WHITE PAPER 1
HIGHER EDUCATION AND ECONOMIC DEVELOPMENT:
THE NECESSARY FOUNDATION

August, 2010

Prepared for the:

UNLV
UNIVERSITY OF NEVADA LAS VEGAS

FINAL DRAFT: FOR DISCUSSION PURPOSES ONLY

Prepared by:

DR. ALAN M. SCHLOTTMANN, PH.D.
PROFESSOR OF ECONOMICS-UNLV DEPARTMENT OF ECONOMICS
&
RCG
RESTREPO CONSULTING GROUP LLC

WHITE PAPER 1
HIGHER EDUCATION AND ECONOMIC DEVELOPMENT: THE NECESSARY FOUNDATION

August, 2010

WHITE PAPER 1
HIGHER EDUCATION AND ECONOMIC DEVELOPMENT: THE NECESSARY FOUNDATION

TABLE OF CONTENTS

PAGE

LIST OF ILLUSTRATIONS

PAGE

LIST OF ILLUSTRATIONS (CONT.)

PAGE

WHITE PAPER 1
HIGHER EDUCATION AND ECONOMIC DEVELOPMENT: THE NECESSARY FOUNDATION

EXECUTIVE SUMMARY

This white paper is the first paper in a series of four white papers that look at the important role of education in Nevada's future. Our white papers are designed to assess and evaluate the role of higher education in meeting Nevada's future economic targets. These white papers will focus on:

- the role of higher education in promoting and sustaining economic growth and development;
- what the economic value of an education to the individual and community state-wide is;
- how education impacts economic growth.

This white paper presents key findings that will be useful to public policy makers, business leaders and others seeking to understand the connection between higher education and economic development and diversification, and the general economic health of our community.

Although various economic development strategies for regional growth exist, none has been as universally accepted as *cluster*-based economic development. This approach, discussed in detail below, views the foundation of a regional economy as a group of clusters, not a collection of unrelated firms. A cluster is defined herein, as a neighboring group of interconnected companies and associated institutions in a particular field or industry. This group can include product producers, service providers, suppliers, universities and trade associations.

This paper contains an overview of both applied and academic research on cluster-based approaches to economic development and diversification, and the role of such industry clusters in regional economic development. More specifically, it examines how cluster-based development strategy can lead to a more developed economy in Southern Nevada.

The paper also includes a summary of the specific target clusters that have been identified as future economic development targets for Southern Nevada as adopted by the Southern

Regional Planning Coalition ("SNRPC") and the local member government entities and regional planning organizations of Southern Nevada. Specifically, the educational requirements for occupations associated with these target clusters are presented. It is critical to note that the higher education requirements for these selected clusters are quite significant, and form a key foundation without which such strategic clusters will be quite difficult to attain.

As demonstrated by the data included in this paper, successful cluster development requires a critical foundation of higher education and the associated commitment by public policy makers. This is shown to be particularly true for the set of clusters identified as future development targets in Southern Nevada. This includes economic development related to a health cluster and targeted clusters in information technology, life sciences, office and security.

The research and data presented in this white paper demonstrate that higher education in Southern Nevada is a major determining factor in fostering cluster development. In turn, cluster development leads to a more developed economy, improved competitiveness and sustainable economic growth. Recognition of these issues has stimulated other states, such as Arizona, Florida and Texas, to integrate university systems into their overall economic development strategies. These include such broad regional concepts as the Florida High Technology Corridor Initiative, specific programs such as bioscience initiatives in all three states, participation in programs like the National Nanotechnology Initiative, and research centers linked directly to universities such as the University of Arizona Science and Technology Park.[1]

In simple terms, future regional economic development will be centered on cluster development. A failure to do so implies regional economic stagnation. Furthermore, a fundamental underpinning of successful cluster development is education, and, specifically higher education for those clusters dealing with technology. The issues presented in this paper underlie why states competing for jobs that will drive their economies in the future are looking to higher education as the critical component to train and produce the workforce needed for these jobs.

[1] *Selective reference for these initiatives are the lengthy "Texas Technology Economic Development 2008 Status Update", March 2009; "Florida High-Tech 2010", 2010 (UCF-USF-UF); "State Bioscience Initiatives 2010" Battelle/BIO, "Southwest Nano Consortium", 2009, National Technology Initiative.*

WHITE PAPER 1
HIGHER EDUCATION AND ECONOMIC DEVELOPMENT:
THE NECESSARY FOUNDATION

The literature review and analyses on the topic are divided into the following areas:

- Economic Development and Diversification;
- Cluster-Based Economic Development Strategies;
- Higher Education and Economic Diversification and
- Southern Nevada Analysis.

Economic Development and Diversification

A clarification is in order here. In our opinion, the next phase for Southern Nevada is one that focuses on how it develops, economically, not just how much it grows. The concepts are not the same. Development speaks to the extra dimension of the quality of economic activity, while growth speaks to the quantity of the activity.[2]

The bridge from an economy and community that is overly growth-dependent to one that is evolving and developing is economic diversification. Diversification involves augmenting the economy and developing its structure. In other words, expanding the economy to include a wider group of low wage occupations may be a good short-term strategy to get a region out of recession, but it will not develop the region's economy.

Although, there is no single definition of economic diversification; in a broad sense, *economic diversification* can be defined as an increase in economic activity through the introduction of a new industry or the expansion in the breadth of an existing industry. Diversification matters because it is directly connected with economic performance, and as noted above, is the critical bridge to economic development. Following the pioneering work of McLaughlin (1930) and Tress (1938), it has been stated that the more diverse the economic activity of a region, the more stable its economic performance[3].

Economic development in Southern Nevada, as in most regions, has as its ultimate underpinning issues related to workforce quality and investment, i.e., education. As is well recognized, these issues tend to require significant financial resources and talents and the associated political will, to achieve.

Much of the literature on these topics is highly technical and applies various statistical techniques to test the relationship between a developed and diversified economy and economic performance. The bottom line, however, can be summarized as: This research supports the argument that the types and quality of clusters and their associated

---

[2] *These issues have been a consistent source of frustration within the literature on regional economic growth and development, see Alan Schlottmann et. al. "The Perplexing Literature on State Growth", Review of Regional Studies, Volume 33, No. 1, 2003, pp. 1-16.*

[3] *Siegel, P. B., Johnson, T. G., and Alwang G. Regional Economic Diversity and Diversification. Growth and Change, Vol. 26 (Spring 1995), pp. 261-284.*

occupations, which are dominant in one region over another change the region's economic performance.[4] For example, several studies that investigated the effects of industry clustering on wages in a region found positive cluster wage premiums. In theory, clusters that pay higher wages may also increase the price of labor in local labor markets, as other firms are forced to compete with industry clusters for workers[5].

Cluster-Based Economic Development Strategies

As noted above, there exist numerous economic development strategies for regional growth; none, however, has enjoyed more popularity than the cluster based economic development strategy developed by *Harvard Business School's* Michael Porter[6]. This approach, the foundation of a regional economy is a group of clusters, not a collection of unrelated firms.

Overall, cluster analysis can be used to identify a region's economic strengths and challenges and evaluate ways to shape the region's economic future[7]. This type of analysis can help assess the types of clusters that drive local economic development and growth, the advantages of concentrated employment in a single industry versus greater industry diversity, and the effect of clusters on wages. Empirical research suggests that clusters represent a fundamental framework for understanding local and regional economies and for developing economic strategies.

---

[4] As discussed below, for example, the study "The Causal Impact of Education on Economic Growth: Evidence from U.S." published by the Brookings Institution in March 2009 examines differential growth in a multi-state growth model. To overly simplify the results, "high brow" education (and implied occupations) appears to foster technological innovation whereas "low brow" education fosters technological imitation. The study states that "innovation makes intensive use of highly educated workers while imitation relies more on combining physical capital with less educated labor". Within cluster development as presented in this paper, higher education thus becomes a necessary foundation for success.

[5] Cortright, J. Making Sense of Clusters: Regional Competitiveness and Economic Development. March 2006. Metropolitan Policy Program. The Brookings Institution.

[6] Desrochers, P. and Sautet, F. (June 2004). Cluster-Based Economic Strategy, Facilitation Policy and the Market Process. The Review of Austrian Economics, Vol. 17 (2-3).

[7] Cortright, J. Making Sense of Clusters: Regional Competitiveness and Economic Development. March 2006. Metropolitan Policy Program. The Brookings Institution.

However, with a cluster-based strategy, economic diversification and economic development increasingly depend on regional competitive advantage, based on a highly skilled workforce, innovation and the utilization of advanced infrastructure and technology[8].

Higher Education and Economic Development

The relationship between economic development and education has been one of the central topics of economic analysis. As noted above, technology initiatives in states, such as Arizona, Texas and Florida are requiring higher education institutions to take an increasingly active role in states' economic development. Higher education has historically included economic development as part of its core mission. Many colleges and universities around the country allocate fiscal, physical and human resources, and create entrepreneurship systems within the institutions to advance regional economic development[9]. Higher education institutions also provide leadership in creating a diverse and quality workforce.

The *"Causal Impact of Education on Economic Growth: Evidence from U.S."* study published by the *Brookings Institution* in March 2009 used a multi-state growth model in which "high brow" education is assumed to foster technological innovation and "low brow" education is assumed to foster technological imitation. The study states that "innovation makes intensive use of highly educated workers while imitation relies more on combining physical capital with less educated labor".

The study concludes that "states that are closer to the technological frontier may enjoy different benefits from the same investment in education":

- "A close-to-the-frontier state is more likely to have industries whose growth depends on innovation. Also, its investment in high brow education may generate migration that further increases its highly educated workforce. For example, a state like Massachusetts.

- A far-from-the-frontier state may have growth that is more dependent on imitation, so that its low brow education investments generate growth but its high brow investments

[8] *Southern Nevada Regional Economic Study. Alan Schlottmann, Robert Schmidt, Edward Feser, David Swanson. November 15, 2006.*
[9] *The Role of Higher Education in Economic Development. Higher Education Alliance for the Rock River Region. Prepared by NIU Outreach. May, 2005.*

do not (and may mainly create highly educated out-migrants)[10]". For example, a state such as West Virginia.

Southern Nevada Analysis

Demographic and Employment Trends

Southern Nevada has been undergoing significant economic and demographic changes that relate directly to education and impact its economic development.

- In 2008, Nevada's workforce had far fewer college degrees than the nation as a whole and substantially less than the most educated states. According to the *U.S. Bureau of Labor Statistics*, a high percentage of 25 to 64 year olds, about 16.5 percent, had less than a high school education. About 26.1 percent of 25 to 64 year olds in Nevada in 2008 had only some college education but no college degree. In 2008, Nevada ranked 43rd for 25+ year olds with bachelor degrees or higher.

- When comparing Nevada to its neighboring states, it becomes clear that Nevada is lagging behind when it comes to workforce with college degrees. As shown in the table below, only 28.9 percent of Nevada residents 25 years and over have college degree compared to 32.9 percent in Arizona, 37.2 percent in California and 38.6 percent in Utah.

	< 9th grade	9th-12th grade, no diploma	High school grad/GED	Some college, no degree	Associate's degree	Bachelor's degree	Graduate & Professional degree	% with College Degree
Arizona	7.5%	8.6%	25.0%	25.9%	7.8%	15.9%	9.2%	**32.9%**
California	10.6%	9.1%	20.8%	22.2%	7.6%	18.8%	10.8%	**37.2%**
Nevada	6.5%	9.9%	28.5%	26.2%	7.0%	14.9%	7.0%	**28.9%**
Utah	3.3%	6.3%	24.4%	27.4%	9.5%	19.7%	9.4%	**38.6%**

Source: U.S. Census Bureau, 2008 American Community Survey.

- Historically, the majority of people moving to Nevada had just high school or some college education, with a high percentage of people having less than high school education. On the other hand, people leaving the state had at least a high school

[10] *Aghion, P., Boustan, L., Hoxby, C., and Vandenbussche, J. Causal Impact of Education on Economic Growth: Evidence from U.S. The Brookings Institution, March 2009.*

education, with a significant percentage having some college, bachelor's or graduate degrees[11].

- In 2008, only 28 percent of all in-migrants to Nevada (25+ year olds who moved from another state/country) had a bachelor's degree or higher compared to an average of 32.8 percent for the six mountain states (Arizona, Colorado, Idaho, Nevada, New Mexico and Utah) and compared to the U.S. average of 38.7 percent[12].

Total employment in Nevada is projected to increase by approximately 33.6 percent between 2006 and 2016 (see Table 1 at the end of this paper). This forecast was prepared by Nevada Department of Employment, Training and Rehabilitation in 2008, accordingly they should be viewed as optimistic considering the ensuing depth and breath of the Great Recession. According to the staff at the Department contacted during the preparation of this White Paper, the projections are currently being revised. No date was given as to when the revisions will be completed.

- Historically, the hospitality, recreation and entertainment cluster in Southern Nevada experienced the most growth and is expected to see significant growth in the future. The table below shows that the selected occupations within this cluster are projected to grow at a fast pace. Gaming dealers and waiters and waitresses occupations, for instance, are estimated to grow by 46.4 percent and 43.6 percent, respectively, during the 2006-2016 period compared to the 33.8-percent growth in all occupations over the same time period (see Table 2 at the end of this paper for occupational projections between 2006 and 2016).

[11] *Based on the U.S. Census Bureau's 2000 data.*
[12] *Based on the 2008 American Community Survey.*

Title	2006 Employment	2008 Employment	2016 Employment	% Change 2006-2016	Average Annual Openings
Total, All Occupations	1,355,108	1,446,167	1,810,401	33.8%	80,097
Cashiers	36,553	38,440	45,990	25.8%	2,722
Retail Salespersons	37,993	41,309	54,572	43.6%	3,039
Waiters and Waitresses	40,343	43,143	54,341	34.7%	3,476
Janitors and Cleaners (Excluding Maids and Housekeeping Cleaners)	30,349	32,686	42,036	38.5%	1,745
Gaming Dealers	25,156	27,492	36,834	46.4%	1,962

Source: Nevada Employment Projections; Long Term Forecasts; U. S. Bureau of Labor Statistics, U.S. Department of Labor, Nevada Employment Security.

According to a report sponsored by Lumina Foundation for Education titled *"Nevada: Educational Needs Index State Report 2008"*, population growth and increasing population diversity in Nevada pose great challenges to meeting statewide educational needs. The study notes that the concentration of gaming and construction jobs creates an unusual dynamic of relatively competitive statistics on the economic indicators. At the same time, the state has highly critical statistics on the education indicators. Nevada is the most extreme example in the country of these two indicators not trending in similar directions[13].

Existing and Target Industry Clusters in Southern Nevada

The gaming and hospitality industry has been an integral part of Nevada's economy, employing almost 25 percent of the state's workforce and providing a major revenue source for the state.

The data provided by the *Cluster Mapping Project*, a project launched by The *Institute for Strategy and Competitiveness* at Harvard Business School to define clusters statistically and create objective, detailed profiles of regional economies across the United States, was used for this paper to analyze Nevada's existing industry clusters.

According to *the Cluster Mapping Project* data, the following local clusters in Nevada experienced the highest growth between 1998 and 2007. They currently represent the region's largest clusters (see Chart 1 at the end of this paper):

[13] *Nevada: Educational Needs Index State Report 2008. Sponsored by Lumina Foundation for Education.*

- Local Hospitality Establishments;
- Local Commercial Services and
- Local Real Estate, Construction and Development.

Additionally, the following high wage clusters that employ a large number of employees currently exist in Nevada (see Chart 2 at the end of this paper):

- Heavy Construction Services;
- Distribution Services;
- Financial Services;
- Metal Mining and
- Local Industrial Products and Services.

Future Targeted Industry Clusters in Southern Nevada

Southern Nevada has unique opportunities to develop AND attract a diverse set of clusters due to its location, favorable tax environment and the existing hospitality cluster. Recently, local governments, working through the Southern Nevada Regional Planning Commission, adopted a set of industry clusters as future targets for economic development and diversification.

This list of target industry clusters in Southern Nevada provided below is based on the research undertaken for the *Southern Nevada Regional Economic Study* prepared by Theodore Roosevelt Institute for the Southern Nevada Regional Planning Coalition in 2006. That study introduced a new methodology for identifying potential industry clusters, based on an analysis of the detailed inter-industry transactions data and what an economy could have (versus what it already has). Additionally, the study is considered the most comprehensive analysis of the potential clusters in Southern Nevada.

Thus, the research has identified the following future target industry clusters for Southern Nevada that build upon existing strengths[14] and present additional growth opportunities:

[14] *Southern Nevada Regional Economic Study, Alan Schlottmann et. al, prepared by Theodore Roosevelt Institute for Southern Nevada Regional Planning Commission, November 15, 2006.*

- ***Hospital and Health Related Cluster: Service Provision and Manufacturing***
  The hospital and health related cluster contains several sub-clusters within the targeted sectors. As the population increases in Southern Nevada, the region is likely to see a need for specialized treatment and wellness centers. As this cluster is developed, Southern Nevada could potentially develop a reputation as a "site for associated medical trials and testing"[15].

- ***Regional Offices Cluster: Southwestern and Other Headquarter Functions***
  The success of this cluster will be determined by Nevada's future population growth, as well as nearby states (e.g., California, Arizona, and Utah) and the favorable tax climate in Nevada.

- ***Homeland Security Cluster: Complementary Services and Manufacturing***
  Considering Southern Nevada's historical and projected demographic trends, this cluster can be considered as very appropriate for potential development targets.

- ***Research and Development Cluster: Synergistic & Complementary to Other Target Clusters***
  The development of this cluster ties directly to the development of other target clusters, such as "Hospitals and Health Related" and "Homeland Security" clusters.

- ***Education and Training Institutions Cluster***
  This cluster has significant potential in Southern Nevada since it allows the region to become more competitive with education and training institutions in Southern California. Additionally, as the region's population continues to grow, there will be more demand for services and establishments created as part of this cluster.

- ***Information and Communications Technology Cluster***
  An analysis of the *Bureau of Labor Statistics* employment data by major economic areas shows that total number of jobs by high tech occupation associated with major complexes of the Information and Communications Technology cluster is relatively small. Thus, the development of this cluster is possible for Southern Nevada.

[15] *Ibid.*

- ***Life Sciences Cluster***

  Based on the *Southern Nevada Regional Economic Study,* there are five potential opportunities for Southern Nevada within this cluster: pharmaceuticals, medical devices (including optics), instrumentation, diagnostics and biotechnology research and ancillary services.

- ***Selected Sustainability Technologies: Future Cluster Potential***

  Nevada is well positioned to tap into this market and develop renewable and alternative energy and environmental technologies.

It also needs to be noted that, as the identified clusters develop, there will be synergies within economic development. For example, the Homeland Security cluster ties directly to the development of the Regional Offices and Selected Sustainability Technologies clusters. Thus, public policies designed to develop the local economy should aim to exploit synergies between the identified industry clusters and related institutions (e.g., research institutions, higher education institutions, etc.).

Role of Higher Education in Southern Nevada in Attracting Industry Clusters

The lack of postsecondary achievement in Nevada has not generally been considered a serious problem because the state has become wealthy hosting the largest casino-resort industry in the world — an industry that does not require a college degree or even a high school degree for many of its jobs. However, there is increasing skepticism about Nevada's ability to sustain its prosperity with a one-dimensional economy built on consumer confidence and spending.

A number of analysts have noted various economic and social indicators that point to the need for Nevada to develop a more sustainable economy. Nevada has already experienced an increase in competition for its gaming revenues from the Internet, tribal casinos, foreign jurisdictions, like Macau, and other states that have legalized some forms of gambling[16].

[16] *Shaping Nevada's Future: What the State Can Do to Invest in College Access and Success. November 2008. A Report by Institute for Higher Education Policy.*

And, we anticipate that this competition will grow as states struggle with long-term budget deficits and the number of foreign jurisdictions expand, such as Singapore and even India.

Economic development professionals are becoming increasingly aware of the important link between higher education and Nevada's economic strength. Strong economies are characterized by an abundance of well-paying jobs. And, in a knowledge-based economy, well-paying jobs are held by individuals who have expertise and skills obtained through education beyond high school[17]. As shown below, the specific clusters targeted for the future economic development of Southern Nevada fit this observation and have occupations with significant educational requirements. Additionally, sustained economic development is not possible without a strong base of science and technology. There are a variety of studies that have documented higher growth in high-tech and related employment compared to employment in the rest of the economy over the last decade.

Based on the target clusters for Southern Nevada described above, it is important to evaluate major occupations required to support the identified clusters and their educational requirements. As can be seen in Tables 3 through 7 at the end of this white paper, the majority of occupations included in each identified cluster require at least a bachelor's degree.

Many analysts and policymakers believe it is in the interest of the state to evolve the economy by attracting new industries offering high-skilled, high-wage jobs. According to the Nevada Development Authority, initiatives are in place to attract industries—especially technology, biotech and renewable energy—that pay high salaries[18]. Unlike many jobs in the gaming and hospitality industries, the higher wage jobs in the new knowledge-based economy require significantly more postsecondary education.

Higher education will be a determining factor in preparing workers with the skills needed to adapt to changing job requirements of a rapidly changing global economy. Jobs that require higher education have higher earnings and see lower unemployment rates (see Charts 3

[17] *Noland, B., Davis, H., Kelly, P. The Changing Landscape of Human Capital: The Educational Needs Index. Paper presented at the Annual Conference of the Association for the Study of Higher Education Louisville, KY. November 10, 2007.*
[18] *Shaping Nevada's Future: What the State Can Do to Invest in College Access and Success. November 2008. A Report by Institute for Higher Education Policy.*

and 4 at the end of this paper). Over the last 20 years, jobs that require a bachelor's degree or higher experienced the highest increase in earnings. On the contrary, earnings for jobs with less than a high school diploma declined over the same time period.

According to the Bureau of Labor Statistics, unemployment rates for jobs that require higher education are lower when compared to jobs with less than high school (in 2009, an unemployment rate of 4.6 percent for bachelor's degree or higher and 14.6 percent for less than high school). Furthermore, an analysis of the top 5 states with the highest percentage of persons (population 25 years and over) with some college education or a college degree reveals that the average unemployment rate in 2009 was 5.4 percent compared to the U.S. average of 9.3 percent. Additionally, the 5 states with the lowest percentage of persons with some college education or a college degree experienced an average unemployment rate of 8.4 percent in 2009, or 56.6 percent higher than the top 5 states.[19].

According to the Bureau of Labor Statistics, unemployment rates for jobs that require higher education are lower when compared to jobs with less than high school (in 2009, an unemployment rate of 4.6 percent for bachelor's degree or higher and 14.6 percent for less than high school). Furthermore, an analysis of the top 5 states with the highest share of persons (population 25 years and over) with some college education or a college degree reveals that the average unemployment rate in 2009 was 5.4 percent compared to the U.S. average of 9.3 percent. Additionally, the 5 states with the lowest percentage of persons with some college education or a college degree experienced an average unemployment rate of 8.4 percent in 2009, or 56.6 percent higher than the top 5 states.

As will be discussed in a forthcoming white paper, the significantly lower unemployment rates among higher educated members of the labor force put significantly less stress on state unemployment claims and other social services. This point is particularly noteworthy for Nevada given the record-setting unemployment rate in the summer of 2010.

Although, there is some uncertainty in preparing population growth projections for Nevada since it is challenging to estimate the full impact of the Great Recession on the local economy, it is clear that with the projected growth that could reach 49.5 percent through

[19] *2008 American Community Survey and the Bureau of Labor Statistics.*

2028[20], higher education will have to play a critical role in the state's future success. As shown in Chart 5 at the end of this paper, a variety of Nevada occupations that require a college degree are projected to experience significant growth in the state over the 2006-2016 time period. For example, professional/computer/mathematical occupations are projected to grow by 44 percent over this period compared to a 33.6-percent increase in all the occupations. It is important to repeat the observation that these workforce occupations require significant levels of education and, in addition, support those clusters targeted for Southern Nevada's future.

There is no one set of policies that will make all clusters successful[21]. The higher education community in Nevada must work to promote and maintain informed public discussions about the role of higher education in the state[22].

Conclusions & Observations

Based upon the demographic and employment trends above, it will be increasingly important for Southern Nevada to develop cluster-based economic development strategies. Critical to a cluster-based economic development and diversification strategy is a clearly articulated policy priority for higher education investment[23].

Future economic development strategies in Southern Nevada focused on cluster development depend on necessary conditions that are multi-dimensional to achieve success. It is more complex for economic development policy to focus on groups of inter-related firms rather than individual companies[24]. As demonstrated by the data included in this paper, successful cluster development requires a critical foundation of higher education and the associated commitment by public policy. This is shown to be particularly true for the set of clusters identified as future development targets in Southern Nevada. This includes economic development related to a health cluster and targeted clusters in information technology, life sciences, office and security.

---

[20] Nevada State Demographer.
[21] Cortright, J. Making Sense of Clusters: Regional Competitiveness and Economic Development. March 2006. Metropolitan Policy Program. The Brookings Institute.
[22] Shaping Nevada's Future: What the State Can Do to Invest in College Access and Success. November 2008. A Report by Institute for Higher Education Policy.
[23] Ibid.
[24] Cortright, J. Making Sense of Clusters: Regional Competitiveness and Economic Development. March 2006. Metropolitan Policy Program. The Brookings Institution.

Cluster jobs related to higher education translate into higher-paying jobs. Given clusters and investments in higher education to support cluster development, this will also provide a wide range of support jobs for the entire labor force encompassing all skill levels in Southern Nevada.

Higher education, with its networks and linkages throughout the region and state, is uniquely positioned to bring together representatives from diverse business, community and governmental groups to create the collaborations needed to develop the industry clusters that ensure the long-term sustainability of the Southern Nevada and Nevada economies[25]. As discussed in this white paper, successful economic development efforts depend on high quality educational resources and workforce.

These issues underlie why states competing for jobs that will drive their economies in the future are looking to higher education as the critical component to train and produce the workforce needed for these jobs[26]. In this respect, an investment in a strong and high quality higher education system is an investment in the long-term economic evolution and sustainability of a state, with significant payoffs in the future[27].

[25] *The Role of Higher Education in Economic Development. Higher Education Alliance for the Rock River Region. Prepared by NIU Outreach. May, 2005, p. 8.*
[26] *Bell, J. D. Getting What You Pay For: Higher Education and Economic Development. Western Interstate Commission for Higher Education.*
[27] *Ibid.*

Appendix

TABLE 1: NEVADA INDUSTRIAL EMPLOYMENT AND PROJECTIONS, 2006-2016

NAICS Industry Code	Industry Title	2006 Employment	% of All Industries - Year 2006	2016 Employment	% of All Industries - Year 2016	2006 - 2016 Total Change	2006 - 2016 Percent Change	Average Annual Growth Rate
0	**Total Employment, All Jobs**	**1,355,108**	**100.0%**	**1,810,401**	**100.0%**	**455,293**	**33.6%**	**3.4%**
110000	Agriculture, Forestry, Fishing and Hunting	8,614	0.6%	9,359	0.5%	745	8.6%	0.9%
210000	Mining	11,442	0.8%	16,829	0.9%	5,387	47.1%	4.7%
220000	Utilities	5,028	0.4%	5,684	0.3%	656	13.0%	1.3%
230000	Construction	141,874	10.5%	197,838	10.9%	55,964	39.4%	3.9%
310000	Manufacturing	50,218	3.7%	67,440	3.7%	17,222	34.3%	3.4%
420000	Wholesale Trade	37,266	2.8%	51,745	2.9%	14,479	38.9%	3.9%
440000	Retail Trade	136,949	10.1%	185,600	10.3%	48,651	35.5%	3.6%
480000	Transportation and Warehousing	45,040	3.3%	61,984	3.4%	16,944	37.6%	3.8%
510000	Information	14,871	1.1%	17,278	1.0%	2,407	16.2%	1.6%
520000	Finance and Insurance	38,605	2.8%	50,207	2.8%	11,602	30.1%	3.0%
530000	Real Estate and Rental and Leasing	26,485	2.0%	26,606	1.5%	121	0.5%	0.0%
540000	Professional, Scientific, and Technical Services	53,206	3.9%	66,392	3.7%	13,186	24.8%	2.5%
550000	Management of Companies and Enterprises	13,447	1.0%	16,340	0.9%	2,893	21.5%	2.2%
560000	Administrative and Support and Waste Management and Remediation Services	87,903	6.5%	117,551	6.5%	29,648	33.7%	3.4%
610000	Educational Services	69,517	5.1%	88,187	4.9%	18,670	26.9%	2.7%
620000	Health Care and Social Assistance	88,638	6.5%	118,552	6.5%	29,914	33.7%	3.4%
710000	Arts, Entertainment, and Recreation	29,869	2.2%	35,216	1.9%	5,347	17.9%	1.8%
720000	Accommodation and Food Services	306,852	22.6%	423,432	23.4%	116,580	38.0%	3.8%
810000	Other Services (Except Government)	28,319	2.1%	36,721	2.0%	8,402	29.7%	3.0%
900000	Government	75,431	5.6%	97,849	5.4%	22,418	29.7%	3.0%
930000	Local, Excluding Education and Hospitals	42,876	3.2%	60,010	3.3%	17,134	40.0%	4.0%

Source: DETR.

TABLE 2: NEVADA OCCUPATIONAL EMPLOYMENT AND PROJECTIONS, 2006-2016

Occupational Code	Occupation Title	2006 Employment	% of All Occupations - Year 2006	2016 Employment	% of All Occupations - Year 2016	Total Annual Openings	2006 - 2016 Percent Change	Average Annual Growth Rate
100000	**Total, All Occupations**	**1,355,108**	**100.0%**	**1,810,401**	**100.0%**	**34,348**	**33.6%**	**3.4%**
110000	Management Occupations	67,453	5.0%	91,034	5.0%	3,610	35.0%	3.5%
130000	Business and Financial Operations Occupations	40,385	3.0%	54,543	3.0%	2,146	35.1%	3.5%
150000	Professional And Related Occupations	12,866	0.9%	18,532	1.0%	733	44.0%	4.4%
170000	Architecture and Engineering Occupations	16,737	1.2%	22,187	1.2%	913	32.6%	3.3%
190000	Life, Physical, and Social Science Occupations	7,823	0.6%	10,168	0.6%	425	30.0%	3.0%
210000	Community and Social Services Occupations	8,787	0.6%	11,743	0.6%	463	33.6%	3.4%
230000	Legal Occupations	9,599	0.7%	12,152	0.7%	366	26.6%	2.7%
250000	Education, Training, and Library Occupations	47,137	3.5%	62,105	3.4%	2,506	31.8%	3.2%
270000	Arts, Design, Entertainment, Sports, and Media Occupations	20,612	1.5%	27,271	1.5%	1,072	32.3%	3.2%
290000	Healthcare Practitioners and Technical Occupations	42,966	3.2%	58,453	3.2%	2,351	36.0%	3.6%
310000	Healthcare Support Occupations	21,520	1.6%	30,593	1.7%	1,281	42.2%	4.2%
330000	Protective Service Occupations	36,717	2.7%	47,137	2.6%	2,032	28.4%	2.8%
350000	Food Preparation and Serving Related Occupations	165,536	12.2%	225,640	12.5%	12,552	36.3%	3.6%
370000	Building and Grounds Cleaning and Maintenance Occupations	78,638	5.8%	108,116	6.0%	4,529	37.5%	3.7%
390000	Personal Care and Service Occupations	79,133	5.8%	109,839	6.1%	2,510	4.7%	0.5%
410000	Sales and Related Occupations	142,272	10.5%	186,444	10.3%	9,201	31.2%	3.1%
430000	Office and Administrative Support Occupations	204,873	15.1%	252,334	13.9%	9,805	24.0%	2.4%
450000	Farming, Fishing, and Forestry Occupations	6,328	0.5%	7,042	0.4%	247	11.3%	1.1%
470000	Construction and Extraction Occupations	139,422	10.3%	198,267	11.0%	8,778	42.2%	4.2%
490000	Installation, Maintenance, and Repair Occupations	53,385	3.9%	72,366	4.0%	3,119	35.6%	3.6%
510000	Production Occupations	47,889	3.5%	64,139	3.5%	2,805	34.2%	3.4%
530000	Transportation and Material Moving Occupations	105,030	7.8%	140,296	7.7%	5,956	33.7%	3.4%

Source: DETR.

TABLE 3: NEVADA HEALTH CLUSTER DEVELOPMENT TARGET: EDUCATIONAL CHARACTERISTICS OF KEY OCCUPATIONS

SOC Code	SOC Title	Median Annual Earnings (May 2009)	Principal Education and/or Training Requirement	Education Cluster
29-1020	Dentists		First professional degree	
29-1021	Dentists, general	$142,090	First professional degree	C
29-1022	Oral & maxillofacial surgeons		First professional degree	C
29-1023	Orthodontists		First professional degree	C
29-1024	Prosthodontists	$111,110	First professional degree	C
29-1029	Dentists, all other specialists	$153,290	First professional degree	C
19-1042	Medical Scientists, Except Epidemiologists	$74,590	Doctoral degree	C
29-1060	Physicians & surgeons		First professional degree	C
29-1062	Family & General Practitioners	$160,530	First professional degree	
29-1063	Internists, General		First professional degree	
29-1067	Surgeons		First professional degree	
29-1051	Pharmacists	$109,180	First professional degree	C
11-9121	Natural Sciences Managers	$114,560	Bachelor's or higher degree, plus work experience	C
17-2051	Civil Engineers	$76,590	Bachelor's degree	C
17-2081	Environmental Engineers	$77,040	Bachelor's degree	C
17-1011	Architects, Except Landscape & Naval	$72,700	Bachelor's degree	C
11-9041	Engineering Managers	$117,000	Bachelor's or higher degree, plus work experience	C
15-1031	Computer Software Engineers, Applications	$87,480	Bachelor's degree	C
15-1032	Computer Software Engineers, Systems Software	$93,470	Bachelor's degree	C
17-2071	Electrical Engineers	$83,110	Bachelor's degree	C
17-2072	Electronics Engineers, Except Computer	$89,310	Bachelor's degree	C
17-2141	Mechanical Engineers	$77,020	Bachelor's degree	C

Continued on the next page.

TABLE 3 (CONT.): NEVADA HEALTH CLUSTER DEVELOPMENT TARGET: EDUCATIONAL CHARACTERISTICS OF KEY OCCUPATIONS

SOC Code	SOC Title	Median Annual Earnings (May 2009)	Principal Education and/or Training Requirement	Education Cluster
13-1111	Management Analysts	$75,250	Bachelor's or higher degree, plus work experience	C
13-2011	Accountants & Auditors	$60,340	Bachelor's degree	C
15-1021	Computer Programmers	$70,940	Bachelor's degree	SC/C
11-3021	Computer & Information Systems Managers	$113,720	Bachelor's or higher degree, plus work experience	SC/C
17-2112	Industrial Engineers	$75,110	Bachelor's degree	SC/C
15-1051	Computer Systems Analysts	$77,080	Bachelor's degree	SC/C
11-9111	Medical & Health Services Managers	$81,850	Bachelor's or higher degree, plus work experience	SC/C
15-1081	Network Systems & Data Communications Analysts	$73,250	Bachelor's degree	SC/C
19-4021	Biological Technicians	$38,700	Bachelor's degree	HS/SC/C
29-1111	Registered Nurses	$63,750	Associate degree	SC/C
11-1021	General & Operations Managers	$92,650	Bachelor's or higher degree, plus work experience	HS/SC/C
29-2011	Medical & Clinical Laboratory Technologists	$55,140	Bachelor's degree	SC/C
29-2012	Medical & Clinical Laboratory Technicians	$36,030	Associate degree	SC/C
43-1011	First-Line Supervisors/Managers of Office/Admin Worke	$46,910	Work experience in a related occupation	HS/SC/C
19-4031	Chemical Technicians	$42,070	Associate degree	HS/SC/C
17-3011	Architectural & Civil Drafters	$45,600	Postsecondary vocational award	SC/C
17-3012	Electrical & Electronics Drafters	$52,080	Postsecondary vocational award	SC/C
17-3013	Mechanical Drafters	$47,790	Postsecondary vocational award	SC/C
17-3022	Civil Engineering Technicians	$45,970	Associate degree	HS/SC
17-3023	Electrical & Electronic Engineering Technicians	$54,820	Associate degree	HS/SC
17-3026	Industrial Engineering Technicians	$46,760	Associate degree	HS/SC
17-3027	Mechanical Engineering Technicians	$48,970	Associate degree	HS/SC
51-1011	First-Line Supervisors/Managers of Production/Operatir	$52,060	Work experience in a related occupation	HS/SC
17-3031	Surveying & Mapping Technicians	$37,190	Moderate-term on-the-job training	HS/SC
47-2111	Electricians	$47,180	Long-term on-the-job training	HS/SC

*Source: Current Population Survey, May 2009, U.S. Bureau of Labor Statistics. O*NET OnLine.*
Note: Education cluster codes from the US Bureau of Labor Statistics are as follows: HS (high school occupations); SC (some college occupations); C (college occupations).

TABLE 4: NEVADA INFORMATION TECHNOLOGY CLUSTER DEVELOPMENT TARGET: EDUCATIONAL CHARACTERISTICS OF KEY OCCUPATIONS

SOC Code	SOC Title	Median Annual Earnings (May 2009)	Principal Education and/or Training Requirement	Education Cluster
11-9041	Engineering Managers	$117,000	Bachelor's or higher degree, plus work experience	C
15-1031	Computer Software Engineers, Applications	$87,480	Bachelor's degree	C
15-1032	Computer Software Engineers, Systems Software	$93,470	Bachelor's degree	C
17-2071	Electrical Engineers	$83,110	Bachelor's degree	C
19-3021	Market Research Analysts	$61,580	Bachelor's degree	C
13-1111	Management Analysts	$75,250	Bachelor's or higher degree, plus work experience	C
13-2011	Accountants & Auditors	$60,340	Bachelor's degree	C
15-1021	Computer Programmers	$70,940	Bachelor's degree	SC/C
11-3021	Computer & Information Systems Managers	$113,720	Bachelor's or higher degree, plus work experience	SC/C
17-2112	Industrial Engineers	$75,110	Bachelor's degree	SC/C
17-2061	Computer Hardware Engineers	$98,820	Bachelor's degree	SC/C
11-1011	Chief Executives	$160,720	Bachelor's or higher degree, plus work experience	SC/C
15-1051	Computer Systems Analysts	$77,080	Bachelor's degree	SC/C
15-1081	Network Systems & Data Communications Analysts	$73,250	Bachelor's degree	SC/C
11-3031	Financial Managers	$101,190	Bachelor's or higher degree, plus work experience	SC/C
11-1021	General & Operations Managers	$92,650	Bachelor's or higher degree, plus work experience	HS/SC/C
43-1011	First-Line Supervisors/Managers of Office/Admin Suppc	$46,910	Work experience in a related occupation	HS/SC/C

*Source: Current Population Survey, May 2009, U.S. Bureau of Labor Statistics. O*NET OnLine.*
Note: Education cluster codes from the US Bureau of Labor Statistics are as follows: HS (high school occupations); SC (some college occupations); C (college occupations).

TABLE 5: NEVADA LIFE SCIENCES CLUSTER DEVELOPMENT TARGET: EDUCATIONAL CHARACTERISTICS OF KEY OCCUPATIONS

SOC Code	SOC Title	Median Annual Earnings (May 2009)	Principal Education and/or Training Requirement	Education Cluster
19-1042	Medical Scientists, Except Epidemiologists	$74,590	Doctoral degree	C
19-2031	Chemists	$68,220	Bachelor's degree	C
17-2041	Chemical Engineers	$88,280	Bachelor's degree	C
11-9121	Natural Sciences Managers	$114,560	Bachelor's or higher degree, plus work experience	C
11-9041	Engineering Managers	$117,000	Bachelor's or higher degree, plus work experience	C
17-2011	Aerospace Engineers	$94,780	Bachelor's degree	C
15-1031	Computer Software Engineers, Applications	$87,480	Bachelor's degree	C
15-1032	Computer Software Engineers, Systems Software	$93,470	Bachelor's degree	C
17-2071	Electrical Engineers	$83,110	Bachelor's degree	C
17-2072	Electronics Engineers, Except Computer	$89,310	Bachelor's degree	C
17-2141	Mechanical Engineers	$77,020	Bachelor's degree	C
13-2011	Accountants & Auditors	$60,340	Bachelor's degree	C
15-1021	Computer Programmers	$70,940	Bachelor's degree	SC/C
11-3021	Computer & Information Systems Managers	$113,720	Bachelor's or higher degree, plus work experience	SC/C
17-2112	Industrial Engineers	$75,110	Bachelor's degree	SC/C
17-2061	Computer Hardware Engineers	$98,820	Bachelor's degree	SC/C
17-2131	Materials Engineers	$83,190	Bachelor's degree	SC/C
15-1051	Computer Systems Analysts	$77,080	Bachelor's degree	SC/C
15-1081	Network Systems & Data Communications Analysts	$73,250	Bachelor's degree	SC/C
17-2031	Biomedical Engineers	$78,860	Bachelor's degree	SC/C
19-4021	Biological Technicians	$38,700	Bachelor's degree	HS/SC/C
11-3031	Financial Managers	$101,190	Bachelor's or higher degree, plus work experience	SC/C
11-1021	General & Operations Managers	$92,650	Bachelor's or higher degree, plus work experience	HS/SC/C
11-3051	Industrial Production Managers	$85,080	Work experience in a related occupation	HS/SC/C
13-1023	Purchasing Agents, Except Wholesale, Retail, & Farm	$54,810	Long-term on-the-job training	HS/SC/C
43-1011	First-Line Supervisors/Managers of Office & Admin Sup	$46,910	Work experience in a related occupation	HS/SC/C
19-4031	Chemical Technicians	$42,070	Associate degree	HS/SC/C
17-3012	Electrical & Electronics Drafters	$52,080	Postsecondary vocational award	SC/C
17-3013	Mechanical Drafters	$47,790	Postsecondary vocational award	SC/C
17-3023	Electrical & Electronic Engineering Technicians	$54,820	Associate degree	HS/SC
17-3026	Industrial Engineering Technicians	$46,760	Associate degree	HS/SC
17-3027	Mechanical Engineering Technicians	$48,970	Associate degree	HS/SC
51-1011	First-Line Supervisors/Managers of Production/Operatir	$52,060	Work experience in a related occupation	HS/SC
47-2111	Electricians	$47,180	Long-term on-the-job training	HS/SC

*Source: Current Population Survey, May 2009, U.S. Bureau of Labor Statistics. O*NET OnLine.*
Note: Education cluster codes from the US Bureau of Labor Statistics are as follows: HS (high school occupations); SC (some college occupations); C (college occupations).

TABLE 6: NEVADA OFFICES CLUSTER DEVELOPMENT TARGET: EDUCATIONAL CHARACTERISTICS OF KEY OCCUPATIONS

SOC Code	SOC Title	Median Annual Earnings (May 2009)	Principal Education and/or Training Requirement	Education Cluster
13-2051	Financial Analysts	$73,670	Bachelor's degree	C
15-1031	Computer Software Engineers, Applications	$87,480	Bachelor's degree	C
15-1032	Computer Software Engineers, Systems Software	$93,470	Bachelor's degree	C
13-1111	Management Analysts	$75,250	Bachelor's or higher degree, plus work experience	C
13-2011	Accountants & Auditors	$60,340	Bachelor's degree	C
15-1021	Computer Programmers	$70,940	Bachelor's degree	SC/C
11-3021	Computer & Information Systems Managers	$113,720	Bachelor's or higher degree, plus work experience	SC/C
11-1011	Chief Executives	$160,720	Bachelor's or higher degree, plus work experience	SC/C
41-3031	Securities, Commodities, & Financial Services Sales Ag	$66,930	Bachelor's degree	SC/C
15-1051	Computer Systems Analysts	$77,080	Bachelor's degree	SC/C
13-2041	Credit Analysts	$57,470	Bachelor's degree	SC/C
13-2053	Insurance Underwriters	$57,820	Bachelor's degree	SC/C
15-1081	Network Systems & Data Communications Analysts	$73,250	Bachelor's degree	SC/C
11-3031	Financial Managers	$101,190	Bachelor's or higher degree, plus work experience	SC/C
29-1111	Registered Nurses	$63,750	Associate degree	SC/C
13-2072	Loan Officers	$54,880	Moderate-term on-the-job training	SC/C
11-1021	General & Operations Managers	$92,650	Bachelor's or higher degree, plus work experience	HS/SC/C
13-1031	Claims Adjusters, Examiners, & Investigators	$57,130	Long-term on-the-job training	HS/SC/C
11-3011	Administrative Services Managers	$75,520	Bachelor's or higher degree, plus work experience	SC/C
41-1012	First-Line Supervisors/Managers of Non-Retail Sales W	$67,470	Work experience in a related occupation	HS/SC/C
43-1011	First-Line Supervisors/Managers of Office & Admin Sup	$46,910	Work experience in a related occupation	HS/SC/C

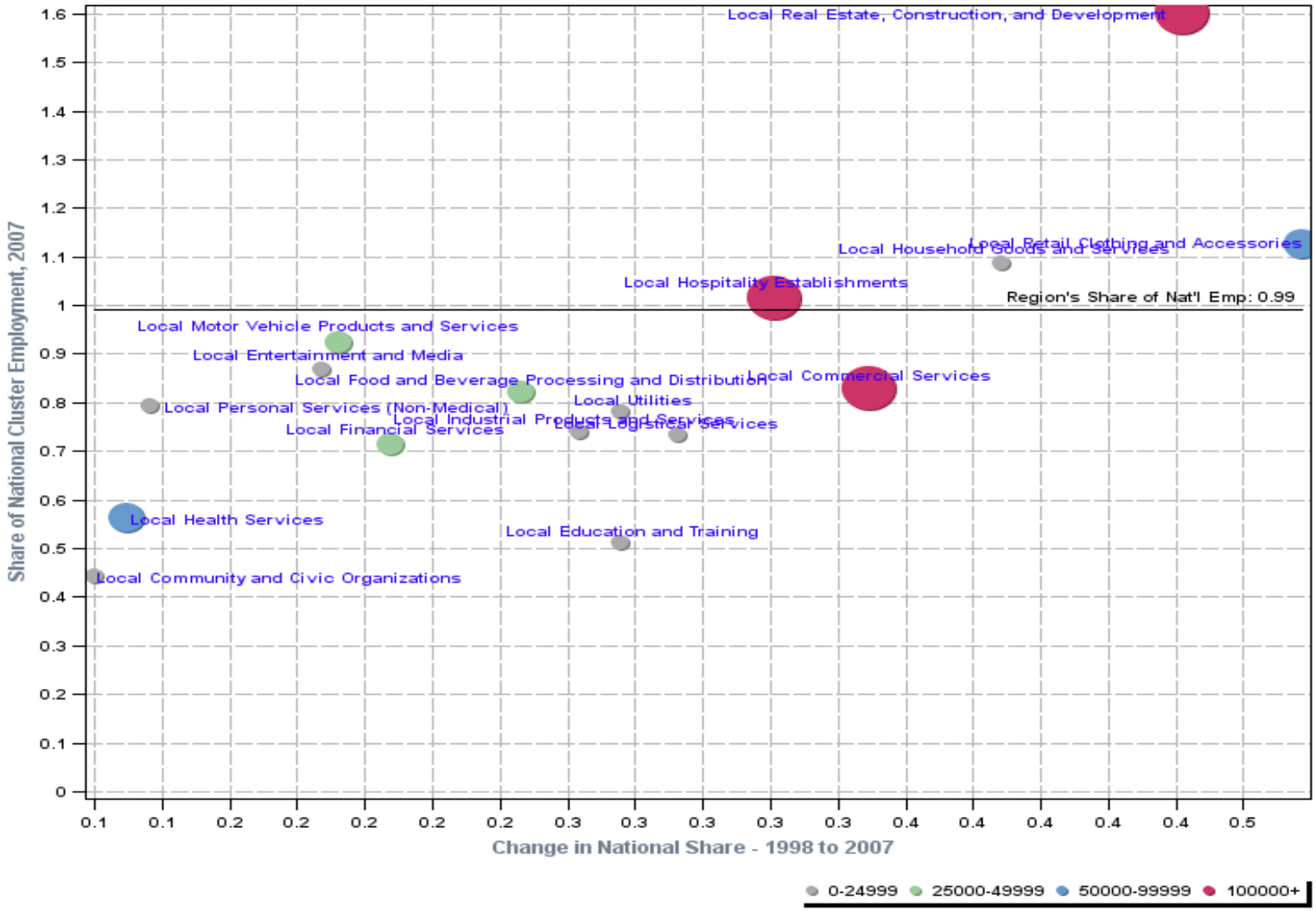
*Source: Current Population Survey, May 2009, U.S. Bureau of Labor Statistics. O*NET OnLine.*
Note: Education cluster codes from the US Bureau of Labor Statistics are as follows: HS (high school occupations); SC (some college occupations); C (college occupations).

TABLE 7: NEVADA SECURITY CLUSTER DEVELOPMENT TARGET: EDUCATIONAL CHARACTERISTICS OF KEY OCCUPATIONS

SOC Code	SOC Title	Annual Earnings (May 2009)	Principal Education and/or Training Requirement	Education Cluster
11-9041	Engineering Managers	$117,000	Bachelor's or higher degree, plus work experience	C
17-2011	Aerospace Engineers	$94,780	Bachelor's degree	C
15-1031	Computer Software Engineers, Applications	$87,480	Bachelor's degree	C
15-1032	Computer Software Engineers, Systems Software	$93,470	Bachelor's degree	C
17-2071	Electrical Engineers	$83,110	Bachelor's degree	C
17-2072	Electronics Engineers, Except Computer	$89,310	Bachelor's degree	C
17-2141	Mechanical Engineers	$77,020	Bachelor's degree	C
19-3021	Market Research Analysts	$61,580	Bachelor's degree	C
13-1111	Management Analysts	$75,250	Bachelor's or higher degree, plus work experience	C
13-2011	Accountants & Auditors	$60,340	Bachelor's degree	C
15-1021	Computer Programmers	$70,940	Bachelor's degree	SC/C
11-3021	Computer & Information Systems Managers	$113,720	Bachelor's or higher degree, plus work experience	SC/C
17-2112	Industrial Engineers	$75,110	Bachelor's degree	SC/C
17-2061	Computer Hardware Engineers	$98,820	Bachelor's degree	SC/C
11-1011	Chief Executives	$160,720	Bachelor's or higher degree, plus work experience	SC/C
15-1051	Computer Systems Analysts	$77,080	Bachelor's degree	SC/C
15-1081	Network Systems & Data Communications Analysts	$73,250	Bachelor's degree	SC/C
11-3031	Financial Managers	$101,190	Bachelor's or higher degree, plus work experience	SC/C
11-1021	General & Operations Managers	$92,650	Bachelor's or higher degree, plus work experience	HS/SC/C
11-3051	Industrial Production Managers	$85,080	Work experience in a related occupation	HS/SC/C
13-1023	Purchasing Agents, Except Wholesale, Retail, & Farm	$54,810	Long-term on-the-job training	HS/SC/C
43-1011	First-Line Supervisors/Managers of Office & Admin Sup	$46,910	Work experience in a related occupation	HS/SC/C
17-3012	Electrical & Electronics Drafters	$52,080	Postsecondary vocational award	SC/C
17-3013	Mechanical Drafters	$47,790	Postsecondary vocational award	SC/C
17-3023	Electrical & Electronic Engineering Technicians	$54,820	Associate degree	HS/SC
17-3026	Industrial Engineering Technicians	$46,760	Associate degree	HS/SC
17-3027	Mechanical Engineering Technicians	$48,970	Associate degree	HS/SC
51-1011	First-Line Supervisors/Managers of Production/Operatir	$52,060	Work experience in a related occupation	HS/SC

*Source: Current Population Survey, May 2009, U.S. Bureau of Labor Statistics. O*NET OnLine.*
Note: Education cluster codes from the US Bureau of Labor Statistics are as follows: HS (high school occupations); SC (some college occupations); C (college occupations).

CHART 1: NEVADA SPECIALIZATION BY LOCAL CLUSTER (1998-2007)

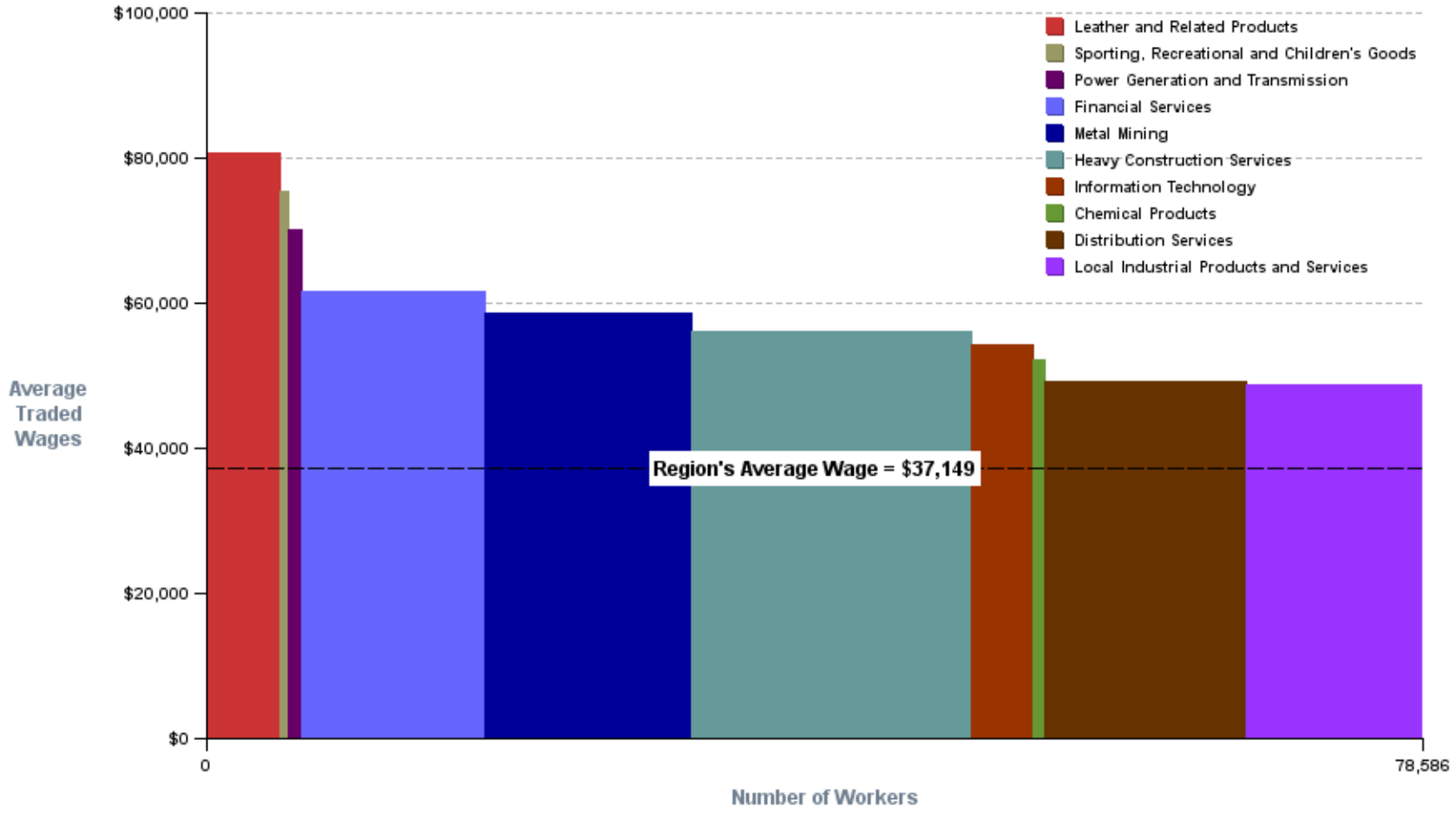


Source: Harvard Business School. Institute for Strategy and Competitiveness. Cluster Mapping Project Data.

WHITE PAPER 1
HIGHER EDUCATION AND ECONOMIC DEVELOPMENT:
THE NECESSARY FOUNDATION

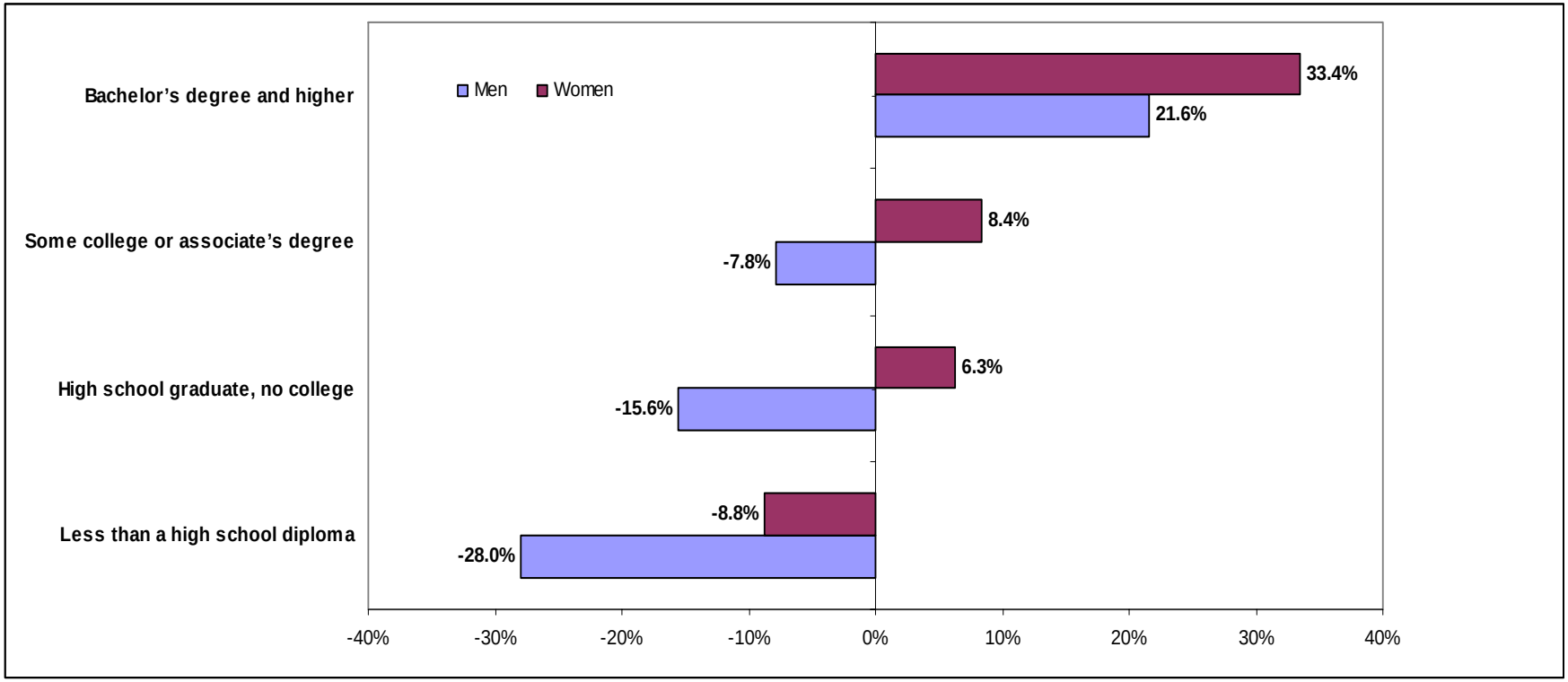
According to Harvard Business School, Institute for Strategy and Competitiveness, local clusters are made up of local industries. "Local industries provide goods and services almost exclusively for the area in which they are located, which explains why they must spread all across the country. Indeed, local industries show employment in every region, regardless of the natural or competitive advantages of a particular location. As a result, their regional employment should be roughly proportional to regional population, so that the most highly populated states like California, New York, Texas, and Florida will figure as the top local employment states".

CHART 2: NEVADA EMPLOYMENT IN HIGH WAGE CLUSTERS (2007)



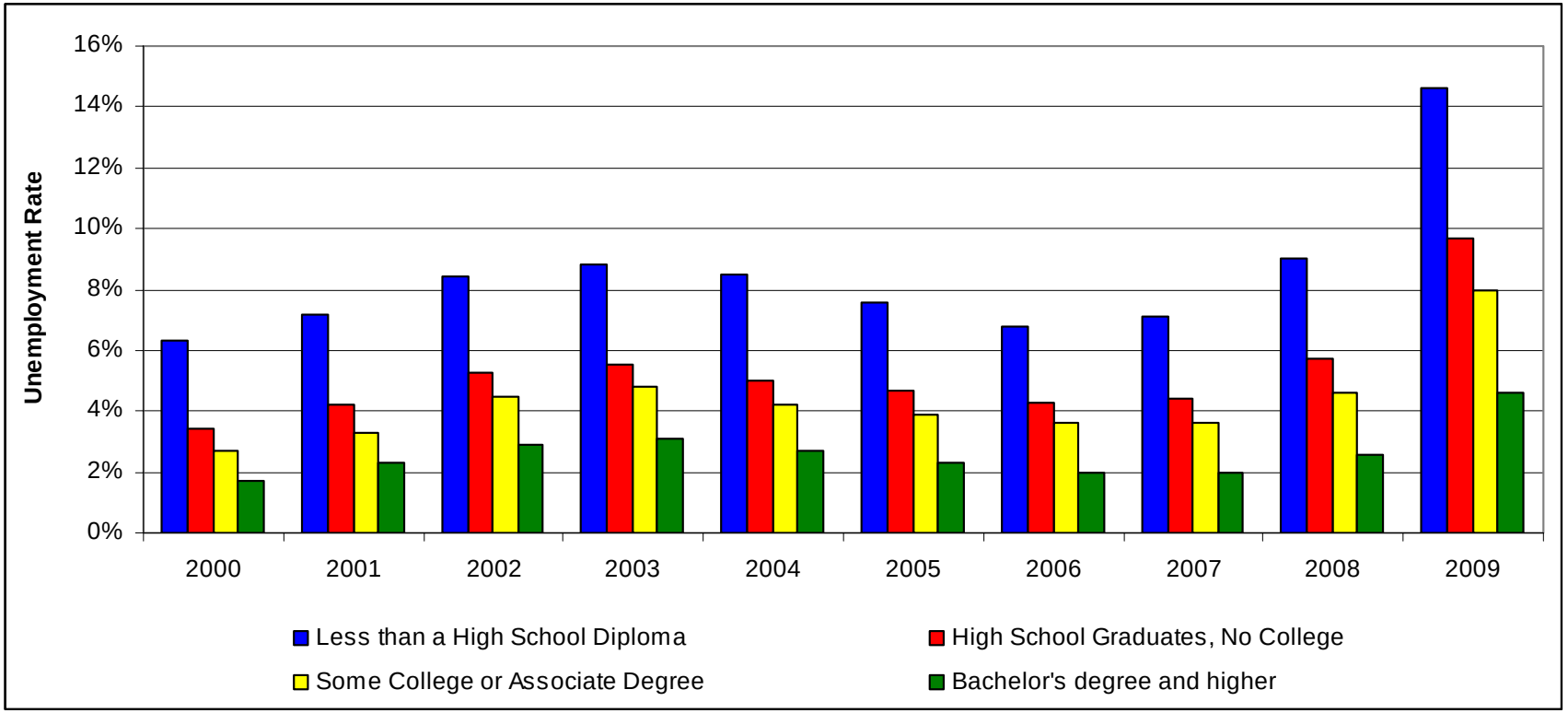
Source: Harvard Business School. Institute for Strategy and Competitiveness. Cluster Mapping Project Data.

CHART 3: U.S. AVERAGE % CHANGE OF CONSTANT DOLLAR MEDIAN USUAL WEEKLY EARNINGS, BY EDUCATION ATTAINMENT AND SEX (1979-2009)



Source: Current Population Survey, May 2009, U.S. Bureau of Labor Statistics.
Note: Data relate to earnings of full-time wage and salary workers 25 years and older.

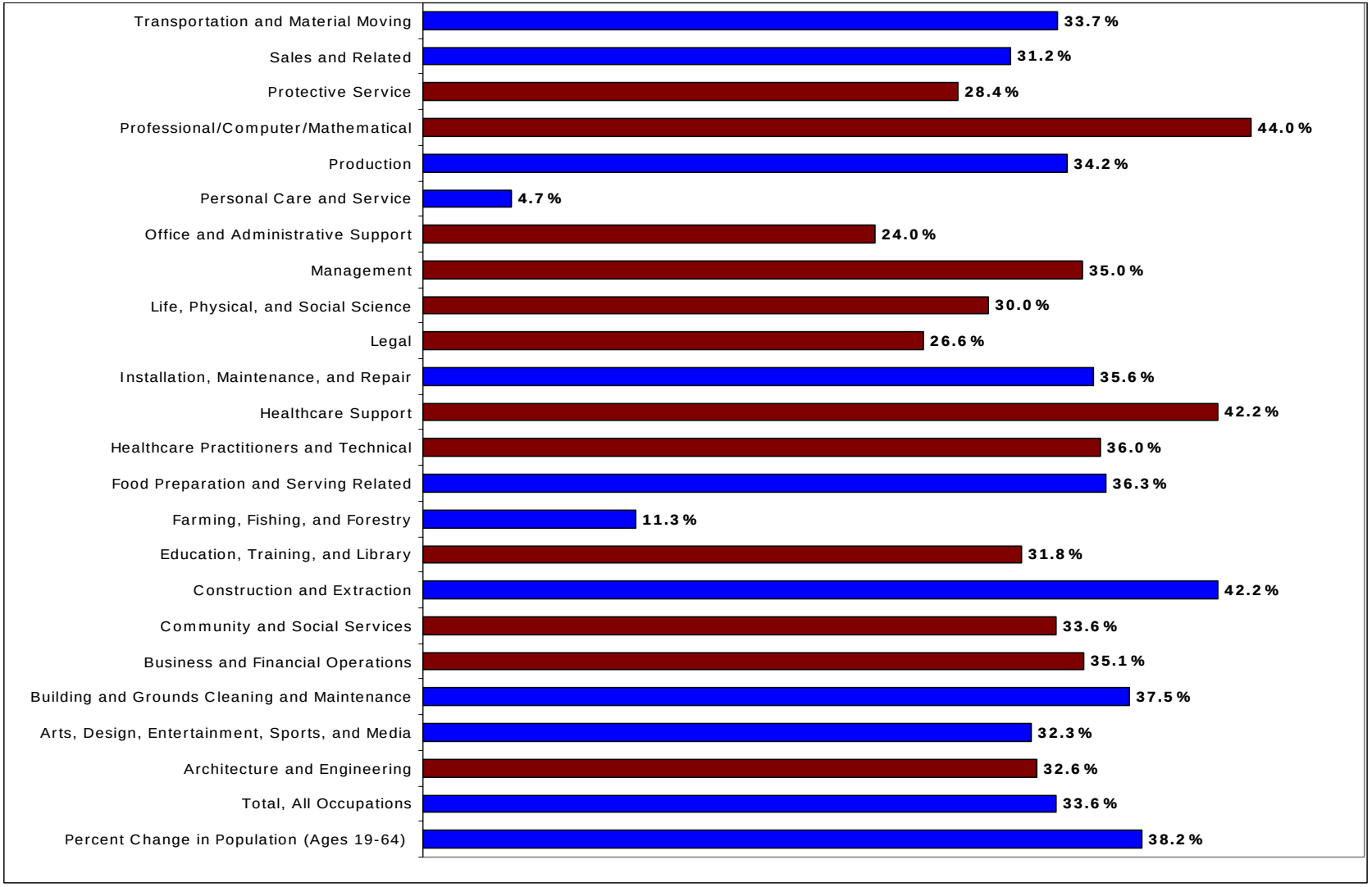
CHART 4: U.S. AVERAGE UNEMPLOYMENT RATE BY EDUCATION ATTAINMENT (2000-2009)



(SEASONALLY UNADJUSTED DATA)

Source: Current Population Survey, May 2009, U.S. Bureau of Labor Statistics.
Note: Data relate to unemployment rate of people 25 years and older.

CHART 5: CHANGE IN NEVADA'S WORKFORCE AND POPULATION AGES 19-64 (2006-2016)



Source: DETR, Nevada State Demographer. ***Note: The bars in red show the fields that require a college degree.***