

# 56 TOP TRENDS AFFECTING NORTHEAST NEBRASKA'S FUTURE

## Comments from Forecasting International

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1. Workers will require better educations for both skilled and unskilled positions. They will also change careers more often, due to technological advances. These workers will require additional, continuing education. Need to be able to offer, and have continued participation in, education—both technical and general. Need to keep up to date with current trends and future needs. Knowledge turnover in the professions (and master craftsman skills) is a growing challenge that will require continuous retraining and lifelong learning. Second and third careers are becoming more common, as more people make mid-life changes in occupation. The half-life of an engineer's knowledge today is only five years. Category: EDUCATION, TECHNOLOGY, & WORKFORCE

*3 (Medium) – Providing enough high-quality education for the community will be a significant challenge in the years ahead. This is necessary to provide trainable workers for local industry, to attract businesses that need those workers, and to retain young people in the community. Without educational opportunities, the new generations will move away places where both education and business have more to offer.*

*Distance learning should be an important part of educational planning in this area. The area is so broad and its population density so low that transportation will eat up too much of school budgets if students are to be “imported” to regional school buildings. Given the technologies now available and likely to be developed in the near future, distance education becomes a much more cost-effective way to handle the challenges of low-density school districts. Whenever possible, school buildings should be reserved for science laboratories and other facilities that cannot be distributed.*

2. Energy usage will increase, including oil, nuclear, and natural gas. Higher prices will require alternative fuels, including ethanol and hydrogen fuel cells. Alternative energy demands will increase. Despite all the calls to develop alternative sources of energy, oil consumption is still rising rapidly. Organizations and individuals will need to be proactive in reducing energy intensity/usage. Clean Nuclear Power Plants, Natural Gas, Fuel Cells, Wind Power, LED, and advanced battery technology will lead the way in replacing large carbon dioxide producing fossil fuels such as coal and oil, and new fuels such as ethanol. A

worldwide campaign to improve energy infrastructure is necessary to reduce conventional cooking and heating fires. Category: ENERGY AND ENVIRONMENT

*4 (High) – Energy is one of five areas that demand more research for Norfolk. Alternative energy sources will be critical to the United States in the years ahead, and farming areas such as Nebraska are well positioned to benefit from this demand. With careful planning and fast action, Norfolk can make itself a center for the nation's future energy program. For greatest energy efficiency, planners should look into biomass crops such as switchgrass, rather than focusing on corn-based ethanol.*

*Norfolk's energy plans should be designed to fit within a national energy strategy that will depend for many years on petroleum and petroleum substitutes. At FI, we believe that key features of this strategy will include:*

*Development of oil resources within the Alaska National Wildlife Refuge. This can, and must, be carried out in an environmentally responsible fashion. Drilling and production can be carried out only in the winter, when the tundra is hard enough to support trucks without damage. It must use directional drilling, so that wide areas can be tapped with only a few wells. And oil must be delivered through double-walled pipelines, to prevent leaks such as those threatened by corrosion of pipelines in the North Sea field.*

*Offshore oil fields in the Gulf of Mexico and off California also should be developed, using the cleanest, safest technologies available.*

*And the United States government, as funder of last resort, should build four or five new refineries to meet demand for gasoline and other products. Despite growing need, no new refineries have been built in the United States for more than 20 years.*

3. Multi-media Communications will improve significantly due to technology. Real-time voice translation will allow people with different languages to communicate effectively. Category: COMMUNICATION

*3 (Medium) – These technologies will tie Norfolk ever more tightly into the global marketplace. This will bring both new competition for local service industries, with the potential for job losses overseas, and new opportunities for efficiency and cost-savings for those same services.*

*The greatest opportunities here are for telemedicine as an adjunct to the proposed Norfolk clinic. Sending X-rays, CAT scans, and other test data to physicians in India already has proved to be a highly efficient way for American hospitals to save money while providing quality care. In order to be cost-competitive with overseas clinics, the Norfolk facility will have to take advantage of telemedicine wherever possible. If the clinic is built, this trend becomes a 4 (High), rather than a 3.*

4. Globalization and the Internet are allowing small businesses to thrive competitively, worldwide. This trend will accelerate. The Internet makes it possible for small business throughout the world to compete for market share on an even footing with industry leaders. The Internet is growing logarithmically and globally. (Economy, Technology, Small Business)

*2 (Low-Medium) – This trend will provide new efficiencies and market opportunities for businesses everywhere. It has no obvious impacts that are specific to Norfolk, and there is little the current study can do to prepare for the changes ahead.*

5. The younger generations, under age 30, are entrepreneurs and will start their own businesses at an unprecedented rate. Generation X'ers and the Millennials are the most entrepreneurial generations in history. Generation X and dot-com will have major effects in the future. Entrepreneurship will be stronger in the upcoming generations than ever before. New workers don't trust large firms to provide secure employment during a time of rapid technology change. Millennials throughout the world tend to share values and opinions. (Workforce, Small Business, Economy)

*2 (Low-Medium) – This growing entrepreneurial spirit is an asset that will benefit many communities in the future. Norfolk can take best advantage of this trend by providing ample educational opportunities for its young people, so that they will have the skills required to start and operate businesses in an increasingly high-tech world. Beyond that, there is little to be said about this trend in our current context.*

6. The aging worldwide population will require more “telecommunications” care, including robotic surgery, and will require more doctors and nurses. Category: MEDICAL

*4 (High) – This is another of the critical trends that demand further study. The United States already is short of personnel in such critical areas as nursing, paramedics, physicians assistants, and occupational therapists. These needs are sure to grow more acute as the vast Baby Boom generation enters its years of greatest medical need.*

*Shortage of medical personnel could even prove to be the greatest obstacle to development of the proposed clinic. The current study must attempt to project Norfolk's future medical needs and develop plans for meeting any shortage of the necessary personnel.*

7. Telecommuting, working from one's own home, has increased sharply, and will continue to rise. Telecommuting is a growing knowledge-age phenomenon. About 80% of companies worldwide now are estimated to have employees who work at home; up from 54% in 2003. The number of telecommuters in the US grew 63.2% between 1999 and 2003. Telecommuters are increasing exponentially - due to wireless networks and PDA's. Mobile business commerce will emerge. (Small Business, Economy, Technology, & Lifestyles)

*4 (High) – This already is an important trend; it will grow quickly in the years ahead. It is especially important to Norfolk, and the rest of Nebraska, because of the region's low population density and the great distances between major cities. Telecommuting will offer some of the greatest opportunities to retain young people in the area: Those who can work at home and telecommute to jobs with distant employers are likely to remain in Norfolk. Many of those who cannot may be forced to move away.*

8. The US and other developed countries will have to encourage more immigration to supplement the workforce. Otherwise, the standard of living will decrease. The increase in immigration will continue. How do we best use their skills without simply viewing the immigrant population as a commodity? Category: SOCIAL DEMOGRAPHICS

*3 (Medium) – This is most significant for the region's packing plants, which depend heavily on foreign-born labor. In the future, packing plants will be forced either to automate their operations, so that they can do without a human workforce, or to rely even more on immigrant workers—and there are many packing jobs that cannot be automated.*

9. Rapid global population growth will require agriculture to supply as much food over the next 40 years, as has been produced in all of human history. Category: AGRICULTURE

*2 (Low-Medium) – This appears to offer great opportunities to market meats and other regional farm products abroad. However, the obstacles to feeding the world's people have always been economic and political, rather than agricultural. People starve because they lack the money to buy food or because they are ruled by governments that have little or no interest in their*

wellbeing. Economic and political obstacles will continue to limit the market for American food products abroad. In addition, many of the developing countries will be marketing their products abroad in competition with American crops. These obstacles can best be dealt with at the national level. The world's growing need for food will have little impact on the current stud.

10. Tourism and international travel will increase significantly, with tourists getting their travel information directly over the Internet. Category: TOURISM

*1 (Low) – Nebraska is essentially a source of tourism, not a destination for tourists. Thus this trend, though strong and continuing, will have little significance for Norfolk.*

*This could change if the area develops a theme park. In that case, the growth of tourism will become a 4 (High), both because this trend will produce new opportunities for the local economy and because long-distance vacationing will compete with regional attractions for business.*

*We see five primary theme-park opportunities for Norfolk:*

- *An “old Nebraska” theme based on the region’s history*
- *An EPCOT approach, with attractions and foods from exotic foreign cultures;*
- *A theme based on family life and, perhaps, Biblical stories, with marriage chapels as special attractions (providing not only the service itself, but such ancillaries as rental gowns and formalwear, photographs and videos, and bridal parties);*
- *High-tech rides;*
- *And attractions based on movie and video-game tie-ins, such as a park based on the Harry Potter books and movies.*

*Each of these offers special opportunities and challenges, which will require careful examination before a commitment is made.*

*This is a family environment. It should be non-smoking, non-drinking, with video games and picnic tables, for parents and grandparents taking their children or grandchildren for a day’s outing.*

11. Agricultural commodities will face high levels of competition, and therefore low pricing. Ecologists also believe global warming will cause severe droughts west of the Mississippi River. Category: AGRICULTURE

*3 (Medium) – These pressures will be among the most important in forcing Norfolk and similar communities in agricultural regions to find new sources of employment and income. They should be monitored and planned-for, but cannot be met effectively save by developing new markets (such as biomass energy) and new industries.*

12. Terrorism will increase significantly, due to under-employed religious factions. Better technology will spawn a huge increase in security systems and security measures. International exposure includes a greater risk of terror attack. (Terrorism and Institutional Trends)

*2 (Low-Medium) – This is an important trend in the world at large, but it will have little impact on Norfolk and its surroundings.*

*However, this could become a 4 (High) if Norfolk chooses to develop industries that rely on security concerns for their markets. If someone in Norfolk builds a major RFID business to help in controlling mad cow disease or averting a bioterrorist attack or develops some other industry of interest to the Department of Homeland Security, any threat of terrorism will be a major driver for their market. Conversely, a decline in terrorism could erode their profits.*

13. Environmental awareness will increase significantly, with consumers avoiding environmental offenders. Category: ENVIRONMENT

*1 (Low) – We at FI see no impact of this trend that need concern the present study.*

14. Workers are retiring later as life expectancy and developed societies taking their cues from Gen X’rs and dot coms? How to offer good jobs to young when older still working? How to keep up to date, and looking forward with older leadership?

*2 (Low-Medium) – As things stand, this trend will have only a modest, generalized impact on Norfolk.*

*However, if Norfolk develops a new industry with a high demand for personnel, this trend could become a 4 (High.) The proposed medical clinic and theme park both would require many employees, both skilled and relatively unskilled. Short of importing labor from other areas, retaining—and probably retraining—older workers will be the most likely opportunity to fill any shortages.*

15. Advances in transportation technology. We need to keep up with this. People do not want to live in a place where they can not access the rest of the world easily.

*2 (Low-medium) – This will have little impact on Norfolk, which already has substantial road and rail access. However, if the proposed clinic and/or theme park can be developed, Norfolk will need a major north/south highway even more urgently. In that case, this trend could become a 4 (High).*

16. Important medical advances occur almost daily. Again, need to remain current with this information. How can we meet the needs of aging population, demands of younger generations, etc with outdated medical technology?

*2 (Low-Medium) – This is a very general trend, which will have much the same impact on all communities in the United States. Local hospitals and medical teaching institutions will need to remain up-to-date in order to meet their professional standards. However, if the proposed clinic is built, this becomes a 4 (High), as cutting-edge competence will be a major part of its appeal.*

17. Growth of the information industries requiring general population to be knowledgeable and interdependent. Our community needs up to date information and understanding of global news and updates to remain competitive. Businesses and entire industries are emerging that are based on the production and exchange of information. Knowledge workers are very common. Category: ECONOMIC AND SOCIETAL TRENDS

*2 (Low-Medium) – Again, this is a very general trend, which will have much the same impact on all communities. It has few implications for the current study.*

18. World's population will double, and the elderly population will grow dramatically. Around the world, poorer countries will continue to grow, keeping economic balance and immigration at the forefront of politics, budgets and planning. Also the elderly population will require more assistance and care in our own country and elsewhere. What creative ideas can be put into use to take advantage of the aging population skills?

*4 (High) – This is one of the five trends that most require further study. Norfolk's medical facilities will require expansion if they are to keep up with the growth of demand as the Baby Boom generation reaches old age. This will be particularly true for ambulatory-care facilities, as 82 percent of the people who undergo surgery leave the hospital the same day.*

*Older residents also may prove critical in meeting the growing need for ancillary medical personnel. In part, this is simply because late-life workers will be available, while the youngest generations are relatively small and are unlikely to meet the demand for medical personnel. In addition, senior volunteers are likely to relate better to older patients than their younger colleagues.*

*Making use of these older workers will require development of training programs that meet both their needs and those of the community. Tomorrow's senior volunteers will no longer be "candy strippers." Instead, they will need to fill skilled semi-professional roles that may not yet have been defined. In a time of acute personnel*

*shortages, hospitals are likely to need people with more ability than traditional nurse's aides, but not quite so much skill as a fully-trained physician's assistant. Defining these roles and training senior volunteers and employees to fill them may be one of the most pressing tasks in the coming decade.*

19. Young people place higher value on economic success, while moving away from the "work ethic" traditionally held. We will need high paying jobs somehow combined with a changing attitude towards professional loyalty and lifestyle balance. Societal values are changing rapidly. The work ethic and overall ethics are vanishing. Organizations must increasingly recognize, nurture, reward, and train Millennials and Gen-X'ers. Ethics must be pushed! Baby boomers are taking cues from Millennials and Gen-X'ers due to their grasp of the rapid changes. Category: ECONOMIC AND SOCIETAL TRENDS

*2 (Medium) – This is true of young people the world over. In an agricultural region, Norfolk may have a greater challenge in providing future success for its young people than some areas do. If Norfolk can produce enough well-paid jobs for its future population, this study will have accomplished its goal. At that point, providing motivation becomes a task for individual employers.*

20. Global economy is becoming more integrated. We need to remain/become competitive-which might be more difficult for us than underdeveloped nations who have no infrastructure or monetary investment in current systems so they can jump ahead into better technology, etc. (Economic and Societal Trends)

*2 (Low-Medium) – Again, this is a very general trend, which will have a modest impact on all American communities, but no effects that are unique to Norfolk or that this study can help to prepare for. The industries proposed for Norfolk's future development—a low-cost medical clinic, a regional theme park, and perhaps an RFID manufacturing facility—all depend primarily on domestic markets for their viability and will be largely unaffected by events abroad. The exception is the possible use of a Norfolk facility as a diagnostic and routing center for overseas clinics, and in this case the integration of the global economy presents opportunity, not competition.*

21. Family structures becoming more diverse. Need a new acceptance/mindset or what is "appropriate" and supported for our community. OK for adult children to live with parents? OK for grandchildren to be raised by grandparents? OK for multi-family groups living together?

*1 (Low) – In fact, even giving it a “1” overrates the trend from Norfolk’s point of view. This will have no perceptible impact on the community’s economic future.*

22. Internet growth globally. Not all members of our community have access/interest. Community as a whole will be hurt if not active and informed.

*2 (Low-Medium) – Internet access, and preferably high-speed Internet access, is critical for any community. Norfolk is no exception. Net access should be available in libraries (as it is), community centers, and other places where people gather. Given the educational needs of this region’s spread-out population, wireless access also may be critical. Despite its low rating, this is one trend that deserves some study.*

23. Global acceptance and interest in cultural diversity, prompting an integrated global society. This needs to be reflected in our local community to draw metropolitan minded people.

*1 (Low) – This trend will have no particular impact on Norfolk. However, do note that the community must accommodate immigrants and their cultures if foreign-born workers are to provide manpower for local packing plants and farms.*

24. Physical-culture and personal-health movements will remain strong. We have never been at the heart of this movement; we are not an active community. In the year 2050, 50% of North and South American children will be overweight. If we want to draw active, responsible, young leaders we need an environment to support their needs.

*1 (Low) – Although local leaders everywhere must be concerned with the future health of their children, and of their community’s appeal for outside talent, this trend will have little economic impact on Norfolk.*

25. Services are the fastest growing sector. How can we have services here that compliment global society? Do we have all of the services locally available that draw active informed people? Service industries are expected to account for virtually the entire net gain in US employment; computer-related service jobs pay much more than the minimum, for workers with sound education and training. (Economy, Small Business)

3 (Medium) --

26. Increasing sensitivity to environmental issues. Many in US, and our community, don’t believe in global warming, don’t see direct connection from their actions to environmental problems. Recycling not generally

supported. These are all things that globally-minded, young leaders expect.

*1 (Low) – Unconcern for environmental issues such as global warming seems a self-limiting phenomenon. People either will come to accept that the environment requires care, or they will die off and be replaced by younger people to whom this seems obvious. However, the environment and its problems require very little attention in the current context.*

27. Water shortages will be a continuing problem for the world. That will cause obvious problems for our current agriculture system. (Environmental Trends)

*4 (High) – This is absolutely crucial. The vast Ogallala aquifer on which most of Nebraska depends for its water is being depleted at a rate of three to five feet per year in some areas. Its remaining lifespan is estimated at between 60 and 250 years in different sections, but water conservation will be required long before the supply is exhausted. In Colorado, which also depends to some degree on the Ogallala, scientists estimated in 1997 that some 50,000 acres of irrigated land would be forced back to dry-land farming within 20 years because water sources had run out. Since then, many scientists have concluded that prolonged drought caused by global warming may further slow replenishment of Midwestern aquifers and hasten the drying of the region. How to live and farm with less water is a critical issue for Nebraska’s future and one that should be examined carefully.*

28. Time becoming the world’s most precious commodity. Can we market this? Tap into it? Currently we have more of it than other areas of the world. Maybe add this to technology, working from where we live, and transportation access?

*2 (Medium) – It is difficult to see what this study can do about this trend. Providing the facilities for distance learning and telecommuting will give individuals more opportunities to use their time productively. Whether they choose to do so will remain strictly their decision.*

29. Continued growth of the micro-entrepreneur, supported by increasing rapid communication systems. What are some things we do to make Northeast Nebraska a hub?

*4 (High) – This trend represents one of Norfolk’s best chances for future prosperity. Figuring out ways to encourage entrepreneurship in the region could be an important benefit from this study.*

*One possibility is to adopt one of the suggestions arising from this work—a low-cost health clinic, a theme park, an RFID business, energy development, and so on—*

*and using it as an educational opportunity for entrepreneurial youngsters. This could become a significant training experience for local high school and college students.*

30. Continued off shoring of intellectual activity. What are some ramifications for our educational systems?

*3 (Medium) – This trend provides both challenges and opportunities. To the extent that American students can become skilled scientists and engineers, they stand a good chance of out-competing their peers abroad; American companies in general would prefer to get their work done at home whenever it does not put them at an economic disadvantage. And when offshore services really can provide intellectual work of equal quality at lower cost, Norfolk-area employers should use them to provide future jobs and profits at home. With enough skill and creativity, Norfolk employers should be able to beat the offshore competition at their own game. Norfolk government can best help by ensuring that local young people receive an education that solidly prepares them for life in a high-tech economy.*

31. Change in demand for agricultural products. What steps can we take to be positioned for these changes to work for everybody's benefit?

*3 (Medium) – Growth of corn, soybeans, and cattle in places such as Brazil and Australia could significantly impact overseas markets for some of Nebraska's products, while biomass farming is likely to provide significant new opportunities. Prospects for these and other potential developments will change with the global economy, weather trends, and many other factors. This is a matter for continuing research and analysis. The current study can provide only an interim forecast, which may need to be revised often in the years ahead.*

32. In the future, both self-reliance and cooperation will be valued. Self-reliance because individuals will no longer be able to fall back on government social-security income, pensions, and other benefits, and cooperation because group action often is the best way to optimize the use of scarce resources, such as retirement savings. (Category: Values, Lifestyles, Small Business, Economy)

*3 (Medium) – Farmers have always been self-reliant, yet cooperative whenever group effort was the best way to accomplish a necessary goal. Local government and private organizations can best help by identifying new ways to bring income into the region, recognizing future problems, and figuring out how best to meet them.*

*One clear need is to hire lobbyists in Washington and Lincoln to help Norfolk and its region bring in grants,*

*contracts, and matching funds from the state and Federal governments.*

33. Schools will train both children and adults around the clock. The academic day will stretch to seven hours for children; adults will use much of their remaining free time to prepare for their next job. (Education)

*2 (Low-Medium) – Making the best of this trend requires a diversified approach to education. Communities like Norfolk will have to find ways to make the best use of their existing facilities; for example, opening schools for adult education after the normal school day is over. However, in a region with such low population density, developing better options for distance learning is likely to be more important. Buildings should be reserved for functions that cannot be distributed, such as space for science laboratories and group activities.*

34. Online commerce in the US by the year 2009, only three years from now, will approach \$340B, according to estimates by Forrester Research Group in Cambridge, MA. The 2004 holiday season saw \$19B spent online; the best figures for the 2005 holiday season suggest it was nearly \$30B (50% increase). (Economy, Small Business, Technology, Education)

*2 (Low-Medium) – Online commerce is likely to have only a modest impact on Norfolk, though the chance to order standardized products at low cost from “e-tailers” could erode the market for local merchants, such as camera and computer stores. However, a medical facility cooperating with clinics abroad may find that online “sales” represent an important part of its business. Similarly, a local theme park could derive some benefit from Web-based advertising. In that case, this trend would become at least a 3 (Medium), and probably a 4 (High.)*

35. Biopharming is a great opportunity to revitalize the agriculture and industry in our region. Because of our agricultural resources and infrastructure, it is here in the Midwest that biopharming will take root. (Economy, Small Business, Agriculture)

*4 (High) – In this trend, we include all possible farm markets that depend on new developments in high technology. These include biomass energy and “cellulosic ethanol” from switchgrass and other crops, as well as farm products genetically engineered to produce pharmaceutically active compounds. Energy crops almost surely will provide major opportunities in the future. It is not yet clear that so-called “nutraceuticals” and “foodaceuticals” will be equally important to farmers. Many of the biologically active materials suggested for incorporation into farm crops can be similarly engineered*

*into bacteria and yeasts, and it is not yet clear which form of production will prove most economical. The potential for energy crops deserves immediate, intensive study; “biopharming” is a matter for continuing observation with an eye to capturing whatever markets eventually materialize.*

36. A shortage of health workers in next two to three decades. The US in particular will need at least twice as many physicians specializing in geriatrics as its current 9,000, as well as half a million more nurses by 2020. (Demographics, Health, Economy, Education)

*4 (High) – For each challenge this trend presents the Norfolk area, it seems to provide a matching opportunity. Nursing schools will be in high demand as the need for their graduates continues to outstrip the supply. Medical technicians in many specialties will find equally ready job markets waiting for them. And, of course, the low-cost medical clinic proposed for Norfolk already seems likely to find many patients eager for its services. Again, this trend justifies extensive study to fill in the details of its future effects on this community.*

*A major challenge in building a new clinic to serve outside markets, or in maintaining its existing medical facilities, will be to recruit physicians. Many of those doctors will come from overseas, where many American students as well as foreign natives take their medical training. This will require both a continuing effort to identify and recruit the best foreign medical graduates and a program of incentives to bring them to Norfolk instead of larger cities and other popular destinations. These would include an entrée to the University of Nebraska School of Medicine, possibly reduced taxes, and perhaps even free or reduced-cost housing, and repayment of training costs for those who commit to remaining in the area for a period of years.*

37. Agricultural producers within 75-100 miles of metropolitan areas have the opportunity to become international leaders in the techniques and benefits of producing higher value crops like fresh organic foods. (Agriculture, Economy, Small Business)

*4 (High) – Organic foods do represent another relatively high-growth, high-profit agricultural market that deserves study. However, we do suspect that the energy markets will prove to be much larger and faster growing in the years ahead.*

38. Water quality is a growing problem even in developed countries. The age of infrastructure, and the Safe Drinking Water Act, are causing more resource constraints. (Water, Economy)

*3 (Medium) – Given the declining regional water supply examined in Trend 27, any factor that affects the use of existing resources takes on added significance. These concerns should be examined as part of an integrated study of the region’s future water supply and demand.*

39. True retirement, a permanent end to work, will be delayed until very late in life, well into the 70s. Retirees will act as technical aides to teachers, especially in the sciences. (Values, Lifestyles, Economy, Education)

*2 (Low-Medium) – The Baby Boom generation, like many of its parents, will have little interest in retiring to inactivity. They will phase out of work, cutting back to part-time work schedules, taking more time for sports and active hobbies, volunteering, and beginning part-time businesses. In stages, these secondary activities will take more of the time they formerly spent on the job. Traditional retirement to a life of television and “puttering” will be delayed until health problems leave no alternative.*

*If Norfolk establishes its proposed clinic, this trend becomes a 4 (High), as senior workers are likely to be a major source of practical nurses, therapists, technicians, and teachers’ aides. In that case, providing seniors with high-quality professional training will be an important challenge.*

40. It is now possible to create enzymes that work thousands of times faster than their natural counterparts. Turning biomass, e.g., corn stover, grass, etc., into fermentable sugars and then into ethanol. Plastics may be grown on farms, in genetically engineered plants, that are also biodegradable. (Agriculture, Small Business, Economy, Technology)

*4 (High) – We have cited the largest of these markets, biomass and cellulosic alcohol energy farming, in previous trends. Other opportunities, such as biopolymers, also deserve study to identify future market opportunities.*

41. Biotechnology could revolutionize the use of agricultural lands, shifting it away from growing food and towards growing raw materials for industry. (Agriculture, Economy, Small Business, Technology)

*4 (High) – We view this as an extension of Trend 40. The same comments apply here.*

42. The growth of the information industries is creating a knowledge-dependent global society. (Economic and Societal Trends)

*2 (Low) – This is part of the background with which all communities, large and small, rural and urban, will live in*

*the years to come. As we have seen in looking at earlier trends, this will offer both challenges and opportunities, but few that are specific to Norfolk or that can be effectively dealt with in the context of this study.*

43. The world's population will double over the next 40 years.

(Economic and Societal Trends)

*1 (Low) – This trend will provide a larger market for agricultural exports, of course, but it will have no unique impact on or implications for Norfolk.*

44. Technology increasingly dominates both the economy and society. The pace of technological change accelerates with each new generation of discoveries and applications. (Technology Trends)

*1 (Low) – This trend will continue to churn labor markets and to provide new equipment and procedures for medicine and industry. Norfolk will feel this trend, just as the rest of the country will, but will face no unusual impact, nor receive uncommon opportunities, as a result.*

45. Information-based organizations are quickly displacing the old command-and-control model of management. (Management Trends)

*1 (Low) – Again, Norfolk will see no unusual problems or opportunities as a result of this trend.*

46. Research and development play a growing role in the economy. (Technology Trends)

*2 (Low-Medium) – Again, this has been considered in our brief analysis of previous trends. Norfolk will be affected as other communities are, its hospitals required to keep abreast of medical developments, its businesses taking advantage of new opportunities for greater efficiency, its students requiring an ever-better education to live well in a high-tech world. Yet few innovations are likely to affect this region specifically or in a way that can be dealt with usefully in the current context. The exceptions are new energy technologies, nutraceuticals, and foodaceuticals, which may provide new markets for Norfolk-area farmers.*

47. Radio Frequency Identification (RFID) and other forms of tagging will improve all aspects of transportation and storage: vehicles, carriers, products, people, etc. Category: TECHNOLOGY

*4 (High) – This is a critical technology for the future, and one that has obvious application to Norfolk-area agriculture. Tracking cattle from birth to slaughter was*

*one of the first commercial uses for RFID. This market is likely to grow explosively in the future, as concerns about mad cow disease and bioterrorism affect the market for cattle and meat. Norfolk should encourage local business to establish an RFID manufacturing facility to meet this nearby demand.*

48. The pace of technological change is accelerating logarithmically and organizations must adopt new methods to deal with increasing and diverse information on all levels. Artificial Intelligence (AI) and Virtual Reality (VR) will reduce workloads and time requirements for all organizations, in assimilated data and solving problems. Travel and meetings will be replaced by E-tourism via VR. Increasingly, workers will be replaced by AI devices. The pace of technological change is accelerating leading to ever shorter product life cycles. Category: TECHNOLOGY

*3 (Medium) – Add data mining and expert systems to the list. Norfolk area businesses and government agencies will need to cope with a host of new information technologies, which will improve their productivity and may reduce their workforce requirements. Anticipating and coping with these developments is a role for continuing study, rather than for the current work. Norfolk may wish to establish a permanent forecasting effort to help it meet future impacts of technology and other changes.*

49. Symbiotic relationships and partnerships will be required in order to stay competitive. Businesses must get more creative to attract and retain the best employees: recruiting, benefits, perks, and profit-sharing. Service, Commercial, Industrial, and Idea Technology/Innovation Networks will keep interconnected institutions intact and efficient. Category: BUSINESS

*3 (Medium) – As a community, Norfolk can best help by building its own ties to the federal and state governments. This is the role of skilled and well-connected lobbyists, which Norfolk should seriously consider employing.*

*As an example of this function, consider the proposed clinic, sending at least some patients abroad for treatment. In today's environment, the threat of lawsuits must be an important concern for anyone contemplating such an opportunity, even though only the most capable overseas facilities would be considered for partnership. Nebraska has some advantages over other regions in this respect, because it has already enacted caps on medical damage awards. However, given the great benefits to be derived from the clinic, the state might be willing to consider either further limiting the damage awards to which the clinic could be exposed or assisting directly in paying its insurance costs. Building some such arrangement is one obvious role for a lobbyist.*

*A second example deals with the Department of Homeland Security. Half of the nation's cattle come through the Norfolk region. They are an obvious target for bioterrorist attack. (We have already seen the impact of a single case of mad cow disease on America's foreign markets; a major outbreak would be easy to cause, with vastly greater impact on the economy.) Norfolk's efforts to defend against such threats will be an important part of the national security effort, and they should be coordinated directly with the Department of Homeland Security. Developing a direct, personal contact with an appropriate person at DHS will be a significant step building an efficient security program for Norfolk.*

50. Minorities will become a thing of the past, as their numbers are growing fast. Gen-X'ers and Millennials are virtually gender and race-blind in cyberspace. Millennials throughout the world tend to share values. Category: ECONOMIC AND SOCIETAL TRENDS

*1 (Low) – This trend will have relatively little impact on Norfolk, and none that need concern this study.*

51. Embedded Technology will make more "smart" machines: bathroom mirrors with built-in web browsers, coffee tables with internet connections and video/phone capabilities, clothes with electronic chips, piercing craze will evolve into embedded down-sized electronic chips. Category: TECHNOLOGY

*1 (Low) – This trend has no specific implications for Norfolk.*

52. Security systems for business and personal use will be simplified and expanded. People and businesses will increasingly encrypt data. Category: TECHNOLOGY

*1 (Low) – Norfolk will feel no specific impact from this trend.*

53. Warfare will increase between new "Superpowers" as they scramble for resources that dry up, unless new energy and recycling technologies are implemented. Category: ECONOMIC AND SOCIETAL TRENDS

*3 (Medium) – At Forecasting International, we see no prospect for war between the superpowers. The greatest source of violence in the future will continue to be religious and cultural conflicts of the kind now seen in the Middle East. Resource wars may occur, but they will be limited to developing countries that rely on the same limited resources, and particularly on the same rivers or aquifers for water.*

*Nonetheless, this is significant for Norfolk, as access to limited energy resources may be disrupted by*

*regional wars, increasing the need for energy crops that Nebraska is well suited to supply.*

54. E-Learning will further evolve its Infrastructure, Workforce Relationships, Knowledge Base, and Learning Architecture. Schools will have to teach students how to obtain information, instead of teaching information. Practical knowledge is outdated in 5 to 10 years. Lifelong learning is a necessity. Category: EDUCATION

*2 (Low-Medium) – The emphasis here should be on distance learning, as we have observed in considering previous trends. Especially in a region of low population density, knowledge is best distributed by transmitting it to the students, not by bringing the students to a central facility. In the end, relying on distance learning wherever possible will prove more efficient and cost-effective than erecting new buildings.*

55. Water and Food shortages. Utilization of Water and Food Resources must improve in order to handle the strains put on the environment by a near doubling of humans, and increasing dumping of carbon dioxide into the atmosphere and oceans. Vertical farming will improve yields. Half of all drugs are derived from natural sources. Periodic famine and desertification will be more common. Food preservation technology is important. Category: AGRICULTURE AND ENVIRONMENT

*2 (Low-Medium) – While these environmental problems will have an enormous impact on society at large, few of them present unique opportunities or difficulties for Norfolk and its region. Norfolk can best meet these by positioning itself to meet future demand for energy crops and, to a lesser extent, fresh organic foods and whatever markets develop for foodaceuticals and nutraceuticals. This will require a continuing program of market research as these areas are further developed.*

56. Consumerism and consumption. Millennials are incredibly prone to compulsive spending, especially in large numbers of online purchases. E-business will increase faster as these improve their stature in society. Money management classes will be important. Category: ECONOMIC AND SOCIETAL TRENDS

*1 (Low) – This trend is of only general interest to Norfolk.*