Notice of Meeting and Agenda for Board Retreat of the
Board of Directors of Nevada Public Agency Insurance Pool and
the Board of Trustees of Public Agency Compensation Trust
Location: Eureka Opera House, Eureka, Nevada
Dates and Times: November 17, 2014: 8:30 a.m. to 5:00 p.m.
                        November 18, 2014: 8:30 a.m. to 12:00 p.m.

AGENDA

Notices:
1. Items on the agenda may be taken out of order;
2. Two or more items on the agenda may be combined for consideration
3. Any item on the agenda may be removed or discussion may be delayed at any time
4. The general Public Comment periods are limited to those items not listed on the agenda. Public Comment periods are devoted to comments by the general public, if any, and may include discussion of those comments; however, no action make be taken upon a matter raised under Public Comments until the matter itself has been included specifically on an agenda as an item upon which action may be taken.
5. At the discretion of the Chair of the meeting, public comments on specific agenda items may be allowed, but must be limited to the specific agenda item.
6. Times shown are approximate and may be changed to accommodate flow of retreat discussions

---

A board retreat depends on the ability of participants to engage in open and free discourse and to explore for consensus wherever the discussions may wander. It is possible that as a result of retreat discussion, reasonable setting of general priorities, goals and principles of conduct will occur as a natural outcome. Therefore, each topic on this agenda may result in a possible consensus or possible action of a general nature. Specific administrative determinations to implement the general consensus or possible action will be scheduled for discussion or action on a subsequent meeting agenda.

Monday, November 17, 2014:

7:30 a.m. – 8:15 a.m. Breakfast

8:30 a.m. – **1. Public Comment**

2. For Possible Action:
        Replay Scenarios from Board Workshop
        Review/revise Scenario Workshop Summaries
        Discuss themes arising from scenarios
        What themes are most important for POOL/PACT to consider?
        What themes are most important for Members to consider?

10:00 a.m. – 10:15 a.m. Break

3. For Possible Action: Scenario Results: Impact on POOL/PACT Roundtable discussions

12:15 p.m. – 1:15 p.m. Lunch

1:15 p.m. - **4. For Possible Action:** Scenario Results: Impact on POOL/PACT Roundtable discussions

Break 2:30 p.m. – 2:45 p.m.

5. For Possible Action: Scenario Results: Impact on Mission, Vision, Motto, Values

6. For Possible Action: Scenario Results: Impact on POOL/PACT Financial/Investment Strategies

7. Public Comment

5:15 p.m. **Special Event**

6:30 p.m**. Dinner**

Tuesday, November 18, 2014

7:30 a.m. – 8:15 a.m. Breakfast

8:30 a.m. – **1. Public Comment**

2. For Possible Action:
 Evolution of Learning Management Systems and Training Methodologies
 Review of Web based Services to Benefit Members
 Claims Issues

10:00 a.m. – 10:15 a.m. Break

3. For Possible Action: Reimagining Future for POOL/PACT - Roundtable discussions
 ➢ Based on scenario workshop 2030 discussions: What do members expect and need? Can pool help? Interlocal cooperation services?
 ➢ Can we do comprehensive wellness strategies for all employees in pools including police/fire using CWP approach; partner with health insurers to use our wellness strategies for members www.tomypath.com (laura@vsbit.org)
 ➢ Community safety coordinators (model after www.njsafetyinstitute.org)?
 ➢ Public officials and managers training on governance, board-staff relations, etc. in connection with UNR CPO program

4. Closing Remarks

5. Public Comment

12:00 p.m. **Retreat Concludes; adjournment; lunch**

This Agenda was posted at the following locations:

N.P.A.I.P. / P.A.C.T.
201 S. Roop Street, Suite 102
Carson City, NV   89701

Carson City Courthouse
885 E. Musser Street
Carson City, NV   89701

Eureka County Courthouse
10 S. Main Street
Eureka, NV   89316

Churchill County Courthouse
155 North Taylor Street
Fallon, NV   89406

NOTICE TO PERSONS WITH DISABILITIES

Members of the public who are disabled and require special accommodations or assistance at the meeting are requested to notify the Nevada Public Agency Insurance Pool or Public Agency Compensation Trust in writing at 201 S. Roop Street, Suite 102, Carson City, NV 89701, or by calling (775) 885-7475 at least three working days prior to the meeting.

Comparative Matrix

Scenario	1: Comeback?	2: Dark Decades	3: Equitable Economy	4: Creative Communities
Economy & Jobs	▪ Gradual recovery, but many lost jobs never come back ▪ Jobs generally available for people with higher qualifications ▪ United States still a major economic power, but becoming less competitive ▪ Budget cuts to deal with government debt crimp investment in innovation and infrastructure ▪ Unemployment declines to 7%, resists further improvement, persists higher in some regions, and for minorities and less educated ▪ Automation replaces jobs in manufacturing, services and knowledge work ▪ Minimum wage rises but fails to keep pace with inflation ▪ Income inequality remains high ▪ Programs aimed at vulnerable populations continue but fall behind inflation as budgets are cut	▪ Double-dip recession drags on ▪ Peaking of global oil production spikes energy prices, hinders growth ▪ U.S. competitiveness plummets ▪ 10–15% unemployment is increasingly structural with competition, outsourcing, rapid automation, slashing of public sector jobs, and an ill-prepared workforce ▪ U.S. income inequality increases to all-time high ▪ No increase in minimum wage ▪ Earned income tax credit, food stamps, Medicaid, child care, and other programs aimed at vulnerable populations are reduced	▪ Slow recovery in 2010–2012 followed by larger decline into a true Depression ▪ Depression galvanizes government action and value shift toward greater emphasis on fairness ▪ Growing inequalities in income and wealth no longer tolerated ▪ Bipartisan agreements on economic development and equity policies ▪ Investment in education, innovation, and infrastructure as economy improves ▪ Unemployment spikes but declines to 5% by 2025 ▪ Manufacturing recovers as United States becomes leader in green energy and clean tech ▪ Income inequality declines ▪ Minimum wage rises with inflation ▪ Many states enact "living wage" and/or experiment with negative income tax ▪ Financial reforms: financial transaction tax & consumer credit regulation, creation of state-owned banks on model of Bank of North Dakota to assure credit availability	▪ With federal government action significantly constrained, Americans seek solutions closer to home ▪ Advanced technologies allow local manufacturing and create local jobs ▪ Revival of small farms with sustainable agriculture increases farm employment ▪ Urban agriculture with hydroponic and aeroponic indoor growing ▪ Networking among communities in United States and globally highlights successful strategies for community-building, job creation, education, housing, innovation support and child services ▪ Federal funding focuses on local efforts and on "what works" ▪ Rapid growth of "collaborative consumption" (vehicle sharing, social lending platforms, open barter networks, peer-to-peer currencies, reuse networks, swap trading, etc.) and "time banks" where members exchange services
The economy's impact on vulnerability	– – (Recession) + (Post-Recession)	– – –	– – – (Depression) + + (Post-Depression)	+ + +

Comparative Matrix (continued)

Scenario	1: Comeback?	2: Dark Decades	3: Equitable Economy	4: Creative Communities
Education	■ Race to the Top drives innovation ■ Charter schools grow; public schools improve ■ Teacher unions support performance-based compensation ■ Traditional higher education costs keep increasing, but post-secondary options like online courses, junior colleges and trade schools proliferate ■ Internet and social networking integrated into classrooms ■ Family support for education grows ■ High school graduation rate increases	■ Private and charter schools grow; regular public schools decline ■ Increasing college tuition with decreasing federal funds force many in vulnerable populations to give up on education goals ■ Large educational disparities further lock in economic disparities ■ Family support for education decreases as families struggle	■ "It takes a village" takes hold—families and entire communities strongly support kids in school ■ 90% high school graduation rate ■ Many schools are open year-round with hours matching parents' work ■ Tenure reform and performance-based compensation for teachers ■ Advanced information technology, gaming, and social media integrated into learning process ■ School improvement treated as part of an overall urban and anti-poverty strategy rather than siloed off by itself ■ Magnet schools located in or near low-income neighborhoods attract a mix of incomes and racial backgrounds	■ Schools focus on developing the "whole person" ■ Emphasis on skills for "change making," independent learning and entrepreneurship ■ Community-wide social support for students ■ High use of virtual reality, "serious games," simulations, advanced education technology ■ Low-cost university-level knowledge and skill development available on the Web ■ Incorporation of meditation and new mind-body techniques to improve attention and impulse control
School success with vulnerable populations	+	− −	+ +	+ + +

Comparative Matrix (continued)

Scenario	1: Comeback?	2: Dark Decades	3: Equitable Economy	4: Creative Communities
Government	■ Public debt, budget deficits, rising health care costs, Baby Boom retirements, unfunded obligations of Medicare and Social Security constrain government ■ Programs for vulnerable populations forced to be much more efficient and effective ■ Major focus on young people staying in school, avoiding childbirth before marriage, and finding steady work ■ Political polarization continues, but gradually gives way to focus on practical solutions ■ Only incremental reforms in major policy areas ■ Largest reforms in education, but hard to bring them into vulnerable communities ■ E-government programs expand, transparency of government increases	■ Government debt and hard times lead to drastic cuts in social programs and in public sector employment ■ Low-income housing starved; funding for job training and community colleges cut to the bone ■ Polarization worsens as "haves" fight to protect their interests ■ High distrust of government ■ Government effectiveness declines ■ Privatization increases in effort to reduce costs ■ Sharp decline of community-based organizations ■ Major social and political discord	■ De-polarization in the face of growing challenges ■ Reduced government bureaucracy and size, with improved efficiency ■ Government agencies responsible for health, housing, education and social services develop more collaborative and holistic client-centered approaches ■ Stronger work requirements are combined with better work support—child care, preschool, reformed/expanded Head Start ■ Public trust of government improves with greater transparency and participation ■ Innovative public engagement via social networking, "serious games," idea contests, etc. ■ Budgeting by outcomes ■ As economy allows, funding increases for preventing vulnerability and aiding vulnerable populations	■ High innovation and sharing of "what works" at local level ■ More transpartisan politics based on a shared vision ■ Rise of Millennial generation reduces "us vs. them" thinking, allows progress on social exclusion, homophobia, immigration and other issues ■ More partnerships that bring public, private and nonprofit organizations together in integrated approaches ■ Sophisticated strategies to change behavior using "nudge" techniques and "carrot and stick" incentives ■ Technologists, civic activists, and local elected leaders develop new methods for online citizen participation and government transparency ■ Emergence of "positive media," exploring aspirations, possibilities, and solutions
Government effectiveness	+	– –	+ + (federal)	+ + + (local) + + (federal)

Comparative Matrix (continued)

Scenario	1: Comeback?	2: Dark Decades	3: Equitable Economy	4: Creative Communities
Health Care	■ Health reform is put in place, only a few remaining uninsured ■ Personal bankruptcies caused by medical expenses decline ■ State-run insurance exchanges provide greater consumer choice, but vary significantly state-to-state ■ Insurers reduce cost by limiting specialty care ■ There are fewer uninsured but more underinsured, and many with insurance have difficulty finding providers ■ Outcome-based and bundled reimbursements are expanded ■ Community health centers play growing role in providing care to vulnerable populations ■ Widespread acceptance of electronic medical records (EMRs) and personal health records (PHRs); low-cost biomonitoring and risk-profiling using genetics, epigenetics and proteomics ■ Integrated decision support is common for most health care; improves care and outcomes ■ Health care related vulnerability decreases	■ Health care reform reversed ■ Health care costs continue to escalate ■ Double-dip recession weakens employer-based insurance ■ New treatments and technologies come to market, but at prices that only the rich can afford ■ Widespread reliance on low-cost "catastrophic care" insurance ■ Community health centers expand to meet some of the need from the low-income people ■ Many in middle class pay more out-of-pocket for routine care, while low-income households without access to CHCs go without primary care and have even longer waits at emergency rooms ■ EMRs become common in all practices, with some integration with PHRs ■ Biomonitoring grows but not among the poor ■ Personal bankruptcies because of medical expenses expand ■ Health care related vulnerability increases	■ After 2020 universal access is provided to a core benefit package, with tax-supported subsidies based on income level ■ Primary care is enhanced and includes effective prevention ■ Reducing avoidable health disparities becomes a strategic focus of policy ■ Leaders work to improve prevention and population health while reducing unfairness and waste ■ Community health centers grow and become providers of choice in many communities ■ EMRs and PHRs are ubiquitous; low-cost biomonitoring is commonly used; risk-profiling using genetics, epigenetics, proteomics and new personalized vital signs from biomonitoring reshape primary care ■ Many health problems are anticipated, improving care and outcomes ■ Health related bankruptcies eliminated ■ Health care related vulnerability dramatically reduced	■ Low level of basic care available to all with catastrophic insurance, with subsidies available for low-income individuals and families ■ Care becomes patient-centered and consumer-driven ■ Health and health care are integrated into all planning at a community level, using platforms that map the community's social dynamics, including education, housing, transportation, food and neighborhood safety ■ Community-focused research identifies optimum health strategies based on local factors ■ Primary care including better self-care expands ■ CHCs and other primary care teams include the patient's avatar (electronic health coach) and use virtual visits to monitor and maintain health ■ Biomonitoring is ubiquitous; risk-profiling uses genetics, epigenetics and proteomics ■ Licensure and scope of practice regulations diminish ■ Outcomes measured and shared within the community become more important ■ Health care related bankruptcies are rare ■ Health related vulnerability dramatically reduced

Comparative Matrix (continued)

Scenario	1: Comeback?	2: Dark Decades	3: Equitable Economy	4: Creative Communities

Environment & Resources	▪ No climate change legislation until 2017; weak climate bill finally passes
	
	  ▪ Environmental justice emerges as a public issue, but vulnerable populations still suffer disproportionate environmental impacts
	
	  ▪ Rising energy prices disproportionately affect low-income people
	
	  ▪ Vulnerable neighborhoods suffer worst impacts from increasingly frequent extreme weather events
		▪ Environmental protection, environmental justice, and climate change are low priorities in hard times
		
		▪ Environmental regulation weakens in the face of economic concerns
		
		▪ Partisan deadlock blocks efforts on energy and climate
		
		▪ Oil price surges to over $200 per barrel as global production peaks and begins to decline ("Peak Oil")
		
		▪ High energy prices have devastating impact on low-income people, push marginal people out of middle class
		
		▪ Hurricanes and floods decimate some urban areas, tropical diseases move into United States
			▪ A "Clean Energy Revolution" is launched to put United States in forefront of the fastest growing new global industry, create jobs, cut dependence on oil, improve national security and minimize climate change
			
			▪ National weatherization program with emphasis on low-income residences
			
			▪ As economy improves, support increases for public transit, green low-cost housing and clean tech
			
			▪ Environmental justice becomes major policy theme influencing environmental regulations and decisions about the location of infrastructure and industrial facilities
				▪ Focus on "game-changing" innovation enables greater conservation and accelerates shift to low-cost distributed renewable energy sources
				
				▪ With modest federal support, hundreds of communities organize weatherization programs, special attention given to housing for vulnerable populations
				
				▪ Inexpensive, accurate sensors empower communities to do environmental assessments and trace local pollution sources

Comparative Matrix (continued)

Scenario	1: Comeback?	2: Dark Decades	3: Equitable Economy	4: Creative Communities
Food & Diet	■ Food prices rise ■ Many low-income households pay over 20% of income on food alone ■ Companies develop healthier food choices and demand for organic and local food rises, but cost differential for healthier food remains high ■ Many inner-city "food deserts" eliminated, but vulnerable populations still less able to purchase healthy foods ■ Obesity declines but still concentrated with poor	■ Food prices soar along with energy costs ■ Agriculture disrupted; serious food shortages in some areas ■ Severe disparities in access to healthy food ■ Food companies shift products and marketing toward cheap, calorie-dense, nutrient-poor processed foods to fill gap ■ More Americans are obese and more are malnourished ■ Diet-related health problems worsen and health care costs become unsustainable	■ Major public campaign against obesity ■ Government enacts taxes on unhealthy foods and increases regulation of nutritional context ■ Food industry increasingly selling "health" rather than "convenience" ■ FDA approves cultured meat in 2021; market grows rapidly ■ SNAP and other food subsidy programs give rebates on healthy food purchases ■ Urban agriculture expands; community gardening grows in low-income neighborhoods	■ Increased concern about health, awareness of environmental impacts of food system; moral concerns about treatment of animals power a grassroots "ethical eating" movement ■ Dietary patterns shift toward more organic and local foods, less meat, more vegetables and fruits, and more "fair trade" ■ More local and regional food production; home growing using aeroponics ■ "Personalized nutrition" a major health development

Comparative Matrix (continued)

Scenario	1: Comeback?	2: Dark Decades	3: Equitable Economy	4: Creative Communities
Cultural, Social & Generational Change	▪ With aging of Millennials, growing acceptance of gay marriage; abortion a less contentious subject; climate a more bipartisan issue ▪ Baby Boomers are politically active; retain much of the polarization of the 1960s ▪ Significant progress on social exclusion and gender discrimination ▪ Latino immigrants more integrated ▪ By 2020 "living wage" law has passed in several states ▪ The "New Black" emerges strongly—Black youth explore many ways to be young and Black, following role models like the Obamas and Oprah Winfrey, as well as athletes and entertainers who go on to run businesses or promote public causes	▪ Well-to-do population generally accepts high inequity as inevitable ▪ Baby Boomers cling to most of their benefits at expense of younger generations ▪ Struggle for jobs and resources intensifies distinctions by generation, race, and ethnicity and alienates vulnerable populations from one another ▪ "Papers, please" laws based on the Arizona model proliferate ▪ Many still leave school early, have children while unmarried, and fail to stay in workforce, undermining Americans' willingness to help people not able to help themselves ▪ The decline in community and civic engagement accelerates	▪ Difficult times promote public support for a more equitable society ▪ Baby Boomers accept reductions in their benefits ▪ Generation X business leaders focus on practical, profitable approaches to social problem solving ▪ Greater understanding of the complex causes of vulnerability leads to holistic strategies with multiple simultaneous initiatives ▪ Many new government programs and regulations to prevent and reduce vulnerability ▪ With protection from extreme vulnerability, minority youth set their sights on high levels of achievement across many areas of endeavor; racism is significantly reduced ▪ Majority of Americans believe poverty should no longer be tolerated ▪ Seeing the insecurity caused by debt, many young people embrace a new lifestyle ideal of "elegant simplicity," more focus on valuable experiences rather than conspicuous consumption	▪ The Millennial Generation becomes a major force for social change ▪ Millennials transcend ideological dichotomies, consider opposing viewpoints in search of solutions ▪ Baby Boomers focus on legacy for their grandchildren, become influential mentors ▪ Community-focused economic development revives stronger sense of mutual support and creates new opportunities for poor and minority residents ▪ Broad movement to ensure healthy learning/growing environments for children, especially for vulnerable populations ▪ Vulnerability redefined as absence of economic, social, ecological, educational and spiritual conditions conducive to growth and thriving ▪ By 2030 the policy focus is shifting from creating a safety net to helping everyone achieve his or her full potential

Comparative Matrix (continued)

Scenario	1: Comeback?	2: Dark Decades	3: Equitable Economy	4: Creative Communities
Criminality & Corrections	■ Crime rates remain steady ■ Facing budget shortfalls, many states change rules and release nonviolent low-level drug offenders ■ Mandatory minimum sentences repealed ■ Alternatives to incarceration proliferate, aided by GPS tracking technology ■ Rates of recidivism significantly reduced by supporting community integration and employment ■ Number of life sentences reduced	■ Increasing unrest, gang and drug-related violence ■ Less policing by cash-strapped law enforcement agencies ■ Incarceration privatized and expanded to deal with social unrest fueled by disparities ■ Parole and sentencing laws remain unreformed ■ Prison health care deteriorates, HIV and Hepatitis-C run rampant ■ Parole officers replaced by tracking technologies, making reintegration more difficult	■ Crime declines during depression years with sense that "we're all in this together" ■ Limited resources forces evolution of thinking about criminality and corrections ■ Focus on prevention by addressing social determinants of crime ■ Greater cooperation among agencies on crime prevention (early education, housing segregation. support for fatherhood, etc.) ■ Criminal justice system becomes less expensive, more effective ■ Prison-industrial complex shrinks, programs expand for drug treatment, job skills, and social skills for re-entry into society, often using virtual training	■ Stronger community discourages crime ■ Strong social support for good behavior and personal responsibility; no support or tolerance for criminal behavior ■ Major efforts to reduce female-headed households and to support fatherhood ■ Shift from isolation and incapacitation model to prevention, genuine "correction," and assistance with re-entry ■ Prison system increasingly decentralized, with inmates held closer to their home communities ■ While some must remain incarcerated, helping convicts turn their lives around is identified as one of the "biggest bangs for the buck" to improve society

Comparative Matrix (continued)

Scenario	1: Comeback?	2: Dark Decades	3: Equitable Economy	4: Creative Communities
Technology	▪ Technological innovation proceeds with little regard for needs of vulnerable populations ▪ Technological acceleration sometimes benefits poor but allows rich to pull further ahead ▪ Technology supports more efficient primary care delivery; puts tools for self-care in everyone's reach ▪ Innovations in alternative energy and agriculture ▪ By 2030 automation eliminates many jobs, increasing vulnerable populations	▪ Access to new technologies for learning, business, and entertainment increasingly limited to the well-to-do ▪ Toxic exposures increase for populations located near aging and poorly maintained industrial and energy facilities ▪ Growing use of coal causes environmental damage; air pollution, acid rain and climate change ▪ Rich benefit from expensive treatments for Alzheimer's and other debilitating diseases as well as high-tech assistive devices, but these advances are out of reach for the poor	▪ Government agencies and many companies make developing technology to benefit poor populations an explicit goal ▪ Green tech breakthroughs in low-cost, energy-efficient housing ▪ "Clean Energy Revolution" initiative invests in and subsidizes renewable energy ▪ "Personalized health care" based on understanding of genomics and epigenetics common in low-income populations by 2030 through community health centers ▪ Advances in sustainable agriculture, urban agriculture, and *in vitro* meat production make healthier foods available without high prices	▪ Government agencies actively involve vulnerable populations in relevant technology innovation processes ▪ New manufacturing technologies make possible low-cost local and in-home manufacturing of many products ▪ "Game changing" progress in solar energy, fuel cells, biofuels, batteries and other areas helps keep energy costs down while shifting away from fossil fuels ▪ Community health centers develop cell phone and PDA-based programs for personal biomonitoring, reinforcing healthy behaviors, and early warning of health risks ▪ Regenerative medicine becomes a major field

Vulnerability 2030 Scenarios on Vulnerability in the U.S.

Comparative Matrix (continued)

Scenario	1: Comeback?	2: Dark Decades	3: Equitable Economy	4: Creative Communities
Web & Communications	▪ Expansion of broadband Internet access ▪ High-speed Internet ubiquitous, but Internet crowding and "brownouts" lead to tiered pricing for reliable Internet access ▪ Technology is intuitive enough for all skill levels ▪ Those without complex technical skills are at job disadvantage ▪ Social networks reinforce existing patterns of exclusion ▪ Social media platforms facilitate community organizing	▪ Proprietary content on proprietary devices ▪ The end of net neutrality ▪ Hackers and identity thieves prey on vulnerable population ▪ Regular Internet "brownouts" ▪ Web transparency of past "misdeeds" bolsters discrimination online	▪ Convergence of devices and platforms with high interoperability ▪ Integration of real and virtual worlds in work, education and entertainment ▪ 90% have continuous access to free high-quality content on the Web ▪ Translation software is effective and helpful for non-native English speakers	▪ Social networking enhances public input in political and community decision-making ▪ Widespread Internet broadcast devices revolutionize citizen journalism and activism ▪ Information technology aids home businesses and local entrepreneurs ▪ Ubiquitous access to information and networks helps level the playing field

Small Group Response Form
Vulnerability 2030 Scenario Workshop

Scenario: _____COMEBACK_____

Reporter: _____SUMMARY_____

Small groups should choose a reporter/recorder to fill out the summary answers to the discussion (below) and present those to the full group (in 5 minutes or less).

1. What are the most significant changes between the present and the scenario you have just considered?
    ⇨ Lost higher education and it has not come back to support us and online courses are expensive
    ⇨ Our jobs are back, but many state and education activities and support are still gone
    ⇨ No charters, but more home schooling
    ⇨ Education is not nearly as positive as depicted in scenario
    ⇨ Performance based pay not supported
    ⇨ Public school are falling down because charter schools are succeeding
    ⇨ Charter schools gaining as public schools fail
    ⇨ Closely parallels current situation
    ⇨ Dependent on generational perspective
    ⇨ Business models have been more progressive toward technology

2. What are the most important implications of the scenario for your organization with respect to the following:
    a. Strategies
       ⇨ Increase volunteerism in community
       ⇨ Increase support for food bank, senior center, fire and ambulance
       ⇨ Diversify the economy we have agriculture, mining, water (or lack thereof)
       ⇨ Gold/silver change our economy and tax base
       ⇨ Create incentives for growth in vulnerable programs
       ⇨ Need to get back expectation of services for less, lack of volunteers and no long term commitment
       ⇨ Continue to be dynamic and nimble
       ⇨ Embrace technology and social media
       ⇨ Reposition for retail
       ⇨ Continue to support existing business and industry
       ⇨ Continued support of industrial park
       ⇨ Increase activity in retail

b. Activities
   ⇨ Energy solutions
   ⇨ Support to speed up processes on federal land
   ⇨ Continue expanding government transparency
   ⇨ "e" work
   ⇨ All energy sources
   ⇨ Regional job fairs
   ⇨ Incentive programs for retail and energy efficiency
   ⇨ Increase community support (community chest and food bank)
   ⇨ Promote self-help
   ⇨ Job fairs
   ⇨ Incentive packages for retail

c. Your community or target population
   ⇨ Agriculture/ ranches
   ⇨ Minimize reliance on mineral and agricultural industries
   ⇨ Energy development
   ⇨ Small business
   ⇨ Business and industry
   ⇨ Tourism

d. Funding sources
   ⇨ Lottery
   ⇨ State funded economic development to bring anew business each decalde
   ⇨ Public/private partnerships
   ⇨ Public funded energy projects back to the grid
   ⇨ Marijuana dispensary
   ⇨ Yucca mountain dump site tied to gambling rights
   ⇨ Public/private partnership for energy exploration and development
   ⇨ Property taxes
   ⇨ Sales taxes
   ⇨ State incentives

e. Mission & Vision
   ⇨ Diversify economy
   ⇨ Diversify funding sources
   ⇨ Relief from unfunded mandates and restrictions
   ⇨ Regional partnerships

⇨ Fiscal strength through small government and small communities

⇨ Promote regional partnerships (schools, other counties)

⇨ Increase participation in the industrial park

3. What are the most important actions your organization should take to succeed in this scenario?

⇨ Support land transfer back to the state

⇨ Decrease restriction to support new activities on public land

⇨ State/county/private partnership to raise business opportunities

⇨ Lean/mean able to move quickly

⇨ A way for children to come back after school to raise family

⇨ Long range succession planning

⇨ Bring our kids back to our communities

⇨ Encourage citizens to elect state leaders bold enough to eliminate collective bargaining in local government

⇨ Industrial park success generates revenue for county

4. What headlines would you expect to see as this scenario comes to pass? These are referred to as "signposts."

⇨ Burning Man hits 1,000,000 participants

⇨ Collective bargaining outlawed in Nevada

⇨ 50% of those raised in rural Nevada return home to raise their own families

⇨ Volunteerism on an increase; waiting list in place at fire house

⇨ Feds and State do away with collective bargaining

⇨ Feds and State do away with unfunded mandates

⇨ Yucca Mountain becomes a reality and every state pays Nevada

⇨ Our county reduces sales and property tax rates to lowest in state

⇨ Our city picked by AAA as #1 tourist destination of the century

⇨ Our city alumnus wins Nobel prize and funds higher learning institute

Small Group Response Form
Vulnerability 2030 Scenario Workshop

Scenario: _____CREATIVE COMMUNITIES_____

Reporter: _____SUMMARY_____

Small groups should choose a reporter/recorder to fill out the summary answers to the discussion (below) and present those to the full group (in 5 minutes or less).

1. What are the most significant changes between the present and the scenario you have just considered?
   ⇨ Local control of resources
   ⇨ Designate, use more local
   ⇨ Less national/state dictating rules
   ⇨ Create access and opportunity
   ⇨ Maintain stewardship
   ⇨ Retain fruits of effort inst4ead of feeding up with no local benefit in return
   ⇨ Less division or gap in top and bottowm for education and health living
   ⇨ Economic status – time and talent may be as good as money
   ⇨ Individuals take action to initiate change in their communities
   ⇨ Local control
   ⇨ Working towards local entrepreneurship and local control, but being subject to a county union limits effectiveness
   ⇨ Local control of local resources, land, water, use of land
   ⇨ Local control; less federal and state
   ⇨ Resources
   ⇨ Right people in the right place
   ⇨ More government support of local communities and initiatives
   ⇨ More awareness of individual values and worth
   ⇨ Emphasis on collaboration of segments of community and individuals

2. What are the most important implications of the scenario for your organization with respect to the following:
   a. Strategies
      ⇨ Embrace leveling to create benefit for all
      ⇨ Find the right people/talent/skills to serve the community
      ⇨ Availability and attitude of self-sufficiency and reliance
      ⇨ Allowing individuals and groups to come up with ideas
      ⇨ Local control

⇨ Increased positive public input
⇨ Better positive communication in a seasonal population
⇨ Look for the best uses of lands
⇨ Find talents of people and put them to work
⇨ Not as tied to government control
⇨ Focus on brain-based learning and students
⇨ More utilization of technology
⇨ More emphasis on entrepreneurs

b. Activities
⇨ Teach the love of learning
⇨ Virtual learning
⇨ Identify and encourage individual aptitudes
⇨ Healthy living
⇨ solving your problems locally
⇨ Reduction of regulation or unnecessary processes
⇨ Continued improvement in service and value
⇨ Town hall meeting to gather information
⇨ Mini-loans, use of all local tools, equipment computers
⇨ Virtual reality scenarios for learning
⇨ Lowered costs for higher education
⇨ Community focused interaction
⇨ More financial literacy

c. Your community or target population
⇨ All inclusive/aware/collective good
⇨ Find ways to influence and encourage all segments of population
⇨ Rural living
⇨ Diverse, higher economic population
⇨ Seasonal educated mixed with Hispanic services population
⇨ 5,100
⇨ Parents and students
⇨ Consumers

d. Funding sources
⇨ Ability to share to benefit all whether dollars, talent, other natural resources
⇨ Comes from within the community
⇨ Barter
⇨ Less taxes

Institute for
Alternative
Futures

100 N. Pitt Street • Suite 307
Alexandria, Virginia • 22314 • USA
P: 703.684.5880 • F: 703.684.0640

www.altfutures.org ● Explore. Aspire. Create. Evolve.

⇨ State, county, local
⇨ Selling of public lands
⇨ Mini-loans interest
⇨ Barter and bargaining
⇨ Profits and utilization of government assistance

e. Mission & Vision
⇨ Self sufficient/funding/aware balance of investment in infrastructure with ability to deliver service
⇨ Inclusive, self-reliant and sustainable
⇨ Long term independence or self-reliance
⇨ Value added services through needed services – recreational, sewer, utility, beaches, golf, ski
⇨ To be self-sufficient, self-funding and self-aware
⇨ Moving kids to think toward the future and how they fit into society
⇨ Become integral part of community by action and vision

3. What are the most important actions your organization should take to succeed in this scenario?
⇨ Focus as much of local skills and resources to do the greatest good and get everyone involved
⇨ Build acceptance of fairness for economics, education and health care
⇨ Listen to your individual groups
⇨ Continued improvement in services
⇨ Encouraging continued non-passive social services
⇨ Community leadership
⇨ Work on involving everyone; all opinions are important; listen; go to work
⇨ Local control
⇨ Start thinking outside the box
⇨ Let go of traditional thinking
⇨ Let go of fear
⇨ Better understanding of individual and community aspirations

4. What headlines would you expect to see as this scenario comes to pass? These are referred to as "signposts."
⇨ Effective community communication
⇨ Work together in closer knit groups
⇨ Culture of we
⇨ Local focus on achievement and sustainability
⇨ Fairness to all

⇨ Less crime/more healthy condition of overall population
⇨ We work together; a culture of we; I becomes we
⇨ Stable tax/fee structure
⇨ Citizen enjoyment of recreational opportunities being the best we can be
⇨ Economic vitality for business
⇨ A+ utility and infrastructure
⇨ Empowering/helping others/community awareness/visionary future
⇨ Families gather to harvest community gardens
⇨ Local leaders listen at a town hall meeting
⇨ Programs begin to improve
⇨ Culture of "we"
⇨ Work together

Institute for
Alternative
Futures

100 N. Pitt Street • Suite 307
Alexandria, Virginia • 22314 • USA
P: 703.684.5880 • F: 703.684.0640

www.altfutures.org ● Explore. Aspire. Create. Evolve.

Small Group Response Form
Vulnerability 2030 Scenario Workshop

Scenario: _____DARK DECADES_____

Reporter: _____SUMMARY FROM ANNUAL MEETING 4-2014_____

Small groups should choose a reporter/recorder to fill out the summary answers to the discussion
(below) and present those to the full group (in 5 minutes or less).

1. What are the most significant changes between the present and the scenario you have just
   considered?
   - ⇨ the present is the same as the scenario
   - ⇨ unemployment rates go up
   - ⇨ economy decreases
   - ⇨ somewhat similar to past few years
   - ⇨ it is not looking good
   - ⇨ need to create job development
   - ⇨ with higher costs in food and energy, the disparity between classes becomes more
     apparent
   - ⇨ middle class shrinks
   - ⇨ school system disparity
   - ⇨ doomsday!

2. What are the most important implications of the scenario for your organization with respect to the
   following:
   a. Strategies
      - ⇨ Prioritize services
      - ⇨ Invest in economic development
      - ⇨ Need to demand/receive personal responsibility
      - ⇨ Instill pride, confidence, push them to go beyond their abilities
      - ⇨ Rich getting richer; poor getting poorer
      - ⇨ Oil pipeline, more refineries, more nuclear power, other energy options/solutions
      - ⇨ Catch those most at risk with simple programs like reading with kids
      - ⇨ Volunteerism

   b. Activities
      - ⇨ Create a system for inclusion for lower class
      - ⇨ Allow lower class to participate and demand quid prop quo (you participate, you will be
        taken care of)

⇨ Simple , inexpensive ways to bring community together (pot luck, community garden)
⇨ Donate time
⇨ Build community to help strengthen individuals – self-help

c. Your community or target population
⇨ Stabilized
⇨ Working poor- those who are willing to work/pay taxes have programs to help them live the dream
⇨ Smaller communities will have a greater ability to rebound

d. Funding sources
⇨ New business
⇨ Sales/services tax
⇨ Stay local – neighbors helping neighbors
⇨ Will be limited, but finding ways to share or trade would be beneficial

e. Mission & Vision
⇨ Working together everyone achieves more
⇨ Small steps made together will move the community forward by leaps and bounds

3. What are the most important actions your organization should take to succeed in this scenario?
⇨ Improve education with little money
⇨ Lean government
⇨ Invest in bringing jobs
⇨ Bring community together, group events
⇨ Open dialog for trading
⇨ Find ways to encourage everyone to be involved

4. What headlines would you expect to see as this scenario comes to pass? These are referred to as "signposts."
⇨ Two new businesses open this summer
⇨ If we don't succeed to bring everyone in the community up, the sign will be "would the last person to leave town, please shut off the lights"
⇨ Doomsday!

Small Group Response Form
Vulnerability 2030 Scenario Workshop

Scenario: _____EQUITABLE ECONOMY_____

Reporter: _____SUMMARY_____

Small groups should choose a reporter/recorder to fill out the summary answers to the discussion (below) and present those to the full group (in 5 minutes or less).

1. What are the most significant changes between the present and the scenario you have just considered?
   ⇨ Unemployment still high
   ⇨ Use more resources in technology
   ⇨ No tolerance for inequality in income
   ⇨ Government more efficient
   ⇨ No public trust
   ⇨ Decentralized local community focus
   ⇨ Further decline in real wages
   ⇨ Depression/recession accelerated
   ⇨ More government intervention and movement toward socialism
   ⇨ More subsidies and government aid
   ⇨ Tax on investments
   ⇨ Unemployment still above 6%
   ⇨ Have not gone to depression yet
   ⇨ High school graduation rates have not reached 90%
   ⇨ Performance based compensation is becoming a reality
   ⇨ Community health centers are becoming a reality
   ⇨ Clean energy is on the rise and easily available
   ⇨ Crime and costs continue to increase
   ⇨ Health care availability
   ⇨ Community involvement
   ⇨ Opportunity equalized
   ⇨ Magnet school in rural areas
   ⇨ More tax credits
   ⇨ Programs equitable
   ⇨ Equitable development community
   ⇨ Funding for child care
   ⇨ Economy may affect unions/contracts
   ⇨ Health insurance premiums may be unaffordable for employees

⇨ Decreased jobs

⇨ Increased cooperation

⇨ Education

⇨ Effectiveness of government programs/departments analyzed and adjusted

⇨ Plan for lack of funding/conservative budgeting

⇨ Tax structure – net proceeds loss of income from mines

⇨ Unemployment

2. What are the most important implications of the scenario for your organization with respect to the following:

a. Strategies

⇨ Increasing efficiencies, decreasing cost

⇨ Politicians more bipartisan (no more personal agendas)

⇨ Parent involvement in education

⇨ Increase technology resources

⇨ More bipartisan politics

⇨ Unemployment practices more geared toward reduction

⇨ Plan for funding ending

⇨ More services at less costs

⇨ Conservation

⇨ Contingency planning

⇨ Change entire lifestyle and attitude toward entitlement

b. Activities

⇨ Make use of community buy in – those that have it, give up some to those that don't have it.

⇨ No special interest groups

⇨ Contingency planning

⇨ How to supplement downsizing

⇨ Combining services, more volunteers, economic development

⇨ Support of business, some deregulations, reduction in taxes

⇨ Lowered emergency services/recreation

⇨ Work with other organizations

⇨ Changing services

⇨ Grants

⇨ Search for ways to reduce costs of services currently provided

c. Your community or target population

⇨ Local communities

Institute for
Alternative
Futures

100 N. Pitt Street • Suite 307
Alexandria, Virginia • 22314 • USA
P: 703.684.5880 • F: 703.684.0640

www.altfutures.org ● Explore. Aspire. Create. Evolve.

⇨ Community involvement
⇨ Folks struggling
⇨ How to help each other
⇨ Consistency in a job market to keep property valuations up

d. Funding sources
⇨ Taxing the wealthy (no inequality)
⇨ Budget cuts
⇨ Alternative resources and helping businesses stay afloat
⇨ Do more with less
⇨ Diversify personal and property tax

e. Mission & Vision
⇨ Equity
⇨ Diversity and collaborative efforts to combine services
⇨ More collaborative with other entities for services to development

3. What are the most important actions your organization should take to succeed in this scenario?
⇨ Buy-in from communities
⇨ Convince the wealthy to share
⇨ Run propaganda to convince and continue implementation by force
⇨ Work efficiently
⇨ Harness technology to reduce the cost of providing services
⇨ Strive for educated work force
⇨ Create cradle to grave vision for education
⇨ Equitable community development
⇨ Increase/embrace technology
⇨ Collaborative efforts with other government organizations
⇨ Deregulate business requirements to support economic growth
⇨ Technology a cheaper option
⇨ Look for alternative ways to provide services
⇨ Look at deregulation to encourage new business and to keep established business open

4. What headlines would you expect to see as this scenario comes to pass? These are referred to as "signposts."
⇨ Population control
⇨ Government limits ownership of guns
⇨ Government raises new taxes on the wealthy
⇨ Economy moving towards socialism

- ⇨ Minimum wage increases
- ⇨ Graduation rates increase
- ⇨ Clean energy costs decrease
- ⇨ Green thinking becomes more apparent
- ⇨ Web access is more affordable and readily available
- ⇨ Help wanted! Uncle Sam needs you!
- ⇨ Comparison to a second depression

Institute for
Alternative
Futures

100 N. Pitt Street • Suite 307
Alexandria, Virginia • 22314 • USA
P: 703.684.5880 • F: 703.684.0640

www.altfutures.org ● Explore. Aspire. Create. Evolve.

Please use the grid below to assess the likelihood and preferability of each scenario separately, where 100% refers to highly likely or preferable and 0% means there is nothing desirable or preferable about a particular scenario. **Percentages do not need to add up to 100%**. For example, you may assign 60% for likelihood and 85% for preferability of a scenario.

CONSIDERING SCENARIO LIKELIHOOD & PREFERABILITY

	Likelihood (0 to 100%)	Preferability (0 to 100%)
1. Comeback?	80; 80; 80; 50; 75; 70; 85; 40; 50; 50; 40; 40	10; 20; 10; 90; 85; 85; 70; 90; 30; 25
2. Dark Decades	65; 67; 60; 90; 20; 50; 50; 20; 5	0; 0; 0; 10; 5; 20; 0
3. Equitable Economy	35; 40; 40; 10; 5; 55; 5; 5; 0; 60; 60; 60; 60; 60	100; 80; 60;20; 0; 85; 0; 0; 5; 30; 60
4. Creative Communities	35; 40; 5; 10; 30; 20; 60; 100; 25	100; 80; 80; 5; 90; 100; 90

Small Group Response Form
Vulnerability 2030 Scenario Workshop

Scenario: ____**ALL SCENARIOS** _____

Reporter: _____ **SUMMARY of COMMON THEMES** _____

Small groups should choose a reporter/recorder to fill out the summary answers to the discussion (below) and present those to the full group (in 5 minutes or less).

1. What are the most significant changes between the present and the scenario you have just considered?

   THEME: Economy

   ⇨ Economy may affect unions/contracts
   ⇨ Depression/recession accelerated
   ⇨ Unemployment still high
   ⇨ Unemployment still above 6%
   ⇨ Have not gone to depression yet
   ⇨ Closely parallels current situation
   ⇨ Economic status – time and talent may be as good as money
   ⇨ Working towards local entrepreneurship and local control, but being subject to a county union limits effectiveness
   ⇨ the present is the same as the scenario
   ⇨ unemployment rates go up
   ⇨ economy decreases
   ⇨ somewhat similar to past few years
   ⇨ it is not looking good
   ⇨ need to create job development
   ⇨ with higher costs in food and energy, the disparity between classes becomes more apparent
   ⇨ middle class shrinks
   ⇨ Doomsday!

   THEME: Education

   ⇨ school system disparity
   ⇨ Less division or gap in top and bottom for education and healthy living
   ⇨ Lost higher education and it has not come back to support us and online courses are expensive
   ⇨ Our jobs are back, but many state and education activities and support are still gone
   ⇨ No charters, but more home schooling

⇨ Education is not nearly as positive as depicted in scenario
⇨ Performance based pay not supported
⇨ Public school are falling down because charter schools are succeeding
⇨ Charter schools gaining as public schools fail
⇨ High school graduation rates have not reached 90%
⇨ Performance based compensation is becoming a reality
⇨ Magnet school in rural areas

THEME: Local Control

⇨ Decentralized local community focus
⇨ Community involvement
⇨ Retain fruits of effort instead of feeding up with no local benefit in return
⇨ Local control of resources
⇨ Designate, use more local
⇨ Less national/state dictating rules
⇨ Individuals take action to initiate change in their communities
⇨ Local control
⇨ Working towards local entrepreneurship and local control, but being subject to a county union limits effectiveness
⇨ Local control of local resources, land, water, use of land
⇨ Local control; less federal and state
⇨ More government support of local communities and initiatives
⇨ More awareness of individual values and worth
⇨ Emphasis on collaboration of segments of community and individuals

THEME: Government Involvement

⇨ Government more efficient
⇨ No public trust
⇨ More government intervention and movement toward socialism
⇨ More subsidies and government aid
⇨ Tax on investments
⇨ Community health centers are becoming a reality
⇨ More tax credits
⇨ Effectiveness of government programs/departments analyzed and adjusted
⇨ Tax structure – net proceeds loss of income from mines
⇨ Plan for lack of funding/conservative budgeting

THEME: Other topics

⇨   Use more resources in technology
⇨   Business models have been more progressive toward technology
⇨   Clean energy is on the rise and easily available
⇨   Crime and costs continue to increase
⇨   Health care availability
⇨   Opportunity equalized
⇨   Programs equitable
⇨   Equitable development community
⇨   Funding for child care
⇨   Health insurance premiums may be unaffordable for employees
⇨   Increased cooperation
⇨   Create access and opportunity
⇨   Maintain stewardship
⇨   Dependent on generational perspective
⇨   Resources
⇨   Right people in the right place

2.   What are the most important implications of the scenario for your organization with respect to the following:

    a. Strategies

THEME: Services

⇨   Prioritize services
⇨   Invest in economic development
⇨   Oil pipeline, more refineries, more nuclear power, other energy options/solutions
⇨   Catch those most at risk with simple programs like reading with kids
⇨   Embrace leveling to create benefit for all
⇨   Local control
⇨   Increased positive public input
⇨   Better positive communication in a seasonal population
⇨   Look for the best uses of lands
⇨   Not as tied to government control
⇨   More utilization of technology
⇨   More emphasis on entrepreneurs
⇨   Increasing efficiencies, decreasing cost
⇨   Politicians more bipartisan (no more personal agendas)
⇨   Unemployment practices more geared toward reduction

⇨ Plan for funding ending

⇨ More services at less costs

⇨ Conservation

⇨ Contingency planning

⇨ More bipartisan politics

⇨ Increase technology resources

⇨ Diversify the economy we have agriculture, mining, water (or lack thereof)

⇨ Gold/silver change our economy and tax base

⇨ Create incentives for growth in vulnerable programs

⇨ Embrace technology and social media

⇨ Reposition for retail

⇨ Continue to support existing business and industry

⇨ Continued support of industrial park

⇨ Increase activity in retail

THEME: Personal responsibility

⇨ Parent involvement in education

⇨ Change entire lifestyle and attitude toward entitlement

⇨ Increase volunteerism in community

⇨ Increase support for food bank, senior center, fire and ambulance
  ⇨ Need to get back expectation of services for less, lack of volunteers and no long term commitment

⇨ Continue to be dynamic and nimble

⇨ Catch those most at risk with simple programs like reading with kids

⇨ Need to demand/receive personal responsibility

⇨ Instill pride, confidence, push them to go beyond their abilities

⇨ Rich getting richer; poor getting poorer
  ⇨ Find the right people/talent/skills to serve the community
  ⇨ Availability and attitude of self-sufficiency and reliance
  ⇨ Allowing individuals and groups to come up with ideas
  ⇨ Find talents of people and put them to work
  ⇨ Focus on brain-based learning and students

b. Activities

THEME: Community

⇨ Create a system for inclusion for lower class

⇨ Allow lower class to participate and demand quid pro quo (you participate, you will be taken care of)

⇨ Simple , inexpensive ways to bring community together (pot luck, community garden)

⇨ Donate time

⇨ Build community to help strengthen individuals – self-help

⇨ Teach the love of learning

⇨ Virtual learning

⇨ Identify and encourage individual aptitudes

⇨ Healthy living

⇨ Solving your problems locally

⇨ Increase community support (community chest and food bank)

⇨ Promote self-help

THEME: Government

⇨ Reduction of regulation or unnecessary processes

⇨ Continued improvement in service and value

⇨ Town hall meeting to gather information

⇨ Mini-loans, use of all local tools, equipment computers

⇨ Virtual reality scenarios for learning

⇨ Lowered costs for higher education

⇨ Community focused interaction

⇨ More financial literacy

⇨ Make use of community buy in – those that have it, give up some to those that don't have it.

⇨ No special interest groups

⇨ Contingency planning

⇨ How to supplement downsizing

⇨ Combining services, more volunteers, economic development

⇨ Support of business, some deregulations, reduction in taxes

⇨ Lowered emergency services/recreation

⇨ Work with other organizations

⇨ Changing services

⇨ Grants

⇨ Search for ways to reduce costs of services currently provided

⇨ Energy solutions

⇨ Support to speed up processes on federal land

⇨ Continue expanding government transparency

⇨ "e" work

⇨ All energy sources

⇨ Regional job fairs

⇨ Incentive programs for retail and energy efficiency

⇨ Job fairs

⇨ Incentive packages for retail

c. Your community or target population

⇨ Local communities
⇨ Community involvement
⇨ Folks struggling
⇨ How to help each other
⇨ Consistency in a job market to keep property valuations up
⇨ Agriculture/ ranches
⇨ Minimize reliance on mineral and agricultural industries
⇨ Energy development
⇨ Small business
⇨ Business and industry
⇨ Tourism
⇨ All inclusive/aware/collective good
⇨ Find ways to influence and encourage all segments of population
⇨ Rural living
⇨ Diverse, higher economic population
⇨ Seasonal educated mixed with Hispanic services population
⇨ 5,100
⇨ Parents and students
⇨ Consumers
⇨ Stabilized
⇨ Working poor- those who are willing to work/pay taxes have programs to help them live the dream
⇨ Smaller communities will have a greater ability to rebound

d. Funding sources

THEME: Public Sector
⇨ Taxing the wealthy (no inequality)
⇨ Budget cuts
⇨ Do more with less
⇨ Diversify personal and property tax
⇨ State funded economic development to bring a new business each decaled
⇨ Public/private partnerships
⇨ Public funded energy projects back to the grid
⇨ Public/private partnership for energy exploration and development

⇨ Property taxes

⇨ Ability to share to benefit all whether dollars, talent, other natural resources

    ⇨ Comes from within the community

    ⇨ Less taxes

    ⇨ State, county, local

    ⇨ Profits and utilization of government assistance

THEME: Private Sector

    ⇨ Sales taxes

    ⇨ State incentives

    ⇨ Marijuana dispensary

    ⇨ Yucca mountain dump site tied to gambling rights

    ⇨ Lottery

    ⇨ Alternative resources and helping businesses stay afloat

    ⇨ Barter

    ⇨ Selling of public lands

    ⇨ Mini-loans interest

    ⇨ Barter and bargaining

    ⇨ New business

    ⇨ Sales/services tax

    ⇨ Stay local – neighbors helping neighbors

    ⇨ Will be limited, but finding ways to share or trade would be beneficial

e. Mission & Vision

THEME: Collaboration

    ⇨ Equity

    ⇨ Diversity and collaborative efforts to combine services

    ⇨ More collaborative with other entities for services to development

    ⇨ Regional partnerships

    ⇨ Promote regional partnerships (schools, other counties)

    ⇨ To be self-sufficient, self-funding and self-aware

    ⇨ Moving kids to think toward the future and how they fit into society

    ⇨ Become integral part of community by action and vision

    ⇨ Inclusive, self-reliant and sustainable

    ⇨ Long term independence or self-reliance

    ⇨ Working together everyone achieves more

    ⇨ Small steps made together will move the community forward by leaps and bounds

THEME: Economic Diversification

⇨ Diversify economy

⇨ Diversify funding sources

⇨ Relief from unfunded mandates and restrictions

⇨ Fiscal strength through small government and small communities

⇨ Increase participation in the industrial park

⇨ Self sufficient/funding/aware balance of investment in infrastructure with ability to deliver service

⇨ Value added services through needed services – recreational, sewer, utility, beaches, golf, ski

3. What are the most important actions your organization should take to succeed in this scenario?

THEME: Community

⇨ Buy-in from communities

⇨ Equitable community development

⇨ Collaborative efforts with other government organizations

⇨ State/county/private partnership to raise business opportunities

⇨ A way for children to come back after school to raise family

⇨ Bring our kids back to our communities

⇨ Focus as much of local skills and resources to do the greatest good and get everyone involved

⇨ Listen to your individual groups

⇨ Community leadership

⇨ Work on involving everyone; all opinions are important; listen; go to work

⇨ Local control

⇨ Better understanding of individual and community aspirations

⇨ Bring community together, group events

⇨ Find ways to encourage everyone to be involved

THEME: Lean Government

⇨ Look for alternative ways to provide services

⇨ Increase/embrace technology

⇨ Collaborative efforts with other government organizations

⇨ Technology a cheaper option

⇨ Work efficiently

⇨ Harness technology to reduce the cost of providing services

⇨ Lean/mean able to move quickly

⇨ Continued improvement in services

⇨ Encouraging continued non-passive social services

⇨ Improve education with little money
⇨ Lean government

THEME: Other ideas

⇨ Convince the wealthy to share
⇨ Run propaganda to convince and continue implementation by force
⇨ Strive for educated work force
⇨ Create cradle to grave vision for education
⇨ Deregulate business requirements to support economic growth
⇨ Look at deregulation to encourage new business and to keep established business open
⇨ Support land transfer back to the state
⇨ Decrease restriction to support new activities on public land
⇨ Long range succession planning
⇨ Encourage citizens to elect state leaders bold enough to eliminate collective bargaining in local government
⇨ Industrial park success generates revenue for county
⇨ Build acceptance of fairness for economics, education and health care
⇨ Start thinking outside the box
⇨ Let go of traditional thinking
⇨ Invest in bringing jobs
⇨ Open dialog for trading
⇨ Let go of fear

4. What headlines would you expect to see as this scenario comes to pass? These are referred to as "signposts."

THEME: Community
⇨ Population control
⇨ Graduation rates increase
⇨ Our city picked by AAA as #1 tourist destination of the century
⇨ Our city alumnus wins Nobel prize and funds higher learning institute
⇨ 50% of those raised in rural Nevada return home to raise their own families
⇨ Volunteerism on an increase; waiting list in place at fire house
⇨ Effective community communication
⇨ Work together in closer knit groups
⇨ Culture of we
⇨ Local focus on achievement and sustainability
⇨ Fairness to all
⇨ Less crime/more healthy condition of overall population

- ⇨ We work together; a culture of we; I becomes we
- ⇨ Citizen enjoyment of recreational opportunities being the best we can be
- ⇨ Culture of "we"
- ⇨ Work together
- ⇨ If we don't succeed to bring everyone in the community up, the sign will be "would the last person to leave town, please shut off the lights"

THEME: Government
- ⇨ Government limits ownership of guns
- ⇨ Government raises new taxes on the wealthy
- ⇨ Economy moving towards socialism
- ⇨ Minimum wage increases
- ⇨ Clean energy costs decrease
- ⇨ Green thinking becomes more apparent
- ⇨ Web access is more affordable and readily available
- ⇨ Help wanted! Uncle Sam needs you!
- ⇨ Comparison to a second depression
- ⇨ Burning Man hits 1,000,000 participants
- ⇨ Our county reduces sales and property tax rates to lowest in state
- ⇨ Yucca Mountain becomes a reality and every state pays Nevada
- ⇨ Stable tax/fee structure
- ⇨ A+ utility and infrastructure
- ⇨ Local leaders listen at a town hall meeting
- ⇨ Programs begin to improve
- ⇨ Doomsday!

THEME: Other
- ⇨ Collective bargaining outlawed in Nevada
- ⇨ Feds and State do away with collective bargaining
- ⇨ Feds and State do away with unfunded mandates
- ⇨ Economic vitality for business

1. What are the most significant changes between the present and the scenario you have just considered?

THEME: Economy

- ⇨ Economy may affect unions/contracts
- ⇨ Depression/recession accelerated
- ⇨ Unemployment still high
- ⇨ Unemployment still above 6%
- ⇨ Have not gone to depression yet
- ⇨ Closely parallels current situation
- ⇨ Economic status – time and talent may be as good as money
- ⇨ Working towards local entrepreneurship and local control, but being subject to a county union limits effectiveness
- ⇨ the present is the same as the scenario
- ⇨ unemployment rates go up
- ⇨ economy decreases
- ⇨ somewhat similar to past few years
- ⇨ it is not looking good
- ⇨ need to create job development
- ⇨ with higher costs in food and energy, the disparity between classes becomes more apparent
- ⇨ middle class shrinks
- ⇨ Doomsday!

Theme Narrative:

Although he worked hard and made a decent living for years, John now finds himself unemployed for an extended period of time with few prospects for continuing in his field. It's work he loved. He was loyal to his employers, but the economy took that away. Now middle-aged, his outlook is bleak and he doesn't have the skills needed in the current and future economy. John ponders his future thinking "I'm a lost cause. If social services run out, I don't know what I will do. I'm too old to learn new tricks, just like my dog. I'm not the entrepreneurial type and besides, I don't have the money anyway."

While steeped in his depressive thoughts, John barely noticed a shift around him. Neighbor Bill tinkered in his garage building some gadgets he thought people would need and buy. Amy, a woman he knew from his previous job, was taking online training courses in new skills. "She's my age. What business does she having trying to learn new skills, let alone on line," he exclaimed. Would there be a new job for her when she got done? The thought paralyzed John. He couldn't act and continued to descend into depression. "I'm not the welfare type, but I sure paid for lots of other people on welfare when I was working so I'm going to take my share now with this economy and all," he moaned.

Mary, John's wife, came home and announced that she was getting skills retraining at work so that she could keep up with the newly automated systems being launched. She was excited about the prospects and felt that the training would enhance her abilities for the long term as well. John silently steamed,

"Now she'll be ahead of me, too!" His resentment grew. Mary read his body language and encouraged him to look for some online training and to talk to his buddies about possible alternative work.

The next day, John took a walk to see his old friend Bill thinking he could help. Bill said, "John, good to see you out. Let me tell you about what the company is doing and what it'll take to get you on payroll. They have some new virtual training systems that are self-paced so you can progress as you are able. They need good, loyal workers and realize that loyalty and hard work can be solid assets that the younger work force may not have. They think old dogs have life left in them and given the chance, can learn the new skills needed." Bill's enthusiasm convinced John to give it a try.

1. What are the most significant changes between the present and the scenario you have just considered?

   ⇨ school system disparity
   ⇨ Less division or gap in top and bottom for education and healthy living
   ⇨ Lost higher education and it has not come back to support us and online courses are expensive
   ⇨ Our jobs are back, but many state and education activities and support are still gone
   ⇨ No charters, but more home schooling
   ⇨ Education is not nearly as positive as depicted in scenario
   ⇨ Performance based pay not supported
   ⇨ Public school are falling down because charter schools are succeeding
   ⇨ Charter schools gaining as public schools fail
   ⇨ High school graduation rates have not reached 90%
   ⇨ Performance based compensation is becoming a reality
   ⇨ Magnet school in rural areas

Theme narrative:

Justin wandered into his public elementary school hoping that today, just today, would be interesting for once. But no! The drone at the front of the theater of the absurd remained and the audience sat in muted silence wishing they could be somewhere else or at least do something besides take notes in preparation for the next invasive tests. "Can't we think and solve problems together?" Justin mused. "Wouldn't it be great if we could learn from real-life scenarios in small groups that have each of us contributing?" he wondered. "My friends and I could figure this stuff out better than just listening," Justin thought. "Maybe instead of teachers whining about pay for performance, they should just pay us to perform. That'd be like paying for circus actors with a ringmaster," he joked to himself.

Just then, Justin's laptop came alive along with the other students and a video announcement came up in 3-D. The announcer said that as of now, all teachers were confined to being education coaches. Learning would be through interactive, multiplayer video games. No more formal tests. The education coaches would facilitate the offline conversations in small groups as the students worked to solve problems on their own. Students were shown their randomly selected groupings that would be re-formed periodically to ensure diversity of thinking and experience. These groups were now called "learning pods" whose reports would come out as podcasts. The first assignment: develop scenarios about the political conflicts around what quality education means to the students including using art, math, English, history and sports insights. Justin's mind raced with gratitude and energy as they began.

Teacher (education coach) Sara Jones, now sidelined from the classroom lecture, feared the change and what would happen to performance measurements for her and the students. The district had considered pay tied to performance outcomes, but how would this be evaluated? Adapting to this new approach was scary. The district was too small for private or charter schools, so what choice did she

have? "No one consulted teachers like me," she moaned. "What do I do now?" A post to her school social media page popped up giving her a clue. "Education coaches now are networked for sharing ideas and getting guidance. No administrators will be involved in the coaches' exchanges. You must grow along with the students," said the message.

Principal Knowles entered the new virtual world in which she could monitor progress of the students and teachers in real time. She would use these observations to develop ideas for training the education coaches in techniques to improve collaborative problem solving and creating new assignments. She would in turn coach the coaches. She would be able to connect the student groups to groups anywhere around the world to work collaboratively on a common problem as the local groups advanced in capability. The groups could include any format for delivery of educational content including on-line schools, charter schools, private schools, home schools, technical and vocational schools, community colleges and universities. "Wow," she thought, "I now have international resources to tap into for the betterment of my school. It's a new world."

Meanwhile, Justin became immersed in his group that already had had deep conversations toward several scenarios and solutions to the vexing political conflicts surrounding education. "Who'd a thunk that a boring day could change so much so fast," he smiled at the thought.

1. What are the most significant changes between the present and the scenario you have just considered?

   - ⇨ Government more efficient
   - ⇨ No public trust
   - ⇨ More government intervention and movement toward socialism
   - ⇨ More subsidies and government aid
   - ⇨ Tax on investments
   - ⇨ Community health centers are becoming a reality
   - ⇨ More tax credits
   - ⇨ Effectiveness of government programs/departments analyzed and adjusted
   - ⇨ Tax structure – net proceeds loss of income from mines
   - ⇨ Plan for lack of funding/conservative budgeting

Theme Narrative:

"I don't know about you, but I think government tax structures are too complex, too cumbersome and drive the wrong outcomes for our communities. People want government efficiency, but they also whine when you take away a service they've gotten used to having. Why I remember when you had to go to city hall to pay your bills; they wouldn't even mail them. Now they want me to give them access to my online bank account to draw payments. And still my taxes don't go down," griped George. "Yeah, we all want more for less and all we get is less for more!" exclaimed Frank.

"My view is that we should be willing to pay for essential services we all need. Our debate should be about what those services are, what the costs are, and who else could provide them better than we can through government," said Sue. "Those that can afford it certainly aren't held back by lack of a government program. Only those who are strapped for dough have to take whatever the rest of the public is willing to provide, and that ain't much in a small town. I'm pretty self-reliant, but sometimes I need help, too," remarked Jason.

"Maybe that's a place to start. We could debate what essential services should be, like public safety and health, water and sewer, etc. Let's start with what we have, make a long list, then start checking off which ones are essential for everyone and which ones are nice to have, but could be left to individuals to get on their own," said Maria.

1. What are the most significant changes between the present and the scenario you have just considered?

⇨ Decentralized local community focus
⇨ Community involvement
⇨ Retain fruits of effort instead of feeding up with no local benefit in return
⇨ Local control of resources
⇨ Designate, use more local
⇨ Less national/state dictating rules
⇨ Individuals take action to initiate change in their communities
⇨ Local control
⇨ Working towards local entrepreneurship and local control, but being subject to a county union limits effectiveness
⇨ Local control of local resources, land, water, use of land
⇨ Local control; less federal and state
⇨ More government support of local communities and initiatives
⇨ More awareness of individual values and worth
⇨ Emphasis on collaboration of segments of community and individuals

Theme Narrative:

"Gridlock! It's an habitual condition in Washington and we get nothing out of it. Even the State of Nevada isn't much use with its own budget problems. What are we to do?" Bob lamented the lack of local control as a common problem for both urban and rural communities. Amy wondered, "If the federal and state are so incapable of functioning for our benefit, why can't we do it ourselves? After all, it's small business that is the foundation of our local economy in addition to our local government employers and we know what we need." More voices rose at the community center as local residents expressed frustration.

"I have an idea," said Dan, "let's try collaborating and brainstorming with all of our community. Perhaps then we'll find ways that work locally. For example, some of our local businesses could share resources with each other in order to reduce operating costs. Same goes for the governments. We don't have to have multiple layers of government with separate systems performing similar functions anymore than do the businesses. In fact, maybe some of the businesses could take on government functions or the government could take on some local business operations functions at the same time."

"Whoa!", said Amy, "aren't their legal restrictions on some of these ideas?" "Sure," replied Dan, "but until we find some common ground for local action we shouldn't stifle the discussion about possibilities. There'll always be time for the lawyers to muck things up. Let's start with things that might create jobs or cost efficiencies first and see where it leads us."

Communities without Boundaries

A Strategic Narrative

GOAL: CREATE PREFERRED FUTURE

- Coalesce around community, not power structures
- Start with safety and health of citizens
- Consider wild cards and black swans
- Consider *s t r e t c h* goals
- Review Mission and Vision: Are they about this preferred future? If not, what changes may be needed?
- What are some AUDACIOUS goals?
  - Goals that make a difference
  - Beyond conventional expectations

REMOVING POLITICAL BARRIERS
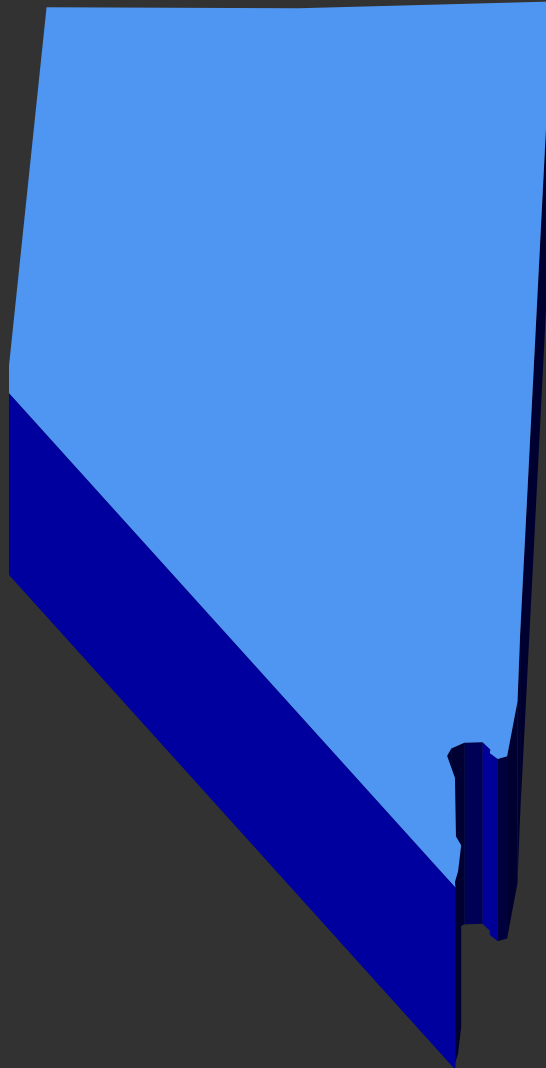
WHY WOULD WE GOVERN?

Where would we govern?

When would we govern?

Who would we govern?

WHAT WOULD WE GOVERN?

HOW WOULD WE GOVERN?

SHARED ECONOMIC OPPORTUNITY MODEL

- What is happening?
- Where is it happening?
- To whom is it happening?
- Why is it happening?

CROSS BOUNDARY INTERACTIONS

- Cross boundary issues
- Cross boundary opportunities
- Cross boundary existing connections

- What if?
  - Schools and MOOC's worked together (24/7)
  - Social services and law enforcement collaborated
  - Utilities and roads worked across boundaries
  - Administrative services were shared
  - Services such as IT were shared

TRENDS

- Demographic
- Economy
- Energy
- Education/learning
- Technology
- Services
- Sharing

COMMUNITY PREVENTIVE SERVICES

- **Preventive Health Care Services**
- Medical, dental, nursing, mental health and other health care providers may find the Community Guide is a valuable complement to the Clinical Guide to Preventive Services that can assist them in:
  Adopting evidence-based strategies to improve the health of individuals and populations
- Promoting partnerships between practitioners and government, community, business, and voluntary organizations to plan and implement effective strategies in multiple health topics
- Combining information on what has worked with knowledge of a local community and healthcare system to design interventions that are tailored to local needs and realities
- Linking your website to The Community Guide (www.thecommunityguide.org)

WHAT WOULD POOL/PACT'S ROLES BE?

- Constituents
- Oversight
- Functions
- Financing
- Employees
- External Actors

CHANGE CHALLENGES

$$C = (D*V*F) > R$$

Change equals Dissatisfaction times Vision times First Steps which must be greater than Resistance to Change

POOL/PACT HR

A variety of services are offered through POOL/PACT HR. We work with each member individually to address their specific HR-related needs. The basic services include:

· Consultation with members to manage and resolve critical employment-related incidents to include identifying options, providing step-by-step guidance, monitoring progress, and answering questions.

· Instructor-led training classes and workshops designed to reduce HR liability for member organizations.

· On-line training classes.

· On-site assessment of member's HR practices with recommendations to reduce HR liability.

· Communication issued as "Alerts" to notify members when a significant HR-related law or practice has changed that has an impact to the organization.

· Onsite HR Briefings tailored to specific needs/requests of members.

· Development of sample personnel policies that can be adopted for use by members.

· Development of over 200 sample job descriptions and numerous HR forms that can be tailored for use by members.

· Quarterly webinars in partnership with Horizon Health, your employee assistance   program (EAP) provider.

Full-time Staff

Jeanne Greene, General Manager

Stacy Norbeck, Sr. HR Business Partner and Training Manager

Shani Dues, Sr. HR Business Partner

John Bates, Sr. HR Business Partner

Neal Freitas, Business Partner

Christine Video, Staff Analyst

Deanna Keirstead, Administrative Assistant

Part-time Staff

Bill Zelinski, Sr. HR Business Partner, approx. 20 hours per month

Dana Carvin, Business Partner, approx. 2 days per week

Sharon Gesick, Administrative Assistant, approx. 25 hours per week

Member	YEAR 06-07		YEAR 07-08		YEAR 08-09		YEAR 09-10		YEAR 10-11		YEAR 11-12		YEAR 12-13		YEAR 13-14		YEAR 14-15		TOTAL ALL YEARS	
	No. of Claims	Total Incurred	No. of Claims	Total Incurred	No. of Claims	Total Incurred	No. of Claims	Total Incurred	No. of Claims	Total Incurred	No. of Claims	Total Incurred	No. of Claims	Total Incurred	No. of Claims	Total Incurred	No. of Claims	Total Incurred	No. of Claims	Total Incurred
Counties:																				
CARSON CITY	3	99,664.90	2	28,376.37	2	36,985.44	0	-	0	-	0	-	0	-	0	-	0	-	7	165,026.71
CHURCHILL COUNTY	0	-	0	-	1	2,166.50	2	25,774.67	0	-	2	6,877.50	0	-	2	20,000.00	0	-	7	54,818.67
DOUGLAS COUNTY	2	5,391.46	0	-	3	68,454.40	1	4,589.22	2	5,993.73	3	13,513.40	1	6,870.72	0	-	0	-	12	104,812.93
ELKO COUNTY	0	-	0	-	5	19,314.64	1	-	1	-	1	1,170.00	4	103,000.00	1	-	0	-	13	123,484.64
ESMERALDA COUNTY	0	-	1	2,665.70	0	-	0	-	0	-	0	-	0	-	0	-	0	-	1	2,665.70
EUREKA COUNTY	0	-	0	-	0	-	2	825.94	1	33,812.55	1	375.00	4	20,952.55	1	75,000.00	0	-	9	130,966.04
HUMBOLDT COUNTY	0	-	0	-	1	150,591.71	1	6,787.01	0	-	2	4,825.65	0	-	2	50,000.00	1	2,420.80	7	214,625.17
LANDER COUNTY	2	9,830.38	0	-	1	2,907.44	0	-	4	74,279.51	2	5,563.44	1	6,389.35	2	645.00	0	-	12	99,615.12
LYON COUNTY	0	-	1	33,055.67	0	-	2	32,991.14	1	23,390.47	0	-	1	-	6	142,141.02	0	-	11	231,578.30
MINERAL COUNTY	0	-	0	-	0	-	0	-	0	-	0	-	1	2,227.40	2	26,500.00	1	19,000.00	4	47,727.40
NYE COUNTY	0	-	2	5,210.46	3	93,787.07	5	25,436.44	1	-	3	57,114.13	5	60,000.00	3	50,000.00	0	-	22	291,548.10
PERSHING COUNTY	0	-	1	20,218.26	0	-	0	-	0	-	1	1,316.00	0	-	0	-	0	-	2	21,534.26
STOREY COUNTY	2	5,077.99	0	-	0	-	3	28,014.83	1	142.50	1	660.00	1	12,000.00	2	15,000.00	0	-	10	60,895.32
WHITE PINE COUNTY	2	31,535.43	2	4,946.56	0	-	2	5,677.00	3	46,279.51	0	-	2	31,000.00	2	19,001.00	0	-	13	138,439.50
COUNTIES TOTAL	11	151,500.16	9	94,473.02	16	374,207.20	19	130,096.25	14	183,898.27	16	91,415.12	20	242,440.02	23	398,287.02	2	21,420.80	130	1,687,737.86
Cities:																				
BOULDER CITY	0	-	2	10,032.98	1	840.00	0	-	0	-	0	-	0	-	0	-	1	19,000.00	4	29,872.98
CALIENTE, CITY OF	0	-	0	-	0	-	1	345.54	0	-	0	-	0	-	1	19,000.00	0	-	2	19,345.54
ELKO, CITY OF	0	-	0	-	1	4,050.00	0	-	0	-	0	-	1	28,230.00	2	20,712.10	0	-	4	52,992.10
ELY, CITY OF	0	-	0	-	0	-	0	-	0	-	0	-	1	19,000.00	1	33,684.13	0	-	4	52,684.13
FERNLEY, CITY OF	5	217,681.56	0	-	1	1,384.50	5	70,554.62	4	18,084.62	0	-	2	2,670.00	3	15,000.00	1	10,000.00	21	335,375.30
MESQUITE, CITY OF	4	30,596.29	1	4,589.10	0	-	1	-	1	6,037.22	2	14,532.04	1	12,000.00	0	-	0	-	10	67,754.65
WELLS, CITY OF	0	-	0	-	0	-	1	16,906.48	0	-	0	-	0	-	0	-	0	-	1	16,906.48
WEST WENDOVER, CITY OF	1	14,347.74	0	-	0	-	0	-	0	-	1	15,000.00	1	7,507.50	0	-	0	-	3	36,855.24
WINNEMUCCA, CITY OF	0	-	0	-	0	-	0	-	1	-	0	-	0	-	0	-	0	-	1	-
YERINGTON, CITY OF	0	-	0	-	0	-	0	-	1	45,000.00	0	-	0	-	0	-	0	-	1	45,000.00
CITIES TOTAL	10	262,625.59	3	14,622.08	3	6,274.50	8	87,806.64	7	69,121.84	3	29,532.04	6	69,407.50	9	88,396.23	2	29,000.00	51	656,786.42
School Districts:																				
CARSON CITY SCHOOL DIST.	0	-	0	-	1	19,753.43	2	434.00	0	-	3	7,817.50	0	-	0	-	0	-	6	28,004.93
CHURCHILL CO. SCHOOL DIST.	0	-	3	49,867.45	1	13,725.42	6	918,455.31	4	930,108.36	8	68,162.12	1	8,500.00	1	10,000.00	0	-	24	1,998,818.66
DOUGLAS CO. SCHOOL DIST.	2	6,735.93	0	-	1	7,954.76	0	-	2	5,002.50	0	-	1	495.00	1	4,320.00	0	-	7	24,508.19
ELKO CO. SCHOOL DIST.	1	1,528.55	2	61,200.78	0	-	0	-	2	3,954.76	0	-	0	-	0	-	0	-	5	66,684.09
ESMERALDA CO. SCHOOL DIST.	0	-	0	-	1	266.00	0	-	0	-	0	-	0	-	0	-	0	-	1	266.00
EUREKA CO. SCHOOL DIST.	0	-	0	-	0	-	0	-	0	-	1	23,542.80	0	-	0	-	0	-	1	23,542.80
HUMBOLDT CO. SCHOOL DIST.	0	-	0	-	1	21,275.60	0	-	0	-	0	-	0	-	0	-	0	-	1	21,275.60
LANDER CO. SCHOOL DIST.	0	-	0	-	1	364.00	1	5,707.45	1	4,800.00	0	-	0	-	0	-	0	-	3	10,871.45
LINCOLN CO. SCHOOL DIST.	0	-	0	-	0	-	0	-	0	-	0	-	1	1,920.00	0	-	0	-	1	1,920.00
LYON CO. SCHOOL DIST.	2	87,037.21	3	28,726.09	4	11,154.50	2	2,746.00	1	2,565.00	4	6,857.50	7	17,959.27	3	17,500.00	1	5,000.00	27	179,545.57
MINERAL CO. SCHOOL DIST.	3	22,495.90	2	35,345.95	0	-	4	60,989.71	1	1,295.22	0	-	0	-	1	19,000.00	1	19,000.00	12	158,126.78
NYE CO. SCHOOL DIST.	0	-	0	-	0	-	1	27,471.48	10	2,154,859.99	1	-	3	19,000.00	0	-	0	-	15	2,201,331.47
PERSHING CO. SCHOOL DIST.	0	-	0	-	1	1,386.00	0	-	0	-	0	-	0	-	0	-	0	-	1	1,386.00
STOREY CO. SCHOOL DIST.	1	34,136.76	1	3,239.46	0	-	1	4,941.40	0	-	0	-	0	-	0	-	0	-	3	42,317.62
WHITE PINE CO. SCHOOL DIST.	0	-	0	-	0	-	2	15,196.86	0	-	0	-	1	285.00	0	-	1	19,000.00	4	34,481.86
SCHOOL DISTRICTS TOTAL	9	151,934.35	11	178,379.73	11	75,879.71	19	1,035,942.21	21	3,102,585.83	17	106,379.92	14	48,159.27	6	50,820.00	3	43,000.00	111	4,793,081.02
Special Districts:																				
BEATTY WATER & SANITATION DIST.	0	-	0	-	0	-	1	2,408.00	0	-	0	-	0	-	1	-	0	-	2	2,408.00
INCLINE VILLAGE GID	0	-	0	-	0	-	0	-	1	40,561.01	0	-	1	17,275.62	0	-	0	-	2	57,836.63
INDIAN HILLS GID	0	-	0	-	3	22,093.61	3	25,775.11	0	-	0	-	1	28,699.66	0	-	0	-	7	76,568.38
NEVADA RURAL HOUSING AUTHORITY	0	-	0	-	1	5,079.35	0	-	0	-	0	-	1	3,238.56	0	-	0	-	2	8,317.91
SUN VALLEY GID	1	6,508.15	1	20,255.61	0	-	1	27,474.10	1	-	0	-	0	-	0	-	0	-	4	54,237.86
TRUCKEE MEADOWS FPD	0	-	0	-	0	-	0	-	0	-	0	-	0	-	2	5,200.00	0	-	2	5,200.00
VIRGIN VALLEY WATER DIST.	0	-	0	-	0	-	0	-	0	-	0	-	1	950.54	0	-	0	-	1	950.54
SPECIAL DISTRICTS TOTAL	1	6,508.15	1	20,255.61	4	27,172.96	5	55,657.21	2	40,561.01	0	-	4	50,164.38	3	5,200.00	0	-	20	205,519.32
Towns:																				
PAHRUMP, TOWN OF	1	2,090.20	1	4,737.62	2	22,917.15	0	-	0	-	2	22,500.00	2	117,525.00	0	-	2	21,000.00	10	190,769.97
TOWNS TOTAL	1	2,090.20	1	4,737.62	2	22,917.15	0	-	0	-	2	22,500.00	2	117,525.00	0	-	2	21,000.00	10	190,769.97
TOTAL ALL	32	574,658.45	25	312,468.06	36	506,451.52	51	1,309,502.31	44	3,396,166.95	38	249,827.08	46	527,696.17	41	542,703.25	9	114,420.80	322	7,533,894.59

MISSION:

The POOL/PACT member services consortium provides responsive risk and management resources for public agencies.

We Excel In:
- Innovative solutions that help Members serve the Public
- Financial strength, security and durability
- Cost effective risk sharing and financing
- Interactive claims service
- Member networking and resource sharing

We Are:
- Member-governed
- Stewards of public assets
- Committed to quality member services
- Focused on the future

VISION:

Every Member actively manages the risks encountered as a public agency. Membership is a privilege earned by effective agencies committed to sharing resources to benefit their employees and the public they serve.

MOTTO:

We deliver public agency risk/management solutions.

GOALS:

1. To incorporate risk management into member management strategies.
2. To sustain financial strength to meet our commitment to Members.
3. To deliver innovative education, training and support as a primary service.
4. To grant membership privileges to public agencies who demonstrate commitment to our Mission and Vision.
5. To provide stunning, sustainable service.
6. To share resources between Members so that all succeed.

CORE VALUES:

Foresight: We focus on the future so that innovation, initiative and foresight lead to a greater pool in the future than we have created today.

Accountability: We hold ourselves accountable to each other as members by committing to the vision and values we share. We encourage the pursuit of excellence.

Competence, knowledge and service: We excel in competence, knowledge and service to our members through reliable, optimally affordable programs and services.
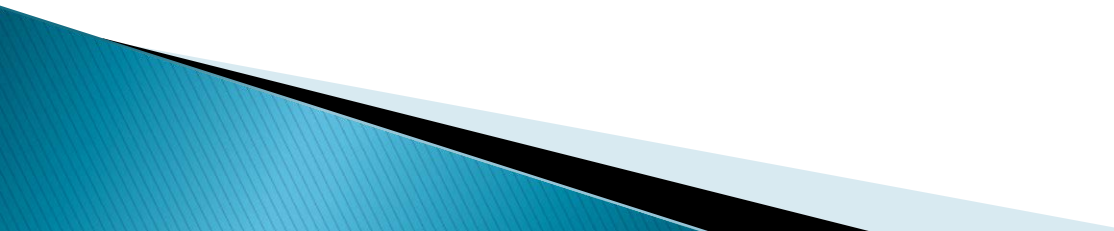
Trust, honesty and courageous candor: We bring respect to our pools through trust, honesty and courageous candor in conducting ourselves and directing the pools.

Adopted 5/01/00
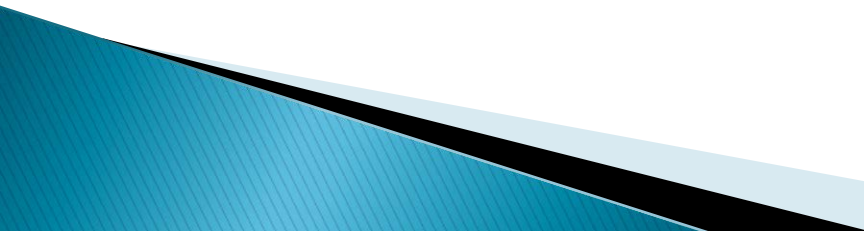
Retentions and Investments

Evolution and Projections
2004/5 to 2014/15
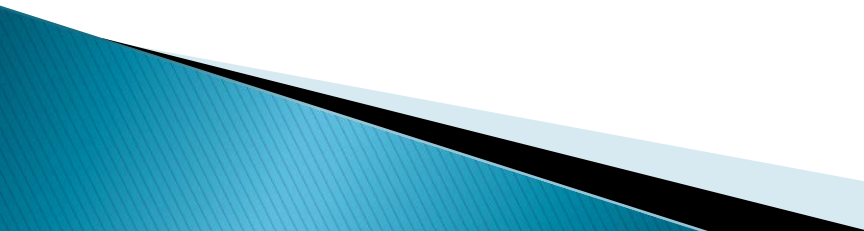
Retention

- Historic and Current Retentions, PACT & POOL
- Role of PRM and PCM
- Role of CRL, UE, and GEM
- Role of Other Reinsurers
- Retention related to Finances

Finances

- Historic and Current 'Surplus' (Net Worth) Available to Cover Retention (pools and captives)
- Uncertainty of Future Payouts (Heart-lung)
- Investments – Historic and Current
- Investments – Evolution of Structure and Partners
- Growth of Retention linked to Growth of 'Surplus'

Mission and Policies

▸ Grow the Retention (pools/captives)
▸ Fund the Retention
▸ Services & Growth <u>vs</u> Return of Funds
▸ Investment Policies and Partners
▸ Role of Captives (Group now Single Parent)
▸ Reinsurance Partners (GEM, UE, CRL)
▸ Reinsurance 'Partners' (Lloyds, BRIT, Safety National)

PACT Structure

2004-5
MIDWEST TO STATUTORY MIDWEST 3MM AGG X/S
350,000 PACT RETENTION (750,000 POLICE/FIRE)

2014-15
CRL/SNCC TO STATUTORY PRM/SNCC SHARE 3MM AGG X/S 50-50
2,000,000 XS 1MM CRL 75% PCM 25%
PCM 500,000
PACT   500,000   RETENTION

POOL Property Structure

2004-5

LLOYDS TO 300,000,000
50,000 PRM
150,000 RETENTION POOL

2014-15

LLOYDS TO 300,000,000
300,000 RETENTION PRM
200,000 RETENTION POOL

POOL Casualty Structure

2004-5 CASUALTY	
MARP 7.75 MM XS 2.25MM	
250,000 XS 2MM PRM	
1.5 MM XS 500K CRL 80% PRM 20%	UE 100% SCHOOLS
500,000 POOL RETENTION	

2014-15 CASUALTY	
7MM XS 3MM PRM 10% (700K) GEM 40% (2.8MM) BRIT 50%	
2.5 MM XS 500K CRL 80% PRM 20%	UE 100% SCHOOLS
500,000 POOL RETENTION	
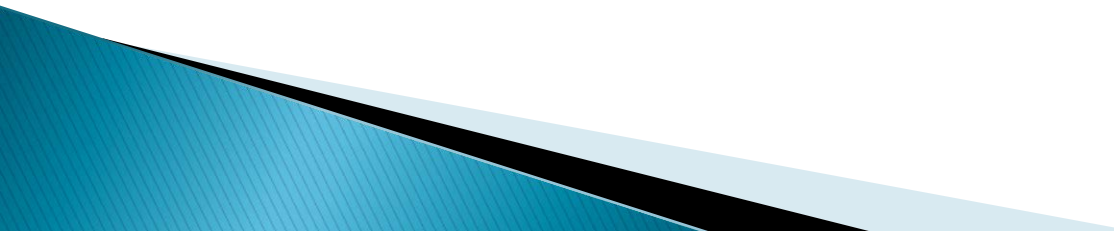
Projected Retention
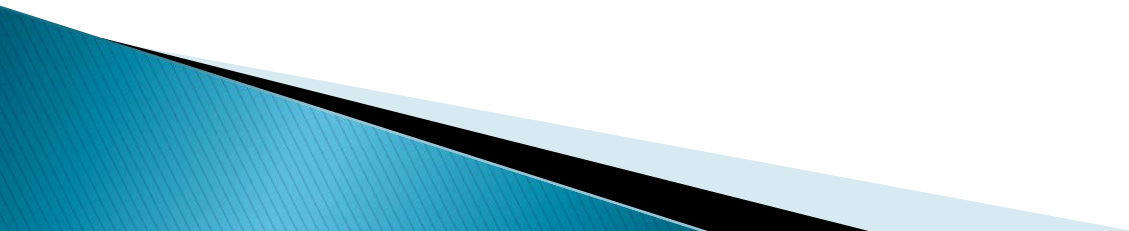
Growth of Net Assets

- POOL 6.88 MM
- PRM 1.03 MM
- Total 7.91 MM
- Retn/SIR 19.7 (target 8:1)

- PACT 7.04 MM
- Retn/SIR 17:1

- All Ratios Very Comfortable

2004 (June 30)

- POOL 29.01MM
- PRM 23.09 MM
- PRM 1.34 MM
- Total 53.44 MM
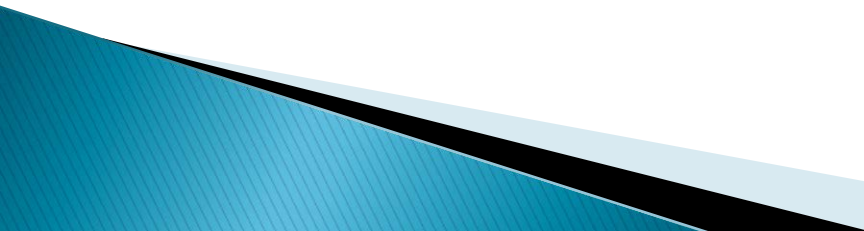
- PACT 43.10 MM
- PCM 34.96 MM
- Total 78.06 MM

All Ratios Very Comfortable (12:1 now)

2014 (June 30)

Investment Evolution

- POOL and PACT constrained very tightly
- Established Captives partly to Diversify
- PRM 2004, PCM 2007
- Captives 35% Equity Targets
- 2008 Financial Train-wreck
- Interest Rates Down, Equity Markets Up
- $158 MM invested June 30, 2014
- Long-term Strategy (was Liquidity, Capital Preservation, Now Also Growth/Diversification)
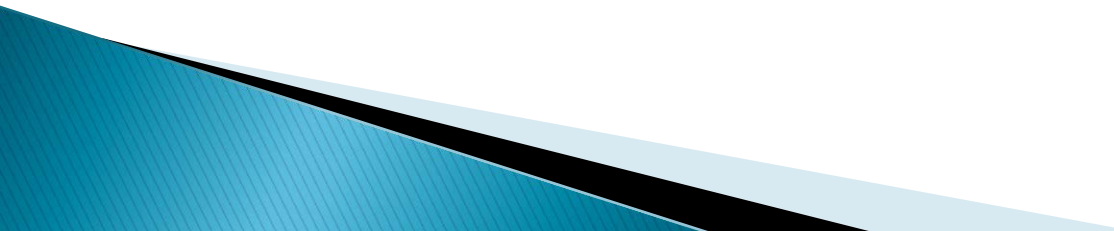
Investment Structure/Partners

- Raymond James Advisors
- Raymond James (Custody)
- Eagle Asset Mgrs. (Owned by Raymond James)
- 2008, 'Conflicts' of Interest, Separation of Functions Indicated, Though No Issues
- Transitioned to Wells for Custody in 2011
- Added PFM (Manager) shortly afterwards

- Wells Fargo (Custody)
- Eagle and PFM (Managers)
- Transitioned to SAA July 1, 2014, as Advisor

- SAA Will Review Entire Program 2014–2015
- Good History and Position – Anticipating Rather than Reacting

| 2004 | 2014 |

Mission and Policies

- Grow the Retention (pools/captives)
- Fund the Retention
- Investment Policies and Partners
- Role of Captives (Group to Single Parent)
- Reinsurance Partners (GEM, UE, CRL)
- Reinsurance 'Partners' (Lloyds, BRIT, Safety National)

Community Safety Leadership

Is this on your agenda?
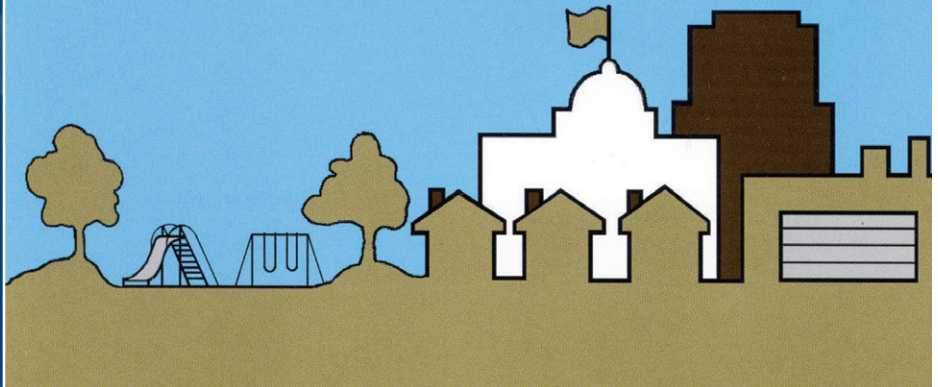
Organizing a successful safety program to protect the public

Model Resolution Establishing Citizens Advisory Committee for Public Safety

W H E R E A S, Each year, residents in our community are needlessly injured in pedestrian accidents, biking accidents, sports injuries, slips and falls, playground accidents, motor vehicle accidents, and others; and

W H E R E A S, many departments within the municipality touch on public safety issues; and

W H E R E A S, there is a need to coordinate these efforts and encourage the involvement of the Board of Education, community groups as well as citizen volunteers.

N O W,   T H E R E F O R E,   B E   I T   R E S O L V E D by the (governing body type) of the (local unit name) as follows:

1. A Citizens Advisory Committee for Public Safety is hereby established to coordinate the community's programs to address such issues as pedestrian accidents, biking accidents, sports injuries, slips and falls, playground accidents, motor vehicle accidents, and others.

2. The Committee's membership shall consist of the municipal manager, chief of police, DPW superintendent, municipal engineer, recreational director and _____ citizen volunteers appointed by (input the appointing authority used by the municipality to appoint advisory committees).

3. The Committee's membership shall also include a member of the governing body, selected by _____ and a member of the Board of Education selected by the board.

4. The Committee shall periodically report its progress to the governing body and the Board of Education

Visit njmel.org for template

Community Safety Leadership

Each year, many residents in our communities are needlessly injured in pedestrian accidents, biking accidents, sports injuries, slips and falls, playground accidents, motor vehicle accidents, and others. The Community Safety Leadership (CSL) program is designed to help local officials address these concerns.

How the CSL Program Works

Many municipal departments touch on public safety issues. The objective is to coordinate these efforts and enlist the help of volunteers from the community.

An effective way to achieve this is to establish a Citizens Advisory Committee for Public Safety consisting of member of the governing body, a member of the Board of Education, the municipal manager, chief of police, DPW superintendent, municipal engineer, recreational director and a number of concerned citizens. The committee should also seek input from Home and School Associations as well as neighborhood groups.

To provide the committee with the necessary support, place the issue on the governing body's monthly discussion agenda. Only the governing body can establish the necessary priority. Safety programs too often fail when they are given a high priority for a short period, but then receive little if any notice until the issue becomes hot again, usually after a serious accident. It is important to give public safety consistent attention. One of the purposes of the CSL program is to help achieve this consistency.

Getting Started

This booklet discusses eight major public safety problems. Also, the enclosed DVD produced in conjunction with the Brain Injury Association is a basic overview of these issues.

Pedestrian Safety

Each year, approximately 70,000 people are injured and 4,650 are killed in pedestrian accidents. Children and senior citizens are involved in a disproportional number of these cases. Pedestrian accidents are more frequent in urban areas but are more likely to be fatal in rural areas.

Intersection mishaps are the most common pedestrian accident. Senior Citizens are especially vulnerable because they cannot cross the street as quickly and often fail to notice vehicles in turning lanes. Children are more prone to midblock accidents, especially where parked cars are present. Alcohol is a frequent factor in accidents where the pedestrian was walking along a roadway.

Increased speeds put pedestrians at higher risk. If a car traveling 20 mph hits a pedestrian, there is a 95% chance that the pedestrian will survive. However, the survival rate decreases to 45% at 30 mph and less than 10% at 40 mph. Reducing speeds, especially where pedestrians concentrate in residential and business districts must have a high priority in any pedestrian safety campaign.

Pedestrian accidents at intersections can be substantially reduced by the installation of proper signals, signs and street markings. For example, research has shown that marked crosswalks are twice as safe as unmarked crosswalks – the more conspicuous the markings the better (motorists don't see crosswalks as easily as pedestrians think). However, overuse of this technique may cause driver disrespect and give pedestrians a false sense of security.

Marked crosswalks should be limited to major pedestrian routes identified in the community's pedestrian route plan.

Many towns have established special crossing zones where motorists are required to stop for pedestrians. Popular with the public and inexpensive, these zones are especially common in central business districts and are typically marked with signs placed in the street. Stop for pedestrian zones should be conspicuously marked – some towns also use different paving materials so that the zone really stands out as something different.

Standard signals are installed primarily for traffic control and often do not give pedestrians adequate time to cross. Various types of improved pedestrian signals are available. When new signals are being proposed, the governing body should insist that adequate consideration is given to the pedestrian safety problems in the area. Each of type of signal has its advantages and a professional traffic engineer should evaluate their use. Consideration should also be given to installing center islands in the middle of busy streets so that pedestrians, especially senior citizens, may take two light cycles to finish crossing.

Types of Pedestrian Accidents

Backing Vehicle — 7%
Walking Along Roadway — 8%
9% Roadway
14% Other
32% Intersection
30% Midblock

Pedestrian Fatality Rate by Vehicle Speed

	20mph	30mph	40mph
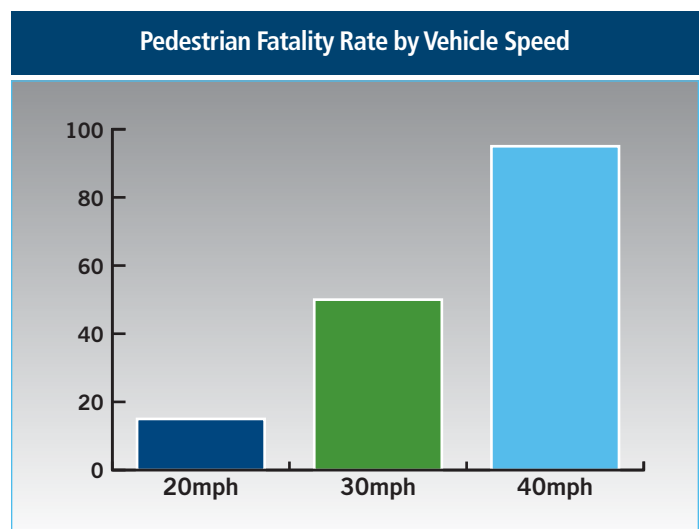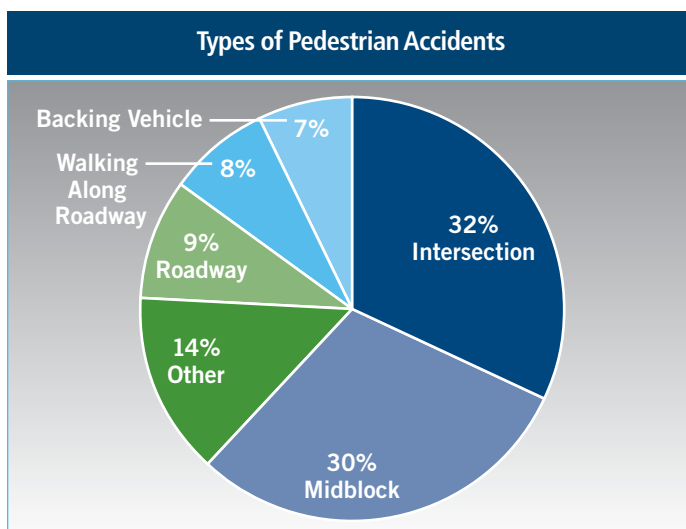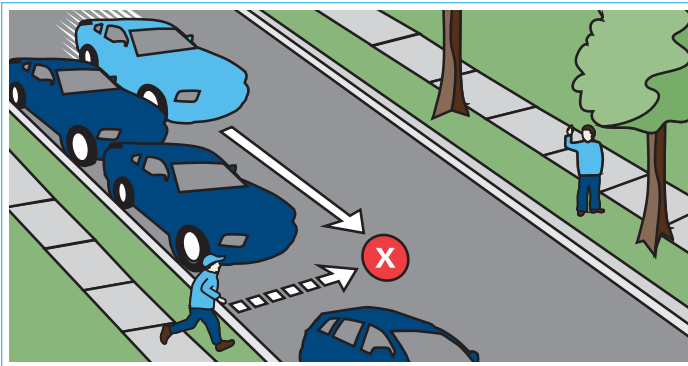
Mid-block dart out

The mid-block dart out is the second most frequent type of pedestrian accident. Frequently, the sequence of events involves a child, usually below the age of ten, who darts into the path of a car. A significant contributing factor is the inability of younger children to locate a moving object with their hearing. A parked vehicle blocking the motorist's vision often compounds the situation.

Towns that ban overnight on-street parking in residential zones report substantially fewer mid-block pedestrian accidents. Where parking is prohibited on municipal streets overnight, there tends to be less daytime parking as well, reducing the risk that a motorist's vision will be blocked by parked vehicles. To be effective, these ordinances must be enforced. Unfortunately, some communities are unable to prohibit overnight parking on municipal streets because many older residential zones were built without adequate off street parking. Obviously, traffic calming and educational programs are much more important where on-street parking is allowed.

The most frequent complaint received by local officials concerns speeding in residential zones. This problem can be solved, but it requires continuous public education combined with highly visible enforcement and the installation of traffic calming where possible. Your community must get the reputation for having zero tolerance for residential speeding.

Police Departments often have a community resource officer to conduct educational programs and work with school staffs and parents. Training programs should also be conducted for senior citizens – both as drivers and as pedestrians. The Federal Department of Transportation has developed numerous educational programs that are available at nominal cost. These programs include an extensive catalogue of videos that can be used in classrooms and even televised – an interesting idea, especially now that many communities have the ability to provide public interest programming over cable television.

Wherever possible, pedestrian and bicycle routes should be established to connect residential areas and commercial centers, schools, recreational facilities and other destinations. Periodically, sidewalk routes should be surveyed to determine that they are complete and maintained in good condition. Pedestrians will often tell you where sidewalks are lacking. Look for places where pedestrians have worn a path by the side of the roadway – a telltale sign that sidewalks are needed. Often, residents will object to sidewalks because it supposedly spoils the rural character of the area. Yet, it is precisely this rural character that makes these streets so dangerous for pedestrians, especially at night.

A high number of pedestrian accidents occur in parking lots. Because the size of a new building is often limited by the number of parking spaces, developers try to squeeze in as many parking spaces as possible with little thought given to pedestrian circulation. Your Planning and Zoning Boards must be your town's first line of defense against this practice. All parking lots should have clearly marked pedestrian routes. Consideration should be given to the use of diagonal parking wherever possible.

Vendor related pedestrian accidents are similar to the mid-block dart out accidents. Since the early 1980s, these accidents have been reduced in New Jersey because trucks are required to have stop arms with flashing lights originally developed for school buses. Under State law vendors must activate the arm when making sales. Motorists are required to stop, but unlike school buses, motorists can then proceed. Each community should adopt an ordinance prohibiting vending on any street with a speed limit over 25 miles per hour as well as arterial roads (specifically named in the ordinance).
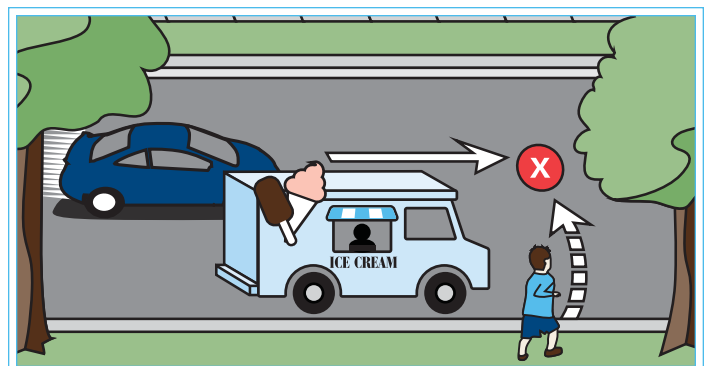
Vendor related pedestrian accidents

School Crossing Guards

The position of School Crossing Guard has become one of the most dangerous occupations in local government.

Over the last decade, the accident rate for crossing guards has increased 65%.

Thirty years ago, half of our children walked to school. Today, only 15% walk. As a result, our school zones are clogged with more traffic than they were designed to handle. Further, motorists are often in a hurry when they drop off or pick up their children and too many parents are not paying attention because of cell phones and other distractions.

Another significant factor is that many grossing guards gradually lose their ability to use their hearing to locate moving objects, such as cars. Many of these accidents occur at times when visibility for both motorists and crossing guards is restricted because of sun glare or inclement weather.

Crossing Guard Safety Program

Medical Examinations for Crossing Guards

Crossing guard candidates should complete the same medical history and physical examination required for pre-placement examinations designed for other municipal fulltime positions. Particular attention should be given to hearing and eyesight. The examination should be repeated every five years up to age 39, every two years up to age 49, and annually thereafter. *See njmel.org*

Training

The police department should conduct a training class for crossing guards before the beginning of each school year. The MEL and NJCOP produced a new video, "Street Smart is Street Safe" that specifically addresses the hazards in a high density state such as New Jersey.

Traffic Calming

Each crossing station should be reviewed by the municipal engineer and police department to determine what can be done to improve visibility and slow traffic. It is critical to consider sun glare at different times of the year as well as inclement weather. Hills also present special concerns. List the stations in order of priority and work with school officials to make the necessary improvements.

Public Awareness

The public as well as the Home and School Associations should be recruited to help in the program. On the following page is a model press release and newsletter article.

A radar sign was installed at this crossing station.

Reflective jackets and vests as well as stop signs significantly improve visibility during inclement weather

Mayor Announces New Program to Protect Children and Crossing Guards

Mayor _____ has announced that the Police Department will implement the new Street Smart is Street Safe program to protect the safety of school children and School Crossing Guards. According to Police Chief _____, the reasons for the high frequency of accidents involving school children and School Crossing Guards include:

- New Jersey is the most densely populated state in the nation, a situation made worse by the number of vehicles on the State's roads. For example, 30 years ago 50 percent of students walked or biked to school. Today, 85 percent are driven to school, resulting in congestion in school zones far beyond what the streets were designed to handle.

- Distracted drivers including people eating or drinking behind the wheel, using cell phones or simply not paying attention. There also are increasing incidents of aggressive driving. Unfortunately, most unsafe driving in school zones is by drivers who use the streets most often, the parents and grandparents dropping off or picking up children.

The program, which features a new training video for school crossing guards, was produced by the Municipal Excess Liability Joint Insurance Fund (MEL) and the New Jersey Association of Chiefs of Police.

Chief _____ requested that any person seeing an incident of unsafe driving, including double parking, or unsafe conditions, such as blocking the view of a crossing guard, should notify the police department (telephone number) as soon as it is practical.

Street Smart Is Street Safe!

We need the help of every citizen to protect our school children and school crossing guards. Tragically, the pedestrian accident rate has significantly increased statewide:

New Jersey is the most densely populated state in the nation, a situation made worse by the number of vehicles on the State's roads. For example, 30 years ago 50 percent of students walked to school. Today, 85 percent are driven to school, resulting in congestion in school zones far beyond what the streets were designed to handle.

Too many drivers are distracted by eating or drinking behind the wheel, using cell phones or simply not paying attention. There also are increasing incidents of aggressive driving. Unfortunately, most unsafe driving in school zones is by drivers who use the streets most often, the parents and grandparents dropping off or picking up children.

See children ahead? Don't assume they know you are coming, even if they are looking right at you. Children and senior citizens lack auditory localization – the ability to locate a moving object by hearing it. That's why children and older people are far more likely to be involved in pedestrian accidents.

Accidents involving children are especially common where there are parked cars that block driver's vision of children darting into the street. Accidents involving senior citizens are more common at intersections because older people take longer to cross.

Many people aren't even aware how fast they are going. If a car going 20 MPH hits a pedestrian, there is a 95% chance of survival. However, the survival rate declines to 45% at 30MPH and less than 10% at 40 MPH.

In response to a statewide 65 percent increase in accidents involving crossing guards over the past 10 years, the Police Department is implementing the Street Smart is Street Safe training program aimed at crossing guards. The program, which features a new training video for school crossing guards, was produced by the Municipal Excess Liability Joint Insurance Fund (MEL) and the New Jersey Association of Chiefs of Police. Creating a safe working environment for crossing guards helps assure the safety of the children.

Any person seeing an incident of unsafe driving, including double parking, or unsafe conditions, such as blocking the view of a crossing guard, is urged to notify the police department (telephone number) as soon as it is practical.

Traffic Calming

Traffic calming involves physical measures to reduce traffic speed to improve safety and livability. In the U.S., traffic calming was practiced as early as the late 1960s and early 70s in such places as Berkeley, California, Seattle, Washington and Eugene, Oregon. The latest national study, Traffic Calming: State of the Practice, by Reid Ewing, contains a full toolbox of calming measures. See TrafficCalming.org

A raised crossing station was installed in front of a school to slow traffic and discourage children from crossing away from the guard.

Installing a midblock sidewalk bulb-out on both sides slows traffic and reduces pedestrian crossing distances.

This pedestrian crossing has a center island, also known as a refuge that gives pedestrians a protected place to stand half way across the street.

Although radar speed signs do not achieve the overall speed reductions of physical traffic calming devices, they are effective in slowing motorists who are exceeding the posted speed limit.

Speed Tables reduce accidents by an average of 45%.

Portable speed cushions are easy to install.

This speed cushion has openings to allow emergency vehicles with wide wheelbases, such as fire trucks to pass without slowing down.

Traffic Hazards

According to Federal Department of Transportation research, traffic accidents occur more frequently in urban areas but are more likely to be fatal in rural communities because of higher vehicle speeds. There is a direct relationship between accident frequency and population density. New Jersey has the highest population density in the United States and the second highest injury rate on the highways.

Every town has hidden traffic hazards. However, many of these traps can be identified by local governmental employees, citizens and accident reports. Armed with this information, the governing body and the safety committee should work with the engineer to plan an ongoing program to remove these hazards. Many hazards involve simple solutions – for example replacing worn or non-standard signs and street markings. Others require enforcement such as removing shrubbery from intersection sight triangles.

This is a classic traffic trap – a dead-end street without a barrier where the road ends at a stream. During a heavy storm with limited visibility, the water rises to the street level. A motorist who is unfamiliar with the area could easily drive into the brook.

Major projects such as rebuilding obsolete intersections and installing traffic signals usually require approval and funding from county and state agencies – a long drawn out process at best. Because approvals can take years, these projects are often forgotten and new projects are not started because of the frustration. Periodically request a report detailing the status of these projects. At times, local officials can also help speed the required approvals by lobbying their elected counterparts at the county and state level.

Curves need to be adequately marked.

Roadways subject to flooding should be equipped with a depth gauge.

Boat launches at the end of a roadway should have prominent warning signs.

Pot holes and broken drainage grates present significant hazards to bicyclists, motorists and pedestrians.

Playground Safety

Over 200,000 injuries are reported each year on playgrounds in the United States.

The Consumer Product Safety Commission (CPSC) developed the playground safety standards

(Publication 325) adopted by New Jersey. *See hcpsc.gov/cpscpub/pubs/325.pdf*
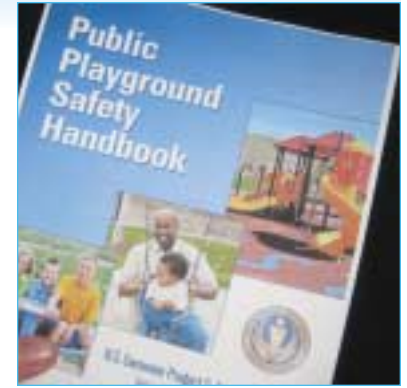
Initial Inventory

Retain a professional to inventory existing playgrounds and evaluate compliance. The inventory should be updated whenever there are major changes. Specifically indentify the different pieces of apparatus, manufacturer, date of manufacture, location, age appropriateness and details on the protective surface. A separate file should be established for each playground.

Annual Audits

At the beginning of the year, review the file and perform a detailed physical examination of each playground. The audit should be the responsibility of someone who has received the necessary training. All repairs should be made before opening for the season. A similar audit should occur at the end of the season to begin planning for the following year.

Weekly Inspection

Inspections should be conducted at least weekly (or more frequently depending on usage) by maintenance personnel specifically trained to identify hazards and initiate repair procedures. If the repair cannot be performed on site, the apparatus should be taken out of service so that it cannot be used until it is satisfactory. All inspections should be documented along with corrective actions.

Play Equipment-Related Injuries Sustained by Children Six and Older

- 41% Climbers
- 23% Swings
- 21% Slides
- 5% Other
- 5% Seesaws

Play Equipment-Related Injuries Sustained by Children Under Six

- 43% Slides
- 23% Swings
- 17% Climbers
- 10% Seesaws
- 7% Other
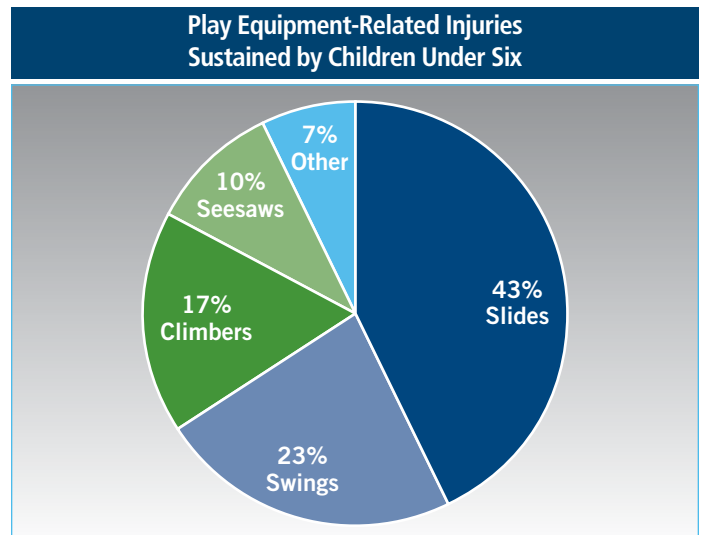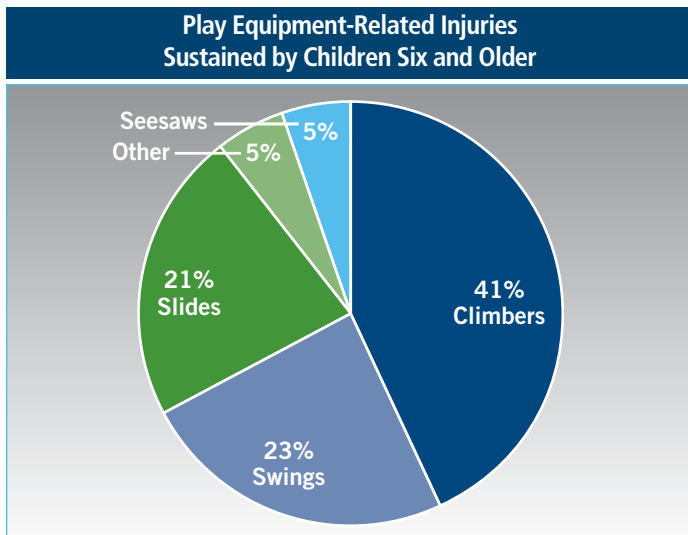
Equipment designed for preschoolers should have platforms and rungs no higher than four feet and should be placed away from equipment used by older children.

75% of all playground injuries involve falls. The surface below equipment must have an adequate protective surface. In general, the fall zone is at least six feet in all directions from any piece of equipment. These surfaces must be periodically inspected and maintained.

Many pieces of older equipment should be replaced.

Bicycle Safety

- Bicycle helmets are 88% effective in preventing brain injuries.

- Universal use of helmets could prevent one death every day and one brain injury every four minutes.

- Half of all bike riders do not regularly wear a helmet.

- New Jersey requires that children under 17 to wear helmets while bicycling, in-line skating and other wheeled activities.

- More kids, ages 5-14 are injured in biking accidents than in any other sport.

- Each year, 550,000 people are injured in bicycle accidents, including 350,000 children under 15.

- Each year, bicycle crashes kill about 900 people, including 200 children under 15.

- Bicycle incidents are most likely to occur within five blocks of home, almost half in driveways and on sidewalks.

Think Positive:
A Helmet Safety Reward Program

Think Positive uses reinforcement to enforce New Jersey's helmet law. The approach involves police officers handing out positive tickets to reward children and adolescents "caught" wearing their helmets. Each ticket includes information on brain injury and helmet safety as well as a reward, such as a coupon for a free slice of pizza, ice cream, discount on a movie, or similar incentive. The reverse side of this talking sheet is an example of a "ticket." The incentives are provided by local businesses. The program fosters safe and responsible behavior and builds positive relationships between youth and police officers.

The Brain Injury Association offers a complete tool kit including a step-by-step manual to assist community groups develop these incentive programs. *Go to bianj.org*

Public officials, even the President, can set a good example and use helmets while participating in recreational sports such as bicycling, etc.

Helmet Reward Programs encourage positive interaction between police agencies and youngsters.

Name _____

Address _____

Phone _____

Think Positive:
A Helmet Safety Reward Program

(Insert Name of Specific Campaign)

CONGRATULATIONS!

You have been caught using your head! Remember – always wear your helmet!

"Better a bucket on your brain than your brain in a bucket."

– Kevin Smah, Skateboarding Pro

**NJ State Law requires that children under the age of 17 wear a helmet while bicycling, skateboarding & rollerskating.
(P.L. 2005, c.208)**

Helments could prevent up to 45,000 brain injuries each year.

Because you are smart enough to know that a helmet is so important, you are being rewarded with one of the following: **(insert list of prizes, depending on sponsors)**

THANKS for WEARING YOUR HELMET!
Expires (insert expiration date)

"I was hit by a car. I flipped over the car, followed by my bike. If I hadn't been wearing my helmet, I could have died. I almost missed out on my life."

– 16 year old girl from New Jersey

Correct Helmet Fit

1. The helmet should fit directly over the forehead, two fingers above the eyebrows.

2. Tighten the chinstrap to keep the helmet from slipping backward or forward. Only two fingers should fit under the chinstrap.

3. The straps of the helmet should form a "V" under your ears when buckled.

www.saferoads.com

CAMPAIGN SPONSORS

(insert list of campaign sponsors)

(insert sponsor logos)

Participating Agency:
(insert name of your local police department)

Organized Sports

Each year more than 750,000 Americans are injured during recreational sports. Brain injuries cause more deaths than any other sports injury. Too often, concussions are untreated because few symptoms are visible to casual observers. In addition, an athlete may experience considerable pressure from spectators, teammates and coaches to resume playing. Multiple concussions over time may result in cumulative damage while repeated concussions over a short period may lead to second impact syndrome.

Signs of Brain Injury

Whenever an individual loses consciousness, the brain has suffered an injury. However, most brain injuries do not involve loss of consciousness. Therefore, it is essential for a coach to keep a player out of a game where there are any signs or symptoms of a concussion.

The term "concussion" is often used in the medical literature as a synonym for a mild traumatic brain injury. If a concussion is managed appropriately, the prognosis for complete recovery is good. The hallmarks of concussion are confusion and amnesia, often without preceding loss of consciousness. The amnesia generally involves loss of memory for the traumatic event but frequently includes loss of recall for events immediately before or after the head trauma. An athlete with amnesia may be unable to recall details about recent plays in the game or details of well-known current events in the news. Amnesia also may be evidenced by an athlete repeatedly asking a question that has already been answered.

Leading Causes of Concussion in Sports

Sport	Concussions
Baseball Softball	~27500
Basketball	~23000
Football	~20000
Swimming Water Sports	~14800
Skiing Snow Sports	~12500
Soccer	~9000
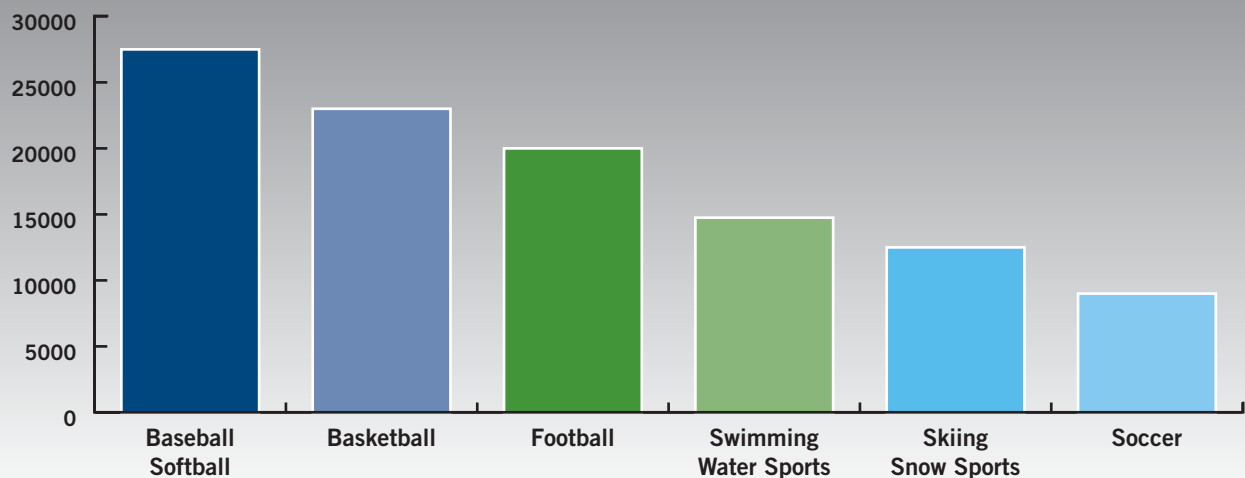
Baseball

- The head is involved in more baseball injuries than any other body part. Almost half of the injuries involve a child's head, face, mouth or eyes.

- The leading cause of injury and death is being hit by the ball; second leading cause is collision.

Football

- In any given season 10 percent of all college players and 20 percent of high school players sustain brain injuries.

- Football players with brain injuries are six times as likely to sustain new injuries.

- Match players (size, weight, and training) in contact drills. Limit tackling and blocking routines during practice.

- Emphasize "keeping the head out of football." No butt-blocking using your head

- Teach proper techniques and rules for safety: Never face/head tackle!

- Train consistently and properly. This includes doing exercise recommended for strengthening the neck and shoulder muscles

Soccer

- About five percent of soccer players sustain brain injuries. This may occur from head to head contact, falls or being struck by the ball on the head

- Heading or hitting the ball with the head is the riskiest activity when done repeatedly. The risk is greater if a small child uses too large a ball. Heading the ball, especially by younger players should be discouraged.

- Girls are injured playing soccer more often than boys.

- Collision with other players should be discouraged and avoided.

- Younger teams should use the appropriate size and weight ball during practice and play.

- Goal posts should be padded and properly anchored to the ground.

Safety for Seniors

To be effective, a community safety program must also include outreach to senior adults. Physical changes in older individuals make them more vulnerable to injury and reduce their chances to recover.

Slips and Falls

More than one third of adults 65+ fall each year, and falls are the leading cause of injury deaths among seniors. Falls are also a major cause of disabling injuries that permanently restrict the mobility of seniors. Each year, almost 2 million seniors are treated in emergency departments for nonfatal injuries from falls, and more than 400,000 are hospitalized. Rates of fall related deaths have increased significantly over the past decade.

Motor Vehicles

Today's seniors are mobility-minded and elect to drive longer. However, some older drivers are unable or unwilling to correctly assess their driving capabilities.

Pedestrians

Seniors account for 18% of pedestrian fatalities, and have the highest rate of any age group. Seniors often have difficulty hearing or seeing cars, and are especially vulnerable at intersections because they need more time to cross the street.

Suicide

Suicide among the elderly is becoming an increasing problem and high rates of alcohol involvement have been found among individuals who commit suicide.

Fire

Older adults suffer twice as many fire deaths as the general population. People 85+ are four times as likely to die in a fire as other groups. When a fire starts, the elderly are likely to need more time to escape from a fire area, and may need the assistance of others to do so.

Addressing the Issue

Begin by compiling the accident rates for your community and talk to the police, fire, ambulance and health departments about the issue. Reach out to senior groups and seek their views on these questions. For example, are there particular intersections that need safety improvements to accommodate the needs of senior adults? Where sidewalks should be improved? What other services can the community provide seniors? There are numerous organizations that provide educational material including the Brain Injury Association, the Center for Disease Control (CDC), the National Highway Traffic Safety Administration and many others.

Preventing Slips and Falls

Exercise

Regular exercise significantly reduces an older adult's chances of falling. Strength training exercises that improve balance and coordination, like Tai Chi, are most helpful. As a precaution, check with a doctor to determine the most appropriate exercise for each person.

Home Safety Check

- Remove things that might be tripped over (such as magazines, clothing and shoes) from stairs and walking areas.

- Store items used often in cabinets that can be reached easily without using a step stool.

- Install grab bars in the tub or shower and next to the toilet. Use non-slip mats on the bathtub and shower floors.

- Improve lighting in the home. Brighter lights may be needed to see well. Lamp shades or frosted bulbs can reduce glare.

- Install handrails and lights on all stairs in the home and outside.

Review all medicines with a health care provider

Ask a doctor or local pharmacist to look at all the medicines, including non-prescription medications. As people age, the way some medicines work in the body can change. Sometimes those changes can make an older person drowsy or light-headed, which could lead to a fall.

Check Vision

Make sure an eye doctor checks to be sure eyeglasses are correct and that there are no conditions that limit vision, like glaucoma or cataracts. Poor vision can increase the chance of falling.

Wear Safe Shoes

- Wear sturdy shoes with thin, non-slip soles instead of running shoes with thick soles.

- Wear shoes at all times – especially around the house. Floppy slippers and stockings can increase the risk of falling in the home.

- Shoes should be firmly fastened. Cotton lace or Velcro closings are good choices.

- Shoes should have non-skid soles with less than a 1 1/2 inch heel, containing enough space for the toes to lay flat and straight, be lightweight and supportive. The shoes fabric or leather should surround the entire foot.

Nine Easy Ways To Make Safety a Priority

Your municipality can reduce its accident rate by:

■ Requiring that a formal safety program be in place and that its status be a recurring item on the governing body's regular workshop agenda;

■ Committing to making municipal safety – for both residents and workers – a priority;

■ Comparing your safety record to other towns;

■ Determining how your safety program is structured and how it can be improved;

■ Tracking your safety record to see if it's improving;

■ Requiring monthly meetings of your community safety committee, focusing on public safety as well as municipal employee safety;

■ Publishing the safety committee's minutes and distributing them to the governing body;

■ Communicating potential hazards with your work force and encouraging them to share this information with you as well;

■ Having a mechanism in place for employees and residents to report unsafe conditions and a procedure for remedying them on a priority basis.

If you want to serve on the steering committee or have questions regarding the CSL Program or suggestions for improving it, please contact us at (201) 587-0555.

Municipal Excess Liability Joint Insurance Fund
Park 80 West, Plaza One
Saddle Brook, New Jersey 07663
Tel: (201) 587-0555   Fax: (201) 587-8662   www.njmel.org

Fact Sheet

GENERAL NEVADA INFORMATION AND RANKINGS

PREPARED BY CAROL M. STONEFIELD
UPDATED BY JERED MCDONALD
RESEARCH DIVISION
LEGISLATIVE COUNSEL BUREAU

JANUARY 2014

This fact sheet provides a brief snapshot of Nevada's demographic and geographic profile and how it compares to national averages. The charts below present information on the State's population, diversity, age distribution, poverty status, and geography.

GENERAL NEVADA INFORMATION AND RANKINGS			
	Nevada	**Nationally**	**Nevada's Ranking**
Population in 2012	2,758,931	313,914,040	35th
2012 Certified Population Estimates From Nevada's State Demographer			
State	2,750,217		
Clark County (South)	1,988,195		
Washoe County (North)	427,704		
	Nevada	**Nationally**	**Nevada's Ranking**
Percent Change in Population (2011 to 2012)	1.4+	0.7+	5th
Projected Percent Change in Population (2000 to 2030)	114.3+	29.2+	1st
Percent of Native Population Born in Their State of Residence (2011)	31.3	67.7	50th

GENERAL NEVADA INFORMATION AND RANKINGS
(Continued)

RACIAL DIVERSITY IN 2011 (PERCENT OF POPULATION)

	Nevada	Nationally	Nevada's Ranking
White	77.7	78.1	35th
Black	8.6	13.1	23rd
Hispanic (Can be any race)	27.1	16.7	5th
Asian	7.7	5.0	5th
American Indian	1.6	1.2	13th
Hawaiian/Pacific Islander	0.7	0.2	4th

AGE OF POPULATION IN 2011 (PERCENT OF POPULATION)

Age Range	Nevada	Nationally	Nevada's Ranking
Under 5 Years Old	6.8	6.5	15th
5 to 17 Years Old	17.5	17.3	15th
18 to 24 Years Old	9.2	10.0	46th
25 to 44 Years Old	28.2	26.5	2nd
45 to 64 Years Old	25.8	26.6	43rd
65 Years and Older	12.5	13.3	41st

LIVING IN POVERTY IN 2011 (PERCENT OF POPULATION)

	Nevada	Nationally	Nevada's Ranking
Senior Citizens	8.1	9.3	27th
Children	20.3	21.0	23rd
Families	11.9	11.7	20th

GENERAL NEVADA INFORMATION AND RANKINGS			
(Continued)			
GEOGRAPHY			
	Nevada	**Nationally**	**Nevada's Ranking**
Total Area in Square Miles (2010)	110,572	3,796,742	7th
Acres Owned by the Federal Government (Square Miles)	60,859,932* (95,149)	653,299,290** (1,020,780)	2nd
Percent of Land Owned by the Federal Government	86.0	26.9	1st

Source: *State Rankings 2013: A Statistical View of America*, CQ Press.
*Division of State Lands, State Department of Conservation and Natural Resources.
**Federal Real Property Profile as of September 30, 2004.

Nevada Quarterly Employment Forecast
(2013:IVQ – 2015:IVQ)

The Research and Analysis Bureau is home to a variety of labor market forecasting/projection activities. For instance, in partnership with the U.S. Department of Labor, the Bureau is responsible for regular Statewide and sub-State short- and long-term industry/occupational projections. That information is available on our website. The results highlighted below are from a separate regular quarterly forecast that is designed to provide policymakers and other users with our most timely forward-looking assessment of the State's labor market.

Methodology and Background

Using statewide employment data from the Quarterly Census of Employment and Wages (QCEW)[1], employment levels are forecasted using standard time series techniques with monthly data. The final output is then averaged to quarterly values. These models can be supplemented with "local knowledge," such as known construction projects, in finalizing the projections. The current forecast period is for the fourth quarter of 2013 through the last quarter of 2015.

Total Employment

Nevada was the most negatively affected state during the recession, mostly due to above average levels of employment in the construction industry and the State's reliance on tourism and gaming. Both of these sectors were extremely hard-hit by the economic downturn. Nevada's recovery has lagged the national economy, but the economic situation is improving in Nevada.

Employment will likely remain below the peak levels achieved in 2007 for several more years. To put this in perspective, Nevada lost almost 200,000 jobs from peak to trough. In 2011, the Nevada economy created 6,800 jobs, a 0.6 percent increase. In 2012, employment grew 1.5 percent, or 17,100 jobs. Though job gains have accelerated, employment in the third quarter of 2013 (the most recent available quarter from QCEW) is still 10 percent below the peak level attained in the second quarter of 2007, a difference of 129,700 jobs. Expectations are that total covered employment will expand 2.4 percent, or 26,800 jobs, in 2013. Job gains are predicted to be 29,000 and 32,000 in 2014 and 2015, respectively.

---

[1] In the QCEW Program, the Research and Analysis Bureau collects and compiles employment and wage data for workers covered by Nevada unemployment insurance laws, and federal civilian workers covered by Unemployment Compensation for Federal Employees. The QCEW staff arranges the data by type of industry according to the North American Industry Classification System (NAICS). They assign each employing unit a NAICS code and location code. After screening the quarterly data, they transmit it to the Bureau of Labor Statistics (BLS). BLS combines all of the states' data for analysis of national economic trends and performance.

Total Employment
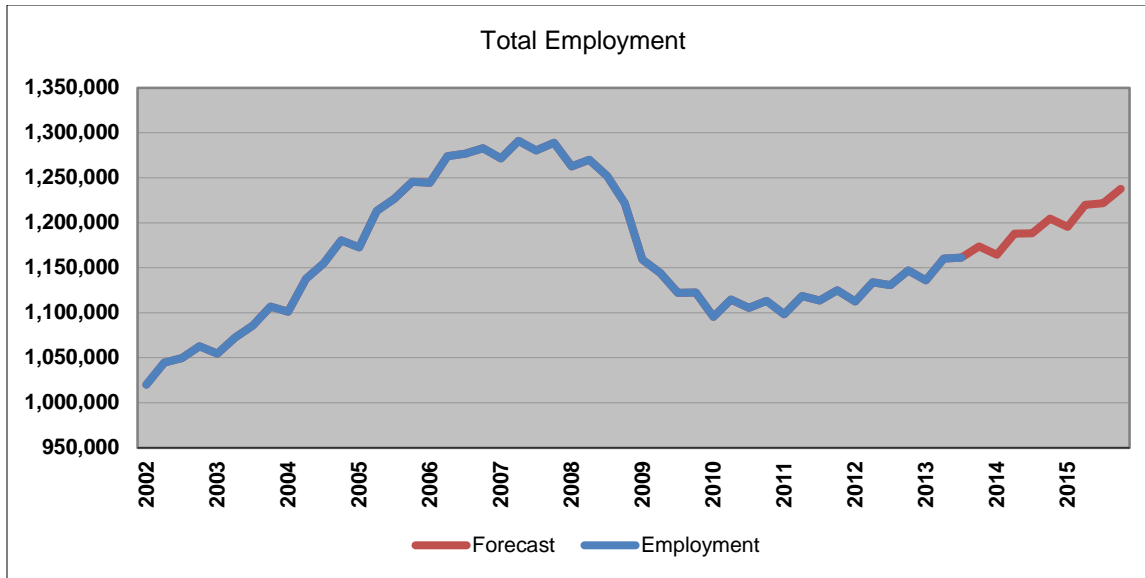
Industry Title	2012-2015 Change Forecast (Oct 2013)	2012-2015 Change Forecast (March 2014)	Forecast Change
Agriculture, Forestry, Fishing and Hunting	-51	-81	-30
Mining, Quarrying, and Oil and Gas Extraction	809	-185	-994
Utilities	-18	-70	-53
Construction	15536	15411	-125
Manufacturing	1419	3247	1828
Wholesale	105	1040	935
Retail Trade	11270	11133	-138
Transportation and Warehousing (includes post office)	4069	2693	-1376
Information	-5	67	72
Finance and Insurance	3785	1587	-2198
Real Estate and Rental and Leasing	1626	1522	-105
Professional, Scientific, and Technical Services	3619	2962	-656
Management of Companies and Enterprises	1382	1974	593
Administrative and Support and Waste Management and Remediation Services	9909	7942	-1968
Education (includes public education)	1071	4046	2975
Health Care and Social Assistance (includes public hospitals)	8450	9233	783
Arts, Entertainment, and Recreation	1059	2006	947
Accommodation and Food Service	11874	21125	9252
Other Services	1697	1647	-50
Government (excludes post office, education and hospitals)	683	401	-283
Total Employment	78289	87701	9411

Agriculture, Forestry, Fishing and Hunting

Agriculture is a significant part of rural Nevada. Nevada does not have much employment in forestry, fishing and hunting, so the industry is mainly driven by agriculture. Nevada's agricultural production is primarily focused in livestock and alfalfa hay production. The outlook for the industry is expected to remain relatively flat (after taking into account normal seasonal fluctuations) through the end of 2015.

Agriculture, Forestry, Fishing and Hunting
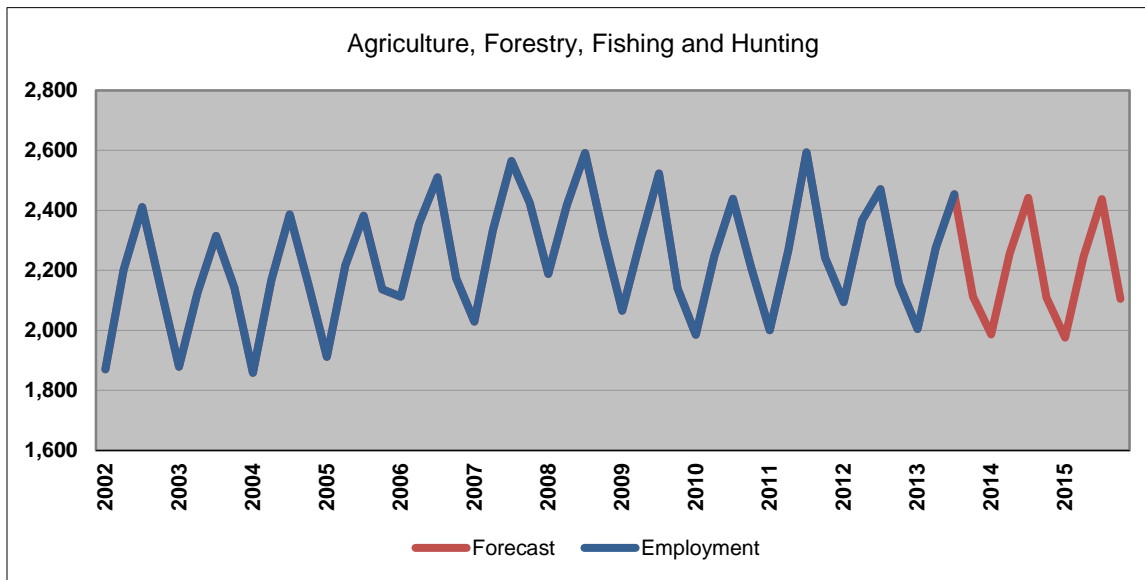
Mining, Quarrying, and Oil and Gas Extraction

Nevada has a long history of mining and it still continues to be a key contributor to the State's economy, although it is a major industry only in rural Nevada. Gold dominates Nevada's mining base and the price of gold is an important determinant of mining employment. For a decade leading up to last year, Nevada has experienced a modern-day gold rush fueled by rising gold prices, benefiting rural mining communities. Gold prices have come down from their all-time high reached in the fall of 2011. Employment growth in the mining industry has been negative for the last two quarters on a year ago basis. Our current forecast is estimating the mining industry to remain relatively flat in the next two years.

Mining, Quarrying, and Oil and Gas Extraction
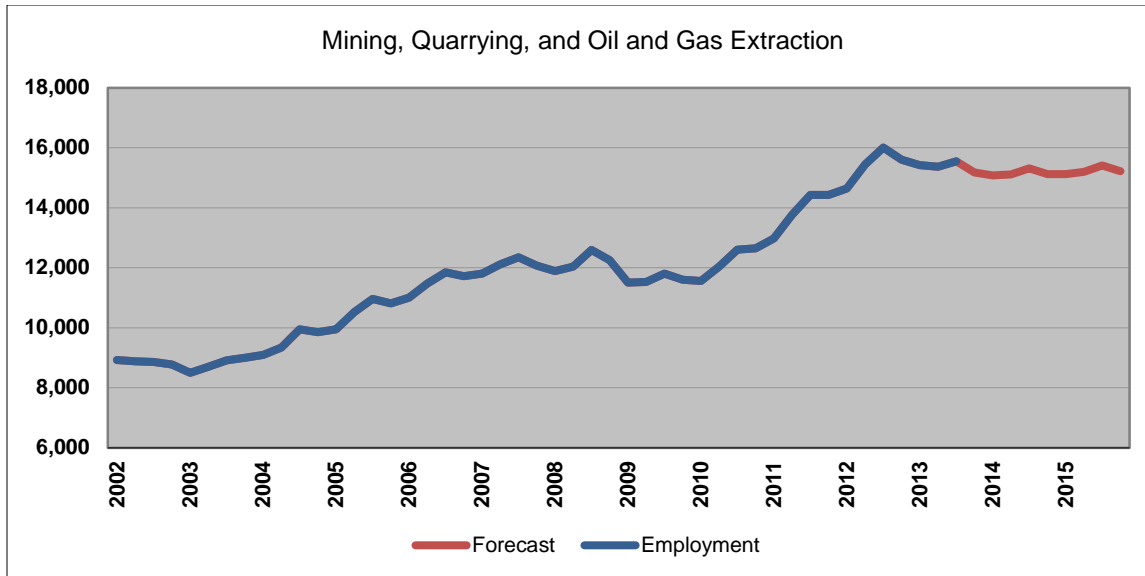
Utilities

Nevada's utilities industry employment remained fairly steady until the end of 2006, but has been falling since. The declining trend in employment reflects the use of new technologies and more efficient power plants, requiring fewer workers. We expect a flat outlook for this industry for the forecast period.

Utilities
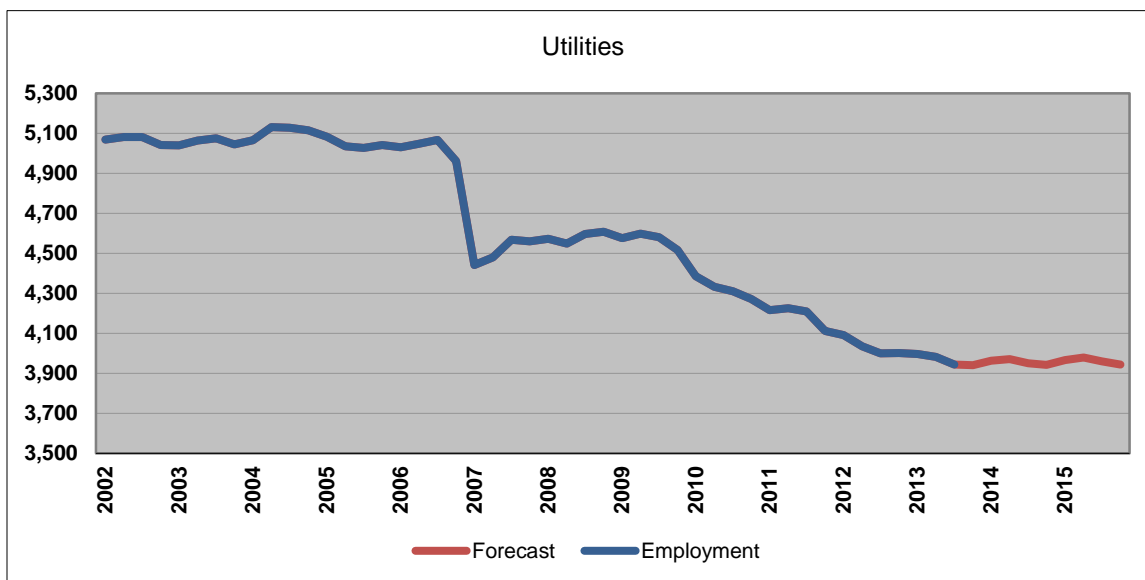
Construction

Nevada experienced a rapid construction boom that was fueled by strong population and employment growth in the two decades leading up to the recession, but also by

easy credit and speculation. The housing crisis left Nevada in a deep hole in terms of jobs. Construction employment plummeted for almost six straight years, bottoming out in 2012. The pronounced losses in construction employment were, in large part, an adjustment from the exceptionally high levels prior to the start of the recession.

Construction activity has picked up, mostly in Southern Nevada, but there are other projects scattered throughout Nevada. In Las Vegas, a number of halted construction projects are resuming in addition to new projects that are underway or in the pipeline. Some of the major projects include Caesars Entertainment's "Linq," MGM Resort International's 20,000-seat indoor sports and events arena, the SLS, the Cromwell, and the Genting Group's plans to build Resorts World Las Vegas on the north end of the Las Vegas Strip. Furthermore, housing permits and starts are on the rise, a sign that Nevada's housing market is beginning to show signs of recovery. This is good news as housing construction creates demand for consumer goods and services and has important economic linkages to other industrial sectors, creating the need for realtors, landscapers, etc. However, a sustainable housing recovery will be dependent on employment and income growth.

In 2013, we project adding 4,800 construction jobs, with an additional 10,700 jobs in the following two years. At the end of 2015, construction jobs would still be 75,100 below the pre-recession peak, almost half the employment it once had.
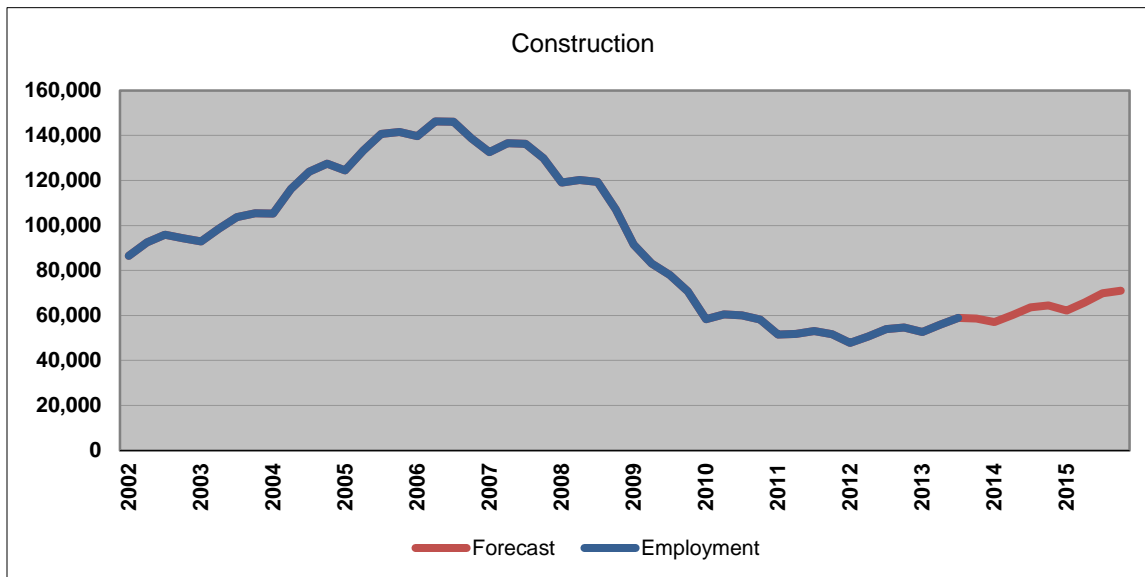
Manufacturing

Nevada had a growing manufacturing sector up until six years ago. Manufacturing employment reached its peak in the third quarter of 2006 at 51,100 jobs. Manufacturing is also a source of high-wage jobs, creating a critical multiplier effect on many communities. Manufacturing slumped in the deep recession as households and businesses cut back spending, creating lower demand for factory goods at home and

abroad. Employment in this sector took a nose dive during the recession, losing 13,400 jobs from peak to through, and has been slow to recover.

The manufacturing sector is making a slow but steady comeback, perhaps due the State's efforts of its economic development on attracting new manufacturing companies to Nevada, and it may just be a sign of a slowly improving economy. In 2013, we forecast 1,200 more jobs in the manufacturing sector, followed by 1000 jobs both in 2014 and 2015.

Manufacturing
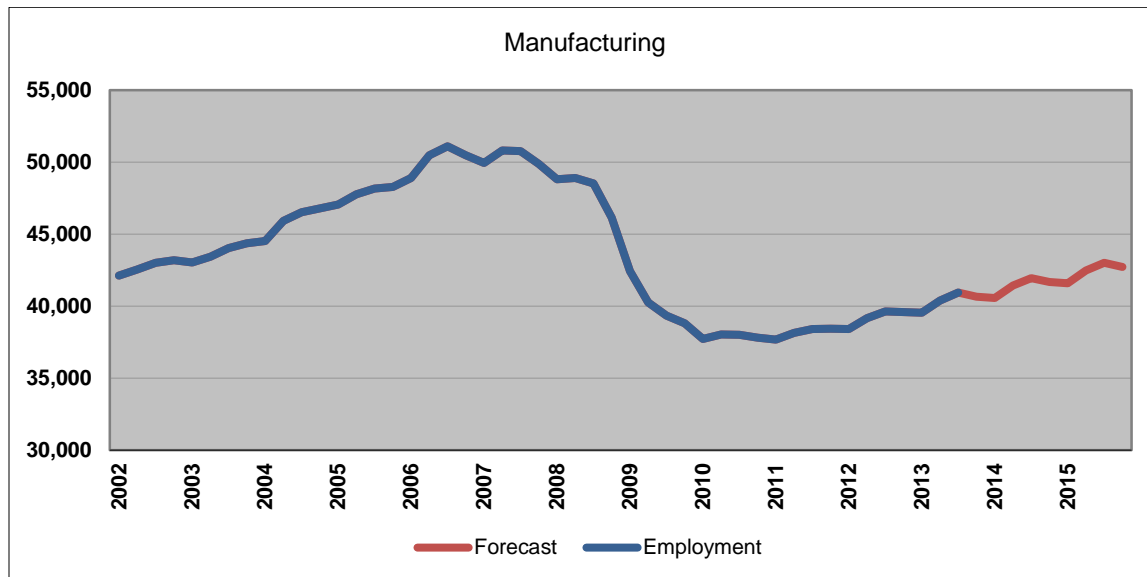
Wholesale Trade

The overall economy and domestic demand for goods influence employment in the wholesale trade industry, but logistics management technologies, the Internet, and global competition have had a major impact on wholesale trade activity as well. Technological advances have made distribution more efficient, reducing the need for workers. The Internet has also allowed cutting out "middlemen" in the distribution process. Competition from abroad tends to put downward pressure on prices and hurts the low-margin wholesalers the most. The wholesale sector employment seems to have reached the bottom after a period of downfall since the recession took hold of Nevada's economy. In the near term, we expect modest growth for this industry. Job gains in 2013 are expected to be 300, followed by similar increases in 2014 and 2015.

Wholesale
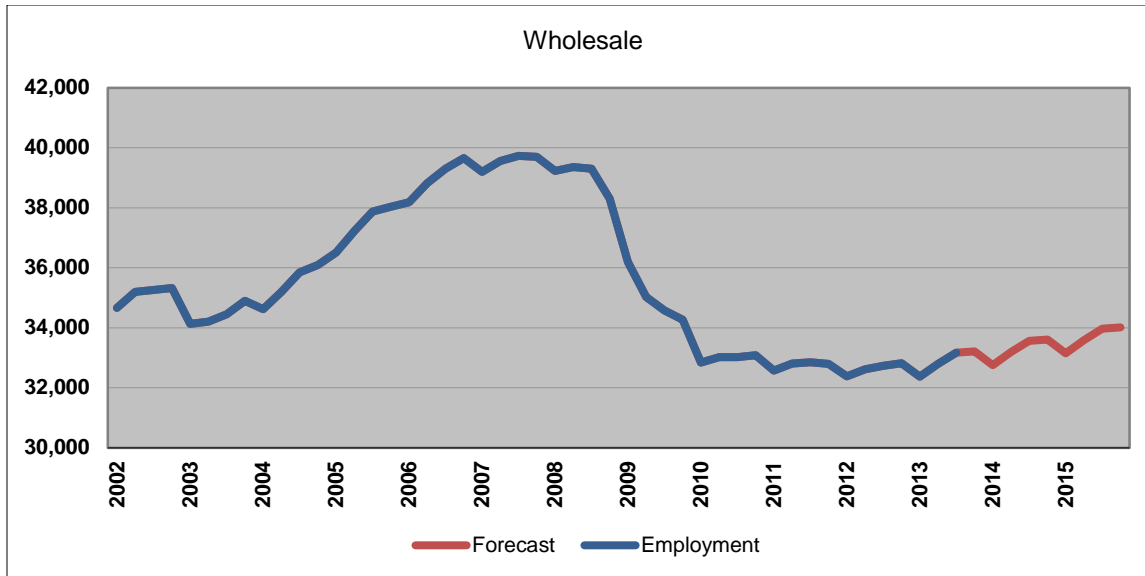
Retail Trade

Southern Nevada, which drives Nevada's economy, is heavily dependent on tourism, conventions, and gaming, which in turn feed the retail industry. Retailers rely on consumer spending and disposable income. The latter two are a reflection of the relative strength of the economy; therefore, it is no surprise that consumption plummeted during the recession. Nevada's economy had a rash of store closings and vacant retail space when the recession hit. As the recession unraveled, retail employment fell by 19,100 from its peak employment of 144,000 at the end of 2007, reaching its post-recession low in the first quarter of 2010. Since then, retail employment has been in recovery.

Improved household balance sheets are facilitating pent-up demand. As job growth accelerates, consumers will gain more confidence. The retail sector in Las Vegas will benefit from the construction developments on and around the strip as many of them include retail space. Some of the positives include the revival of the halted "Shops at Summerlin" project. Construction is already underway, and the Shops are slated to open late 2014 or early 2015.

We are forecasting to add 3,000 jobs in 2013 and then 3,800 and 4,400 jobs in 2014 and 2015, respectively.

Retail Trade
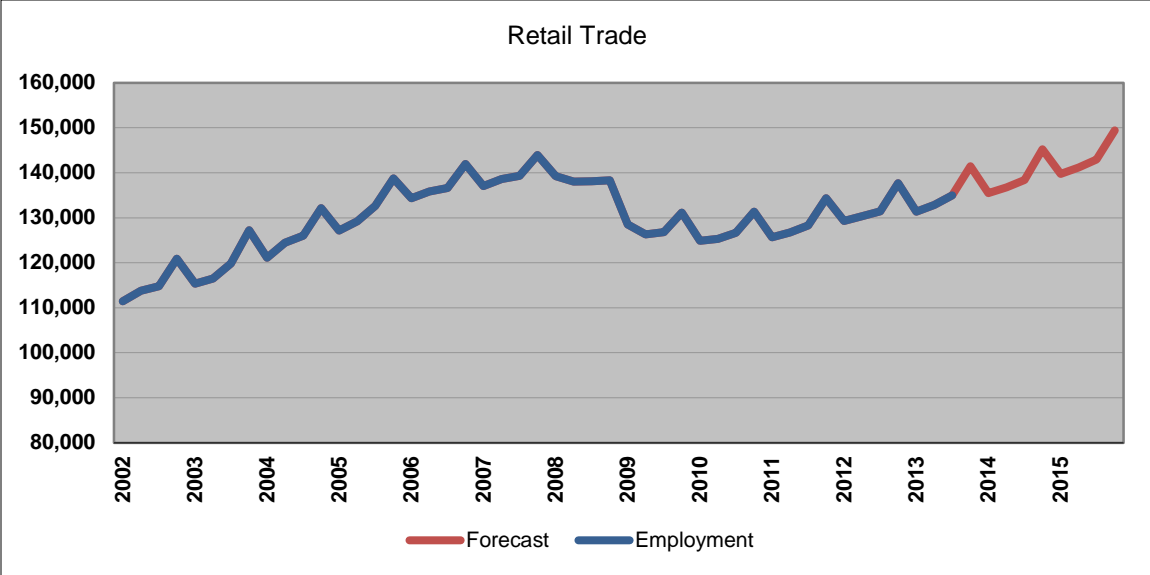
Transportation and Warehousing (includes post office)

Nevada allows for easy access to major western markets, making it an ideal location for the transportation and warehousing industry. Combined with the State's business friendly tax climate, Nevada is a popular choice for warehousing, distribution, and internet fulfillment centers. This sector lost about 5,700 jobs during the economic downturn. The transportation and warehousing industry has experienced a rapid recovery and is estimated to have 56,200 jobs by the end of 2015, 1,500 jobs above the peak employment attained in 2007. In 2013, employment is expected to grow by 700 jobs, followed by an additional 900 and 1,100 jobs in 2014 and 2015, respectively.

Transportation and Warehousing (includes post office)
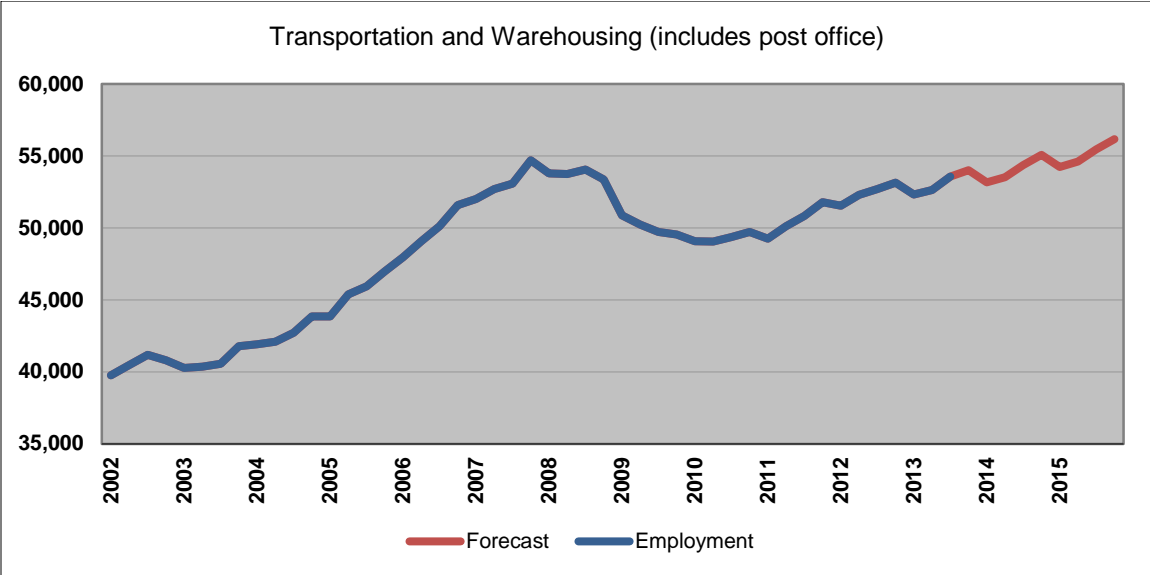
Information

Employment in the information industry has been trending down for some time, mostly driven by the decline in employment in the newspaper, periodical, book, and directory publishers sector. Circulation has been falling largely because of the availability of information on the Internet. Most of the expected growth is being driven by the software publishers and the data processing, hosting, related services, and other information services industries. Technological advances will increase productivity, which will slow the growth of employment in the industry. Motion pictures and broadcasting have generated some unpredictable spikes in employment. The Nevada film tax credit may benefit the employment in this sector. Our near outlook for the information industry is expected to remain flat.

Information
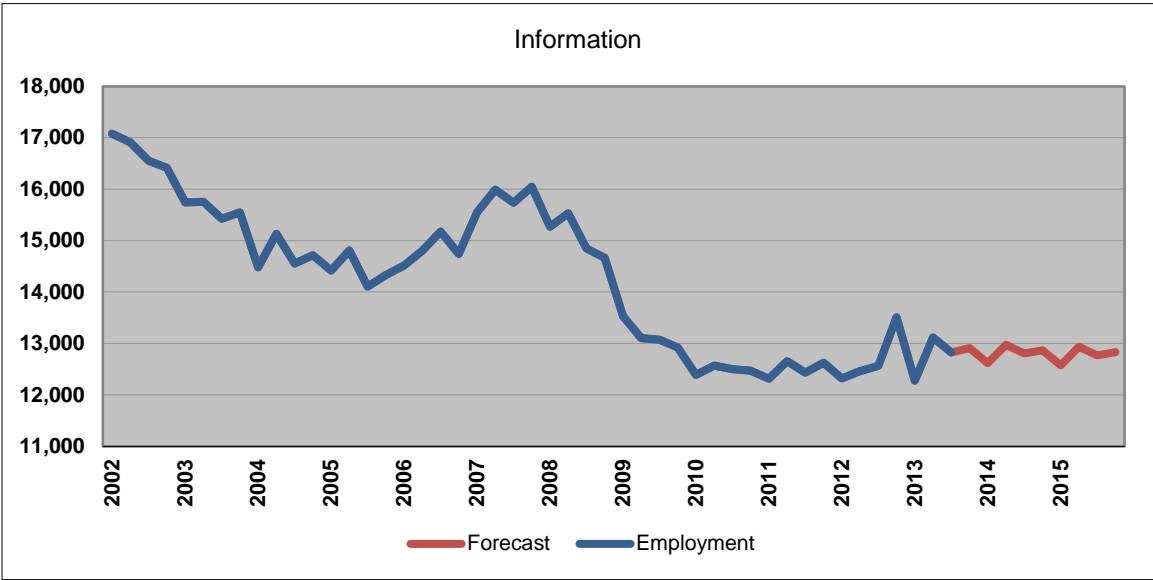
Finance and Insurance

Housing market woes preceded a financial crisis that directly impacted the finance and insurance industry. Employment in the finance and insurance industry already started trending down in 2006 until hitting the bottom in the third quarter of 2011, losing 27.6 percent of the employment. The overall state of the economy will play a major role in the recovery of the finance and insurance industry. In 2013, we project an additional 900 jobs and 300 and 400 jobs in 2014 and 2015, respectively.

Finance and Insurance
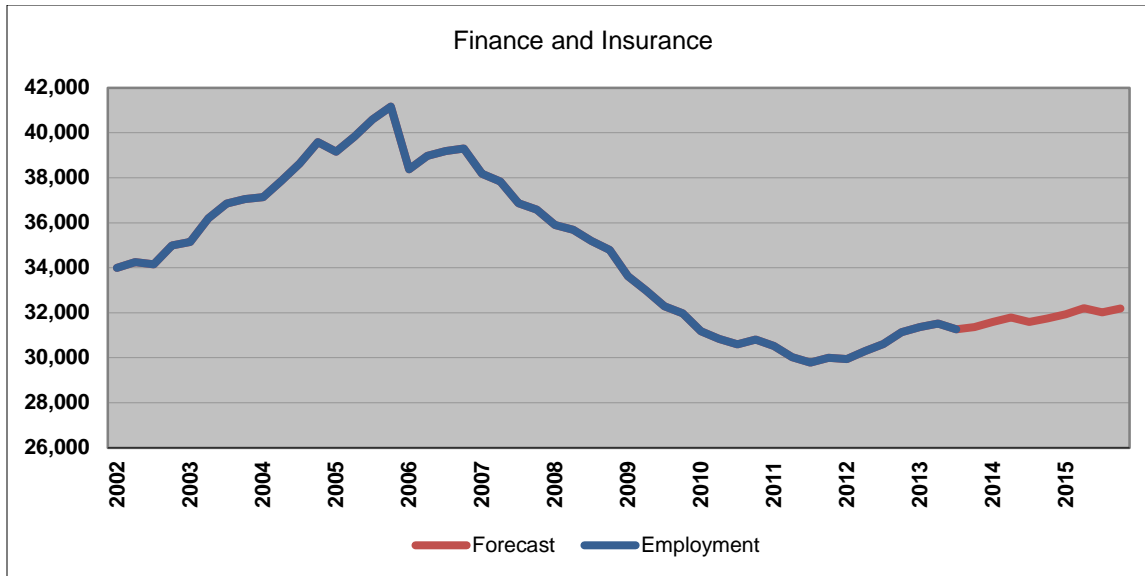
Real Estate and Rental and Leasing

At the height of the real estate boom, employment in the real estate and rental and leasing industry reached its high at 27,900 jobs in the third quarter of 2007. The housing market crash and ensuing financial crisis crippled the industry. As the economic crisis unfolded, the industry lost one-fourth of its jobs. The bottom level of employment was not reached until the first quarter of 2012 with 21,200 jobs. The recovery in this industry is correlated to the rebounding construction industry and the housing market. As Nevada's housing market and economy continues to recover, employment in the industry also is expected to rebound. The forecast for 2013 yields an additional 800 jobs, while it is projected that there will be 400 more jobs added both in 2014 and 2015.
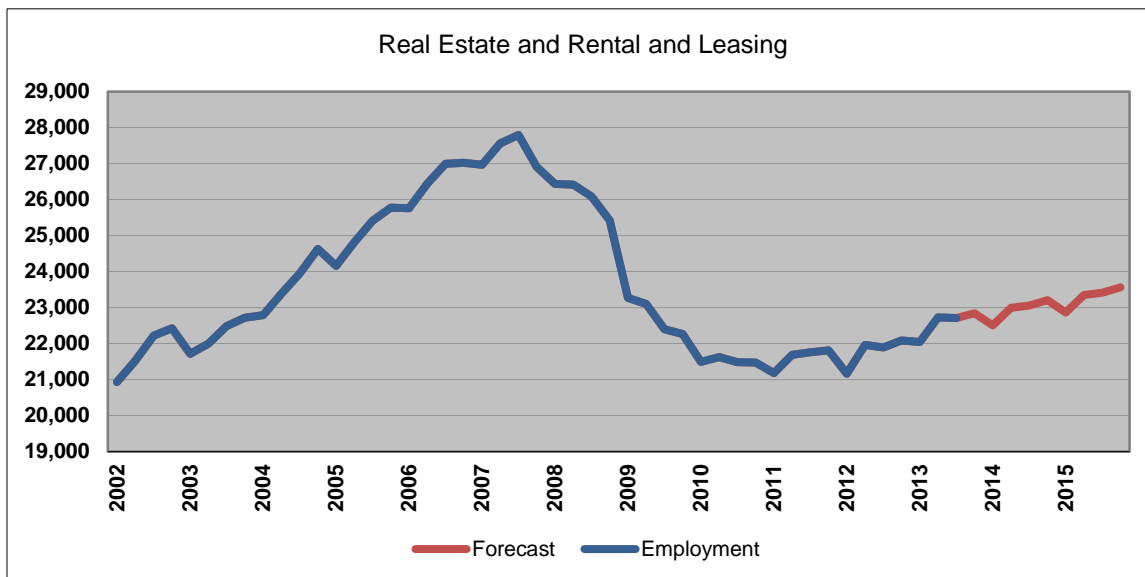
Professional, Scientific, and Technical Services

The professional, scientific and technical services industry has begun to recover the jobs lost during the economic downfall. As the Nevada economy grows, businesses will require more services, such as accounting, payroll, computer and business consulting services. As the construction sector recovers, residential and commercial buildings will require more architecture, engineering, design and inspection services. Some other growth drivers in this industry will be an increased need for network and computer systems security, mobile technologies, and the health care industry's technological needs. This year, we estimate to add 1,300 new jobs and 700 and 1,000 jobs in 2014 and 2015, respectively.

Professional, Scientific, and Technical Services
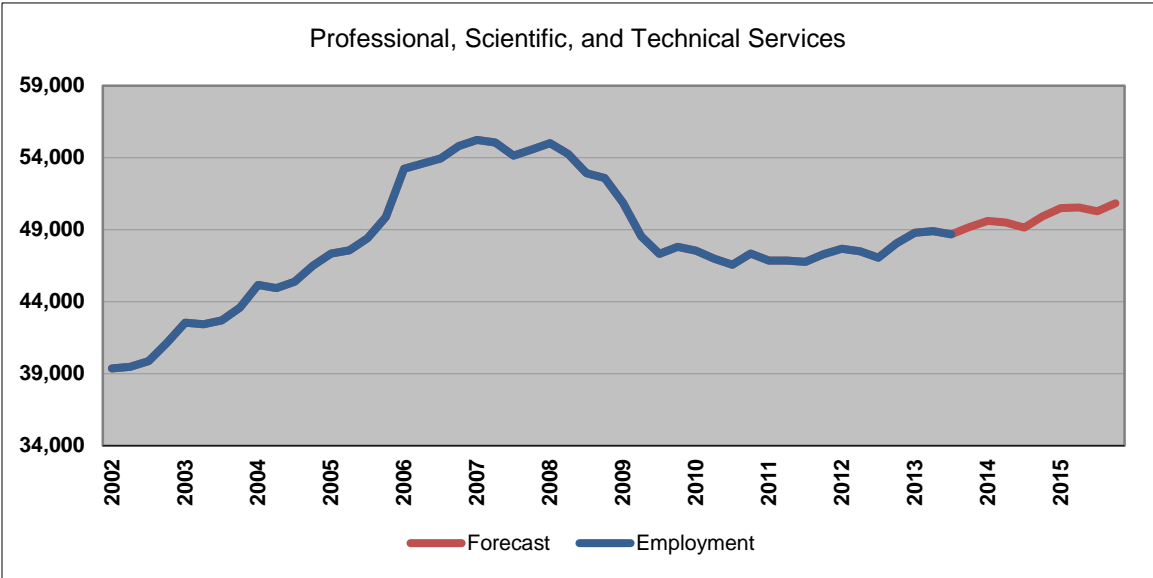
Management of Companies and Enterprises

The management of companies and enterprises industry includes corporate headquarters and holding companies. Nevada's advantages in attracting these types of companies are the business-friendly tax structure and regulatory environment. Employment in the industry has steadily increased because of the competitive advantages just mentioned. We expect 600 additional jobs this year and another 800 next year, with an additional 500 jobs added in 2015.

Management of Companies and Enterprises
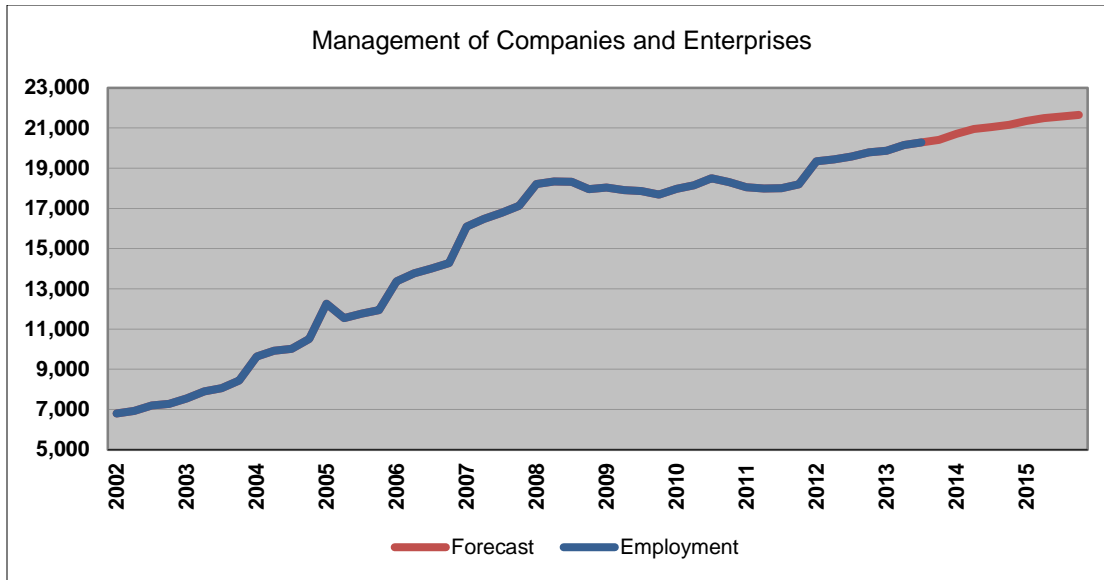
Administrative and Support and Waste Management and Remediation Services

The growth in this industry stems from overall growth; there will be more need for facilities support as firms contract out such activities as security, landscaping and janitorial services. This industry is also a home to the employment services industry, which comprises employment placement agencies, temporary help services, and professional employer organizations and houses the convention and trade show organizers. The growth of this sector is expected to increase as the economy grows, although at a slower pace than in the pre-recession period. Our forecast shows steady growth with 3,000 new jobs in 2013 and 2,500 jobs both in 2014 and 2015.
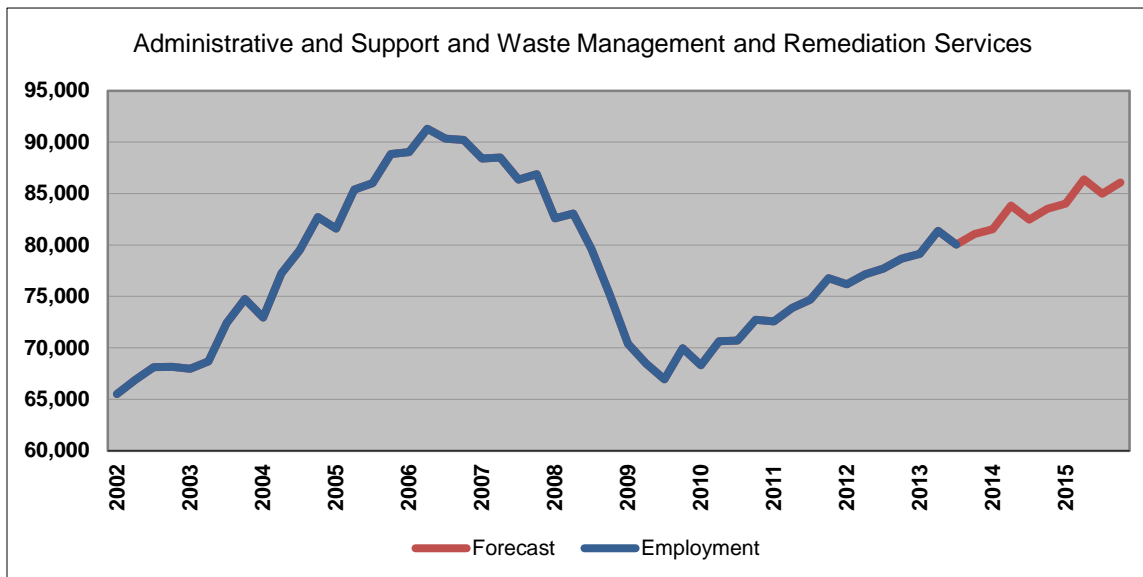
Education (includes public education)

In the last decade, Nevada's population grew at the fastest pace in the country. When the recession hit, Nevada experienced an exodus out of the state that had a slight impact on school enrollment. Also, the education sector experienced a reduction in the workforce as the recession crippled education funding. In the near term, there are no major changes expected to school enrollment. Given that colleges and universities are publicly funded, with expected resources set through the current biennium, we expect an additional 1,100 jobs in 2013, with similar gains in the following two years.
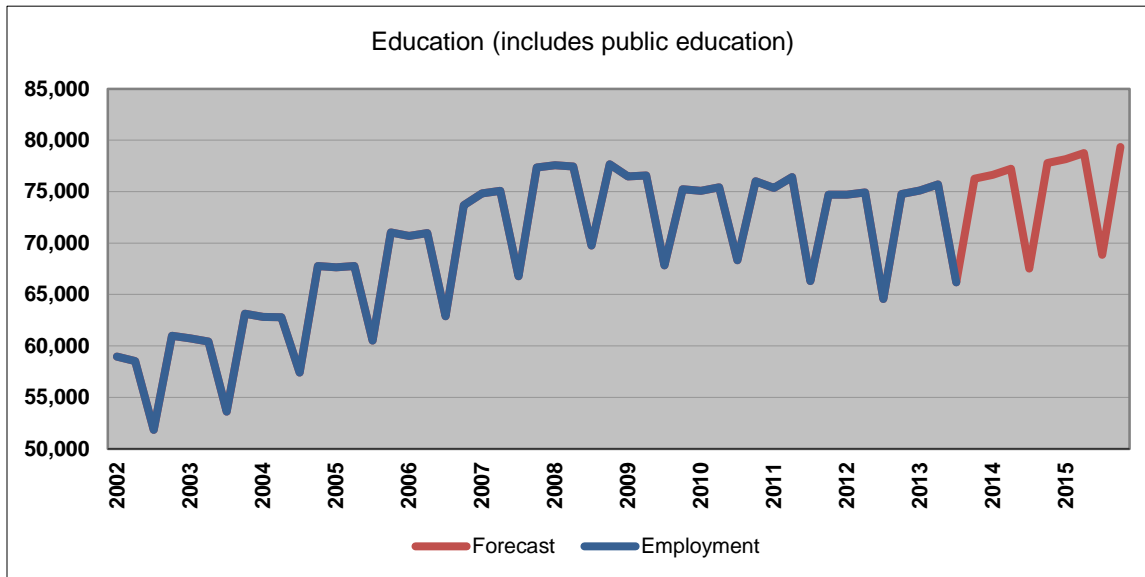
Health Care and Social Assistance (includes public hospitals)

Demographics are the main driver of the growth in the number of jobs in the health care and social assistance sector. Employment in the individual and family services industry, which provides a variety of social assistance to children, elderly people, people with disabilities, and others, is projected to increase as well. Our projections predict an additional 2,800 jobs in 2013, with 3,100 and 3,300 jobs added in 2014 and 2015, respectively.

Health Care and Social Assistance (includes public hospitals)
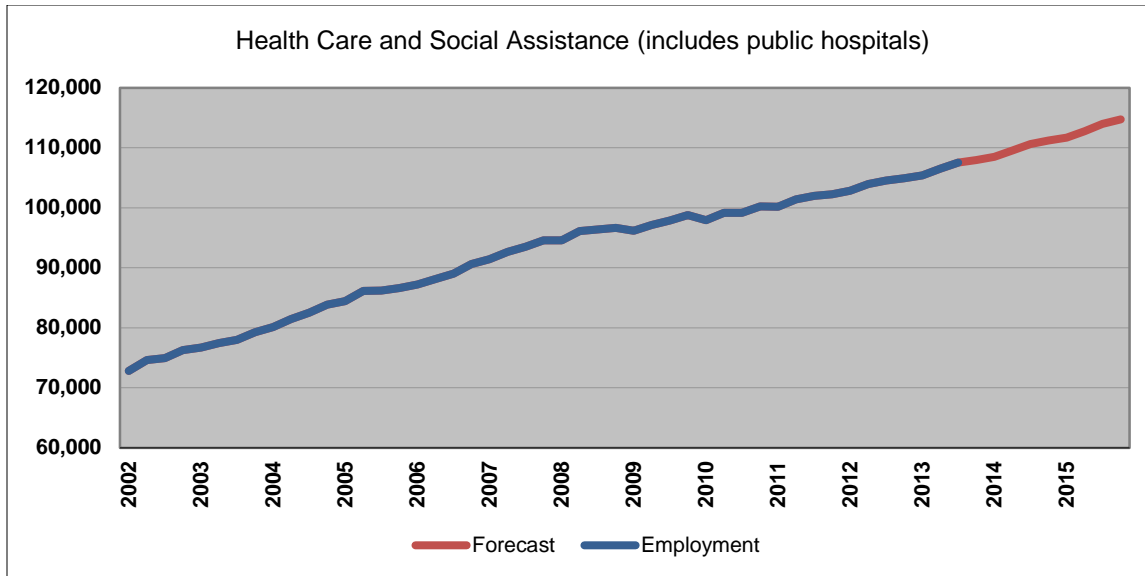
Arts, Entertainment, and Recreation

The arts, entertainment and recreation sector is a relatively small sector in terms of employment. This sector benefits from overall economic growth and depends on discretionary spending by locals and tourists. In 2013, the projected growth is 500 additional jobs, with an additional 1,500 in the following two years.

Arts, Entertainment, and Recreation
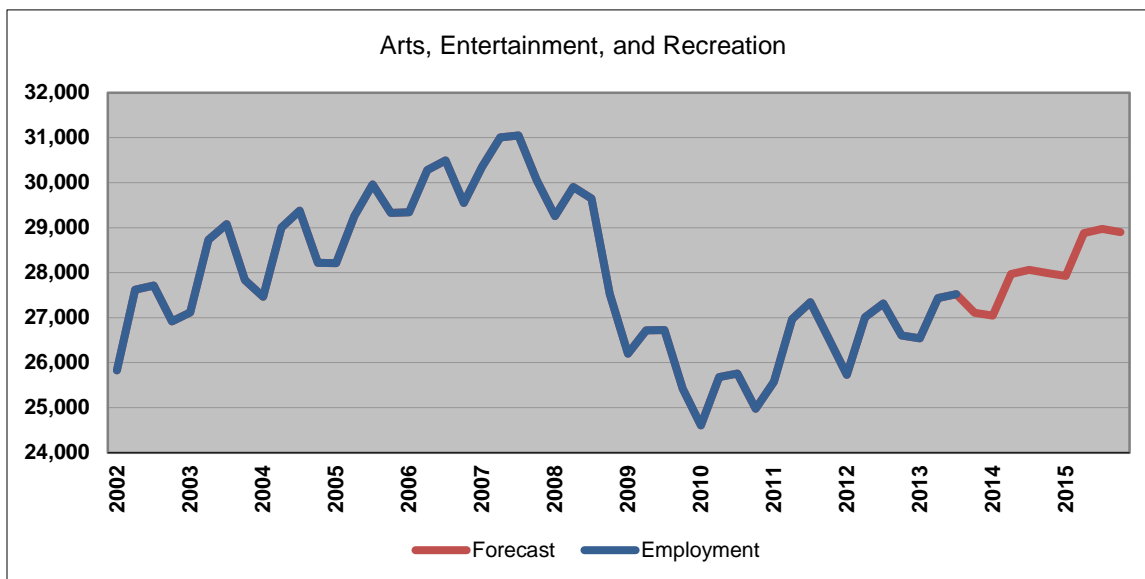
Accommodation and Food Service

The hospitality and food service industry has the largest share of employment in Nevada, accounting for about a quarter of all jobs in the State. Most hospitality and food services jobs are concentrated in the Las Vegas area. The fact that the Las Vegas

economy is dependent on tourism and has a consumption-based economy makes it very susceptible to the national economy's ups and downs. The success of the industry thus depends on people having disposable income to spend.

Employment in the accommodations and food services industry reached its peak in the third quarter of 2006. The recession left cost this sector 32,600 jobs before the post-recession bottom was reached in the fourth quarter of 2009. Tourism related employment has steadily increased since the end of the recession. Construction developments on and around the Las Vegas strip will have a significant impact on the accommodations and food services sector employment. The forecast estimates 6,000 additional jobs in 2013. We expect similar gains both in 2014 and 2015.
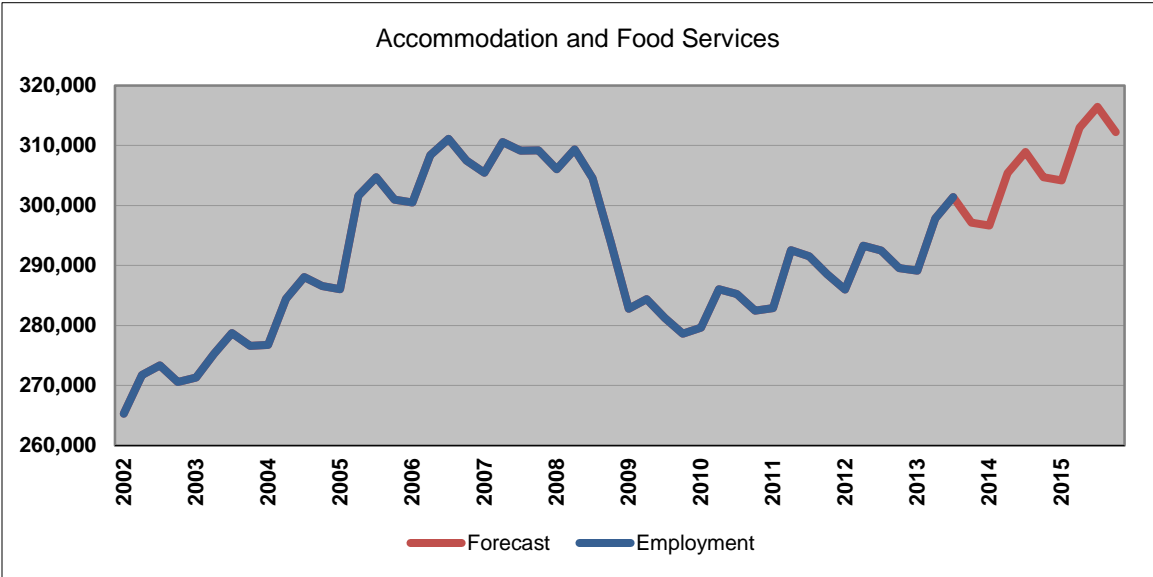
Other Services

Employment in the other services industry is highly correlated with the macro economy. This industry includes entities such as repair and maintenance services and personal and laundry services. The use of these services will increase as the economy creates more jobs and consumer incomes increase. It is projected that the other services industry will have 100 new jobs in 2013, with an additional 1,500 jobs by the end of 2015.

Other Services

(Chart legend: Forecast, Employment)
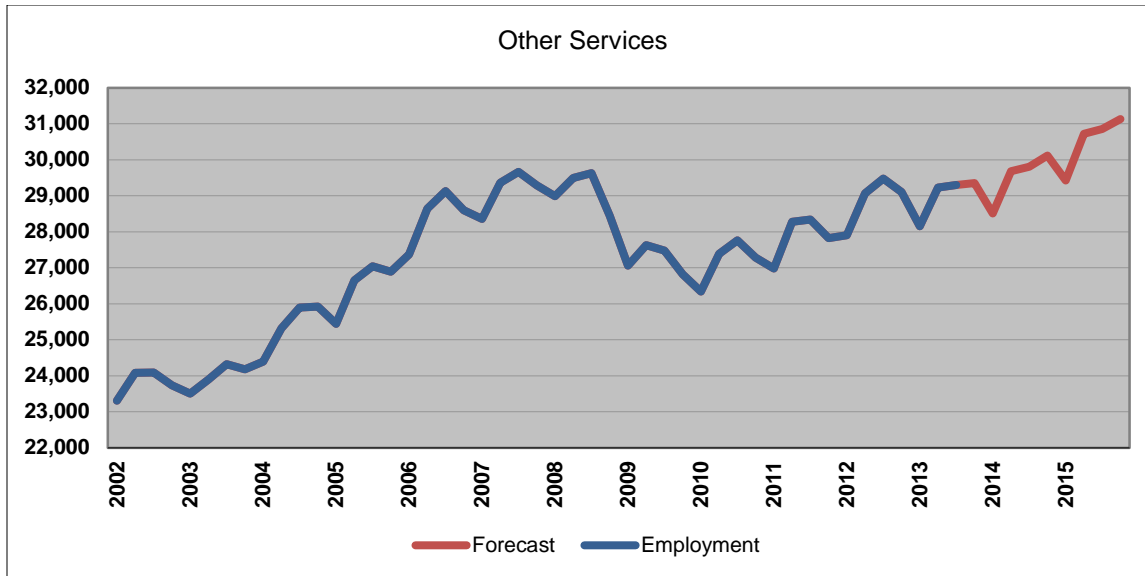
Government (excludes post office, education and hospitals)

The public administration sector consists of federal, state, and local government agencies that administer, oversee, and manage public programs and have executive, legislative, or judicial authority over other institutions within a given area. This sector excludes public hospitals, public schools and federally run post offices that are included elsewhere in this forecast.

Employment in the public administration sector experienced a steady increase leading up to the start of the recession, reaching its peak in the third quarter of 2008 with 75,900 jobs. Public administration employment has been greatly reduced due to state and local government budget shortfalls as a result of the weak economy. From peak to though, Nevada lost 7,400 public administration jobs, or 9.7 percent, most of them in local government. Job losses halted in the third quarter of 2012. In 2010, there was a temporary peak in the federal government employment driven by the 2010 decennial census as seen in the graph below. Currently, public administration employment is 69,900, 7.9 percent below peak levels. We project a flat outlook for government jobs due to fiscal constraints.

Government (excludes post office, education and hospitals)
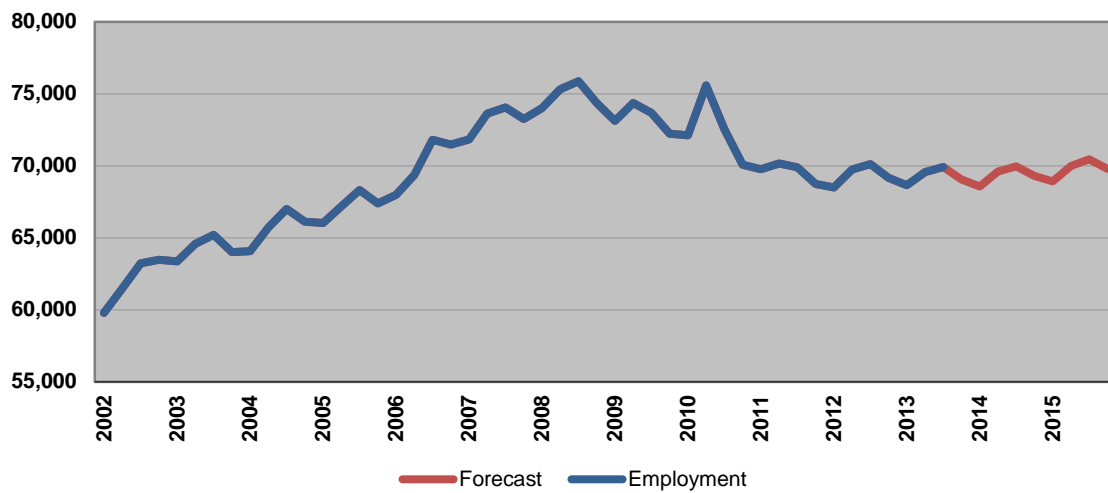
www.burrus.com

Forget Lean and Agile – It's Time to be Anticipatory

By Daniel Burrus, CEO of Burrus Research

We are all good at reacting and responding, putting out fires, and crisis management. In addition, organizations large and small have learned how to be lean and agile, and how to best execute a strategy at a high level.

However, despite these skills, General Motors still declared bankruptcy, Blockbuster closed its last store, and Blackberry quickly moved from leading to bleeding. And let's not forget Hewlett-Packard, Sony, Dell, and a host of other companies who failed to thrive despite its leaders and workers being constantly busy.

To thrive in this new age of hyper-change and growing uncertainty, it is now an imperative to learn a new competency— how to accurately anticipate the future. That may seem impossible, but it's not. The future is there for you to see when you know where and how to look for it. And when you and your employees master this skill, you'll be able to create what I call an "Anticipatory Organization™."

Based on three decades of research and applying the principles I've developed to organizations worldwide, I have developed a way of separating what I call Hard Trends from Soft Trends. Over the years I've written about this extensively in books and articles.

A Hard Trend is a projection based on measurable, tangible, and fully predictable facts, events, or objects. It's something that will happen: a future fact that cannot be changed. In contrast, a Soft
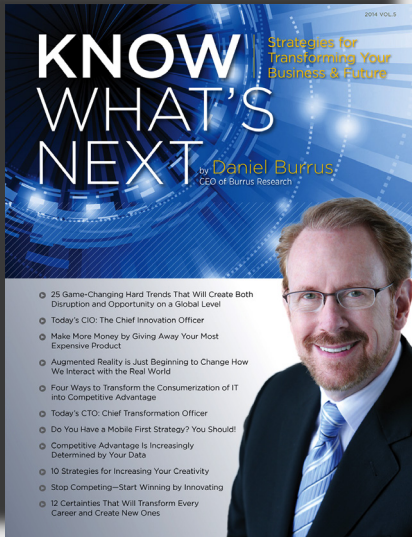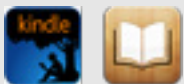
TECHNOLOGY NEWS HIGHLIGHTS

Self-Driving Robot

A Silicon Valley startup has developed a device that can turn any car into a driverless vehicle for about $10,000. Called Cruise RP-1, the system will initially be available for Audi A4 or S4, however, the company intends to quickly expand their product offering to other makes and models.

A control panel installed near the console enables the driver to engage or disengage the system at the touch of a button. The sensor pod, mounted on the roof of the car, contains a combination of cameras, sensors and radar – data from which is fed into a CPU located in the trunk. The computer continuously monitors the road and surrounding vehicles, and operates a series of actuators installed behind the pedals and on the steering column to control speed, steering and braking. Although mainly designed for highway driving to ensure that your vehicle stays in its lane at a safe distance from the car in front of you, RP-1 can also navigate through stop-and-go traffic and bring the car to a full stop if necessary.

The first fifty systems are expected to be available for installation in 2015 and as you might guess, the price will drop quickly as competition enters the market.

For information: Cruise Automation, Inc., 548 Market Street, Suite 40873, San Francisco, CA 94104; email: ***info@getcruise.com;*** *Web site:* ***www.getcruise.com***

Elastic Battery

Wearable electronics and "smart" clothes are the wave of the future as new technologies continue to emerge that are capable of discreetly monitoring vital signs and other health-related information. But the question remains: Where do we get the

power to keep these things running? Clearly, bulky batteries are not the ideal solution, so researchers in China have set out to develop a battery that can be woven right into the garment – in fact, it could become the garment.

The yarn-like lithium-ion battery is made up of wires that are fabricated by nesting carbon nanotubes inside each other. Pairs of these wires are then coated with lithium titanium oxide and lithium manganese oxide nanoparticles to create an anode and a cathode. The pairs are twisted together, separated by an electrolyte gel and a strip of insulating material to form a battery.

The researchers reported that a 10-centimeter (4-inch) long thread could power an LED for up to a minute, and weighs only 0.08 grams.

To make it more fracture-resistant, the battery was then coiled around an elastic thread. The resulting "yarn" could be pulled and bent hundreds of times without degrading its performance.

While previous fiber-like batteries have been documented, most of them utilize copper and aluminum wire. The ability to achieve this level of performance without the need for metallic components makes this latest advance more desirable for use in conductive textile applications.

Robot Gardeners

Don't be surprised if, the next time you visit your local nursery or greenhouse, you see robots rather than people doing some of the back-breaking work. With a shortage of workers to perform agricultural tasks, more and more farmers are enthusiastically embracing technology as a way to improve production reliably and cost-effectively.

For example, this year alone, twenty nurseries throughout the U.S. have started using the HV100 (nicknamed Harvey). Specifically designed to space and re-space plants as they grow, collect and consolidate them for retail, Harvey employs Behavior-Based Robotics to provide intelligent and adaptive functionality. As a result, it requires minimal training, no programming, and is fully autonomous, making it easy to deploy in unstructured outdoor environments.

The Department of Agriculture is funding research on several projects to create robots for a variety of agricultural applications, including harvesting fruits, sampling water in remote locations, and detecting early signs of plant pests and diseases. All of these initiatives are aimed at meeting the needs of a growing population, as it's estimated that the demand for food will increase 70 percent by the year 2050.

Scent Texting

Behind every great experience – whether it's a fabulous meal or a walk on the beach – there are not only sights and sounds, but aromas as well. And the sense of smell is known to be a powerful stimulant for eliciting memories, reducing stress and evoking emotions. Now there's a way to capture those aromas – and even share them with your friends – with a new device called the oPhone.

The system consists of a base station (oPhone Duo) and an iPhone app (oSnap). To send a "scent" message, simply take a photo and tag it with up to eight of 32 available basic aromas. When used in combination, these are capable of generating up to 300,000 smells. The recipient of your oNote will receive a link to the photo as well as the aromatic notes you've attached. So, provided they have an oPhone Duo, they can experience the sights, sounds and smells as if they were there.

The hardware is available for purchase on the company's Indiegogo crowd-funding page. In addition to the base station, a variety of oChips (aromatic cartridges) are available with more specific "aroma vocabularies" such as foods and coffees. Shipments are scheduled to begin in April 2015.

*For information: Web site: **www.onotes.com/** or **www. indiegogo.com/projects/ophone-duo***

No More Drilling and Filling

The shrill, high-pitched sound of a dentist's drill is enough to send chills down anyone's spine, but a new technique for treating dental cavities could put an end to the endless cycle of drilling, filling and re-filling that many of us have come to know (and dread). Known as Electrically Accelerated and Enhanced Remineralization, it can be performed without the need for analgesia or anesthesia because it's totally painless.

Cavities form as a result of bacteria breaking down (demineralizing) the tooth enamel. With the new technology, a tool (dubbed a "healing hand piece") is placed over the cavity and emits an electric charge. This accelerates the natural movement of calcium, phosphate and other minerals back into the enamel, enabling teeth to re-build themselves. Best of all, since the repair is stronger than typical patching methods, it only needs to be done once, and the cost should be about the same, or less, than a traditional filling.

*For information: Nigel Pitts, King's College London Dental Institute, Central Office, Floor 18, Guy's Tower, Guy's Hospital, London SE1 9RT, United Kingdom; phone: +44-(0)20-7188-7188; email: **nigel.pitss@kcl.ac.uk**; Web site: **www.kcl.ac.uk/dentistry/***

Terabyte Storage on a Chip
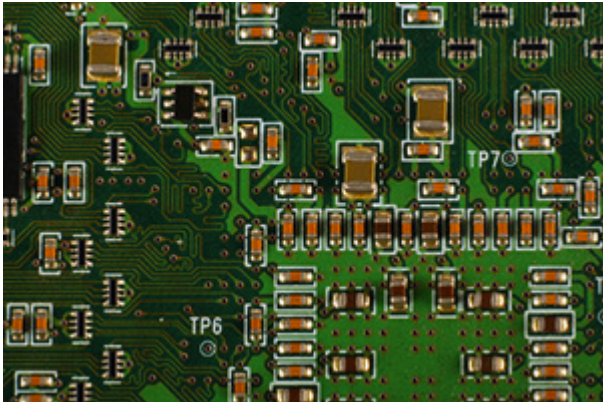
Another milestone in the quest for high capacity, non-volatile data storage will enable a full terabyte of data to be stored on a chip the size of a postage stamp. Utilizing a super dense memory array architecture, the three-dimensional resistive RAM technology (3D RRAM) overcomes many of the technical challenges that have previously limited high-speed data access and throughput.
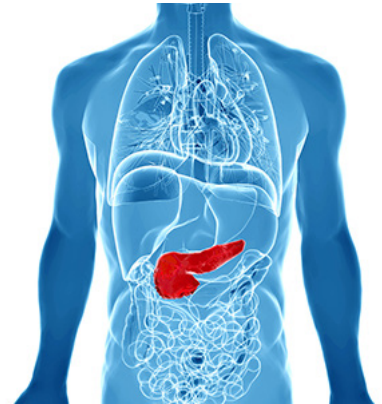
First, the memory cell structure contains a conductive layer with a metallic nano-filament to prevent performance degradation, which is a problem with traditional flash memory. Second, the patented 3-D architecture can be built on top of standard CMOS wafers, making it cost effective to produce. Finally, the new technology builds on a technique that has a proven track record for high speed storage and retrieval.

In today's high speed, data driven world, the demand for better storage solutions will continue to increase. It's been estimated that the market for non-volatile memory will reach nearly $50 billion by 2016.

*For information: Crossbar Inc., 3200 Patrick Henry Drive, Suite 110, Santa Clara, CA 95054; phone: 408-884-0281; fax: 408-884-0283; email: **info@crossbar-inc.com**; Web site: **www.crossbar-inc.com***

Bionic Pancreas

Type I diabetes (previously known as juvenile diabetes) occurs when the pancreas fails to produce insulin – a hormone that converts sugar and other starches into energy. It affects more than 200,000 people in the U.S. and can only be managed through careful monitoring of food intake, activity, and blood glucose levels, along with regular injections of insulin and glucagon. But a new device currently undergoing clinical trials may free patients from the burden of managing their disease on a day-to-day basis.

A wireless glucose monitor implanted under the user's skin sends a signal every five minutes to an iPhone app. The app determines how much insulin or glucagon is necessary to bring blood sugar levels back into balance and signals a small pump to deliver the required dosage automatically through a catheter.

More than 50 patients (age 12 and older) have participated in studies to compare the new device with their usual routines of finger-pricks and manual insulin pumps. With more frequent checks and the ability to monitor round-the-clock, the new device did a better job of managing the disease, and gave participants a glimpse of what it would be like to live without diabetes. If all goes well and the device is approved by the Food and Drug Administration,

in about three years' time, many more diabetes patients may be able to experience that same freedom.

For information: Edward Damiano, Ph.D., Boston University, Department of Biomedical Engineering, 44 Cummington Street, Boston, MA 02215; phone: 617-353-2805; fax: 617-358-6766; email: **edamiano@bu.edu***; Web site:* **www.bu.edu/bme/**

iOS Hearing Aid

Hearing aid manufacturers are now using iPhone platforms to bring new functionality and added control to their products, while enhancing the sound quality and audibility of mobile devices. And thanks to a new wireless protocol developed by Apple last year, the latest designs don't require users to wear an additional dongle around their neck like current Bluetooth enabled in-ear hearing aids.

When used as hearing aids, smartphone apps allow users to recalibrate audio settings without a visit to the audiologist. They can be fine-tuned for different acoustic environments, and different locations can even be geo-tagged to automatically switch to preferred settings for home, office, coffee shop, etc. The mobile phone can also be used as a directional microphone to better isolate desired sounds in noisy surroundings.

At a time when it takes an average of ten years for a person to go from needing a hearing aid to actually using one, anything that reduces the stigma will be beneficial. The truth is…these new devices may appeal to people with good hearing as well, since the tiny aids can also function with a variety of iOS devices as wireless stereo headphones for streaming music, movies and podcasts or to enhance video calling.

For information: ReSound US, 8001 E. Bloomington Freeway, Bloomington, MN 55420; phone: 800-248-4327; fax: 952-769-8001; Web site: **www.gnresound.com** *or Starkey Hearing Technologies, 6700 Washington Avenue South, Eden Prairie, MN 55344; phone: 866-781-3161; Web site:* **www.starkey.com**

It's Time to be Anticipatory

continued from page 1

Trend is a projection based on statistics that have the appearance of being tangible, fully predictable facts. It's something that might happen: a future maybe. Soft Trends can be changed, which means they provide a powerful vehicle to influence the future and can be capitalized on.

This distinction completely changes how individuals and organizations view and plan for the future. Understanding the difference between Hard and Soft Trends allows us to know which parts of the future we can be right about.

When you learn how to analyze trends in this way, you can accurately predict future disruptions, identify and solve problems before they happen, and practice what I call "everyday innovation." This enables you to solve challenges and problems faster and see opportunities that were impossible just a few years before. In other words, you become

anticipatory rather than reactionary.

Employees of an anticipatory organization understand that those who can see the future most accurately will have the biggest advantage. They know that you cannot change the past, but you can shape the future based on the actions you take in the present.

As such, they actively embrace the fact that many future disruptions, problems, and game-changing opportunities are predictable and represent unprecedented ways to gain advantage. They know that it's better to solve predictable problems before they happen, and that future problems often represent the biggest opportunities. Above all else, they are confident and empowered by having a shared view of the future based on Hard Trends and what I call the "science of certainty."

What is the science of certainty? Once you can separate Hard Trends from Soft Trends—once you can differentiate between the things you know will happen from the things that might happen—you can accurately define the certainties going forward. For example, we know that the iPhone 7, 8, and 9 will all have faster processing chips than those before them.

We know that after 3G and 4G will come 5G and 6G in a predictable way. And we know that we are putting more and more in the cloud—that we're not going to discontinue using cloud computing.

Those are technical examples. Here are some non-technical ones: We know that Baby Boomers are not going to get younger. We know that governments are going to continue, all over the world, to issue future regulations. We know the cycles of nature, such as after winter comes summer.

In other words, there is so much we can see that it's absolutely possible to create certainties using the Hard Trend/Soft Trend model I've developed.

Why is this so important to business? Because strategy based on certainty (on Hard Trends) has low risk, while strategy based on uncertainty (on Soft Trends) has high risk. Also, when you have certainty, you have the confidence to say "yes," to move forward, to hire, to start businesses. When you have uncertainty, it's like a giant roadblock. You're stuck and you don't move forward.

To succeed in business these days, simply being lean and agile is no longer enough. You and your team need to harness the ability to anticipate the future. In fact, I see this as being the most important missing competency that we've seen for decades. So learn how to anticipate today, before your competitors do.
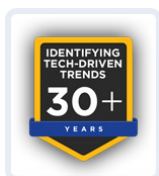
Technology Timeline 2010

A look ahead for the next 30 years from an assortment of industry leaders.

By Marvin Cetron
Pres, Forecasting Intl
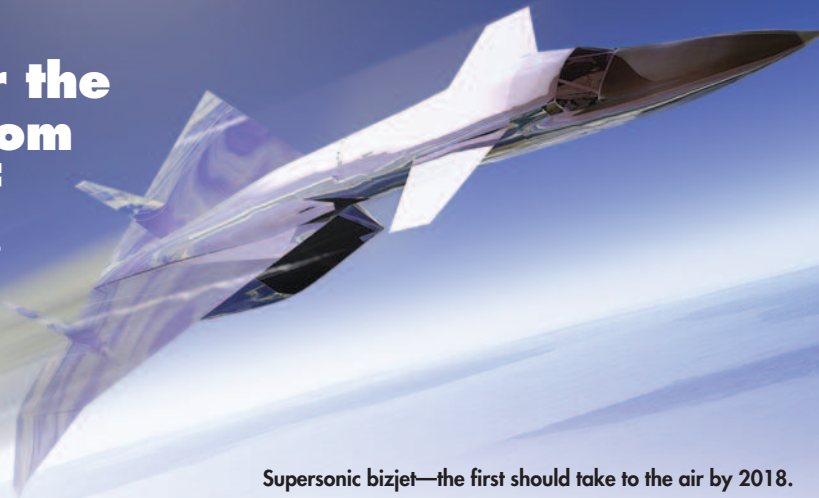
Supersonic bizjet—the first should take to the air by 2018.

A year or so ago (*Pro Pilot*, Oct 2008) we looked at the timeline of future technology, seeking insights into the changes coming to our professional and personal lives. Having just revisited the timeline we feel the result is worth a second look.

As you may recall, the timeline originated with consulting futurist Ian Pearson, who developed it as a project for British Telecom in 1991. He updated it every 2 or 3 years until 2005. Three years later, Forecasting Intl took up that task. Since then, the company has carried out one major update of the timeline and prepared several special-interest versions adapted to specific audiences.

This latest upgrade is the fruit of consultation with nearly 3 dozen authorities, including aviation leaders, general forecasters, intelligence personnel concerned with both military and civilian flight, plus a number of physicians and consultants specializing in biomedical research. Their efforts have modified some target dates, eliminated a few innovations that either have come to pass or have been made obsolete by even more promising new technologies, and added new items to the timeline.

In all, some 60% of the timeline has been revised or is all new. For current purposes, this last is key, for the new material focuses on aerospace, avionics and related fields.

The choice of target dates for the timeline is in keeping with our original policy. Most dates assume that the item (say, a consumer product) will be readily available, at least to well-funded early adopters, but not yet a commodity item. A new avionics suite might be seen on aircraft flying in the most demanding conditions, but it will be some years before it is generally adopted.

For example, consider this forecast: "Voice synthesis quality up to human standard," anticipated for 2012. Today's best synthetic voices are already pretty good, yet no one would mistake the mechanical voices technology brings us for a living human even for a moment. It will be another year or two before we find ourselves occasionally fooled.

Look also at "Advanced vision systems to see through clouds." The US military already has synthetic vision systems to guide its pilots through all weather, day or night, though not yet in general distribution. It will likely be 3 years or so before civilians have access to similar equipment, even on the most demanding routes.

In addition, some "wild card" events are distributed more or less at random through the timeline. Most of these items, highlighted in yellow, were contributed by John Peterson of The Arlington Institute, one of the premier forecasters working in the field. (Credit goes to Sergei Sikorsky for the suggestion that alien civilizations may have found ways to travel faster than light.)

It should not be assumed that the wild cards will occur in the 5-year block where they are found. They appear without target dates for a reason. As Peterson comments, "There is no way to assign dates to these other than to suggest that if they happen it will probably be within the next 20 years."

Yet most of these events would have enormous impact, not only on aviation but on our private lives. Just because we cannot pin down an ETA does not mean that we can afford to ignore them in thinking about the future.

Results

For most developments in the timeline, panelists gave fairly consistent estimates of when a new technology could be expected. Occasionally, one pointed out that it already existed (apparently forgetting that we were concerned with available products rather than laboratory demonstrations).

In most cases, the spread among target dates was limited to a few years—no more than a decade. We nearly always resolved the conflict by picking the middle of the range. However, in a few instances the differences were surprisingly large. The greatest disagreement was for "fully automated 'hop in and go' personal aircraft with 300-mph

speed." We have assigned this a target date of 2039—7 or 8 years later than the optimists suggested. However, one credible participant put the due date at 2080 or later! His concern was mostly for the ATC infrastructure needed to operate such a complex airspace. In this case, we compromised by putting the date at a time when we could be reasonably sure that FAA's "NextGen" control system will be fully in place and that whatever else is required for safety will be built into the vehicle's "intelligence" (since the necessary computing power will be readily available long before then).

As in the previous edition of this timeline, the process of conflict resolution occasionally produced odd results. This is particularly true of space exploration. For example, in 2040 our participants estimate that humanity will have been operating a Moon base for some 10 years—yet the timeline assigns that target date for both a Moon base "the size of a small village" and the first manned mission to Mars. We can only assume that the lunar village is not a new settlement but the original base, grown large—otherwise, this seems a remarkably ambitious schedule.

Similarly, our forecasters believe that "tele-everything" will have replaced most physical travel by 2040. Yet they also suggest that hydrogen-fueled executive jets will appear the following year, with a fully automated 4D airspace system in 2050 and airliners capable of carrying 200-plus passengers at more than Mach 2 in 2075. It's unclear why a complex new ATC system and supersonic passenger jets will be required if most people prefer to sit home at their virtual-reality terminals. Still, these are matters for our heirs. In the relatively near term, the timeline offers some valuable insights.

Asteroid diversion, 2040.

Look for all-weather, day or night synthetic visions systems around 2013. They should make the most challenging flights a lot safer and eliminate many weather-related delays and diversions.

In 2014, expect to share US airspace with small UAVs. Pilotless aircraft are already flying the American skies in a limited way, but unrestricted certification is coming quickly. Our estimate received confirmation from FAA's Lee Smith during this study.

Demand for pilots with recent time in smaller planes should climb rapidly if the forecast "Small aircraft carry 30% of passengers—2015" proves accurate. And professional pilots flying in 2018 could see the year out from the left seat of a supersonic bizjet (SSBJ). This is a few years later than some would-be SSBJ manufacturers hope, yet earlier than the most pessimistic consultants fear.

In the end, it probably doesn't matter whether the innovations early in this timeline arrive a year or two before or after the target date. Further into the future, estimates could be 5 years or more off without significantly affecting our current concerns. Navigating the future requires frequent course corrections as economics, politics and other factors hasten or delay the promises of technology. What matters is that we plan for the future, rather than letting it come upon us unaware. ✈

Marvin Cetron is a forecaster/futurist and president of Forecasting Intl. His study for the Pentagon, Terror 2000, *written in 1994, offered predictions of the subsequent course of terrorism.*

Main contributors

Ralph Aceti (Dassault)
Linden Blue (General Atomic)
Dennis Bushnell (NASA Langley Research Center)
Joseph Coates (consulting futurist)
Bruce Crew (Williams Intl)
Paul DeHerrera (Universal Avionics)
Ken Elliott (Jetcraft)
Scott Erickson (Pressley Ridge)
Louis Friedman (The Planetary Society)
William Halal (George Washington University & TechCast)
David Harris (Insignis Strategic Research)
James Hoblyn (Bombardier Customer Services)
Joe Lombardo (Gulfstream)
David Low (Oxford Analytica)
Ian Neild (British Telecom)
Michael Paulson (Supersonic Aircraft Inc)
Ian Pearson (Futurizon)
Jack Pelton (Cessna)
John Petersen (The Arlington Institute)
James Raisbeck (Raisbeck Engineering)

Bob Rockwood (Bristol Associates)
Sergei Sikorsky (Sikorsky consultant)
Craig Sincock (Avfuel)
Jack Smith (Defence R&D Canada)
Leslie Smith (FAA)
Murray Smith (*Pro Pilot* magazine)
David Pearce Snyder (consulting futurist)
Frank Sowa (The Xavier Group)
Bob Stangarone (Cessna)
Stephen Steele (Anne Arundel Community College)
Richard Tracy (Aerion)
Patrick Tucker (World Future Society)
Steve Varsano (The Jet Business)

In addition to the above, 5 officials in the US intelligence community contributed to this study but for professional reasons must remain anonymous. Two work for the Pentagon, one for the Dept of Homeland Security (DHS), one for a private think tank, and one worked for the National Security Agency when he joined us in this work but has since transferred to DHS.

Technology Timeline

2010–2014

		Due date
Artificial intelligence and life	Behavior alarms based on human mistake recognition	2010
	Software trained rather than written	2012
	AI chatbots indistinguishable from people	2014
Biotechnology: Health and medicine	All patients tagged in hospitals	2010
	Designer babies born outside US	2012
	Stem cells used in clinic to repair damaged heart muscle outside US	2013
	Cost of sequencing human genome drops to $1000	2013
	Vaccine for virus that causes prostate cancer	2014
Business and education	**Virtual reality used to teach science, art, history, etc**	2012
	3D video conferencing	2014
Computing power	Optical neurocomputers	2013
	Supercomputer as fast as human brain (20 petaflops)	2014
Environment and resources	Systems based on biochemical storage of solar energy	2012
	Multilayer solar cells with efficiency >50%	2014
	Laser fusion produces net energy gain	2016
Home and leisure	Chips in packaging used to control cooking	2011
	Bore filter screens dullards out of digital communications	2012
	Smart paint containing computer chips available	2013
	Majority of world's teens active citizens of "virtual worlds"	2014
Machine/human interface	Voice control of many household objects	2011
	Voice synthesis quality up to human standard	2012
	Tactile sensors comparable to human sensation	2012
	Computers linked to biological sensory organs	2012
Robotics	Self-monitoring infrastructures use smart materials, sensors	2013
Security, law, war	Electromagnetic communications disrupted	2011
	Routine use of VR in courtrooms for evidence presentation	2013
	ID cards replaced by biometric scanning	2014
Space	Earth-like planet discovered	2012
Travel and transportation	Enhanced flight vision systems for small GA aircraft	2012
	Synthetic vision systems allow GA pilots to see through clouds	2013
	Combat drones "intelligent" enough to target munitions for greatest effect	2014
	FAA aproves unrestricted flights of small UAVs in US airspace	2014
	Hybrid cars carry 10% of American drivers	2014
	More optimized airframe/powerplant/aircraft system integration	2014

Rapid climate change produces mini-ice age.

Intelligent alien life discovered/ encountered.

2015–2019

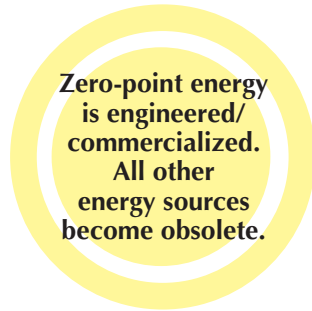|		Due date
Artificial intelligence and life	25% of TV celebrities are synthetic	2015
Biotechnology: Health and medicine	Artificial heart (lab-cultured or entirely synthetic)	2015
	Medical treatments based on patient's individual DNA	2015
	Alzheimer's treatment based on protein responsible for "tangles"	2016
	Cure for osteoarthritis	2016
	Vaccine for prostate cancer	2016
	Artificial lungs, kidneys	2017
	Designer babies born clandestinely in US	2018
	FDA approves use of stem cells to repair damaged hearts	2018
	Thought-controlled exoskeleton lets disabled walk	2018
Computing power	Quantum computer	2015
	AI technology imitates thinking processes of human brain	2018
Environment and resources	Carbon dioxide fixation technologies for environmental protection	2015
	Wind provides 50% of energy in Denmark, 30% in Germany, 10% in US	2015
	Hobbyist gene splicer produces bacteria to clean up oil spills	2016
	Synthetic nonpetroleum aviation fuel (JP8) reaches commercial market	2016
	Wave energy provides up to 8% of UK requirements	2019
Home and leisure	Living rooms decorated with VR scenes	2015
Machine/human interface	Global sensor grid	2018
Robotics	Self-diagnostic, self-repairing robots	2015
	Robots for almost any job in homes or hospitals	2018
	Holographic TV	2018
Space	James Webb "next generation" space telescope in orbit	2015
	Solar sail weather monitoring station	2015
	Orbital flight of space tourist by private carrier	2017
Travel and transportation	Small aircraft carry 30% of passengers	2015
	Fuel cell cars	2015
	Assisted-lane-keeping systems used for trucks and buses	2016
	Fuel cells for emergency power certified to replace ram air turbine	2016
	Intelligent cars	2016
	Ceramic blades used to raise engine operating temps, increasing efficiency	2017
	Supersonic bizjets	2018
	Airplanes 20% more efficient than in 2009	2019
	Unducted-fan engines entering use	2019
Wearable and personal technology	Spectacles that translate signs, labels	2015
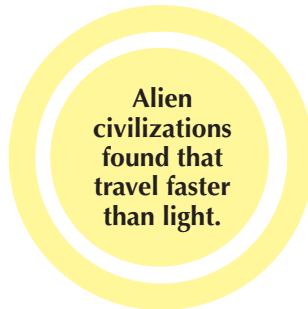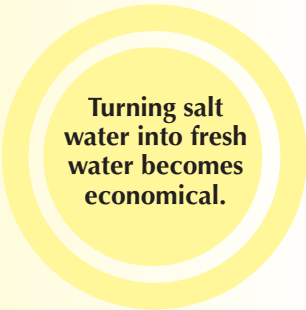
Zero-point energy is engineered/commercialized. All other energy sources become obsolete.

Turning salt water into fresh water becomes economical.

Alien civilizations found that travel faster than light.

2020–2024

Artificial intelligence and life	Machine knowledge exceeds human knowledge	2020
	Artificial insects and small animals with artificial brains	2020
Biotechnology: Health and medicine	Artificial liver	2020
	Nanobots in toothpaste attack plaque	2020
	Fully functioning artificial eyes	2020
	Regenerating amputated limbs	2022
Business and education	Learning superseded by transparent interface to smart computers	2020
Computing power	Library of Congress contents available in sugar-cube-size device	2020
	Desktop computer as fast as human brain	2021
Environment and resources	Effective prediction of most natural disaster	2020
	Av fuel from plants irrigated with seawater reaches market	2021
Home and leisure	3D "printers" bring one-off manufacturing to the home	2021
	Experience-recording technology developed	2023
Machine/human interface	Thought recognition becomes everyday input means	2020
	Constitutional amendment guarantees thought-privacy	2021
Robotics	**Realistic nanotech toy soldiers**	2022
Security, law, war	Global sensor nets make "stealth" flight impossible	2020
Space	Antimatter production and storage becomes feasible	2020
	Single-stage-to-orbit launch vehicle	2022
	Space tugs take satellites into high orbits	2022
Travel and transportation	Driverless truck convoys using electronic towbar	2020
	Airplanes 75% more fuel-efficient	2023
	Automated package delivery by robot and UAV	2024
	Cockpit windows eliminated to improve aerodynamics	2024
	Flying "HUMVEE" for the military	2024
Wearable and personal technology	Computer-enhanced dreaming	2020

Asteroid strike or near-miss of Earth reorganizes life.

2025–2029
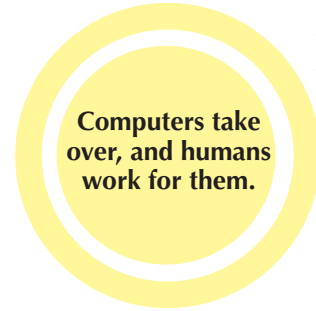
Artificial intelligence and life	Living genetically-engineered electronic toy/pet developed	2025
Biotechnology: Health and medicine	Life extension at 1year per year	2025
	Infectious disease eliminated from developed world	2028
Business and education	Molecular manufacturing	2025
	Individual education program	2025
Environment and resources	Artificial precipitation induction and control	2025
Machine/human interface	Full direct brain link	2025
Security, law, war	Emotion control chips used to control criminals	2025
	Hypersonic drone bomber with global range	2026
Space	Mars sample return	2025
	Space hotel accommodates 350 guests	2025

Significant IT attacks bring down a major national economy.

Travel and transportation	Tele-travel	2025
	3D airspace system frees aircraft from ground-based ATC for most ops	2025
	FAA approves autonomous drone airliners	2026
	Economically practical supersonic airliners	2029

Bio/nano experiment gets out of control, with subsequent regional or global impact.

Computers take over, and humans work for them.

2030–2039

Due date

Artificial intelligence and life	Robots are physically and mentally superior to humans	2032
Biotechnology: Health and medicine	**Artificial brain**	2030
Computing power	10^8 improvement in computing power through nano/atomic computers	2030
Environment and resources	Renewable energy replaces fossil carbon	2030
	Commercially viable nuclear fusion	2039
Robotics	Robots completely replace humans in workforce	2035
Space	**Moon base**	2030
	Teleoperated Mars base	2033
	Space factories for commercial production	2035
Travel and transportation	50 to 100-passenger SSTs	2035
	Fully automated "hop in and go" personal aircraft with 300-mph speed	2039
Wearable and personal technology	Dream-linked technology built for night-time networking	2035

2040 and beyond

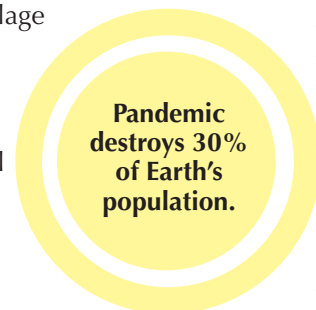| **Security, law, war** | Asteroid diversion technology used as weapon | 2040 |
Space	Moon base expands to size of a small village	2040
	First manned mission to Mars	2040
	Europa ice digger	2042
	Titan balloons	2042
	Space solar power stations	2050
	Use of human hibernation in space travel	2052
	Star travel	2069

Pandemic destroys 30% of Earth's population.

Travel and transportation	Tele-everything replaces most physical travel	2040
	Hydrogen-fueled executive jets (cryoplanes)	2041
	4D airspace system ensures automatic separation, eliminates last requirement for ground-based ATC	2050
	200+ pax SST with Mach 2+ speed and low boom for overland flight	2075

What's Happened to America's Scientific Greatness?

A leading futurist says the country's security is at risk because we are training — and keeping — fewer scientists.
The Chinese, on the other hand, are rich in high-level talent.

By Marvin J. Cetron with David A. Patten

It was the computer programmer's equivalent of the World Series, the Olympics, and the Super Bowl all packed into one event.

The final score at the conclusion of the TopCoder Open in Las Vegas: "crazybOy" one, United States of America zero.

"CrazybOy" — the "handle" of programmer Bin Jin, a remarkable 18-year-old high school student from Shanghai — bested 4,200 other competitors (many of them code-writing pros with masters degrees and Ph.D.s) to win TopCoder's annual algorithm contest. He and others delivered a Sputnik-style beat-down to the United States in the process.

Of the 70 finalists, 20 were Chinese. Ten were Russian. Six were Indonesian. Six more came from Ukraine. Four of the finalists were Canadian. Poland (population 38 million), the Philippines (92 million), and Argentina (40 million) placed three programmers apiece in the finals. The number of U.S. finalists: two. The number of U.S. champions in the nine events: none.

Experts say it's further proof that science and math illiteracy are endangering U.S. global competitiveness, and could even threaten U.S. national security. After all, it's no accident the

contest was sponsored by the super-secret National Security Agency (NSA) — the cryptographic "puzzle palace" in Fort Meade, Md.

Increasingly, science and national security are one. Officers in trailers at U.S. air bases pilot unmanned drones to seek and destroy terrorists in Afghanistan. (In fact, Creech Air Force Base, only 35 miles northwest of the Las Vegas resort where the TopCoder Open was held, conducts such missions daily.)

The bottom line: Lamentations about the state of U.S. science are more than fodder for PTA meetings.

Marvin J. Cetron is founder of Forecasting International and one of the world's leading forecaster-futurists. He served as White House adviser and consulted for more than 400 of the Fortune 500 firms, 150 professional and academic organizations, and 100 government agencies, including the CIA and NSA.

"The scientific and technical building blocks of our economic leadership are eroding at a time when many other nations are gathering strength," the National Academy of Sciences recently reported. "Although many people assume that the United States will always be a world leader in science and technology, this may not continue to be the case inasmuch as great minds and ideas exist throughout the world. We fear the abruptness with which a lead in science and technology can be lost — and the difficulty of recovering a lead once lost, if indeed it can be regained at all."

As the global scramble for the technological high ground heats up, those lads vying for a trophy in Las Vegas may soon find themselves locked in a far more serious competition — a binary battle of ones and zeros as geeks gaze at computer screens and determine who wins future battles.

It is a competition the United States appears increasingly ill-equipped to win. In 2008, hackers launched more than 70,000 cyberattacks on American computer networks. Many were launched by foreign governments using sophisticated code written by top-flight programmers. America's own army of techno-geeks is all that protects the nation's most sensitive secrets.

In that light, concern that America has failed to keep pace with the burgeoning scientific infrastructures of other nations seems appropriate. "Without workers equipped with the science, technology, engineering, and math skills to succeed in the 21st century," Chamber of Commerce President Thomas Donahue has warned, "the United States will lose the global race for talent and its position as the economic leader of the world."

SO WHAT'S WRONG WITH THE U.S.?

America's technology infrastructure has both a quantity problem and a quality problem. The quantity problem is simply a matter of numbers. The numbers don't lie . . . and they don't look pretty, either. There are about 488,000 scientists and 1.5 million engineers in the United States, according to the Bureau of Labor Statistics.

Add 267,000 technicians, and about 2.7 million computer scientists, programmers, engineers, teachers, and related professionals, and the U.S. technology infrastructure numbers about 5 million people.

About half of these critical professionals, however, are nearing retirement age. Each day, the Sputnik-era science surge and the glory days of NASA fade further into the past. The tale of the tape does not augur well for America: The Department of Labor estimates that the nation requires 114,000 new engineering graduates each year. However, it graduates only about 70,000 according to most reports.

A SUPERPOWER IN DECLINE?

In Europe, 12 percent of all graduates major in engineering. In China, a nation of 1.35 billion people, that same number is 40 percent.

In the United States, just 6 percent of undergraduates are engineering majors. So when it comes to scientific brainpower, America is increasingly outgunned.

Indeed, the brightest 20 percent of Chinese students outnumber all of the young people currently living in the United States. In India, it's a similar picture. And as these nations develop, much more of their school-age population will receive an education.

That is why, according to former Purdue University President Martin Jischke, fully 90 percent of all scientists and engineers will soon reside in Asia.

On a purely numerical basis, therefore, the United States would have to provide a very high level of science and mathematics education in order to offset the numerical advantage of larger countries.

Studies indicate the performance of American students in science and math, however, is clearly inferior. In 2006, for example, the Programme for International Student Assessment tested 15-year-olds around the world in science, math, and reading.

Students from 57 countries participated in the testing. U.S. students placed 29th in science

proficiency, behind Latvia, Croatia, Slovenia, Liechtenstein, and Estonia, to name a few. Even in reading literacy, American youngsters didn't fare so well, ranking 18th. Increasingly, studies on the global competitiveness of America's up-and-coming scientists are report cards you don't want to open.

A decade ago, the United States was able to augment its scientific cadre with immigrant-scientists drawn to the United States.

They studied at top U.S. colleges, took jobs with U.S. firms, and would often go on to become naturalized citizens. Indeed, more than one-third of Nobels awarded for research performed in the United States have gone to immigrants.

It was common just a few decades ago to hear European intellectuals bemoaning the "brain drain" to the United States. Today, the global intellectual tide appears to be reversing. Increasingly, the world's greatest scientific minds are casting an envious eye at opportunities beyond U.S. shores.

THERE ARE SEVERAL REASONS FOR THIS DECLINE:

• **In 1987, Congress and President Clinton killed the Superconducting Super Collider project**. The Super Collider was expected to be the world's largest atom smasher, and the decision to end the project signaled a reluctance to pay for major science projects.

The collider would have attracted thousands of scientists from abroad. Now, they're lining up to work at the Large Hadron Collider near Geneva, Switzerland instead.

• **Military research is consuming an increasing portion of the R&D pie**. DARPA, the storied research agency that developed the Saturn V moon rocket, UAV drones, and the Internet, now focuses increasingly on mundane, albeit vital, war-fighting tasks such as making Bradley Fighting Vehicles resistant to roadside IED bombs.

• **Funding is harder to come by**. U.S. spending on research and development, when measured as a percentage of GDP, has been shrinking for the past 15 years. President Barack Obama has promised to renew America's commitment to scientific innovation, and the $787 billion stimulus included substantial funds toward that end.

• **Post 9/11, student visas are much more difficult to obtain**. Once students arrive, they encounter greater scrutiny and regulation.

• **This year, only a little more than half of such students say they want to remain in America**. In past decades, more than 90 percent of Chinese nationals who earned Ph.D.s at U.S. schools planned to remain in the United States for at least five years.

AnnaLee Saxenian, dean of the University of California, Berkeley School of Information, blames the economy. "Foreign students have a sense that the United States is closing down as a land of opportunity," she says.

That's important considering that nearly a third of U.S. science degrees, and 60 percent of U.S. engineering degrees, are awarded to foreign nationals. One ominous indicator, Saxenian says: A majority of foreign s

tudents now believe innovation over the next 25 years will occur faster in China and India than in the United States.

Dr. Vivek Wadhwa, a Duke University professor and Harvard Law School researcher, who along with Saxenian has carefully studied the American "science gap," says the recession is postponing recognition of a serious shortage.

"We're in a recession, and there is enough good talent now," Wadhwa says, adding, "But long term, it will hurt like you won't believe."

FAILURE IS NOT TOLERABLE

The good news: Experts say it's not too late to reverse the decline of America's intellectual infrastructure. After all, of the nine 2009 Nobel laureates in medicine, chemistry, and physics, three were scientists born and educated in the United States. Two other laureates were born overseas, and came to the United States.

Maintaining America's technological edge in a hostile world requires a willingness to invest the resources needed to nurture new fields of scientific endeavor.

This much is certain: Failure is not an option. Ignoring the need to rebuild America's scientific infrastructure, experts warn, could carry an enormous price tag.

"Losing critical talent means arming the U.S.' competition," says Wadhwa. "The next Google, Microsoft, or Apple could be launched in Shanghai or Bangalore."

THE WAY FORWARD:
LET'S GET SERIOUS ABOUT SCIENCE

America stands unrivaled for scientific achievement, but its advantage is evaporating fast. If we hope to bolster our economy and security, fixing the problem won't come cheaply. A few

suggestions:

• **First and foremost, we must get serious about overhauling our educational system**. Schools have to graduate students who are fully able to succeed in an increasingly competitive, high-tech world.

• **Studies show today's students learn better online than in the classroom**. So let them attend lectures over the Net and gather only for lab work, social interaction, and other such functions. This would cut school costs and improve learning.

• **Train teachers to effectively use computers and other high-tech aids**. Kyle Peck, associate dean for outreach, technology, and international programs at Penn State, often uses a favorite quotation: "Technologies will not replace teachers, but teachers who use technologies well will replace those who don't."

• **Provide advanced K-12 programs**. Such programs should include science and math for gifted students who can make the most use of them.

• **Make sure teachers understand their own subjects**. It is not enough to have passed teacher's school classes in pedagogy. No one can effectively teach math or science unless they can at least pass their course's final exam.

• **Mandate merit pay to reward teachers whose students show the greatest progress**. Toledo and a few other districts have proved that it can be done fairly and successfully.

• **Help teachers improve**. Assign the best to mentor those whose performance is not quite so stellar, and pay them for the extra duty.

• **Emulate North Carolina's Project Bright IDEA, chaired by veteran educator Margaret Gayle**. Test scores, the identification of gifted students, and student and teacher motivation all have soared since the program began nine years ago.

• **Retrain teachers to build extremely rigorous curricula from scratch**. Retraining should include using business life skills, collaborative problem-solving exercises, and conceptual analysis.

• **Revise immigration policies**. Students seeking to matriculate in America — especially those pursuing careers in math and science — deserve a warm welcome. **— M.C., D.P.**

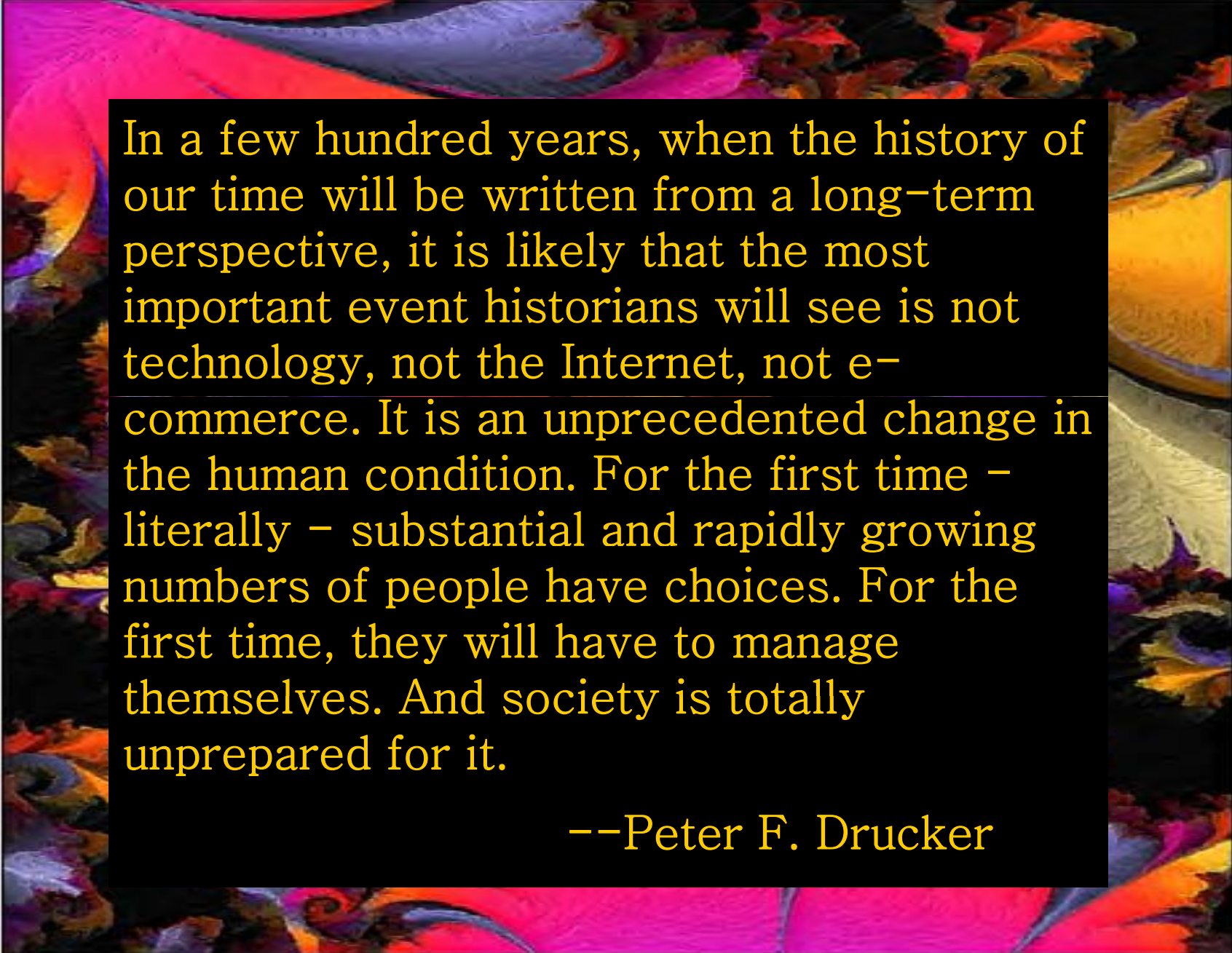**As originally published in [Newsmax](#) magazine.**

WAKE TECH

2011

EDUCATION IN A PERFECT STORM

COTF

In a few hundred years, when the history of our time will be written from a long-term perspective, it is likely that the most important event historians will see is not technology, not the Internet, not e-commerce. It is an unprecedented change in the human condition. For the first time – literally – substantial and rapidly growing numbers of people have choices. For the first time, they will have to manage themselves. And society is totally unprepared for it.

--Peter F. Drucker

MegaTrends Creating a Perfect Storm
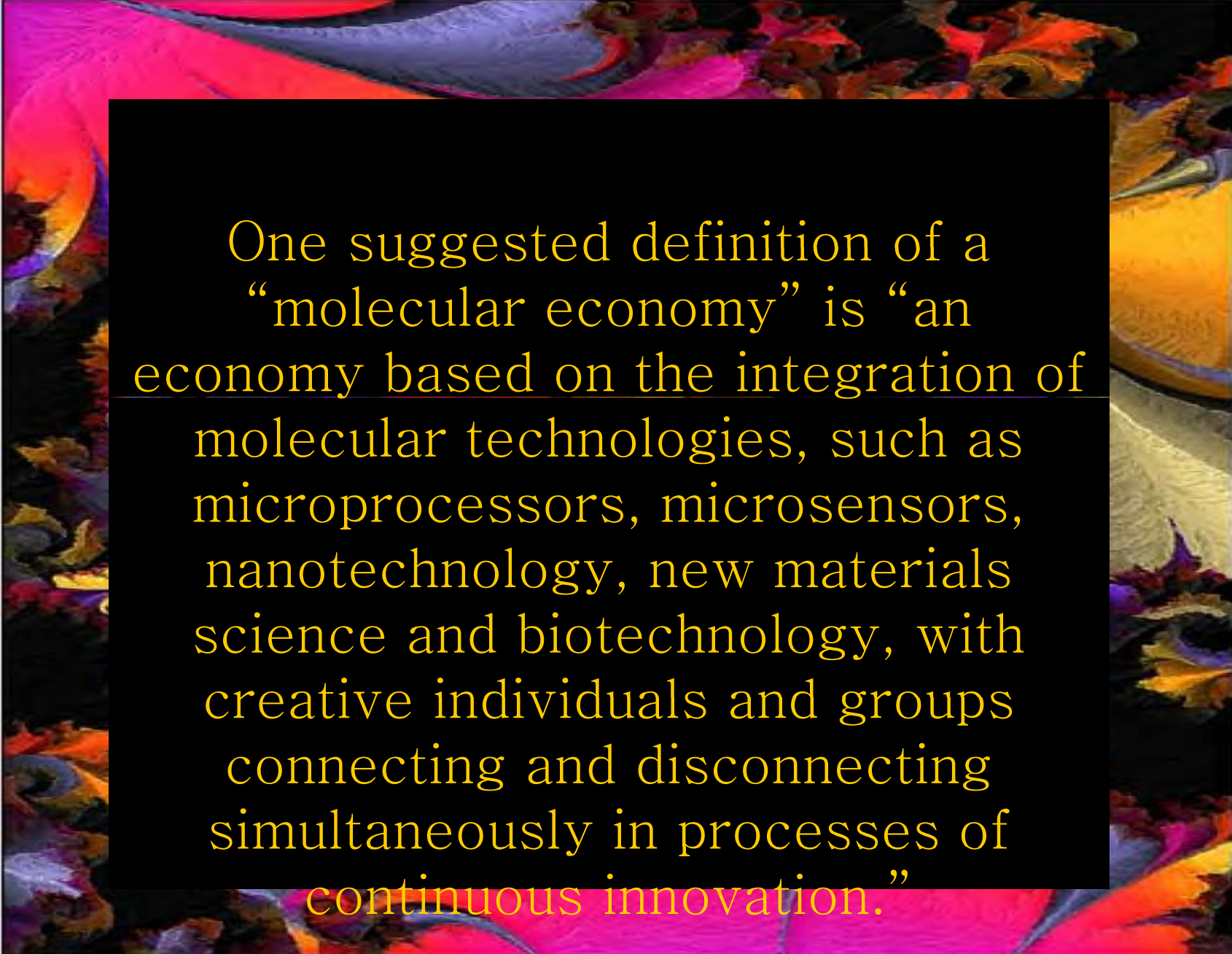
- Peaking of energy production
- Global Environmental Shifts
- Deficits Unleashed
- Evolution to a Molecular Economy
- The Transformation of Education

The Oil Age

Click to enlarge
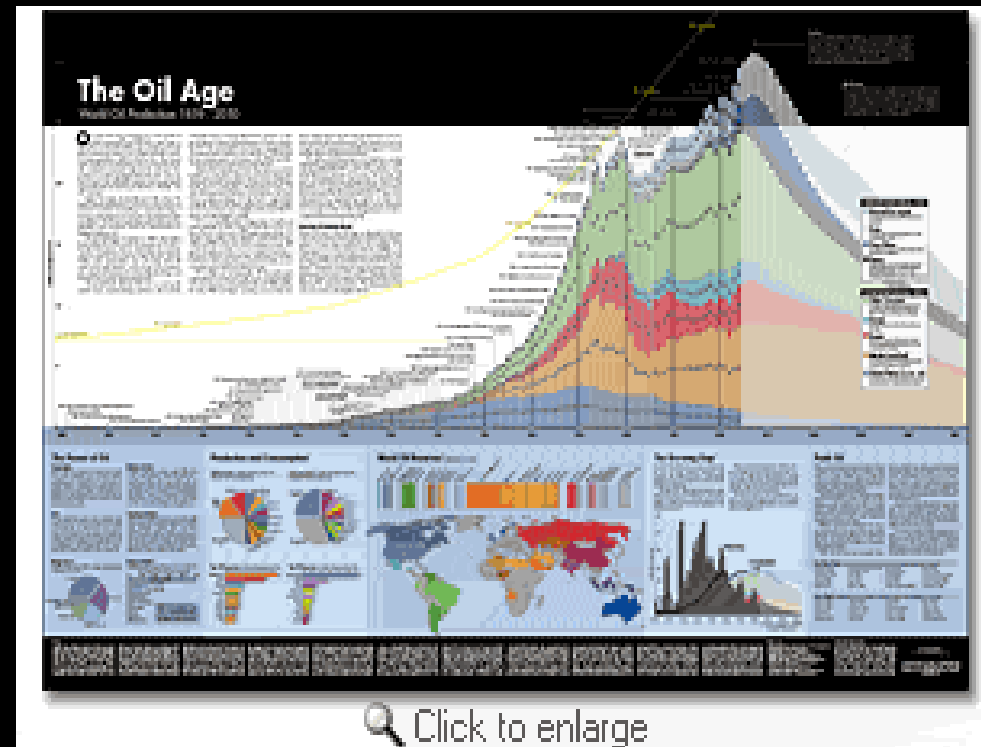
WEAK SIGNALS

- Networks and Webs as the Way Society is Organized
- **Millennial Emigration**
- Creativity Emerges as Key Identify Measure
- **Food Supply Tightening**
- Molecular Economy

One suggested definition of a "molecular economy" is "an economy based on the integration of molecular technologies, such as microprocessors, microsensors, nanotechnology, new materials science and biotechnology, with creative individuals and groups connecting and disconnecting simultaneously in processes of continuous innovation."

WEAK SIGNALS

- Transformation of Society as a Result of Mobile Technologies
- Virtual Reality and Gaming as a Platform for Education
- Era of Personalized Learning

A Futures Context
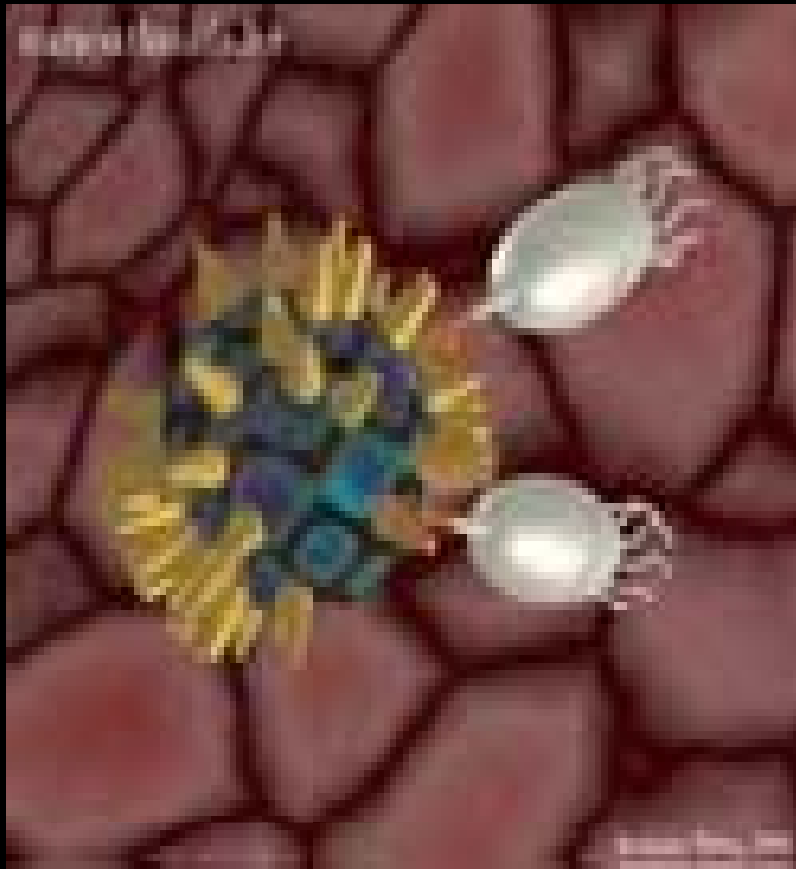
- Nanotechnology
- Constant Innovation
- Adaptive Planning
- Convergence of Information, Biology and Business

SYSTEM OF COMMUNITY TRANSFORMATION

- Developing a Molecular Economy
- Community Transformers
- Skills for Transformational Learning
- Creating Capacities for Transformation

CAPACITIES FOR TRANSFORMATION
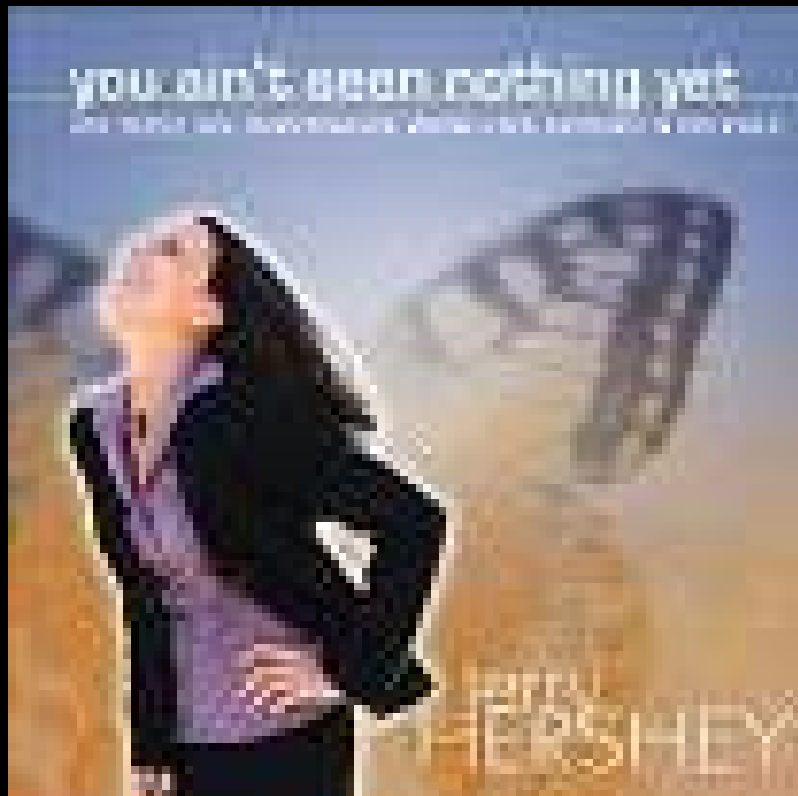
- Openness to New Ideas
- Broadband
- A Culture That Supports Continuous Innovation
- Parallel Processes

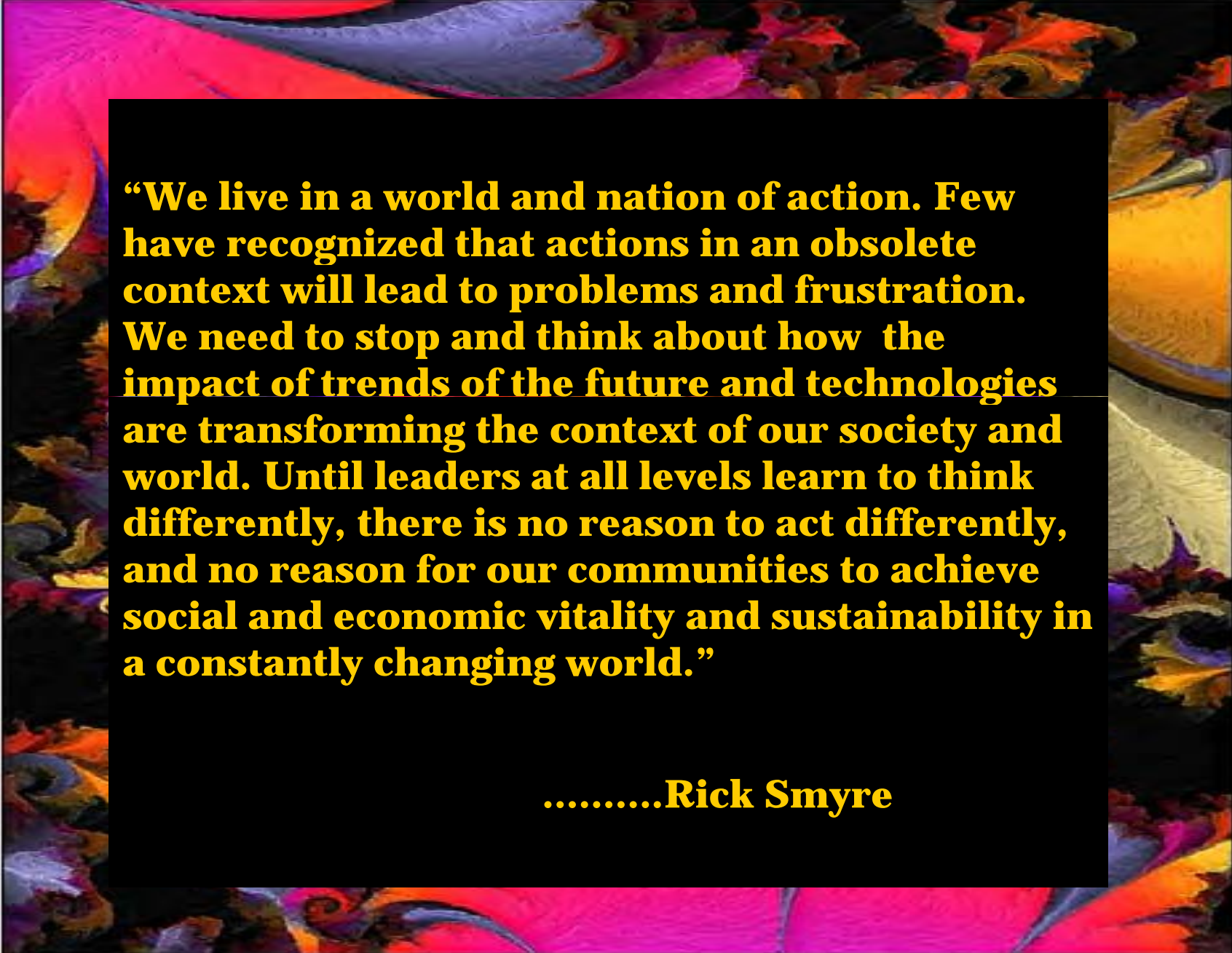# COMMUNITY COLLEGES AS TRANSFORMERS

- Future Basics
- Futures Institutes
- Develop Transformative Student Leaders
- Develop a Framework and Initiatives to Create a Future Forward College

By definition, a "xenomorph" is an entity which can reconstruct itself, to respond to a perceived trauma event, an opportunity for gain, or change of conditional feature sets within an environment. In that sense, an entity possessing this attribute could be viewed as a near realtime "adaptor engine."

Xenomorph

"We live in a world and nation of action. Few have recognized that actions in an obsolete context will lead to problems and frustration. We need to stop and think about how the impact of trends of the future and technologies are transforming the context of our society and world. Until leaders at all levels learn to think differently, there is no reason to act differently, and no reason for our communities to achieve social and economic vitality and sustainability in a constantly changing world."

..........Rick Smyre

What is a Future Forward College?

What is a Future Forward College?

Interior Page
Show Subnavigation Section

The following are brief definitions and descriptions of key ideas for a Future Forward College that emerged from the dialogue in 2011 with deans and department heads of Wake Technical Community College:

1)   Hyper-Individualized Curricula

"Learning what we want, when we want it – shifting away from prescribed course agendas to ones that are hyper-individualized, self-selected, and scheduled at times that sync well with the student will dramatically change levels of motivation and participation. Since each student comes with their own unique mixture of skills, desires, and preferences, the sooner a student can focus in on the traits and talents they excel at, the quicker they will be able to find a meaningful direction for themselves" – Thomas Frey, DaVinci Institute, Louisville, CO

2)   Gamification

"Though I can't stand this buzzword, I do believe the concept of gamification will continue to penetrate every aspect of our lives. Gamification will even shape our interactions with government. Crowdsourcing and other incentivized models for engagement will drive public participation programs for public issues (policy design, the planning of public space, etc.)."
—Daren C. Brabham, assistant professor in the School of Journalism & Mass Communication at the University of North Carolina-Chapel Hill.

3)   Creative Molecular Economy

"An economy based on the integration of emerging technologies, with creative individuals, small groups and companies organized in interlocking networks, connecting and disconnecting constantly in processes of continuous innovation." – Rick Smyre, President, Center for Communities of the Future.

4)   Smart Mobile Devices

"Smart mobility will change the way people interact. Increasingly, smart devices — portable tools that connect to the internet — have become a part of our lives. In the last quarter of 2010, sales of smartphones outpaced those of PCs for the first time, according to data from

IDC. By 2014, more smart devices could be used to access the internet than traditional computers. The move to an increasingly mobile world will create new players and new opportunities for a variety of industries. We expect that new emerging market companies will be significant competitors, growing rapidly in part because a lack of legacy systems will enable them to profit more quickly from new technology as it becomes available. Emerging markets will create plenty of opportunities related to smart technology, and they will not be limited to for-profit enterprises"… Ernst & Young

5) Creating Interactive, Parallel Process, Ping-Pong Effects

When designing a system of parallel processes for systemic transformation, it is important to realize that key elements of the ability for new ideas to emerge will be determined by how many people and ideas outside an organization and community are connected into the thinking and action of local change efforts so that external "ping-pong" effects are created to build collaborative efforts for introducing local citizens to emerging weak signals and transformational thinking, and helping to evolve totally new ideas as a part of a national/international network of people and organizations….Rick Smyre, President, Center for Communities of the Future.

6) Transformational Leadership (Master Capacity Builder)

Transformational Leadership, known in the work of Communities of the Future as Master Capacity Builders, is focused on the concept of building "capacities" for transformational thinking and action that help leaders shift their understanding of how to deal with emerging issues, never before experienced, within the context of a new paradigm or what is called a "futures context." Mark Waterhouse, Past President of the American Economic Development Council and Senior Fellow of the Center for Communities of the Future

7) ipad2

The **iPad 2** is the second generation iPad [1], a tablet computer [2] designed, developed and marketed by Apple Inc. [3] It serves primarily as a platform for audio-visual media including books, periodicals, movies, music, games, presentations and web content. The iPad 2 comes with several applications by default, including Safari [4], Mail, Photos, Video, YouTube, Music, iTunes (store), Maps, Notes, Calendar, Photo Booth [5], and Contacts…Wikipedia.

8) Analogous Complexity

The purpose of analogy in science education is to effect conceptual change: specifically in terms of a new or altered understanding. Of course, not everything that is to be learnt or understood as a result of the analogical process will always pre-exist in the learner's cognition. There will be occasions when new data needs to be processed for learning to occur. Dr Yvette Hancock & Dr. Andrys Onsman…Monash University.

This concept of "analogous complexity" will become a core way for "learning engineers" to help students see systemic connections in multiple ideas, people and processes….e.g., an understanding of the biomicracy of nature is central to understanding the methods of interdependency in a society, and leads to the skill of how parallel processes to insure

effective interlocking networks are designed.

9) Khan Academy

With a library of over 3,400 videos [6] on everything from arithmetic to physics, finance, and history and hundreds of skills to practice [7], we're on a mission [8] to help you learn what you want, when you want, at your own pace. The knowledge map [7] shows all of our challenges, skills, and concepts. You can **zoom in and out and pan around** all the different skills and challenges, just like on a normal map. You can start working anywhere on the map, and the Khan Academy will suggest the best skills for you to work on. We'll even remind you when you need a review. **As you zoom out of the knowledge map, you'll find our challenges,** which combine the concepts from multiple smaller skills. Zooming all the way out of the map and completing all of our challenges is a sign of math mastery.

10) Identifying Weak Signals

Weak Signals are precursors to full-blown trends at some later stage… Elina Hiltunen (Finland). Weak signals are emerging ideas, inventions, discoveries and innovations that are not yet trends, but have the potential to impact local areas within 3-5 years. Weak signals can inform any process through which learning geared at coping with and perhaps creating the future is taking place. How do you identify weak signals that lead to the next big thing? *there's no substitute for being in the habit of looking for ideas and working with them once they're found. Perhaps the mother of these habits is to simply be interested in the world around you—and attentive to its varied possibilities"….Andy Boynton, Dean of the Boston College Carroll School of Management.*

11) Chaos, Complexity and Ecology

The study of how living and nonliving things organize themselves into patterns and interact as systems. Complexity is extremely multidisciplinary and involves scientists in a vast assortment of fields from Biology to Physics. It is also closely related to Fractal Geometry [9] and Chaos Theory. [10]

Chaos is a new scientific theory for dealing with systems that are complex, unpredictable, and/or have random events, or, in other words, most of the real world. Natural systems are so complicated that no matter how carefully we measure them, we can't know everything about them. Although measurements can be extremely accurate, they can't be accurate to infinity, and tiny differences/errors in the beginning can lead to gigantic ones later. This is known as the Butterfly Effect, because under the right circumstances, the effect of the fluttering of a butterfly's wings can make the difference between whether or not there will be a tornado.(So much for ever getting accurate weather predictions.)This shows how even the actions of the smallest creature can have a large effect on the whole. In ecological systems, everything is connected….Wikipedia.

12) Futures Generative Dialogue

Futures Generative Dialogue can be defined as the process of interaction, based on value added listening, which helps to create new ideas, concepts and methods within a constantly

changing context. It replaces the idea of debate, discussion and even traditional dialogue, and builds on new connections that can be developed when new trends, weak signals, and transformational ideas about the future are integrated into the dialogue. By definition, this type of dialogue opens up new thinking. Often, the most important outcomes of Futures Generative Dialogue are those things that could not have been anticipated when entering the dialogue….Center for Communities of the Future.

13) Science of Networks

"We are witnessing an increasing awareness that if we are to tackle complexity, the tools to do so are being born right now, in front of our eyes. The field that benefited most from this data windfall is often called network theory, and it is fundamentally reshaping our approach to complexity. Born at the twilight of the twentieth century, network theory aims to understand the origins and characteristics of networks that hold together the components in various complex systems. By simultaneously looking at the World Wide Web and genetic networks, Internet and social systems, it led to the discovery that despite the many differences in the nature of the nodes and the interactions between them, the networks behind most complex systems are governed by a series of fundamental laws that determine and limit their behavior."….Albert Laszlo-Barabosi, Notre Dame University, author of Linked.

14) Adaptive Planning

'It doesn't just seem that the world is changing faster and that volatility is greater than it used to be. Both are measurably and demonstrably true, and both emerge from our increasingly connected economy. Our institutions, businesses included, have been built for stability, not for change. As connectivity proceeds, business leaders face an imperative to create organizations that can adapt continually and rapidly, to keep pace with shifts in their markets, technologies, and society itself.
It is the world of biology that holds the key to meeting that adaptive imperative. Adaptation, the process by which organisms respond to volatility in their environments, has been going on for the past four billion years. As businesses today are struggling with volatility, they can look to nature's example for lessons on adaptation"…..Stan Davis and Christopher Myer, It's Alive: The Coming Convergence of Information, Biology and Business.

15) Future Basics

When the term "basics" is utilized for education, the traditional tendency is to think of reading, writing, computer skills and traditional critical thinking. Although these skills will continue to be important to any individual, the future is changing so rapidly that the concept of what is basic is no longer taken for granted and fully understood. In a time of constant change and radical transformation of our society and economy, new ideas and skills will become "basic" to the context of any person involved in life-long learning. It is not just knowledge that exists that needs to be learned, but how emerging knowledge and new skills, never before needed, will become basic to our society....e.g. new sciences and technologies to include biotechnology, nanotechnology and advanced computerization; the capacity to rethink fundamental ideas about how learning occurs, how to connect totally disparate ideas, and focusing on developing the capacities for insight, intuition, imagination and constant innovation.

16) 2020 Professions

In 2000, a number of futurists proposed that 40% of the professions and jobs that existed in 2020 would evolve from technologies that did not exist in 2000. Some of those suggested are social media manager, mobile application developer, composite materials specialist, personal robot repairman, accelerated network connector, home biotechnician, mobile collaborative governance coordinator, cloud cartel big data technologist, etc.....Hewlett Packard blog. A key need for all students will be to develop the capacity to identify emerging weak signals and trends to determine how to develop new skills that will be in demand and learn how to monetize those skills effectively in ways that will create multiple income streams as a result of continuous innovation.

17) Learning Guide/Learning Engineer

As personalized learning becomes the norm over time, the role of a teacher will shift from providing content to new forms helping individuals identify what knowledge modules and other emerging skills will be important for the future…whether it is preparing for new jobs, or learning how to be an effective citizen in a constantly changing world. "Schools" will be redefined and learning guides/engineers will collaborate with students in many non-traditional ways. One key role will be to become a "membrane penetrator" that links individuals and collaborating learning networks to the real world. *"The membrane between the real world and all of its marvels, opportunities and problems, and our schools will become transparent"…..Jon Madian, Building Our 21st Century Learning Community.*

18) Social Networks

The future impact of social networking has just begun. Mark Suster, venture capitalist at GRP Partners predicted eight trends in December 2010: 1) The social graph will become portable, 2) We will form around true social networks: Quora, Hackernews, Namesake, 3) Privacy issues will continue to cause problems..Diaspora, 4) Social networking will become pervasive: Facebook Connects meets Pandora, NY Times, 5) Third party tools will embed social features in websites…Meebo, 6) Social networking (like the Web) will split into layers..SimpleGEO, PlaceIQ, 7) Social chaos will create new business opportunities…Klout, Sprout Social, CoTweet, awe.sm, (next gen) Buzzd, and 8) Facebook will not be the only

dominant player.

19) Emerging Connections and Disconnections

In an age of constant change and interlocking networks the concept of emerging connections and disconnections of diverse, multiple ideas, processes, people, projects, etc will be at the core of any local community's capacity to adapt to changing conditions. The following examples reflect this emerging trend in the realm of education: Blended learning in the liberal arts and blending on-line and classroom learning (Bryn Mawr); Components of Connectivism: At its core, George Siemens' theory of connectivism is the combined effect of three different components: chaos theory, importance of networks, and the interplay of complexity and self-organization (University of Georgia School of Education).

20) Non-Linear Systems

We are moving from an age of linear, deterministic thinking to one of non-linear, self-organizing, emergent connections of people, ideas and processes. The capacity to identify, understand and work with non-linear systems will become key for communities interested in adapting to changing conditions as well as for a workforce able to innovate continuously. Nonlinear systems and processes do not present the familiar bell-shaped distribution associated with linear systems, where change is gradual and orderly and where measurements crowd together near an average value. On the contrary, Mandelbrot, and Gleick amongst others, discovered that in nonlinear systems change is more random and less predictable, and it involves discontinuities; rapid changes as opposed to smooth ones, and persistence; low for instance does not necessarily follow high. Examples of non-linear systems are weather systems, ecology systems, global financial systems, gardens, and the evolution of a more complex society.

21) Global Innovation Networks

A global knowledge economy is emerging in which the winners will be those who can successfully manage a global network of partners with access to technology, capabilities and local market understanding (Booz & Co). In the emerging Creative Molecular Economy, global innovation networks will become more entrepreneurial as individuals, small groups and corporations will connect and disconnect in a dance of continuous innovation. "Corporations around the world are racing to develop breakthrough new products and gain a competitive advantage. They're looking for new technologies from the outside to speed the process," said Andy Zynga, CEO of NineSigma, the leading innovation partner to organizations worldwide. "This drive to innovate is providing opportunities for entrepreneurs to be matched with organizations from other geographic regions or industries who have an immediate need for their solutions, and are willing to pay for them." This matchmaking is at the heart of open innovation, which involves "connecting organizations with the world" to accelerate the new solution development. Entrepreneurs are climbing onto the open innovation bandwagon to take advantage of new business development opportunities associated with this increasingly popular strategy.

22) Value-Added or Connective Listening

This is an emerging capacity of a Transformational Leader, Master Capacity Builder, accelerated connector and learning engineer who understands the need to use existing knowledge as a way to form "bridges of transformational thinking" in students of all ages. Instead of comparing what is said to existing knowledge to determine the rightness or wrongness of what is said, a "value-added listener" looks to connect what is said to other information or knowledge in order to create an environment in which new ideas and innovation can emerge. The staple of a "connective listener" is to identify an effective question that can help a colleague, student or friend shift into a new paradigm by helping that person stop and go hmmmm?

23) Future Forward Workforce

We are in the early stages of an economic shift so significant, based on networks and complex adaptive systems, that a new form of organization will evolve that will be neither capitalism nor socialism as we know it. It is with this emergence of a new type of economy in mind that the following framework is suggested to establish a 21st century workforce for a Creative Molecular Economy – one that has the capacity to innovate, collaborate at a deeper level, and be capable of adapting to constant change in a fast-paced, increasingly complex society using communications technology and a new way of thinking: For any local workforce to prepare for an economy in constant change, where competition will emerge from anywhere in the world, and when artificial intelligence will develop the capacity to do more than the most menial of tasks, a systemic approach must be taken. Individuals will become responsible for their own economic capacities and need the following:

a) An understanding of how the society is transforming and how this transformation will impact economic opportunities for themselves and their communities.

b) Lifelong learning skills, which will become more than a phrase as individuals learn how to spot emerging weak signals and develop the capacity as electronic entrepreneurs to create new opportunities for income streams from different sources.

c) Capability to be constantly innovative by developing the capacity to connect total disparate "idea spaces" into new products and services that adapt to changing conditions.

d) Capability to use Internet access in multiple ways, to include uploading blueprints for new products that can be custom manufactured at instant manufacturing sites and shipped within the week to individuals anywhere in the world.

e) Well-developed imagination, intuition, and insight, so that individuals can be a part of a creative workforce able to adapt to constant change.

f) Ability to connect with other people and organizations throughout the world to develop innovation networks around emerging ideas, issues, or opportunities.

24) Interlocking Community Networks

The past thirty years has seen the focus for community-based planning be the concept of "strategic planning" that brings leaders of communities together to agree on a "unified" approach to preparing for the future, based on targeted outcomes and use of project teams to meet those outcomes with accountability schedules predetermined. The future of community planning will be very different due to the inability to predict the future and determine specific outcomes at some point in the future. As a result, adaptive planning will utilize the method of creating core groups of early adaptors around emerging transformational ideas and developing "interlocking community networks." These networks will be both framed and self-organized depending on the needs and expectations of any situation to include 21st century learning groups, "futures projects," and contests and community events.

25) Rapid Prototyping

Rapid Prototyping (RP) can be defined as a group of techniques used to quickly fabricate a scale model of a part or assembly using three-dimensional computer aided design (CAD) data. What is commonly considered to be the first RP technique, Stereolithography, was developed by 3D Systems of Valencia, CA, USA. The company was founded in 1986, and since then, a number of different RP techniques have become available. Rapid Prototyping has also been referred to as solid free-form manufacturing, computer automated manufacturing, and layered manufacturing. RP has obvious use as a vehicle for visualization. In addition, RP models can be used for testing, such as when an airfoil shape is put into a wind tunnel. RP models can be used to create male models for tooling, such as silicone rubber molds and investment casts. In some cases, the RP part can be the final part, but typically the RP material is not strong or accurate enough. When the RP material is suitable, highly convoluted shapes (including parts nested within parts) can be produced because of the nature of RP. There is a multitude of experimental RP methodologies either in development or used by small groups of individuals. This section will focus on RP techniques that are currently commercially available, including Stereolithography [11] (SLA), Selective Laser Sintering [12] (SLS®), Laminated Object Manufacturing [13] (LOM™), Fused Deposition Modeling [14] (FDM), Solid Ground Curing [15] (SGC), and Ink Jet printing techniques [16].

26) Direct Digital Manufacturing

Direct digital manufacturing (DDM) and 3D printing are getting a lot of attention these days even though the technology has been around for over two decades. After quietly serving the rapid prototyping needs of engineers and designers for 20 years, DDM is beginning to take on all the characteristics of a disruptive technology. Something has changed.
"As the (DDM) machines have gotten larger and faster, and more importantly, as the materials have improved, additive manufacturing is being used for an increasing wider range of applications." …Jeff DeGrange, VP Stratasys. In today's fast-paced world, people expect products, goods and services to be delivered intact and on demand – consider the instant gratification of downloading a video or a music track over iTunes. DDM – additive manufacturing – meets those expectations in a way that conventional manufacturing does not. Through a number of initiatives, Stratasys is working to change all that. For example, the

company has a well-developed educational initiative, bringing 3D printing into the classroom. Right now, its Dimension 3D Printers are in more than 3,500 schools in all 50 states, serving more than 250,000 students for applications as diverse as engineering, architecture, CAD, archaeology, anthropology, biology and art. At the high end, the company is touting its Fortus Production 3D Printers for production runs as well as prototyping. Based on Fused Deposition Modeling, a Stratasys invention, these machines produce parts from a variety of industrial thermoplastics – the same materials used in injection molding, such as ABS, PC, and ULTEM.

27) Connective Thinking

A key to the future of 21st century learning is to help all students develop the capacity for "connective thinking." Such a skill will insure that whatever a student reads, he/she is always looking to consider how a newly emerging idea can connect to something else to create an innovation of business, community transformation or individual service. The term "mashup" has evolved in the last decade to reflect this skill of connecting totally disparate ideas. Examples of products that reflect connective thinking are WII, Fluid Fabric Systems, and Mobile Collaborative Governance.

28) Cognitive Brain Research

In recent years educators have explored links between classroom teaching and emerging theories about how people learn. Exciting discoveries in neuroscience and continued developments in cognitive psychology have presented new ways of thinking about the brain-the human neurological structure and the attendant perceptions and emotions that contribute to learning. Explanations of how the brain works have used metaphors that vary from the computer (an information processor, creating, storing, and manipulating data) to a jungle (a somewhat chaotic, layered world of interwoven, interdependent neurological connections)….Southwest Educational Development Laboratory. Gerald Edelman, chairman of the Department of Neurobiology at Scripps Research Institute and 1972 recipient of the Nobel Prize for Physiology, offers a view of the brain that could influence the future classroom. Edelman's vision of the brain as a jungle in which systems interact continuously in a chaotic fashion suggests that learners would thrive in an environment that provides many sensory, cultural, and problem layers. These ideas suggest that students have a natural inclination to learn, understand, and grow. Surround students with a variety of instructional opportunities and they will make the connections for learning.

29) Targeted Learning

Targeting learning means you learn what you need to learn without wasting your time with what you may already know. Mentored Learning is an on-demand delivery model, you determine when you attend training and for how long. Each workstation contains two computer monitors. On one, you can access the course content: video, text and audio. On the other monitor, you have access to the production environment so you can practice your skills at any time during the course. This allows you to fast-forward through areas, or stop the content and practice a concept hands-on as many times as you need. This increases knowledge retention and the ability to apply your newly acquired knowledge on the job. Skill sets are assessed prior to training to identify the gap between your current level of

knowledge and required level of knowledge. Your learning path can then be customized to specifically fill that knowledge gap. You are completely in charge of the pace of the course and the content covered so you can focus only what you need to learn….New Horizons Computer Learning Centers.

30) Modular Knowledge

The future of learning will not focus on extensive scope and sequence curricula…instead it will be based on modules of emerging knowledge that can be connected to exiting knowledge modules. This approach will allow a constantly changing approach to 21st century core knowledge to be provided for any area of learning at the same time that a changing context within which that knowledge will be need is seen as morphing. This approach will allow any student to work in collaboration with peers, mentors and learning guides to create an individualized curricula and learning methodology. Of special importance, such an approach will give any student an understanding of the need to identify weak signals and emerging knowledge as the basis for a platform of individual evolution and constant innovation.

31) Virtual Reality

Virtual Reality (VR) becomes a substantial and ubiquitous technology and subsequently penetrates applications for education, learning and training. In addition to multimedia, VR places the user in a 3 dimensional environment. The user feels 'in the middle of another environment'. Most of the VR systems allow the user to travel and navigate. More promising for learning purposes is to let the user manipulate objects and experience the consequences. Augmented reality occurs when the user faces the real world, but on top of that the VR environment superimposes a computer-generated message in order to assist the user to perform the right operations. Educational VR systems seem to be a natural extension of computer-based simulations nowadays. The basic approach is to allow students to explore and discover the fundamental laws in a new environment and domain. "The ultimate dream is to merge the real world and the virtual world into a totally seamless experience" -- PhotoSynth project. The next step (2010-2015) is going to be development of more open systems, where content can be moved across platforms and where separate worlds can be linked (for example a room in a virtual building can be simulated on a private server using different simulation software, but would still be accessible for the people walking in the virtual city). [3] [17] Open source may play a role there. [4] [18] Eventually virtual reality worlds will integrate into a global Metaverse [19] running on a distributed grid. The step after that will be the integration of these worlds with input/output technologies, such as VR goggles and brain-computer interfaces. By then most of the people will spend a significant part of their lives in virtual reality (playing, communicating, working, having sex). Eventually, uploading [20] will make feasible a full migration into virtual reality, while robotic bodies will make the reverse possible.

32) History-Future Analogies

In a time of constant transformation, the knowledge and understanding of "context" becomes critical. One of the great challenges when shifting thinking into new paradigms of the future is to help an individual come to one's own conclusions that there is a need for change and to

develop a capacity to transform himself/herself. One of the ways in which this can be done is to utilize historical circumstances and stories to illustrate how our ancestors adapted to their own times of radical change, look for principles that are applicable to today, and utilize the connection of historical context and a futures context to help any individual learn why transformation is needed and how to adapt oneself, one's organization and one's community to an emerging future very different from the past.

33) Futures Appreciative Inquiry

The concept of Appreciative Inquiry (AI) has been utilized as a mechanism for positive change for many years. Only recently have the use of "appropriate questions" been considered as a way to help build "capacities for transformation" in people, organizations and communities. When considering a time in the future that has no template or model by which to go, statements of existing facts are not possible, and questions become a key vehicle to help others think about ideas and concepts that are only beginning to be discernable and have possible patterns emerging. Examples of such questions are 1) what if we……, 2) did you see the article….., 3) how might be connect….. Any leader and facilitator of new ways of learning will need to become skilled at asking appropriate questions to help others come to see the need to shift thinking into new paradigms. Rick Smyre, Center for Communities of the Future

34) The Concept of Holism

The highest function of education is to bring about an integrated individual who is capable of dealing with life as a whole.

-J. Krishnamurti

35) Unlearning

In a time of great change, what has been considered truth is no longer valid in many cases. The capacity to "unlearn" what has worked in the past, is one of the greatest needs of modern man and woman. It is important to realize that unlearning requires a quiet confidence, maturity and true humbleness to create an environment of "efficient unlearning." Consider the following poem by an 11th century monk mentioned in Jack Uldrich's book, Unlearning 101.

When I was a young man, I wanted to change the world.
I found it was difficult to change the world, so I tried to change my nation.
When I found I couldn't change the nation, I began to focus on my town. I couldn't change the town and as an older man, I tried to change my family.
Now, as an old man, I realize the only thing I can change is myself, and suddenly I realize that if long ago I had changed myself, I could have made an impact on my family. My family and I could have made an impact on our town. Their impact could have changed the nation and I could indeed have changed the world.

36) Uplearning

This is the capacity to 1) think at a higher level of complexity, 2) connect disparate ideas in real time, and 3) an ability to work with systems. In the future an educated person will require all three capacities and a sense of how to seed new ways of thinking in oneself and others in order to help build an environment for continuous transformation. Rick Smyre

37) Biomicracy

If chaos theory transformed our view of the universe, biomimicry is transforming our life on Earth. Biomimicry is innovation inspired by nature – taking advantage of evolution's 3.8 billion years of R&D since the first bacteria. Biomimics study nature's best ideas: photosynthesis, brain power, and shells – and adapt them for human use. They are revolutionizing how we invent, compute, heal ourselves, harness energy, repair the environment, and feed the world. Biomimicry has a great potential for helping students learn systemic thinking and how to adapt.

38) Conceptual Evaluation

For thirty years quantification has been the foundation to evaluate anything. If it could not be measured, it was not valid progress. If processes and people were not accountable, success was unable to be defined. In an age of constant and radical change, when the qualitative ideas undergirding an emerging society very different from the past are more important that quantitative measurement, the need for new evaluative ideas based on innovation and shifts in conceptual thinking is increasingly important. When building connections and capacities for transformation are core to the ability to adapt effectively, and when there is no model to go by, then effectiveness becomes more important than efficiency and the concept of "conceptual evaluation" rises to the center of any shift in paradigm. For example, is Mobile Collaborative Governance more important as a concept than having more people vote for our democracy as presently organized? Is the idea of developing a Creative Molecular Economy more important than maximizing short-term profits? Is the ability to learn how to make connections as a part of a Future Forward College learning platform more important than improving scores on standardized tests when our society is in the process of true transformation?

39) Continuous Innovation

The idea of continuous improvement shift to the need for continuous innovation in a time of constant change. The ability to create an environment that supports continuous innovation is a great challenge when the culture of local communities is still based on the ideas of standard answers, linear thinking and strategic planning. Only by developing the capacities in people, organizations and communities to search for new ideas and be open to change in general will be develop a truly adaptable workforces, economy and society able to be vital and successful in a time of radical transformation.

40) Access Points

It is a key skill for a "learning engineer," Transformational Leader, and Master Capacity Builder to be able to identify an "access point" at which a new idea, concept, or method can

be seeded in the thinking and activities of people, processes, organizations, and communities. Whether it is a question someone asks, an existing need defined, or a concern expressed in confidence, multiple access points occur constantly and are key to transformational thinking and action. Anyone who knows how to utilize such an opportunity with dignity, ethics, and true concern.

41) Interdependency

Probably the most important ongoing historical transition is the shift from the core idea of "independence" to the idea of "interdependence." In linear thinking, one looks for the best practice or one best idea. In non-linear, systemic thinking, there is a need to look to identify how multiple factors interconnect. Thus, it is important to understand the shift, in this time of immense change, from the core concept of independence to one of interdependence. One of the key impacts of this is to transform the education system to help students learn how to understand context and how to look for connections in knowledge and ideas that are just emerging.

42) Biological Organization

During the Industrial Age, the principles of physics predominated as we learned to analyze what existed. In the future, as the Organic/Connected Age emerges, biological principles come to the forefront of importance because of the need to think systemically, understand how complexity evolves, and how to see connections among totally disparate ideas, processes, people and events. The idea of dynamic, interlocking networks will replace the structure of rigid hierarchies as the building blocks of our society and economy.

43) 21st Century Technologies

The emphasis on STEM knowledge (science, technology, engineering and math) is just beginning. In the future, a more complex society will require citizens and a workforce that is more knowledgeable and capable of dealing with systems and integrated thinking than ever before. The following technologies will be at the center of any successful organization and community: advanced computerization and deep data; renewable energies to include solar and wind; composite materials; nanotechnology; biotechnology; and cognitive brain and medical technologies.

44) Semantic Web 3.0

The Web is entering a new phase of evolution. There has been much debate recently about what to call this new phase. Some would prefer to not name it all, while others suggest continuing to call it "Web 2.0". However, this new phase of evolution has quite a different focus from what Web 2.0 has come to mean. Web 3.0, a phrase coined by John Markoff of the New York Times in 2006, refers to a supposed third generation of Internet-based services that collectively comprise what might be called 'the intelligent Web' — such as those using semantic web, microformats, natural language search, data-mining, machine learning, recommendation agents, and artificial intelligence technologies — which emphasize machine-facilitated understanding of information in order to provide a more productive and intuitive user experience. There are actually several major technology trends that are about to reach

a new level of maturity at the same time. The simultaneous maturity of these trends is mutually reinforcing, and collectively they will drive the third-generation Web. From this broader perspective, Web 3.0 might be defined as a third-generation of the Web enabled by the convergence of several key emerging technology trends: Broadband adoption, Mobile Internet access, Mobile devices, Software-as-a-service business models, Web services interoperability, Distributed computing (P2P [21], grid computing, hosted "cloud computing" server farms such as Amazon S3), Semantic Web technologies (RDF [22], OWL [23], SWRL [24], SPARQL [25], Semantic application platforms, and statement-based datastores such as triplestores [26], tuplestores [27] and associative databases), Distributed databases — or what is called "The World Wide Database" (wide-area distributed database interoperability enabled by Semantic Web technologies), Intelligent applications (natural language processing, machine learning, machine reasoning, autonomous agents). Web 3.0 will be more connected, open, and intelligent, with semantic Web technologies, distributed databases, natural language processing, machine learning, machine reasoning, and autonomous agents.

45) New 21st Century Literacy

Alvin Toffler, a famous futurist is quoted as saying, *"The illiterate of the 21st century will not be those who cannot read and write but those who cannot learn, unlearn and relearn."* The Center for Communities of the Future would add the concept of the need for "uplearning" to be literate in the 21st century. Bill Crossman in California believes that by the year 2040, computer artificial intelligence will interact with humans through voice synthesization, and thus reading as a skill will not be needed. In any event, what it means to be literate in the future will have elements of the past, but will requires different skills that will allow individuals to be productive citizens in a more complex world and economy.

46) Futures Institute/Futures Station

Every community will need to have a central locale where futures thinking and transformational design is the focus for preparing for a different kind of economy and society. Included in a "futures institute" or "futures station" will be the need for cutting edge communications technology, areas for futures generative dialogue, areas for 21st century entrepreneurs to connect, and learning spaces to build "capacities for transformation" in the thinking, attitudes and behavior of as many citizens as possible. Rick Smyre, Center for Communities of the Future.

47) Transformational Coach

There is no greater need in a Future Forward College or for the needs of "community transformation" than to have Master Capacity Builders who can provide the function and facilitation of a Transformational Coach. The capacity to help people see the need to shift their thinking into new paradigms, the capacity to design parallel processes to move transformational ahead in systemic ways, the capacity to ask appropriate questions, the capacity to connect disparate ideas, people, processes and projects, the capacity to spot and utilize access points….all of these are key to the future vitality and dynamic sustainability of organizations and communities in a time of constant change. There are four stages of personal transformation and five stages of community transformation. Without

transformational coaches who are able to mentor others during times of challenge will effective transformation occur. This is little understood by professional managers and local leaders who are in positions of authority unless they have come to the aha! stage of transformation. It is this need that is the basis for the creation and development of a Future Forward College.