

Industry Projections

5.1 percent job growth projected from 2016 to 2026

By **PAUL MARTZ**

Although the state remains in a protracted recession with job losses continuing in 2018, we project Alaska will add roughly 17,000 jobs from 2016 to 2026, for 5.1 percent growth. Oil prices have rebounded since the plunge that began in late 2014, but the recession's lingering effects will dampen some industries' growth over the decade.

Industries tied to oil and gas as well as state government grew steadily from 2010 through 2015 while oil prices were high, and then lost jobs rapidly when prices fell. We expect some of those losses to stick.

Extraction and support activities for oil and gas — an oil and gas related subset of “support activities for mining” — are projected to decline by 3.6 percent (-136 jobs) and 6.1 percent (-477 jobs), respectively. State government will also continue to decline, with a projected loss of 868 jobs (-5.1 percent). These industries' employment will likely settle around their early-to-mid-2000s levels, with most of the loss in the near term.

Led by health care, a number of industries' projected growth will more than offset those losses. Health care has been on a decades-long growth streak, even throughout the current recession, a trend we expect to continue through the projection period. We project 21.4 percent growth in health care and social assistance employment, or about 10,100 jobs, in the long term. Population increases and aging will be the primary drivers, but state and federal policies are also important factors.

We produce a new set of projections every two years. That's especially important in Alaska, where large resource extraction and development projects play an outsized role in the state's economy and can significantly change the employment picture.

However, these projects have long lead times, extensive permitting requirements, and complicated economics — a natural gas pipeline and Pebble Mine are

Why is 2016 the base year?

Readers sometimes question why the projections begin with 2016 when we're already more than halfway through 2018. The short answer is it's important to begin with a solid set of numbers that won't be revised further rather than to use newer but preliminary data. For more detail on how we create the projections, see the sidebar on page 8.

examples — so we don't include them here until they are nearly certain to happen during the projection period.

Marijuana will boost agriculture

Although agriculture is a tiny industry in Alaska, it's set to be the second-fastest growing in percent terms (24.4 percent) due to the legalization of recreational marijuana in 2014.

The broader sector — agriculture, forestry, fishing, and hunting, of which marijuana cultivation is a part — will add a projected 254 jobs from 2016 to 2026. Most will be in the greenhouse, nursery, and floriculture production industry, with the remainder in aquaculture and support activities for crop production. Greenhouse, nursery, and floriculture production employment is likely to more than double, from 128 jobs to 367 — a gain of nearly 190 percent.

Growth mainly in existing mines

Mineral mining has been stable over the past decade, aside from downward pressure on coal mining. We project 16.9 percent growth over the decade, or 460 jobs, mainly in existing mines. Continued expansion has become necessary as most active mines seek additional resources to extend their lives.

The greatest potential for a new mine is Barrick and

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Alaska Employment Projections by Industry 2016 to 2026

| Industry ¹ | 2016 estimated jobs ² | 2026 projected jobs | Change from 2016 to 2026 | Total % change ³ |
|--|-------------------------------------|------------------------|-----------------------------|--------------------------------|
| Total Employment, All Jobs ⁴ | 332,283 | 349,286 | 17,003 | 5.1% |
| Goods-Producing | 45,575 | 46,711 | 1,135 | 2.5% |
| Natural Resources and Mining | 16,256 | 16,621 | 365 | 2.2% |
| Agriculture, Forestry, Fishing and Hunting | 1,043 | 1,297 | 254 | 24.4% |
| Mining | 15,213 | 15,324 | 112 | 0.7% |
| Oil and Gas Extraction | 3,762 | 3,625 | -136 | -3.6% |
| Mining (except Oil and Gas) | 2,727 | 3,187 | 460 | 16.9% |
| Support Activities for Mining | 8,725 | 8,512 | -213 | -2.4% |
| Construction | 15,646 | 16,344 | 698 | 4.5% |
| Construction of Buildings | 4,346 | 4,567 | 221 | 5.1% |
| Heavy and Civil Engineering Construction | 3,443 | 3,657 | 214 | 6.2% |
| Specialty Trade Contractors | 7,857 | 8,119 | 263 | 3.3% |
| Manufacturing | 13,674 | 13,745 | 72 | 0.5% |
| Food Manufacturing | 10,221 | 10,134 | -86 | -0.8% |
| Seafood Product Preparation and Packaging | 9,777 | 9,537 | -240 | -2.4% |
| Manufacturing, All Other | 3,453 | 3,611 | 158 | 4.6% |
| Services-Providing | 286,347 | 302,240 | 15,893 | 5.6% |
| Trade, Transportation, and Utilities | 67,141 | 68,161 | 1,020 | 1.5% |
| Wholesale Trade | 6,389 | 6,512 | 123 | 1.9% |
| Retail Trade | 36,681 | 36,776 | 95 | 0.3% |
| Transportation and Warehousing ⁵ | 21,929 | 22,626 | 697 | 3.2% |
| Air Transportation | 6,219 | 6,469 | 251 | 4.0% |
| Water Transportation | 1,341 | 1,355 | 14 | 1.0% |
| Truck Transportation | 2,841 | 2,784 | -57 | -2.0% |
| Transportation and Warehousing, All Other | 11,528 | 12,017 | 489 | 4.2% |
| Utilities | 2,142 | 2,247 | 105 | 4.9% |
| Information | 6,301 | 5,734 | -567 | -9.0% |
| Financial Activities | 12,829 | 13,097 | 269 | 2.1% |
| Finance and Insurance | 7,002 | 7,048 | 46 | 0.7% |
| Real Estate and Rental and Leasing | 5,827 | 6,049 | 223 | 3.8% |
| Professional and Business Services | 27,740 | 29,010 | 1,269 | 4.6% |
| Professional, Scientific, and Technical Services | 13,790 | 13,968 | 178 | 1.3% |
| Management of Companies and Enterprises | 2,686 | 3,037 | 351 | 13.1% |
| Administrative and Support and Waste Management and Remediation Services | 11,264 | 12,004 | 741 | 6.6% |
| Education and Health Services | 77,535 | 87,938 | 10,403 | 13.4% |
| Educational Services, Public and Private ⁶ | 30,288 | 30,557 | 269 | 0.9% |
| Elementary and Secondary Schools, Public and Private | 21,213 | 21,387 | 174 | 0.8% |
| Educational Services, Public and Private, All Other | 9,075 | 9,170 | 96 | 1.1% |

Table continues on next page

NovaGold's Donlin Creek Gold Project, situated on lands owned by the Kuskokwim and Calista corporations. The project received its final Environmental Impact Statement, required under the National Environmental Policy Act, and a Record of Decision issued Aug. 13, 2018, although additional permits and a final development decision are pending.

The number of jobs this project could generate is uncertain, but it would significantly change mining's employment picture. This is a complex project, though, and it will be sensitive to expectations about future mineral prices and the regulatory environment.

Mining support to recover losses

Just under half of the mining jobs in Alaska are in the primary oil and gas extraction and mineral mining industries ("mining, except oil and gas"), and the remainder — 57 percent — are in "support activities for mining."

Within support activities, oil and gas drilling is expected to add 197 jobs over the projection period — but that growth will come on the heels of a loss of about half the industry's employment since 2014 (-544 jobs). Given the extent of that decline, the projected

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Alaska Employment Projections by Industry, continued 2016 TO 2026

| Industry | 2016 estimated jobs ² | 2026 projected jobs | Change from 2016 to 2026 | Total % change ³ |
|--|-------------------------------------|------------------------|-----------------------------|--------------------------------|
| Health Care and Social Assistance, Public and Private ⁷ | 47,247 | 57,381 | 10,134 | 21.4% |
| Ambulatory Health Care Services | 20,100 | 25,125 | 5,026 | 25.0% |
| Hospitals | 13,759 | 16,999 | 3,241 | 23.6% |
| Health Care and Social Assistance, All Other | 13,389 | 15,256 | 1,868 | 14.0% |
| Leisure and Hospitality | 35,757 | 39,060 | 3,303 | 9.2% |
| Arts, Entertainment, and Recreation | 4,827 | 5,348 | 521 | 10.8% |
| Accommodation and Food Services | 30,930 | 33,712 | 2,782 | 9.0% |
| Accommodation | 8,496 | 9,296 | 800 | 9.4% |
| Food Services and Drinking Places | 22,434 | 24,416 | 1,982 | 8.8% |
| Other Services (Except Government) | 11,632 | 12,397 | 765 | 6.6% |
| Total Government | 47,411 | 46,843 | -568 | -1.2% |
| Federal Government ⁸ | 13,195 | 13,195 | 0 | 0% |
| State Government ⁹ | 16,867 | 15,998 | -868 | -5.1% |
| Local Government ¹⁰ | 17,349 | 17,649 | 300 | 1.7% |
| Unreported | 362 | 336 | - | - |

¹Industry categories differ from other data sets we publish, largely because these combine public and private employment.

²May not sum to total employment due to rounding

³Percent change may be inconsistent with employment change due to employment rounding.

⁴Excludes self-employed workers, fishermen, domestic workers, unpaid family workers, and nonprofit volunteers

⁵Includes U.S. Postal Service employment

⁶Includes local and state government education employment

⁷Includes public sector hospital employment

⁸Excludes uniformed military, postal service, and hospital employment

⁹Excludes university, railroad, and hospital employment

¹⁰Excludes public school and hospital employment

Source: Alaska Department of Labor and Workforce Development, Research and Analysis Section

increase wouldn't replace every lost job but would put industry employment close to its mid-2000s level of about 900 jobs.

Jobs in support activities for oil and gas operations are in a similar position, having fallen 36.5 percent from 2015 to 2017 (-3,644 jobs). We expect employment to settle around 7,297 jobs by 2026, which would be a loss of 477 since 2016 (-6.1 percent).

The smaller mining support industries focus on metal and nonmetallic minerals, and these combined are projected to grow 24.9 percent (68 jobs).

Slower growth for construction

We expect construction employment will grow slightly slower than the rest of the economy, at 4.5 percent (698 jobs). The sector lost 2,178 jobs (-12.9 percent) between 2014 and 2017.

Specialty trade contractors have taken the biggest hit in this recession, losing 1,006 jobs (-12.1 percent) between 2015 and 2017, followed by nonresidential building construction at a 14.9 percent loss over that period (-468 jobs). We project both of these will recover slightly, with specialty trades adding 263 jobs (3.3 percent) and nonresidential building gaining 36 (1.3

percent). Residential building will grow a bit more, at a projected 12.2 percent (185 jobs).

The heavy and civil engineering construction category includes oil and gas pipeline-related construction as well as a mix of highway, street, bridge, and other heavy and civil engineering construction.

Employment in oil and gas pipeline and related construction reached a 19-year high in early 2014 at 957 jobs, climbed to 999 jobs in 2015, then dropped to 824 the following year. We expect employment to continue falling and hit 782 jobs by 2026. That would still be higher than most of the last two decades' employment levels, however.

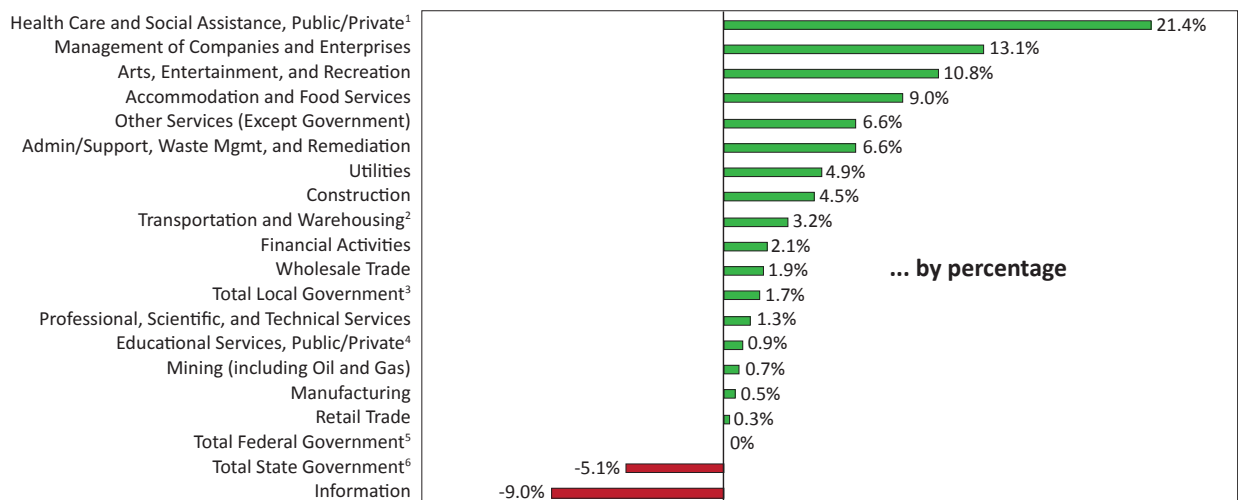
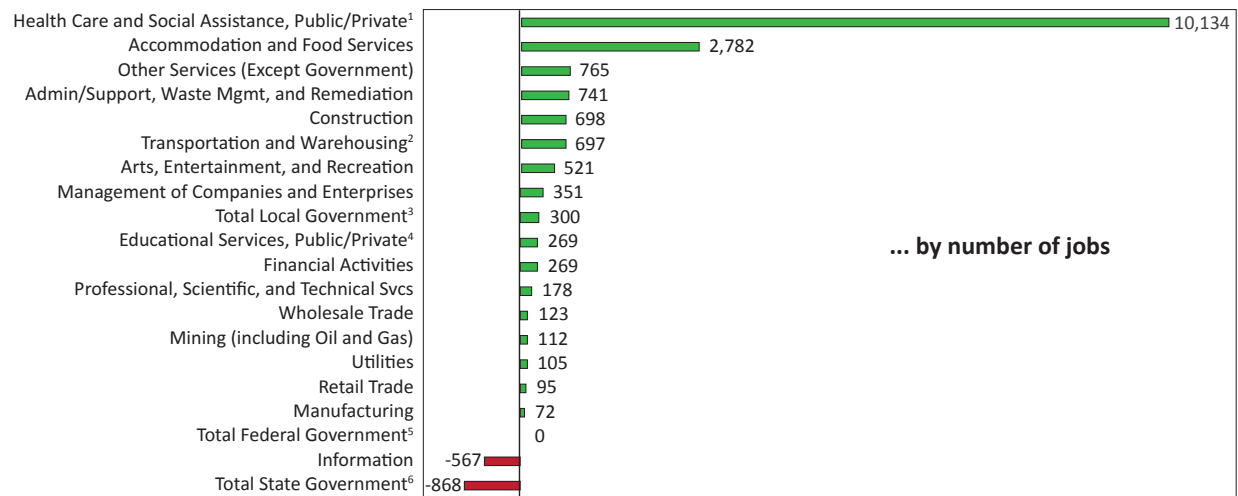
Highway, street, and bridge construction will grow by a projected 5.6 percent (90 jobs). This industry has been remarkably stable over the past 18 years, and although it declined in 2017, we don't anticipate a permanent shift to lower employment.

The "other" heavy and civil engineering construction industry is set to grow from 298 jobs in 2016 to 392 jobs by 2026. This industry's employment fell 53.4 percent between 2014 and 2017, and the projected 2026 level would still be near the low end for the last 27 years. Large state capital budgets and oil and gas projects have bolstered this industry in the past, but the

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Projected Job Growth by Industry

ALASKA, 2016 TO 2026



¹Includes public sector hospital employment

²Includes U.S. Postal Service employment

³Excludes public school and hospital employment

⁴Includes local and state government educational employment

⁵Excludes uniformed military, postal service, and hospital employment

⁶Excludes university, railroad, and hospital employment

Source: Alaska Department of Labor and Workforce Development, Research and Analysis Section

state is unlikely to regain an oil price or state budget environment that would sustain such high job levels.

Seafood manufacturing mostly flat

Manufacturing will add a projected 72 jobs (0.5 percent), leaving it mostly flat for the next decade. The vast majority of its jobs are in the seafood product preparation and packaging industry, which we project will decline 2.4 percent (-240 jobs). The seafood harvesting side lost 14.1 percent of its wholesale value

statewide between 2011 and 2016, but the value jumped 13.4 percent from 2016 to 2017, which erased much of the loss.¹

Total pounds processed have been up and down since recovering from the significant declines of 2007-2009. The trend has been up, though, and total pounds processed increased 34.0 percent between 2010 and 2017, even figuring in a major drop in 2016 due to lower-than-expected pink salmon returns.¹

¹Change in value is in 2017 dollars and comes from Alaska Department of Fish and Game's COAR Report, current as of June 23, 2018.

How we create these projections

The Alaska Department of Labor and Workforce Development's Research and Analysis Section creates 10-year industry and occupational projections for Alaska every other year. These projections are the product of four steps:

Step 1: Project industry employment

We use data from the Quarterly Census of Employment and Wages to determine the number of jobs for each industry during the first year, or "base year," of the projection period. Estimates and projections do not include self-employed workers, private household workers, most agricultural workers and fishermen (who are self-employed), and others not covered by the state's unemployment insurance program. We combine certain types of public sector employment — such as education, hospitals, rail transportation, and U.S. Postal Service — with private sector industries.

We create projections for each industry based primarily on historical trends, Alaska and U.S. population projections, and other industry-specific variables. The projections also take into account any knowledge of specific projects and observations of the current economic climate.

Step 2: Determine the occupational makeup, or staffing pattern, of each industry

To estimate base year employment for each occupation, we determine the occupational staffing pattern of each industry. Most industries have a variety of occupations. The staffing pattern is the breakdown of each occupation's share of the industry's total employment, referred to as "staffing ratios."

Employers in Alaska report their workers' occupations when they submit unemployment insurance quarterly contribution reports, which form the basis of Alaska's Occupational Database. We use an analysis of the ODB data that corresponds to the projections' base year, the most recent Occupational Employment Statistics data available, and a baseline of historic industry staffing patterns to calculate occupational staffing ratios for the industries.

Step 3: Calculate base year and projected occupational employment

For each occupation, we multiply each industry's estimated base year employment by the staffing ratio, and then sum the results to get the base year estimate.

For the projections, adjustments to staffing ratios within an industry are called "change factors." Change factors are multipliers that increase or decrease an occupation's estimated share of industry employment based on factors other than an industry's projected employment change. Examples include changes in consumer demand, technology, or business practices.

We then multiply each industry's projected employment by the adjusted staffing ratio for each occupation, and then sum the results by each occupation to get the projections.

Step 4: Estimate job openings

Job openings for an occupation result from both job growth and occupational separations. An occupation's growth openings are equal to its change over the projection period. Estimates of separation openings are based on rates provided by the Bureau of Labor Statistics that account for labor force exits and occupational transfers. For more information on separations, see the sidebar in the occupation article on page 15 or visit: <https://www.bls.gov/emp/documentation/separations-methods.htm>.

Even with the relative stability in harvesting, seafood processing employment has continued to decline. The industry lost 1,177 processing jobs between 2014 and 2017 (-11.1 percent). Automation, changes in consumer preferences, and increases in exports for processing are all likely factors.

Modest growth in retail, wholesale

Wholesale and retail trade are projected to add jobs in

line with the overall trend of flat to slight growth. We project 1.9 percent growth for wholesale (123 jobs) and just 0.3 percent for retail (95 jobs) over the decade. Both have lost ground during the recession, but wholesale has remained markedly flat aside from its losses in durable goods and wholesale electronic markets, agents, and brokers.

After adding 2,020 jobs between 2010 and 2015 (5.8 percent), retail trade lost 856 jobs between 2015 and 2017, a 2.3 percent decline. The biggest losses were

in food and beverage stores at 4.7 percent (-257 jobs) and in sporting goods, hobby, and musical instrument stores at 11.0 percent (-234 jobs).

Food and beverage stores have long been losing ground to general merchandise stores such as warehouse clubs and supercenters, so the recent losses weren't a surprise. The industry is projected to decline 5 percent through 2026 (-272 jobs).

The brief expansion of sporting goods stores between 2013 and 2014 offset some of the recent losses, but the gains from the new stores had mostly disappeared by 2017. The industry's long-term projection is a decline of 8.5 percent (-171 jobs), but with most of the losses in the short term followed by flat employment in the later part of the projection period. If we look at 2017 as the base year instead of 2016, the projected loss is far less dramatic at 2.9 percent, or 54 jobs.

Parts of the retail trade industry projected to grow include:

- General merchandise stores, including warehouse clubs and supercenters: 395 jobs (3.9 percent). Closures of Sam's Clubs throughout the state will cause some decline in 2018, but overall growth has been strong and Costco plans to expand into at least one of the two Alaska markets.
- Miscellaneous store retailers: 207 jobs (8.2 percent). This industry covers mostly smaller retailers such as gift shops, pet stores, and office supply stores.
- Building material and garden equipment and supplies dealers: 145 jobs (4.0 percent).
- Direct selling establishments: 81 jobs (7.5 percent).

Tourism to bolster transportation

We project 3.2 percent growth for the transportation and warehousing sector (697 jobs). Tourism-related transportation will drive most of that gain. This includes:

- Scenic and sightseeing transportation, land: 127 jobs (12.5 percent).
- Scenic and sightseeing transportation, water: 168 jobs (22.0 percent).
- Scenic and sightseeing transportation, other: 40 jobs (40 percent).

Air transportation, scheduled and nonscheduled, will add a projected 251 jobs (4.0 percent). Water transportation's projection is essentially flat at just 14 jobs (1.0 percent).

We expect a 2 percent decline in truck transportation (-57 jobs), a 7.4 percent decline in rail transportation (-50 jobs), a 1.3 percent dip for postal service (-20 jobs), and a decrease of 6.5 percent in freight transportation arrangement (-19 jobs).

Professional, scientific, and technical services

This sector is an amalgam of industries, most of which we expect to grow somewhat but with lingering effects from the recession. The hardest-hit industries have been oil related, with engineering and drafting services losing 583 jobs between 2014 and 2017 (-14.5 percent). The combined geophysical surveying and nongeophysical mapping services industry's employment plummeted 40.5 percent (-284 jobs), and environmental and other scientific and technical consulting services fell 19.6 percent (-219 jobs).

Although these industries will continue to struggle in the short term, we expect their employment to stabilize at relatively high levels, historically speaking, in the long run.

We project engineering and drafting services will add 76 jobs (2.1 percent) from 2016 to 2026, but disregarding the major loss in 2016 and looking only at 2017-2026 puts growth at 5 percent (172 jobs). The industry is projected to provide 3,621 jobs by 2026, which would be close to its employment level at the end of the last decade.

The geophysical surveying and nongeophysical mapping services industry is an extreme example of the effect that losses extending into 2017 can have on expected growth rates. The 2016 to 2026 timeline shows projected growth of 8.3 percent (45 jobs), but again, narrowing the period to 2017-2026 increases the rate to 40.7 percent (169 jobs).

The outlook for environmental and other scientific and technical consulting services is similar. The 2016 to 2026 projection is 75 new jobs (7.8 percent), but because losses have continued into 2018, growth when it resumes is projected to be even stronger than 7.8 percent to reach the total projected level of 1,034 jobs.

Minor job growth for education

The public and private educational services industry — elementary and secondary schools as well as business, technical, trade, and other schools — is projected to add 269 jobs (0.9 percent) over the decade.

The projected growth for elementary and secondary schools is a modest 0.8 percent (174 jobs), based on lower anticipated population growth among 5-to-18-

year-olds as well as continued constraints on state education funding.

We project slow growth for business, technical, trade, and other schools as well, at 1.1 percent (96 jobs). Most of these jobs are in the University of Alaska, but the category includes other private colleges plus trade schools and sports and recreational instruction. Lower state budgets will be a similar drag on this industry, even with slightly more population growth in the 19-to-25-year-old group than in recent years.

Health care continues to climb

Alaska's 65-plus population will increase an estimated 58.8 percent over the projection period, from 78,957 seniors in 2016 to 125,423 in 2026, as the large baby boomer generation continues to move into that age group. By 2026, senior citizens will represent 16 percent of Alaska's population, up from 11 percent in 2016. The 36-to-50 age group will increase by an estimated 21,548 people. In contrast, we anticipate the 21-to-35 age group will decline by 12,118.

Given the aging trend plus overall population growth, we project employment in private health care and social assistance will increase 21.4 percent (10,134 jobs) by 2026, making health care the largest contributor to the state's total projected job growth at 59.6 percent of all new jobs.

The largest industry in this sector is ambulatory health care services, which we project will add 5,026 jobs (25.0 percent), roughly in line with its 2007 to 2017 average annual growth rate of 2.9 percent. The industry is mostly physician's offices, outpatient care centers, and home health care services. While federal and state policies affect this industry, its primary drivers are population growth and an aging population.

We project corresponding employment growth in nursing and community care facilities for the elderly, at 30.3 percent (535 jobs), and in services for the elderly and those with disabilities at 28.2 percent (709 jobs).

In contrast, hospitals lost 117 jobs from 2013 to 2014, which was the first decline since 1994. Growth resumed quickly, jumping to 12.1 percent from 2015 to 2017 (a gain of 1,590 jobs). Given what appears to be a return to the historical growth curve, we expect hospitals will add 3,241 jobs (23.6 percent) over the projection period.

Strong growth in leisure, hospitality

The leisure and hospitality sector will benefit from

continued growth in tourism as well as overall population increase. We project its employment will increase 9.2 percent from 2016 to 2026, or 3,303 jobs. The tourism-based industries in this sector and their projected gains are:

- Traveler accommodation, including rooming and boarding houses: 717 jobs (9.3 percent).
- RV parks and recreational camps: 83 jobs (11.2 percent).
- Museums, historical sites, and similar institutions: 41 jobs (10.3 percent).
- Other amusement and recreation industries: 594 jobs (20.0 percent).

The remainder of the sector is mostly restaurants, bars, and specialty food services that when combined will grow a projected 8.8 percent (1,982 jobs).

Restaurants lost about 1.7 percent of their employment (-325) in 2016 and 2017 due to less spending in a weak economy, and we expect further short-term declines.

Bars are also likely to continue their long-term decline, to a projected total loss of 15.5 percent (-230 jobs). These losses will be due mostly to competition with restaurants that serve alcohol rather than to the recession or reduced alcohol consumption.

Specialty food services range from oil field catering services and airline food handling to traditional catering services, a mix projected to add 250 jobs (11.8 percent) over the decade.

Long-term decline for government

Government employment — excluding public education, the postal service, and hospitals — is projected to shrink 1.2 percent (-568 jobs) from 2016 to 2026.

We anticipate federal employment will remain flat after a loss of 2,374 jobs from 2010 to 2014. Federal employment fluctuated a little from 2015 to 2017, and while that's likely to continue, a change in the trend is unlikely. The upcoming arrival of new F-35s at Eielson Air Force Base near Fairbanks could change the employment picture, but we don't yet know how many of those new jobs will be federal civilian and how many will be private contractors or active duty, which aren't included in these employment data.

State government (excluding health care and the university) faces continued losses after sharp declines following the drop in oil prices. From 2014 to 2016, state

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INDUSTRY PROJECTIONS

Continued from page 10

government lost 1,219 jobs (-6.7 percent), a trend that continued into 2017 with an additional loss of 419 jobs. With no plan in place to address the entire state budget deficit and oil prices and production unlikely to rise dramatically, we project an additional loss of 868 jobs over the projection period (-5.1 percent) and expect state government to eventually settle near its 2005 employment level.

Local government, excluding education and hospitals, continued to grow during the recession, gaining 556 jobs from 2014 to 2017. Whether the recession could catch up with local governments is still in question, but negative effects would probably be short-lived. Sales and property taxes, along with federal funds, have covered municipal costs even amid state cuts. Overall, we project local government will add 300 jobs (1.7 percent) over the decade.

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OCCUPATION PROJECTIONS

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for workforce development agencies, job placement and counseling professionals, job seekers, and education and training providers. To help them determine which occupations to focus on, we developed Alaska's Top Jobs list, which ranks the occupations we expect to fare well and pay well over the projection period. (See Exhibit 12.)

To make the top jobs list, an occupation must essentially pay higher-than-average wages plus have higher-than-average growth or a large number of openings. (See the footnote to Exhibit 12 for more detail.)

Out of 784 occupations in Alaska, 54 make the list. Twenty-six require at least a bachelor's degree and nine require an associate degree or some type of postsecondary education, such as a vocational certificate or some college attendance. Of the 19 top jobs that require a high school diploma or less, 13 require apprenticeship or other on-the-job training.

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