

Appendix B-2

AMATS Future Growth Forecast Report

2015 – 2040 Population, Household,
and Employment Forecast
Technical Memorandum

Anchorage 2040 Land Use Plan

A Supplement to Anchorage 2020 - Anchorage Bowl Comprehensive Plan



Appendix B: Future Growth and Land Capacity Report

For Planning and
Zoning Commission
Recommended Draft 2040
LUP, dated June 5, 2017

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**Anchorage and Matanuska-Susitna Borough
2015 - 2040 Population, Housing and Employment Forecast**

PREPARED FOR: Anchorage Bowl Land Use Plan Map Project
PREPARED BY: Municipality of Anchorage Planning Department
DATE: January 12, 2015

1 Introduction

1.1 Project Background

The Land Use Plan Map (LUPM) project is one of the final major implementation projects of the Anchorage 2020 - Anchorage Bowl Comprehensive Plan. While the Comprehensive Plan laid out goals and policies for the future land use and the physical development of the Anchorage Bowl it did not provide a detailed land use plan map which is typically associated with a Comprehensive Plan.

The updated LUPM has two essential objectives:

- Designate the future location and intensity of residential, commercial, industrial, and institutional development throughout the Anchorage Bowl; and,
- Help ensure Anchorage's growing population will have adequate housing, employment, education, and recreation opportunities.

In order to ensure that these objectives are met, there needs to be a good balance between land supply and land demand. The following population, household and employment forecast have been developed to help determine the land use demand component of this equation. If we know what the population and employment growth is, then we can determine how much land is needed in what categories to accommodate it. The LUPM can then be evaluated as to whether or not it meets that demand.

2 Review of Published Forecast

There are two primary sources of population forecast available for Southcentral Alaska, i.e. Institute of Social and Economic Research (ISER) and Alaska Department of Labor and Workforce Development (ADOLWD). Most of the rest of the published forecast utilize these as the basis of their forecast with some added assumptions.

2.1 Economic and Demographic Projections for Alaska and Greater Anchorage (ISER 2009)

The December 2009 study by Scott Goldsmith of the Institute of Social and Economic Research (ISER) is a detailed, econometric population and economic forecast for Alaska, the Municipality of Anchorage, and the Mat-Su Borough. The ISER forecasts have been the primary source of population and employment forecasting for planning purposes within the Municipality of Anchorage for years.

The econometric model developed by ISER is driven by an economic development scenario which is a consistent set of assumptions about levels of future basic industrial activity within the state. The strength of the model lies in the ability to make revisions to reflect changes in economic conditions. The disadvantage is that the model can be out-of-date if it is not updated periodically, especially during times of rapid economic changes.

The 2009 ISER forecast is now almost six years old. While it is not within the scope of this report to conduct a thorough review of the ISER forecast, it does appear that some of the pivotal economic assumptions are in need of revision. For example, the December 2009 report assumed that the price of oil (2009\$) would average \$95 per bbl. (the November price of North Slope crude oil remained in the 40 dollar a barrel range). Another important assumption involves the development of the North Slope Gas Pipeline which was predicted to become operational in 2019.

The 2009 ISER forecast was used as the basis for the population projections contained in the Anchorage Housing Market Analysis, prepared for the Municipality of Anchorage, February 2012. It was also used in the Municipality of Anchorage Commercial Land Assessment, prepared by Johnson Reid, January 2012 to develop its employment forecasts.

2.2 Alaska Population Projections (2012 - 2042)

The April 2014 study published by the State of Alaska Department of Labor and Workforce Development takes an entirely different approach to forecasting population. The ADOLWD uses a “cohort component” technique, separating the population of each sex into age groups and aging them forward in time, then adding projected births and in-migrants and subtracting projected deaths and out-migrants. It is important to note the ADOLWD population projections do not consider the population effects of potential structural changes to the economy, such as those that might occur with transportation infrastructure development or with large-scale industrial development. For example, the socioeconomic impacts of a Knik Arm crossing or gas line development are not explicitly reflected in the population projections.

The 2014 ADOLWD Report was adopted by AMATS for use in the updated Transportation Demand Model (TDM).¹ It makes sense for the MOA Planning Department to utilize a

¹ The TDM is a computer model that forecasts future transportation demand. The main inputs to the TDM are population, household, and employment projections that form the basis for calculating trip productions and attractions. The TDM is an important tool used in the development of the Metropolitan Transportation Plan (MTP). The next update of the MTP will occur in 2016 and will provide a comprehensive list of transportation improvement projects through the year 2040.

single source of forecasts for both transportation planning and land use planning to ensure consistency in their planning efforts.

2.3 Comparison of Published Forecasts

In order to proceed with the Anchorage Bowl Land Use Plan Map project, it is necessary to select which forecast to utilize. This comparison is intended to facilitate that selection process. Table 1 compares the ISER and ADOLWD population forecasts for the region.

Table 1
2035 Population Forecast Comparison

Year	ISER	ISER	ADOLWD	ADOLWD
	Municipality of Anchorage		Municipality of Anchorage	
2015	288,800	95,400	306,981	100,767
2020	314,500	117,200	320,839	112,871
2025	333,700	153,600	333,024	125,223
2030	343,100	169,000	343,447	137,602
2035	351,300	170,800	352,500	149,769
2040	NA	NA	360,905	161,581

Source: ADOLWD and ISER

The two population forecasts arrive at very similar estimates of population for the Municipality of Anchorage in 2035 (differing by only 1,200 persons). There is, however, a significant difference in the population estimates for the Mat-Su Borough (with the ISER forecast estimating over 21,000 more people living there in 2035 compared to ADOLWD). It should be noted, however, that the ISER population forecast for 2015 was significantly lower than the 2015 ADOLWD estimates. This is due to the fact that the ISER estimates were developed in 2009 and thus did not have the use of the more up-to-date America Community Survey data that was available to the ADOLWD in 2014.

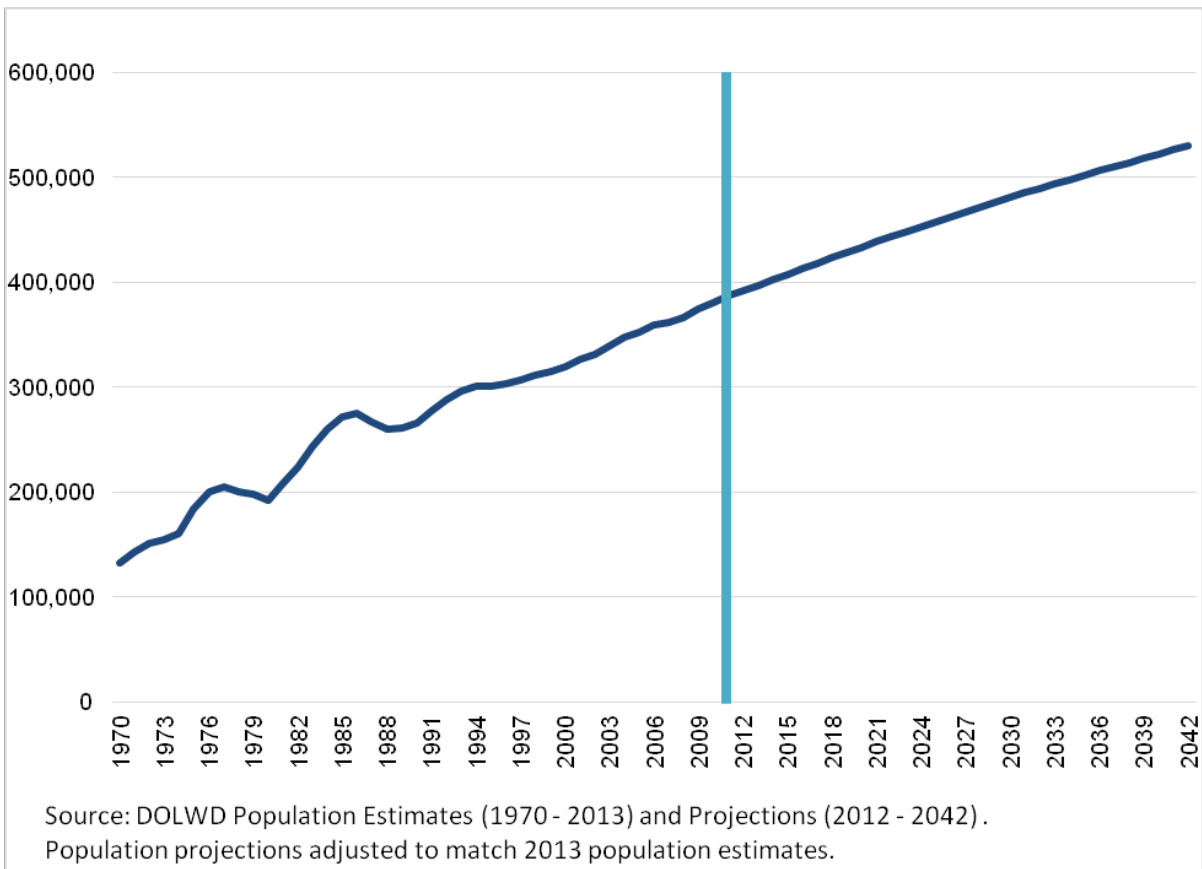
Table 2
Population Growth Rate Comparisons

Year	ISER	ISER	ADOLWD	ADOLWD
	Municipality of Anchorage		Municipality of Anchorage	
2015-2020	1.8%	4.6%	0.9%	2.4%
2020-2025	1.2%	6.2%	0.8%	2.2%
2025-2030	0.6%	2.0%	0.6%	2.0%
2030-2035	0.5%	2.0%	0.5%	1.8%
2035-2040	NA	NA	0.5%	1.6%

Source: ADOLWD and ISER

There are advantages and disadvantages to both types of forecasts. This report recommends using the ADOLWD population forecast as the basis for the Anchorage Bowl Land Use Map project, primarily due to the fact that it is more recent. The ADOLWD forecast also appears to be more in line with the recent slow growth trends which are the result of a number of factors, one of the most important of which is the drop in the price of oil. The ADOLWD population forecast (Table 3) shows growth rates of under 1% for the MOA which is in line with the recent decline in the growth rate of the MOA since 2010 (generally under 1%). The ADOLWD population forecast for the MSB also seems to be in line with the recent slowdown in the growth rate of the MSB since 2010 (around 3% or less). Figure 1 shows the ADOLWD population forecast compared to the historic population growth for the combined MOA and MSB. The forecast appears to be a continuation of the historic trendline. Furthermore, the ADOLWD forecast is already being used by AMATS and the MOA Transportation Planning Division for long-range transportation planning purposes. Land use and transportation planning should be coordinated to the fullest extent possible and at least start with the same population and employment assumptions. Finally, the ADOLWD forecast extends to the year 2040 which is the horizon year for AMATS planning purposes. The ISER projections only extend to 2035 and would have to be extrapolated somehow to align it with the AMATS and LUPM planning horizon.

Figure 1
Population, Anchorage Municipality and Mat-Su Borough, 1970 - 2042



The ISER forecast, on the other hand, shows a fairly strong growth for the MOA of 1.8% between 2015 and 2020 and dropping to 0.5% at the end of the forecast period (2030-2035). The ISER forecast for the MSB also show very strong growth during the early part of the forecast period with growth rates of 4.6% between 2015-2020 and 6.2% between 2020-2025. While this matches the historic growth rates achieved earlier (between 2000-2006), it is substantially higher than the more recent growth rates (between 2007 and 2013). Growth would have to accelerate substantially in the next ten years in order to achieve the growth rates forecast by the 2009 ISER report.

Table 3
Historical Population Growth Rate

Year	Municipality	
	of Anchorage	Mat-Su Borough
2000	0.3%	6.5%
2001	1.7%	4.4%
2002	1.0%	4.4%
2003	1.9%	5.1%
2004	1.7%	4.5%
2005	0.1%	5.4%
2006	1.7%	4.5%
2007	-0.2%	3.6%
2008	0.6%	3.3%
2009	2.2%	2.8%
2010	0.9%	3.4%
2011	1.5%	3.2%
2012	0.8%	2.2%
2013	0.9%	2.4%
2014	-0.08	2.1%

Source: ADOLWD and ISER

2 Population and Household Forecast

2.1 Population

As previously discussed, the population forecast used in this report relies on the 2012-2040 ADOLWD forecast. Table 4 shows the ADOLWD forecast by five year increments. Since the LUPM does not include the Turnagain Arm or Girdwood, this population must be subtracted from the total ADOLWD forecast. The Girdwood-Turnagain Arm population is expected to grow from 2,657 in 2010 to 3,218 in 2040 a 21% increase or around 1% per year.²

² McDowell Group, "Technical Memorandum #6, AMATS Travel Model Update: Socioeconomic Projections", prepared for Anchorage Metropolitan Transportation Solutions, 2015.

Table 4
2015-2040 Population Forecast, MOA and Girdwood-Turnagain Arm

Year	ADOLWD MOA Population	Turnagain Arm Population	Net Population
2015	306,981	2,760	304,221
2020	320,839	2,865	317,974
2025	333,024	2,965	330,059
2030	343,447	3,059	340,388
2035	352,500	3,107	349,393
2040	360,905	3,218	357,687

Source: ADOLWD and McDowell Group

A further breakdown of the population forecast between the Anchorage Bowl and Chugiak-Eagle River is needed for the LUPM. The distribution of the population between the Anchorage Bowl and Chugiak-Eagle River has changed over time. Historically Chugiak-Eagle River has been capturing an ever increasing share of the total MOA growth (see Table 5). In 1970, Chugiak-Eagle River accounted for 4.6 percent of the Municipality of Anchorage population, including Girdwood-Turnagain Arm. This increased to 11.2 percent in 1990, 11.49 percent in 2000, and 12.03 percent in 2011. The most recent estimates for 2013 show a slight decline in the Chugiak-Eagle River to 11.98 percent.

The Chugiak-Eagle River (CER) area has its own Comprehensive Plan that is intended to guide development in this subarea of the Municipality of Anchorage. The Plan provides an estimate of the future growth of the area that is expressed as a percentage of the total future MOA population. The Plan estimates that the CER population will continue to grow at a faster rate than the Anchorage Bowl and that it will represent 15% of the total MOA population by 2025 (the planning horizon year for the last adopted CER Comprehensive Plan). Since the 2025 population forecast used by the CER Comprehensive Plan (351,300) is not far off the population forecast used in the new 2040 forecast developed by ADOLWD (358,363) it seems reasonable to retain the use of the 15% CER Comprehensive Plan estimate in this report. Multiplying the 15% rate times the forecasted 2040 MOA population give an estimated Chugiak-Eagle River population estimate of 53,754. Table 6 shows the final 2040 regional population forecast based on the ADOLWD and subarea allocation methodology discussed above.

For the purposes of long-range planning through 2040, the Planning Division estimates that the population of Joint Base Elmendorf-Richardson (JBER) in 2040 will be the same as the population reported in the 2010 Census, or 13,900. This carries forward assumptions of the 2012 Housing Market Analysis, which assumed that the military population on-base would remain stable through 2030. Although JBER is currently in the midst of a process considering potential troop reductions in the near term, it is difficult to predict the size of the military in Anchorage in 2040. The military Base population historically follows a pattern of lows and highs that do not directly relate to trends in the local economy.

Table 5
Historic Chugiak-Eagle River Growth Rate

Year	MOA Pop	Anchorage Bowl	Chugiak-Eagle River Pop	CER Percent of MOA	Percent Share of Growth
1960	82,833	80,604	2,229		
1970	126,385	120,553	5,832	4.6%	8.3%
1980	174,431	161,573	12,858	7.3%	14.6%
1990	226,338	201,014	25,324	11.2%	24.0%
2000	260,300	230,383	29,917	11.5%	13.5%
2010	291,800	256,800	35,000	12%	18.2%

Source: United States Census

Note: Anchorage Bowl includes Girdwood/Turnagain Arm and JBER.

Table 5-a (Table 5 Supplement)
Historical Anchorage Bowl Growth Rate, 1960-2010

Year	MOA Pop	Anchorage Bowl ^[1]	Anchorage Bowl AAGR	Bowl Percent of MOA Pop.	Percent Share of MOA Growth
1960	82,833	64,226	N/A	77.5%	N/A
1970	126,385	96,852	4.1%	76.6%	74.9%
1980	174,431	143,351	3.9%	82.2%	96.8%
1990	226,338	184,557	2.5%	81.5%	79.4%
2000	260,300	216,179	1.6%	83.0%	93.1%
2010	291,800	240,337	1.1%	82.4%	76.7%

Source: United States Census; ADOLWD

Table 6
Population Forecast, Municipality of Anchorage and Selected Areas
2010 to 2040

	Anchorage Municipality	Anchorage Bowl	Chugiak-Eagle River	JBER	Girdwood - Turnagain Arm
2010	291,800	240,300	35,000	13,900	2,600
2040	361,556	290,687	53,751	13,900	3,218
Change 2010 to 2040					
Number	69,756	50,387	18,751	-	618
Percent	24%	21%	54%	0%	24%
AAGR	0.8%	0.7%	1.8%	0.0%	0.8%
Percent of Muni in 2040	N/A	80.4%	18.5%	3.8%	0.9%

Source: 2010 Decennial Census, MOA Planning Department

Note: AAGR is average annual growth rate

Note: JBER is the Joint Base Elmendorf Richardson

Note: Anchorage Bowl excludes JBER

2.2 Household Size Trends

While the ADOLWD forecast provides population estimates in yearly increments to the year 2042, it does not provide a forecast of the number of households. A forecast of households is essential to the development of the LUPM since the residential land use designations contained in it are based on housing density. Thus, it is necessary to convert population to households in order to provide the needed information to the LUPM.

Forecast of future household size is the key to estimating the number of households. If household size is known then the number of households can be derived by dividing the population estimates by household size. Household size in Anchorage has decreased over time, consistent with State and national trends in the proportion of single-parent households, non-related adult households, and elderly households. The result has been the more rapid growth in the number of households than population. Anchorage's household size decreased from 3.4 persons per household in 1970 to 2.67 persons per household in 2000 and 2.65 in 2010. It is expected that household size will continue to decline in the future but at a slower rate (ISER 2005). Forecast of future household size has typically relied on ISER forecast of population and households. According to the 2009 ISER report the population-to-household ratio is expected to decrease approximately 2.9 percent in the 25 year period between 2010 and 2035.

In order to develop a more accurate household size estimate, however, it is necessary to subtract the persons living in group quarters³ from the population estimates. In 2013 there were approximately 8,200 persons living in group quarters, almost all of whom were located in the Anchorage Bowl (Source: 2013 5 year ACS data). The 2013 adjusted household size estimates (taking into account the group quarters population) for the Municipality of Anchorage were 2.64 for the MOA, 2.61 for the Anchorage Bowl, and 2.84 for CER. If the household size decreases by 2.9 percent from 2013 to 2040 (i.e., the same rate as the 2009 ISER report projected during the 2010-2035 period) then the 2040 household size for the Anchorage Bowl would be 2.53 and Chugiak-Eagle River would be 2.76.⁴

2.3 Household

The household forecast from 2015 through 2040 are shown in Table 7 below. Anchorage's population estimates include the JBER population (estimated to be 13,500 in 2015). However, it is assumed that the JBER population and household figures will remain the same throughout the forecast period and will therefore not have an effect on the demand for new housing in the rest of the Anchorage Bowl. Table 8 indicates the number of new housing units that will need to be constructed during each 5-year increment. As the table shows, the demand for new housing units is expected to decline over the 25 year period as the growth rate (as forecast by ADOLWD) declines.

³ Group quarters, or group housing, is institutional housing in which there are not individual self-sufficient household dwellings. Examples include dormitories, certain assisted living facilities, transitional living, and habilitative care or similar facilities.

⁴ The 2012 Housing Market Analysis utilized a very similar methodology as described in this report for household size. It estimates a household size of 2.53 in the Anchorage Bowl and 2.87 for Chugiak-Eagle River in 2030. The higher household size for Chugiak-Eagle (2.87 compared to 2.76 in this study) can be primarily attributed to the higher household size starting point used in the Housing Market Analysis. The Housing Market Analysis estimated that the Chugiak-Eagle River household size was 2.93 in 2010 whereas this study estimates that it was only 2.84 in 2013 based on more recent 2013 5 year ACS data. The 2012 Housing study's household size in the Anchorage Bowl is lower for any given year through 2035 than in the present forecast update, because of its starting place of 2.62 persons per household in 2010 is lower than the 2.61 persons per household in 2013 that this forecast update uses.

Table 7
Population and Household Forecast, Anchorage Bowl and Chugiak-Eagle River
2015-2040

Year	Anchorage including JBER Pop	Chugiak-Eagle River Pop	Anchorage including JBER Households	Chugiak-Eagle River Households
2015	258,343	37,496	98,982	13,203
2020	268,288	40,847	103,391	14,467
2025	276,722	44,129	107,265	15,720
2030	283,565	47,298	110,564	16,948
2035	289,222	50,386	113,438	18,162
2040	294,613	52,983	116,241	19,212

Source: ADOLWD and MOA Planning Department

Note: Population excludes Group Quarters and Turnagain Arm/Girdwood

Table 8
Household Growth, Anchorage Bowl and Chugiak-Eagle River
2015-2040

Year	Anchorage Bowl Household Growth	Chugiak-Eagle River Household Growth	Total Household Growth
2015	NA	NA	NA
2020	4,409	1,264	5,672
2025	3,874	1,254	5,128
2030	3,300	1,228	4,528
2035	2,874	1,214	4,087
2040	2,803	1,050	3,853

Source: ADOLWD and MOA Planning Department

2.4 Low/Base/High Population and Household Forecasts

In most planning exercises it makes sense to have a range of scenarios in order to test the sensitivity of the results. In this case it would be helpful to evaluate the LUPM against a Low and High Growth Scenario to test how robust the LUPM is in meeting a variety of growth scenarios.⁵ The low growth forecast provides population estimates based on assumptions that the Anchorage MSA will experience lower-than-expected overall economic performance over the long-term (2040). The high growth rate forecast

⁵ Low and high growth scenarios were developed based on assumptions contained in the 2009 ISER forecast. Some of the major assumptions driving the ISER model include: price of oil, North slope oil production, gas pipeline construction, state spending, tourism growth, and federal spending. Changes in these assumptions resulted in low/base/high population and employment forecasts.

incorporates a more aggressive growth rate for the economy in line with some major new economic development initiatives. The low growth case assumes that the base case growth rate will be reduced by 65% and the high growth case assumes that the base case growth rate will increase by 85%. These percent variations reflect those of the 2009 ISER low and high case percent variations from its base case scenario. Table 9 shows the low/base/high populations totals for the MOA⁶ and MSB and Table 10 shows the low/base/high split for Anchorage Bowl and Chugiak-Eagle River.

Table 9
Low/Base/High Case Population Forecast, Anchorage Bowl and Chugiak-Eagle River

	Low		Base		High	
	MOA	MSB	MOA	MSB	MOA	MSB
2015	298,034	100,767	295,839	100,767	298,034	100,767
2020	301,386	104,096	309,135	112,871	316,254	127,339
2025	306,273	107,625	320,850	125,223	334,240	153,851
2030	310,451	111,281	330,863	137,602	349,612	179,868
2035	314,099	114,955	339,608	149,769	363,040	205,069
2040	317,432	118,549	347,596	161,581	375,304	229,421
AAGR	0.3%	0.7%	0.7%	2.4%	1.1%	5.1%

Source: ADOLWD and MOA Planning Department

Note: MOA population in Table 9 excludes Turnagain Arm and Population in Group Quarters

⁶ MOA population in Table 9 excludes JBER, Turnagain Arm and Population in Group Quarters

Table 10
Low/Base/High Case Population Forecast, Anchorage Bowl and Chugiak-Eagle River

	Low			Base			High		
	Bowl	CER	Total	Bowl	CER	Total	Bowl	CER	Total
2015	260,608	37,426	298,034	258,343	37,496	295,839	260,608	37,426	298,034
2020	262,823	38,533	301,386	268,288	40,847	309,135	273,995	42,259	316,254
2025	266,379	39,894	306,273	276,722	44,129	320,850	286,981	47,259	334,240
2030	269,247	41,204	310,451	283,565	47,298	330,863	297,524	52,088	349,612
2035	271,617	42,482	314,099	289,222	50,386	339,608	306,237	56,803	363,040
2040	273,879	43,553	317,432	294,613	52,983	347,596	314,555	60,749	375,304
AAGR	0.2%	0.7%	0.3%	0.6%	1.7%	0.7%	0.9%	2.5%	1.1%

Source: ADOLWD and MOA Planning Department

Note: Table 10 population excludes JBER, Turnagain Arm and Population in Group Quarters

In Table 11, the Anchorage Bowl and Chugiak-Eagle River population forecast was converted into household forecast for the purpose of the LUPM development.

Table 11
Low/Base/High Case Household Forecast, Anchorage Bowl and Chugiak-Eagle River 2015-2040

Year	Low		Base		High	
	Anch Bowl	CER	Anch Bowl	CER	Anch Bowl	CER
2015	99,850	13,178	99,850	13,178	99,850	13,178
2020	101,285	13,647	103,391	14,466	105,590	14,967
2025	103,256	14,212	107,265	15,720	111,241	16,835
2030	104,982	14,765	110,565	16,948	116,007	18,665
2035	106,533	15,313	113,438	18,162	120,112	20,475
2040	108,061	15,792	116,241	19,212	124,109	22,028

Source: ADOLWD and MOA Planning Department

2.5 Impact of Housing Demand on Residential Land Use Demand and Supply

The demand for housing as depicted in Table 8 can not be dealt with in isolation with respect to the supply of land. This is especially true if the supply of appropriately zoned residentially land is constrained. This section will examine the constraints on supply and discuss the impact of this constraint on how the demand may be met

The March 2012 Anchorage Housing Market Analysis provided an estimate of residential supply by structure type based on MOA GIS land use capacity parcel database (see Table 12 below).

The 2012 Anchorage Housing Analysis Study also provided a forecast of the demand for various types of housing based on surveys, historic trends in residential development, and expected future trends⁷. By multiplying the percent housing type demand by the new 2015-2040 total housing demand presented in this report an estimate of housing demand by housing type can be calculated (see Table 13 below).⁸

Table 12
2012 Residential Land Capacity by Housing Type
Anchorage Bowl Chugiak-Eagle River (total)

	Percent of Total	Land Capacity
Large Lot Single-Family	21.2%	3,730
Single-Family	35.4%	6,201
Two-Family/duplex	12.5%	2,186
Townhouse	8.4%	1,475
Multifamily	22.5%	3,944
Total		17,537

Source: 2012 Anchorage Housing Market Analysis, Table 7 and 8.

⁷ The 2012 housing study forecast was based on six main factors shown to affect the amount and type of housing built in communities: population growth and demographics, household purchasing power, housing preference, housing costs, price of housing substitutes (i.e., transportation), and housing policy.

⁸ Table 13 essentially updates Table 7 in the 2012 Housing Market Analysis to reflect the new housing demand estimate for the period 2015 – 2040 estimated to be 23,441.

Table 13
2015-2040 Housing Demand Forecast by Housing Type
Anchorage Bowl Chugiak-Eagle River (total)

	Percent of Total	Housing Demand
Large Lot Single-Family	4.8%	1,076
Single-Family	35.6%	7,983
Two-Family/duplex	18.4%	4,126
Townhouse	7.4%	1,660
Multifamily	33.8%	7,580
Total		22,425

Source: 2012 Anchorage Housing Market Analysis, Table 3; MOA Planning Department (2015)

By comparing the supply (Table 12) with the demand (Table 13) an estimate of the land supply sufficiency can be approximated. Table 14 shows a substantial deficit with respect to residential land use supply. The deficit differs substantially, however, depending on the type of housing structure. Large lot single-family housing demand (i.e., generally greater than 1 acre in size) appears to be adequately addressed with an abundant supply of land currently available to meet this demand. On the other hand, all other housing structure types are facing a supply deficit. The land sufficiency findings of Table 14 are similar to the findings of the 2012 Housing Market Analysis.

Table 14
Residential Land Sufficiency by Housing Type
Anchorage Bowl Chugiak-Eagle River (total)

	Land Capacity	Housing Demand	Sufficiency (capacity minus demand)
Large Lot Single-Family	3,730	1,076	2,654
Single-Family	6,201	7,983	-1,782
Two-Family/duplex	2,186	4,126	-1,940
Townhouse	1,475	1,660	-185
Multifamily	3,944	7,580	-3,636
Total	17,537	22,425	-4,888

Source: 2012 Anchorage Housing Market Analysis, Tables 3, 7 and 8

While the 2012 Anchorage Housing Market Analysis used market factors and historic growth rates to allocate the percent share of future housing demand to the Anchorage Bowl and Chugiak-Eagle River, Anchorage’s land supply makes it hard to predict where and how this future residential supply deficit will be met. There are three options for accommodating this growth: in the Bowl, in Chugiak-Eagle River, or in the Mat-Su Borough. In general, it is assumed that most of the higher density housing deficit (i.e., two-family, townhouses, and multi-family) will be met through density increases within the Anchorage Bowl. According to the 2006 Chugiak-Eagle River Comprehensive Plan Land Use Map, higher density

housing (greater than 7 units per acre) is limited to the Eagle River core. The Plan further states that multi-family housing is not expected to increase to more than 15% of the overall housing market. In fact, the ratio of multi-family may actually decrease from the current 12% share, depending on development trends in the community over the next 20 years. Similarly, the Mat-Su is also primarily a single-family community and is not expected to substantially increase its proportion of multi-family housing.

This leaves open the question of how the small lot single-family⁹ deficit will be dealt with in the future. According to the 2012 Anchorage Housing Market Analysis, the Anchorage Bowl could accommodate single-family housing through re-designation of land from other uses, such as commercial uses or lower-density housing, for single-family housing. The Commercial Land Assessment Study (MOA, Jan. 2012), however, showed a shortage of land for commercial uses. While there is a surplus of capacity for large-lot, single-family housing, the adopted Hillside District Plan limits the extension of public sewer lines. Nevertheless, the Anchorage Housing Market Analysis suggests that it may be reasonable for the MOA to evaluate whether or not there is an “excess” of land designated for non-residential or low-density uses that would be suitable for small lot single-family housing.

Whether Chugiak-Eagle River could actually accommodate development of additional single-family dwelling would depend on a number of factors, such as: the planned infrastructure (e.g., urban wastewater and water service) becoming available as expected, transportation capacity for people living in Chugiak-Eagle River and working in the Anchorage Bowl, and housing market demand. Getting additional single-family growth would depend on coordination with landowners, predominantly Eklutna Inc., to develop their land over the 25-year timeframe. This shift would be encouraged by the likely increase in housing prices in the Anchorage Bowl as demand outstrips supply.

One of the ways that the region has accommodated growth in the past is through households locating in the Mat-Su Borough and commuting to work in Anchorage. If Anchorage does not have enough capacity for single-family growth even more households may choose to locate in the Mat-Su rather than pay higher housing costs in Anchorage or choose a different housing type (if available) in Anchorage. A review of previous studies involving the shift in population and employment between the Municipality of Anchorage and the Matanuska-Susitna Borough as a result of the construction of the Knik Arm Bridge concluded that a relatively small amount of residential, commercial and industrial growth would be siphoned off from the Anchorage Bowl to Mat-Su as a result of the KAC¹⁰. Moreover, assuming that a significant portion of Anchorage’s small lot single-family housing demand will be accommodated in Mat-Su has some problems. Building at urban densities requires urban services (e.g., roads, sanitary sewer, water, schools, fire protection services). Mat-Su may not have sufficient land designated and planned for small lot single-family housing, especially in locations close to the proposed Knik Arm Bridge.

⁹ Small lot single-family is defined as lots that are within the R-1 and R-1A zoning districts but can include lots in Planned Community (PC) districts. In general, these lots are served with public sewer and water and are approximately 6,000 square feet to generally less than 10,000 square feet in size.

¹⁰ Source: “The Knik Arm Crossing and Impact on the Land Use Map Update”, prepared by the Municipality of Anchorage Planning Department, November 2015

It seems likely that all three options will be utilized to accommodate regional housing demand. Within the Municipality of Anchorage the supply of small lot single-family land will have to be increased in both the Anchorage Bowl and Chugiak-Eagle River in order to accommodate the increasing demand for small lot single-family housing. While Chugiak-Eagle River has the majority of the vacant land in the MOA it cannot accommodate all of the small lot single-family deficit by itself. If it did the population of Chugiak-Eagle River would have to increase by about 70% to 60,000 persons in 2040. This would require a much more aggressive investment in the Chugiak-Eagle River infrastructure than is currently expected to occur within the 2040 time horizon.

Based on the above discussion, the distribution of future single-family housing growth between the Anchorage Bowl and Chugiak-Eagle River was forecasted to be 47% (Chugiak-Eagle River) and 53% (Anchorage Bowl). The implied assumption for this distribution is that there are substantial and more or less equally complex constraints inhibiting the development of additional single-family housing in both Chugiak-Eagle River and the Anchorage Bowl.¹¹ The figure also matches the assumptions regarding overall future housing and population growth distribution between the Anchorage Bowl and Chugiak-Eagle River contained in Section 2.1 of this memo. (This was based on the Chugiak-Eagle River Comprehensive Plan assumption that Chugiak-Eagle River population would equal around 15% of the total MOA population.)¹²

The forecast 2040 housing deficits by subareas (i.e., Anchorage Bowl versus Chugiak-Eagle River) are shown in Table 15.

¹¹ Specifically, the percentage figures of 53% and 47% allocated to the Bowl and Chugiak-Eagle River, respectively, comes from assigning a proportionately equal share of the overall deficit in single-family housing capacity relative to the amount of demand preference in each place, as forecast in the 2012 Anchorage Housing Analysis.

¹² By comparison, the 2012 Housing Market Analysis forecasted a demand preference for 78% of the needed additional single-family homes to locate in the Bowl and only 22% in Chugiak-Eagle River, based on market factors and historic growth rates alone. Using the updated 2040 growth forecast, the that would translate into a market preference for an additional 6,520 single-family homes in the Bowl. [Calculation: Table 3 from 2012: $6,003 / 7,666 * 100 = 78\%$. Today: $8,359 * 78\% = 6,520$.]

Table 15
2040 Residential Land Sufficiency by Housing Type and Subarea

	Anchorage Bowl			Chugiak- Eagle River		
	Capacity	Demand	Sufficiency (capacity minus demand)	Capacity	Demand	Sufficiency (capacity minus demand)
Large Lot Single-Family	2,030	394	1,636	1,700	725	975
Single-Family	3,614 ¹³	4,444	-829	2,587	3,915	-1,334
Two-Family/duplex	1,272	3,765	-2,493	914	544	370
Townhouse	768	1,586	-818	707	144	563
Multifamily	3,315	7,530	-4,215	629	398	231
Total	11,000			6,537		

Source: 2012 Anchorage Housing Market Analysis ,Tables 7 and 8; MOA Planning Department (2015)

3 Employment Forecast

3.1 Introduction

As previously discussed, the forecast used in this report is based on the 2014 ADOLWD 2012 – 2042 Alaska Population Projections. Since this is a population projection, it is necessary to develop the employment forecasts separately based on population instead of forecasting the employment first and then forecasting population such as is done in the ISER forecasts. As a result, the methodology used to develop this employment forecast is different from what the Municipality has used in previous commercial and industrial and assessment studies.

3.2 Historic Employment Growth

The recent rate of employment growth in the Municipality of Anchorage is reflected in Table 16. Since 2001 the rate of employment growth has varied from a high of 2.2% in 2012 to a low of -0.6 in 2009. The average annual employment growth for Anchorage has been about 1.1% during that time period. The millennium began with a brief burst of oil activity on the North Slope including development of the Alpine and North Star oilfields and construction of a large number of oil modules in the state, including in Anchorage. Then, after a brief slowdown, four years of above average oil prices brought on more sustained levels of growth; by 2005, prices had more than doubled from the 2001 lows. Higher prices were a boon not just to the oil industry but to revenues flowing into the state. Petroleum revenues rose from \$2.1 billion in 2003 to a record \$11.3 billion in 2008, then remained high through fiscal year 2013. This produced notable increases in the state’s operating and capital

¹³ Note: The supply of single-family residential land use capacity in the Anchorage Bowl has shrunk substantially since the Anchorage Housing Market Analysis was published in 2012. Based on the latest 2015 MOA GIS data available there are now only 3,293 small single family lots available for development in the Anchorage Bowl. The entire residential land use inventory will be recalculated in early 2016.

budgets, with Anchorage getting a significant portion of the increase as the state’s largest city and the headquarters for many of the state’s construction and engineering firms.

Health care and tourism were important sectors contributing to the growth of the Anchorage economy since 2000. Health care was already a large industry, and this fast growth racked up huge numbers. Between 2000 and 2013, health care jobs nearly doubled in Anchorage, from 9,700 to 18,100, and its share of total employment increased from 7 to 12 percent. During that period, health care generated just over a third of all new jobs in Anchorage. The estimated number of visitors to Anchorage broke the million mark during the 2013-14 season, nearly twice the visitors in 1989-90, and a number of new hotels altered the landscape in parts of the city. ¹⁴

The economic outlook has significantly changed since 2013 with the drop in oil prices producing a ripple effect through the economy and forcing the State to reduce its operating and capital budgets. The following employment forecast is more in tune with the slower growth of the past few years than the more robust growth of just a few years ago.

Table 16
Municipality of Anchorage
Historical Employment Growth, 2001-2014

	Employment (1,000)	Percent Change
2001	138.2	
2002	140.8	1.9%
2003	142.3	1.1%
2004	144.1	1.3%
2005	146.6	1.7%
2006	148.3	1.2%
2007	149.8	1.0%
2008	151.9	1.4%
2009	151.0	-0.6%
2010	151.1	0.1%
2011	153.8	1.8%
2012	157.2	2.2%
2013	157.3	0.1%
2014	157.1	-0.1%

Source: Alaska Department of Labor and Workforce Development
Note: Employment is annual average non-farm employment

¹⁴ “Alaska Economic Trends”, December 2014

3.3 Total Labor Force and Labor Force Participation Rates

The first step in the development of the employment forecast is to determine what the future labor force participation rate is expected to be. Labor force is defined as the resident population over 16 years of age that is either employed or seeking employment. The Labor Force Participation Rate (LFPR) is typically defined as the labor force divided by the total population age 16 and above.

While labor force is measured by place of residence, published employment data is measured by location of employment. As a result, the number employed in a region may exceed its labor force due to commuters from outside the community or from seasonal non-resident employment. This is the case in the Anchorage Municipality where total employment in 2013 was 47,000 greater than the resident labor force.¹⁵

Labor force and population data together indicate the LFPR in both Anchorage and Mat-Su are at or near 25-year lows. The LFPR in Anchorage in 2013 was 66.8 percent, well below the 10-year average of 69.4 percent. Mat-Su's LFPR in 2013 was 60.7 percent, also below the 10-year average of 64.5 percent. LFPRs have been declining in recent years, largely due to an aging population (though ADOLWD research indicates the LFPR in older cohorts has been increasing).

To project the size of the labor force, the 2013 LFPRs for Anchorage Municipality and Mat-Su Borough are applied to projected sub-area populations of residents 16 and over in 2040. While the LFPR has been on a downward trend in recent years (it may continue to decline in the near term as the population continues to age), the 2013 rate is considered a reasonable estimate for purposes of calculating the 2040 labor force projections.¹⁶ The labor force projections contained in Table 17 below are based on the assumption that the labor force participation rate for the MOA will remain at 66.8% and the MSB will remain at 60.7%.

Table 17
Total Labor Force, 2013 Estimate and 2040 Projection

	2013	2040	Growth 2013 - 2040
Municipality of Anchorage	154,125	187,717	22%
Mat-Su Valley	40,370	68,501	70%
Total	194,495	256,218	32%

Source: ADOLWD and McDowell Group.

¹⁵ Labor force counts are reported by ADOLWD and are available at <http://live.laborstats.alaska.gov/labforce/>. These data are coupled with ADOLWD population estimates to produce a baseline LFPR.

¹⁶ McDowell Group (2015).

3.4 Total Employment

Past employment projection studies have used different measures of employment. The predominant measure of employment involves the use of wage and payroll jobs as defined by the Alaska Department of Labor and Workforce Development Quarterly Census of Employment and Wages¹⁷. The QCEW program produces a comprehensive tabulation of employment and wage information for workers covered by State unemployment insurance (UI) laws and Federal workers covered by the Unemployment Compensation for Federal Employees (UCFE) program.

A more comprehensive method of estimating employment includes self-employed or non payroll jobs as well as wage and payroll jobs. Based on the Bureau of Economic Analysis data, the McDowell Group (2014) determined that there were approximately 30,000 self-proprietors working in the Municipality of Anchorage in 2013. This represents about 20% of the total employment. When considering which method to use for estimating employment in this report, it was decided that the more complete estimate of total employment including self-proprietors should be utilized. This is based on the assumption that about 40% of self-proprietors work outside of the home and have a need for office space and other land use requirements that should be reflected in the land use demand used in the development of the LUPM.¹⁸

In Anchorage and Mat-Su Borough, employment and labor force have had a very strong correlation over the past decade. Because of this correlation, labor force trends are used to guide employment projections. . The ratio of employment (based on U.S. Bureau of Economic Analysis data) to labor force in the Anchorage Municipality was calculated for the period 2001 to 2012 and averaged to obtain a baseline employment to labor force ratio of 128%. The same calculations were performed for the Mat-Su Borough. The resulting ratio of 76% reflects the fact that many of the persons in the Mat-Su Borough labor force work in Anchorage. Therefore, the number of jobs located in the MSB are significantly less than the labor force. The ratio for Anchorage was assumed to rise from 1.28 to 1.30 over the length of the forecast period due to an increase in the number of MSB residents working in Anchorage. In other words Anchorage employment is expected to grow at a slightly faster rate than the population. These figures were then multiplied by the labor force estimates contained in Table 17 to arrive at total employment projections for 2040 (see Table 18 below).

¹⁷ As an example, the "Anchorage Industrial Land Assessment Update: Volume 1 Employment Land Need and Policy Recommendations", prepared for the Municipality of Anchorage by Cardno, May 2015 uses the wage and payroll method to calculate employment.

¹⁸ Source: PNW Economics

Table 18
Total Employment, 2013 Estimate and 2040 Projection

	2013	2040	Growth 2013- 2040
MOA	176,090	211,474	20%
MSB	31,711	53,808	70%
Total	207,801	265,282	28%

Source: MOA Planning Department and McDowell Group.

Overall, employment is projected to grow at an average annual rate of 0.8 percent in the Municipality of Anchorage for the 2015 to 2040 time period and 2.6 percent for the MSB (rates slightly slower than those experienced in the past decade).¹⁹

3.5 Employment Growth Forecast by Economic Sector

Since different types of employment have different land use requirements total employment needs to be further disaggregated into various employment categories.²⁰ The ADOLWD QCEW database contains a detailed list of employment categories of employment. Based on the employment categories contained in the QCEW, the 2015 Anchorage Industrial Land Assessment report developed a list of thirteen employment categories which were considered to be accurate predictors of land use demand.

Allocation of the forecast future employment growth by economic sector relied on the 2015-2035 forecast share of growth for each sector contained in the Anchorage Industrial Land Assessment Update: Volume 1, prepared for the Municipality of Anchorage by Cardno (May 2015).²¹ According to the Cardno report, health and educational services are expected to grow the fastest of any other sector (accounting for around 28% of the total employment growth with government employment growing the least (accounting for about 1.6% of the total growth (see Table 19).

¹⁹From 2001 to 2014 the MOA experienced an annual average employment growth rate of 1.1% (see Table 16) while the MSB had a rate of 3.8%. Also note that the 0.7% employment growth rate for the MOA is slightly slower than the 0.9% employment growth rate forecast in the 2015 Anchorage Industrial Land Assessment Update, Volume 1 which was based in part on the 2009 ISER Population and Employment Forecast.

²⁰ For example, office uses such as professional businesses need less space per employee than large retail box stores since offices are usually multi-story and large retail establishments are generally single-story.

²¹ Employment growth by category used Figure 2-13 in the Anchorage Industrial Land Assessment Update, Volume 1. The Cardno report in turn appears to have utilized the AKDOLWD 2012 – 2014 employment forecast to estimate employment growth by category.

Table 19
Municipality of Anchorage
Percentage of Total Employment Growth by Sector
2015-2035

Employment Sector	Percentage Growth
Mining	1.3%
Construction	3.2%
Manufacturing	1.1%
Wholesale	3.8%
Retail	11.3%
Transportation, Warehousing, Utilities	7.5%
Information	1.3%
Financial Services	3.5%
Prof. & Business Services.	19.1%
Education & Health Services	28.0%
Hospitality	15.1%
Other Services	3.0%
Government	1.6%

Source: Figure 2-13, Anchorage Industrial Land Assessment Update, Volume 1.

3.6 Low/Base/High Employment Forecast by Economic Sector

Developing the final employment forecast for the low/base/high scenarios by five-year increments involved several steps.²² The first step involved estimating the low/base/high total employment by five-year increments. All of the employment estimates were developed using the same employment to labor force ratio methodology discussed in Section 3.4.

Table 20
Low/Base/High Case MOA Employment Forecast

	Low	Base	High
2015	176,090	176,090	176,090
2020	180,043	184,734	189,051
2025	183,641	192,433	200,594

²² The low growth case assumes that the base case growth rate will be reduced by 65% and the high growth case assumes that the base case growth rate will increase by 85%.

2030	186,830	199,130	210,569
2035	189,668	205,049	219,326
2040	192,774	211,474	228,840

Source: MOA Planning Department

Second, it was necessary to create a base 2015 estimate of employment by sector. As previously mentioned the QCEW employment only takes into consideration the wage and salary employment. Self proprietors have a different distribution of employment by employment sector which must be taken into account. Fortunately, the BEA also lists employment by employment sector. By subtracting the QCEW employment by sector by the BEA employment by sector it can be determined which sectors the self proprietors belong to. As it turns out almost 50% of the self-proprietors are working in the FIRE and professional services employment sectors. Table 21 shows the difference between the 2015 base year employment by sector using the QCEW data and the 2015 base year employment using total employment including total self-proprietors.

Table 21
Base 2015 MOA Employment by Sector

	QCEW	Total Employment
Mining	3,400	4,600
Construction	8,500	13,150
Manufacturing	2,400	2,400
Wholesale	4,500	5,900
Retail	17,600	23,050
Transportation, Warehousing, Utilities	11,800	13,090
Information	3,800	3,800
Financial Services	8,700	8,700
Prof. & Business Services	19,400	42,830
Education & Health Services	24,700	28,390
Hospitality	16,700	19,840
Other Services	5,800	6,640
Government	30,900	30,900
	158,200	203,290

Source: ADOLWD and McDowell Group.

The final step involved growing the employment sectors by multiplying the percentage share of growth of each economic sector for each 5 year interval (as established in the

Industrial Land Assessment²³) by the total employment growth for the same period (see Table 20). Table 20, 21 and 22 present the results of these calculations in five-year increments.

Table 22
Low Case MOA Employment Forecast
2015-2040

Employment Sector	2015	2020	2025	2030	2035	2040	'15-'40
Mining	4,370	4,462	4,474	4,537	4,550	4,568	198
Construction	11,460	11,651	11,724	11,792	11,854	11,933	473
Manufacturing	2,400	2,449	2,518	2,527	2,577	2,627	227
Wholesale	5,060	5,243	5,369	5,426	5,516	5,611	551
Retail	21,310	21,826	22,167	22,494	22,877	23,271	1,961
Transportation, Warehousing, Util.	12,880	13,254	13,469	13,656	13,945	14,220	1,340
Information	3,800	3,894	3,968	3,983	3,997	4,011	211
Financial Services	8,700	8,892	9,105	9,229	9,261	9,295	595
Prof. & Business Services	23,990	24,385	24,911	25,366	25,710	26,323	2,333
Education & Health Services	26,180	27,117	28,234	29,294	30,222	31,133	4,953
Hospitality	18,590	19,186	19,767	20,315	20,737	21,152	2,562
Other Services	6,450	6,630	6,711	6,783	6,845	6,901	451
Government	30,900	31,053	31,223	31,426	31,578	31,732	832
Total Employment	176,090	180,043	183,641	186,830	189,668	192,774	16,684

Source: MOA Planning Department.

Table 23
Base Case MOA Employment Forecast
2015-2040

Employment Sector	2015	2020	2025	2030	2035	2040	'15-'40
Mining	4,370	4,576	4,583	4,693	4,703	4,720	350
Construction	11,460	11,866	11,982	12,078	12,172	12,304	844
Manufacturing	2,400	2,509	2,659	2,668	2,769	2,871	471
Wholesale	5,060	5,482	5,750	5,853	6,041	6,250	1,190
Retail	21,310	22,442	23,158	23,827	24,641	25,449	4,139
Transportation, Warehousing, Util.	12,880	13,710	14,173	14,540	15,164	15,758	2,878
Information	3,800	4,014	4,170	4,185	4,199	4,214	414
Financial Services	8,700	9,123	9,578	9,835	9,870	9,905	1,205
Prof. & Business Services	23,990	24,806	25,954	26,929	27,623	28,890	4,900

²³ This memo uses the Industrial Land Assessment's 2030-2035 assignment of share-of-growth by sector for the 2035-2040 5-year interval.

Education & Health Services	26,180	28,302	30,832	33,252	35,343	37,373	11,193
Hospitality	18,590	19,935	21,215	22,441	23,356	24,259	5,669
Other Services	6,450	6,856	7,014	7,144	7,265	7,373	923
Government	30,900	31,112	31,364	31,688	31,902	32,107	1,207
Total Employment	176,090	184,734	192,433	199,130	205,049	211,474	35,384

Source: MOA Planning Department.

Table 24
High Case MOA Employment Forecast
2015-2040

Employment Sector	2015	2020	2025	2030	2035	2040	'15- '40
Mining	4,370	4,671	4,673	4,850	4,857	4,875	505
Construction	11,460	12,066	12,226	12,343	12,462	12,656	1,196
Manufacturing	2,400	2,559	2,790	2,800	2,952	3,105	705
Wholesale	5,060	5,702	6,104	6,253	6,531	6,833	1,773
Retail	21,310	23,012	24,075	25,070	26,277	27,487	6,177
Transportation, Warehousing, Utilities	12,880	14,127	14,819	15,356	16,304	17,187	4,307
Information	3,800	4,115	4,351	4,367	4,382	4,398	598
Financial Services	8,700	9,344	10,022	10,391	10,428	10,465	1,765
Prof. & Business Services	23,990	25,198	26,925	28,377	29,405	31,262	7,272
Education & Health Services	26,180	29,393	33,249	36,921	40,096	43,160	16,980
Hospitality	18,590	20,628	22,568	24,413	25,791	27,141	8,551
Other Services	6,450	7,072	7,297	7,485	7,645	7,816	1,366
Government	30,900	31,163	31,496	31,942	32,197	32,454	1,554
Total Employment	176,090	189,051	200,594	210,569	219,326	228,840	52,750

Source: MOA Planning Department.

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