

Appendix B-1

Forecast Report

Anchorage Employment & Non-Residential Land Need Forecast to 2040

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
EMPLOYMENT &
NON-RESIDENTIAL
LAND NEED
FORECASTS

MUNICIPALITY OF ANCHORAGE
LAND USE PLAN MAP UPDATE

Prepared for: Municipality of Anchorage Long Range Planning
Division

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April 19, 2016

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I. Introduction

The Municipality of Anchorage is presently in the process of updating its Land Use Plan Map and related land use policies to prepare the community for economic growth and change over the next 25 years.

Leading up to this effort, the Municipality recently had completed a 2015 Industrial Lands Assessment Update.¹ The report found that over a twenty-year period, the Municipality does not have enough land zoned for industrial uses to accommodate a likely economic growth trajectory for Anchorage.

Since completion of that report, significant and sustained reductions in petroleum prices have created recessionary pressure on the Alaska petroleum industry, as well as State of Alaska fiscal health due to its significant reliance on extraction of the resource.

This memorandum is intended as a technical report providing review of different employment, population, and land need forecasting for Anchorage in light of changing economic circumstances. The report provides new employment scenario forecasts for the Municipality and resulting estimates of land need for the Land Use Plan Map process. In total, six growth scenarios are modeled and compared for Municipality planning purposes.

The report is divided into the following sections:

- I. Introduction**
- II. Anchorage MSA Population Forecast Considerations**
- III. Anchorage MSA Total vs. Wage & Salary Employment**
- IV. Oil Industry Recession & Updated Job Forecasting**
- V. Self-Employment & Home Business Analysis**
- VI. MOA Forecast Methodology Results Comparison**

All content of this report was previously submitted to Municipality of Anchorage Long Range Planning Staff in a series of “white paper” memorandums in February and March of 2016. Findings have been consolidated here into a single technical report.

¹<http://www.muni.org/Departments/OCPD/Planning/Projects/AnchLandUse/Pages/AnchorageIndustrialLandAssessment.aspx>

II. Anchorage MSA Population Forecast Considerations

Introduction

This section is intended as a review and assessment of the use of the 2014 ADOLWD population forecast (2015-2040) for Anchorage and the Mat-Su Borough for the purposes of land use planning. This section is the first in a series of discussions that address the various issues and questions Planning Department staff has requested be addressed in a review of different potential forecasting methodology for the Land Use Map Update.

Findings

The following represent my perspective on the treatment of population forecasting as found in the January 12, 2016 Technical Memorandum "Anchorage and Matanuska-Susitna Borough 2015-2040 Population, Housing and Employment Forecast."

- The characterization of the AKDOLWD population forecasts published in 2014 and the ISER population forecasts published in 2009 was reasonably consistent with my own understanding of both forecasts, the latter I utilized in both the January 2012 Anchorage Commercial Land Assessment and which also informed the Cardno Knik Arm Crossing Socioeconomic Study published in 2014.
- It is important to underscore the fact that the 2009 ISER forecast explicitly modeled the impacts of the Seward/Glenn Highway Connection ("Highway to Highway") project and its very likely direct population effects upon the Mat-Su Borough.
- It is also important to highlight the fact that the 2009 ISER forecast also econometrically modeled a wide variety of different economic variables (average price of oil, etc.) as well as different major economic development and infrastructure projects (Knik Arm Crossing completion, LNG, etc.).
- As the Technical Memorandum mentions, the AKDOLWD population forecast is a demographic cohort-based population forecast. While it also includes migration, it is not as geared as an econometric model would be to reflect major, structural changes to the Anchorage economy or even temporary surges in economic activity with different infrastructure or construction projects.
- To highlight the differences in the forecasts, the Technical Memorandum does a thorough job of discussing the different population levels forecasted, but more so focuses on different population growth rates historically and forecasted by ISER and AKDOLWD.

This is appropriate, but it is also informative to examine how different geographies have experienced actual changes in population historically and how they are projected to experience growth rather in addition to a focus on growth rates. Figure 1 expresses average annual population change for the four major geographies for the Anchorage MSA, the Municipality, the Mat-Su Borough, and the State of Alaska for context. Historical data are reported as well as projected changes for each geography by AKDOLWD.

Figure 1 - Alaska, Anchorage MSA, MOA & MSB Historical & ADOLWD Forecasted Population

	Average Annual Population Change			
	Alaska	Anchorage MSA	Anchorage	MSB
Historical				
1990-1995	10,308	7,123	5,278	1,845
1995-2000	5,070	3,594	1,511	2,083
2000-2005	8,043	6,485	3,375	3,110
2005-2010	8,617	5,759	2,934	2,825
2010-2015	5,479	3,653	1,416	2,237
Projected				
2017-2022	7,212	5,098	2,653	2,446
2022-2027	6,542	4,771	2,289	2,482
2027-2032	5,942	4,434	1,962	2,472
2032-2037	5,626	4,158	1,743	2,415
2037-2042	5,602	3,987	1,657	2,329
Summary				
1990-2015	7,503	5,323	2,903	2,420
2015-2042	6,941	4,893	2,443	2,450

SOURCE: PNW Economics annual average calculations from ADOLWD annual historical and projected (2014) population data (<http://laborstats.alaska.gov/pop/popest.htm>) and (<http://laborstats.alaska.gov/pop/popproj.htm>).

- During the previous twenty-five years, 1990 to 2015, the Anchorage MSA added an average of 5,323 new residents annually. 2,903 new residents annually located in Anchorage while 2,420 of which located in the Mat-Su Borough on average. As the table data indicate, over the past 25 years there has certainly been fluctuation in annual average population gains.
- By comparison to historical, annual averages, the AKDOLWD forecasts are conservative. The Anchorage MSA forecast (4,893 new residents annually) falls roughly 10% below historical population growth over the past 25 years, which has included oil price fluctuations and production declines. Additional discussion of oil industry trends for planning context is reserved for later in this report.

Overall, the AKDOLWD population forecast is potentially too conservative for a Base case population forecast if used for the purposes of land use planning to provide an adequate land supply. Although it is of recent vintage, the AKDOLWD forecast is not designed to reflect any specific structural changes in the economy or surges in economic activity and thus population growth due to different economic development initiatives, the key advantage of the methodology of the 2009 ISER forecast.

It is further worth remembering that the 2009 ISER forecast was conducted during the worst of the financial freefall of the national economy at the beginning of the Great Recession. Projections in that

report reflect great uncertainty if not some pessimism about economic performance in Alaska given the broader crash of the U.S. economy.

Recommendations as to Population Forecasting

For informing a Base Case, Low, and High Growth forecast methodology for purposes of land use planning, I would urge Long Range Planning staff to at least consider the following:

- A Base Case population forecast that **at least** matches historical annual population growth over the last 25 years (not necessarily the growth rate but just the average *amount* of growth). Historically realized population growth statewide and in the Anchorage MSA reflects several economic downturns and substantial fluctuations in both oil prices and oil production in Alaska. Historical growth is therefore robust for substantial economic fluctuations. It is also the basis of the current housing affordability crisis in Anchorage as well as growing conflicts between commercial retail development and industrial land capacity, and thus merits being directly reflected in growth and policy formulation moving forward.
- As an alternative, Section VI below provides a suggested population forecast methodology and findings by updating recent econometric studies to account for recent economic conditions. Section VI also compares those findings to the AKDOLWD population forecast.

The AKDOLWD population forecast is of more recent vintage and thus certainly enjoys that chief advantage over directly utilizing forecasts from the 2009 ISER Highway to Highway study. But for long-term land use planning purposes, Long Range Planning staff should consider viewing this forecast as too conservative. Alaska will continue to be a resource-rich state along the rapidly-growing Pacific Rim. And although its impacts are currently uncertain, repeal of the oil export ban in December of 2015 opens Alaskan oil to new and international markets. Section IV below provides a summary review of several long term economic trend factors for Alaska.

To err too conservatively presents risk for Long Range Planning to underestimate housing need and employment land need. This would only serve to exacerbate future realized shortages of growth capacity in Anchorage and corresponding price escalation for both housing and industrial land. Policy considerations would then risk not sufficiently equipping the Municipality for future growth pressures and conflicts over competing uses due to pricing pressures. The dilemma faced by the Municipality regarding overestimating vs. underestimating either land supply or demand and its policy implications is given detailed treatment in Section IV, Figure 6.

Under highly-publicized fluctuations in oil prices, State revenue decline and budget shortfalls, and current economic conditions, it is highly tempting to adopt modest growth forecasts for policy purposes given recently realized job losses and growing general economic pessimism. Unfortunately long-term forecasts that permanently reflect current pessimism and very recent, Great Recession-affected growth underperformance risk under-action by the Municipality on key development capacity policies and actions. In other words, housing price escalation is better handled by over-planning appropriate new housing capacity than under-planning it because of too-modest population forecasts. As the Northrim

Bank economist was recently quoted, "What's better than panicking is preparing,' in order for businesses to survive the expected downturn, (Northrim Bank economist) Edwards said."²

Regarding general methodology for identifying a High and Low Growth scenario definition, adopting the general range of population growth deviation under the ISER 2009 forecast for Low vs. Base and High vs. Base is reasonably similar to the thought process that went into the Knik Arm Crossing Socioeconomic Study. The 2009 ISER study does a very thorough job of detailing numerous economic variables and major economic development projects that affect the outcome of a Low or High growth scenario relative to a Base case.

Having said that, it should be remembered that:

- ISER High Growth assumed the Knik Arm Crossing would be developed;
- ISER Base Growth assumed the Knik Arm Crossing would be developed;
- ISER Low Growth assumed there would be no Knik Arm Crossing;
- ISER made no specific assumptions about MOA/MSB population growth split changes with a Knik Arm Crossing, simply that historical trend would continue.

III. Anchorage MSA Total vs. Wage & Salary Employment

Introduction

This section is intended as a response to Planning Department staff questions regarding use of the 2014 ADOLWD population forecast-driven employment forecast (2015-2040) for Anchorage and the Mat-Su Borough, specifically the issue of land forecasting with total employment vs. wage and salary employment only. Content in this section is from the February 16, 2016 PNW Economics white paper "Anchorage MSA Total vs. Wage/Salary Employment" memorandum.

Total vs. Wage & Salary Employment Considerations

Planning Department staff inquired what the effects would be of forecasting "Total Employment" by industry sector for the MOA planning area as compared to wage and salary/payroll employment only. The former was the emphasis of the January 12, 2015 "Anchorage and Matanuska-Susitna Borough 2015 – 2040 Population, Housing and Employment Forecast." The latter, of course, was the emphasis of methodology for forecasting industrial space and land need in the 2015 Anchorage Industrial Land Assessment Update. The following are my perspective for each major non-residential land use type:

- For industrial space and land demand forecasting, adding sole proprietors, self-employed, or proprietors who do not draw salary would not likely add greater explanatory power and magnitude of space and land demand. In general, non-payroll jobs among industrial-type sectors generally usually do not drive demand for private industrial real estate products. They are more often than not home occupancy businesses that utilize storage, space, and vehicles frequently

² <http://www.adn.com/article/20160412/northrim-banks-advice-those-doing-business-alaska-don-t-panic>

found at a residential location. These are usually small contractors, small craftsmen and craftswomen, small manufacturers, or others.

- For retail commercial space and land demand forecasting, sole proprietors, self-employed or others that are not wage/salary jobs also exhibit similar home occupancy patterns as industrial non-wage/salary jobs. They also tend to use kiosks in existing commercial retail space, temporary space during events and seasons (such as Fur Rondy, summer tourism, etc.) in addition to home occupancy and selling goods online.
- For office commercial space, there is value in adding sole proprietors and the self-employed as they are more likely to lease or sublease office space or executive office space in addition to home office occupancy in my experience. But home occupancy is still common and thus the additional magnitude of demand for office space would be only partial.

In summary, among the major non-residential land uses, only one of the three exhibits some likely magnitude of dedicated employment space and land usage (office commercial) by sole proprietors, but only a share of such as well as home occupancy based on my experience.

Formal studies of home occupancy rates in different specific sectors could not be identified, but research may uncover just such documents online. However, it would be worth noting that home occupancy rates would likely vary in Anchorage compared to the Lower 48 – and potentially considerably – due to climate, cost per-square-foot of developed space vs. utilizing space in home occupancy, and the extraordinarily high rate of local business ownership due to the geographic isolation of Alaska and Anchorage specifically.

Because the purpose of underlying employment forecasting for AMATS is transportation system modeling, it may likely be a better methodological approach and usage of time to make assumptions about how much home occupancy by sector for non-wage/salary jobs is occurring on residentially-zoned land for purposes of modeling and trip capture.

But short of that – or as a result of identifying home occupancy rates by sector – the land need model that has basically been utilized in both the Commercial Land and Industrial Land studies can be easily adapted to include non-payroll and wage employment.

Again, caution is in order as some rate(s) of home occupancy for the different sectors would need to be researched or just assumed as likely only a small minority of non-wage/salary employment is going to build/own or lease real estate products or drive the need for new real estate production construction.

IV. Oil Industry Recession & Updated Job Forecasting

Introduction

This section of the report addresses the following as a result of emerging recessionary pressure on Anchorage due to oil price-induced job losses:

- Economic context for the current economic downturn due to low oil prices and resulting State of Alaska fiscal consequences.

- Economic and land need forecasting considerations given risk of overestimating or underestimating long-term growth potential on Anchorage.
- An updated “Hybrid” employment forecast methodology that utilizes the 2015 Anchorage Industrial Lands Assessment Update “Baseline” employment forecast, but reduces the first five years of growth to reflect recession and recovery.

Content in this section is from the February 16, 2016 PNW Economics white paper “Anchorage MSA Employment Forecast Considerations.”

Oil Prices & Economic Context

To provide context for how the Municipality currently considers the short-term and long-term economy for employment forecasting purposes, PNW Economics presents a series of charts of Alaska petroleum industry data for context. Three figures provide the following information:

- Figure 2: 1990-2015 Alaska Oil Production & July 1 Alaska North Slope (ANS) Price Per Barrel
- Figure 3: Medium-Term & Long-Term Alaska Oil Production & Oil Price Forecasts
- Figure 4: Medium-Term & Long-Term (Taxable) Gross Production Value of Alaska Oil

Historical Oil Prices & Production

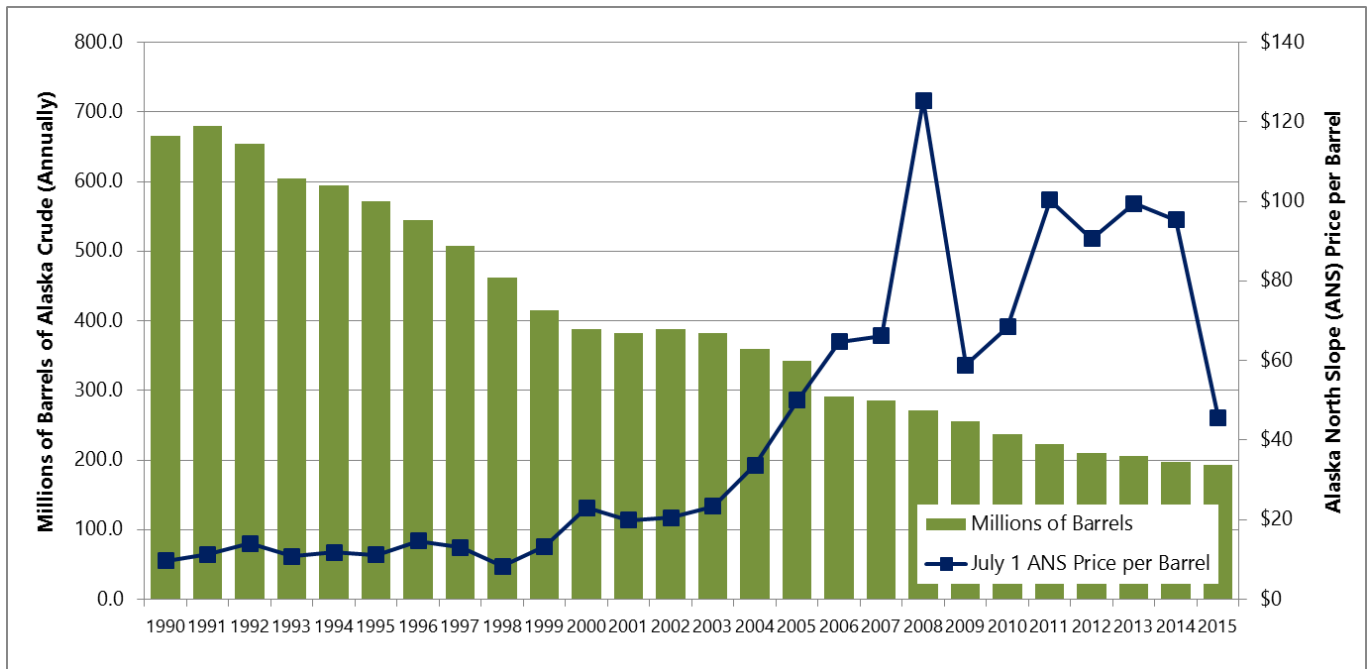
Figure 2 provides annual Alaska oil production³ and ANS (West Coast) oil prices per barrel⁴ from 1990 to 2015. All data is from standard State of Alaska and federal industry sources. Key points to consider:

- Oil prices did indeed take a serious dip beginning in 2014 to below \$30 per barrel recently in 2016;
- Although the oil price drop is problematic for the Alaska economy and the State of Alaska budget, oil prices per barrel are actually down to levels commonly experienced from before 1990 up to roughly 2003.
- The true problem with the State of Alaska budget regarding oil revenues is actually the steady decline in oil production, overwhelmingly on the North Slope. 2015 marked the first year in decades where statewide production fell below 200 million barrels.

³ AK DNR Division of Oil & Gas (<http://dog.dnr.alaska.gov/Royalty/Production.htm>)

⁴ U.S. Energy Information Administration (https://www.eia.gov/dnav/pet/hist/LeafHandler.ashx?n=pet&s=f005071__3&f=m)

Figure 2 - Historical Alaska Oil Production & Oil Prices (per Barrel), 1990-2015



- In other words, the State of Alaska budget was supported by unusually high oil prices for a decade and through the Great Recession, all while actual oil production continued to decline.

Although oil tax revenues are crucial for the State of Alaska budget and based on fluctuating oil prices, the Alaska economy and the Anchorage economy and population continued to grow despite the long-term downward trend in real oil production.

There is no denying that the Anchorage economy is looking at uncertainty with large oil price fluctuations and sizeable oil industry employment within the Anchorage MSA. Employment cuts have been announced and spending reductions by the State have already been announced or are anticipated.

However, the most detailed, one-year economic and population forecast for Anchorage – by the AEDC⁵ – expects local employment to contract by merely 1% due to the growth of Anchorage as a statewide health care center and continued growth in Anchorage’s tourism sector.

Local population is projected to drop by 2,100, an 0.7% reduction. AEDC goes on to note that although the drop is an unfortunate outcome of oil industry turmoil, the population reduction pales in comparison to the 1987-1988 oil industry crash when Anchorage lost 11,000 residents, or a full 5% of its population.⁶

In other words, despite much uncertainty and gloomy Alaska budget projections and ensuing politics, the Anchorage economy is far more diversified in 2016 than in previous decades. As a result, it is expected to withstand the temporary contraction with far fewer losses than the community did in the late 1980s crash.

⁵ Anchorage Economic Development Corporation 2016 Economic Forecast (<http://aedcweb.com/wp-content/uploads/2016/01/2016-AEDC-Economic-Forecast-Report-sponsored-by-BP.pdf>)

⁶ Ibid.

Oil Prices & Production Consolidated Outlook

PNW Economics reviewed the most recent forecasts of:

- Alaska oil production over the medium-term⁷ (2015-2025);
- Alaska oil production over the long-term⁸ (2025-2040);
- ANS prices per barrel over the medium-term⁹ (2015-2025); and
- Longer-term global oil prices.¹⁰

Figure 3 presents the following, resulting information:

- Alaska Department of Revenue projections of annual Alaska oil production and ANS price per barrel through 2025;
- U.S. Energy Information Administration long-term percentage change projections for Alaska oil production from 2025 to 2040; and
- OPEC blended average world oil price projections from 2025 to 2040.

Key points to consider:

- All mainstream authorities on Alaska and world oil prices expect prices per barrel to return to roughly \$50 per barrel in 2016 and as high as \$60 per barrel on average by 2018.
- After 2020, long-term oil demand from sustained growth in Asia and other developing countries is expected to push oil prices significantly higher thereafter, growing upwards of 2%-3% annually through 2040.
- Alaska oil production is expected to very slowly decline through 2020 based on likely production volumes in existing field investments as well as recent, approved new investments within the State.
- After 2020, Alaska oil production from existing investments is expected to dip in a more pronounced manner through 2035, followed by a recovery by 2040 following new production investment that would come from oil price gains due to world demand.

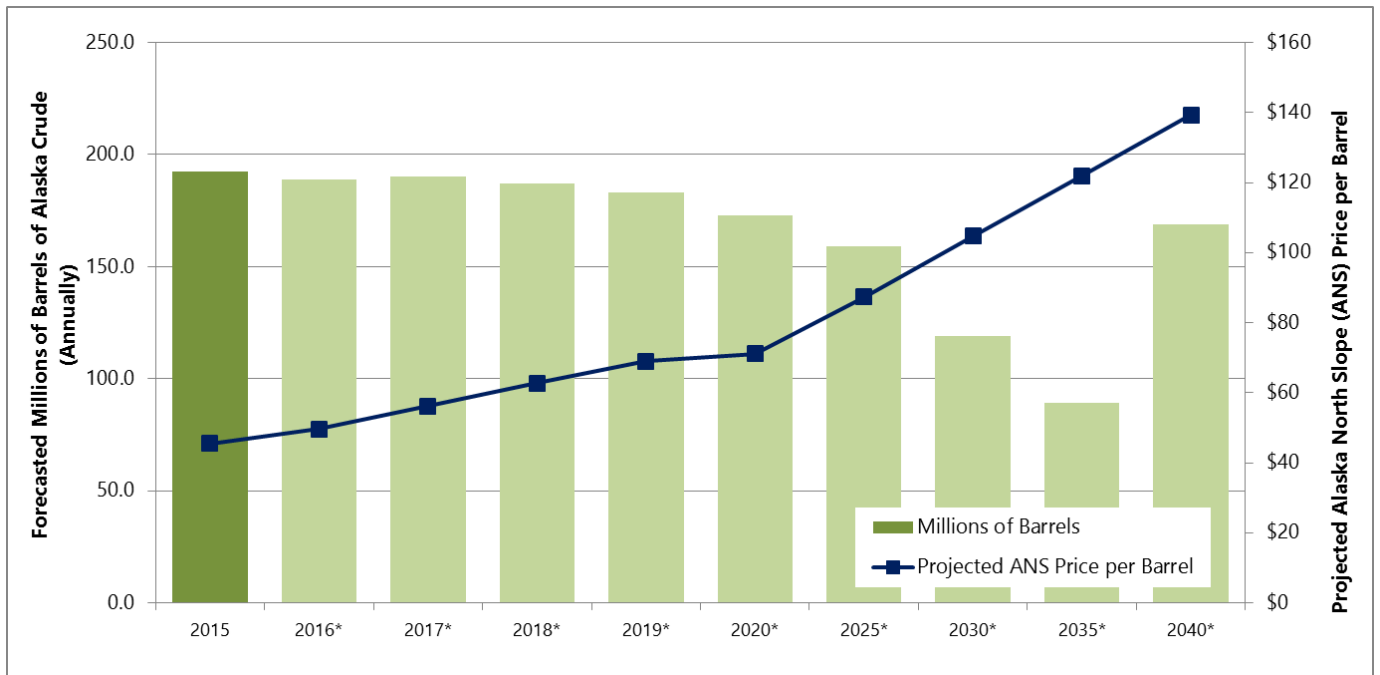
⁷ Alaska Department of Revenue, Revenue Sources Book Fall 2015 (December 30, 2015) (<http://www.tax.alaska.gov/programs/documentviewer/viewer.aspx?1240r>)

⁸ U.S. Energy Information Administration, Annual Energy Outlook 2015 (April 2015) ([https://www.eia.gov/forecasts/aeo/pdf/0383\(2015\).pdf](https://www.eia.gov/forecasts/aeo/pdf/0383(2015).pdf))

⁹ Alaska Department of Revenue, Revenue Sources Book Fall 2015 (December 30, 2015) (<http://www.tax.alaska.gov/programs/documentviewer/viewer.aspx?1240r>)

¹⁰ OPEC, World Oil Outlook 2015 (October 2015) (http://www.opec.org/opec_web/static_files_project/media/downloads/publications/WOO%202015.pdf)

Figure 3 - Projected Alaska Oil Production & Oil Prices, 2016-2040



In other words, there are no major fluctuations expected in underlying oil production activity in Alaska through 2020 while oil prices are expected to more than triple over the next five years from current levels.

The key long-term challenge for the Alaskan oil industry and the State, then, is sooner reversal of declining production which OPEC expressly contributes to the fact that “Prudhoe Bay and Kuparuk are both mature fields, requiring significant levels of investments to slow their production decline” over the medium-term.¹¹

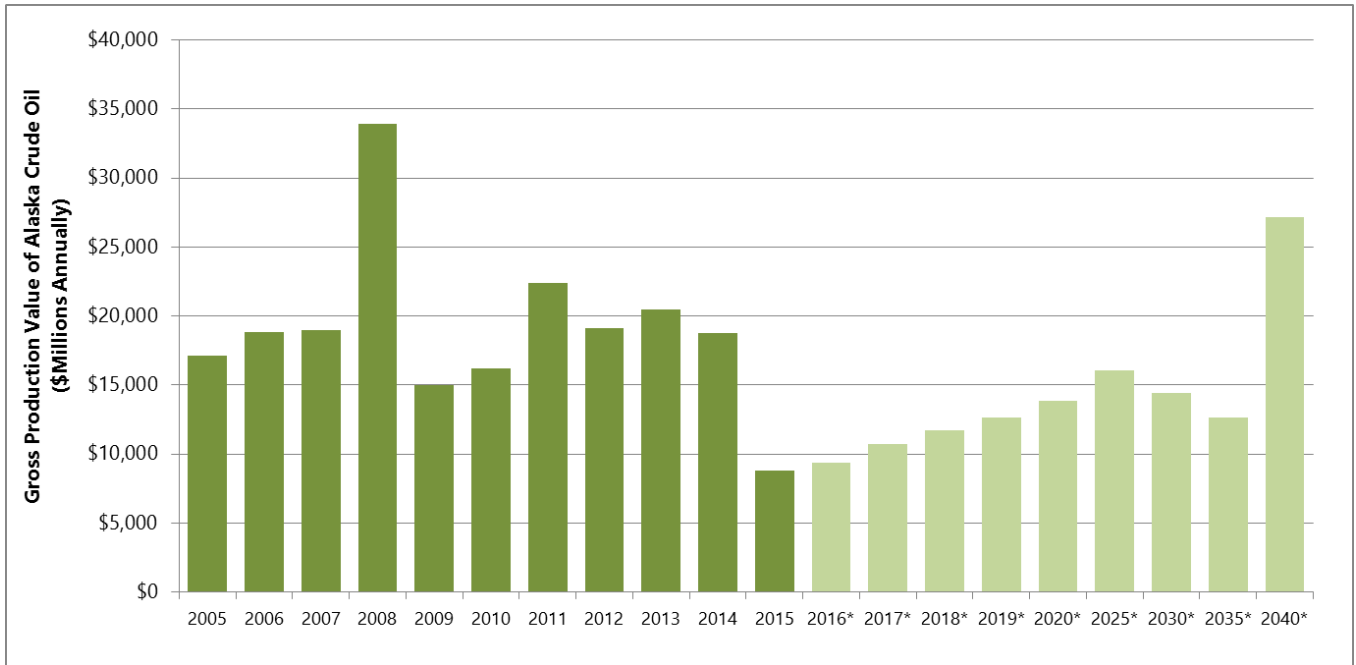
Any successful policy measures to attract sizeable investment to reverse the trend would represent a spur in economic activity for the State and for Anchorage that would register as a higher job growth scenario from an economic forecasting perspective.

Gross (Taxable) Oil Production Value Forecast

The product of annual, average oil prices and annual, projected oil production within Alaska gives an estimate of the oil-generated resources that would benefit State of Alaska revenues. Figure 4 provides both historical figures for gross production value from 2005 to 2015, as well as projected gross production value as a result of most recent forecasts summarized above.

¹¹ Ibid.
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Figure 4 - Historical & Projected Gross (Taxable) Alaska Oil Production Value, 2005-2040



Key points to consider:

- Despite long-term, continued expectations of Alaskan oil production decline, rising oil prices are expected to grow production value to at least the 2009 level by 2025.
- More rapid production decline forecasted from 2025 to 2035 is not saved by continually higher oil prices.
- Very long-term new investment and production, paired with rising oil prices indicates a long wait for significant new taxable resources for the State.

In other words, rising oil prices mitigate some of the long-term State revenue problems, but the true challenge is declining volume of production.

Anchorage Economic Transition (1997-2014)

During documented trend in oil industry performance statewide, along with its impacts in Anchorage, the Municipality economy has undergone structural change that has helped diversified away from singular dependence upon the petroleum sector. Figure 5 provides an analysis of Anchorage industry sector employment and change between 1997, the earliest year of detailed AKDOLWD data publicly available, and 2014.

Comparison of 1997 and 2014 economic data for Anchorage reveals how the local economy grew substantially in both Professional & Business Services and Education & Health Services. Combined, both sectors accounted for a remarkable 66% of Anchorage job growth over the 17-year period according to AKDOLWD data.

- Professional & Business Services includes some administration-level jobs in the petroleum industry, however much of the growth in Anchorage is due to the rapid expansion of many of the state’s Native Corporation headquarter and subsidiary management operations based in

Anchorage. The sector added 7,177 jobs and grew from 10% of the local economy to 13% of the local economy.

- Education & Health Services, best represented by the UMed District, added the most jobs during the 17-year period and grew from 9% of the local economy to 16% of the local economy. Anchorage is now far and away the center of health care statewide as a result and has benefited growth in investment by higher education as well.

Figure 5 – MOA Industry Sector Employment Components of Change, 1997-2014

Industry Sector	Employment			Sector Share of Total			'97-'14 AAGR
	1997	2014	Net	1997 (%)	2014 (%)	Change	
Agriculture	620	130	(490)	1%	0%	0%	-8.8%
Mining	3,342	3,641	299	3%	2%	0%	0.5%
Construction	6,952	8,263	1,311	6%	5%	0%	1.0%
Manufacturing	1,958	2,076	118	2%	1%	0%	0.3%
Wholesale Trade	5,954	4,714	(1,240)	5%	3%	-2%	-1.4%
Transportation, Warehousing & Utilities	10,167	10,773	606	8%	7%	-1%	0.3%
Retail Trade	15,884	17,836	1,952	13%	12%	-1%	0.7%
Information	2,825	4,012	1,187	2%	3%	0%	2.1%
Financial Activities	6,330	7,925	1,595	5%	5%	0%	1.3%
Professional & Business Services	12,446	19,623	7,177	10%	13%	3%	2.7%
Education & Health Services	11,315	24,254	12,939	9%	16%	6%	4.6%
Leisure & Hospitality	12,574	16,934	4,360	10%	11%	1%	1.8%
Other Services	5,565	6,047	482	5%	4%	-1%	0.5%
Non-Classified	69	269	200	0%	0%	0%	8.3%
<i>Total Private</i>	<i>96,001</i>	<i>126,497</i>	<i>30,496</i>	<i>78%</i>	<i>82%</i>	<i>4%</i>	<i>1.6%</i>
Federal Government	9,954	8,437	(1,517)	8%	5%	-3%	-1.0%
State Government	8,100	10,776	2,676	7%	7%	0%	1.7%
Local Government	8,933	9,326	393	7%	6%	-1%	0.3%
<i>Total Government</i>	<i>26,987</i>	<i>28,539</i>	<i>1,552</i>	<i>22%</i>	<i>18%</i>	<i>-4%</i>	<i>0.3%</i>
Total Employment	122,988	155,036	32,048	100%	100%	0%	1.4%

SOURCE: AKDOLWD Quarterly Census of Employment & Wages (QCEW) data for the Municipality of Anchorage (<http://labor.alaska.gov/research/qcew/qcew.htm>). 1997 data in Standard Industrial Classification (SIC) format was converted by PNW Economics by individual sector for comparability to 2014 data in North American Industry Classification System (NAICS) format.

The Mining sector, which includes significant petroleum industry job counts, expanded by at least 299 jobs, but did not grow substantially in its relative role within the Anchorage economy like the above sectors. Likewise, Government employment dropped from 22% of local employment share to 18% despite significant increases in State employment during the period.

In other words, Anchorage's economy has expanded in different directions over the past 17 and more years that indicates greater industry diversity, and as a result, decreasing vulnerability to weakness in one – and still key sector – namely petroleum.

Oil & The Anchorage Economy: Summary

Highly publicized oil price and State budget turmoil aside, the Anchorage economy can be expected to greatly withstand oil industry-related contraction over the short-term, and certainly fare better than in 1987-1988 when the local economy was far more dependent upon the petroleum sector. The Anchorage economy has diversified into sectors that are far less dependent upon oil-related activities over the past 17 years, insulating the local economy from dramatic turmoil that Anchorage weathered nearly 30 years ago.

Oil prices are uniformly projected to snap back over the shorter term and Alaska oil production is continued to see a slow, gradual slide in annual oil production not unlike what it has experienced over the last decade and more.

In short:

- There are reasons to be somewhat pessimistic about the Anchorage economy over the short term as the State changes course fiscally at the very least.
- Long-term pessimism about the Anchorage economy should be viewed as unfounded based on most recent industry information and best, recent forecasting from credible sources.
- Should long-term Alaska oil production decline be reversed by new investment activity, the spur in new development would boost Anchorage economic performance.

PNW Economics, therefore, urges the Municipality of Anchorage to reconsider any predisposition to *dramatically* revise downward its 20-year economic and population forecasts due to perceived long-term weakness in the Alaska oil industry. We find that economic transition as a result of short-term oil price and production problems, along with state employment and spending cuts, will be unavoidable. But significant transition of the local economy into other sectors over the last 17+ years, as well as anticipated oil price recovery over the next two years, position Anchorage for shorter-term economic losses that will likely be a small fraction of losses experienced in the much storied 1987-1988 oil crash, the memory of which understandably seems to inform the more cautious thinking of some.

As a result, a temporary "Low-Growth" scenario may be appropriate for the first one to three years of any new 20-year forecasting conducted by Long-Range Planning staff. But long-term, economic pessimism for Anchorage is unfounded. Further, as will be discussed in the next section, there is policy and real economic hazard associated with too-pessimistic bias to population and employment forecasting in Anchorage's seriously land-constrained urban environment.

Forecasting Growth, Land Demand, Supply Constraint, & Policy Hazard

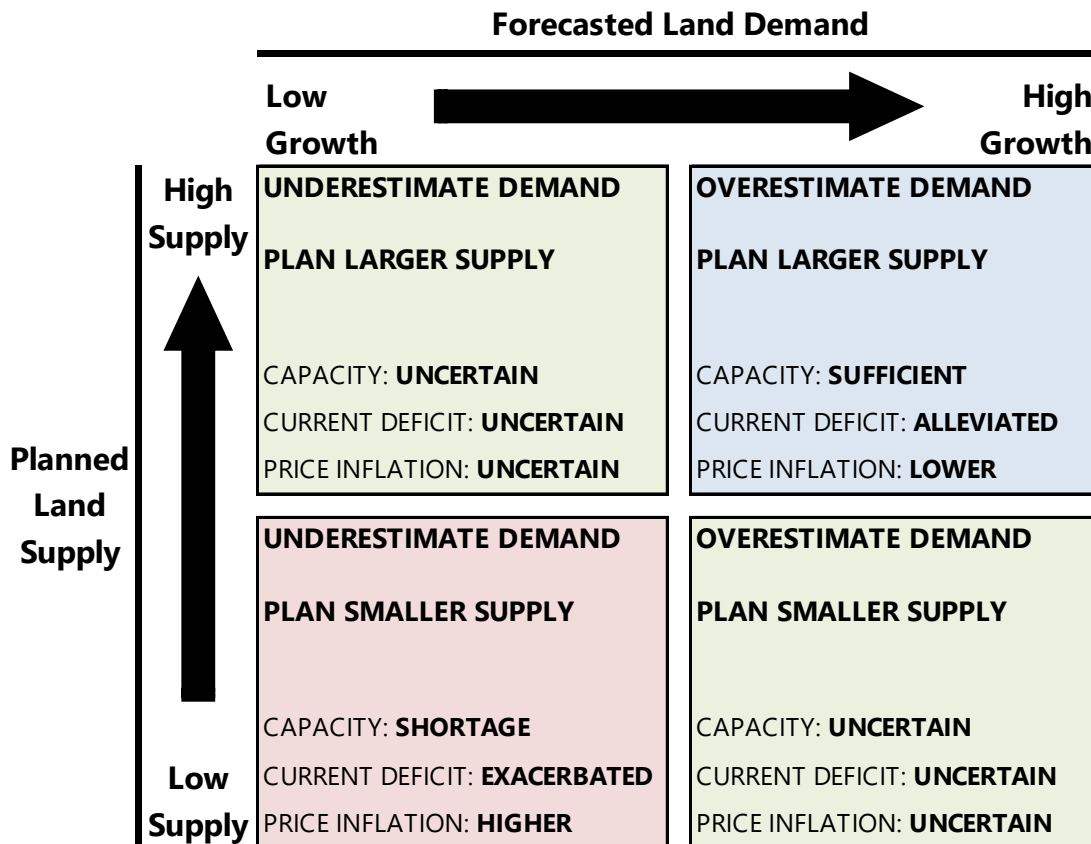
The ultimate performance of the Anchorage economy over a twenty-year period, with or without short-term uncertainty about the crucial petroleum industry, is obviously yet to be determined. While the Municipality can or should do little to shape the demand drivers for land, Anchorage can affect the available supply of land and related policies that entitle their character of its development for different uses.

Employment and population forecasts are intended to inform how the Municipality plans its buildable land supply. Conservative forecasting would inherently inform a likely lower planned supply of land over

the next twenty years. Alternatively, forecasting higher growth would likely inform a larger planned supply of land during the planning period.

Both can be appropriate, but as the Municipality has greater control of land supply than it does the economic and population growth that drive demand, the difference between forecasted demand and actually *realized* demand for land is what introduces economic risk to well-intended policies. In other words, the central question is: *Is it better to plan for a more optimistic growth path or to plan for a more conservative growth path?* Figure 6 provides a conceptual answer to this question.

Figure 6 - Interaction Between Forecasted Land Demand & Planned Land Supply



From a land demand perspective, forecasting of need can generally range from a pessimistic/lower growth expectation to an optimistic/higher growth expectation. Based on either bias, the Municipality would see justification for either a lower or a higher supply of buildable land for different uses over the next twenty years.

As Figure 6 demonstrates, there are four possible outcomes from the interaction of land demand and supply. The worst possible outcome from a planning perspective is to both underestimate land need and plan for lower land capacity/supply over the next twenty years. Growth is not fully accommodated, the existing deficit of land supply is exacerbated, and the price of land and resulting uses is guaranteed to inflate even further.

The best economic outcome, on the other hand, is if the Municipality plans a larger supply of land capacity along with forecasting more land need than is realized. Growth is fully accommodated while extra capacity is created to in some measure alleviate current land supply deficits. The result is downward pressure on land cost escalation and the cost escalation of various uses.

Anything in between would have uncertainly positive or negative impacts upon capacity sufficiency and the cost of land, housing, etc. Risks of negative impacts are, therefore, minimized from an economic perspective by planning for higher expectations of growth rather than lower expectations of growth.

Recommended Employment Forecast

After review of prevailing information and forecasts of the Anchorage economy through oil industry turmoil and for the Alaska oil industry itself, as well as considerations for best practice for land supply planning in the face of economic uncertainty, PNW Economics recommends that the Municipality of Anchorage consider the following:

- A short-term low growth forecast for the Anchorage economy lasting no more than five years; and
- A longer-term forecast thereafter that is more consistent with long-term trend and prevents the Municipality from under-planning land capacity, exacerbating existing supply deficits, costs of land, and costs of uses such as housing.

The resulting hybrid forecast approach is expressed in Figure 7 with methodology explained following the figure. PNW Economics estimates that the five-year low growth/recession added between 2015 and 2020 reduces 20-year total employment growth by 3,600 total jobs or 9.4%. Alternatively, the Figure 7 forecast exceeds Base Case total employment growth for the 2015-2040 period expressed in the January 12, 2016 Planning Department Technical Memorandum (Table 23, p. 23) by 8,630 jobs, or 24%.

Figure 7: Hybrid Baseline MOA Employment Forecast: Oil Recession, 2015-2040

Baseline No KAC Bridge Scenario Employment Sector	Self Payroll		Total		Total Employment				Δ	
	2015	2015	2015	2020	2025	2030	2035	2040	'15-'35	'15-'40
Mining	970	3,400	4,370	4,160	4,290	4,420	4,550	4,680	180	310
Construction	2,960	8,500	11,460	11,640	11,970	12,300	12,630	12,960	1,170	1,500
Manufacturing	0	2,400	2,400	2,400	2,500	2,600	2,700	2,800	300	400
Wholesale Trade	560	4,500	5,060	5,550	5,900	6,250	6,600	6,950	1,540	1,890
Retail Trade	3,710	17,600	21,310	22,000	23,080	24,160	25,240	26,320	3,930	5,010
Transportation, Warehousing & Utilities	1,080	11,800	12,880	13,340	14,070	14,800	15,530	16,260	2,650	3,380
Information	0	3,800	3,800	3,800	3,930	4,060	4,190	4,320	390	520
Financial Activities	0	8,700	8,700	8,700	9,050	9,400	9,750	10,100	1,050	1,400
Professional & Business Services	4,590	19,400	23,990	25,310	27,140	28,970	30,800	32,630	6,810	8,640
Education & Health Services	1,480	24,700	26,180	28,000	30,650	33,300	35,950	38,600	9,770	12,420
Leisure & Hospitality	1,890	16,700	18,590	19,700	21,130	22,560	23,990	25,420	5,400	6,830
Other Services	650	5,800	6,450	6,620	6,900	7,180	7,460	7,740	1,010	1,290
Government	0	30,900	30,900	30,700	30,900	31,100	31,300	31,500	400	600
Total	17,890	158,200	176,090	181,920	191,510	201,100	210,690	220,280	34,600	44,190

The "Hybrid" Baseline No KAC forecast in Figure 7 differs from the Baseline No KAC employment forecast in the 2015 Anchorage Industrial Land Needs Assessment Update (Figure 2-12, p.20) in the following ways:

- Adds self-employment and other non-payroll jobs that do not utilize home offices or home business locations to the 2015 base year. Non-payroll jobs added to QCEW¹² jobs in Table 21 of the January 12, 2016 Planning Department Technical Memorandum were adjusted by IRS sole proprietor tax return data¹³ by major industry sector to account for the share of self-employed do not claim business home use/home office deductions.
- Assumes Low Growth Scenario job gains between 2015 and 2020 by industry sector as expressed in the 2015 Anchorage Industrial Land Needs Assessment Update (Figure 2-14, p.24). This is intended as an accounting of temporary job losses and slower initial recovery due to current oil industry weakness and State budget difficulties.
- Assumes Baseline No KAC Growth Scenario average annual job gains between 2020 and 2035 by industry sector as expressed in the 2015 Anchorage Industrial Land Needs Assessment Update (Figure 2-12, p.20). This represents a return to reasonably normal, trended growth after a five-year oil industry-induced contraction and recovery.
- Extends average job gains by industry sector estimated for 2020-2035 an additional five years to 2040. This represents additional continuation of trended, baseline growth.

Revised Baseline Industrial Land Demand Forecast

With a "Hybrid Baseline" employment forecast for the Municipality of Anchorage as expressed in Figure 7, it is possible to provide a revised forecast of industrial land demand for Anchorage. Figure 8 provides industrial land need through 2035 and 2040 for the Municipality as a result of the "Hybrid" employment forecast. 20-year land demand is reduced by 73 gross acres to 508.7 acres, or a 12.5% reduction in demand.

Figure 8 - Hybrid Baseline MOA Employment Forecast: Oil Recession, 2015-2040

Baseline No KAC Bridge Scenario Employment Sector	Industrial Space Need (000s of sq. ft.)					Predicted Land Need (Acres)				
	2015	2035	2040	'15-'35	'15-'40	2015	2035	2040	'15-'35	'15-'40
Mining	1,575.5	1,640.4	1,687.3	64.9	111.8	267.9	256.2	257.1	-11.7	-10.8
Construction	2,969.0	3,272.1	3,357.6	303.1	388.6	445.5	450.9	451.4	5.5	6.0
Manufacturing	4,063.0	4,570.8	4,740.1	507.8	677.1	323.9	334.6	338.6	10.8	14.7
Wholesale Trade	3,401.6	4,436.8	4,672.1	1,035.2	1,270.5	206.6	247.5	254.3	40.9	47.7
Retail Trade	3,194.4	3,783.5	3,945.4	589.1	751.0	271.6	295.5	300.6	23.9	29.0
Transportation, Warehousing & Utilities	15,339.6	18,495.6	19,365.0	3,156.0	4,025.4	2,301.6	2,549.0	2,603.7	247.4	302.1
Information	585.6	645.7	665.8	60.1	80.2	36.4	36.9	37.1	0.5	0.7
Financial Activities	893.8	1,001.7	1,037.7	107.9	143.9	99.1	102.0	103.1	2.9	4.0
Professional & Business Services	4,313.3	5,537.7	5,866.7	1,224.4	1,553.4	478.4	564.1	583.0	85.7	104.7
Education & Health Services	2,616.3	3,592.7	3,857.5	976.4	1,241.2	256.7	323.7	339.1	67.1	82.4
Leisure & Hospitality	1,703.3	2,198.1	2,329.1	494.8	625.8	197.5	234.1	242.0	36.6	44.5
Other Services	3,183.2	3,681.6	3,819.8	498.4	636.6	253.7	269.5	272.8	15.8	19.1
Government	2,232.5	2,261.4	2,275.8	28.9	43.3	237.3	220.8	216.7	-16.5	-20.5
Total	46,071.1	55,118.1	57,619.9	9,047.0	11,548.8	5,376.2	5,884.9	5,999.7	508.7	623.5

¹² Quarterly Census of Employment & Wages, a standard industry sector employment data format. For further details, see note for Figure 5.

¹³ <https://www.irs.gov/pub/irs-soi/13insumbulsoleprop.pdf>

Although this forecast scenario sees reduced industrial land demand, the drop in need does not significantly alter conclusions reached in the 2015 Anchorage Industrial Land Assessment Update. The insufficiency of existing acreage identified as either already explicitly zoned for industrial use, or lands potentially rezoned to industrial use continue to not meet 20-year demand in the Anchorage Bowl, though the deficit is less pronounced.

AKDOLWD-Driven Industrial Land Demand Forecast

For comparison purposes, the Base Case employment forecast from the January 12, 2016 Planning Department Technical Memorandum was modeled utilizing identical industrial space and land usage assumptions and analysis documented in the 2015 Anchorage Industrial Lands Assessment Update. Results are expressed in Figure 9.

The significantly more conservative nature of the AKDOLWD purely population cohort-driven employment forecast becomes apparent in the industrial land demand estimates in Figure 9. 20-year industrial land demand in the Base Case – which does not explicitly model a recessionary period – is estimated at 301.3 gross acres compared to 508.7 gross acres in Figure 8.

Industrial land demand estimated in Figure 9 results in significant changes to findings of the sufficiency of industrial land in the Anchorage Bowl and Municipality-wide. The results of this scenario indicate that all lands within the Anchorage Bowl currently zoned for industrial use accommodate nearly all 20-year need and only fall short by roughly 26 acres.

Figure 9 - AKDOLWD-Driven Base Case MOA Employment Forecast: 2015-2040

Base Case - AKDOLWD-Driven Employment Sector	Industrial Space Need (000s of sq. ft.)					Predicted Land Need (Acres)				
	2015	2035	2040	'15-'35	'15-'40	2015	2035	2040	'15-'35	'15-'40
Mining	1,658.4	1,766.6	1,766.6	108.2	108.2	282.0	275.9	269.2	-6.1	-12.8
Construction	3,406.9	3,611.5	3,632.3	204.6	225.4	511.2	497.7	488.4	-13.5	-22.8
Manufacturing	4,063.0	4,621.6	4,774.0	558.6	711.0	323.9	338.4	341.0	14.5	17.1
Wholesale Trade	3,966.3	4,652.0	4,773.0	685.7	806.7	240.9	259.5	259.8	18.6	18.9
Retail Trade	3,455.3	3,940.9	4,045.9	485.6	590.6	293.8	307.8	308.3	14.0	14.5
Transportation, Warehousing & Utilities	15,589.7	18,090.7	18,721.9	2,501.0	3,132.2	2,339.2	2,493.2	2,517.2	154.0	178.1
Information	585.6	638.0	638.0	52.4	52.4	36.4	36.5	35.6	0.0	-0.9
Financial Activities	893.8	999.7	999.7	105.9	105.9	99.1	101.8	99.3	2.7	0.2
Professional & Business Services	7,700.6	8,784.8	8,977.2	1,084.2	1,276.6	854.0	894.9	892.1	40.8	38.1
Education & Health Services	2,837.2	3,735.6	3,921.4	898.4	1,084.2	278.3	336.6	344.7	58.3	66.4
Leisure & Hospitality	1,817.8	2,241.1	2,314.4	423.3	496.6	210.8	238.7	240.5	27.9	29.7
Other Services	3,276.9	3,642.1	3,681.6	365.2	404.7	261.2	266.7	263.0	5.4	1.8
Government	2,232.5	2,272.2	2,278.7	39.7	46.2	237.3	221.8	217.0	-15.5	-20.3
Total	51,484.0	58,996.8	60,524.7	7,512.8	9,040.7	5,968.1	6,269.3	6,276.1	301.3	308.0

Low & High Growth Scenario Deviation Recommendations & Conclusion

In the January 12, 2016 Planning Department Technical Memorandum, for employment forecasting a High Growth scenario and a Low Growth scenario would be estimated assuming:

- High Growth: Base Case average growth rate will be 85% higher; and
- Low Growth: Base Case average growth rate will be reduced by 65%.

Because the purpose of Low and High Growth scenarios are for bracketing potential future growth for policy discussion purposes, there is a somewhat arbitrary nature to what growth rate boosts or reductions are assumed for scenario construction. For all intents and purposes, the 65% reduction/85% boost for the two scenarios could be perfectly appropriate. The driving question these two assumptions should seek to answer is simply:

1. *What if Anchorage grows X% more slowly than we anticipate?*
2. *What if Anchorage grows Y% more quickly than we predict?*

The policy hazard for such forecasting is to choose an inappropriate Baseline or Base Case forecast on which to base a Low and High alternatives to bracket the forecast.

While the population and resulting employment forecasting summarized in the January 12, 2016 Planning Department Technical Memorandum was thoroughly conducted and presents a clear and concise take on population and employment gains through 2040, it is credible for the Municipality to view it alone as too conservative for a Baseline growth forecast for Anchorage, for purposes of estimating land supply needs.

For historical context for different new employment forecasting, Figure 10 compares:

- The Anchorage 2020 employment forecast with actual, realized annual job growth in Anchorage and the Mat-Su Borough (MSB).
- "Hybrid" Baseline and "Base Case" – AKDOLWD annual, average job growth with all of the above.

Figure 10 – Anchorage 2020 Employment Forecast, Realized Growth, and LUPM Update Projections

Actual / Forecast	Source	Average Annual Employment Growth		
		MOA	MSB	Total (MSA)
Annual Average Growth Anchorage 2020 & Actual	Forecast - Anchorage 2020	2,600	368	2,968
	Actual - AKDOLWD	1,718	668	2,385
Annual Average Growth "Hybrid" Baseline & "Base Case" - AKDOLWD	"Hybrid" Baseline Forecast	1,768		
	"Base Case" - AKDOLWD Forecast	1,415		

Key findings to consider:

- The Anchorage MSA added jobs each year at a slower pace than projected in the Anchorage 2020 forecast, though unsurprisingly given the speculative nature of "best guess," long-range forecasting.
- Anchorage added jobs slower than projected each year while the MSB grew significantly faster than expected, a likely symptom of Anchorage's declining land supply inventory for all major uses as well as significant housing price differences.
- Moving forward, the "Hybrid" Baseline forecast is similar but slightly higher than realized job growth in Anchorage since 1998 at 1,768 new jobs each year compared to 1,718 actually realized annually.
- The "Hybrid" Baseline forecast represents a 32% reduction in job growth expectations projected in the Anchorage 2020 plan.

- The “Base Case” – AKDOLWD forecast represents 300 fewer Anchorage jobs, or 18% fewer added annually than were realized over the 1998-2015 period (1,415 new jobs projected annually vs. 1,718 realized to 2015).
- Anchorage job growth under the “Base Case” – AKDOLWD forecast is 46% lower than the Anchorage 2020 forecast.

Overall, new forecasts of Anchorage employment growth are significantly lower than projected in the Anchorage 2020 plan, and both are reasonably consistent with or even lower than realized employment expansion from 1998 to 2015. Both methodologies, therefore, have merit in giving Anchorage a more conservative basis for future growth planning given current economic uncertainty with oil industry performance and Anchorage citizen concerns about the economy. The different outcomes of each, however, might best be compared for purposes of bounding potential growth for land use planning instead of either being wholly utilized individually.

V. Self-Employment & Home Business Analysis

This section of the report is intended as an answer to the question about specifically what share of industry sector self-employment within the MOA would utilize commercially developed employment space (on land primarily zoned for various employment uses) vs. having a work location at home/home office (on land primarily zoned for various residential uses). Content from this section is from the February 28, 2016 PNW Economics white paper “DRAFT Anchorage MOA Self-Employment Not Utilizing Home Office/Work Location.”

Figure 11 provides a summary of calculations based on 2011 national IRS data for sole proprietor firms and tax deductions by type.¹⁴

Figure 11 – MOA Self-Employment Utilizing Space Away from Home/Not On Residential Land

MOA Industry Sectors	IRS (2011) Self-Employment Home Office %		Non-Payroll Jobs	
	At Home Rate	Away Rate	Total	Away From Home
Mining	19.5%	80.5%	1,200	970
Construction	36.4%	63.6%	4,650	2,960
Manufacturing	54.9%	45.1%	0	0
Wholesale Trade	59.9%	40.1%	1,400	560
Retail Trade	32.0%	68.0%	5,450	3,710
Transportation, Warehousing & Utilities	16.0%	84.0%	1,290	1,080
Information	75.7%	24.3%	0	0
Financial Activities	47.7%	52.3%	0	0
Professional & Business Services	80.4%	19.6%	23,430	4,590
Education & Health Services	60.0%	40.0%	3,690	1,480
Leisure & Hospitality	39.8%	60.2%	3,140	1,890
Other Services	22.1%	77.9%	840	650
Government	0.0%	100.0%	0	0
Totals/Averages:		39.7%	45,090	17,890

¹⁴ <https://www.irs.gov/pub/irs-soi/13insumbulsoleprop.pdf>

Please note that resulting totals in the far-right column are rounded but also match up with 2015 Self-Employment numbers utilized in each of the "Hybrid" forecasts in previous memorandums. Total Non-Payroll Jobs is directly from the January 12, 2016 Planning Department Technical Memorandum. Again, the home work location/away location split is based on comprehensive 2011 IRS data for national self-employment tax returns with detailed deduction and exemption claims by major NAICS industry classification.

VI. MOA Forecast Methodology Results Comparison

Introduction

This final section provides a follow-up series of employment, population, households and industrial land demand forecasts for the Municipality of Anchorage as a result of all analysis and considerations summarized in the previous sections. The analyses in this section comprise:

- Comparisons between the AKDOLWD-based AMATS employment forecasting conducted for Long Range Planning staff¹⁵ as well as PNW Economics "Hybrid" scenario forecasts.¹⁶

As a reminder, the revised AKDOLWD-based employment forecasts reflect both payroll and non-payroll (self-employment, etc.) but adjusted for businesses that utilize home/residential business locations rather than commercial locations consistent with IRS sole-proprietor home office/business statistics reported in 2011.

Employment & Population Forecasts

Employment Forecasts Comparison

Figure 12 provides a comprehensive summary of total job growth from 2015 to 2040 for the Municipality of Anchorage under the different growth methodologies and scenarios expressed above. Overall:

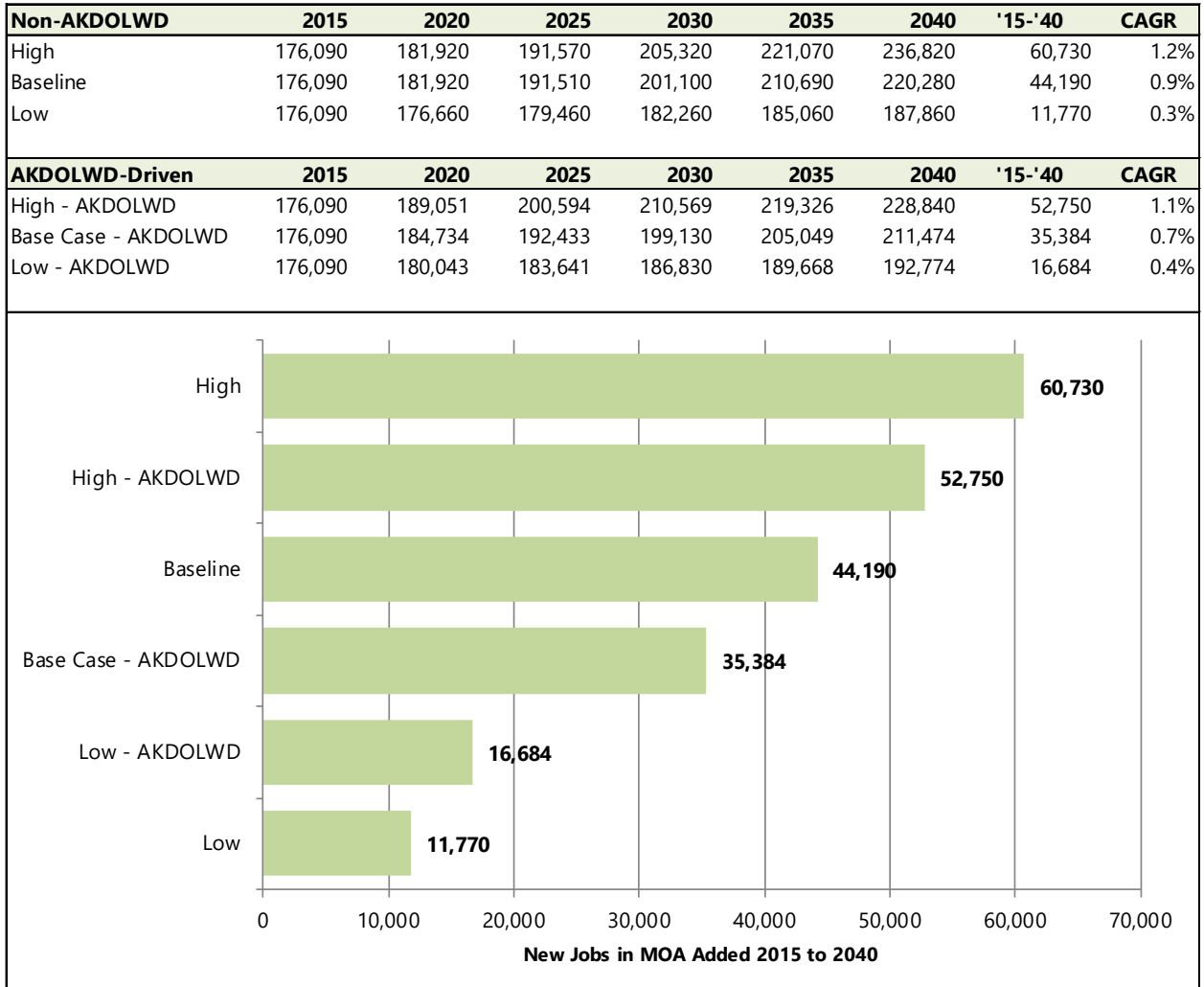
- The AKDOLWD-based Base Case scenario and "Hybrid" Baseline forecasts differ by roughly 9,000 jobs added in Anchorage through 2040.
- All forecasts together provide a wide variety of outcomes for Anchorage to consider, varying from as high as 60,730 new jobs in Anchorage by 2040 ("Hybrid" High) to as few as 11,770 new jobs by 2040 ("Hybrid" Low).
- The Low – AKDOLWD scenario sees 16,684 new jobs over the 25-year period (approximately 2,000 *more* new jobs than the initial "Low - AKDOLWD" Scenario).
- The revised "Hybrid" High Growth scenario would see 60,730 new jobs in Anchorage between 2015 and 2040, down from 64,970 in previous draft "Hybrid" results.

¹⁵ From "MOA Employment Forecast 022916.xls" dated February 29, 2016.

¹⁶ "DRAFT Anchorage MSA Forecast Methodology Results Comparisons" dated February 26, 2016 by PNW Economics, LLC. The memorandum was identified to have calculation errors. Revisions of identified errors are reflected in this report.

- The revised “Hybrid” Low Growth scenario estimates 11,770 new jobs over the next 25 years, up from 8,010 net new jobs in previous draft results.

Figure 12 – MOA “Hybrid” and AKDOLWD-Driven Employment Forecasts



Note: CAGR is Compound Annual Growth Rate.

Figures 13 and 14 on the following pages provide detailed forecasts for employment by sector under the different growth scenarios:

- Figure 13: “Hybrid” Non-AKDOLWD Employment Forecasts including the “Baseline” scenario from the February 26, 2016 PNW Economics, LLC memorandum as well as the “High” and “Low” estimates; and
- Figure 14: Revised AKDOLWD-Driven Employment Forecasts.

Figure 13 – Detailed “Hybrid” MOA Employment Forecast Scenarios, 2015-2040

Baseline Scenario	Self	Payroll	Total	Total Employment					Δ	Δ
Employment Sector	2015	2015	2015	2020	2025	2030	2035	2040	'15-'35	'15-'40
Mining	970	3,400	4,370	4,160	4,290	4,420	4,550	4,680	180	310
Construction	2,960	8,500	11,460	11,640	11,970	12,300	12,630	12,960	1,170	1,500
Manufacturing	0	2,400	2,400	2,400	2,500	2,600	2,700	2,800	300	400
Wholesale Trade	560	4,500	5,060	5,550	5,900	6,250	6,600	6,950	1,540	1,890
Retail Trade	3,710	17,600	21,310	22,000	23,080	24,160	25,240	26,320	3,930	5,010
Transportation, Warehousing & Utilities	1,080	11,800	12,880	13,340	14,070	14,800	15,530	16,260	2,650	3,380
Information	0	3,800	3,800	3,800	3,930	4,060	4,190	4,320	390	520
Financial Activities	0	8,700	8,700	8,700	9,050	9,400	9,750	10,100	1,050	1,400
Professional & Business Services	4,590	19,400	23,990	25,310	27,140	28,970	30,800	32,630	6,810	8,640
Education & Health Services	1,480	24,700	26,180	28,000	30,650	33,300	35,950	38,600	9,770	12,420
Leisure & Hospitality	1,890	16,700	18,590	19,700	21,130	22,560	23,990	25,420	5,400	6,830
Other Services	650	5,800	6,450	6,620	6,900	7,180	7,460	7,740	1,010	1,290
Government	0	30,900	30,900	30,700	30,900	31,100	31,300	31,500	400	600
Total	17,890	158,200	176,090	181,920	191,510	201,100	210,690	220,280	34,600	44,190
High Growth Scenario	Self	Payroll	Total	Total Employment					Δ	Δ
Employment Sector	2015	2015	2015	2020	2025	2030	2035	2040	'15-'35	'15-'40
Mining	970	3,400	4,370	4,160	4,660	5,160	5,660	6,160	1,290	1,790
Construction	2,960	8,500	11,460	11,640	12,090	12,540	12,990	13,440	1,530	1,980
Manufacturing	0	2,400	2,400	2,400	2,700	3,000	3,300	3,600	900	1,200
Wholesale Trade	560	4,500	5,060	5,550	5,750	6,250	6,950	7,650	1,890	2,590
Retail Trade	3,710	17,600	21,310	22,000	22,800	24,000	25,300	26,600	3,990	5,290
Transportation, Warehousing & Utilities	1,080	11,800	12,880	13,340	13,940	14,940	16,140	17,340	3,260	4,460
Information	0	3,800	3,800	3,800	4,000	4,300	4,700	5,100	900	1,300
Financial Activities	0	8,700	8,700	8,700	8,900	9,100	9,400	9,700	700	1,000
Professional & Business Services	4,590	19,400	23,990	25,310	26,910	29,110	31,910	34,710	7,920	10,720
Education & Health Services	1,480	24,700	26,180	28,000	30,600	34,300	38,500	42,700	12,320	16,520
Leisure & Hospitality	1,890	16,700	18,590	19,700	21,000	22,600	24,600	26,600	6,010	8,010
Other Services	650	5,800	6,450	6,620	6,820	7,120	7,520	7,920	1,070	1,470
Government	0	30,900	30,900	30,700	31,400	32,900	34,100	35,300	3,200	4,400
Total	17,890	158,200	176,090	181,920	191,570	205,320	221,070	236,820	44,980	60,730
Low Growth Scenario	Self	Payroll	Total	Total Employment					Δ	Δ
Employment Sector	2015	2015	2015	2020	2025	2030	2035	2040	'15-'35	'15-'40
Mining	970	3,400	4,370	4,160	4,060	3,960	3,860	3,760	-510	-610
Construction	2,960	8,500	11,460	11,200	11,300	11,400	11,500	11,600	40	140
Manufacturing	0	2,400	2,400	2,300	2,330	2,360	2,390	2,420	-10	20
Wholesale Trade	560	4,500	5,060	5,300	5,400	5,500	5,600	5,700	540	640
Retail Trade	3,710	17,600	21,310	21,200	21,500	21,800	22,100	22,400	790	1,090
Transportation, Warehousing & Utilities	1,080	11,800	12,880	12,900	13,130	13,360	13,590	13,820	710	940
Information	0	3,800	3,800	3,700	3,730	3,760	3,790	3,820	-10	20
Financial Activities	0	8,700	8,700	8,400	8,500	8,600	8,700	8,800	0	100
Professional & Business Services	4,590	19,400	23,990	24,400	24,930	25,460	25,990	26,520	2,000	2,530
Education & Health Services	1,480	24,700	26,180	27,000	27,880	28,760	29,640	30,520	3,460	4,340
Leisure & Hospitality	1,890	16,700	18,590	19,000	19,450	19,900	20,350	20,800	1,760	2,210
Other Services	650	5,800	6,450	6,400	6,530	6,660	6,790	6,920	340	470
Government	0	30,900	30,900	30,700	30,720	30,740	30,760	30,780	-140	-120
Total	17,890	158,200	176,090	176,660	179,460	182,260	185,060	187,860	8,970	11,770

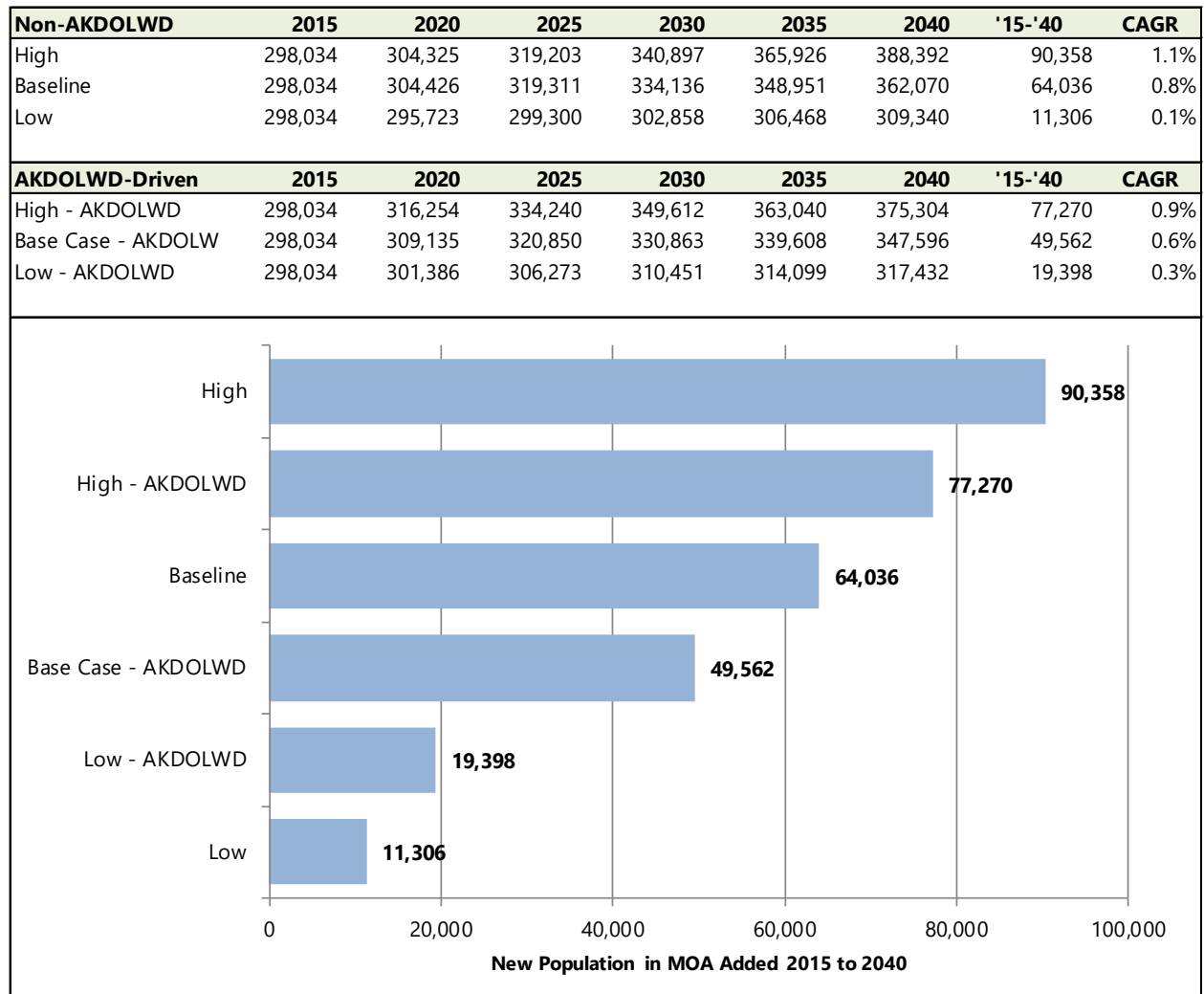
Figure 14 – Detailed AKDOLWD-Driven MOA Employment Forecast Scenarios, 2015-2040

Base Case Scenario		Total		Total Employment			Δ	
Employment Sector	2015	2020	2025	2030	2035	2040	'15-'35	'15-'40
Mining	4,370	4,576	4,583	4,693	4,703	4,720	333	350
Construction	11,460	11,866	11,982	12,078	12,172	12,304	712	844
Manufacturing	2,400	2,509	2,659	2,668	2,769	2,871	369	471
Wholesale Trade	5,060	5,482	5,750	5,853	6,041	6,250	981	1,190
Retail Trade	21,310	22,442	23,158	23,827	24,641	25,449	3,331	4,139
Transportation, Warehousing & Utilities	12,880	13,710	14,173	14,540	15,164	15,758	2,284	2,878
Information	3,800	4,014	4,170	4,185	4,199	4,214	399	414
Financial Activities	8,700	9,123	9,578	9,835	9,870	9,905	1,170	1,205
Professional & Business Services	23,990	24,806	25,954	26,929	27,623	28,890	3,633	4,900
Education & Health Services	26,180	28,302	30,832	33,252	35,343	37,373	9,163	11,193
Leisure & Hospitality	18,590	19,935	21,215	22,441	23,356	24,259	4,766	5,669
Other Services	6,450	6,856	7,014	7,144	7,265	7,373	815	923
Government	30,900	31,112	31,364	31,688	31,902	32,107	1,002	1,207
Total	176,090	184,734	192,433	199,130	205,049	211,474	28,959	35,384
High Growth Scenario		Total		Total Employment			Δ	
Employment Sector	2015	2020	2025	2030	2035	2040	'15-'35	'15-'40
Mining	4,370	4,671	4,673	4,850	4,857	4,875	487	505
Construction	11,460	12,066	12,226	12,343	12,462	12,656	1,002	1,196
Manufacturing	2,400	2,559	2,790	2,800	2,952	3,105	552	705
Wholesale Trade	5,060	5,702	6,104	6,253	6,531	6,833	1,471	1,773
Retail Trade	21,310	23,012	24,075	25,070	26,277	27,487	4,967	6,177
Transportation, Warehousing & Utilities	12,880	14,127	14,819	15,356	16,304	17,187	3,424	4,307
Information	3,800	4,115	4,351	4,367	4,382	4,398	582	598
Financial Activities	8,700	9,344	10,022	10,391	10,428	10,465	1,728	1,765
Professional & Business Services	23,990	25,198	26,925	28,377	29,405	31,262	5,415	7,272
Education & Health Services	26,180	29,393	33,249	36,921	40,096	43,160	13,916	16,980
Leisure & Hospitality	18,590	20,628	22,568	24,413	25,791	27,141	7,201	8,551
Other Services	6,450	7,072	7,297	7,485	7,645	7,816	1,195	1,366
Government	30,900	31,163	31,496	31,942	32,197	32,454	1,297	1,554
Total	176,090	189,051	200,594	210,569	219,326	228,840	43,236	52,750
Low Growth Scenario		Total		Total Employment			Δ	
Employment Sector	2015	2020	2025	2030	2035	2040	'15-'35	'15-'40
Mining	4,370	4,462	4,474	4,537	4,550	4,568	180	198
Construction	11,460	11,651	11,724	11,792	11,854	11,933	394	473
Manufacturing	2,400	2,449	2,518	2,527	2,577	2,627	177	227
Wholesale Trade	5,060	5,243	5,369	5,426	5,516	5,611	456	551
Retail Trade	21,310	21,826	22,167	22,494	22,877	23,271	1,567	1,961
Transportation, Warehousing & Utilities	12,880	13,254	13,469	13,656	13,945	14,220	1,065	1,340
Information	3,800	3,894	3,968	3,983	3,997	4,011	197	211
Financial Activities	8,700	8,892	9,105	9,229	9,261	9,295	561	595
Professional & Business Services	23,990	24,385	24,911	25,366	25,710	26,323	1,720	2,333
Education & Health Services	26,180	27,117	28,234	29,294	30,222	31,133	4,042	4,953
Leisure & Hospitality	18,590	19,186	19,767	20,315	20,737	21,152	2,147	2,562
Other Services	6,450	6,630	6,711	6,783	6,845	6,901	395	451
Government	30,900	31,053	31,223	31,426	31,578	31,732	678	832
Total	176,090	180,043	183,641	186,830	189,668	192,774	13,578	16,684

Population Forecasts Comparison

Figure 15 provides a comprehensive summary of total population growth from 2015 to 2040 for the Municipality of Anchorage under the different growth methodologies and scenarios expressed above. New population over the next 25 years ranges from as high as 92,089 new residents (Hybrid “High” Scenario) to as few as 9,445 new residents through 2040 (Hybrid “Low” Scenario).

Figure 15 – Summary of MOA Population Forecast Scenarios, “Hybrid” and AKDOLWD-Driven

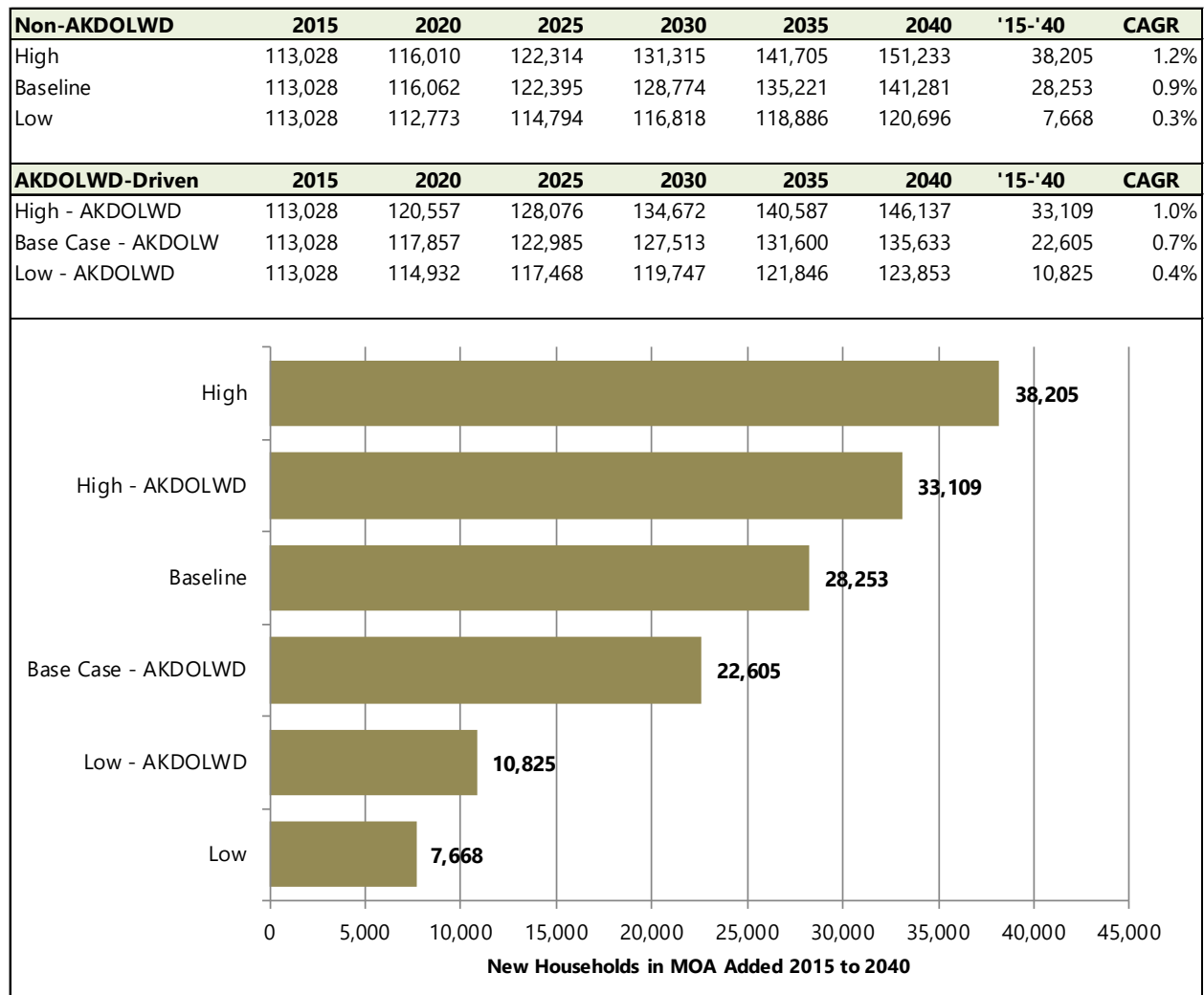


Note: CAGR is Compound Annual Growth Rate.

Household Forecasts Comparison

Figure 16 provides a comprehensive summary of total household growth from 2015 to 2040 for the Municipality of Anchorage under the different growth methodologies and scenarios previously described.

Figure 16 – Summary of MOA Household Forecast Scenarios, “Hybrid” and AKDOLWD-Driven



Note: CAGR is Compound Annual Growth Rate.

Non-Residential Land Need Forecasts

Total Non-Residential Land Need

Figure 17 provides a summary estimate of all non-residential land need within the Municipality of Anchorage for both the 2015-2035 and the 2015-2040 time periods. All results reflect both “Hybrid” employment forecasts as well as all three AKDOLWD-based employment forecasts. Detailed analysis for each commercial land use is found immediately following this summary discussion.

The Baseline “Hybrid” forecast indicates a total need for 1,167 acres of non-residential land through 2035 and up to 1,493 gross acres through 2040. Of that, Commercial Land need is estimated at 551 acres through 2035, exceeded only slightly by estimated Industrial Land need of 563 acres.

Figure 17 – Summary of MOA Non-Residential Land Need, 2015-2035 and 2015-2040

2015 - 2035 MOA	Gross Acreage Needed - "Hybrid" Forecasts			Gross Acreage Needed AKDOLWD-Based Forecasts		
	Baseline	High	Low	Base Case	High	Low
Office/Institutional	181.9	226.2	52.4	146.0	199.8	75.3
Retail (Resident & Visitor-Serving)	386.3	470.9	131.6	344.6	448.1	232.2
Lodging	<u>36.6</u>	<u>84.2</u>	<u>17.5</u>	<u>32.3</u>	<u>100.9</u>	<u>21.3</u>
<i>Total Commercial Land Need</i>	604.9	781.3	201.5	522.9	748.8	328.9
<i>Industrial</i>	562.5	836.0	230.3	403.9	731.5	200.4
Total Non-Residential Land Need	1,167.4	1,617.3	431.8	926.9	1,480.4	529.3

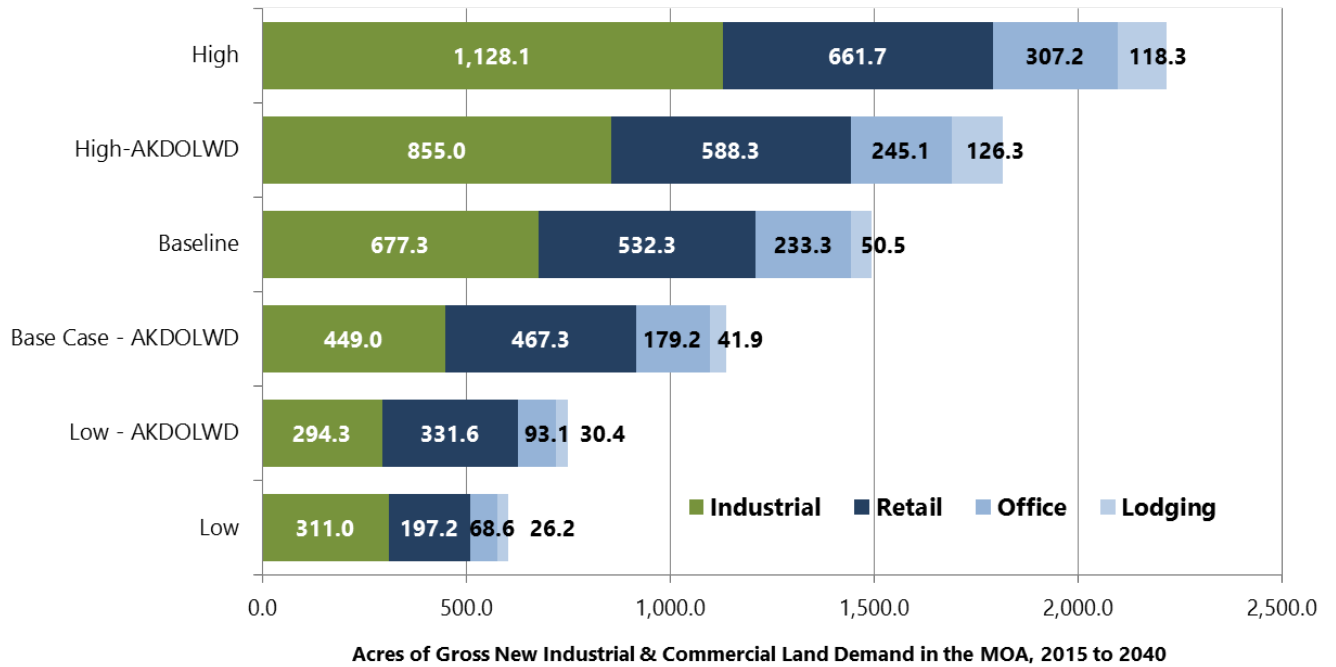
2015 - 2040 MOA	Gross Acreage Needed - "Hybrid" Forecasts			Gross Acreage Needed AKDOLWD-Based Forecasts		
	Baseline	High	Low	Base Case	High	Low
Office/Institutional	233.3	307.2	68.6	179.2	245.1	93.1
Retail (Resident & Visitor-Serving)	532.3	661.7	197.2	467.3	588.3	331.6
Lodging	<u>50.5</u>	<u>118.3</u>	<u>26.2</u>	<u>41.9</u>	<u>126.3</u>	<u>30.4</u>
<i>Total Commercial Land Need</i>	816.1	1,087.2	291.9	688.4	959.7	455.1
<i>Industrial</i>	677.3	1,128.1	311.0	449.0	855.0	294.3
Total Non-Residential Land Need	1,493.4	2,215.3	602.9	1,137.4	1,814.7	749.4

In terms of averages for total land need through 2040, the forecasts can be summarized as follows:

- *Baseline/Base Case Forecasts:* The two baseline or base case forecast methodologies predict an average of 563 acres of industrial land need and an average of 752 acres of commercial land need, dominated by retail.
- *High Growth Forecasts:* The two high growth forecast methodologies indicate an average need for 992 acres of industrial land and 1,023 acres of commercial land, again greatly retail land (greater than 50%).
- *Low Growth Forecasts:* Both low growth forecast methodologies predict an average need for 303 acres of industrial land and 374 acres of commercial land, again well over half of that attributable to retail land demand. Baseline land need is 24% lower than 20-year office/institutional estimate of 186.2 gross acres (Figure A, Commercial Land Assessment).

Figure 18 provides a detailed, graphic summary of findings in Figure 17 for each of the different non-residential land need estimates for industrial, retail commercial, office/institutional, and lodging for the Municipality through 2040.

Figure 18 – Comparative MOA Non-Residential Land Need for All Scenarios, 2015-2040



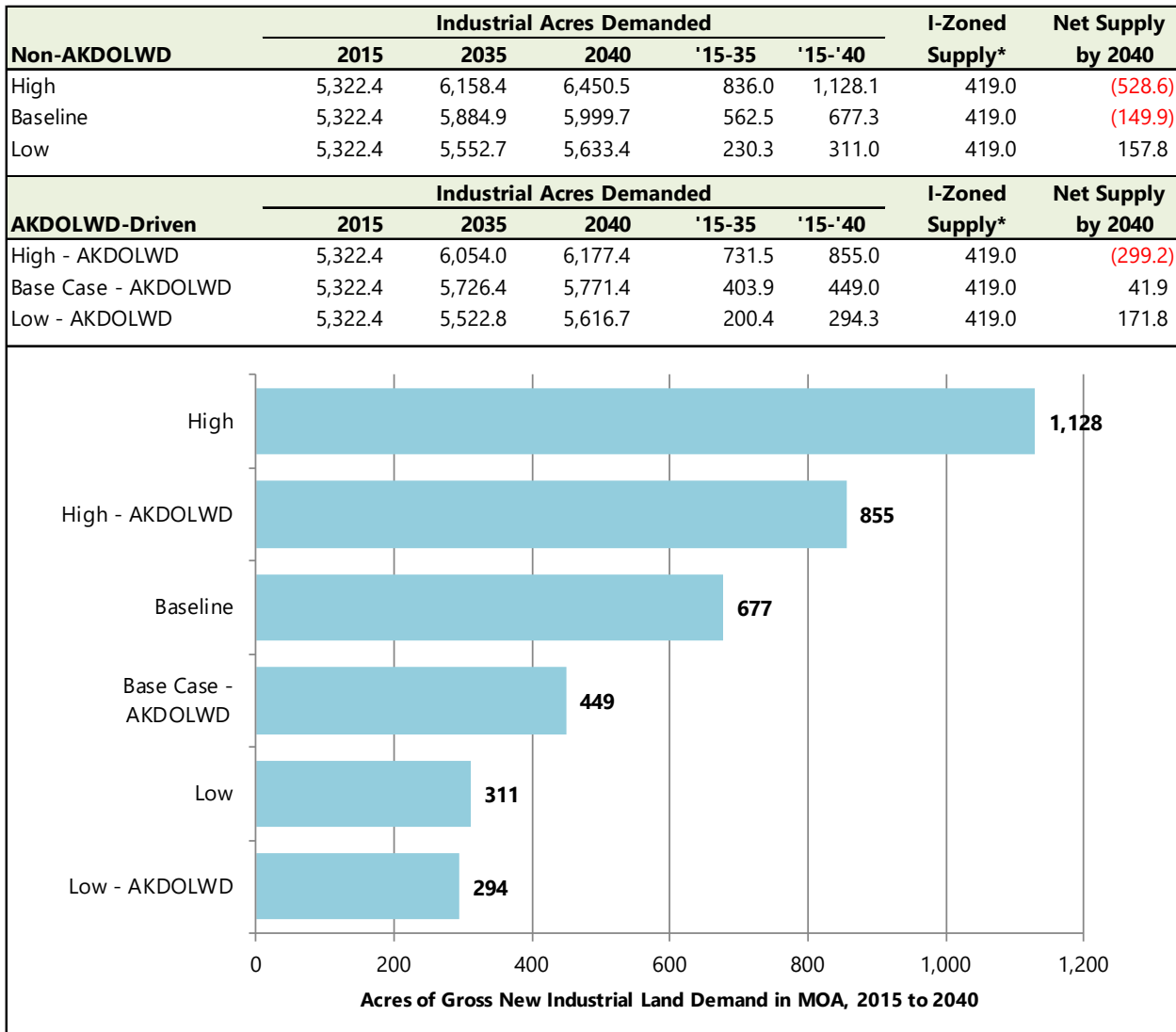
Industrial Land Demand Forecasts

Figure 19 provides a comprehensive summary gross of industrial land acreage required from 2015 to 2040 for MOA employment growth under the different growth methodologies and scenarios expressed above, specifically including the AKDOLWD-based employment forecasts.

AKDOLWD-based forecasts and the High and Low growth “Hybrid” scenarios indicate the following:

- New demand for industrial land through 2040 under the AKDOLWD-based methodology is estimated to be as high 855.0 acres under the “High – AKDOLWD” scenario;
- As few as 294.3 acres of industrial land demand under the “Low – AKDOLWD” scenario.
- As many as 1,128.1 acres of industrial land need through 2040 under the “Hybrid” High growth scenario);
- As few as 311.0 acres of industrial land demand over the next 25 years under the “Hybrid” Low growth scenario.

Figure 19 – Summary of MOA Industrial Land Need, “Hybrid” and AKDOLWD-Driven 2015-2040



* From Figure 4-2, Page 53 of the 2015 Anchorage Industrial Land Assessment Update. Represents I-Zoned land inventory MOA-wide with Continued Use. Excludes Airport and Utilities lands for consistent reconciliation with demand estimates that exclude air, rail, and marine transportation and utilities sectors.

Estimates of 20-year industrial land need along with the 2015 Anchorage Industrial Lands Assessment inventory of I-zoned land within the Municipality (Anchorage Bowl and Chugiak-Eagle River) are provided in Figure 19 to also demonstrate updated industrial land reconciliation now with the AKDOLWD-based forecasts. I-zoned land inventory displayed assumes “Continued Non-Industrial Use of Industrial Land” consistent with the 2015 Anchorage Industrial Lands Assessment Update.¹⁷

¹⁷ Assumes that, based on historic trends, 36.5% of industrially zoned buildable land supply in the Anchorage Bowl will be used by non-industrial uses, while in Chugiak-Eagle River, this rate of non-industrial use is 5.5%.

For land supply and demand reconciliation purposes, industrial land demand estimates for each scenario were adjusted downward by 16%, which is the share of total demand attributable to air, rail, and waterborne transportation sector demand and utilities sector demand. Demand growth from these uses, largely air transportation and utilities, are suitable for airport and utilities-designated lands that are not included in the estimate of I-zoned land supply.

Results of the analysis indicate:

- *High – AKDOLWD Scenario:* Under this scenario, I-Zoned acreage within the Municipality (419.0 acres that exclude Airport and Utilities lands) is insufficient for 25-year growth by a deficit of 299 acres.
- *Base Case – AKDOLWD Scenario:* Under this scenario, I-Zoned acreage within the Municipality is barely sufficient for 25-year growth with only 41.9 acres left for growth after 2040.
- *Low – AKDOLWD Scenario:* Under this scenario, I-Zoned acreage within the Municipality is sufficient for 25-year growth with 171.8 remaining for growth after 2040.
- *“Hybrid” High Scenario:* Results indicate the Municipality would have a 528.6-acre deficit of I-zoned land if growth occurred as projected under the High growth scenario through 2040.
- *“Hybrid” Low Scenario:* Results for this industrial land need forecast indicate the Municipality would have 157.8 acres of I-Zoned land by 2040.

Figures 20 and 21 provide detailed industrial land demand forecast for both forecast methodologies and each growth scenario:

- Figure 20: “Hybrid” Non-AKDOLWD Industrial Space and Gross Land Need Forecasts; and
- Figure 21: AKDOLWD-Driven Industrial Space and Gross Land Need Forecasts

Figure 20 – “Hybrid” Scenario MOA Industrial Space & Land Need¹⁸ Forecasts, 2015-2040

Baseline Scenario	Industrial Space Need (000s of sq. ft.)					Predicted Land Need (Acres)				
Employment Sector	2015	2035	2040	'15-'35	'15-'40	2015	2035	2040	'15-'35	'15-'40
Mining	1,575.5	1,640.4	1,687.3	64.9	111.8	265.2	256.2	257.1	-9.0	-8.1
Construction	2,969.0	3,272.1	3,357.6	303.1	388.6	441.0	450.9	451.4	9.9	10.4
Manufacturing	4,063.0	4,570.8	4,740.1	507.8	677.1	320.6	334.6	338.6	14.0	18.0
Wholesale Trade	3,401.6	4,436.8	4,672.1	1,035.2	1,270.5	204.5	247.5	254.3	43.0	49.7
Retail Trade	3,194.4	3,783.5	3,945.4	589.1	751.0	268.9	295.5	300.6	26.6	31.7
Transportation, Warehousing & Utilities	15,339.6	18,495.6	19,365.0	3,156.0	4,025.4	2,278.6	2,549.0	2,603.7	270.4	325.1
Information	585.6	645.7	665.8	60.1	80.2	36.1	36.9	37.1	0.8	1.0
Financial Activities	893.8	1,001.7	1,037.7	107.9	143.9	98.1	102.0	103.1	3.9	5.0
Professional & Business Services	4,313.3	5,537.7	5,866.7	1,224.4	1,553.4	473.6	564.1	583.0	90.5	109.5
Education & Health Services	2,616.3	3,592.7	3,857.5	976.4	1,241.2	254.1	323.7	339.1	69.6	85.0
Leisure & Hospitality	1,703.3	2,198.1	2,329.1	494.8	625.8	195.5	234.1	242.0	38.6	46.5
Other Services	3,183.2	3,681.6	3,819.8	498.4	636.6	251.2	269.5	272.8	18.3	21.6
Government	2,232.5	2,261.4	2,275.8	28.9	43.3	234.9	220.8	216.7	-14.1	-18.2
Total	46,071.1	55,118.1	57,619.9	9,047.0	11,548.8	5,322.4	5,884.9	5,999.7	562.5	677.3
High Growth Scenario										
Employment Sector	2015	2035	2040	'15-'35	'15-'40	2015	2035	2040	'15-'35	'15-'40
Mining	1,575.5	2,040.6	2,220.8	465.1	645.3	265.2	315.5	335.0	50.3	69.8
Construction	2,969.0	3,365.4	3,482.0	396.4	513.0	441.0	459.2	463.5	18.1	22.5
Manufacturing	4,063.0	5,586.6	6,094.4	1,523.6	2,031.4	320.6	404.9	431.0	84.3	110.3
Wholesale Trade	3,401.6	4,672.1	5,142.7	1,270.5	1,741.1	204.5	258.0	277.1	53.5	72.6
Retail Trade	3,194.4	3,792.5	3,987.4	598.1	793.0	268.9	293.2	300.8	24.3	31.9
Transportation, Warehousing & Utilities	15,339.6	19,222.1	20,651.2	3,882.5	5,311.6	2,278.6	2,622.6	2,748.9	344.0	470.3
Information	585.6	724.3	786.0	138.7	200.4	36.1	41.0	43.4	4.9	7.3
Financial Activities	893.8	965.8	996.6	72.0	102.8	98.1	97.4	98.1	-0.7	-0.1
Professional & Business Services	4,313.3	5,737.3	6,240.7	1,424.0	1,927.4	473.6	578.6	614.0	105.0	140.4
Education & Health Services	2,616.3	3,847.5	4,267.2	1,231.2	1,650.9	254.1	343.2	371.4	89.1	117.3
Leisure & Hospitality	1,703.3	2,254.0	2,437.2	550.7	733.9	195.5	237.6	250.7	42.1	55.2
Other Services	3,183.2	3,711.2	3,908.6	528.0	725.4	251.2	269.0	276.4	17.8	25.2
Government	2,232.5	2,463.7	2,550.4	231.2	317.9	234.9	238.1	240.5	3.2	5.6
Total	46,071.1	58,383.1	60,544.4	12,312.0	16,694.1	5,322.4	6,158.4	6,450.5	836.0	1,128.1
Low Growth Scenario										
Employment Sector	2015	2035	2040	'15-'35	'15-'40	2015	2035	2040	'15-'35	'15-'40
Mining	1,575.5	1,391.6	1,355.6	-183.9	-219.9	265.2	234.3	228.2	-31.0	-37.0
Construction	2,969.0	2,979.4	3,005.3	10.4	36.3	441.0	442.6	446.4	1.5	5.4
Manufacturing	4,063.0	4,046.0	4,096.8	-17.0	33.8	320.6	319.3	323.3	-1.3	2.7
Wholesale Trade	3,401.6	3,764.6	3,831.8	363.0	430.2	204.5	226.3	230.4	21.8	25.9
Retail Trade	3,194.4	3,312.8	3,357.8	118.4	163.4	268.9	278.9	282.6	10.0	13.8
Transportation, Warehousing & Utilities	15,339.6	16,185.1	16,459.1	845.5	1,119.5	2,278.6	2,404.2	2,444.9	125.6	166.3
Information	585.6	584.1	588.7	-1.5	3.1	36.1	36.0	36.3	-0.1	0.2
Financial Activities	893.8	893.8	904.1	0.0	10.3	98.1	98.1	99.3	0.0	1.1
Professional & Business Services	4,313.3	4,672.9	4,768.2	359.6	454.9	473.6	513.1	523.5	39.5	49.9
Education & Health Services	2,616.3	2,962.1	3,050.0	345.8	433.7	254.1	287.7	296.2	33.6	42.1
Leisure & Hospitality	1,703.3	1,864.6	1,905.8	161.3	202.5	195.5	214.0	218.8	18.5	23.2
Other Services	3,183.2	3,351.0	3,415.1	167.8	231.9	251.2	264.4	269.5	13.2	18.3
Government	2,232.5	2,222.3	2,223.8	-10.2	-8.7	234.9	233.8	234.0	-1.1	-0.9
Total	46,071.1	48,230.3	47,606.5	2,159.2	2,891.0	5,322.4	5,552.7	5,633.4	230.3	311.0

¹⁸ Roughly 16% of projected land demand is specifically attributable to airport, railroad, marine transportation, and utilities, most of which would be accommodated on airport or utility land as per the 2015 Anchorage Industrial Lands Assessment.

Figure 21 –AKDOLWD-Driven MOA Industrial Space & Land Need¹⁹ Forecasts, 2015-2040

Base Case Scenario	Industrial Space Need (000s of sq. ft.)					Predicted Land Need (Acres)				
Employment Sector	2015	2035	2040	'15-'35	'15-'40	2015	2035	2040	'15-'35	'15-'40
Mining	1,575.5	1,695.4	1,701.8	119.9	126.3	265.2	264.8	259.3	-0.4	-5.9
Construction	2,969.0	3,153.6	3,187.8	184.6	218.8	441.0	434.6	428.6	-6.4	-12.4
Manufacturing	4,063.0	4,688.0	4,859.9	625.0	796.9	320.6	343.2	347.1	22.6	26.5
Wholesale Trade	3,401.6	4,061.2	4,201.3	659.6	799.7	204.5	226.5	228.6	22.0	24.1
Retail Trade	3,194.4	3,693.8	3,814.9	499.4	620.5	268.9	288.5	290.7	19.6	21.8
Transportation, Warehousing & Utilities	15,339.6	18,059.3	18,767.5	2,719.7	3,427.9	2,278.6	2,488.9	2,523.4	210.2	244.8
Information	585.6	647.2	649.5	61.6	63.9	36.1	37.0	36.2	0.9	0.1
Financial Activities	893.8	1,014.0	1,017.6	120.2	123.8	98.1	103.3	101.1	5.2	3.0
Professional & Business Services	4,313.3	4,966.6	5,194.3	653.3	881.0	473.6	505.9	516.2	32.3	42.6
Education & Health Services	2,616.3	3,532.0	3,734.8	915.7	1,118.5	254.1	318.3	328.3	64.2	74.2
Leisure & Hospitality	1,703.3	2,140.0	2,222.7	436.7	519.4	195.5	227.9	230.9	32.4	35.4
Other Services	3,183.2	3,585.3	3,638.7	402.1	455.5	251.2	262.5	259.9	11.3	8.7
Government	2,232.5	2,304.8	2,319.7	72.3	87.2	234.9	225.0	220.9	-9.9	-14.0
Total	46,071.1	53,541.2	55,310.5	7,470.1	9,239.4	5,322.4	5,726.4	5,771.4	403.9	449.0
High Growth Scenario										
Employment Sector	2015	2035	2040	'15-'35	'15-'40	2015	2035	2040	'15-'35	'15-'40
Mining	1,575.5	1,750.9	1,757.5	175.4	182.0	265.2	270.7	265.1	5.5	-0.1
Construction	2,969.0	3,228.6	3,278.9	259.6	309.9	441.0	440.5	436.5	-0.5	-4.6
Manufacturing	4,063.0	4,997.3	5,256.3	934.3	1,193.3	320.6	362.2	371.7	41.6	51.1
Wholesale Trade	3,401.6	4,390.7	4,593.6	989.1	1,192.0	204.5	242.5	247.5	38.0	43.0
Retail Trade	3,194.4	3,938.9	4,120.4	744.5	926.0	268.9	304.5	310.8	35.6	41.9
Transportation, Warehousing & Utilities	15,339.6	19,417.0	20,469.2	4,077.4	5,129.6	2,278.6	2,649.2	2,724.6	370.6	446.0
Information	585.6	675.3	677.7	89.7	92.1	36.1	38.2	37.4	2.1	1.3
Financial Activities	893.8	1,071.4	1,075.2	177.6	181.4	98.1	108.0	105.8	9.9	7.7
Professional & Business Services	4,313.3	5,286.8	5,620.8	973.5	1,307.5	473.6	533.1	553.0	59.6	79.4
Education & Health Services	2,616.3	4,007.0	4,313.2	1,390.7	1,696.9	254.1	357.5	375.4	103.4	121.3
Leisure & Hospitality	1,703.3	2,363.1	2,486.8	659.8	783.5	195.5	249.1	255.8	53.6	60.3
Other Services	3,183.2	3,773.0	3,857.2	589.8	674.0	251.2	273.5	272.8	22.3	21.6
Government	2,232.5	2,326.2	2,344.8	93.7	112.3	234.9	224.8	221.1	-10.1	-13.8
Total	46,071.1	57,226.2	58,094.1	11,155.1	13,780.5	5,322.4	6,054.0	6,177.4	731.5	855.0
Low Growth Scenario										
Employment Sector	2015	2035	2040	'15-'35	'15-'40	2015	2035	2040	'15-'35	'15-'40
Mining	1,575.5	1,640.5	1,646.7	65.0	71.2	265.2	266.5	267.5	1.3	2.3
Construction	2,969.0	3,071.0	3,091.6	102.0	122.6	441.0	440.2	443.2	-0.8	2.1
Manufacturing	4,063.0	4,361.8	4,446.4	298.8	383.4	320.6	332.2	338.6	11.5	18.0
Wholesale Trade	3,401.6	3,708.3	3,771.7	306.7	370.1	204.5	215.2	218.8	10.6	14.3
Retail Trade	3,194.4	3,429.3	3,488.4	234.9	294.0	268.9	278.6	283.4	9.7	14.5
Transportation, Warehousing & Utilities	15,339.6	16,607.6	16,934.9	1,268.0	1,595.3	2,278.6	2,380.6	2,427.5	102.0	148.9
Information	585.6	615.9	618.1	30.3	32.5	36.1	36.6	36.7	0.5	0.7
Financial Activities	893.8	951.5	954.9	57.7	61.1	98.1	100.8	101.2	2.7	3.0
Professional & Business Services	4,313.3	4,622.5	4,732.7	309.2	419.4	473.6	489.8	501.4	16.2	27.9
Education & Health Services	2,616.3	3,020.2	3,111.3	403.9	495.0	254.1	283.1	291.6	29.0	37.5
Leisure & Hospitality	1,703.3	1,900.0	1,938.0	196.7	234.7	195.5	210.5	214.7	14.9	19.2
Other Services	3,183.2	3,378.3	3,405.8	195.1	222.6	251.2	257.3	259.4	6.1	8.2
Government	2,232.5	2,281.4	2,292.6	48.9	60.1	234.9	231.6	232.8	-3.3	-2.1
Total	46,071.1	49,588.3	48,786.4	3,517.2	4,362.0	5,322.4	5,522.8	5,616.7	200.4	294.3

¹⁹ See footnote 17.

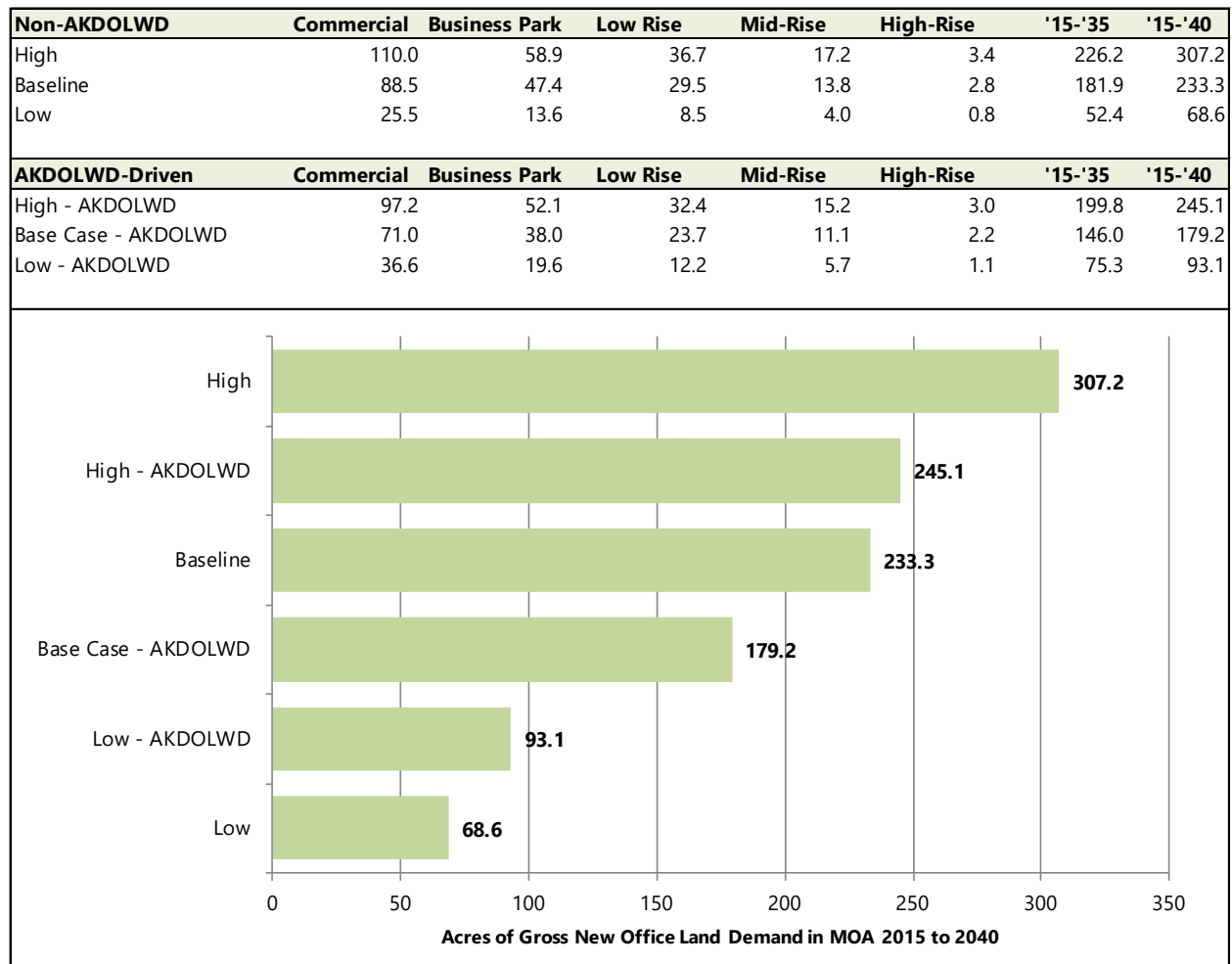
Office/Institutional Land Demand Forecasts

With AKDOLWD-based employment forecasts as well as “Hybrid” forecasts, a comparison of office/institutional land demand is possible for the Municipality through 2035 and 2040. Figure 22 provides a comparison of office/institutional land demand forecasts for each of the six scenarios.

Results are presented for the standard categories of office space as documented and described in the Commercial Land Assessment. Methodology utilized for the updated “Hybrid” forecasts is also as described in the Commercial Land Assessment.

Overall, office and institutional land need in Anchorage through 2040 ranges from as high as 307.2 acres under the “Hybrid” High growth scenario to as little as 68.6 acres under the “Hybrid” Low growth scenario. The “Hybrid” Baseline growth scenario (233.3 acres) and “High – AKDOLWD” forecast (245.1 acres) show only a difference of roughly 12 acres of 25-year office/institutional land need.

Figure 22 –MOA Office/Institutional Land Need, “Hybrid” & AKDOLWD-Driven 2015-2040



Detailed office/institutional space need, land need, and site count need by general class of office structure type are provided for all six scenarios in the following pages:

- Figure 23 – “Hybrid” MOA Forecast Scenario Office/Institutional Land & Site Need, 2015-2035;
- Figure 24 - “Hybrid” MOA Forecast Scenario Office/Institutional Land & Site Need, 2015-2040;
- Figure 25 – AKDOLWD-Based Forecast Scenario Office/Institutional Land & Site Need, 2015-2035;
- Figure 26 – AKDOLWD-Based Forecast Scenario Office/Institutional Land & Site Need, 2015-2040.

Figure 23 – MOA “Hybrid” Scenario Office/Institutional Land & Site Need, 2015-2035

Baseline Scenario	Office/Institutional Gross Land Need Factors					
20-Year Commercial Office Need Calculation	Commercial	Business Park	Low Rise	Mid-Rise	High-Rise	Total
Typical Office Configuration Distribution 1/	20%	15%	20%	25%	20%	100%
20-Year Office Space (000s SF) Demand by Type	676	507	676	845	676	3,379
Structure Floor Area Ratio (FAR)	0.3	0.4	0.8	2.0	8.0	2.4
Net Square Feet (000s) of Office Land Demand	2,703.2	1,448.1	901.1	422.4	84.5	5,559.2
Gross Acres of Office Land Demand by Type 2/	88.5	47.4	29.5	13.8	2.8	181.9
Typical Acreage per Site by Office Type 1/	1.2	3.4	0.8	1.5	1.9	1.8
Number of Typical Office Sites Demanded	74	14	37	9	1	135
High Growth Scenario	Office/Institutional Gross Land Need Factors					
Employment Sector	Commercial	Business Park	Low Rise	Mid-Rise	High-Rise	Total
Typical Office Configuration Distribution 1/	20%	15%	20%	25%	20%	100%
20-Year Office Space (000s SF) Demand by Type	840	630	840	1,050	840	4,201
Structure Floor Area Ratio (FAR)	0.3	0.4	0.8	2.0	8.0	2.4
Net Square Feet (000s) of Office Land Demand	3,360.8	1,800.4	1,120.3	525.1	105.0	6,911.6
Gross Acres of Office Land Demand by Type 2/	110.0	58.9	36.7	17.2	3.4	226.2
Typical Acreage per Site by Office Type 1/	1.2	3.4	0.8	1.5	1.9	1.8
Number of Typical Office Sites Demanded	92	17	46	11	2	168
Low Growth Scenario	Office/Institutional Gross Land Need Factors					
Employment Sector	Commercial	Business Park	Low Rise	Mid-Rise	High-Rise	Total
Typical Office Configuration Distribution 1/	20%	15%	20%	25%	20%	100%
20-Year Office Space (000s SF) Demand by Type	195	146	195	243	195	973
Structure Floor Area Ratio (FAR)	0.3	0.4	0.8	2.0	8.0	2.4
Net Square Feet (000s) of Office Land Demand	778.1	416.8	259.4	121.6	24.3	1,600.2
Gross Acres of Office Land Demand by Type 2/	25.5	13.6	8.5	4.0	0.8	52.4
Typical Acreage per Site by Office Type 1/	1.2	3.4	0.8	1.5	1.9	1.8
Number of Typical Office Sites Demanded	21	4	11	3	0	39

1/ Based on observed development patterns in Anchorage as well as the prototypical development matrix documented in the 2012 Commercial Land Assessment.

2/ Assumes 70% sufficiency, or 30% of land area dedicated to public facilities.

Figure 24 – MOA “Hybrid” Scenario Office/Institutional Land & Site Need, 2015-2040

Baseline Scenario	Office/Institutional Gross Land Need Factors					
20-Year Commercial Office Need Calculation	Commercial	Business Park	Low Rise	Mid-Rise	High-Rise	Total
Typical Office Configuration Distribution 1/	20%	15%	20%	25%	20%	100%
20-Year Office Space (000s SF) Demand by Type	867	650	867	1,083	867	4,333
Structure Floor Area Ratio (FAR)	0.3	0.4	0.8	2.0	8.0	2.4
Net Square Feet (000s) of Office Land Demand	3,466.2	1,856.9	1,155.4	541.6	108.3	7,128.4
Gross Acres of Office Land Demand by Type 2/	113.4	60.8	37.8	17.7	3.5	233.3
Typical Acreage per Site by Office Type 1/	1.2	3.4	0.8	1.5	1.9	1.8
Number of Typical Office Sites Demanded	95	18	47	12	2	173
High Growth Scenario	Office/Institutional Gross Land Need Factors					
Employment Sector	Commercial	Business Park	Low Rise	Mid-Rise	High-Rise	Total
Typical Office Configuration Distribution 1/	20%	15%	20%	25%	20%	100%
20-Year Office Space (000s SF) Demand by Type	1,141	856	1,141	1,426	1,141	5,705
Structure Floor Area Ratio (FAR)	0.3	0.4	0.8	2.0	8.0	2.4
Net Square Feet (000s) of Office Land Demand	4,563.7	2,444.9	1,521.2	713.1	142.6	9,385.6
Gross Acres of Office Land Demand by Type 2/	149.4	80.0	49.8	23.3	4.7	307.2
Typical Acreage per Site by Office Type 1/	1.2	3.4	0.8	1.5	1.9	1.8
Number of Typical Office Sites Demanded	124	24	62	16	2	228
Low Growth Scenario	Office/Institutional Gross Land Need Factors					
Employment Sector	Commercial	Business Park	Low Rise	Mid-Rise	High-Rise	Total
Typical Office Configuration Distribution 1/	20%	15%	20%	25%	20%	100%
20-Year Office Space (000s SF) Demand by Type	255	191	255	318	255	1,273
Structure Floor Area Ratio (FAR)	0.3	0.4	0.8	2.0	8.0	2.4
Net Square Feet (000s) of Office Land Demand	1,018.7	545.8	339.6	159.2	31.8	2,095.1
Gross Acres of Office Land Demand by Type 2/	33.3	17.9	11.1	5.2	1.0	68.6
Typical Acreage per Site by Office Type 1/	1.2	3.4	0.8	1.5	1.9	1.8
Number of Typical Office Sites Demanded	28	5	14	3	1	51

1/ Based on observed development patterns in Anchorage as well as the prototypical development matrix documented in the 2012 Commercial Land Assessment.

2/ Assumes 70% sufficiency, or 30% of land area dedicated to public facilities.

Figure 25 – MOA AKDOLWD-Based Scenario Office/Institutional Land & Site Need, 2015-2035

Base Case Scenario	Office/Institutional Gross Land Need Factors					
20-Year Commercial Office Need Calculation	Commercial	Business Park	Low Rise	Mid-Rise	High-Rise	Total
Typical Office Configuration Distribution 1/	20%	15%	20%	25%	20%	100%
20-Year Office Space (000s SF) Demand by Type	542	407	542	678	542	2,711
Structure Floor Area Ratio (FAR)	0.3	0.4	0.8	2.0	8.0	2.4
Net Square Feet (000s) of Office Land Demand	2,168.5	1,161.7	722.8	338.8	67.8	4,459.5
Gross Acres of Office Land Demand by Type 2/	71.0	38.0	23.7	11.1	2.2	146.0
Typical Acreage per Site by Office Type 1/	1.2	3.4	0.8	1.5	1.9	1.8
Number of Typical Office Sites Demanded	59	11	30	7	1	108
High Growth Scenario	Office/Institutional Gross Land Need Factors					
Employment Sector	Commercial	Business Park	Low Rise	Mid-Rise	High-Rise	Total
Typical Office Configuration Distribution 1/	20%	15%	20%	25%	20%	100%
20-Year Office Space (000s SF) Demand by Type	742	557	742	928	742	3,711
Structure Floor Area Ratio (FAR)	0.3	0.4	0.8	2.0	8.0	2.4
Net Square Feet (000s) of Office Land Demand	2,968.9	1,590.5	989.6	463.9	92.8	6,105.7
Gross Acres of Office Land Demand by Type 2/	97.2	52.1	32.4	15.2	3.0	199.8
Typical Acreage per Site by Office Type 1/	1.2	3.4	0.8	1.5	1.9	1.8
Number of Typical Office Sites Demanded	81	15	40	10	2	148
Low Growth Scenario	Office/Institutional Gross Land Need Factors					
Employment Sector	Commercial	Business Park	Low Rise	Mid-Rise	High-Rise	Total
Typical Office Configuration Distribution 1/	20%	15%	20%	25%	20%	100%
20-Year Office Space (000s SF) Demand by Type	280	210	280	350	280	1,399
Structure Floor Area Ratio (FAR)	0.3	0.4	0.8	2.0	8.0	2.4
Net Square Feet (000s) of Office Land Demand	1,119.0	599.5	373.0	174.8	35.0	2,301.3
Gross Acres of Office Land Demand by Type 2/	36.6	19.6	12.2	5.7	1.1	75.3
Typical Acreage per Site by Office Type 1/	1.2	3.4	0.8	1.5	1.9	1.8
Number of Typical Office Sites Demanded	31	6	15	4	1	56

1/ Based on observed development patterns in Anchorage as well as the prototypical development matrix documented in the 2012 Commercial Land Assessment.

2/ Assumes 70% sufficiency, or 30% of land area dedicated to public facilities.

Figure 26 – MOA AKDOLWD-Based Scenario Office/Institutional Land & Site Need, 2015-2040

Base Case Scenario	Office/Institutional Gross Land Need Factors					
20-Year Commercial Office Need Calculation	Commercial	Business Park	Low Rise	Mid-Rise	High-Rise	Total
Typical Office Configuration Distribution 1/	20%	15%	20%	25%	20%	100%
20-Year Office Space (000s SF) Demand by Type	666	499	666	832	666	3,328
Structure Floor Area Ratio (FAR)	0.3	0.4	0.8	2.0	8.0	2.4
Net Square Feet (000s) of Office Land Demand	2,662.3	1,426.2	887.4	416.0	83.2	5,475.2
Gross Acres of Office Land Demand by Type 2/	87.1	46.7	29.0	13.6	2.7	179.2
Typical Acreage per Site by Office Type 1/	1.2	3.4	0.8	1.5	1.9	1.8
Number of Typical Office Sites Demanded	73	14	36	9	1	133
High Growth Scenario	Office/Institutional Gross Land Need Factors					
Employment Sector	Commercial	Business Park	Low Rise	Mid-Rise	High-Rise	Total
Typical Office Configuration Distribution 1/	20%	15%	20%	25%	20%	100%
20-Year Office Space (000s SF) Demand by Type	910	683	910	1,138	910	4,552
Structure Floor Area Ratio (FAR)	0.3	0.4	0.8	2.0	8.0	2.4
Net Square Feet (000s) of Office Land Demand	3,641.4	1,950.8	1,213.8	569.0	113.8	7,488.7
Gross Acres of Office Land Demand by Type 2/	119.2	63.8	39.7	18.6	3.7	245.1
Typical Acreage per Site by Office Type 1/	1.2	3.4	0.8	1.5	1.9	1.8
Number of Typical Office Sites Demanded	99	19	50	12	2	182
Low Growth Scenario	Office/Institutional Gross Land Need Factors					
Employment Sector	Commercial	Business Park	Low Rise	Mid-Rise	High-Rise	Total
Typical Office Configuration Distribution 1/	20%	15%	20%	25%	20%	100%
20-Year Office Space (000s SF) Demand by Type	346	259	346	432	346	1,730
Structure Floor Area Ratio (FAR)	0.3	0.4	0.8	2.0	8.0	2.4
Net Square Feet (000s) of Office Land Demand	1,383.7	741.3	461.2	216.2	43.2	2,845.7
Gross Acres of Office Land Demand by Type 2/	45.3	24.3	15.1	7.1	1.4	93.1
Typical Acreage per Site by Office Type 1/	1.2	3.4	0.8	1.5	1.9	1.8
Number of Typical Office Sites Demanded	38	7	19	5	1	69

1/ Based on observed development patterns in Anchorage as well as the prototypical development matrix documented in the 2012 Commercial Land Assessment.

2/ Assumes 70% sufficiency, or 30% of land area dedicated to public facilities.

Commercial Retail Land Demand Forecasts

MOA population and household forecasts under both the “Hybrid” and AKDOLWD-based employment forecast methodologies also allow comparisons of retail commercial land demand for the Municipality through 2035 and 2040. Figure 27 provides a comparison of commercial retail land demand forecasts for each of the six scenarios.

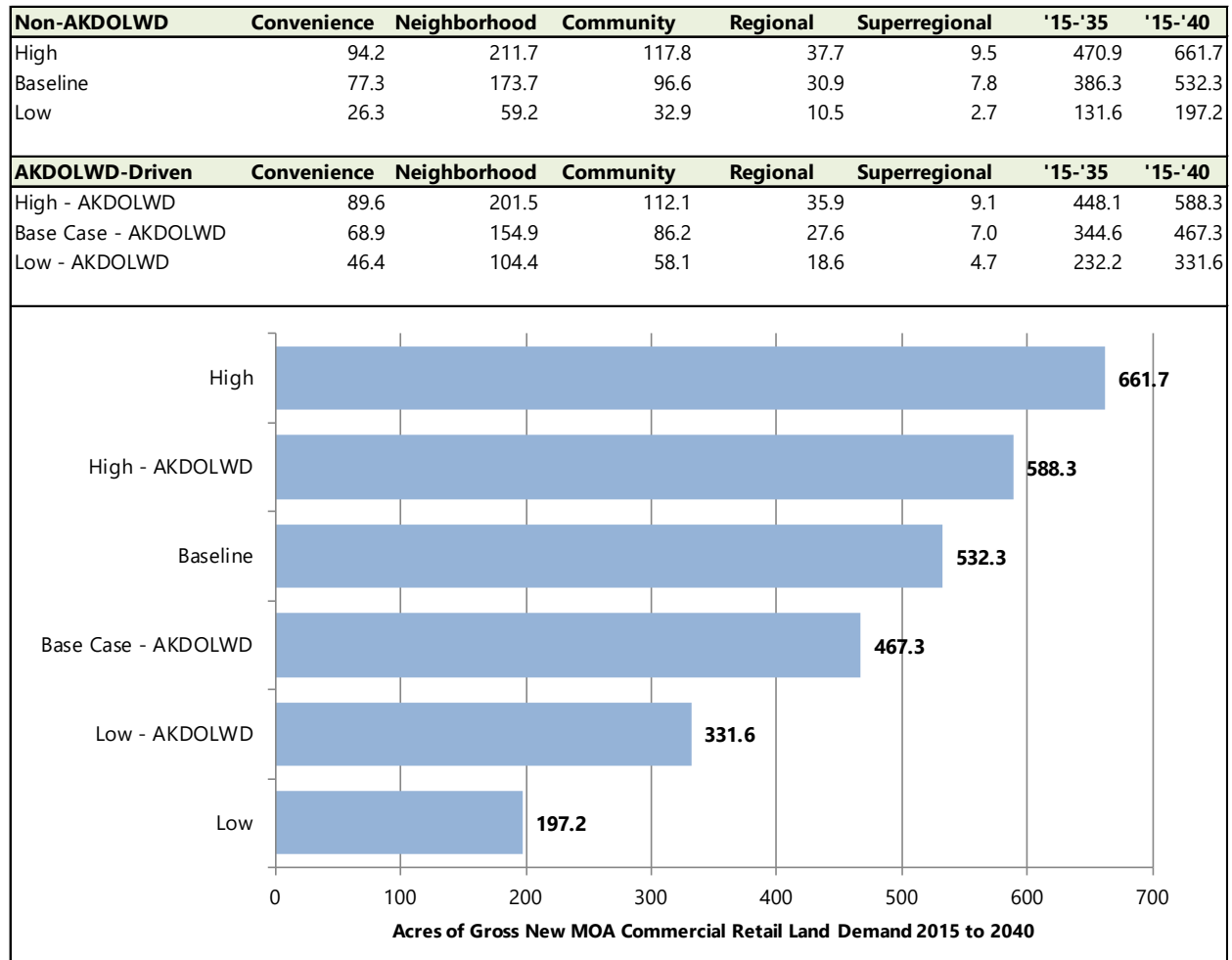
Methodology utilized for estimating retail land need from both household spending and visitor spending, but assuming the updated “Hybrid” forecasts, is also as described in the Commercial Land Assessment. Results are also expressed for all of the MOA as well as demand by Anchorage subarea consistent with Commercial Land Assessment findings and methodology.

Projected retail commercial land need in Anchorage through 2040 ranges from as high as 661.7 acres under the “Hybrid” High growth scenario to as little as 197.2 acres under the “Hybrid” Low growth scenario.

Under all scenarios, based on the methodology laid out in the 2012 Commercial Lands Assessment, land need will be greatest for moderately-scaled retail under the Neighborhood and Community Center configurations. These would be more consistent with retail types that are compatible with infill development, including mixed-use projects. With limited land for large retail development and modest population growth expected annually, major, land-consuming retail projects are not expected to be a

primary driver of retail development for largely built-out Anchorage, with potential exceptions inside the Minnesota Boulevard curve and south “C” Street..

Figure 27 –MOA Commercial Retail Land Need, “Hybrid” & AKDOLWD-Driven Forecasts 2015-2040



Detailed commercial retail land need by scenario, Anchorage submarket, and retail commercial center types are provided for all six scenarios in the following pages:

- Figure 28 – “Hybrid” MOA Forecast Scenario Commercial Retail Land & Site Need, 2015-2035;
- Figure 29 - “Hybrid” MOA Forecast Scenario Commercial Retail Land & Site Need, 2015-2040;
- Figure 30 – AKDOLWD-Based Forecast Scenario Commercial Retail Land & Site Need, 2015-2035;
- Figure 31 – AKDOLWD-Based Forecast Scenario Commercial Retail Land & Site Need, 2015-2040.

Figure 28 – “Hybrid” Forecasts MOA Retail Land Need by Center & Submarket, 2015-2035

Baseline Scenario	Commercial Land Demand by Retail Form (Gross Acres)					
	Convenience	Neighborhood	Community	Regional	Superregional	All Retail
Downtown & Vicinity	7.3	16.2	9.1	2.9	0.8	36.2
Dimond & Vicinity	28.1	63.2	35.1	11.2	2.8	140.5
Midtown & Vicinity	17.7	39.8	22.2	7.1	1.8	88.6
Northeast	14.8	33.4	18.6	5.9	1.5	74.2
South Anchorage	1.9	4.2	2.4	0.8	0.2	9.4
Eagle River-Chugiak	7.5	16.8	9.3	3.0	0.8	37.4
	77.3	173.7	96.6	30.9	7.8	386.3

High Growth Scenario	Commercial Land Demand by Retail Form (Gross Acres)					
	Convenience	Neighborhood	Community	Regional	Superregional	All Retail
Downtown & Vicinity	8.9	19.8	11.0	3.6	0.9	44.2
Dimond & Vicinity	34.3	77.0	42.8	13.7	3.4	171.2
Midtown & Vicinity	21.6	48.5	27.0	8.6	2.2	108.0
Northeast	18.1	40.7	22.7	7.2	1.8	90.5
South Anchorage	2.3	5.2	2.9	0.9	0.2	11.5
Eagle River-Chugiak	9.1	20.5	11.4	3.7	0.9	45.5
	94.2	211.7	117.8	37.7	9.5	470.9

Low Growth Scenario	Commercial Land Demand by Retail Form (Gross Acres)					
	Convenience	Neighborhood	Community	Regional	Superregional	All Retail
Downtown & Vicinity	2.5	5.5	3.1	1.0	0.3	12.3
Dimond & Vicinity	9.6	21.5	12.0	3.8	1.0	47.9
Midtown & Vicinity	6.0	13.6	7.6	2.4	0.6	30.2
Northeast	5.0	11.4	6.3	2.0	0.5	25.3
South Anchorage	0.6	1.4	0.8	0.3	0.1	3.2
Eagle River-Chugiak	2.5	5.7	3.2	1.0	0.3	12.7
	26.3	59.2	32.9	10.5	2.7	131.6

Figure 29 – “Hybrid” Forecasts MOA Retail Land Need by Center & Submarket, 2015-2040

Baseline Scenario	Commercial Land Demand by Retail Form (Gross Acres)					
	Convenience	Neighborhood	Community	Regional	Superregional	All Retail
Downtown & Vicinity	10.0	22.4	12.5	4.0	1.0	49.9
Dimond & Vicinity	38.7	87.1	48.4	15.5	3.9	193.6
Midtown & Vicinity	24.4	54.9	30.5	9.7	2.5	122.1
Northeast	20.4	46.0	25.6	8.2	2.1	102.3
South Anchorage	2.6	5.8	3.2	1.0	0.3	13.0
Eagle River-Chugiak	10.3	23.1	12.9	4.2	1.0	51.5
	106.5	239.3	133.1	42.6	10.8	532.3

High Growth Scenario	Commercial Land Demand by Retail Form (Gross Acres)					
	Convenience	Neighborhood	Community	Regional	Superregional	All Retail
Downtown & Vicinity	12.4	27.8	15.5	5.0	1.3	62.1
Dimond & Vicinity	48.2	108.3	60.1	19.2	4.8	240.6
Midtown & Vicinity	30.4	68.2	38.0	12.1	3.1	151.7
Northeast	25.4	57.2	31.8	10.2	2.6	127.2
South Anchorage	3.2	7.3	4.0	1.3	0.3	16.2
Eagle River-Chugiak	12.8	28.8	16.0	5.2	1.3	64.0
	132.3	297.5	165.5	53.0	13.4	661.7

Low Growth Scenario	Commercial Land Demand by Retail Form (Gross Acres)					
	Convenience	Neighborhood	Community	Regional	Superregional	All Retail
Downtown & Vicinity	3.7	8.3	4.6	1.5	0.4	18.5
Dimond & Vicinity	14.3	32.3	17.9	5.7	1.4	71.7
Midtown & Vicinity	9.1	20.3	11.3	3.6	0.9	45.2
Northeast	7.6	17.0	9.5	3.0	0.8	37.9
South Anchorage	1.0	2.2	1.2	0.4	0.1	4.8
Eagle River-Chugiak	3.8	8.6	4.8	1.5	0.4	19.1
	39.4	88.6	49.3	15.8	4.0	197.2

Figure 30 – AKDOLWD-Based Forecasts MOA Retail Land Need by Center & Submarket, 2015-2035

Base Case Scenario	Commercial Land Demand by Retail Form (Gross Acres)					
	Convenience	Neighborhood	Community	Regional	Superregional	All Retail
Downtown & Vicinity	6.5	14.5	8.1	2.6	0.7	32.3
Dimond & Vicinity	25.1	56.4	31.3	10.0	2.5	125.3
Midtown & Vicinity	15.8	35.5	19.8	6.3	1.6	79.0
Northeast	13.2	29.8	16.6	5.3	1.3	66.2
South Anchorage	1.7	3.8	2.1	0.7	0.2	8.4
Eagle River-Chugiak	6.6	15.0	8.3	2.7	0.7	33.3
	68.9	154.9	86.2	27.6	7.0	344.6

High Growth Scenario	Commercial Land Demand by Retail Form (Gross Acres)					
	Convenience	Neighborhood	Community	Regional	Superregional	All Retail
Downtown & Vicinity	8.4	18.8	10.5	3.4	0.9	42.0
Dimond & Vicinity	32.6	73.3	40.7	13.0	3.3	163.0
Midtown & Vicinity	20.6	46.2	25.7	8.2	2.1	102.8
Northeast	17.2	38.7	21.6	6.9	1.8	86.1
South Anchorage	2.2	4.9	2.7	0.9	0.2	10.9
Eagle River-Chugiak	8.6	19.5	10.8	3.5	0.9	43.3
	89.6	201.5	112.1	35.9	9.1	448.1

Low Growth Scenario	Commercial Land Demand by Retail Form (Gross Acres)					
	Convenience	Neighborhood	Community	Regional	Superregional	All Retail
Downtown & Vicinity	4.4	9.8	5.4	1.8	0.5	21.8
Dimond & Vicinity	16.9	38.0	21.1	6.7	1.7	84.4
Midtown & Vicinity	10.7	23.9	13.3	4.3	1.1	53.3
Northeast	8.9	20.1	11.2	3.6	0.9	44.6
South Anchorage	1.1	2.6	1.4	0.5	0.1	5.7
Eagle River-Chugiak	4.5	10.1	5.6	1.8	0.5	22.5
	46.4	104.4	58.1	18.6	4.7	232.2

Figure 31 – AKDOLWD-Based Forecasts MOA Retail Land Need by Center & Submarket, 2015-2040

Base Case Scenario	Commercial Land Demand by Retail Form (Gross Acres)					
	Convenience	Neighborhood	Community	Regional	Superregional	All Retail
Downtown & Vicinity	8.8	19.6	11.0	3.5	0.9	43.8
Dimond & Vicinity	34.0	76.5	42.4	13.6	3.4	169.9
Midtown & Vicinity	21.5	48.2	26.8	8.6	2.2	107.1
Northeast	17.9	40.4	22.5	7.2	1.8	89.8
South Anchorage	2.3	5.1	2.9	0.9	0.2	11.4
Eagle River-Chugiak	9.0	20.3	11.3	3.7	0.9	45.2
	93.5	210.1	116.8	37.4	9.5	467.3

High Growth Scenario	Commercial Land Demand by Retail Form (Gross Acres)					
	Convenience	Neighborhood	Community	Regional	Superregional	All Retail
Downtown & Vicinity	11.1	24.7	13.8	4.5	1.1	55.2
Dimond & Vicinity	42.8	96.3	53.4	17.1	4.3	213.9
Midtown & Vicinity	27.0	60.6	33.8	10.8	2.7	134.9
Northeast	22.6	50.9	28.3	9.1	2.3	113.1
South Anchorage	2.9	6.5	3.6	1.1	0.3	14.4
Eagle River-Chugiak	11.3	25.6	14.2	4.6	1.1	56.9
	117.7	264.5	147.1	47.1	11.9	588.3

Low Growth Scenario	Commercial Land Demand by Retail Form (Gross Acres)					
	Convenience	Neighborhood	Community	Regional	Superregional	All Retail
Downtown & Vicinity	6.2	13.9	7.8	2.5	0.6	31.1
Dimond & Vicinity	24.1	54.2	30.1	9.6	2.4	120.6
Midtown & Vicinity	15.2	34.2	19.0	6.1	1.5	76.0
Northeast	12.7	28.7	16.0	5.1	1.3	63.7
South Anchorage	1.6	3.6	2.0	0.6	0.2	8.1
Eagle River-Chugiak	6.4	14.4	8.0	2.6	0.6	32.1
	66.3	149.1	82.9	26.6	6.7	331.6

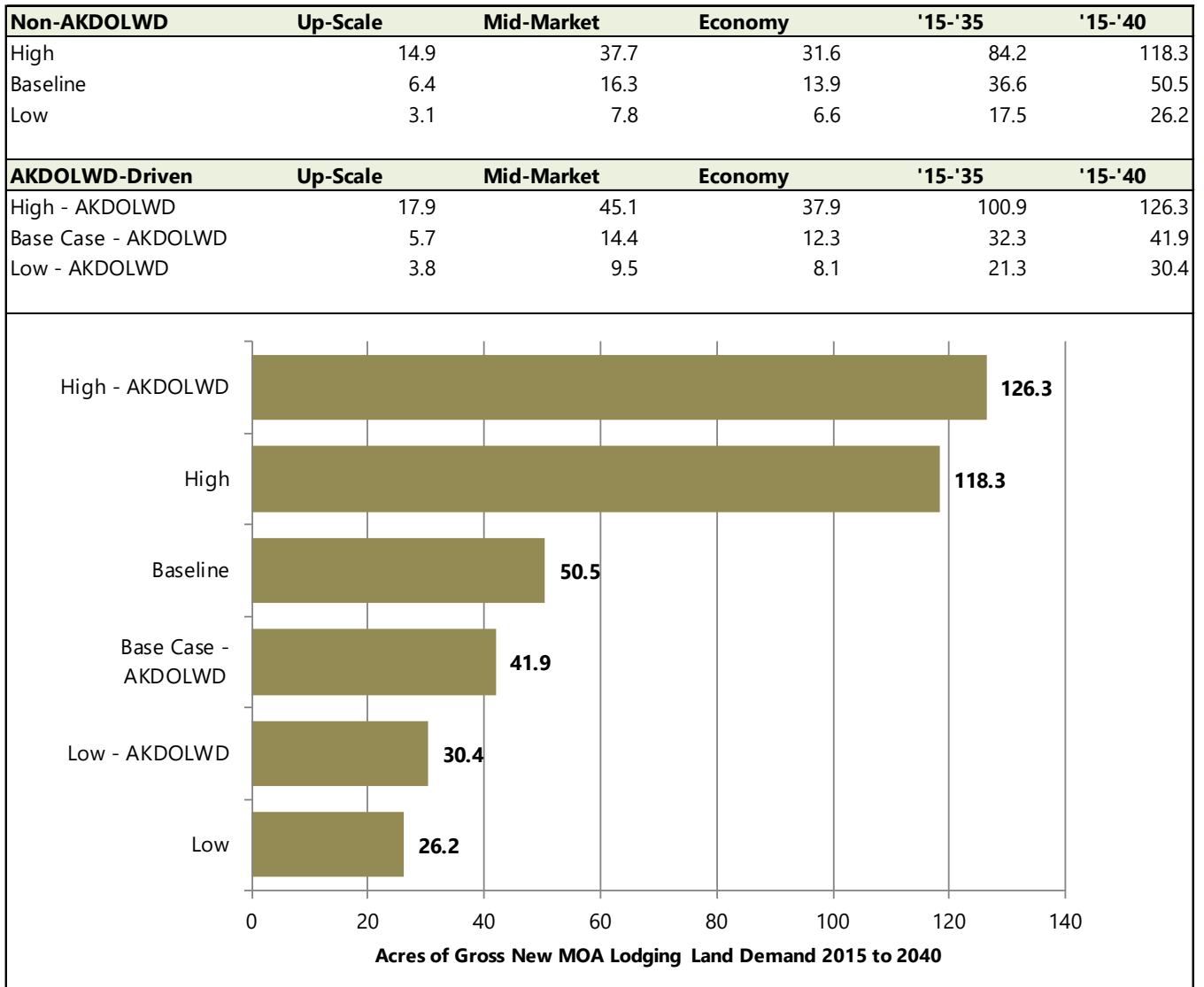
Detailed Lodging/Hospitality Land Demand Forecasts

The final major category of commercial land need, Lodging/Hospitality, is summarized for the MOA in Figure 32 for both the “Hybrid” and AKDOLWD-based forecasts through 2035 and 2040. As with other categories of commercial land need analysis, methodology utilized for estimating hotel land demand is as detailed in the 2012 Commercial Land Assessment. Results in Figure 32 are also expressed for all of the MOA as well as demand by Anchorage subarea consistent with Commercial Land Assessment findings and methodology.

Projected lodging land need in Anchorage through 2040 ranges from as high as 126.3 acres under the “High-AKDOLWD” High growth scenario to as little as 26.2 acres under the “Hybrid” Low growth scenario.

Both “High” growth scenarios demonstrate significantly more lodging land need than the other growth forecasts. This is primarily due to the much stronger forecast of tourism, as anticipated via Lodging & Hospitality industry growth estimates, for both “High” growth scenarios. The more aggressive forecasts make intuitive sense as attractions and recreation opportunities for visitors from outside of Alaska have little to do with Alaska’s oil industry. In fact, weak oil prices usually translate into lower household transportation expense, enabling a greater share of disposable income to be allocated to travel spending.

Figure 32 –MOA Commercial Lodging Land Need, “Hybrid” & AKDOLWD-Driven Forecasts 2015-2040



Detailed commercial lodging land need by scenario, Anchorage submarket, and hotel class types are provided for all six scenarios in the following pages:

- Figure 33 – “Hybrid” MOA Forecast Scenario Lodging Land & Site Need, 2015-2035;
- Figure 34 - “Hybrid” MOA Forecast Scenario Lodging Land & Site Need, 2015-2040;
- Figure 35 – AKDOLWD-Based Forecast Scenario Lodging Land & Site Need, 2015-2035;
- Figure 36 – AKDOLWD-Based Forecast Scenario Lodging Land & Site Need, 2015-2040.

Figure 33 – “Hybrid” Forecasts MOA Lodging Land Need by Hotel Class & Submarket, 2015-2035

Baseline Scenario	Commercial Land Demand by Hotel Class (Gross Acres)			
	Upper Scale	Mid-Market	Economy	All Lodging
Downtown & Vicinity	2.7	4.3	4.6	11.6
Dimond & Vicinity	1.0	3.7	2.6	7.4
Midtown & Vicinity	1.6	5.0	3.9	10.5
Northeast	0.6	1.8	1.4	3.8
South Anchorage	0.0	0.1	0.1	0.2
Eagle River-Chugiak	0.5	1.5	1.2	3.2
Municipality of Anchorage Total Demand:	6.4	16.3	13.9	36.6

High Growth Scenario	Commercial Land Demand by Hotel Class (Gross Acres)			
	Upper Scale	Mid-Market	Economy	All Lodging
Downtown & Vicinity	6.2	9.8	10.6	26.6
Dimond & Vicinity	2.3	8.5	6.0	16.8
Midtown & Vicinity	3.8	11.4	9.0	24.2
Northeast	1.4	4.0	3.1	8.5
South Anchorage	0.1	0.3	0.2	0.6
Eagle River-Chugiak	1.1	3.5	2.7	7.4
Municipality of Anchorage Total Demand:	14.9	37.7	31.6	84.2

Low Growth Scenario	Commercial Land Demand by Hotel Class (Gross Acres)			
	Upper Scale	Mid-Market	Economy	All Lodging
Downtown & Vicinity	1.3	2.0	2.2	5.6
Dimond & Vicinity	0.5	1.8	1.2	3.5
Midtown & Vicinity	0.8	2.4	1.8	5.0
Northeast	0.3	0.9	0.7	1.8
South Anchorage	0.0	0.1	0.1	0.1
Eagle River-Chugiak	0.3	0.7	0.6	1.6
Municipality of Anchorage Total Demand:	3.1	7.8	6.6	17.5

Figure 34 – “Hybrid” Forecasts MOA Lodging Land Need by Hotel Class & Submarket, 2015-2040

Baseline Scenario	Commercial Land Demand by Hotel Class (Gross Acres)			
	Upper Scale	Mid-Market	Economy	All Lodging
Downtown & Vicinity	3.8	5.9	6.4	16.0
Dimond & Vicinity	1.4	5.1	3.6	10.2
Midtown & Vicinity	2.2	6.9	5.3	14.4
Northeast	0.8	2.5	2.0	5.2
South Anchorage	0.0	0.1	0.1	0.3
Eagle River-Chugiak	0.7	2.1	1.7	4.4
Municipality of Anchorage Total Demand:	8.9	22.5	19.1	50.5

High Growth Scenario	Commercial Land Demand by Hotel Class (Gross Acres)			
	Upper Scale	Mid-Market	Economy	All Lodging
Downtown & Vicinity	8.7	13.8	14.8	37.4
Dimond & Vicinity	3.3	11.9	8.4	23.6
Midtown & Vicinity	5.3	16.1	12.6	34.0
Northeast	1.9	5.7	4.4	12.0
South Anchorage	0.1	0.5	0.3	0.9
Eagle River-Chugiak	1.6	5.0	3.9	10.4
Municipality of Anchorage Total Demand:	21.0	52.9	44.4	118.3

Low Growth Scenario	Commercial Land Demand by Hotel Class (Gross Acres)			
	Upper Scale	Mid-Market	Economy	All Lodging
Downtown & Vicinity	2.0	3.0	3.3	8.3
Dimond & Vicinity	0.7	2.6	1.9	5.2
Midtown & Vicinity	1.2	3.5	2.7	7.5
Northeast	0.4	1.3	1.0	2.6
South Anchorage	0.0	0.1	0.1	0.2
Eagle River-Chugiak	0.4	1.1	0.9	2.4
Municipality of Anchorage Total Demand:	4.6	11.7	9.9	26.2

Figure 35 – AKDOLWD-Based Forecasts MOA Lodging Land Need by Hotel Class & Submarket, 2015-2035

Base Case Scenario	Commercial Land Demand by Hotel Class (Gross Acres)			
	Upper Scale	Mid-Market	Economy	All Lodging
Downtown & Vicinity	2.4	3.8	4.1	10.3
Dimond & Vicinity	0.9	3.3	2.3	6.5
Midtown & Vicinity	1.4	4.4	3.4	9.3
Northeast	0.5	1.6	1.3	3.3
South Anchorage	0.0	0.1	0.1	0.2
Eagle River-Chugiak	0.4	1.3	1.1	2.8
Municipality of Anchorage Total Demand:	5.7	14.4	12.3	32.3

High Growth Scenario	Commercial Land Demand by Hotel Class (Gross Acres)			
	Upper Scale	Mid-Market	Economy	All Lodging
Downtown & Vicinity	7.4	11.8	12.7	31.9
Dimond & Vicinity	2.8	10.1	7.1	20.1
Midtown & Vicinity	4.5	13.7	10.7	29.0
Northeast	1.6	4.8	3.8	10.2
South Anchorage	0.1	0.4	0.3	0.8
Eagle River-Chugiak	1.4	4.3	3.3	8.9
Municipality of Anchorage Total Demand:	17.9	45.1	37.9	100.9

Low Growth Scenario	Commercial Land Demand by Hotel Class (Gross Acres)			
	Upper Scale	Mid-Market	Economy	All Lodging
Downtown & Vicinity	1.6	2.5	2.7	6.8
Dimond & Vicinity	0.6	2.2	1.5	4.2
Midtown & Vicinity	1.0	2.9	2.2	6.1
Northeast	0.3	1.0	0.8	2.2
South Anchorage	0.0	0.1	0.1	0.2
Eagle River-Chugiak	0.3	0.9	0.7	1.9
Municipality of Anchorage Total Demand:	3.8	9.5	8.1	21.3

Figure 36 – AKDOLWD-Based Forecasts MOA Lodging Land Need by Hotel Class & Submarket, 2015-2040

Base Case Scenario	Commercial Land Demand by Hotel Class (Gross Acres)			
	Upper Scale	Mid-Market	Economy	All Lodging
Downtown & Vicinity	3.1	4.9	5.3	13.3
Dimond & Vicinity	1.2	4.2	3.0	8.4
Midtown & Vicinity	1.8	5.7	4.4	12.0
Northeast	0.6	2.1	1.6	4.3
South Anchorage	0.0	0.1	0.1	0.2
Eagle River-Chugiak	0.5	1.7	1.4	3.7
Municipality of Anchorage Total Demand:	7.3	18.7	15.9	41.9

High Growth Scenario	Commercial Land Demand by Hotel Class (Gross Acres)			
	Upper Scale	Mid-Market	Economy	All Lodging
Downtown & Vicinity	9.3	14.8	15.8	39.9
Dimond & Vicinity	3.5	12.7	9.0	25.2
Midtown & Vicinity	5.7	17.2	13.4	36.3
Northeast	2.1	6.0	4.7	12.8
South Anchorage	0.1	0.5	0.4	1.0
Eagle River-Chugiak	1.7	5.3	4.1	11.1
Municipality of Anchorage Total Demand:	22.4	56.5	47.4	126.3

Low Growth Scenario	Commercial Land Demand by Hotel Class (Gross Acres)			
	Upper Scale	Mid-Market	Economy	All Lodging
Downtown & Vicinity	2.3	3.5	3.9	9.7
Dimond & Vicinity	0.8	3.1	2.2	6.0
Midtown & Vicinity	1.4	4.1	3.2	8.6
Northeast	0.5	1.5	1.1	3.1
South Anchorage	0.0	0.1	0.1	0.2
Eagle River-Chugiak	0.5	1.3	1.0	2.7
Municipality of Anchorage Total Demand:	5.3	13.5	11.5	30.4