

A PATH FOR DETERMINING EMPLOYMENT LAND NEED

This document summarizes requirements for determination of employment land need. It also provides a list of considerations in drafting a path. Finally, it includes a discussion draft of a methodology for determining employment need, inventorying employment land, and determining long term land need. The department consulted with a small group to discuss issues and ideas regarding employment need, including Terry Moore (ECO Northwest), Gail Krumenauer (OED), Ted Reid (Metro), Brendan Buckley (Johnson Economics), Eric Hovee (E. D. Hovee & Company). The “considerations” in the list below derived from those discussions.

Requirements regarding employment land determination:

“197A.312: Under the method adopted by the commission ... a city’s determination of the amount of buildable lands needed for ... employment ... must be based on the population and employment growth forecast to occur over a 14-year period... 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 ... employment... The factors must ... 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 ...; [must] 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; [must] be designed to encourage an increase in the land use efficiency of a city, subject to market conditions; [and must] provide a range of policy choices for a city about the form of its future growth” (emphasis added).¹

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.

¹ This quote is from the section for large cities, but the law has identical language for small cities (197A.310 (3)). According to the legislative history (Richard Whitman document), the streamlined method for larger cities (over 10,000) parallels the method for the smaller cities with the following differences:

- The buildable lands inventory, identifying development potential on vacant and partially-vacant lands must be more thorough than for smaller cities;
- The factors for forecasting the development and redevelopment capacity of lands that are already inside of the UGB, but not yet given urban planning and zoning, will be more refined.
- Larger cities must consider measures to encourage further redevelopment and infill, and either adopt at least one of those measures or show that it already has a rate of redevelopment over the planning period that exceeds the median for the area.

2. Forecasting employment land need for a city based on the OED long term forecast is challenging for a number of reasons. For example, the forecast is a 10-year forecast (according to OED staff, they are considering changing to an 8-year forecast). OED has asserted that they will not extend the forecast to 14-years, so DLCD must 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. The OED forecast is issued for nine regions rather than for individual cities (See attached map). The regional forecast is strongly influenced by particular employment centers within the region and as such it may not accurately predict 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. Finally, the OED forecast has historically over-estimated employment. (These problems are described here, not in order to suggest not using the OED forecast, but rather as considerations in drafting a path.)
3. Forecasting population growth by itself is also an imperfect indicator of long term employment. For example, 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. We note that the method could provide an acceptable “range” for making this assumption but there must be some basis for this, which could be challenging. A city that wants to fundamentally alter its employment characteristics, in terms of numbers or employment types, would not be able to use this path for determining need.
4. More important, a job forecast will be most useful for UGB planning purposes if it distributes forecast jobs by various sectors, i.e., a certain percent will be retail, some will be service, and some manufacturing or warehouse. 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 over the past 10 years. However, the current mix of these sectors might be unobtainable 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. Or as a third option, the method could propose a general mix to be used for the calculation, based on the U of O research (and this could in turn include ranges). The example below uses this method.
5. Jobs currently in a particular city determined from OED data include jobs that are on residential land or land zoned for uses other than commercial or industrial. UO research suggests this may be around 20% of jobs. This needs to be taken into account when forecasting long term employment land need based on the jobs forecast.
6. 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 small group suggested we could use only four basic categories: Retail, manufacturing, services 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 – but these are not necessarily limited as described here). 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.

7. 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 could try and combine these, for example, predicting long term retail and service employment using the population forecast and other sectors using the OED forecast. However, the small group has suggested that we not mix the population method with the OED forecast method.
8. 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.
9. 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.
10. In order to forecast employment land need from a job forecast, the method should use a job-to-land ratio. These ratios vary by regions and by employment sectors. The U of O research could not determine much variation by city size. Employment density will probably become more efficient in the future but there is not agreement in predicting the magnitude of this change. UO research provided information to help the RAC estimate current employment density for commercial and industrial land. The examples below use this data.
11. 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.

Draft Ideas for an Employment Land Path

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

TASK ONE: Forecast Jobs in the UGB.

TASK TWO: Determine gross employment land need by sector

TASK THREE: Translate job forecast to Employment Land Need

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

TASK FIVE: Adjust BLI to Account for Constrained Lands

TASK SIX: Calculate Land Need

TASK ONE: FORECAST JOBS IN THE UGB

OED Employment forecast method: Option A

1. Determine the 10-year job forecast for the region in which the city is located (i.e., one of the 9 workforce areas in the most recent OED forecast), from the most recent employment forecast issued by the Oregon Employment Department.
2. Project the number of new jobs in the region for the 14-year planning period using a straight-line extrapolation of the 10-year regional job forecast (or other method?)
3. Determine the number of jobs currently¹ within whichever OED region includes the city.
4. Based on OED data, determine the city's share (%) of the total number of jobs currently in the region.
5. Based on OED data, determine the city's share of the region's growth in the last 10 years (could be a look-up table).
6. Average the answers from steps 4 and 5.
7. Multiply the regional 14-year regional forecast (Step 2) by the city's share of jobs and growth in the region determined in in step 6. The result is the projected total number of new jobs in the UGB for the 14-year planning period.

PSU Population forecast method: Option B

1. Determine the forecasted population for the city's urban growth boundary in 14 years, based upon the most recent forecast issued by the PSU Population Research center (for the 14-year period from the year in which the urban growth boundary analysis is begun).
2. Determine the total number of jobs currently in the city, from OED (Ignore "uncovered" employment and exurban UGB area.²)

² Data on uncovered is obtainable, according to OED staff. If the RAC recommends that the rule do so, the method must be altered to reflect that data. The work group suggests it will not make much difference. DLCDC will want city-level data for the most current year (2013 at this point) broken out into a few broad categories, such as industrial and retail. In order to complete a request like that, DLCDC and its designated research entity(ies) must

3. Determine the current population of the city (most recent PSU population estimate).³
4. Determine current⁴ jobs/population ratio from steps 2 and 3.
5. Multiply the forecasted population of the UGB by the current ratio of employees to population in the city (determined under number 4, above). The result is the projected total number of new jobs in the UGB for the 14-year planning period.

TASK TWO: Determine 14-year employment land need in the UGB by sector or category

OED Forecast Method: Option A

1. Determine the share of overall forecasted growth by sectors for the OED region in which the city is located (either two, three, or four sectors, as described in Consideration #6, above; recommendation is that sectors be assigned to “commercial” and “industrial”).
2. Divide the overall job forecast for the city, determined in TASK ONE, into these shares. This provides the city’s 14-year job forecast by sectors or category.
3. Presume that 20% of the forecasted jobs will occur on residential or other land. Reduce the forecast in step 2 by that amount divided among sectors (will vary depending on how many sectors we choose).

Projection of Current Mix: Option B

1. Determine the share of overall forecasted growth by sectors for the city based on OED data. Note: if this data is not available (due to OED confidentiality limits) for all the sectors (either two, three, or four sectors, as described in Consideration #6, above), this method may not be used.
2. Presume that the same share of jobs will remain constant throughout the 14-year period (divide the overall job forecast for the city, determined in TASK ONE, as per the current share for each sector). This provides the city’s 14-year job forecast by sectors.
3. Presume that 20% of the forecasted jobs will occur on residential or other land. Reduce the forecast in step 2 by that amount divided among sectors (depending on how many).

provide OED a list of industries/NAICS codes for each of those broad categories (e.g., categories F, G, J, and I would be “commercial” while categories C and D would be “industrial”).”

³ Presume 1 and 2 results apply to the entire UGB, including areas outside city limits (we could instead do some sort of exercise to get the population and employment numbers for land outside city limits that is in the UGB, but these will probably be relatively small numbers so likely won’t make a difference).

⁴ Or most recent date for which this data is available from OED

UO research Method: Option C

This example provides a method considering only two types of employment, each which is a collection of various sectors. The UO research provides amounts for at least two divisions, industrial and commercial, so we may use these amounts in this option. Furthermore, to illustrate how we might apply “ranges”, this option proposes ranges in steps b and c, below.

1. Segment the total employment growth amount determined in TASK ONE as follows:⁵
 - a. Employment growth on residential and "other" lands: 20 percent of total employment growth.
 - b. Employment growth that is industrial: between ten percent and 20 percent of total employment growth.
 - c. Employment growth that is commercial: between 60 percent and 70 percent of total employment growth.

STEP THREE: Translate job forecast to Employment Land Need

Note: this method uses employee density determinations from UO research for two categories of land – commercial and industrial.

1. Determine the amount of industrial employment land need as follows:⁶
 - a. Cities with population of less than 10,000 shall determine industrial land need by dividing the number determined under step 1.b, above, by a number between **five and seven employees per acre**⁷ to determine the 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.⁸
 - b. Cities with population of 10,000 or greater shall determine industrial land need by dividing the number determined under step 1.b., above, by a number between **ten and 12 employees per acre** to determine the amount of industrial land needed. Add an amount of

⁵ The percentages of employment on different types of land are based upon the University of Oregon research results. The projected growth on residential and “other” lands suggested here is slightly higher than the research totals, because the research included only “covered” employment, and the professions in “uncovered” employment would be more weighted toward location as home-based businesses in residentially-zoned areas. The RAC should discuss whether a “commercial” and “industrial” breakout is sufficient, or whether a more detailed breakout into “services,” “retail,” “manufacturing,” and “warehouse,” or some other breakout, is appropriate (SOURCE: TABLE 5-4).

⁶ The ranges of industrial employment density per acre are based upon the University of Oregon research results (SOURCE: TABLE 5-13).

⁷ The yellow shaded suggestions are based on the UO research.

⁸ This would account for streets and public rights of way. There is no need for additions related to parks or schools when dealing with employment land.

land equal to 15% of the needed amount of net acres to determine the needed amount of gross acres.⁹

2. Determine the amount of commercial employment land need as follows:¹⁰
 - a. Cities with a population of less than 10,000: determine commercial land need by dividing the number determined under step 1.c., above, by a number between **12 and 15 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.¹¹
 - b. Cities with a population of 10,000 or greater: determine commercial land need by dividing the number determined under step 1.c., above, 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.¹²

TASK FOUR: Buildable Land Inventory for Employment land within the UGB¹³

1. Identify all vacant parcels with an employment (generally commercial or industrial) comprehensive plan designation. 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 (generally 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

⁹ This would account for streets and public rights of way. There is no need for additions related to parks or schools when dealing with employment land.

¹⁰ The ranges of commercial 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. There is no need for additions related to parks or schools when dealing with employment land.

¹² This would account for streets and public rights of way. There is no need for additions related to parks or schools when dealing with employment land.

¹³ As per footnote 1 on page 1, this method is supposed to be “more thorough” for larger cities, and the factors for forecasting the development and redevelopment capacity of lands in the UGB, but not yet given urban planning and zoning, is supposed to be more refined. This draft does not propose a difference; the RAC should discuss ideas to make this distinction.

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

¹⁵ “Improvements” needs definition. This step will require an aerial survey.

TASK FIVE: Adjust BLI to Account for Constrained Lands

1. Identify the following physical constraints on category of land identified as buildable in Task Four:
 - 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 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 factors²⁰:
 - 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 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.

¹⁶ Will need proper terminology. Administrative rules do not currently preclude employment land within 100-year floodplains.

¹⁷ Will have to determine which inundation zone boundary to use.

¹⁸ Should include language 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.

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.

4. Reduce the amount of each type of needed employment buildable land determined in Task Four, Step 3, by the amounts determined in Task Five to determine the amount of buildable employment land in the UGB, both commercial and industrial.

TASK SIX – Calculate Land Need

1. Compare the amount of land needed for commercial and industrial development in Task Three with the amount of buildable land available for commercial and industrial development as determined in Tasks 4 and 5.
 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 urban growth boundary may be expanded by the amount of land needed for employment development.
 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 commercial land need shall first be met by re-designating industrially-designated land, but not to a level below the industrial land need. If after such re-designation of industrial land the amount of buildable land available remains less than the amount of land needed for commercial development, then the urban growth boundary may be expanded by the remaining amount of land needed for commercial development.
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