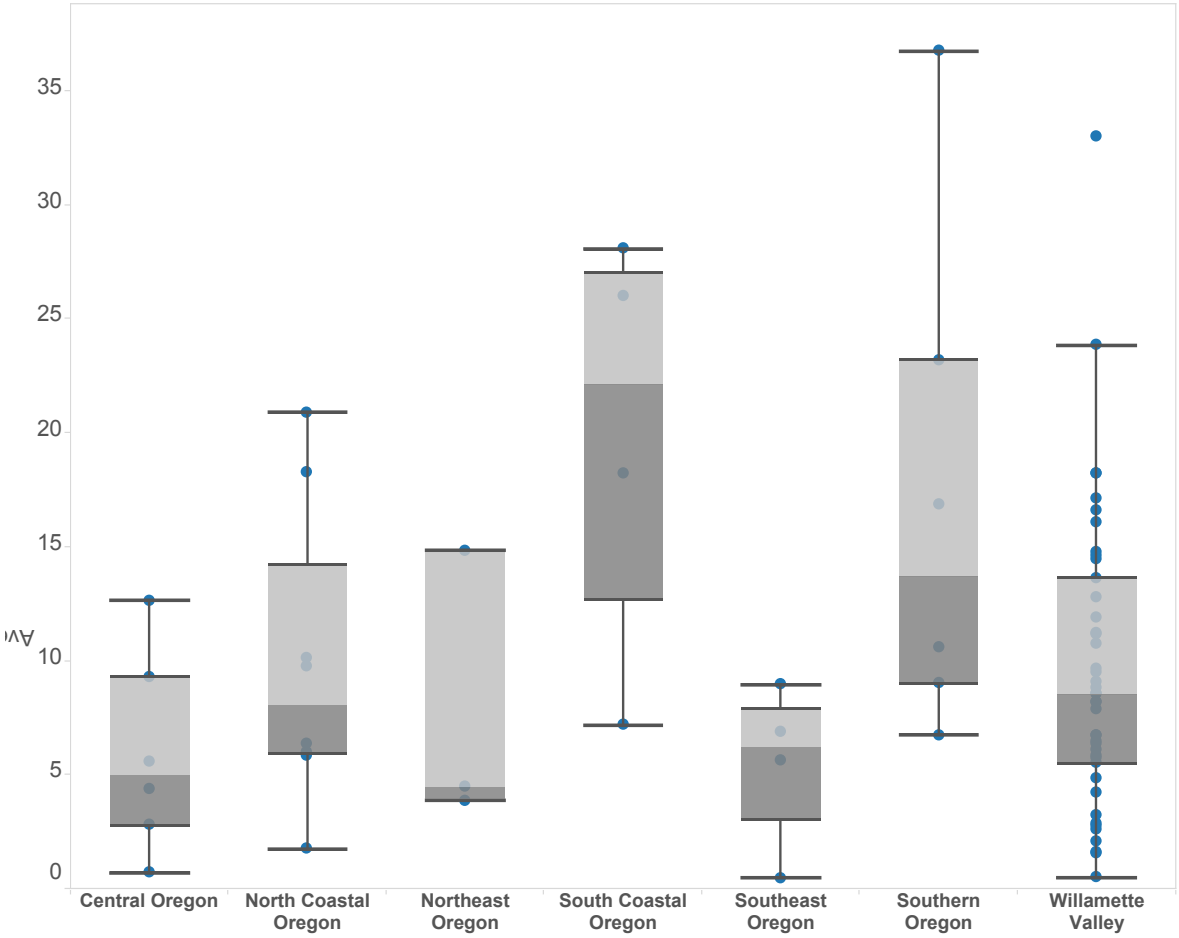


Figure 6-7 shows a box-and-whisker plot of **industrial** employment by region. The graphic illustrates great variation by region, particularly in the Willamette Valley and Southern Oregon regions.

Figure 6-7. Box and Whisker Plot of Industrial Employment Density by Region, 2003-2007



Excludes Outliers: Donald, Hood River, Lyons

Statistical Relationships

Of interest to the H.B. 2254 Rulemaking Advisory Committee was whether simple statistical relationships existed that could explain the influence of city size or region on land use efficiency. To better understand whether those relationships exist, the UO Team developed several simple linear regression models. The results were conclusive: housing and employment density is a function of more than just population or region. The implication is that developing a deterministic statistical model that meets the objectives of this study (e.g., a simple method of determining land need) is not possible. We note that development of a deterministic statistical model was never an objective of this research and is not mentioned in the legislation.

The key issue is the amount of variability that exists among cities. Based on the simple statistical models, that variability is a function of more than population and region. While the UO Team did not find simple statistical models that fit, the data still show patterns that are relevant and useful for the purposes of the research and legislation.

Implications

The results of the research have utility for the rulemaking process, but do not obviate the need for difficult policy choices. The results show that cities are becoming more efficient over time. The policy choice about whether cities should become more efficient in the future is embedded in the legislation; the approach the rule takes will need to incorporate this requirement.

Following is a summary of implications developed by the UO research team:

- **Smaller cities, on average, are less dense than larger cities.** This suggests that methodologies that incorporate city size may be appropriate. Moreover, population appears to be a strong determinant of the amount of variability in land use efficiency. The data clearly show that smaller cities have more variability in both housing and employment density than larger cities. This variability makes it difficult to develop simple linear functions that would serve as predictors of future densities.

  OAR 660-024a provides density and housing mix "safe harbor" thresholds that vary by city size. OAR 660-007 has a similar system for cities in the Portland Metro UGB. The rule provides sample calculations for calculating the needed density and mix of housing. The methodology provides an example of one possible approach to simplify land need estimates. While we do not have empirical data on the number of cities that have used this methodology, our general sense is that most cities have opted for the standard path. It is worth considering why jurisdictions have selected the standard pathway over the OAR 660-024-0040(8)(a) methodology.

- **The density analysis provides baseline data that can inform density thresholds.** No previous studies in Oregon have included such a broad and comprehensive review of land use efficiency. Accompanying this report is a set of tables that provides data for each city included in the study. That data provides a point-in-time snapshot of the efficiency of residential and employment development for each city. This baseline data provides a foundation that can be used to establish density thresholds. The two obvious variations for setting thresholds are by city size (similar to OAR 660-024a) and by region.

- **Larger cities account for the majority of population growth**. Between 2005 and 2012, 75% of population growth occurred in cities over 10,000. Because these cities are growing, they are the most likely to use a simplified UGB methodology. If the intent of UGB streamlining is to develop simpler methods to estimate land need, methodologies that consider city size and growth rates have merit.

- **Regional differences exist, and could be incorporated into a simplified methodology**. The results show that cities in Northeast and Southeast

Oregon have consistently lower residential and employment densities than other regions. A simplified methodology could recognize these differences and establish density thresholds based on location.

- **Limits to efficiency increases should be recognized and incorporated into the methodology**. Focusing on one element of the analysis—single-family and plex efficiency—the data clearly show that on average cities are generally becoming more efficient. Upper bounds to single-family efficiency exist and are a simple function of lot and dwelling sizes. As a general rule of thumb, single-family densities of 8 to 10 units per net acre represent a reasonable upper bound. This equates to average lot sizes of 4,300 to 3,630 square feet. While smaller lot sizes are possible, achieving average single-family densities in this range implies a much different urban form. In short, the rule should recognize these limits to density and not assume a straight linear function for all time.

- **Limited data on multifamily densities creates complications for estimating multifamily land need**. Few counties had dwelling unit counts associated with tax lots, and those that did we found unreliable. Simplified methods for determining multifamily land need are still possible and should be considered in the context of overall housing density and mix. A combination of census data and multifamily density assumptions is one possibility:

    - Use the Census data analysis by city size as a baseline for housing mix.

    - Consider establishing a "standard" multifamily density that gets scaled by city size. In studies the UO research team reviewed as part of this research, most cities are achieving densities of 15+ dwelling units per net acre.

    - Consider incentives for small cities to create exclusive multifamily zones. Many small cities allow single-family detached dwellings as an outright use in multifamily zones. While this provides flexibility in the market, having dedicated multifamily zones provides greater certainty that cities will meet identified needs for multifamily housing.

- **Employment shows dispersion patterns similar to housing by city size**. The average employment figures track pretty closely with employment densities DLCD recommends in the Goal 9 workbook. These average densities could be used as thresholds or nominal assumptions. Because industrial densities are so much different that other employment types, we recommend disaggregating by industrial and other employment consistent with the guidance in OAR 660-009.

- **Methodologies for roads and public lands should apply to all lands within city limits, not only residential lands**. Current state policy (OAR

660-024) allows cities to use a safe harbor assumption of 25% for roads, schools and parks. The research suggests that these uses do not always occur in residential areas and that a factor applied to all land might provide a more consistent and accurate approach. Due to limitations with zoning data, the UO research team was unable to analyze the amount of exempt land by zone.

- **Simplified methods that use a population or employment factor per improved acre are possible**. Tables 6-2 and 6-3 show average population and employment per improved acre by city size and region.

Table 6-2. Average population and employment per improved acre, by city size, 2012

City Size	Pop/Ac	Emp/ Comm Ac	Emp/ Ind Ac
<1,000	5.9	16.1	9.7
1,000-4,999	8.3	11.1	4.4
5,000-9,999	11.4	13.2	6.0
10,000-24,999	13.4	17.1	8.6
25,000-49,999	13.0	14.9	12.5
50,000 or more	15.7	20.2	10.5
All Classes	**12.8**	**17.2**	**8.7**

Note: Population density represents 159 cities; commercial employment 101; industrial employment 77

Table 6-3. Average population and employment per improved acre, by region, 2012

Region	Pop/Ac	Emp/Comm Ac	Emp/Ind Ac
Central Oregon	10.7	20.3	8.8
North Coastal Oregon	10.6	19.6	8.4
Northeast Oregon	10.3	13.7	6.1
South Coastal Oregon	8.9	12.1	18.9
Southeast Oregon	14.0	16.3	4.5
Southern Oregon	10.4	15.9	12.0
Willamette Valley	15.8	17.5	8.8
Total	**12.8**	**17.2**	**8.7**

Note: Population density represents 159 cities; commercial employment 101; industrial employment 77

A simplified method using population and employment per acre factors would have four steps. It would require a population forecast and an employment forecast that disaggregates employment by commercial and industrial land use. Following is an example using the factors from Tables 6-2 and 6-3:

1. City X has a population forecast that adds 10,000 persons for the 20 year period. Total residential land need is 781 acres (10,000 divided by 12.8 persons per acre)).

2. City X has an employment forecast of 5,000. Disaggregated, 3,500 employees need commercial land and 1,500 need industrial land.
    a. Commercial land need is 204 acres (3,500 divided by 17.2 employees per acre)
    b. Industrial land need is 171 acres (1,500 divided by 8.7)
3. Total land need for population and employment is 1,156 acres (781 + 204 + 171)
4. Land need for roads, schools, parks, and all other government uses is 472 acres (1,156 acres divided by 1 minus 29% from Table 3-12) equals 472 acres (1,628 minus 1,156)
5. Total land need is 1,628 acres. This equates to 9.21 persons+employees per acre (10,000 persons plus 5,000 employees equals 15,000; 15,000 divided by 1,628 equals 9.21).

In summary, the analysis presented in this report represents the most comprehensive and accurate analysis possible in the context of the objectives outlined in HB 2254. We recognize considerable variation exists among cities; that variability underscores the normative decisions that accompany this effort to simplify the need determination. To the extent the data allow, it provides the foundation to address the requirement that the method.

APPENDIX A: ORS 197A

Chapter 197A —

Comprehensive Land Use Planning II

2013 EDITION

COMPREHENSIVE LAND USE PLANNING II

MISCELLANEOUS MATTERS

197A.300 Definitions for ORS 197A.300 to 197A.325

197A.302 Purposes; rules

197A.305 Amendment of urban growth boundaries outside Metro; rules

197A.310 Cities with population of less than 10,000; rules

197A.312 Cities with population of 10,000 or more; rules

197A.315 Expansion study areas; notice; urban services agreements

197A.320 Priority of land to be included within urban growth boundaries outside Metro; rules

197A.325 Review of final decision of city; rules

Note: Definitions in 197.015 apply to ORS chapter 197A.

197A.300 Definitions for ORS 197A.300 to 197A.325. As used in ORS 197A.300 to 197A.325:

(1) "Buildable lands" means land in urban or urbanizable areas that are suitable for urban uses.

(2) "Serviceable" means, with respect to land, that:

(a) Adequate sewer, water and transportation capacity for planned urban development is available or can be either provided or made subject to committed financing; or

(b) Committed financing can be in place to provide adequate sewer, water and transportation capacity for planned urban development. [2013 c.575 §1]

Note: 197A.300 becomes operative January 1, 2016. See section 13, chapter 575, Oregon Laws 2013, as amended by section 14, chapter 575, Oregon Laws 2013.

197A.302 Purposes; rules. The purpose of ORS 197A.300 to 197A.325 is to direct the Land Conservation and Development Commission to develop and adopt simplified methods

for a city that is outside Metro to evaluate or amend the urban growth boundary of the city. The commission should design the methods to:

(1) Become, as a result of reduced costs, complexity and time, the methods that are used by most cities with growing populations to manage the urban growth boundaries of the cities;

(2) Encourage, to the extent practicable given market conditions, the development of urban areas in which individuals desire to live and work and that are increasingly efficient in terms of land uses and in terms of public facilities and services;

(3) Encourage the conservation of important farm and forest lands, particularly lands that are needed to sustain agricultural and forest products industries;

(4) Encourage cities to increase the development capacity within the urban growth boundaries of the cities;

(5) Encourage the provision of an adequate supply of serviceable land that is planned for needed urban residential and industrial development; and

(6) Assist residents in understanding the major local government decisions that are likely to determine the form of a city's growth. [2013 c.575 §2]

Note: 197A.302 becomes operative January 1, 2016. See section 13, chapter 575, Oregon Laws 2013, as amended by section 14, chapter 575, Oregon Laws 2013.

197A.305 Amendment of urban growth boundaries outside Metro; rules. (1) In addition to and not in lieu of the method prescribed in ORS 197.295 to 197.314 and the statewide land use planning goals, the Land Conservation and Development Commission shall adopt by rule methods by which a city that is outside Metro may evaluate or amend the urban growth boundary of the city.

(2) A city outside Metro may use the methods adopted pursuant to:

(a) ORS 197A.310 if the city has a population of less than 10,000.

(b) ORS 197A.312 if the city has a population of 10,000 or more.

(3) A city that elects to include land within the urban growth boundary of the city under a method established pursuant to ORS 197A.310 or 197A.312:

(a) May use the method again when:

(A) The population of the city has grown by at least 50 percent of the amount of growth forecast to occur in conjunction with the previous use of the method by the city; or

(B) At least one-half of the lands identified as buildable lands during the previous use of the method by the city have been developed.

(b) Shall evaluate whether the city needs to include within the urban growth boundary additional land for residential or employment uses before the population of the city has grown by 100 percent of the population growth forecast to occur in conjunction with the previous use of the method by the city.

(4) A city that elects to use a method established pursuant to ORS 197A.310 or 197A.312 shall notify the Department of Land Conservation and Development of the election in the manner required by ORS 197.610 for notice of a post-acknowledgment plan amendment. The city may revoke the election until the city makes a final decision whether to amend the urban growth boundary of the city. A city that has initiated, but not completed, an amendment of its urban growth boundary before January 1, 2014, may withdraw the proposed amendment and use a method established pursuant to ORS 197A.310 or 197A.312 by filing notice of the election with the department in the manner required by ORS 197.610 and 197.615 for notice of a post-acknowledgment plan amendment.

(5) Beginning on or before January 1, 2023, the commission shall:

(a) Evaluate, every five years, the impact of the implementation of ORS 197A.310 (2) and 197A.312 (2) on the population per square mile, livability in the area, the provision and cost of urban facilities and services, the rate of conversion of agriculture and forest lands and other considerations;

(b) Consider changes to the statewide land use planning goals or rules to address adverse outcomes; and

(c) Make recommendations to the Legislative Assembly, as necessary, for statutory changes. [2013 c.575 §3]

Note: 197A.305 becomes operative January 1, 2016. See section 13, chapter 575, Oregon Laws 2013, as amended by section 14, chapter 575, Oregon Laws 2013.

197A.310 Cities with population of less than 10,000; rules. (1) In addition to and not in lieu of the method prescribed in ORS 197.295 to 197.314 and the statewide land use planning goals, the Land Conservation and Development Commission shall adopt a method by which a city outside Metro that has a population of less than 10,000 may evaluate or amend its urban growth boundary.

(2) The commission shall design the method so that:

(a) A city using the method:

(A) Will have within its boundaries sufficient buildable lands and other development capacity, including land and capacity for needed housing and employment opportunities, to meet the growth in population and employment forecast to occur over a 14-year period.

(B) Will not become less efficient in its use of land as a result of a change to the urban growth boundary.

(b) The urban population per square mile will continue, subject to market conditions, to increase over time on a statewide basis and in major regions of the state, including that portion of the Willamette Valley outside of Metro.

(c) The rate of conversion of agricultural and forest lands to urban uses does not increase over time in any major region of the state.

(3) Under the method adopted by the commission:

(a) A city's determination of the amount of buildable lands needed for housing, employment and other urban uses must be based on the population and employment growth forecast to occur over a 14-year period.

(b) A city's determination of the supply and development capacity of lands within its urban growth boundary must be based on:

(A) A simple inventory of vacant and partially vacant buildable lands within the urban growth boundary;

(B) The comprehensive plan designation and the zoning of the portion of the buildable lands that is urban; and

(C) Simple factors established by the commission for forecasting:

(i) The development and redevelopment capacity of urbanizable lands within the urban growth boundary; and

(ii) The redevelopment capacity of developed urban lands within the urban growth boundary.

(c) A city's determination of the supply and development capacity of lands the city proposes to include within the urban growth boundary must be based on:

(A) A simple inventory of vacant and partially vacant lands; and

(B) Simple factors established by the commission for forecasting the development and redevelopment capacity of the lands.

(d) A city shall demonstrate that lands included within the urban growth boundary:

(A) Include sufficient serviceable land for at least a seven-year period.

(B) Can all be serviceable over a 14-year period.

(e) Lands included within the urban growth boundary:

(A) Must be planned and zoned for categories of land uses in amounts that are roughly proportional to the land need determined for each category of use;

(B) Must be planned and zoned for an intensity of use that is generally consistent with the estimates that were used to determine the amount of land needed;

(C) Must be planned and zoned to meet the requirements for needed housing, and those requirements must be specified by rule of the commission in a manner that is as objective as practicable; and

(D) May be either:

(i) Planned and zoned, or otherwise conditioned, to avoid significantly affecting a state highway, a state highway interchange or a freight route designated in the Oregon Highway Plan; or

(ii) Allowed to significantly affect a state highway, a state highway interchange or a freight route designated in the Oregon Highway Plan subject to mitigation, consistent with rules of the commission, if the lands are planned and zoned for compact urban development or industrial uses.

(4) For purposes of subsection (3)(a) of this section, population growth must be forecast as provided in ORS 195.033. Employment growth must be forecast based on the population growth forecast for the city or the employment growth forecast issued by the Employment Department for the county or region. The commission shall establish factors, by rule, for converting the forecasted population and employment growth into forecasts of land need for housing, employment and other categories of uses. The factors must:

(a) Be based on an empirical evaluation of the relation between population and employment growth and the rate and trends of land utilization in the recent past in the applicable major region of the state;

(b) Reflect consideration by the commission of any significant changes occurring or expected to occur in the markets for urban land uses in that major region of the state;

(c) Be designed to encourage an increase in the land use efficiency of a city, subject to market conditions; and

(d) Provide a range of policy choices for a city about the form of its future growth.

(5) For purposes of subsection (3)(b) of this section, the commission shall establish factors for supply and development capacity that are:

(a) Based on an empirical evaluation of the population and employment growth that has occurred on similarly situated lands through development and redevelopment;

(b) Based on consideration by the commission of any significant changes occurring or expected to occur in the markets for urban land uses in that major region of the state;

(c) Designed to encourage an increase in the land use efficiency of the city, subject to market conditions; and

(d) Designed to provide a range of policy choices for a city about the form of its future growth.

(6) For purposes of subsection (3)(c) of this section, the commission shall establish factors that are:

(a) Based on an empirical evaluation of the population and employment growth that has occurred on similarly situated lands through development and redevelopment;

(b) Based on consideration by the commission of any significant changes occurring or expected to occur in the markets for urban land uses in each major region of the state;

(c) Designed to encourage an increase in the land use efficiency of the city, subject to market conditions; and

(d) Designed to provide a range of policy choices for a city about the form of its future growth.

(7) For lands that are included within an urban growth boundary pursuant to this section and not made serviceable within 20 years after the date of their inclusion, the commission may provide by rule that:

(a) The lands must be removed from within the urban growth boundary the next time the city evaluates the urban growth boundary; or

(b) The planned development capacity of the lands must be reduced if there are significant increases in the cost of making the lands serviceable.

(8) When lands included within the urban growth boundary pursuant to this section are planned and zoned for industrial or residential uses, the lands must remain planned and zoned for the use unless a rule of the commission allows a change in planning and zoning based on a significant change in circumstance. [2013 c.575 §4; 2013 c.575 §9]

Note: 197A.310 becomes operative January 1, 2016. See section 13, chapter 575, Oregon Laws 2013, as amended by section 14, chapter 575, Oregon Laws 2013.

197A.312 Cities with population of 10,000 or more; rules. (1) In addition to and not in lieu of the method prescribed in ORS 197.295 to 197.314 and the statewide land use planning goals, the Land Conservation and Development Commission shall adopt a method by which a city outside Metro that has a population of 10,000 or more may evaluate or amend its urban growth boundary.

(2) The commission shall design the method so that:

(a) A city using the method:

(A) Will have within its boundaries sufficient buildable lands and other development capacity, including land and capacity for needed housing and employment opportunities, to meet the growth in population and employment forecast to occur over a 14-year period.

(B) Will not become less efficient in its use of land as a result of a change to the urban growth boundary.

(b) The urban population per square mile will continue to increase over time on a statewide basis and in major regions of the state, including that portion of the Willamette Valley outside of Metro.

(c) The rate of conversion of agricultural and forest lands to urban uses does not increase over time in any major region of the state.

(3) Under the method adopted by the commission:

(a) A city's determination of the amount of buildable lands needed for housing, employment and other urban uses must be based on the population and employment growth forecast to occur over a 14-year period.

(b) A city's determination of the supply and development capacity of lands within its urban growth boundary must be based on:

(A) An inventory of vacant and partially vacant buildable lands within the urban growth boundary;

(B) The comprehensive plan designation and the zoning of the portion of the buildable lands that is urban; and

(C) Factors established by the commission for forecasting:

(i) The development and redevelopment capacity of urbanizable lands within the urban growth boundary; and

(ii) The redevelopment capacity of developed urban lands within the urban growth boundary.

(c) A city shall consider a range or combination of measures identified by rule of the commission to accommodate future need for land within the urban growth boundary and implement at least one measure or satisfy an alternate performance standard established by the commission. The commission shall design the alternate performance standard so that the standard is satisfied when the city:

(A) Has a development code that contains specified provisions designed to encourage the development of needed housing; and

(B) Demonstrates that, during the preceding planning period, the city:

(i) If located in the Willamette Valley, exceeded the median rate of redevelopment and infill for cities with a population of 10,000 or more in the Willamette Valley that are outside of the boundaries of Metro by an amount set by commission rule; and

(ii) If located outside of the Willamette Valley, exceeded the median rate of redevelopment and infill for cities with a population of 10,000 or more that are outside the Willamette Valley by an amount set by commission rule.

(d) A city shall demonstrate that lands included within the urban growth boundary:

(A) Include sufficient serviceable land for at least a seven-year period.

(B) Can all be serviceable over a 14-year period.

(e) Lands included within the urban growth boundary:

(A) Must be planned and zoned for categories of land uses in amounts that are roughly proportional to the land need determined for each category of use;

(B) Must be planned and zoned for an intensity of use that is generally consistent with the estimates that were used to determine the amount of land needed;

(C) Must be planned and zoned to meet the requirements for needed housing, and those requirements must be specified by rule of the commission in a manner that is as objective as practicable; and

(D) May be either:

(i) Planned and zoned, or otherwise conditioned, to avoid significantly affecting a state highway, a state highway interchange or a freight route designated in the Oregon Highway Plan; or

(ii) Allowed to significantly affect a state highway, a state highway interchange or a freight route designated in the Oregon Highway Plan subject to mitigation, consistent with rules of the commission, if the lands are planned and zoned for compact urban development or industrial uses.

(4) For purposes of subsection (3)(a) of this section, population growth must be forecast as provided in ORS 195.033. Employment growth must be forecast based on the population growth forecast for the city or the employment growth forecast issued by the Employment Department for the county or region. The commission shall establish factors, by rule, for converting the forecasted population and employment growth into forecasts of land need for housing, employment and other categories of uses. The factors must:

(a) Be based on an empirical evaluation of the relation between population and employment growth and the rate and trends of land utilization in the recent past in the applicable major region of the state;

(b) Reflect consideration by the commission of any significant changes occurring or expected to occur in the markets for urban land uses in that major region of the state;

(c) Be designed to encourage an increase in the land use efficiency of a city, subject to market conditions; and

(d) Provide a range of policy choices for a city about the form of its future growth.

(5) For purposes of subsection (3)(b) of this section, the commission shall establish factors for supply and development capacity that are:

(a) Based on an empirical evaluation of the population and employment growth that has occurred on similarly situated lands through development and redevelopment;

(b) Based on consideration by the commission of any significant changes occurring or expected to occur in the markets for urban land uses in that major region of the state;

(c) Designed to encourage an increase in the land use efficiency of the city, subject to market conditions; and

(d) Designed to provide a range of policy choices for a city about the form of its future growth.

(6) For purposes of subsection (3)(c) of this section, the commission shall establish factors that are:

(a) Based on an empirical evaluation of the population and employment growth that has occurred on similarly situated lands through development and redevelopment;

(b) Based on consideration by the commission of any significant changes occurring or expected to occur in the markets for urban land uses in each major region of the state;

(c) Designed to encourage an increase in the land use efficiency of the city, subject to market conditions; and

(d) Designed to provide a range of policy choices for a city about the form of its future growth.

(7) For lands that are included within an urban growth boundary pursuant to this section and not made serviceable within 20 years after the date of their inclusion, the commission may provide by rule that:

(a) The lands must be removed from within the urban growth boundary the next time the city evaluates the urban growth boundary; or

(b) The planned development capacity of the lands must be reduced if there are significant increases in the cost of making the lands serviceable.

(8) When lands included within the urban growth boundary pursuant to this section are planned and zoned for industrial or residential uses, the lands must remain planned and zoned for the use unless a rule of the commission allows a change in planning and zoning based on a significant change in circumstance. [2013 c.575 §5; 2013 c.575 §10]

Note: 197A.312 becomes operative January 1, 2016. See section 13, chapter 575, Oregon Laws 2013, as amended by section 14, chapter 575, Oregon Laws 2013.

197A.315 Expansion study areas; notice; urban services agreements. (1) As used in this section, “district” means:

(a) A domestic water supply district organized under ORS chapter 264.

(b) A parks and recreation district organized under ORS chapter 266.

(c) A sanitary district organized under ORS 450.005 to 450.245.

(d) A rural fire protection district organized under ORS chapter 478.

(2) When a city evaluates or amends the urban growth boundary of the city under ORS 197A.312, the city shall notify:

(a) Each district that has territory within the study area established under ORS 197A.320.

(b) Each county that has land use jurisdiction over any portion of the study area.

(3) The notification must:

(a) Include a map showing the study area; and

(b) State that, in order to execute or amend an urban services agreement concerning the study area, the district shall respond to the notice within 60 days of the date the notice is mailed if the district enters into or amends an urban services agreement concerning the study area.

(4) An urban services agreement executed under this section must satisfy the requirements of ORS 195.065 (1)(a) to (f). When a city and a district execute an urban services agreement pursuant to this section, the city and the district are not required to participate in the negotiation of an urban service agreement under ORS 195.065 to 195.085.

(5) Before executing the urban service agreement, the city and the district shall consult with community planning organizations that are recognized by the governing body of the city and whose boundaries include territory in the study area that may be affected by the urban service agreement.

(6) If the special district chooses not to negotiate an urban service agreement or does not respond to the notice within 60 days, the city may withdraw from the service territory of the district any portion of the study area that is included within the urban growth boundary of the city and annexed to the city.

(7) If the district responds in writing to the notice within 60 days and requests to execute an urban service agreement for the study area with the city, the city and the district shall meet to develop the agreement within 60 days after the district responds.

(8) If the city and district are unable to develop the agreement within 180 days after the date of the first meeting, the city or the district may require mediation. If mediation is required, the city and the district shall each designate an individual to work with the city and the district to develop an agreement. The city and the district are each responsible for the costs of the mediator it selects.

(9) If the city and the district are unable to develop the agreement after an additional 180 days, the city or the district may require arbitration. The mediators selected under subsection (8) of this section shall jointly select a third individual, and the three individuals shall constitute an arbitration panel to develop the urban services agreement. If the mediators are unable to agree on the third individual, the Director of the Department of Land Conservation and Development shall select an individual from a list of qualified arbitrators provided by the Land Conservation and Development Commission. The city and the district shall bear the cost of the third individual equally. The arbitration panel:

(a) Shall consider the provisions of ORS 222.460, 222.465, 222.510 to 222.570, 222.575 and 222.580; and

(b) May not:

(A) Require the city or the district to pay the other party as part of the urban services agreement unless:

(i) The urban services agreement requires a transfer of physical assets, in which case the agreement may require the payment of fair market value for the assets; or

(ii) A party has offered a payment as part of prior negotiations and the arbitrators incorporate all or a portion of the negotiated payment in the agreement;

(B) Prevent a city from including land within the urban growth boundary of the city; or

(C) Prohibit a city from annexing territory that is within the urban growth boundary of the city.

(10) A city may not withdraw territory from the service territory of a district:

(a) Unless the district does not respond to the notice required by subsection (2) of this section; or

(b) Until the city and the district develop an urban services agreement under this section.

(11) Decisions related to the execution of an urban service agreement under this section are not land use decisions subject to the jurisdiction of the Land Use Board of Appeals. [2013 c.575 §6]

Note: 197A.315 becomes operative January 1, 2016. See section 13, chapter 575, Oregon Laws 2013, as amended by section 14, chapter 575, Oregon Laws 2013.

197A.320 Priority of land to be included within urban growth boundaries outside Metro; rules. (1) Notwithstanding the priority in ORS 197.298 for inclusion of land within an urban growth boundary, a city outside of Metro shall comply with this section when determining which lands to include within the urban growth boundary of the city pursuant to ORS 197.295 to 197.314, 197A.310 or 197A.312.

(2) The Land Conservation and Development Commission shall provide, by rule, that:

(a) When evaluating lands for inclusion within the urban growth boundary, the city shall establish a study area that includes all land that is contiguous to the urban growth boundary and within a distance specified by commission.

(b) The city shall evaluate all land in the study area for inclusion in the urban growth boundary as provided in subsection (4) of this section, except for land excluded from the study area because:

(A) It is impracticable, as provided in subsection (3) of this section, to provide necessary public facilities or services to the land.

(B) The land is subject to significant development hazards, including a risk of land slides, a risk of flooding because the land is within the 100-year floodplain or is subject to inundation during storm surges or tsunamis, and other risks determined by the commission.

(C) The long-term preservation of significant scenic, natural, cultural or recreational resources requires limiting or prohibiting urban development of the land that contains the resources.

(D) The land is owned by the federal government and managed primarily for rural uses.

(c) When evaluating the priority of land for inclusion under paragraph (b) of this subsection:

(A) The city shall evaluate the land within the study area that is designated as an urban reserve under ORS 195.145 in an acknowledged comprehensive plan, land that is subject to an acknowledged exception under ORS 197.732 or land that is nonresource land and select as much of the land as necessary to satisfy the need for land using criteria established by the commission and criteria in an acknowledged comprehensive plan and land use regulations.

(B) If the amount of land appropriate for selection under subparagraph (A) of this paragraph is not sufficient to satisfy the need for land, the city shall evaluate the land within the study area that is designated as marginal land under ORS 197.247 (1991 Edition) in the acknowledged comprehensive plan and select as much of the land as necessary to satisfy the need for land using criteria established by the commission and criteria in an acknowledged comprehensive plan and land use regulations.

(C) If the amount of land appropriate for selection under subparagraphs (A) and (B) of this paragraph is not sufficient to satisfy the amount of land needed, the city shall evaluate

land within the study area that is designated for agriculture or forest uses in the acknowledged comprehensive plan that is not predominantly high-value farmland, as defined in ORS 195.300, or does not consist predominantly of prime or unique soils, as determined by the United States Department of Agriculture Natural Resources Conservation Service, and select as much of that land as necessary to satisfy the need for land:

(i) Using criteria established by the commission and criteria in an acknowledged comprehensive plan and land use regulations; and

(ii) Using the predominant capability classification system or the predominant cubic site class, as appropriate for the acknowledged comprehensive plan designation, to select lower capability or cubic site class lands first.

(D) If the amount of land appropriate for selection under subparagraphs (A) to (C) of this paragraph is not sufficient to satisfy the need for land, the city shall evaluate land within the study area that is designated as agricultural land in an acknowledged comprehensive plan and is predominantly high value farmland and select as much of that land as necessary to satisfy the need for land. A local government may not select land that is predominantly made up of prime or unique farm soils, as defined by the United States Department of Agriculture Natural Resources Conservation Service, unless there is an insufficient amount of other land to satisfy its land need.

(3) For purposes of subsection (2)(b)(A) of this section, the commission shall determine impracticability by rule, considering the likely amount of development that could occur on the lands within the planning period, the likely cost of facilities and services, physical, topographical or other impediments to service provision and whether urban development has occurred on similarly situated lands such that it is likely that the lands will be developed at an urban level during the planning period. When impracticability is primarily a result of existing development patterns, the rules of the commission shall require that the lands be included within the study area, but may allow the development capacity forecast for the lands to be specified at a lower level over the planning period. The rules of the commission must be based on an evaluation of how similarly situated lands have, or have not, developed over time.

(4) For purposes of subsection (2)(b)(C) of this section, the commission by rule shall determine the circumstances in which and the resources to which this exclusion will apply.

(5) Notwithstanding subsection (2)(c)(D) of this section, the rules must allow land that would otherwise be excluded from an urban growth boundary to be included if:

(a) The land contains a small amount of resource land that is not important to the commercial agricultural enterprise in the area and the land must be included to connect a nearby and significantly larger area of land of higher priority for inclusion within the urban growth boundary; or

(b) The land contains a small amount of resource land that is not predominantly high-value farmland or predominantly made up of prime or unique farm soils and the land is completely surrounded by land of higher priority for inclusion into the urban growth boundary.

(6) When the primary purpose for expansion of the urban growth boundary is to accommodate a particular industry use that requires specific site characteristics, or to accommodate a public facility that requires specific site characteristics and the site characteristics may be found in only a small number of locations, the city may limit the study area to land that has, or could be improved to provide, the required site characteristics. Lands included within an urban growth boundary for a particular industrial use, or a particular public facility, must remain planned and zoned for the intended use:

(a) Except as allowed by rule of the commission that is based on a significant change in circumstance or the passage of time; or

(b) Unless the city removes the land from within the urban growth boundary.

(7) Notwithstanding any other provision of this section, the commission may adopt rules that specify circumstances under which a city may exchange land within the urban growth boundary of the city for land that is outside of the urban growth boundary and that is designed to avoid adverse effects of an exchange on agricultural or forest operations in the surrounding area. [2013 c.575 §7]

Note: 197A.320 becomes operative January 1, 2016. See section 13, chapter 575, Oregon Laws 2013, as amended by section 14, chapter 575, Oregon Laws 2013.

197A.325 Review of final decision of city; rules. (1) Notwithstanding ORS 197.626, when a city evaluates or amends the urban growth boundary of the city pursuant to ORS 197A.310 or 197A.312, the Land Use Board of Appeals has jurisdiction for review of a final decision of the city.

(2) The board shall review the final decision of the city under ORS 197A.300 to 197A.325 as provided in ORS 197.805 to 197.855, except that:

(a) In circumstances in which the Land Conservation and Development Commission has specified by rule a number or a range of numbers that the city may use:

(A) The city is not required to adopt findings to support the use of the number or a number within the range of numbers; and

(B) The board's review of the number may determine only that the city has used a number that is allowed by the rule.

(b) The board shall affirm an interpretation by a local government of its comprehensive plan or land use regulations unless that interpretation is clearly erroneous.

(3) Notwithstanding ORS 197.628 and 197.629, when a city evaluates or amends the urban growth boundary of the city pursuant to ORS 197A.310 or 197A.312, the city is not required to commence or complete periodic review. The commission shall, by rule, specify alternate means to ensure that the comprehensive plan and land use regulations of the city comply with the statewide land use planning goals and are updated over time to reflect changing conditions and needs. [2013 c.575 §8]

Note: 197A.325 becomes operative January 1, 2016. See section 13, chapter 575, Oregon Laws 2013, as amended by section 14, chapter 575, Oregon Laws 2013.

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APPENDIX B: LIST OF CITIES BY TIER

Table B-1: List of Cities by Tier

Tier 1 excludes counties where cities are small & not growing; Tier 2 excludes counties where cities are small & not growing and counties omitted from ORMAP; Tier 3 excludes counties where cities are small & not growing & counties for which we lack quality or accessible data; cities lacking single family residential parcels are also excluded. Note: 1=Yes

City	Split by County	County	Region	Population Class	2012 Population <5,000 and Avg. Annual Growth <1%, 1993-2012	Tier 1	Tier 2	Tier 3
Baker City		Baker County	Northeast Oregon	3	0	1	1	1
Greenhorn		Baker County	Northeast Oregon	1	1	0	0	0
Haines		Baker County	Northeast Oregon	1	1	0	0	0
Halfway		Baker County	Northeast Oregon	1	1	0	0	0
Huntington		Baker County	Northeast Oregon	1	1	0	0	0
Richland		Baker County	Northeast Oregon	1	1	0	0	0
Sumpter		Baker County	Northeast Oregon	1	0	1	1	1
Unity		Baker County	Northeast Oregon	1	1	0	0	0
Adair Village		Benton County	Willamette Valley	1	0	1	1	1
Corvallis		Benton County	Willamette Valley	6	0	1	1	1
Monroe		Benton County	Willamette Valley	1	0	1	1	1
Philomath		Benton County	Willamette Valley	2	0	1	1	1
Albany	1	Benton & Linn County	Willamette Valley	6	0	1	1	1
Barlow		Clackamas County	Willamette Valley	1	1	0	0	0
Canby		Clackamas County	Willamette Valley	4	0	1	1	1
Estacada		Clackamas County	Willamette Valley	2	0	1	1	1
Molalla		Clackamas County	Willamette Valley	3	0	1	1	1
Sandy		Clackamas County	Willamette Valley	3	0	1	1	1

City	Split by County	County	Region	Population Class	2012 Population <5,000 and Avg. Annual Growth <1%, 1993-2012	Tier 1	Tier 2	Tier 3
Astoria		Clatsop County	North Coastal Oregon	3	0	1	1	1
Cannon Beach		Clatsop County	North Coastal Oregon	2	0	1	1	1
Gearhart		Clatsop County	North Coastal Oregon	2	0	1	1	1
Seaside		Clatsop County	North Coastal Oregon	3	0	1	1	1
Warrenton		Clatsop County	North Coastal Oregon	3	0	1	1	1
Clatskanie		Columbia County	Willamette Valley	2	1	0	0	0
Columbia City		Columbia County	Willamette Valley	2	0	1	1	1
Prescott		Columbia County	Willamette Valley	1	1	0	0	0
Rainier		Columbia County	Willamette Valley	2	1	0	0	0
Scappoose		Columbia County	Willamette Valley	3	0	1	1	1
St Helens		Columbia County	Willamette Valley	4	0	1	1	1
Vernonia		Columbia County	Willamette Valley	2	1	0	0	0
Bandon		Coos County	South Coastal Oregon	2	0	1	1	1
Coos Bay		Coos County	South Coastal Oregon	4	0	1	1	1
Coquille		Coos County	South Coastal Oregon	2	1	0	0	0
Lakeside		Coos County	South Coastal Oregon	2	1	0	0	0
Myrtle Point		Coos County	South Coastal Oregon	2	1	0	0	0
North Bend		Coos County	South Coastal Oregon	3	0	1	1	1
Powers		Coos County	South Coastal Oregon	1	1	0	0	0
Prineville		Crook County	Central Oregon	3	0	1	1	1
Brookings		Curry County	South Coastal Oregon	3	0	1	1	1
Gold Beach		Curry County	South Coastal Oregon	2	0	1	1	1

City	Split by County	County	Region	Population Class	2012 Population <5,000 and Avg. Annual Growth <1%, 1993-2012	Tier 1	Tier 2	Tier 3
Port Orford		Curry County	South Coastal Oregon	2	1	0	0	0
Bend		Deschutes County	Central Oregon	6	0	1	1	1
Redmond		Deschutes County	Central Oregon	5	0	1	1	1
Sisters		Deschutes County	Central Oregon	2	0	1	1	1
Canyonville		Douglas County	Southern Oregon	2	0	1	1	1
Drain		Douglas County	Southern Oregon	2	1	0	0	0
Elkton		Douglas County	Southern Oregon	1	0	1	1	1
Glendale		Douglas County	Southern Oregon	1	0	1	1	1
Myrtle Creek		Douglas County	Southern Oregon	2	1	0	0	0
Oakland		Douglas County	Southern Oregon	1	1	0	0	0
Reedsport		Douglas County	South Coastal Oregon	2	1	0	0	0
Riddle		Douglas County	Southern Oregon	2	1	0	0	0
Roseburg		Douglas County	Southern Oregon	4	0	1	1	1
Sutherlin		Douglas County	Southern Oregon	3	0	1	1	1
Winston		Douglas County	Southern Oregon	3	0	1	1	1
Yoncalla		Douglas County	Southern Oregon	2	0	1	1	1
Arlington		Gilliam County	Northeast Oregon	1	0	0	0	0
Condon		Gilliam County	Northeast Oregon	1	1	0	0	0
Lone Rock		Gilliam County	Northeast Oregon	1	0	0	0	0
Canyon City		Grant County	Northeast Oregon	1	1	0	0	0
Dayville		Grant County	Northeast Oregon	1	1	0	0	0
Granite		Grant County	Northeast Oregon	1	0	0	0	0

City	Split by County	County	Region	Population Class	2012 Population <5,000 and Avg. Annual Growth <1%, 1993-2012	Tier 1	Tier 2	Tier 3
John Day		Grant County	Northeast Oregon	2	1	0	0	0
Long Creek		Grant County	Northeast Oregon	1	1	0	0	0
Monument		Grant County	Northeast Oregon	1	1	0	0	0
Mt Vernon		Grant County	Northeast Oregon	1	1	0	0	0
Prairie City		Grant County	Northeast Oregon	1	1	0	0	0
Seneca		Grant County	Northeast Oregon	1	1	0	0	0
Burns		Harney County	Southeast Oregon	2	1	0	0	0
Hines		Harney County	Southeast Oregon	2	1	0	0	0
Cascade Locks		Hood River County	Central Oregon	2	1	0	0	0
Hood River		Hood River County	Central Oregon	3	0	1	1	1
Ashland		Jackson County	Southern Oregon	4	0	1	1	1
Butte Falls		Jackson County	Southern Oregon	1	1	0	0	0
Central Point		Jackson County	Southern Oregon	4	0	1	1	1
Eagle Point		Jackson County	Southern Oregon	3	0	1	1	1
Gold Hill		Jackson County	Southern Oregon	2	1	0	0	0
Jacksonville		Jackson County	Southern Oregon	2	0	1	1	1
Medford		Jackson County	Southern Oregon	6	0	1	1	1
Phoenix		Jackson County	Southern Oregon	2	0	1	1	1
Rogue River		Jackson County	Southern Oregon	2	1	0	0	0
Shady Cove		Jackson County	Southern Oregon	2	0	1	1	1
Talent		Jackson County	Southern Oregon	3	0	1	1	1
Culver		Jefferson County	Central Oregon	2	0	1	1	0

City	Split by County	County	Region	Population Class	2012 Population <5,000 and Avg. Annual Growth <1%, 1993-2012	Tier 1	Tier 2	Tier 3
Madras		Jefferson County	Central Oregon	3	0	1	1	0
Metolius		Jefferson County	Central Oregon	1	0	1	1	0
Cave Junction		Josephine County	Southern Oregon	2	0	1	1	1
Grants Pass		Josephine County	Southern Oregon	5	0	1	1	1
Bonanza		Klamath County	Southeast Oregon	1	0	1	1	1
Chiloquin		Klamath County	Southeast Oregon	1	1	0	0	0
Klamath Falls		Klamath County	Southeast Oregon	4	0	1	1	1
Malin		Klamath County	Southeast Oregon	1	1	0	0	0
Merrill		Klamath County	Southeast Oregon	1	1	0	0	0
Lakeview		Lake County	Southeast Oregon	2	1	0	0	0
Paisley		Lake County	Southeast Oregon	1	1	0	0	0
Coburg		Lane County	Willamette Valley	2	0	1	1	1
Cottage Grove		Lane County	Willamette Valley	3	0	1	1	1
Creswell		Lane County	Willamette Valley	2	0	1	1	1
Dunes City		Lane County	South Coastal Oregon	2	1	0	0	0
Eugene		Lane County	Willamette Valley	6	0	1	1	1
Florence		Lane County	South Coastal Oregon	3	0	1	1	1
Junction City		Lane County	Willamette Valley	3	0	1	1	1
Lowell		Lane County	Willamette Valley	2	0	1	1	1
Oakridge		Lane County	Willamette Valley	2	1	0	0	0
Springfield		Lane County	Willamette Valley	6	0	1	1	1
Veneta		Lane County	Willamette Valley	2	0	1	1	1

City	Split by County	County	Region	Population Class	2012 Population <5,000 and Avg. Annual Growth <1%, 1993-2012	Tier 1	Tier 2	Tier 3
Westfir		Lane County	Willamette Valley	1	1	0	0	0
Depoe Bay		Lincoln County	North Coastal Oregon	2	0	1	1	1
Lincoln City		Lincoln County	North Coastal Oregon	3	0	1	1	1
Newport		Lincoln County	North Coastal Oregon	4	0	1	1	1
Siletz		Lincoln County	North Coastal Oregon	2	1	0	0	0
Toledo		Lincoln County	North Coastal Oregon	2	1	0	0	0
Waldport		Lincoln County	North Coastal Oregon	2	0	1	1	1
Yachats		Lincoln County	North Coastal Oregon	1	0	1	1	1
Gates	1	Linn & Marion County	Willamette Valley	1	1	0	0	0
Brownsville		Linn County	Willamette Valley	2	0	1	1	1
Halsey		Linn County	Willamette Valley	1	0	1	1	1
Harrisburg		Linn County	Willamette Valley	2	0	1	1	1
Lebanon		Linn County	Willamette Valley	4	0	1	1	1
Lyons		Linn County	Willamette Valley	2	0	1	1	1
Millersburg		Linn County	Willamette Valley	2	0	1	1	1
Scio		Linn County	Willamette Valley	1	0	1	1	1
Sodaville		Linn County	Willamette Valley	1	0	1	1	1
Sweet Home		Linn County	Willamette Valley	3	0	1	1	1
Tangent		Linn County	Willamette Valley	2	0	1	1	1
Waterloo		Linn County	Willamette Valley	1	0	1	1	1
Idanha	1	Linn& Marion County	Willamette Valley	1	1	0	0	0

City	Split by County	County	Region	Population Class	2012 Population <5,000 and Avg. Annual Growth <1%, 1993-2012	Tier 1	Tier 2	Tier 3
Mill City	1	Linn& Marion County	Willamette Valley	2	1	0	0	0
Adrian		Malheur County	Southeast Oregon	1	0	1	1	1
Jordan Valley		Malheur County	Southeast Oregon	1	1	0	0	0
Nyssa		Malheur County	Southeast Oregon	2	0	1	1	1
Ontario		Malheur County	Southeast Oregon	4	0	1	1	1
Vale		Malheur County	Southeast Oregon	2	0	1	1	1
Aumsville		Marion County	Willamette Valley	2	0	1	1	1
Aurora		Marion County	Willamette Valley	1	0	1	1	1
Detroit		Marion County	Willamette Valley	1	1	0	0	0
Donald		Marion County	Willamette Valley	1	0	1	1	1
Gervais		Marion County	Willamette Valley	1	0	1	1	1
Hubbard		Marion County	Willamette Valley	2	0	1	1	1
Jefferson		Marion County	Willamette Valley	2	0	1	1	1
Keizer		Marion County	Willamette Valley	5	0	1	1	1
Mt Angel		Marion County	Willamette Valley	2	1	0	0	0
Scotts Mills		Marion County	Willamette Valley	1	0	1	1	1
Silverton		Marion County	Willamette Valley	3	0	1	1	1
St Paul		Marion County	Willamette Valley	1	0	1	1	1
Stayton		Marion County	Willamette Valley	3	0	1	1	1
Sublimity		Marion County	Willamette Valley	2	0	1	1	1
Turner		Marion County	Willamette Valley	2	0	1	1	1
Woodburn		Marion County	Willamette Valley	4	0	1	1	1

City	Split by County	County	Region	Population Class	2012 Population <5,000 and Avg. Annual Growth <1%, 1993-2012	Tier 1	Tier 2	Tier 3
Salem	1	Marion& Polk County	Willamette Valley	6	0	1	1	1
Boardman		Morrow County	Northeast Oregon	2	0	1	0	0
Heppner		Morrow County	Northeast Oregon	2	1	0	0	0
Ione		Morrow County	Northeast Oregon	1	0	1	0	0
Irrigon		Morrow County	Northeast Oregon	2	0	1	0	0
Lexington		Morrow County	Northeast Oregon	1	1	0	0	0
Willamina	1	Polk &Yamhill County	Willamette Valley	1	1	0	0	0
Dallas		Polk County	Willamette Valley	4	0	1	1	1
Falls City		Polk County	Willamette Valley	1	1	0	0	0
Independence		Polk County	Willamette Valley	3	0	1	1	1
Monmouth		Polk County	Willamette Valley	3	0	1	1	1
Grass Valley		Sherman County	Northeast Oregon	1	1	0	0	0
Moro		Sherman County	Northeast Oregon	1	1	0	0	0
Rufus		Sherman County	Northeast Oregon	1	1	0	0	0
Wasco		Sherman County	Northeast Oregon	1	1	0	0	0
Bay City		Tillamook County	North Coastal Oregon	2	0	1	1	1
Garibaldi		Tillamook County	North Coastal Oregon	1	1	0	0	0
Manzanita		Tillamook County	North Coastal Oregon	1	1	0	0	0
Nehalem		Tillamook County	North Coastal Oregon	1	1	0	0	0
Rockaway Beach		Tillamook County	North Coastal Oregon	2	0	1	1	0
Tillamook		Tillamook County	North Coastal Oregon	2	1	1	1	1
Wheeler		Tillamook County	North Coastal Oregon	1	0	1	1	0

City	Split by County	County	Region	Population Class	2012 Population <5,000 and Avg. Annual Growth <1%, 1993-2012	Tier 1	Tier 2	Tier 3
Adams		Umatilla County	Northeast Oregon	1	0	1	1	1
Athena		Umatilla County	Northeast Oregon	2	1	0	0	0
Echo		Umatilla County	Northeast Oregon	1	0	1	1	1
Helix		Umatilla County	Northeast Oregon	1	0	1	1	1
Hermiston		Umatilla County	Northeast Oregon	4	0	1	1	1
Milton-Freewater		Umatilla County	Northeast Oregon	3	0	1	1	1
Pendleton		Umatilla County	Northeast Oregon	4	0	1	1	1
Pilot Rock		Umatilla County	Northeast Oregon	2	1	0	0	0
Stanfield		Umatilla County	Northeast Oregon	2	0	1	1	1
Ukiah		Umatilla County	Northeast Oregon	1	1	0	0	0
Umatilla		Umatilla County	Northeast Oregon	3	0	1	1	1
Weston		Umatilla County	Northeast Oregon	1	1	0	0	0
Cove		Union County	Northeast Oregon	1	1	0	0	0
Elgin		Union County	Northeast Oregon	2	1	0	0	0
Imbler		Union County	Northeast Oregon	1	1	0	0	0
Island City		Union County	Northeast Oregon	2	0	1	1	1
La Grande		Union County	Northeast Oregon	4	0	1	1	1
North Powder		Union County	Northeast Oregon	1	1	0	0	0
Summerville		Union County	Northeast Oregon	1	1	0	0	0
Union		Union County	Northeast Oregon	2	1	0	0	0
Enterprise		Wallowa County	Northeast Oregon	2	1	0	0	0
Joseph		Wallowa County	Northeast Oregon	2	1	0	0	0

City	Split by County	County	Region	Population Class	2012 Population <5,000 and Avg. Annual Growth <1%, 1993-2012	Tier 1	Tier 2	Tier 3
Lostine		Wallowa County	Northeast Oregon	1	1	0	0	0
Wallowa		Wallowa County	Northeast Oregon	1	1	0	0	0
Antelope		Wasco County	Central Oregon	1	0	1	1	1
Dufur		Wasco County	Central Oregon	1	1	0	0	0
Maupin		Wasco County	Central Oregon	1	1	0	0	0
Mosier		Wasco County	Central Oregon	1	0	1	1	1
Shaniko		Wasco County	Central Oregon	1	0	1	1	1
The Dalles		Wasco County	Central Oregon	4	0	1	1	1
Banks		Washington County	Willamette Valley	2	0	1	1	1
Gaston		Washington County	Willamette Valley	1	1	0	0	0
North Plains		Washington County	Willamette Valley	2	0	1	1	1
Fossil		Wheeler County	Northeast Oregon	1	1	0	0	0
Mitchell		Wheeler County	Northeast Oregon	1	1	0	0	0
Spray		Wheeler County	Northeast Oregon	1	1	0	0	0
Amity		Yamhill County	Willamette Valley	2	0	1	1	1
Carlton		Yamhill County	Willamette Valley	2	0	1	1	1
Dayton		Yamhill County	Willamette Valley	2	0	1	1	1
Dundee		Yamhill County	Willamette Valley	2	0	1	1	1
Lafayette		Yamhill County	Willamette Valley	2	0	1	1	1
McMinnville		Yamhill County	Willamette Valley	5	0	1	1	1
Newberg		Yamhill County	Willamette Valley	4	0	1	1	1
Sheridan		Yamhill County	Willamette Valley	3	0	1	1	1

City	Split by County	County	Region	Population Class	2012 Population <5,000 and Avg. Annual Growth <1%, 1993-2012	Tier 1	Tier 2	Tier 3
Yamhill		Yamhill County	Willamette Valley	2	0	1	1	1
Totals (out of 216 cities)					84	130	127	122

APPENDIX C: EFFECT OF CONSTRAINTS ON RESIDENTIAL DENSITY

A question posed by the Rulemaking Advisory Committee was whether physical constraints have measureable effects on housing density. This appendix presents analysis of constraints for 120 cities where data were available to analyze constraints. For this analysis, the research team coded lands with single-family and plex dwellings into three categories:

1. Unconstrained – no constraints are present
2. Partially constrained – between 0.0001% and 99.9999% of the taxlot has a constraint
3. Fully constrained – the taxlot is 100% within a constrained area

To conduct the analysis the research team lumped all constraints together. It includes land in water or floodways (prohibitive constraints) and land in 100-year floodplains, slopes over 25%, or wetlands as documented in the National Wetlands Inventory.

Table C-1 shows average single-family and plex densities by city size for 120 study cities by constraint status. The results show a lot of variation by city size and constraint status (see percent of unconstrained density columns). Partially constrained densities are all less than unconstrained densities and show less variation than fully constrained taxlots. Densities in partially constrained taxlots averaged 82% of unconstrained densities.

Table C-1. Average improved single-family and plex density for taxlots <0.5 acres by city size and constraint status, Tier 3 cities, 2012

		Improved Single Family & Plex Single Family Parcels/Acres				Percent of Unconstrained Density		
City Size	Number of Cities	Fully Constrained	Partially Constrained	Unconstrained	All Parcels	Fully Constrained	Partially Constrained	All Parcels
<1,000	20	4.15	3.92	4.79	4.58	87%	82%	96%
1,000-4,999	45	6.30	4.21	5.22	5.10	121%	81%	98%
5,000-9,999	27	6.58	4.84	5.52	5.44	119%	88%	99%
10,000-24,999	17	4.73	4.32	5.64	5.45	84%	77%	97%
25,000-49,999	4	5.65	4.22	5.17	5.08	109%	82%	98%
50,000 or more	7	6.19	4.34	5.37	5.26	115%	81%	98%
Total	**120**	**5.98**	**4.41**	**5.41**	**5.29**	**111%**	**82%**	**98%**

Analysis by constraint status shows that the average density of improved taxlots per acre for fully constrained land is higher than that of unconstrained land (with the exception of cities in the Northeast and Southern Oregon). Partially constrained taxlots generally had lower taxlot per acre densities than unconstrained taxlots.

Tables C-2 shows average single-family and plex densities by city size for 120 study cities by region and constraint status. Similar to the analysis by city size, the

densities show a lot of variation by region and constraint status (see percent of unconstrained density columns). Partially constrained densities are all less than unconstrained densities and show less variation than fully constrained taxlots. Densities in partially constrained taxlots averaged 82% of unconstrained densities, while aggregate density averages 98% of unconstrained densities, meaning that constraints do not significantly impact average densities.

Table C-2. Lots, acres, and parcels/acre by constraint status for improved single-family and plex taxlots for taxlots <0.5 acres, by region constraint case study cities, 2012

		Improved Single Family & Plex Single Family Parcels/Acres				Percent of Unconstrained Density		
City Size	Number of Cities	Fully Constrained	Partially Constrained	Unconstrained	All Parcels	Fully Constrained	Partially Constrained	All Parcels
Central Oregon	9	6.59	4.08	5.19	5.08	127%	79%	98%
North Coastal Oregon	12	8.52	5.19	7.33	6.52	116%	71%	89%
Northeast Oregon	12	4.31	4.38	5.29	5.17	81%	83%	98%
South Coastal Oregon	6	6.00	4.08	5.45	5.21	110%	75%	96%
Southeast Oregon	6	6.26	4.56	5.34	5.27	117%	85%	99%
Southern Oregon	17	4.98	3.92	5.19	5.02	96%	76%	97%
Willamette Valley	58	5.89	4.42	5.42	5.32	109%	81%	98%
All Cities	**120**	**5.98**	**4.41**	**5.41**	**5.29**	**111%**	**82%**	**98%**

Appendix D: Additional Data on City Characteristics

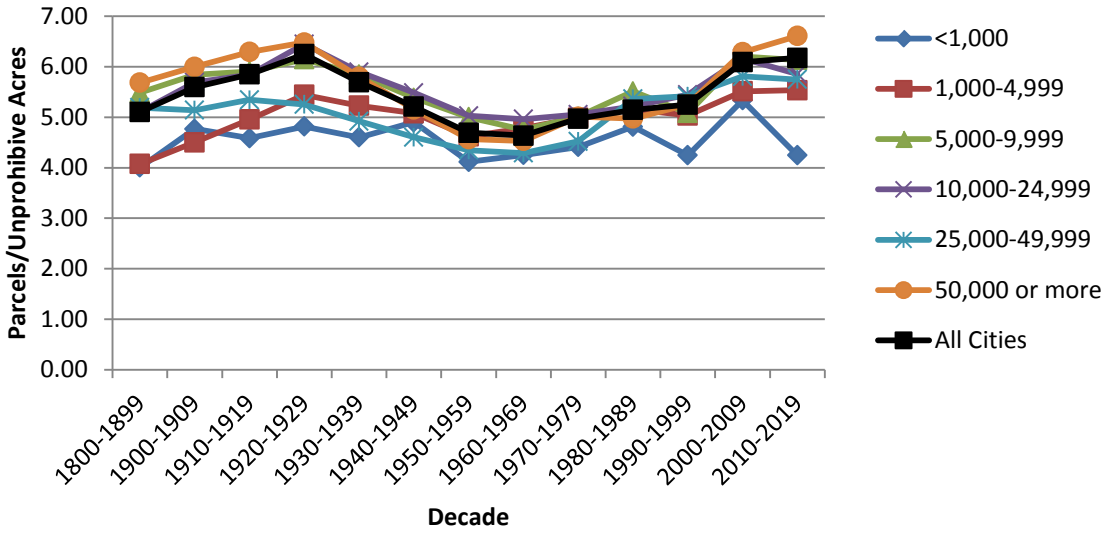
Part 1: Residential

Figure D-1. Improved Single Family and Plex Density by City Size, Tier 3 Cities, 1993-2012

Figure D-2. Improved Single Family and Plex Average Density by Region, Tier 3 Cities, 1993-2012

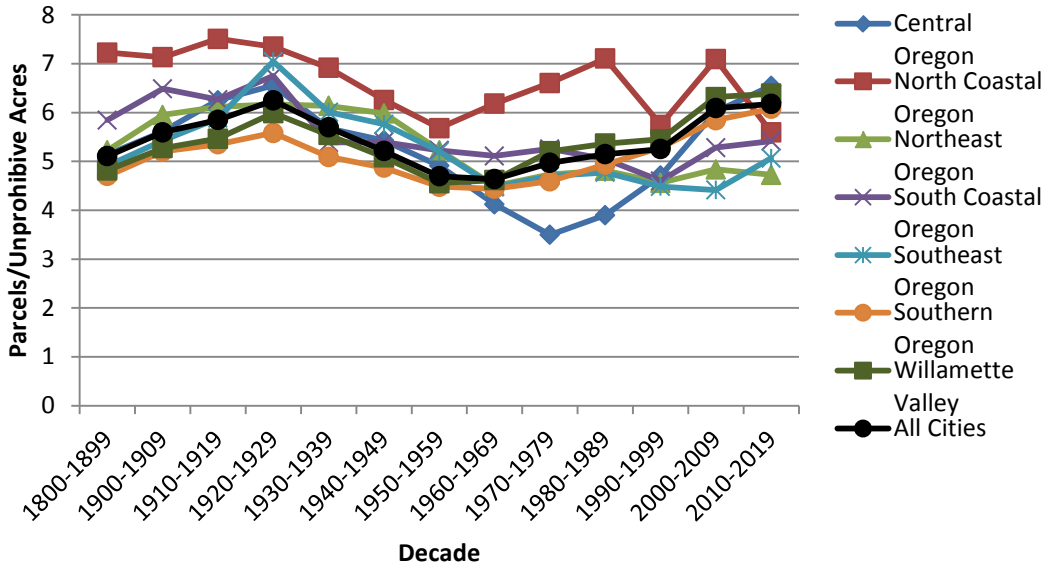
Description: Count of Parcels (Residential Class 100)/Unprohibitive Acres. Data is filterd on Yr Built, Improved and General Land Classification. The Yr Built Filter excludes Null and 0. Improved: property classification code improved AND assessed improved value >$10,000. The Generalized Land Classification filter keeps Residential, which includes structures with <5 units. Parcels >0.5 acres are excluded.

Figure D-3. Improved Single Family and Plex Average Density by City Size by Decade, Tier 3 Cities, 1800-2012



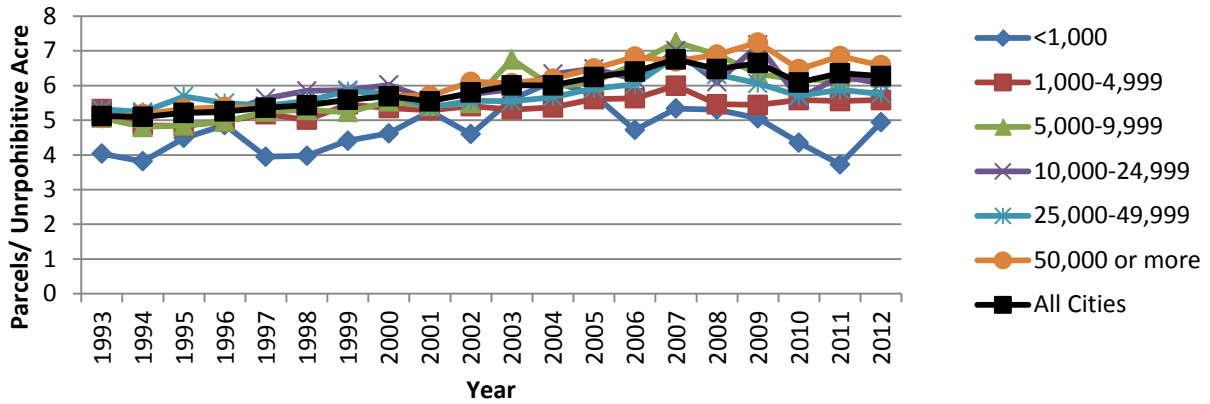
Description: Count of Parcels (Residential Class 100)/Unprohibitive Acres. Data is filtered on Yr Built, Improved and General Land Classification. The Yr Built Filter excludes Null and 0. Improved: property classification code improved AND assessed improved value >$10,000. The Generalized Land Classification filter keeps Residential, which includes structures with <5 units. Parcels >0.5 acres are excluded.

Figure D-4. Improved Single Family and Plex Average Density by Region by Decade, Tier 3 Cities, 1800-2012



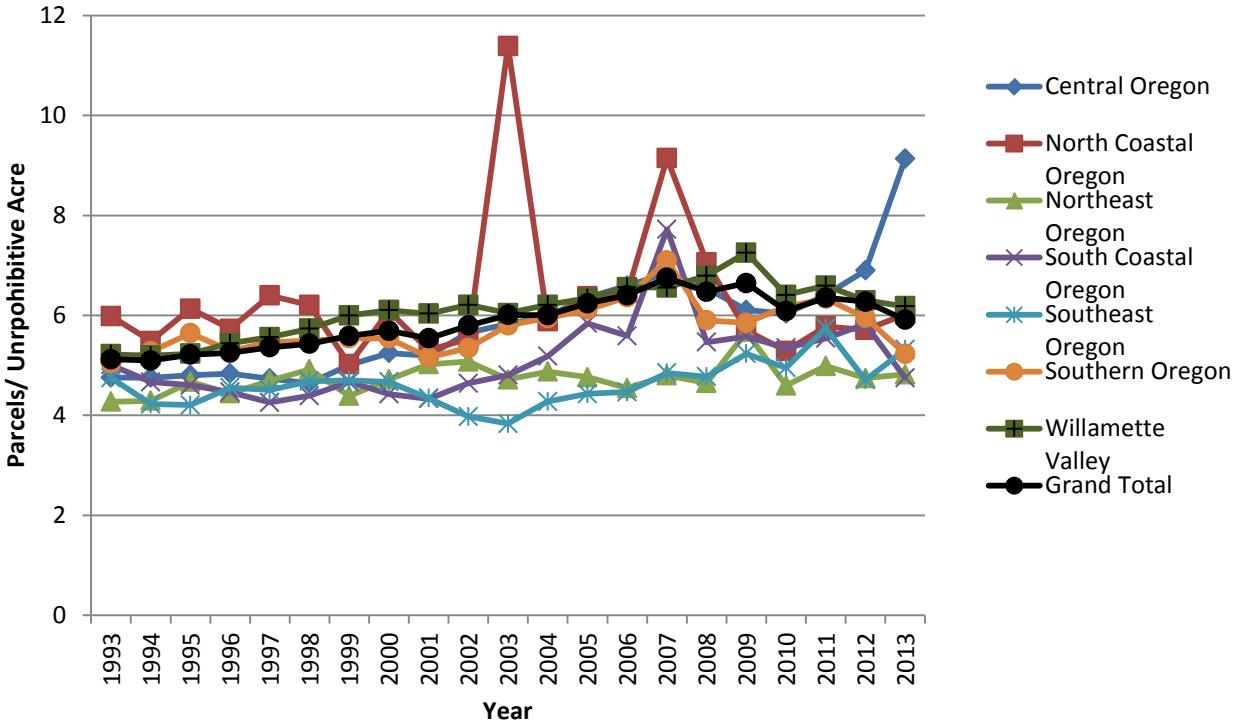
Description: Count of Parcels (Residential Class 100)/Unprohibitive Acres. Data is filtered on Yr Built, Improved and General Land Classification. The Yr Built Filter excludes Null and 0. Improved: property classification code improved AND assessed improved value >$10,000. The Generalized Land Classification filter keeps Residential, which includes structures with <5 units. Parcels >0.5 acres are excluded.

Figure D-5. Improved Single Family and Plex Average Density by City Size by Year, Tier 3 Cities, 1993-2012



Description: Count of Parcels (Residential Class 100)/Unprohibitive Acres. Data is filterd on Yr Built, Improved and General Land Classification. The Yr Built Filter excludes Null and 0. Improved: property classification code improved AND assessed improved value >$10,000. The Generalized Land Classification filter keeps Residential, which includes structures with <5 units. Parcels >0.5 acres are excluded.

Figure D-6. Improved Single Family and Plex Average Density by Region by Year, Tier 3 Cities, 1993-2012



Description: Count of Parcels (Residential Class 100)/Unprohibitive Acres. Data is filterd on Yr Built, Improved and General Land Classification. The Yr Built Filter excludes Null and 0. Improved: property classification code improved AND assessed improved value >$10,000. The Generalized Land Classification filter keeps Residential, which includes structures with <5 units. Parcels >0.5 acres areexcluded.

Part 2: Employment

Table D-1. Covered employment for all cities outside the Metro UGB by region, 2005 and 2012

		2005		2012		Change, 2005-12		
Region	Number of Cities	Employment	Percent of Emp	Employment	Percent of Emp	Number	Percent	AAGR
Central Oregon	15	72,721	11%	75,204	12%	2,483	3%	0.5%
North Coastal Oregon	19	31,476	5%	34,064	5%	2,588	8%	1.1%
Northeast Oregon	56	36,434	6%	39,336	6%	2,902	8%	1.1%
South Coastal Oregon	13	27,733	4%	25,170	4%	(2,563)	-9%	-1.4%
Southeast Oregon	14	26,221	4%	25,555	4%	(666)	-3%	-0.4%
Southern Oregon	24	103,239	16%	97,664	15%	(5,575)	-5%	-0.8%
Willamette Valley	75	346,766	54%	354,498	54%	7,732	2%	0.3%
Total	**216**	**644,590**	**100%**	**651,491**	**100%**	**6,901**	**1%**	**0.2%**

Table D-2. Population and employment by city size, all cities outside the Metro UGB 2005 and 2012

		2005			2012		
City Size	Number of Cities	Population	Employment	Pop/Emp Ratio	Population	Employment	Pop/Emp Ratio
<1,000	81	38,650	6,952	5.6	38,317	9,178	4.2
1,000-4,999	79	166,360	52,379	3.2	177,075	53,269	3.3
5,000-9,999	28	201,795	76,949	2.6	218,885	78,566	2.8
10,000-24,999	17	268,645	125,433	2.1	285,375	128,840	2.2
25,000-49,999	4	110,850	44,187	2.5	130,255	46,297	2.8
50,000 or more	7	588,975	338,690	1.7	633,395	335,341	1.9
All Classes	**216**	**1,375,275**	**644,590**	**2.1**	**1,483,302**	**651,491**	**2.3**

Table D-3. Population and employment by region, all cities outside the Metro UGB 2005 and 2012

		2005			2012		
Region	Number of Cities	Population	Employment	Pop/Emp Ratio	Population	Employment	Pop/Emp Ratio
Central Oregon	15	130,175	72,721	1.8	148,015	75,204	2.0
North Coastal Oregon	19	58,435	31,476	1.9	60,910	34,064	1.8
Northeast Oregon	56	101,876	36,434	2.8	104,362	39,336	2.7
South Coastal Oregon	13	60,515	27,733	2.2	61,355	25,170	2.4
Southeast Oregon	14	47,747	26,221	1.8	48,195	25,555	1.9
Southern Oregon	24	205,982	103,239	2.0	224,510	97,664	2.3
Willamette Valley	75	770,545	346,766	2.2	835,955	354,498	2.4
Total	**216**	**1,375,275**	**644,590**	**2.1**	**1,483,302**	**651,491**	**2.3**

Table D-4. Employment statistics by city size, all cities outside the Metro UGB, 2012

City Size	Number of Cities	Total Employment	Average by City	Maximum	Minimum	St. Dev.
<1,000	81	9,178	113	476	-	103
1,000-4,999	79	53,269	674	3,713	32	573
5,000-9,999	28	78,566	2,806	6,214	676	1,468
10,000-24,999	17	128,840	7,579	16,586	3,262	3,254
25,000-49,999	4	46,297	11,574	17,068	5,614	4,896
50,000 or more	7	335,341	47,906	96,570	20,577	29,467
All Classes	**216**	**651,491**	**3,016**	**96,570**	**-**	**9,978**

Table D-5. Employment statistics by region, all cities outside the Metro UGB, 2012

Region	Number of Cities	Total Employment	Average by City	Maximum	Minimum	St. Dev.
Central Oregon	15	75,204	5,014	40,115	10,265	75,204
North Coastal Oregon	19	34,064	1,793	7,390	2,219	34,064
Northeast Oregon	56	39,336	702	8,093	1,638	39,336
South Coastal Oregon	13	25,170	1,936	8,833	2,492	25,170
Southeast Oregon	14	25,555	1,825	12,360	3,621	25,555
Southern Oregon	24	97,664	4,069	41,697	9,341	97,664
Willamette Valley	75	354,498	4,727	96,570	15,055	354,498
Total	**216**	**651,491**	**3,016**	**96,570**	**9,978**	**651,491**

Part 3: Relationship Between City Size and Density

Figure D-8. Scatterplot of population and percent single-family detached housing, Tier 3 cities

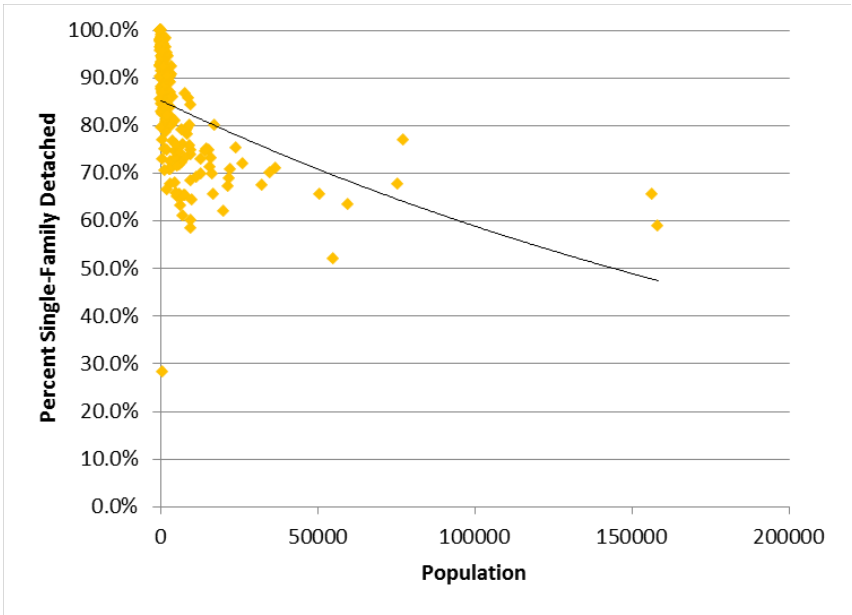


Figure D-9. Scatterplot: Population v. Average SF and Plex Density 2003-2007, Tier 3 cities

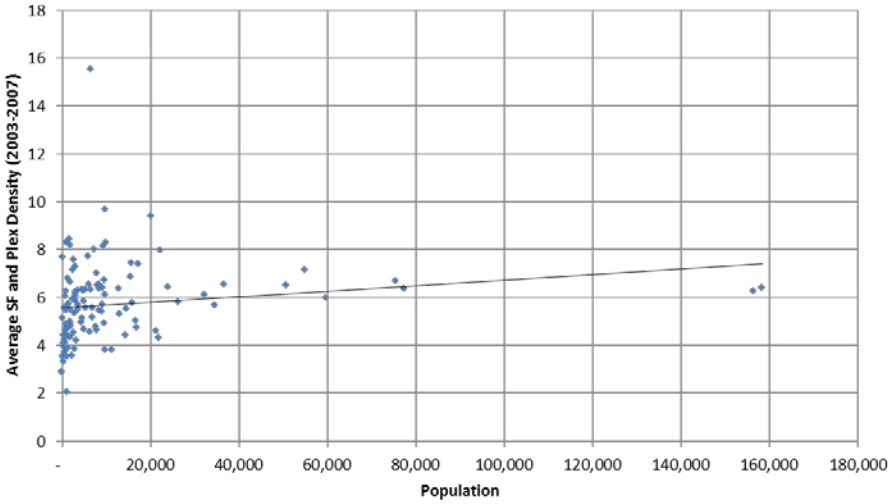


Figure D-10. Commercial density (EPA) by population, Tier 2 cities, 2012

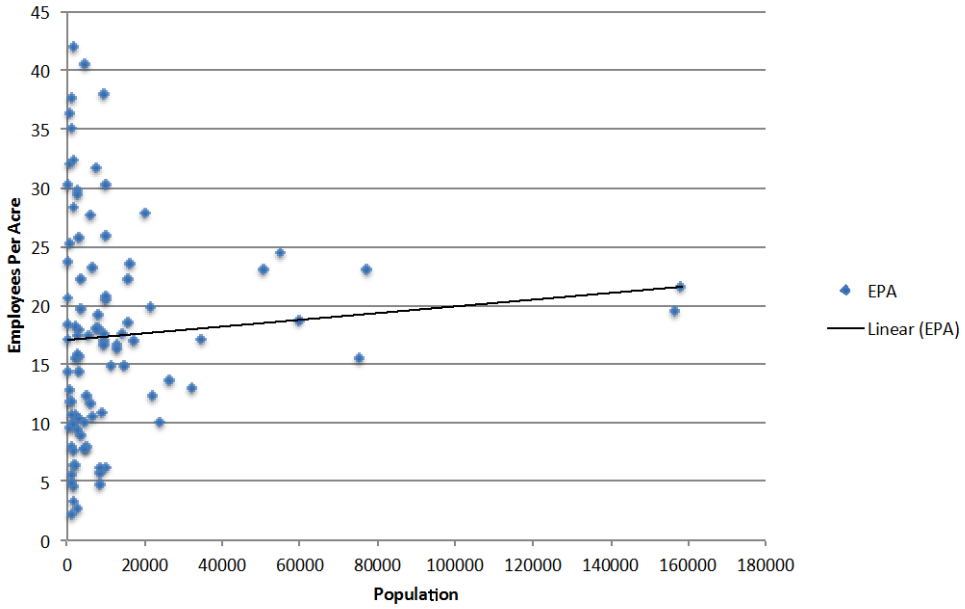
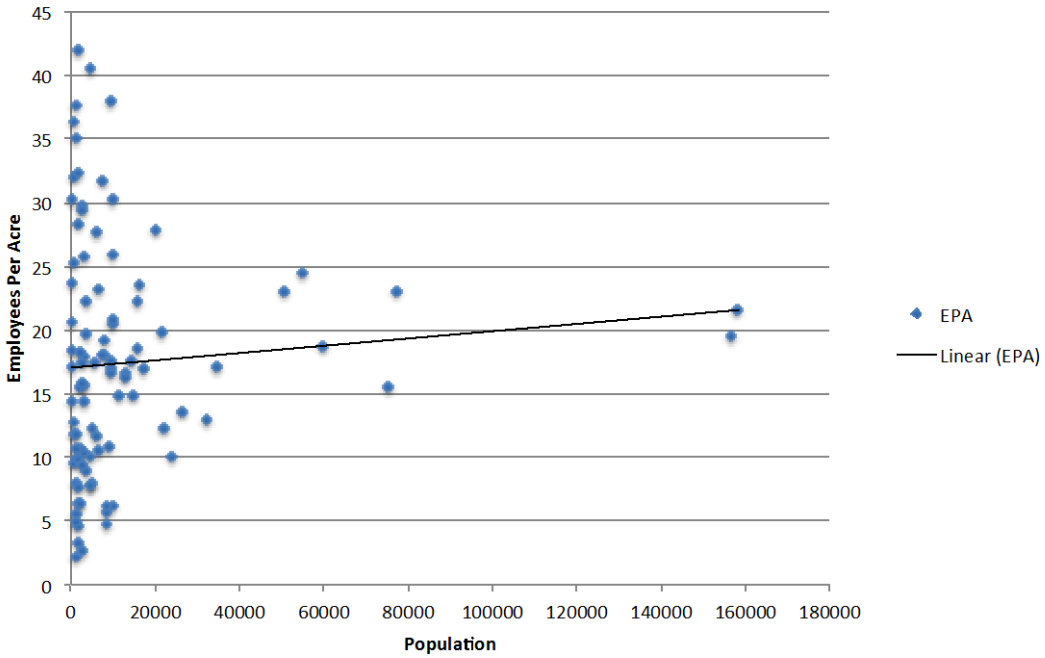


Figure D-11. Industrial density (EPA) by population, Tier 2 cities, 2012



Analysis of Mixed-Use Development and Redevelopment in Oregon Cities

A Report to the HB 2254 Rulemaking Committee

June 2015

Draft Report

Prepared for:

HB 2254 Rulemaking Advisory Committee

Department of Land Conservation & Development

Prepared by:

University of Oregon
Community Service Center
Department of Planning, Public Policy and Management

UNIVERSITY OF OREGON

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EXECUTIVE SUMMARY

This report presents analysis of mixed-use development and redevelopment in Oregon cities outside the Portland Metropolitan region to support development of a simplified land need methodology for use in urban growth boundary (UGB) review.

This study addresses the issues of mixed-use development and redevelopment in Oregon cities outside the Portland Metropolitan UGB. The UO research team's charge was to gather data on actual rates of (1) mixed-use residential/commercial development in commercial areas that have occurred in Oregon cities over approximately the past two decades (two subcategories: residential development and employment land development), and (2) the amount of redevelopment that has occurred. In summary, the analysis focused on three issues:

1. Amount of mixed-use residential development in commercial areas
2. Amount of employment redevelopment to more intense employment uses on developed employment parcels
3. Amount of residential redevelopment to more intense residential uses on developed residential parcels.

Findings

Following are the key findings from our research. We want to be clear about the limitations of this analysis: in our considerable experience working with Oregon cities on Goal 9 and 10 studies, developing accurate estimates of historical rates of mixed-use development and redevelopment has consistently been a challenge because cities do not collect reliable information on redevelopment rates. Our research results are consistent with our experience—few cities conduct detailed monitoring of redevelopment.

Literature review

- **No definitive academic research exists on methods to predict the rate of mixed-use development and redevelopment.** Few academic studies exist on methods to forecast mixed-use development and redevelopment. Estimating future mixed-use development and redevelopment rates is complicated and current models are only marginally better than planning staff estimates. More research exists on drivers of mixed-use development and redevelopment and how to predict where it will occur.

- **There is a significance difference in factors that drive decisions for redevelopment in an urban context versus a suburban context**. Regardless of urban or suburban context, empirical evidence exists that an initial development site serves as a catalyst for further development in the area. The main driver of suburban redevelopment is the expected *increase* in property value, not the current higher property value (i.e. rent gap).

- **The growth, and success, of mixed-use development is based more on a neighborhood scale than a parcel level scale.** Literature suggests that it is the collective character of a neighborhood which makes mixed-use development successful, not one single project. Further, older buildings were found to be more successful at attracting businesses, and initially, it's more important to have mixed-use buildings concentrated on one block as opposed to spread out.

Mixed-use development

Mixed-use development can be defined as multiple uses (typically housing and employment) on the same site. Mixed-use development can be vertically integrated (e.g., housing over commercial), or horizontally (e.g., housing and employment in separate buildings). This analysis attempted to answer questions about the rate and density of mixed-use development that has occurred in the past five years outside the Portland Metro UGB. For the purpose of this study, the UO research team defined mixed-use as follows:

> individual structures (e.g. vertical mixed-use) or a single development (e.g., horizontal mixed-use) that contain a mixture of housing and employment uses. Please respond to the questions in the context of that definition.

Our research suggests that most cities do not collect reliable empirical data on redevelopment of residential and commercial lands. Following are key findings from our research.

- **Most cities have zones that allow mixed-use development as an outright use**. Of the 109 cities that responded to our survey, the majority (71%) allowed mixed-use regardless of size, but all cities over 10,000 had zones allowing such development outright. Fifty-six percent of cities reported they have zones that allow mixed use as a conditional use.

- **Most cities do not collect data on mixed-use development**. The majority of cities (83%) indicated that they do not collect data on mixed-use development. Only 10% of cities that answered the question stated they collect data on mixed-use development.

- **A small minority of cities reported that they had experienced mixed-use development in the past five years**. Twenty-one percent of cities reported they had experienced mixed-use development consistent with the definition in the past five years.

- **City size is a better predictor of whether mixed-use development occurred than region**. All cities with populations over 25,000 reported they had mixed use development. The percentage of cities under 25,000 that reported mixed use development declines as city size decreases. While there was a very strong trend towards larger cities experiencing more mixed-use development, no consistent patterns emerge by region.

- **Cities reported a modest amount of mixed-use development**. Twelve of the 21 cities that reported they experienced mixed-use development provided data on those developments. The developments included 21

buildings on about 29 acres. The developments represented 221 dwelling units and about 120,000 square feet of commercial space.

Redevelopment

A key issue that local governments struggle with in determining land need is redevelopment. Statewide Planning Goals 9 and 10 have different standards for consideration of redevelopment.

Cities have addressed redevelopment both from the supply side (e.g., evaluating land and assessing its redevelopment potential) and the demand side (e.g., assuming that some percentage of future development will occur on land that is already considered developed). Both of these approaches have problems due to data limitations.

Following are key findings from our research on redevelopment.

- **Most cities do not monitor redevelopment activity**. Most cities surveyed (62%) indicated that they did not monitor redevelopment. Those that did tended to be smaller cities; no cities over 25,000 reported that they systematically monitor redevelopment activity.
- **Cities use a range of strategies to encourage redevelopment**. Urban renewal was the most frequently listed strategy (51%). About 39% of the responding cities indicated they use public/private partnerships. Thirty-seven percent indicated they use "other" strategies. Among the specific approaches mentioned in the others category Accessory Dwelling Units (ADU's) were mentioned multiple times.
- **Less than one-third of cities reported they experienced residential redevelopment activity in the past five years**. About 31% of cities indicated they experienced redevelopment on residential land.
- **A higher percentage of larger cities reported residential redevelopment activity than smaller cities**. Not surprisingly, a higher percentage of larger cities (100% of cities over 25,000 and 73% over 10,000) reported redevelopment on residential land in the past five years than smaller cities (8% of cities under 1,000 reported experiencing redevelopment on residential land).
- **Eight percent of responding cities reported redevelopment on employment lands in the past five years**. Few cities (8 of 95) indicated that they had experienced redevelopment on employment lands. Notably, no cities in the 10,000-49,999 population range reported experiencing redevelopment on employment lands.

Case study findings

- **Local policy matters**. Consistent with the survey results, all of the case study cities employ local strategies to encourage mixed-use development and redevelopment. This includes removing zoning barriers, and financial incentives—which are often used in various combinations

- **City size does not predict number of developments**. The city with the largest number of reported developments had second lowest population of the cities studied.

- **Market forces are location specific**. Some markets have focused on specialized development. For housing redevelopment, a city study found that there has not been significant activity except for special markets like student housing or development that is supported by incentives like tax exemptions or affordable housing funding.

- **Smaller cities tended to have more positive community attitudes about mixed-use and redevelopment**. The specific factors that contribute to more positive attitudes are difficult to isolate; however, the modest scale of mixed-use development and redevelopment may be easier for residents of smaller communities to support and the longer term benefits easier to grasp.

Implications

The results of this research do not point to a specific methodology to predict the amount and rate of mixed-use development and redevelopment, nor do they provide an empirical foundation for developing a set of assumptions that might be employed in a simplified model. That said, the results do have important implications for a simplified model that the Rulemaking Advisory Committee (RAC) should consider as it deliberates and settles on a preferred approach.

- **Results point to relatively small rate assumptions pertaining to mixed-use development and redevelopment.** Seventy-nine percent of cities that responded to our survey indicated they had not experienced mixed-use development in the past five years; 69% of cities reported they have not experienced redevelopment activity.

- **City size is related to mixed-use development activity**. All cities over 25,000 reported experiencing mixed-use development in the past five years; 64% between 10,000 and 24,999 reported experiencing mixed-use development. Nineteen percent of cities under 10,000 population reported experiencing mixed-use development, while 4% under 1,000 reported mixed-use development. The implications are that a simplified methodology might require cities over 10,000 assume some amount of mixed-use development and smaller cities may not be required to assume mixed-use development.

- **City size is related to redevelopment activity.** Eighty-one percent of cities less than 10,000 population reported they had no residential redevelopment activity and seventy-eight percent had no redevelopment on employment land. A majority of cities over 10,000 population reported redevelopment on residential and employment lands. The implications are that a simplified methodology might require cities over 10,000 assume some amount of redevelopment and smaller cities may not be required to assume redevelopment.

- **Most cities allow mixed-use development outright in one or more zones.** This suggests that market conditions dictate mixed-use development in most cities. Beyond removing zoning barriers, cities can provide financial incentives to encourage mixed-use development. Consideration of local policy choices such as financial incentives to determine land needs seems challenging to incorporate into a simplified methodology.
- **Most cities with redevelopment activity provided some type of financial incentive.** This is a local policy choice with respect to achieving community development objectives. Many cities do not have the financial capacity to incentivize redevelopment. It is unclear how a simplified land need methodology would incentivize cities to adopt policies and financial incentives to encourage redevelopment.

CHAPTER 1: INTRODUCTION

This report presents analysis of historic land use efficiency in Oregon cities to support development of a simplified land need methodology for use in urban growth boundary (UGB) review. The analysis is intended to address parts of the research requirements stated in House Bill 2254 (codified as ORS 197A) relating to historic land use efficiency.[1]

Background

HB 2254 requires the Land Conservation and Development Commission (LCDC) produce an administrative rule that implements the legislation. As part of the rulemaking process, the bill requires the LCDC establish factors for converting forecasted population and employment growth into estimates of land need for housing, employment and other categories of uses. The bill requires the factors:

- Be based on an empirical evaluation of the relation between population and employment growth and the rate and trends of land utilization in the recent past in the applicable major region of the state;
- Reflect consideration by the Commission of any significant changes occurring or expected to occur in the markets for urban land uses in that major region of the state;
- Be designed to encourage an increase in the land use efficiency of a city, subject to market conditions; and
- Provide a range of policy choices for a city about the form of its future growth.

The bill also requires "an empirical evaluation of the relation between population and employment growth and the rate and trends of land utilization in the recent past in the applicable major region of the state. Reflect significant changes occurring or expected to occur in the markets for urban land uses in that major region of the state." Based on this requirement, DLCD staff identified the following research objectives for the first phase of the rulemaking project:

1. Determine the historical rate of "land efficiency" and land consumption (per person/acre).
2. Determine past employment growth rates/trends of land utilization.
3. Determine significant changes "occurring or expected to occur" in markets for urban land uses.

As part of this process, the DLCD contracted with the UO to analyze "land use efficiency." Our research focused on land use efficiency of residential and employment growth in Oregon cities outside the Metro UGB and is presented in

[1] https://www.oregonlegislature.gov/bills_laws/lawsstatutes/2013ors197A.html

the report titled *Analysis of Land Use Efficiency in Oregon Cities: A Report to the HB 2254 Rulemaking Committee*.

Because they were not included in the initial scope of work, the *Land Use Efficiency* report did not address two important elements needed to inform the rule making process: (1) analysis the rate and density of mixed-use development, and (2) analysis of the rate and density of redevelopment.

Purpose and Methods

This study addresses the issues of mixed-use development and redevelopment in Oregon cities outside the Portland Metropolitan UGB. The UO research team's charge was to gather data on actual rates of (1) mixed-use residential/commercial development in commercial areas that have occurred in Oregon cities over approximately the past two decades (two subcategories: residential development and employment land development), and (2) the amount of redevelopment that has occurred. In summary, the analysis focused on three issues:

1. Amount of mixed-use residential development in commercial areas
2. Amount of employment redevelopment to more intense employment uses on developed employment parcels
3. Amount of residential redevelopment to more intense residential uses on developed residential parcels.

Following is a description of the core elements of our work program.

Literature Review

The UO research team conducted a literature review of academic and professional papers that focus mixed-use development and on the rate and intensity of redevelopment. The purpose of this task was to better understand the dynamics of mixed-use development and redevelopment and identify if any innovative methods exist to support this research.

Survey of Municipalities

Administer an online survey of planning directors with assistance the Oregon Planning Directors Association and the League of Oregon Cities. The purpose of the survey was be to gather information from municipalities about (1) how much mixed use development has occurred in their city, (2) the rate and type of mixed-use development, (3) how much redevelopment has occurred in their city, and (4) the rate and type of redevelopment.

The UO team surveyed all 216 incorporated cities outside the Portland Metropolitan UGB and received 111 valid responses—a 51% response rate. Table 1-1 shows survey response numbers and rates by city size. The rates range from a high of 65% for cities between 10,000 and 24,999 to a low of 38% for cities less than 1,000.

Table 1-1. Survey response by city size

City Size	Number of Cities	Number of Responses	Response Rate
<1,000	81	31	38%
1,000-4,999	79	46	58%
5,000-9,999	28	16	57%
10,000-24,999	17	11	65%
25,000-49,999	4	2	50%
50,000 or more	7	5	71%
Total	**216**	**111**	**51%**

Table 1-2 shows survey response rates by region. The rates range from a high of 62% for the South Coastal Region to a low of 39% for the Northeast Oregon region.

Table 1-2. Survey response by region

Region	Number of Cities	Number of Responses	Response Rate
Central Oregon	15	8	53%
North Coastal Oregon	19	11	58%
Northeast Oregon	56	22	39%
South Coastal Oregon	13	8	62%
Southeast Oregon	14	8	57%
Southern Oregon	24	14	58%
Willamette Valley	75	40	53%
Total	**216**	**111**	**51%**

Case Studies

The UO research team conducted eight mixed-use development and redevelopment case studies. The purpose of the case studies was to obtain (1) empirical data about case study mixed-use development and redevelopment, (2) to understand local perceptions of market factors that contribute to mixed-use development and redevelopment, and (3) to document policies and other strategies the case study cities use to promote mixed-use development and redevelopment.

Case study cities included:

- Bend
- Corvallis
- Eugene
- McMinnville
- Monmouth
- Ontario
- Pendleton
- Salem

CHAPTER 2: LITERATURE REVIEW

As part of our research efforts, the UO team conducted a literature review of academic and professional papers focused on mixed-use development and redevelopment. Specifically, the team wanted to understand if any innovative methods exist to identify the rate and intensity of mixed-use development and redevelopment in suburban areas. Following is a short description of the methods used, and a summary of findings from the literature review as well as implications for the HB 2254 rulemaking process. Appendix A includes an annotated bibliography of sources.

Methods

As a first step, the UO research team queried both the University of Oregon Library's online journal database and Google Scholar for applicable articles. While many articles were found on residential redevelopment, or the impacts of mixed-use development, little was found on the actual rate of redevelopment or methods used to analyze the rate of redevelopment.

The UO research team expanded the search to include articles available from the Urban Land Institute, as well as the Brookings Institute. This effort yielded nothing more specific or useful. As such, articles were found for residential redevelopment rates, commercial redevelopment, and the benefits of mixed used development, which are summarized below.

This literature is supplemented by studies Metro conducted on the refill rate of mixed-use development within their region. Metro uses a robust model to predict what they call "refill" which is a combination of redevelopment and infill. The research team concluded that the Metro approach is of limited use for cities outside the Metro UGB.

Findings

The literature review yielded the following findings related to mixed-use redevelopment, and redevelopment in general:

- There is very little peer-reviewed literature on mixed-use development or redevelopment rates.
- School district choice appears to some degree, drive suburban residential redevelopment.
- Regardless of urban or suburban context, empirical evidence exists that an initial development site serves as a catalyst for further development in the area.
- The main driver of suburban redevelopment is the expected *increase* in property value, not the current higher property value (i.e. rent gap).
- Estimating future mixed-use development and redevelopment rates is complicated and current models are only marginally better than planning

staff estimates. This leads one to question whether quantitative indicators are the most appropriate predictors of future mixed-use development and redevelopment.

Implications

The following implications are based on the findings observed from the literature. They involve some judgment by the authors, and suggest opportunities for further research.

While the rate at which mixed-use development will occur is hard to predict, there is substantive evidence on what drives mixed-use development and how to predict *where* it will occur

While more research is needed to explore the specific drivers, Suzanne Charles states with some authority "forces above and beyond market forces contribute to teardowns (i.e. redevelopment). Her research, as well as research from Florida indicates that development has a contagion effect, in that once an initial site is redeveloped, it becomes a catalyst for additional redevelopment in the area, specifically in a suburban context. This notion is contrasted by Metro's methodology which holds that infill and redevelopment rates can be attributed to quantitative indicators and a model can easily be developed to predict future development rates, based on the historical rates.

There is a significance difference in decisions to redevelopment in an urban context versus a suburban context

Argued by Suzanne Charles, and supported by Munneke, evidence states there is a critical difference in redevelopment decisions in an urban versus suburban context. In an urban context, and previously thought applicable in other built environments, investors were thought to only choose to redevelop a site if the potential value was higher than the current value of the property. However, Charles found in a suburban context, the future increase of that property value is what drove redevelopment decisions. For example, knowing that a current neighborhood was becoming more popular in a couple years drove redevelopment more than the current value of the property.

The growth, and success, of mixed-use development is based more on a neighborhood scale than a parcel level scale

Literature from the U.S. Environmental Protection Agency and the Urban Land Institute article present successful case studies of mixed-use neighborhoods. Throughout they say it is the collective character of a neighborhood which makes mixed-use development successful, not one single project. Further, older buildings were found to be more successful at attracting businesses, and initially, it's more important to have mixed-use buildings concentrated on one block as opposed to spread out. This creates policy implications for governing agencies as both articles also state the low desire of banks to lend, and developers to build, multi-use buildings that are less common around the country. Furthermore, for public-private partnerships to be successful, there must be a focus on lettering neighborhood level change happen, not focusing on one individual site and letting the rest follow.

CHAPTER 3: MIXED-USE DEVELOPMENT

Mixed-use development can be defined as multiple uses (typically housing and employment) on the same site. Mixed-use development can be vertically integrated (e.g., housing over commercial), or horizontally (e.g., housing and employment in separate buildings). The UO research team's work on land use efficiency used property classifications to sort land uses and analyze density by type of land use. A key limitation to that methodology is that no Department of Revenue property classifications identify mixed-use development. Moreover, most cities do not collect reliable empirical data on mixed-use development that occurs on redevelopment sites. We note that mixed-use development can occur on both greenfield sites (e.g., vacant land) and as on redevelopment sites.

Yet, the question still remains: how should a simplified land need methodology account for mixed-use development? That question is the work of the Rulemaking Advisory Committee. This analysis attempts to answer questions about the rate and density of mixed-use development that has occurred in the past five years outside the Portland Metro UGB. For the purpose of this study, the UO research team defined mixed-use as follows:

> individual structures (e.g. vertical mixed-use) or a single development (e.g., horizontal mixed-use) that contain a mixture of housing and employment uses. Please respond to the questions in the context of that definition.

This chapter presents survey and case study findings related to mixed-use development.

Survey of Oregon Planning Directors

The UO research team developed and administered online survey to planners and city administrators for all 216 cities outside the Portland Metro UGB. We received 111 valid responses—a 51% response rate. The purpose of the survey was to gather information from municipalities about (1) how much mixed-use development has occurred in their city, and (2) the rate and type of mixed-use development. Each question includes the number of responding cities; not all cities responded to all of the questions.

Policies related to mixed use

The first part of the survey got at how cities regulate mixed-use development. We asked two questions related to managing mixed-use development:

- Does your city have zones that allow mixed-use development as an outright use?
- Does your city have zones that allow mixed-use development as a conditional use?

When cities with zones allowing mixed-use development outright are compared by city size (Table 3-1), there is a clear difference between cities over 10,000 and those under. Of the responding cities, the majority (71%) allowed mixed-use

regardless of size, but all cities over 10,000 had zones allowing such development outright.

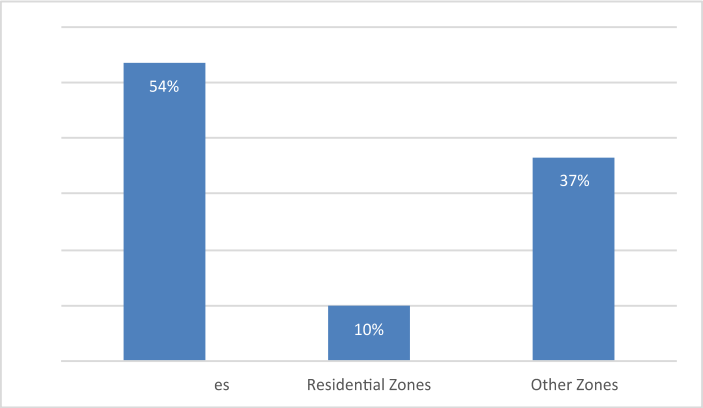
Table 3-1. Cities that have zones that outright allow mixed-use development by city size

City Size	Yes	No	Don't Know	N
<1,000	52%	34%	14%	29
1,000-4,999	70%	30%	0%	46
5,000-9,999	76%	24%	0%	17
10,000-24,999	100%	0%	0%	11
25,000-49,999	100%	0%	0%	2
50,000 or more	100%	0%	0%	4
Total	**77**	**28**	**4**	**109**
Percent of Total	**71%**	**26%**	**4%**	**100%**

Note: Percents add to more than 100% due to rounding errors

Respondents were asked to provide a list of zones in which mixed-use development is allowed, whether as an outright or conditional use. Of the 183 different zones listed, 54% were commercial zones. Ten percent were residential zones, while other zones accounted for 37%. Other zones included industrial zones, and overlay districts.

Figure 3-1: Percent of mixed-use zones by major land use



More cities surveyed allowed mixed-use development outright (70%) than as a conditional use (56%), although the majority of cities had zones that allowed it in both capacities.

Table 3-2. Cities that have zones that allow mixed-use development as a conditional use by city size

City Size	Yes	No	Don't Know	N
<1,000	61%	21%	18%	28
1,000-4,999	51%	42%	7%	43
5,000-9,999	44%	56%	0%	16
10,000-24,999	82%	18%	0%	11
25,000-49,999	0%	100%	0%	1
50,000 or more	100%	0%	0%	3
Total	**57**	**36**	**8**	**102**
Total	**56%**	**35%**	**8%**	**100%**

Table 3-3 shows that the majority of cities (83%) indicate that they do not collect data on mixed-use development. Only 10% of cities that answered the question stated they collect data on mixed-use development, while the remaining 7% do not know if their city collected data. More cities reported that they monitor mixed-use development (10%) than collect data mixed use development (33%). This may be because respondents define monitoring as a more qualitative endeavor than collecting data. Twelve percent of the 66 cities that reported they did not monitor mixed-use development reported the plan to monitor mixed-use development in the future.

Table 3-3. Cities that collect data on mixed-use development

Category	Yes	No	Don't Know	n
Collect data on mixed-use development	10%	83%	7%	107
Monitor mixed-use development	33%	62%	6%	107
Plan to monitor mixed-use development	8%	79%	13%	100

Most cities surveyed indicated that they did not monitor redevelopment (Table 3-4). Those that did tended to be smaller cities. The survey did not inquire as to the method of monitoring, so the level of detail is unknown.

Table 3-4. Cities that Monitor Redevelopment, 2015

City Size	Yes	No	Don't Know	N
<1,000	31%	54%	15%	26
1,000-4,999	43%	55%	2%	42
5,000-9,999	35%	65%	0%	17
10,000-24,999	9%	91%	0%	11
25,000-49,999	0%	100%	0%	1
50,000 or more	0%	100%	0%	3
Total	**33**	**62**	**5**	**100**
Total	**33%**	**62%**	**5%**	**100%**

Twenty-one percent of cities reported they had experienced mixed-use development consistent with the definition in the past five years (Table 3-5). All cities with populations over 25,000 reported they had mixed use development. The percentage of cities under 25,000 that reported mixed use development declines as city size decreases.

Table 3-5. Cities Reporting Mixed-use Development by Size, 2010-2015

City Size	Yes	No	Don't Know	N
<1,000	4%	86%	11%	28
1,000-4,999	14%	83%	2%	42
5,000-9,999	35%	53%	12%	17
10,000-24,999	36%	64%	0%	11
25,000-49,999	100%	0%	0%	1
50,000 or more	100%	0%	0%	3
Total	**21**	**75**	**6**	**102**
Total	**21%**	**74%**	**6%**	**100%**

Table 3-6 shows cities whether cities experienced mixed-use development over the past five years by region. While there was a very strong trend towards larger cities experiencing more mixed-use development, no consistent patterns emerge by region. The Willamette Valley had the most cities with mixed-use development in the past five years, though it did not have the highest percentage given the number of respondents from that region. Central and Southern Oregon had the next highest number of cities with recent mixed-use development, followed by South Coastal and North Coastal regions. The eastern portion of the state notably did not report any recent mixed-use development.

Table 3-6. Cities with Mixed-use Development by Region, 2010-2015

Region	Yes	No	Don't Know	N
Central Oregon	63%	38%	0%	8
North Coastal Oregon	18%	82%	0%	11
Northeast Oregon	0%	90%	10%	21
South Coastal Oregon	43%	57%	0%	7
Southeast Oregon	0%	88%	13%	8
Southern Oregon	36%	55%	9%	11
Willamette Valley	19%	75%	6%	36
Total	**21**	**75**	**6**	**102**
Percent of Total	**21%**	**74%**	**6%**	**100%**

The research team asked cities that indicated they had experienced mixed-use development in the past five years to report how much mixed-use development had occurred. Table 3-7 shows that 12 of the 21 cities that reported they experienced mixed use development provided data on those developments. The developments included 21 buildings on about 29 acres. The developments represented 221 dwelling units and about 120,000 square feet of commercial space.

Table 3-7. Amount of Mixed-use Development Reported by Responding Cities, 2010-2015

City Size	Total responding cities	Cities that indicated they experienced mixed-use development	Cities that reported the amount of mixed-use development	Total Developments	Total Buildings	Approximate Acreage	Number of Residential Units	Commercial Space (sq ft)
<1,000	31	1	1	1	1	0.5	1	600
1,000-4,999	46	6	3	5	7	1.5	9	6,400
5,000-9,999	16	6	5	7	7	20.7	17	73,812
10,000-24,999	11	4	1	1	1	0.2	3	-
25,000-49,999	2	1	–	–	–	–	–	–
50,000 or more	5	3	2	3	5	6.4	221	40,000
Grand Total	**111**	**21**	**12**	**17**	**21**	**29.3**	**251**	**120,812**

The development data are interesting in the sense that cities in every size class reported experiencing mixed-use development and that smaller cities provided data on the developments more frequently. We speculate that is a function of the number and complexity of the developments—smaller cities with few developments make monitoring easier.

CHAPTER 4: REDEVELOPMENT ACTIVITY

A key issue that local governments struggle with in determining land need is redevelopment. Statewide Planning Goals 9 and 10 have slightly different standards for consideration of redevelopment, with Goal 10 having a higher standard or burden of proof. OAR 660-008-0005(7) defines redevelopable land as follows:

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

Goal 9 uses a different definition as stated in OAR 660-009-0005(1):

> (1) "Developed Land" means non-vacant land that is likely to be redeveloped during the planning period.

Thus, the Goal 9 rule defines developed land as land that is likely to be redeveloped. For the purpose of our survey, the UO research team defined redevelopment as follows:

> Redevelopment is development that occurs on a tax lot that creates more dwelling units or employment space than the current use, and thus an increase in density on the tax lot. Development that occurs through subdivisions or partitions is not considered redevelopment in this context.

Cities have addressed redevelopment both from the supply side (e.g., evaluating land and assessing its redevelopment potential) and the demand side (e.g., assuming that some percentage of future development will occur on land that is already considered developed). Both of these approaches have problems due to data limitations.

Most cities have addressed the Goal 9 and 10 redevelopment requirements from the demand side by analyzing how much redevelopment has occurred and then making assumptions about how much will occur in the future. The problem with this approach is that most jurisdictions do not systematically monitor redevelopment. Nonetheless, cities have generally agreed that some new employment will not require vacant land—e.g., that developed land will redevelop.

This task researched the rate of redevelopment using (1) a survey of planning directors (combined with the mixed-use analysis survey), and (2) analyzing case study cities to analyze in more detail.

We want to be clear about the limitations of this analysis: in our considerable experience working with Oregon cities on Goal 9 and 10 studies, redevelopment has consistently been a challenge because cities do not collect reliable information on redevelopment rates. Our survey results are consistent with our experience—few cities conduct detailed monitoring of redevelopment.

Survey of Oregon Cities

The UO research team developed and administered online survey to planners and city administrators for all 216 cities outside the Portland Metro UGB. We received 111 valid responses—a 51% response rate. The purpose of the survey was to gather information from municipalities about (1) how much redevelopment has occurred in their city, and (2) the rate and type of redevelopment. Each question includes the number of responding cities; not all cities responded to all of the questions.

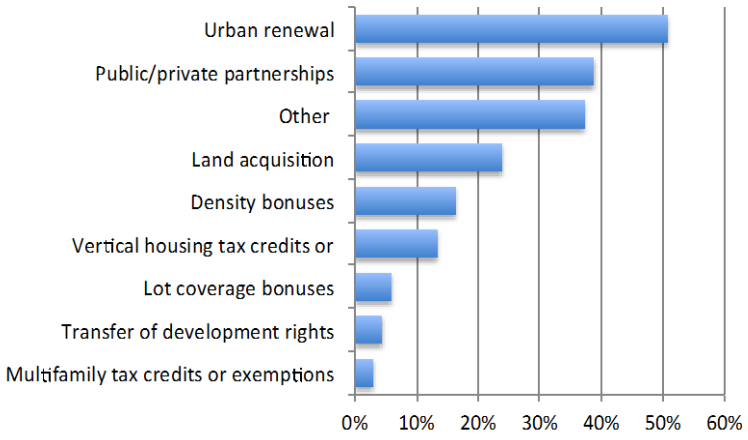
Most cities surveyed (62%) indicated that they did not monitor redevelopment (Table 4-1). Those that did tended to be smaller cities. The survey did not inquire as to the method of monitoring, so the level of detail is unknown.

Table 4-1. Cities that reported whether they monitor redevelopment by city size

City Size	Yes	No	Don't Know	N
<1,000	31%	54%	15%	26
1,000-4,999	43%	55%	2%	42
5,000-9,999	35%	65%	0%	17
10,000-24,999	9%	91%	0%	11
25,000-49,999	0%	100%	0%	1
50,000 or more	0%	100%	0%	3
Total	**33**	**62**	**5**	**100**
Total	**33%**	**62%**	**5%**	**100%**

Figure 4-1 shows that responding cities used a range of strategies to encourage redevelopment. Urban renewal was the most frequently listed strategy (51%). About 39% of the responding cities indicated they use public/private partnerships. Thirty-seven percent indicated they use "other" strategies. Among the specific approaches mentioned in the others category Accessory Dwelling Units (ADU's) were mentioned multiple times.

Figure 4-1. Strategies used to encourage redevelopment



We next asked respondents to indicate whether they had experienced redevelopment on residential land in the past five years consistent with the definition included on the survey. About 31% of cities indicated they experienced

redevelopment on residential land and 26% indicated they experienced redevelopment on employment land.

As with mixed-use development, there was a strong trend towards larger cities having recent residential redevelopment (Table 4-2). The majority of cities, however, had not experienced residential redevelopment in the past five years—a similar pattern to that observed for mixed-use development. Not surprisingly, a higher percentage of larger cities (100% of cities over 25,000 and 73% over 10,000) reported redevelopment on residential land in the past five years than smaller cities (8% of cities under 1,000 reported experiencing redevelopment on residential land).

Table 4-2. Cities Reporting Redevelopment on Residential Land by City Size, 2010-2015

City Size	Yes	No	Don't Know	N
<1,000	8%	85%	8%	26
1,000-4,999	15%	78%	7%	41
5,000-9,999	47%	47%	6%	17
10,000-24,999	73%	27%	0%	11
25,000-49,999	100%	0%	0%	1
50,000 or more	100%	0%	0%	3
Total	**28**	**65**	**6**	**99**
Total	**28%**	**66%**	**6%**	**100%**

The Willamette Valley had dramatically more cities with recent residential redevelopment, though as a percentage of reporting cities, it was in the middle range (Table 4-3). The only region with no recent residential redevelopment was Southeast Oregon, and only one city on the South Coast reported residential redevelopment.

Table 4-3. Cities Reporting Redevelopment on Residential Land by Region, 2010-2015

Region	Yes	No	Don't Know	N
Central Oregon	38%	63%	0%	8
North Coastal Oregon	36%	64%	0%	11
Northeast Oregon	20%	65%	15%	20
South Coastal Oregon	14%	86%	0%	7
Southeast Oregon	0%	100%	0%	8
Southern Oregon	40%	60%	0%	10
Willamette Valley	34%	57%	9%	35
Total	**28**	**65**	**6**	**99**
Total	**28%**	**66%**	**6%**	**100%**

For respondents that indicated they had experienced redevelopment, we asked them to provide the following data on residential developments: total new dwelling units (% single-family, % single-family attached, % multifamily), % of all new dwellings in the last five years, and Total acres redeveloped. Table 4-4 shows the results. Note that the data presented in Table 4-7 is not a statistically valid sample and cannot be inferred to represent all cities.

Of the ten cities reporting data on recent residential redevelopment, none had populations fewer than 1,000. Most reporting cities were in the 5,000 to 9,999 range. The majority of units (88%) that resulted from redevelopment were reported in cities larger than 50,000. Cities reported different mixes of units; over all the mix was about 50% single-family detached and 50% multifamily types. Cities provided limited data regarding percent of new dwellings that qualified as redevelopment and the number of acres developed.

Table 4-4. Average Activity of Cities with Residential Redevelopment by Size, 2010-2015

					Average % of New Dwelling Units by Type				
City Size	Total responding cities	Cities that indicated they experienced residential redevelopment	Cities that reported the amount of residential development	Total New Dwelling Units	% Single-Family	% Single-Family Attached	% Multi-Family	% of All New Dwellings in Last Five Years	Total Acres Redeveloped
<1,000	31	2	0	na	na	na	na	na	na
1,000-4,999	46	6	1	41	100%	0%	0%	3%	1.1
5,000-9,999	16	8	5	161	42%	26%	32%	38%	6.0
10,000-24,999	11	8	2	194	0%	0%	100%		11.8
25,000-49,999	2	1	0	na	na	na	na	na	na
50,000 or more	5	3	2	2,956	38%	3%	59%		na
Total	**111**	**28**	**10**	**3,352**	**48%**	**17%**	**35%**	**41%**	**18.9**

Note: The data in Table is not a representative sample of cities and cannot be inferred to all cities.

We next asked respondents "In the context of the definition of redevelopment, has your city experienced redevelopment on employment land in the past five years?" Few cities (8 of 95) indicated that they had experienced redevelopment on employment lands (Table 4-5). Notably, no cities in the 10,000-49,999 population range reported experiencing redevelopment on employment lands. Difficulty in tracking employment redevelopment was apparent from the number of cities that answered "don't know."

Table 4-5. Cities that reported redevelopment on employment lands (e.g., commercial and industrial lands) by city size

City Size	Yes	No	Don't Know	N
<1,000	4%	80%	16%	25
1,000-4,999	10%	79%	10%	39
5,000-9,999	13%	81%	6%	16
10,000-24,999	0%	82%	18%	11
25,000-49,999	0%	100%	0%	1
50,000 or more	33%	33%	33%	3
Total	**8**	**75**	**12**	**95**
Total	**8%**	**79%**	**13%**	**100%**

Geographically, the only region that reported more than one city with employment redevelopment was the Willamette Valley (Table 4-6).

Table 4-6. Cities that reported redevelopment on employment lands (e.g., commercial and industrial lands) by region

Region	Yes	No	Don't Know	N
Central Oregon	14%	86%	0%	7
North Coastal Oregon	11%	78%	11%	9
Northeast Oregon	0%	72%	28%	18
South Coastal Oregon	14%	71%	14%	7
Southeast Oregon	0%	88%	13%	8
Southern Oregon	0%	100%	0%	11
Willamette Valley	15%	74%	12%	34
Total	**8**	**75**	**12**	**95**
Total	**8%**	**79%**	**13%**	**100%**

For respondents that reported having redevelopment on employment lands, we asked them to provide the following data on employment redevelopment: new built space (sq ft), land (acres), % of land industrial, % of land commercial/other.

Of the eight cities that reported details regarding employment redevelopment, all were under 25,000 in population (Table 4-7). Cities reported a total of 125,000 square feet of new space on 654 acres (one city reported over 600 acres redeveloped). Average development size tended to be around 20,000 square feet, though average acreage was extremely variable. Redevelopment by industrial or commercial/other use was also variable, and did not seem to follow patterns by city size.

Table 4-7. Total redevelopment activities in cities with employment redevelopment, 2010-2015

Redevelopment Metric	Amount
New Space Built (sq ft)	125,806
Land (acres)	654
% of land industrial	35%
% of land commerical/other	65%

CHAPTER 5: CASE STUDIES

To better understand the factors that lead to mixed-use development and redevelopment, the UO research team conducted a set of case studies. The purpose of the case studies was to (1) obtain empirical data about case study mixed-use development and redevelopment, (2) to understand local perceptions of market factors that contribute to mixed-use development and redevelopment, and (3) to document policies and other strategies the case study cities use to promote mixed-use development and redevelopment.

The research team selected the case study cities to include different population classes and regions. Case study cities included:

- Bend
- Corvallis
- Eugene
- McMinnville
- Monmouth
- Ontario
- Pendleton
- Salem

The research team conducted interviews with planners or city administrators from each of the case study communities. We requested that representatives from the case study communities identify mixed-use development and redevelopment activity using a Google map. We requested specific data about each development – the address, the type of development, and the number of dwelling units and/or employment space included with each development. We also asked city staff tell us about policies their city has adopted to encourage mixed-use development and redevelopment, their perceptions of market conditions for this type of development, and community attitudes toward this type of development. Summaries of each case study are included in Appendix B.

Findings

Following is a summary of the key findings and themes identified through the case studies.

- **Local policy matters**. Consistent with the survey results, all of the case study cities employ local strategies to encourage mixed-use development and redevelopment. This includes removing zoning barriers, and financial incentives—which are often used in various combinations

- **City size does not predict number of developments**. The city with the largest number of reported developments had second lowest population of the cities studied.

- **Market forces are location specific**. Some markets have focused on specialized development. For housing redevelopment, a city study found

that there has not been significant activity except for special markets like student housing or development that is supported by incentives like tax exemptions or affordable housing funding.

- **Achievable rents are the best indication of market success**. Based on key observations from a pro forma based analysis for estimating market driven redevelopment, redevelopment is highly sensitive to rent rates, construction cost and buyer behavior. Housing rental rates are a function of income; cities with low average incomes should not expect to see significant activity without public support. While achievable rent is the strongest predictor of redevelopment potential, it is very difficult to forecast achievable rents.

- **Smaller cities tended to have more positive community attitudes about mixed-use and redevelopment**. The specific factors that contribute to more positive attitudes are difficult to isolate; however, the modest scale of mixed-use development and redevelopment may be easier for residents of smaller communities to support and the longer term benefits easier to grasp.

- **Redevelopment is more controversial than mixed-use development.** Community misgivings about developments tended to center on redevelopment much more than mixed-use projects. Moreover, the scale of the project is critical—large projects typically have bigger impacts and are more likely to create controversy.

- **Student housing projects can create controversy**. Cities with large universities (e.g., Corvallis and Eugene) reported more community concern about residential redevelopment. One small city with a university indicated that it did not experience such concerns, and that the student population was well integrated into the community.

- **Financial incentives are key**. The three cities that did not directly support mixed-use or redevelopment experienced very little. What was developed was half mixed-use and half employment redevelopment, with no documented residential redevelopment other than that contained in the mixed-use developments.

- **Definitions are tricky**. The definitions occasionally created challenges, such as group quarters (is it mixed-use? Is every bed a residential unit?) and redevelopment that shifted from residential to employment use (does it count as employment redevelopment?).

APPENDIX A: ANNOTATED BIBLIOGRAPHY

The following section contains a synopsis of the literature, organized by topic. The citation for the article is given in bold, followed by a short description of the main points.

Portland Metro Region Studies

Oregon Metro. *Non-residential Refill Rate Study*. Economic and Land Use Forecasting Measurement Program, October 2011.

The second such study done by Metro, the authors reviewed building permit data from 2001 to 2007 to measure non-residential, infill, redevelopment. Refill rates are defined as the percent of all commercial and industrial space constructed on already developed sites, compared with the overall increase in space in the same time period. Redevelopment was categorized by an increase in square footage. Throughout the study, rates are broken out into two categories: percent of space and permit value, which is quite different than percent of land area. Of 3,363 permits issued, 1,742 (52%) added new capacity. Of those permits, the refill rate for commercial property was 59% and for industrial property 22%, when measured by square feet of capacity. When measured by value, a rate of 70% was found for commercial, and 35% for industrial. In addition, the authors found there ~~were~~ was twice as much commercial development on refill land as there was on vacant land, by number of permits. Additionally, the median square footage of development on vacant land was higher than refill by ~35%.

Oregon Metro. *Refill Report—Measuring Past Refill Rates and Forecasting Future Refill*. Economic and Land Use Forecasting Measurement Program, December 2011.

Initially, the authors outline the importance of refill rates on urban growth, and how it relates to developing estimates for future land supply. Metro is unique in that these rates are legally required to be measured, and subsequently incorporated into their long range comprehensive plan. Briefly they mention from 2001-2006, refill accounted for 35-45% of residential development, and between 2001 and 2007, refill accounted for 60-70% of commercial development. Between 1996 and 2006, residential refill rates in the Metro area ranged between 18 and 42%, with an average of 31.6%. Commercial refill rates are aggregated over time, and are equivalent with the article discussed above—from 2001-2007, the refill rate for commercial property was 59% when measured by square footage, and 70% when measured by permit value.

The authors then attempt to develop a model to estimate future infill rates. Their methodology is hard to understand, but they do state assessor data is one of the most important pieces of base information when attempting estimates. The authors close with "In short, refill is not a determined quantity as theory would have it; rather it appears to be a statistical quantity requiring calibration and verification against actual refill events."

E.D. Hovee & Company, LLC. City of Portland Economic Opportunities Analysis: Section 1. Trends, Opportunities & Market Forces. Prepared for: City of Portland Bureau of Planning and Sustainability. Adopted by Ordinance No. 185657. 3 Oct 2012.

This economic opportunities analysis (EOA) was done to examine the 20-year supply and demand for employment development and land in the city. While the analysis does not directly address how to predict rate of development or redevelopment of mixed-use, the analysis does discuss mixed-use development and redevelopment as an important element in rising trends, opportunities, and market factors. The analysis identifies some important emerging trends within the study: First, the rise of more mixed-use development and high densities along major transit streets in neighborhood commercial corridors. Secondly, "expected space needs are relatively diverse, and there seem to be growing opportunities for more mixed-use and denser commercial space versus more traditional manufacturing and distribution activity" (v). Thirdly, while opinions of focus group members regarding greater density uses and redevelopment varied, focus groups discussed means by which to grow up rather than out.

Mixed-Use Development

Childs, Paul D., Riddiough, Timothy J., Triantis, Alexander J.."Mixed Uses and the Redevelopment Option." Real Estate Economics. Fall 1996. V24 3: pp. 317-339.

The primary purpose of this paper is to evaluate the potential for mixed-use development and redevelopment on property value, however the article also explores how the option and ability to implement mixed-use development and redevelopment affects the timing of initial land development. The authors found mixed-use development and redevelopment add to the value of the built property or under-developed land when the costs remain low. From this they conclude that there will be an increase in mixed-use development in soft and over-supplied markets. The authors argue that the "rate of development is faster… when costs to redevelopment are relatively low" (319).

Residential Redevelopment

Aichele, S., Andresen, J. *Spatial and Temporal Variations in Land Development and Impervious Surface Creation in Oakland County, Michigan, 1945-2005*. Journal of Hydrology, Issue 485, 2013.

While the authors are focused on the rate of change in impervious surfaces, their independent variable is the rate of residential development over time. The county in study maintains a parcel specific GIS dataset, of which 356,000 of the 540,000 parcels are residential. The dataset includes the year the structure was built, or redeveloped—however the authors say most redevelopment is attributed to seasonal lakeside cottages becoming year round residences, and is not typical of the entire dataset. The authors found over time, residential lot size increased. Prior to the 1960s, most residential development was on parcel sizes less than 8,000 square feet. However, starting in the 1950's, lot size began to increase, and by the 1980s and 1990s, lot sizes of over 1 acre were not only common, but smaller lot

sizes were no longer being built. The authors conclude "significant variability exists in the form of suburban residential construction, depending on both lot size and date of construction."

Charles, Suzanne. *Understanding the Determinants of Single Family Residential Redevelopment in the Inner-ring Suburbs of Chicago*. Urban Studies, Volume 50, Issue 8, June 2013.

The author analyzed parcel specific data of 128 neighborhoods in Chicago in an effort to find the determinants for redevelopment. She discusses the trigger for redevelopment in suburban residential areas as when a developer can justify a higher economic return on a more profitable use than what currently exists (i.e. single family home). Using demolition permits matched with property tax data between 2000 and 2009, the author used the following explanatory variables: housing characteristics (age, amenities, etc.), location relative to central business district, neighborhood socio-economics, and school district. The author found "properties with smaller houses, lower floor-area to lot-size ratios, and lower ratios of their value to that of their neighbourhood, as well as properties located in high-quality school districts, are more likely to be redeveloped. The median property value of a neighbour-hood does not have a large effect on whether a property is redeveloped, but neighbourhoods with higher proportions of Black and Hispanic residents were significantly less likely to experience redevelopment."

Charles, Suzanne. *The Spatio-temporal pattern of housing redevelopment in Suburban Chicago, 2000-2010*. Urban Studies, Volume 51, Issue 12, 2014.

The author used the same dataset as above to analyze where and at what speed suburban residential redevelopment occurs. She found "Findings confirm that teardown redevelopment is spatially clustered; forces above and beyond market forces contribute to teardowns, leading to a contagion effect." The most common factor was found to be school district, and that redevelopment initially started in places with highest incomes and then spread to less affluent, surrounding neighborhoods. Additionally the author found suburban redevelopment has one major difference than urban redevelopment—the potential increase of property value over time drove redevelopment, as opposed to redeveloping sole for a higher current property value.

Skidmore, M., Peddle, M. *Do Development Impact Fees Reduce the Rate of Residential Development?* Growth and Change, Volume 29, Fall 1998

The authors examined the relationship between development fees and residential redevelopment in DuPage County, Illinois (located 30 miles from Chicago), between 1977 and 1992, during which it was the fastest growing county in the state in terms of absolute population growth. Comparing the date of adoption for impact fees, and development rates before and after adoption, the authors found they have a negative impact on redevelopment, reducing it by up to 25%. A case is made that impact fees can serve as a growth management tool, but can also encourage refurbishing of the current housing stock.

Wilson, B., Song, Y. *Do Large Residential Subdivisions Induce Further Development?* Journal of the American Planning Association, Volume 77, Issue 1, October 2010

Utilizing counties in Florida as a case study, the authors use empirical data and regression modeling to determine if large subdivisions spur the development of additional subdivisions. Analyzing parcel changes, they identify factors to predict which parcels will subsequently be redeveloped, based on a radius of ¼ mile, ½ mile, and 1 mile. The authors found a positive correlation between the proximity to a large subdivision, and the likelihood that a neighboring parcel would subsequently be developed. In an attempt to explain the phenomenon, they state "Large subdivision projects send at least two clear signals to other members of the development community: that residential development in the area is profitable, and that development proposals in this location are likely to be approved, or at least have a reasonable chance of being approved, by local government."

Commercial Redevelopment

Munneke, H. *Redevelopment Decisions for Commercial and Industrial Properties.* Journal of Urban Economics, Issue 39, 1996

Munneke strived to provide empirical evidence for redevelopment decisions, namely that an investor would only choose to redevelop a site if the redeveloped value is higher than the value of the current property use. Using data from Chicago between 1987 and 1990 and looking at demolition permits and sale prices, Munneke found his hypothesis to be true. His evidence supports commercial and industrial sites will only be redeveloped when the value of the redeveloped parcel is higher than the current value of the parcel plus demolition costs.

Klebba, Jennifer R., Mindee D. Garrett, Autumn L. Radle, and Bryan T. Downes. "Downtown Redevelopment in Selected Oregon Coastal Communities: Some Lessons from Practice." Downtowns: Revitalizing the Centers of Small Urban Communities. New York, NY: Routledge, 2001. Print.

This chapter consists of five case studies of Oregon coastal cities in their efforts to redevelop downtown. The study covers the financial, physical, function, and political strategies used to encourage downtown redevelopment, as well as the primary obstacles each of the cities face. These challenges and obstacles include: absentee property owners, lack of public participation and stakeholder involvement/leadership, outside (state) agency hindrances, and land use decisions that have hindered the downtown economy.

Additional Articles

United States Environmental Protection Agency. *Attracting Infill Development in Distressed Communities: 30 Strategies.* EPA 230-R-15-001, May 2015.

McMahon, Edward T. *In Building Size and Age, Variety Yield Vibrancy*. UrbanLand: The Magazine of the Urban Land Institute. August 7, 2014

APPENDIX B: CASE STUDIES

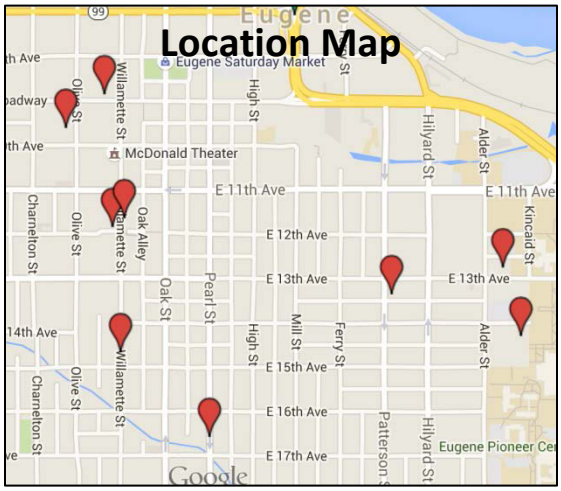
Appendix B presents detailed information for the mixed-use development and redevelopment case study communities. The research team conducted case studies of the following cities:

- Bend
- Corvallis
- Eugene
- McMinnville
- Monmouth
- Ontario
- Pendleton
- Salem

The research team conducted interviews with planners or city administrators from each of the case study communities. We requested that representatives from the case study communities identify mixed-use development and redevelopment activity using a Google map. We requested specific data about each development – the address, the type of development, and the number of dwelling units and/or employment space included with each development. We also asked city staff tell us about policies their city has adopted to encourage mixed-use development and redevelopment, their perceptions of market conditions for this type of development, and community attitudes toward this type of development. Summaries of each case study are included in Appendix B.

Eugene

Mixed-Use and Redevelopment Case Study



Summary Data

- City Population: **158,335**
- Total Developments: **9**
- Number of Buildings: **12**
- Approx. acreage: **Unknown**
- Number of Residential Units: **634**
- Employment square footage: **192,540 ft^2 documented**

Development Narrative

	Type	Style	Details
1661 Pearl St.	Mixed-use Development	Mixed-Use Apartment	This building included 100 residential units and 4,250 ft^2 of commercial space and an enclosed parking garage.
101 W. 10th Ave.	Mixed-use Development	Community College Downtown Center	This development included 255 dormitory style bedrooms in 178,140 total ft^2 of combined residential, academic and office space.
45 W Broadway	Mixed-use Redevelopment	Remodel	This redevelopment added 16 residential units, and reduced the amount of commercial space.
1180 Willamette St	Mixed-use Development	New Construction	This 3-building development included 110 residential units and undocumented square footage of commercial space.
1331 Patterson St.	Mixed-use Development	Demolition and Rebuild	This apartment complex includes 100 dwelling units and undocumented square footage of commercial space.
1414 Kincaid St.	Mixed-use Development	Student Housing	This development includes 45 residential units, undocumented square footage of commercial space, and a parking garage.
839 E. 13th Ave	Mixed-use Development	New Construction	This development consists of 3,297 ft2 of ground floor commercial and 2 second-floor dwelling units.
1167 Willamette St.	Mixed-use Development	Fire Replacement	This development includes 3 residential units over 4,250 ft^2 of first floor commercial.
1460 Willamette St.	Mixed-use Development	New Construction	This 2-building development consists of 3 residential units over a garage and 2,603 ft^2 of commercial space.

Community Context: Eugene

City Policies

Eugene has previously used Urban Renewal and Multi-Unit Property Tax Exemption (MUPTE) to facilitate redevelopment in certain areas of the city. Redevelopment in the form of affordable housing has also been supported through the Low Income Rental Housing Property Tax Exemption (LIRPTE) and federal funds. The City has amended zoning code standards in some areas that make it easier to mix office and industrial uses (though that is not included in "mixed use" for the purpose of this DLCD study), to mix general employment and residential in employment zones, and to make it easier to develop housing in downtown (a mixed-use zoning district).

Market Forces

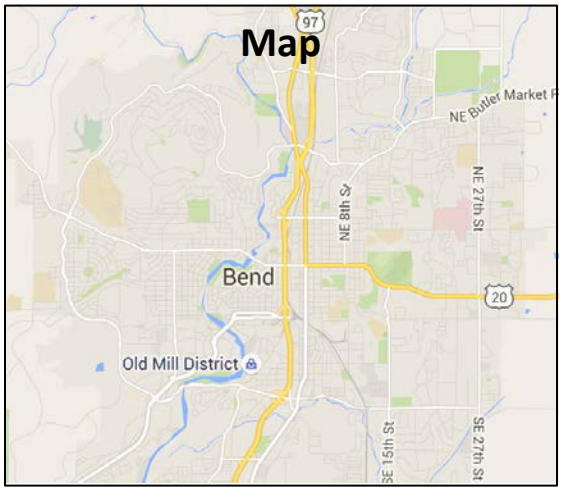
For housing redevelopment, a city study found that there has not been significant activity except for special markets like student housing or development that is supported by incentives like tax exemptions or affordable housing funding. Based on key observations from a pro forma based analysis for estimating market driven redevelopment, redevelopment is highly sensitive to rent rates, construction cost and buyer behavior. In Eugene, rent rates have been flat for many years, yet construction costs have continued to rise. Low average wages in the community contribute to low rent and lease rates. As a result, market conditions are difficult for redevelopment in Eugene and very little market-driven redevelopment is expected to happen over the next 20 years. In many employment-related redevelopment cases, the redevelopment expected would not meet the definition of this study as it would replace one lower density use with another and not actually adding more employment square footage.

Attitudes Towards Development

Community – Envision Eugene, the community vision for the next 20 years of growth, includes the facilitation of residential redevelopment including mixed-use development along key corridors as a primary growth strategy. Mixed use is generally conceived of horizontally, rather than only vertically in the same building. The community has been very supportive of the code amendments described above that allow mixed use. All of the significant residential redevelopment of the past five years has been in the form of student housing, and the city has heard concerns about neighborhood character, regardless of whether it is in the form of redevelopment or greenfield development. Attitudes towards financial tools that support redevelopment are mixed in the community.

Bend

Mixed-Use and Redevelopment Case Study



Summary Data

2012 Population: **77,455**

Total Developments: **0**

Number of Buildings: **0**

Approx. acreage: **0**

Number of Residential Units: **0**

Employment square footage: **0**

Development Narrative

No developments fit the criteria for mixed-use or redevelopment from the past five years. Some properties have been rezoned in such a way to support future mixed-use or redevelopment, but no actual construction has occurred outside of greenfield development in the past five years. The vast majority of recent development has been in the form of single-family detached housing. The city has areas of mixed-use development (e.g. Mill district), but those are generally a mix of uses within an area, rather than a mix on a single tax lot.

Community Context: Bend

City Policies

The city does not have any policies to specifically encourage redevelopment or mixed-use currently. Some special planned areas such as the Mill District, Northwest Crossing, and Murphy Crossing encourage mixed-use in the zoning, but not through policies or programs. These areas promote a mix of housing types and employment. The Central Oregon Community College also has a master plan with a mix of uses, which it is in the process of developing. The City does have a track record of working with developers who want mixed-use or redevelopment to assist them, but not through policies or programs. The upcoming UGB expansion package will include efficiency measures to encourage redevelopment in targeted areas.

Market Forces

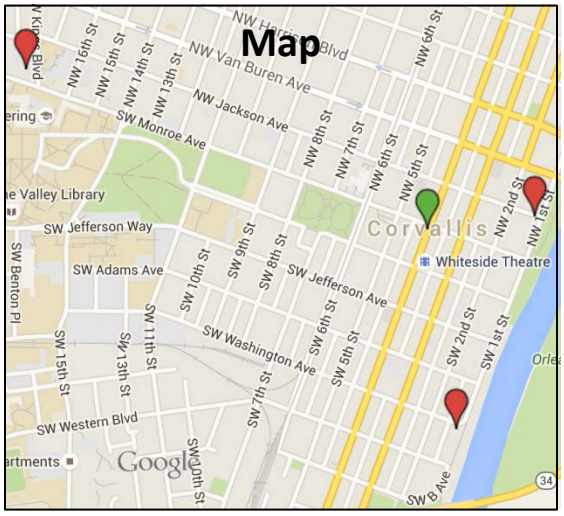
Due to the current ease of greenfield development, the market is not pushing for either mixed-use or redevelopment. Land prices are rising, but not enough to divert the trend from single-family construction. Some multi-family housing has been built recently, but on a small scale. Anecdotally, system development charges have been suggested as a limiting factor to some development.

Attitudes Towards Development

Community – There are certain political interests that want to see mixed-use and infill, but neighborhood residents often resist things like accessory dwelling units and short-term rentals. Oregon State University has been approved to build a 4-year university in Bend and found a good site, but also faced significant opposition in the form of an appealed site plan. The City is still working on bridging the communication gap between these interests.

Corvallis

Mixed-Use and Redevelopment Case Study



Summary Data

- 2012 Population: **55,055**
- Total Developments: **3**
- Number of Buildings: **3**
- Approx. acreage: **Unknown**
- Number of Residential Units: **unknown**
- Employment square footage: **Unknown**

Development Narrative

	Type	Style	Details
The Jax	Mixed-Use Development	High-end apartments	This development includes retail on the first floor, high-end apartments on the upper floors, and surface parking.
The Renaissance	Mixed-Use Development	High end condominiums	This development consists of below-ground parking, ground floor retail, and offices and condominiums on the upper floors.
OSU Building	Mixed-Use Development	Student Housing with mixed employment	This building was originally built by the OSU bookstore, but was since leased to restaurants (including McMenamins), coffee shops, offices and 2 or 3 floors of student-oriented apartments

Community Context: Corvallis

City Policies

Corvallis does not have any financing programs to support mixed-use projects or redevelopment, but the code does encourage mixed-use through zoning and minimum floor to area ratios (FARs) The downtown area also has relatively low parking requirements, which can help mixed-use projects pencil out.

Market Forces

There is a market push around student housing, but the type of residential redevelopment that has occurred has primarily been the replacement of fraternity and sorority houses with townhomes, which is difficult to categorize as redevelopment in this case. Similarly, single-family homes are being "redeveloped" as larger single-family homes, which do not qualify as redevelopment for this study.

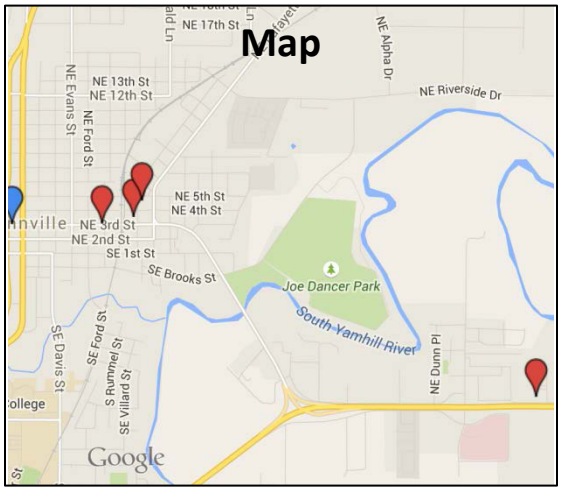
Attitudes Towards Development

Community – The community has expressed some reservations about residential redevelopment based on parking impacts and other changes to the neighborhood character. The response to mixed-use projects depends on the individual development, but has generally been positive or neutral.

Elected Officials – Elected officials have not expressed objections to mixed-use projects, but neither have they offered support. Redevelopment has a more negative perception as a type of development

McMinnville

Mixed-Use and Redevelopment Case Study



Summary Table

- 2012 Population: **32,435**
- Total Developments: **4**
- Number of Buildings: **4**
- Approx. acreage: **2.6**
- Number of Residential Units: **50**
- Employment square footage: **47,970**

Development Narrative

	Type	Style	Details
Village Quarter	Mixed-Use Development	Demolition and New Construction	This development included 50 residential units in the form of senior-only affordable housing and 9,799 ft^2 employment space replacing a dilapidated storage barn.
Kaos	Employment Redevelopment	Demolition and New Construction	This development replaced a single-story repair shop with increased space totaling 13,200 for office, restaurant and retail uses.
Marjorie House Memory Care Facility	Employment Redevelopment	Demolition and New Construction	This 44 bed facility of roughly 21,150 ft2 replaced an older home and garage in what had largely developed as a commercial area in an office residential zone.
Buchanan Cellars	Employment Redevelopment	Demolition and New Construction	This development replaced two older homes with 3,920 ft2 for employment and warehouse uses.

Community Context: McMinnville

City Policies

The four developments described above were constructed without any incentives from the city itself aimed at mixed use or redevelopment. The Village Quarter development received application fee discounts as an affordable housing project. Zoning is generally friendly to mixed use, with most commercial zones allowing multi-family housing outright. The City adopted an urban renewal district about a year and a half ago, but this tool has not yet been implemented regarding either mixed-use or redevelopment.

Market Forces

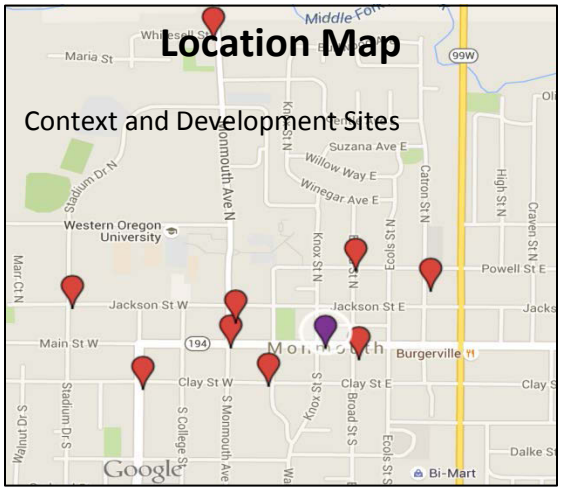
The market in McMinnville has not seen a strong push for redevelopment or mixed-use projects. The City would support such developments if they were proposed, but the market has been slow. McMinnville's distance from Portland may have an impact on the market push, as it us just far enough away that development does not respond to those market forces.

Attitudes Towards Development

Community – The community is fully supportive and has been excited to see the development that has occurred. The Kaos building was a particularly exciting case, as it took its name from an illegal WWII radio station, and has strong roots in local history. There has not been much development in the past ten years.

Monmouth

Mixed-Use and Redevelopment Case Study



Summary Data

- City Population: **9,755**
- Total Developments: **9**
- Number of Buildings: **9**
- Approx. acreage: **Unknown**
- Number of Residential Units: **34**
- Employment square footage: **3,000**

Development Narrative

	Type	Style	Details
183 Main St W.	Mixed-use Redevelopment	Rebuild of Burned Commercial	This building was a restaurant that burned and was rebuilt with six 2nd story apartments (3800 ft^2) and an additional 3000 ft^2 of retail. The City assisted with a grant/loan package using Urban Renewal District funds.
169 Broad Street S.	Mixed-use Redevelopment	Rehab	This development added a 2nd story apartment (540 ft^2) to existing retail. The City assisted with a façade improvement grant.
159 Monmouth Ave	Mixed-use Redevelopment	Rehab	This development added a 2nd story duplex (2552 ft^2) to existing retail. The City assisted with a façade improvement grant.
220-250 Warren St	Residential Redevelopment	Demolition and Rebuild	This development replaced a single family with two duplexes (6,000 ft^2).
595-599 Jackson Street	Residential Redevelopment	Demolition and Rebuild	This development removed an existing single-family home and added a triplex (4004 ft^2).
227-233 Whitman St	Residential Redevelopment	Rehab	This development added a duplex onto an existing single-family house (2936 ft^2).
231 Whitesell Street W. 1-7	Residential Redevelopment	Demolition and Rebuild	This development replaced a single family dwelling with 7 apartments (11,820 ft^2).
285 Broad Street N.	Residential Redevelopment	Rehab	This development added two quad dwellings onto a single-family (721 ft^2).

Community Context: Monmouth

City Policies

Monmouth uses its Urban Renewal District and Main Street District to encourage redevelopment and mixed use development.

Urban Renewal – The City has offered loan/grant packages and a dozen façade improvement grants through Urban Renewal funds to encourage redevelopment and mixed-use within the Urban Renewal District.

Main Street District – The City also encourages mixed-use development through code in its Main Street District. Any development of a certain size must include commercial element as primary use.

Additional policies focus on the downtown core for economic development, which encourages redevelopment.

Market Forces

The market pushes redevelopment and mixed use. When opportunities to develop become available, developers actively pursue them. The university student population is a primary driver of the market. Due to the size of the city and historic patterns, student housing is dispersed throughout the city. In Monmouth, 40% of housing is of duplex or higher density. For properties in medium or high-density zones, additional units can be built without dividing properties

Attitudes Towards Development

Community – The community is generally supportive of mixed-use and redevelopment projects, in part because the developments tend to be small. In the long term, this development is the payoff of 15 years of investment in downtown. While students drive the market demand for the housing, the community has a positive attitude towards students and the University. City staff suggested that the students who come to Western Oregon University are looking for a smaller, quieter community for their college experience, and their behavior does not result in conflict with residents.

Ontario

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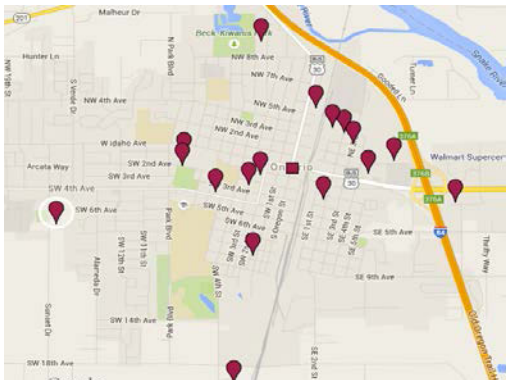
Map



Summary Data

- 2012 Population: **11,147**
- Total Developments: **17**
- Number of Buildings: **18**
- Approx. acreage: **Unknown**
- Number of Residential Units: **1**
- Employment square footage: **17828+** (some additions' square footage unknown)

Development Narrative – Profiles of Six Selected Sites

	Type	Style	Details
589 NE 1st St.	Industrial Redevelopment	Addition of a rail dock & conditioning tower	Americold, a cold storage facility, has made two separate additions on different lots in 2011 and 2015 respectively. Both have increased employment square footage by a total of about 7000sf.
1255 SE 1st. Ave.	Commercial Redevelopment	Restaurant addition	Wingers Roadhouse Grill, a restaurant near I-84 added 1008sf to their establishment in 2011.
555 SW 4th Ave.	Commercial Redevelopment	Grocery store addition	The Red Apple Marketplace is a full service, faith-based grocery store that added 611sf in 2013.
201 SE 2nd St.	Commercial Redevelopment	Retail store addition	Wilkins Saw and Power Equipment is a retail hardware store that added 800sf of retail space in 2014.
702 Sunset Dr.	Office Redevelopment	Office space addition	Lifeways is a behavior health clinic that offers mental health services in Eastern Oregon and Western Idaho. The Ontario location shares a building with the DMV and added 700sf of office space in 2015.
863 SW 1st St.	Residential Redevelopment	Single family converted to duplex	In 2012, this lot added an additional house behind the main structure, increasing the residential capacity by 1 unit.

Community Context: Ontario

City Policies

System Development Charges (SDCs) – The City of Ontario normally uses SDCs to cover the infrastructure costs associated with development. The City uses SDCs to cover water and sewer system improvements and transportation improvements. Water and sewer SDCs depend on the water meter size of added development, while the transportation SDCs depend on number of residential units (for residential development), number of employees or users (for industrial or institutional development), or square footage (for commercial development). For 2014 and 2015 however, the City has placed a moratorium on SDCs to encourage development. As long as the moratorium lasts, developers are not responsible for paying SDCs.

Code Review Streamlining – The City has also streamlined the review process for new developments. The Hearings Officer now has more authority to approve proposed developments. The City made this change recently in the hopes that a quicker approval process would incentivize development.

Market Forces

The research team was unable to speak to local officials about market forces.

Attitude Towards Development

Community – According to Ontario's Planning and Economic Development Director, the residents of Ontario are very supportive of development. Residents want to see their city grow and improve.

Elected Officials – Ontario's Planning and Economic Development Director says that current and past elected officials have been very active in promoting development in the City. Elected officials were responsible for the moratorium on SDCs and also played a role in pushing for a streamlined review of new development proposals.

Pendleton

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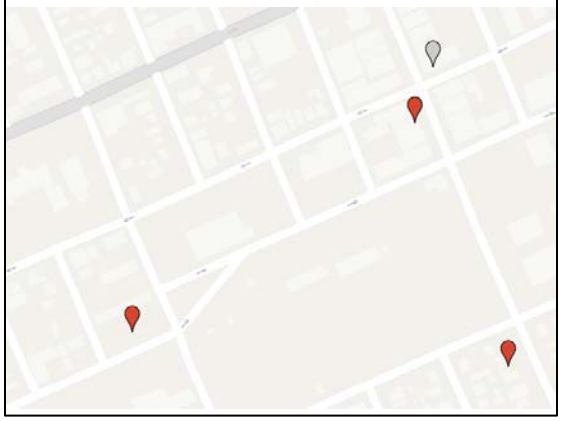
Location Maps



Summary Data

- 2012 Population: **16,715**
- Total Developments: **3**
- Number of Buildings: **4**
- Approx. acreage: **Unknown**
- Number of Residential Units: **20**
- Employment square footage: **Unknown**

Development Narrative

	Type	Style	Details
421-423 S Main St.	Mixed-Use Redevelopment	Rehab of historic building	This building is part of the downtown historic district and falls within Urban Renewal boundaries. City granted urban renewal funds for redevelopment: $100k for an elevator, $25,500 for façade improvements, and $10k for a sewer line. The upper level, previously vacant, now has 6 residential units. Ground floor houses office space, a salon, a dance studio, and a photography business (unknown square footage).
S Main St. Duplex	Residential Redevelopment	Demolition and rebuild	This property originally had one residential structure and falls within Urban Renewal boundaries. City granted urban renewal funds for redevelopment: unknown amount for demolition of existing structure. Developers recently completed a duplex on the lot.
Frazer Apartments	Residential Redevelopment	Demolition and rebuild	This property originally had one residential structure and a mobile home, and falls within Urban Renewal boundaries. City granted urban renewal funds for redevelopment: unknown amount for demolitions of existing structures. Developers recently completed a 12-unit apartment complex on the lot.

Community Context: Pendleton

City Policies

Pendleton uses both Urban Renewal and land acquisition to encourage redevelopment.

Urban Renewal – The City offers grants, funded through Urban Renewal, for demolitions, façade improvements, and improvements to 2nd story access. The City also often assists with land preparation using Urban Renewal funds.

Land Acquisition – Although land acquisition has not spurred *re*development in the past 5 years, the City occasionally purchases and sells or leases land to developers at reduced rates to encourage development. The City's recent acquisition and preparation of vacant land near the Olney Cemetery resulted in the development of 25 new residential units, with the potential for 47 more units in the future.

Market Forces

Pendleton lacks a robust supply of mid-range to high-end residential units. Much of the redevelopment described in the Development Narrative above resulted partially from developers' desire to improve and expand Pendleton's housing stock. In 2010, the developer of 421-423 S Main cited the lack of higher-end housing as his primary impetus for redeveloping the Main Street property (*East Oregonian*, 4/21/10).

Attitudes Towards Development

Community – According to Pendleton's planning and community development staff, residents have a wide range of opinions regarding redevelopment. While many residents support the idea of development and growth in their city, many dislike the disruptions caused by redevelopment, and others feel the Urban Renewal district unfairly has access to more resources than other areas of the city.

Elected Officials – Pendleton's planning and community development staff report that the City Council generally supports and encourages redevelopment, particularly through their function as the Pendleton Development Commission, the entity that administers Urban Renewal funds. One member of Pendleton's City Council is himself a developer and has leveraged Urban Renewal funding often for improvements and expansions of residential units in the downtown core.

Salem

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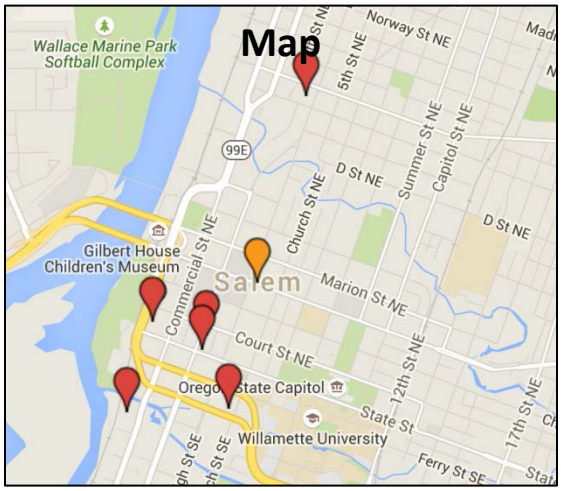

Summary Table

- 2012 Population: **147,250**
- Total Developments: **6**
- Number of Buildings: **6**
- Approx. acreage: **Unknown**
- Number of Residential Units: **275**
- Employment square footage: **110,902**

Development Narrative

	Type	Style	Details
South Block Apartments	Mixed Use Redevelopment	Demolition and Rebuild	This redevelopment of a former paper manufacturing plant includes 185 residential units and approximately 15,000 ft^2 of commercial space.
295 Church Street	Mixed Use Redevelopment	Demolition and Rebuild	This redeveloped site includes 27 units and 14,400 ft^2 of commercial space.
Broadway Town Square	Mixed Use Redevelopment	Demolition and Rebuild	This redevelopment of a former fraternal organization property includes 21 residential units and 19,000 ft^2 of commercial space.
Metropolitan	Residential Redevelopment	Mixed Use Renovation	This renovation of a downtown building added a new residential floor with 8 units and had existing 20,900 ft^2 of commercial space.
The Rivers	Mixed Use Development	New Construction	This condominium tower includes 25 residential units and 30,715 ft^2 of commercial space.
McGilchrist-Roth Building	Mixed Use Redevelopment	Historic Building	This redevelopment of a downtown historic building included 9 residential units and 10,887 ft^2 of commercial space.

Community Context: Salem

City Policies

Salem has primarily supported mixed-use development and redevelopment through its Urban Renewal District and Historic district downtown and in nearby areas. These are also the areas with zoning that allows mixed use. The City is also working to simplify the zones that allow mixed use, which are primarily overlay zones at this point.

Urban Renewal – The City offers grants and tax breaks, funded through Urban Renewal, for demolitions and renovations in the downtown Urban Renewal district.

Historic Preservation – Historic preservation incentives come in the form of state and federal tax breaks, with some small city grants. While most historic districts are strictly residential, the downtown historic district is used to promote redevelopment and mixed use.

Market Forces

Mixed-use development was much more prevalent during the height of the market. Since the Great Recession, many of those developments lost money, though they are starting to be successful now. Particularly mixed-use developments with expensive condos struggled to make a profit since single-family homes are relatively inexpensive in Salem. The market is still not strong for mixed use, so the City uses incentives strategically.

Regarding redevelopment, there was much more residential infill in the past ten years through lot divisions and accessory dwelling units, but that has tapered off due to the market crash and small lot sizes. Employment redevelopment is occurring in South Salem exclusively due to market forces. The City does not have any programs to support it, but strip malls are being redeveloped and quickly leased. Other parts of town have no redevelopment, so it is highly dependent on the area.

Attitudes Towards Development

Community – The community is generally quite supportive of mixed use and redevelopment. The City is looking to meet some of its current residential land need through mixed-use development, and City staff indicated that the public seems to support this strategy.

Elected Officials – City Council and other leadership are very supportive of mixed use. The mayor lives in a mixed-use building.