A New Economy for A New Long Island

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A Strategic Economic Development Plan For Nassau and Suffolk Counties

Prepared for New York State Gov. Andrew M. Cuomo

By the Long Island Regional Economic Development Council

Kevin S. Law and Stuart Rabinowitz, Co-Chairs

This page includes a presenting letter to Gov. Cuomo.

This page includes a list of 150-plus Regional Council and Working Group members.

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Executive Summary

Rising to the catalytic challenge of Gov. Andrew Cuomo to create a community-wide consensus over job creation, the Long Island Regional Economic Development Council (LIREDC) has empowered a diverse team of leaders to create a five-year plan with transformative strategies that will encourage innovative, collaborative initiatives for growth. The LIREDC has built on the outreach and recommendations of prior plans, including the Long Island Regional Planning Council's LI2035 Sustainability Action Plan, to more quickly produce a comprehensive, holistic framework for change that is not only broadly supported, but fact-driven and focused on achievable -- and measureable -- results.

The LIREDC plan points out that "Long Island has a long history of innovation and resiliency – a history that contains the seeds of its current problems and its future promise." The plan does not shy away from a stark appraisal of the Island's current economy. "Having set a national example of rising middle-class opportunity as America's first suburbs, Long Island… now demonstrates the significant challenges of suburbs as they mature." These challenges include a loss of young workers, slow overall population growth, inadequate transportation and waste disposal infrastructure, growing poverty, continued racial segregation, and a decline in high-paying defense manufacturing jobs that once were the engine of the region's economy. Promising young high-tech industry sectors "have not yet come close" to generating the number of jobs and income from outside Long Island as the defense industry once did.

At least for now: The plan also documents the Island's immense potential – its critical mass of successful high-tech businesses, world-class research centers stocked with Nobel Prize winners and a superbly educated workforce -- to incubate and "accelerate" the rise of major new industries. The LIREDC envisions long-term growth "characterized by close, ongoing collaboration between academia, the private sector, labor, and government to protect and grow our advanced manufacturing base while encouraging innovation in life sciences, defense, homeland security, information technology and clean energy." The plan sees exciting knowledge-creating and job-generating synergies between the private sector and the likes of Brookhaven National Laboratory, Cold Spring Harbor Laboratories, Stony Brook University, the Feinstein Institute at North Shore-LIJ Health System and Hofstra University.

Some of the key regional economic development strategies include:

- (A bulleted summary of the top 5-10 as agreed upon by the RC.)
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Some of the major transformative projects that support the implementation of the strategies includes:

- (A bulleted summary of the top 5-10 projects.)
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While focusing on improving access to venture capital and eliminating regulatory and other barriers to commercializing new technologies, the LIREDC does not ignore the traditional economic powerhouses such as tourism, fishing and agriculture. In fact, the report emphasizes the potential of – and suggests strategies and initiatives to encourage -- ecotourism and sustainable harvest-based agriculture and fisheries to attract new environmentally conscious visitors. Long Island's natural assets already are substantial income generators – bringing in revenues for businesses, government and individuals -- and protecting its beaches, farmland and freshwater is crucial to the region's economic health. So is providing the "head start" of early childhood education, especially safe, reliable and affordable daycare.

In calling for a balance between economic and environmental concerns, the LIREDC plan recognizes the "connectivity" between sectors and communities and thus takes a holistic approach toward prioritizing local projects. Tourists won't come to Long Island if the bays are polluted and ocean and farm vistas fall to overdevelopment. They won't come if traffic is at a standstill – the same congestion that stifles business deliveries, adds to commuting time and pollutes the air. Sewers are needed not only to protect fresh and salt water but to allow the construction of affordable apartment units. The apartments might help keep young workers on Long Island and generate additional property tax dollars that might, in turn, protect school programs and other important "quality of life" services or reduce the tax burden on individual home or business owners. Although the heart

of the report are analyses of four key areas of concern – natural assets, innovation, infrastructure, and workforce and education – the LIREDC emphasizes that they are dynamically connected and require Long Islanders to work together, across partisan, geographic, institutional and competitive boundaries.

The need to foster a collaborative spirit, as well as a consensus for change, added extra impetus to the LIREDC's efforts to meet Gov. Cuomo's insistence on an inclusive, transparent process with the widest possible public participation. Assisted by state staff, the Council reached out to Long Islanders in numerous ways, including social media sites and presentations before business and civic groups. From the many hours devoted by members of the council and its working groups, to the hundreds of people who spoke or submitted ideas, the LIREDC endeavored to insure that every sector or community had a chance to be heard. The result is a plan that "bubbled up" instead of being forced from the top down.

To guarantee that state and other public or private funds are not wasted – that the most and best jobs are created, as promised by those who receive these funds – the LIREDC created an implementation plan for the regional strategies and specific projects. It also developed performance measures to gauge the region's or institution's success in implementing them. The plan is not static. The council expects to regularly evaluate and update it so that progress is made toward reaching the region's goals and a better case can be made to justify additional funding.

This document fully meets the State's request for a Five-Year Strategic Plan that includes data and ideas in six specific sections, as per the Strategic Planning Manual. But the LIREDC has taken to heart the flexibility granted by the state to allow the addition of sections and sensibilities that capture "the substance and spirit of the region's economic development efforts." Thus, the LIREDC offers some sensible, realistic strategies – such as the creation of a major "green" technology manufacturing sector – that may take far more than five years to realize their full, job-creating potential. As such, the Council does not discourage businesses, not-for-profits and local governments from proposing projects aimed at making slow but steady progress. Although not explicitly required to do so, the LIREDC also emphasizes the economic imperative of addressing social issues, such as providing affordable, appealing housing to young workers whose numbers are dwindling in the region, and to improve the lagging skills of many immigrant and other minority students who are projected to comprise a larger and larger share of the workforce. As the plan's Vision Statement states, "Long Island will reassert itself as a global center for innovation and the model for a knowledge-based

suburban economy that creates new high-paying jobs and improves the quality of life for every one of our residents."

Who We Are…

Vision Statement

For Long Island's economy, innovation has been our past and will be our future. This is a region whose agriculture and fishery harvests have fed the nation and whose businesses and institutions produced the aircraft that helped win a world war, built the Lunar Module which first put men on the moon and cracked the genetic code. Long Island will reassert itself as a global center for innovation and the model for a knowledge-based suburban economy that creates new high-paying jobs and improves the quality of life for every one of our residents.

The Long Island Regional Council's vision for long-term economic growth is characterized by increased collaboration between academia, the private and public sectors and labor to protect and grow our advanced manufacturing base while encouraging innovation in the life sciences, information technology, clean energy, defense and homeland security industry clusters.

To accomplish this, we will build on the successes of our existing businesses, commercialize the valuable research conducted at our world-class research institutions, and strengthen our highly skilled and educated workforce. At the same time, we will be vigilant in promoting and protecting our unrivaled natural resources and in providing equal opportunity in housing, employment and education. Furthermore, we will continue to invest in our students, transportation, housing and sewer infrastructure, and natural assets (including harvest-based agriculture and fisheries) to support a sustainable, inter-connected economy that revitalizes downtowns, redevelops areas suffering from disinvestment and mobilizes the entire region for the future.

Born of a desire to encourage creative, collaborative entrepreneurial partnerships and to overcome long-standing impediments, the Long Island Regional Council's Strategic Plan will signify a major step toward achieving this vision.

Where We've Been…

The Long Island Story – An Introduction

Long Island has a long history of innovation and resiliency – a history that contains the seeds of both its current problems and future promise.

In the 1920s, Robert Moses drove, walked and rowed his way across Long Island in creating nothing less than a network of new ideas: Perpetually preserved state-owned parks with private club-like amenities -- including Jones Beach, still considered one of the world's most beautiful -- and landscaped "parkways" to take people to them, leisurely, in the family-owned automobile.

For his jump across the Atlantic and into aviation history, as the first person to fly solo from New York to Paris, Charles Lindbergh chose the flat terrain at Long Island's Roosevelt Field – which one day would be the site of the world's first "shopping mall." He also chose the already-recognized expertise of Long Island's growing number of aircraft builders and repairers – the pioneers of what would become the region's dominant industry and a vital contributor to countless air battles.

After World War II, William Levitt ushered in the suburban era in Levittown with a construction system that would be replicated across the country – incorporating the principles of Henry Ford's auto assembly lines to quickly and cheaply build thousands of homes for returning GIs. Many of these soldiers would earn their engineering degrees on the same GI bill that financed their homes and go on to build a new generation of flying machines, including the Lunar Module that landed the first astronaut on the moon.

And as the great machines of war and discovery rolled off of the Island's aerospace assembly lines, scientists came to Long Island for decades to quietly explore the mysteries of the universe. On a vast, secluded tract in the heart of the Pine Barrens, physicists at Brookhaven National Lab used some of the world's largest instruments to track the smallest and fastest particles known to humankind. Overlooking a quaint historic fishing village, biologists and chemists at Cold Spring Harbor Labs unveiled the intricacies of the human genome.

Long Islanders are proud of their iconic heritage. And the Nassau-Suffolk region's assets – both natural and nurtured – continue to position it as an economic leader for the state and nation.

But Long Island, as a rising pile of reports attest, has a way to go to realize its potential as a job-creating engine of growth. Even with some of the world's best public schools and most prestigious research institutions, even with the nation's largest commuter rail system and wealthiest communities, even with vast stores of fresh water and miles of beaches, Long Island faces serious challenges.

Long Islanders can feel the pain of nearly the nation's highest bills for property taxes and energy, a burden that is driving away some businesses and their employees. Long Islanders know it takes longer and longer to drive to their jobs or a night out. And they know – or should know – that an increasing number of children, mostly minorities, are attending the poorest schools and aren't being prepared to be as productive as possible. Too many students in even the most successful schools are graduating without enough exposure to the STEM subjects – science, technology, engineering and math. Too many students are graduating Long Island's high schools and colleges and leaving town for better opportunities, not just in jobs, but housing and quality of life.

Ironically, the seeds of some of Long Island's greatest challenges were sown with its greatest successes: Moses' parkways are now clogged with traffic and his parks difficult to reach without a car. The shopping malls reinforced the reliance on the car and drained the commercial life from village downtowns, putting the tax burden increasingly on homeowners. Levitt's homes were similarly isolated from mass transit and his racial restrictions helped shape patterns of housing segregation that continue today with enormous consequences for people and communities.

Even Long Island's company town-like reliance on the defense industries came crashing down with the end of the Cold War.

But in the 1980s and 90s, Long Islanders re-invented their economy from one dependent on New York City commuters and a handful of aerospace giants. And they rebuilt it on the innovative and entrepreneurial energies of thousands of smaller businesses, from high-tech manufacturers and to low-tech tourism and a host of service sector concerns in between. And while a few giants emerged at the dawn of the digital age, such as the firm now known as CA Technologies, and a few still dominate the region today, most notably North Shore-LIJ Health System, the strength of Long Island's economy became its diverse base of businesses, in a wide range of fields, with a coveted labor force trained in first-rate schools and colleges.

Now, the challenge is to build on Long Island's strengths and deal with its weaknesses. The challenge is to realize the job-generating capacity of struggling communities and students by working closer with their employers of the future. The challenge is to translate discoveries at Long Island's world-class research institutions into businesses that will attract capital and create jobs that will help make Long Island more attractive, especially to young workers. The challenge is to protect as much remaining open space as possible and create more affordable, appealing housing by building multi-family units in downtowns already situated near transit stops. The challenge is to embrace the opportunity that the surge of new immigrants – along with their energy, ideas and investment -- offers for reviving neighborhoods and connecting globally.

The challenges are clear but the Long Island Regional Economic Development Council believes they can be met to the benefit of Long Island and beyond.

How We Know…

Public Participation

"The public participation process is crucial to our success!"

--Hofstra University President Stuart Rabinowitz

"*Our attitude is, 'Come on in, the tent is big and everyone is welcomed and will be listened to!"*

--Long Island Association President Kevin S. Law

From western Nassau County to the East End of Suffolk, as demanded by Gov. Andrew Cuomo and reiterated above by the Long Island Regional Economic Development Council co-chairs, Long Islanders were more than just heard. Their ideas, expressed by the hundreds at public forums and by fax, phone and old-fashioned mail, proved invaluable in creating Long Island's five-year Strategic Plan. The xxx public forums, attended by more than xxxx people, shaped not only the collective vision but specific ideas for realizing it. Gov. Cuomo and the LIREDC co-chairs asked explicitly for a plan that bubbled up from the many springs of stakeholders across the region. So the LIREDC saw to it that the opportunities for public participation only began with more than 150 men and women from all walks of our social and economic life who voluntarily served on the Council and its Working Groups. Many of these volunteers were stakeholders with a professional interest and expertise in a particular facet of Long Island's economic life. [**link to list of council and working group members**.] But time and again, a broad range of people -- from executives of some of the region's largest corporations to at least one person who said she had never spoken at a forum outside her neighborhood – stepped up to the microphone to make sure that the Council heard from those on the frontlines of businesses, not-for-profits, neighborhoods and schools. It was not a process dominated by consultants and lobbyists. Neither was it a process that excluded people from communities whose voices often go unheard – racial and ethnic minorities and the poor. Time and again, co-chairs Rabinowitz and Law encouraged Council and Working Group members – especially those who felt aspects of the process or product was disenfranchising under-served segments of the population -- to speak freely and loudly about their concerns. **[link to list of meetings with dates and locations**] And, thus, the economic imperatives of social equity and opportunity found their

way into the critical scoring criterion for transformative and other projects requiring a CFA application for consideration. Time and again, the Council and Working Group co-chairs respectfully invited speakers or their own members to submit a more detailed memo to guide the council. And the groups grew along with the pages and pages of ideas, initiatives and strategies that flowed from them.

"The Regional Council will develop a public participation strategy to engage stakeholders and the general public."

--REDC Strategic Planning Manual

Long Island's productive public participation did not happen spontaneously. It reflected a carefully planned campaign that reached out to journalists, stakeholders and a range of other Long Islanders. (This built on the same approach used effectively by the Long Island Regional Planning Council in producing a long-term sustainability plan, LI2035.) Dozens of groups were contacted to guarantee that as many people knew about the Council and its efforts and that the public's input was sincerely being sought. **[link to posted public participation plan**] Some of these groups responded enthusiastically, sponsoring forums, such as the one by the Long Island Business News at Carlyle on the Green in Bethpage. About 200 people attended the event, which garnered considerable press coverage**. [link to article in LIBN]** These group-organized forums, along with presentations to labor, civic and business groups, extended the reach of the Council's planned public meetings and ratcheted up participation in the process and enhanced the product – the Strategic Plan. Reflecting the tone set by Gov. Cuomo, state staff and the LIREDC co-chairs, the outreach and engagement effort achieved the desired goal of fostering meaningful collaboration without antagonizing or alienating the public.

The planning effort was led by Andrea Lohneiss, Executive Director of the LIREDC, and deputy director Mark Grossman, experienced professionals whose organizing skills and knowledge of the region's economy proved invaluable. And it included distributing information through state agency press releases, **[link to example press release**], email and phone calls to reporters, editors, opinion leaders and others with readers and viewers, whether the outlet was a newspaper and television station or business and civic association newsletters. The Council

also made use of social media **[link to Facebook page**] and of course key state websites – including "Open for Business" and its e-suggestion box -- and a "wiki" set up specifically for Council and Working Group members. The "wiki" was at once a repository of many documents, including key reports prepared in past years that provided useful data and ideas. The "wiki" also included minutes and work produced by staff and volunteers, insuring that the members of each Working Group had access to the work of the others. Work Group meetings themselves were lively and productive with members engaging each other with often well-researched proposals and passionately held opinions. Through the skillful facilitation of the Working Group co-chairs and the assistance of state staff and a separate volunteer writing team, a spirit of non-partisan collaboration prevailed and consensus was reached on many complex and controversial issues.

The plan recognized that the Council had to properly identify and provide opportunities to engage all potentially interested parties. This was deemed necessary to solicit the ideas and insights that could provide an understanding of the region's present circumstances, its problems and its possibilities. The outreach also was designed to be continuous and interactive. It was important not only to solicit ideas that went into researching and drafting sections of the Strategic Plan, but constant feedback as well. The Council's attitude and approach to public participation could be summed up in two words and a phrase: early and often and for all to see. The public outreach plan began when Gov. Cuomo came to SUNY Old Westbury in July to announce the formation of the LIREDC before hundreds of stakeholders and other Long Islanders. [**link to article in Newsday**] Potential Council members were contacted, then Working Group members, even as staff and volunteers reached out to media and opinion leaders throughout the region. And the outreach continued through the entire process of creating the Strategic Plan. And it will continue – throughout the creation of the implementation plan and beyond. The public's input was crucial in producing a holistic and inclusive plan that reflects the ideas and aspirations of all Long Islanders.

Where We Are Now…

Regional Assessment of Existing Conditions and Economic Drivers -- First, the (Mostly) Bad News

Long Island retains incredible assets, both natural and nurtured, that inspire justifiable optimism for the future. But, having set a national example of rising middle-class opportunity as America's first suburbs, Long Island's Nassau and Suffolk Counties now demonstrate the significant challenges of suburbs as they mature. The drivers that sustained job creation in this emerging regional economy through the second half of the twentieth century have faltered. The workforce is aging, poverty is rising and the region has emerged very slowly from the national recession: the number of Long Islanders unemployed in 2010 surpassed the number unemployed when defense fell off the cliff in 1992.

- The massive migration that nearly tripled the regional population after 1950 has dwindled to a trickle–10% growth since 1990, and only 2% since 2005.
- Long Island is no longer New York City's bedroom. 80% of Long Island's 2.8 million residents now work on Long Island, depending on the health of its economy for their livelihood.
- Long Island's defense industry employed tens of thousands of Long Islanders who helped to win World War II; the industry's national restructuring after the collapse of the former Soviet Union triggered the elimination of 60% of its jobs on Long Island.
- Overall, private sector jobs are falling and so are wages.
- Young industry sectors including biotechnology, information technology, electronics and systems integration, which are comparable to defense in the income they generate from outside the region and the wages and salaries they offer, have not come close to defense's scale.

- The high paying defense jobs were replaced primarily by lower paying service jobs; overall, average pay per employee on Long Island has reached a 10-year low, while average wages increased nationally.
- The 25-to-34-year-old age cohort – the skilled workforce of the future – has declined by almost 129,000, proportionately more than in any other part of the New York metropolitan region and in contrast to a 5% increase nationally.
- Although the region has a lower official poverty rate than exists statewide (based on the federal standard of less than $21,200 for a family of four), the region's high cost of living effectively places 20 per cent of the population – or more than 500,000 men, women and children -- in poverty. More than 100,000 Long Islanders remain unemployed with at least as many under-employed or having given up looking for a job.
- The land development that supports Long Island's 2.8 million people has consumed more than 90% of the region's total land area. The geography and infrastructure that supported sprawling suburban growth now constrain choices for the future.
- Road and rail systems designed to carry the workforce westward in the morning and eastward in the evening are inadequately aligned with new work flow patterns, particularly reverse rail commutes from New York City boroughs and north-south automobile travel; rail goods transport is lacking in all directions.
- New or increased sewage treatment capacity is necessary to protect the aquifer that is this island's sole source of water, and to increase the potential for denser new industrial, commercial or residential development, particularly around transit hubs. Such infrastructure investment is hindered by the highly dispersed character of the population distribution, with 80% of residents in single-family homes.
- Long Island lacks diversity in its housing stock, with too few of the rental units that young workers and retirees now prefer. Foreclosures in the region are highest in the state.
- Increased land values fueled by past growth threaten agricultural/marine industry/tourism land uses, as owners of farm or shorefront land are under tremendous pressure to sell their development rights.

- Long Island's population has become ethnically and racially diverse, creating opportunities to replace lost young and elderly workers and to establish global connections for area businesses, but also posing challenges for schools and other institutions. In 2010 generally wealthier and better educated whites accounted for two-thirds of the Nassau-Suffolk population.

Clearly, Long Island faces an array of formidable challenges. But it also boasts many assets and opportunities, and the approaches described in this strategic plan can transform Long Island into a global center of innovation with a sustainable, knowledge-based economy. High-value industries with high-paying jobs that contribute to regional wealth generation through the sale of products and services to non-New York State customers – as the defense industry did -- will ensure continued strength for our critical local service industries and enhance the quality of life for all of our people.

The planning process that generated these strategies and the initiatives to implement them was organized around four thematic Working Groups – Workforce and Education, Natural Assets, Infrastructure, and Innovation and Industry Clusters. The next section of this report will describe the primary assets, major obstacles and significant economic development opportunities that have been identified by the four Working Groups.

Exhibit - A Regional Assessment of Existing Economic Conditions

Historical Trends in Employment & Unemployment, Nassau-Suffolk

Year	No. Of Jobs	Net Change*	Unemployment Rate (%)	Number Unemployed
1990	1,125,700	-11,900	4.0	56,700
1991	1,076,400	-49,300	6.4	89,300
1992	1,051,400	-25,000	7.6	104,900
2008	1,264,000	-1,600	4.9	72,800
2009	1,227,400	-36,600	7.3	107,700
2010	1,226,500	-900	7.4	109,100

**From previous year; Source: NYS Labor Department*

Long Island Labor Market Trends, by Industry

Industry	Jobs, Aug. 2011	Net Change, Aug. 2010-11
Manufacturing	71,600	-1,300

Construction	*63,500*	*-600*
Wholesale Trade	*69,700*	*2,100*
Retail Trade	*155,100*	*-400*
Transportation, Warehousing, Utilities	*30,200*	*-1,600*
Information	*21,100*	*-4,500*
Financial Activities	*68,600*	*-1,900*
Professional & Business Services	*157,300*	*1,800*
Educational & Health Services	*222,800*	*900*
Leisure & Hospitality	*107,400*	*-5,300*
Other Services	*53,600*	*200*
Government	*191,000*	*-2,400*
Total Non-Farm Employment	***1,211,900***	***-13,000***

Source: New York State Labor Department

Fastest Growing Occupations Through 2018

Job Title	***Projected Percent Increase***
Network Systems & Data Communications Analyst	*44.8*
Personal & Home Care Aides	*43.5*
Home Health Aides	*40.5*
Physical Therapist Aides	*32.1*
Medical Scientists	*29.7*
Pharmacy Technicians	*28.0*
Physical Therapist Assistants	*27.6*

Source: New York State Labor Department

The Nassau-Suffolk Population, by Age, 2000-2010

Age Group	*Nassau, 2000*	*Nassau, 2010*	*Net Change*	*Suffolk 2000*	*Suffolk, 2010*	*Net Change*
Under 5 years	*86,628*	*73,888*	*-12,740*	*100,304*	*85,984*	*-14,320*
5 to 9 years	*96,192*	*83,405*	*-12,787*	*109,690*	*97,819*	*-11,871*
10 to 14 years	*93,441*	*93,607*	*166*	*103,930*	*106,367*	*2,437*
15 to 19 years	*82,662*	*94,070*	*11,408*	*88,558*	*106,992*	*18,434*
20 to 24 years	*68,198*	*79,376*	*11,178*	*75,665*	*90,371*	*14,706*
25 to 34 years	*162,568*	*142,556*	*-20,012*	*191,695*	*166,685*	*-25,010*
35 to 44 years	*223,070*	*177,632*	*-45,438*	*251,600*	*213,341*	*-38,259*
45 to 54 years	*194,987*	*217,985*	*22,998*	*197,593*	*245,782*	*48,189*
55 to 59 years	*69,873*	*93,403*	*23,530*	*75,535*	*94,938*	*19,403*
60 to 64 years	*56,084*	*78,929*	*22,845*	*57,241*	*83,278*	*26,037*
65 to 74 years	*105,961*	*98,307*	*-7,654*	*91,906*	*107,983*	*16,077*
75 to 84 years	*72,671*	*72,317*	*-354*	*55,650*	*65,969*	*10,319*
85+	*22,209*	*34,057*	*11,848*	*20,002*	*27,841*	*7,839*
Total	*1,334,544*	*1,339,532*	*4,988*	*1,419,369*	*1,493,350*	*73,981*

Source: U.S. Census Bureau

Median Price for Newly Sold Homes, 2011

Month	*Nassau*	*% Change**	*Suffolk*	*% Change**
January	*$415,000*	*0.0*	*$313,000*	*-1.3*
February	*395,000*	*2.6*	*300,000*	*-7.7*
March	*385,000*	*-4.3*	*300,000*	*-1.6*
April	*405,000*	*2.5*	*290,000*	*-8.8*
May	*395,000*	*0.0*	*314,500*	*-0.6*
June	*408,000*	*-1.7*	*310,000*	*-7.5*
July	*415,000*	*-3.9*	*315,000*	*-7.4*
August	*420,000*	*-4.5*	*324,000*	*-0.3*

**From a year ago; Source: Multiple Listing Service of Long Island*

Sales Tax Revenues, Nassau and Suffolk County Governments, 2011 ($ Millions)

Month	*Nassau County*	*Suffolk County*
January	*$82.9*	*$91.7*
February	*68.2*	*74.6*
March	*94.6*	*102.5*
April	*78.6*	*88.9*
May	*75.4*	*84.6*
June	*96.8*	*117.8*
July	*79.6*	*95.8*
August	*77.6*	*92.6*
Total, Jan.-Aug, 2011	*653.7*	*748.5*
Total, Jan.-Aug., 2010	*660.8*	*728.4*
Percent Change	*-1.1*	*+2.8*

Source: New York State Department of Taxation & Finance

Where We Want to Be…

Critical Issues, Opportunities and Strategies – the Economic Development Vision of our Four Working Groups

"Everything is inter-connected; economic, infrastructure, environmental and social systems affect and influence each other…"

--LI2035 Sustainability Action Plan

1. LONG ISLAND WORKFORCE AND EDUCATION

Education and Workforce Development

Long Island's economic success starts with the skills, talents, and entrepreneurial energies of its workers. A skilled, stable, and educated workforce attracts new investment, retains existing businesses, and perhaps most importantly, provides the know-how necessary to spur innovation and entrepreneurship. The region's commitment to education and workforce development, particularly in the Science,

Technology, Engineering, and Mathematics (STEM) area, will be critical in enabling us to seize the opportunities in growth sectors such as green energy and the life sciences. Our STEM focus also will strengthen our information technology and advanced manufacturing sectors, which are essential to both emergent and established industry clusters.

We see several opportunities for galvanizing job creation and innovation in the region, and yet we face two great challenges. First, most of our graduates and job-seekers lack the necessary qualifications for high-demand, high-wage occupations. In many cases, this skills gap has forced employers to seek talent outside of the region even as Long Island experiences a rising level of unemployment. Skills gaps impede the development of start-ups and the growth of small businesses that employ the majority of Long Island's workers, according to the Long Island Association, the region's largest business group.

Second, we face the difficult challenge of ensuring that economic development – when it does occur – benefits all of the region's communities and workers. To realize the plan's vision of making education a path towards community revitalization, we must ameliorate the educational inequalities that have long divided the region. We also need to consider early childhood education as an economic imperative, giving children a documented better chance to succeed in school and their parents the ability to work more hours and with fewer concerns. Only through the close collaboration within and across public, private, and non-profit sectors will we engage all workers to their fullest potential, and launch an era of vigorous and equitable prosperity.

Critical Issue: Bridging the Skills Gap

Long Island's peculiar dilemma is that it faces labor shortages in critical occupations, even as it experiences high rates of unemployment. Recent studies by Long Island Forum for Technology (LIFT) and Connect Long Island have shown a large – and potentially growing – gap between the skills of the workforce and those required for positions as IT professionals, nurses, and engineers.[1] Department of Labor representatives in the Education Work Group report that many high-wage

[1] 13N study.

positions on Long Island remain unfilled for want of educated applicants. By bridging the skills gap, we will meet the needs of both employers and the local job-seekers, particularly if Long Island hopes to retain its college graduates.

Strengths

We build upon a system which includes well-regarded educational institutions at the K-12, college, and postgraduate levels. Twenty-six of Long Island's high schools appear in *Newsweek*'s 2011 list of America's (Top 500) Best High Schools. Individual students excel as well: a remarkable sixty-one of the Intel Science Scholarship's 300 semi-finalists come from Long Island, including 8 of the 41 finalists and 2 "Best in Category" winners. Our overall graduation rate and test scores consistently exceed the rest of the state.

We host a system of nineteen diverse institutions of higher learning, ranging from small private colleges, to research universities. Some (Stony Brook University, Farmingdale State College, New York Institute of Technology) are dedicated primarily or extensively to the STEM disciplines. Others have strong programs in the STEM disciplines or are in the process of doing so. Hofstra University, for example, has recently launched a new medical school and college of engineering, while Suffolk Community College has provided new job pathways by offering "stackable" certificates for in-demand careers. Local universities, cutting-edge businesses, and world-famous research centers such as Cold Spring Harbor Labs and Brookhaven National Labs attract the brightest minds from all over the planet. Together with our strong educational infrastructure, this has produced high rates of educational attainment.

The region also builds upon its workforce system and partnerships, which include the Local Workforce Investment Boards (LWIBs), Long Island Works, and the Long Island Forum for Technology (LIFT). In 2007, the LWIBs and LIFT launched Connect Long Island, a partnership that has since grown to include Long Island leaders in government, education, and industry.

Weaknesses

Despite these strengths, not enough of Long Island's workers are capable of taking positions in the growing STEM sectors. Although they are highly educated, young adults tend not to major in these areas. Nor are education and training curricula meeting the demands of evolving career pathways: STEM skill sets are not fully integrated into K-12 education, particularly in communities of color, and a LIFT analysis showed that only 3% of education students were focusing on STEM (though these specializations accounted for 10% of demand). Less than 5% of bachelors and masters degrees granted by Long Island colleges and universities are in the engineering and other technical fields. A similarly small percent of associate degrees are granted in these fields. The five-year need for engineers was projected, in the 2009 skills gap report by LIFT and the WIBs, to be more than 7000, far below the demand by existing industry in the region. As universities attempt to expand their programs in these fields, they are hampered by the state's slow curriculum approval process, and by a general lack of coordination among institutions of higher education. Finally, the absence of incumbent worker training – de-prioritized in an era of shrinking resources – has limited opportunities for the advancement of mid-level workers into higher-level positions.

Opportunities

This is the moment for the region to think more creatively about new collaborations between established research centers; colleges and universities; K-12; and emerging industries. New collaborations would provide a variety of workforce and education opportunities, including retraining, apprenticeship, and internship opportunities. In the field of high-tech manufacturing (composites) and wireless technologies, the region can capitalize on the Center for Excellence in Wireless and Information Technology. In the biotechnology field, there is potential for new synergies between Cold Spring Harbor, Brookhaven National Laboratory, North Shore/LIJ, Broad Hollow Bioscience Park, Stony Brook University, Feinstein Institute, Hofstra Medical School, and private research companies throughout the region.

There is an imminent opportunity to become a center of green and energy efficiency technology development, building upon the foundation of the Advanced Energy Research and Technology Center. Energy research is currently conducted at local Universities such as Stony Brook, NYIT, Hofstra, NY Polytechnic University and Farmingdale State College. Farmingdale State College is in the final stages of submitting a Bachelors Degree in Renewable Energy, and has partnered with Suffolk County Community College in a 2/2 agreement.

New green industries on Long Island would satisfy a local demand for the energy-efficiency retrofitting of residences, businesses, and institutions, a demand that will be further amplified by recent government and public utility incentives. Smart electrical grid technology, underway through a federally funded demonstration project with LIPA as the lead agency, promises to make the region a pioneer in this area. Apart from job creation, new investments in green technology sectors will support New York's renewable energy goals, such as those promoted by the Property Assessed Clean Energy (PACE) initiative. The Long Island Green Homes Consortium has made great strides in creating demand for a newly emerging industry focused on energy retrofits for housing and commercial buildings. Many of the critical challenges and opportunities for saving energy and creating green jobs are articulated in the Suffolk County Energy Efficiency Task Force report [add link].

Threats and Consequences of Inaction

Our exceptional education system will struggle to maintain its leadership position and meet the demands of business and industry on Long Island during the fiscal austerity exacerbated by the recent economic downturn. It will be challenging to build these collaborations in the present economic environment, and it may become more so during the coming year.

On the other hand, Long Island's economic future is at stake. Its workforce continues to age and many companies do not have the workers and skills that they need to thrive in the 21st century. Retaining workers is difficult due to our high cost-of-living, scarce affordable housing, and the absence of an integrated public transportation structure. Recruiting workers from outside the region, on the other hand, raises costs. These factors may stymie business attraction, retention, and

creation. Without planning and action, our talent pipeline will not prepare enough students and job-seekers for in-demand careers.

Critical Issue: Ensuring Prosperity for All

Growth only produces true economic development when all share in increased job access, educational opportunity, and community benefits. Long Island's communities include residents and workers from diverse racial and ethnic backgrounds, with varied skill sets and qualifications, in communities that have a wide range of affluence. These differences often follow local jurisdictional boundaries that have historically concentrated economic resources in certain communities. During the public participation process and work group meetings, several participants urged the council to invest in disadvantaged communities and their inhabitants.

We must therefore think carefully about how all of our communities will benefit from economic growth. Equity begins with education: every school must have the resources to prepare their students – including students from low-income, African American, Latino, and immigrant households – for the next step on educational pathways that leads toward high-quality, living-wage jobs. Yet, our concern for equity does not end at graduation. While our high-tech industries and highly-educated workforce may drive growth in important traded industries, we must also develop a broad range of opportunities for workers at various points in their career and educational trajectories. These opportunities should include supporting opportunities to start new businesses in communities of color. In so doing, we will enable Long Island's workers to contribute to their fullest potential, while sharing the rewards of growth.

Strengths

Long Island's diversity is itself a strength, deepening our knowledge pool and often linking us to international networks that we have only begun to tap; by reducing educational disparities and segregation, the region can create new synergies across social boundaries. Efforts to guarantee a broad prosperity will

draw upon its workforce system and on a range of education and advocacy initiatives.

The region's workforce investment boards perform a critical strategic function in identifying and meeting workforce needs. The five Long Island One-Stop Career Centers serve approximately 90,000 jobseekers and 1,200 businesses annually, and cooperate with the New York State Department of Labor (NYSDOL) to provide Rapid Response Services for those displaced by plant closings and massive layoffs. The local Workforce Investment Boards (LWIBs) are a focal point where partnerships are convened to prepare grant applications for the benefit of the region.

Several local civic and social justice organizations have turned their attention to improving the resources and quality of education provided in traditionally under-resourced school districts. The BOCES supply educational services across the region, and along with organizations like the Long Island Index, play an important role in analyzing trends and opportunities for policy reform. Within some districts, parents, teachers, and superintendents have used limited resources creatively, and have become forceful advocates for their schools in the process. Brookhaven National Laboratory has provided opportunities for students and teachers in underserved school districts through its innovative K-12 programming, serving approximately 35,000 students annually.

Weaknesses

Government fragmentation has posed an enduring challenge to Long Island's educational system, as it has severely limited the budgets of poorer districts. Since many of the most challenged districts are not commonly recognized as "at risk", the size of the problem is often underestimated. At the same time, many successful initiatives go unrecognized, when they could be used as models for success in other districts. Local tax politics and fears surrounding school integration impede movement towards even modest forms of cooperation or redistribution, let alone consolidation.

Students from poor districts may join the ranks of un- and underemployed workers, a group that also includes a significant number of adults who need basic literacy training. Unemployment is particularly high among African American workers on Long Island.[2] In an era of stagnation and continued layoffs in sectors such as manufacturing, job-seekers with less formal education struggle to secure employment. New high-quality jobs often require qualifications that are beyond their reach, at least in the short term. Often, these jobs are physically distant from communities of color and inaccessible by public transportation, and workers may encounter barriers such as racial discrimination in the hiring process. Entry-level non-union service jobs, on the other hand, seldom provide security, opportunities for advancement, health insurance, or self-sufficiency wages.

Opportunities

The development of green and other new technologies, along with the retention and attraction of new manufacturing enterprises, offers an opportunity for area educational institutions and workforce systems to provide equitable access for historically underserved students and workers. Further, the continuing expansion of the region's health care sector opens new jobs for graduates at every level with the required skills and capabilities. This process has already begun in earnest within institutions of higher education, as evidenced by this spring's well-attended STEM Diversity at Farmingdale State College.

The fiscal crisis facing many local school districts may present opportunities to examine rationalization of services and coordination across jurisdictions.

Our proximity to a global city and our growing proportions of immigrant students will provide opportunities for education through cultural exchange. We have the cultural competence to forge broad-based networks, in the NYC metro area and globally, that could produce tremendous opportunities. But we must be open and attentive to these opportunities as they arise.

[2] American Community Survey, 2010 SF1 file.

Threats and Consequences of Inaction

Just as funding cuts will make it difficult to bridge skills gaps, so may they exacerbate the disparities between districts in the absence of coordination or consolidation. The regional workforce system is also showing signs of strain. Even as an unprecedented number of workers draw upon job-search and retraining assistance, WIBs have seen their funding fall by 12% (WIB memo).

If these cuts weaken Long Island's educational and workforce systems, already disadvantaged students and workers could be left further behind. The worsening of existing disparities would feed occupational and residential segregation by race and class, deepening the divisions between communities. New job creation and new wealth must therefore not be limited to the affluent and advantaged areas of the island. Any economic development that exacerbates rather than reduces inequality will represent a regional failure to meet a pressing challenge.

Strategies

To achieve a sustainable economy that fosters community revitalization, we must re-invest in education and workforce development. All economic drivers and industry clusters rely upon the collaborative efforts of the workforce system, Pre-K-16 education, specialized training (including internships and apprenticeships), and advanced education to provide a continuum of educational opportunities that support career pathways. Youth, emerging workers, employed professionals, underemployed and transitional workers need resources to maintain their knowledge and adapt their skills in a changing job market. At the same time, we must ensure job quality even for workers without extensive formal education or training, while supplying opportunities for continuing education at multiple skill levels.

This will require strategies tailored to growth sectors, general strategies for education and workforce development, and specific projects capable of implementing these strategies to achieve concrete education and workforce outcomes.

Strategies for Growth Sectors

The first set of strategies will ensure that Long Island's workforce meets the needs of growth in key (and overlapping) industry clusters:

- **Science, Technology, Engineering, and Mathematics (STEM):**
  - Build and sustain interest in STEM disciplines among Pre-K-12 students
  - Increase college degree production in STEM disciplines (facilitated by streamlining curriculum approval – see implementation
  - Forge partnerships between industry, research institutes, business, government, schools and universities, non-profits, and labor to provide job pathways in STEM
- **Advanced manufacturing / information technology:**
  - Strategize job creation by recognizing that advanced manufacturing and IT cross-cut other industry sectors, and that local production/IT enterprises reduce input costs and multiply growth
  - Achieve IT "literacy for all" that supports the workforce at various skill tiers
  - Identify and pursue incipient opportunities to 're-shore' manufacturing jobs
- **Healthcare/Life Sciences:**
  - Improve the skill sets of the advanced workforce across the health care professions, including, registered nurses, medical techs, and physician's assistants
  - Provide training and credentialing for home health and nurses aides to meet the needs of the region's rapidly aging population
- **Green technologies:**
  - Educate and re-train workers to integrate green technologies into new construction and to support the development of green retrofitting enterprises
  - Support the shift to local renewable energy sources, including smart grid for the region, and develop education and training programs to meet new workforce needs

General Strategies

We must ensure that growth benefits all Long Islanders. This second set of strategies will be integrated into both the specific strategies above, while also guiding economic development outside of these key sectors as well:

- Produce jobs that hire workers in disadvantaged communities and supply living-wage jobs to workers at all skills levels
- Provide support services, incubators, and skills development for new businesses in disadvantaged communities, building networks that link them with large and fast-growing businesses
- Create partnerships between sectors to improve educational outcomes, mitigate funding disparities, and foster cooperation between school districts (laying the groundwork for broader structural reforms in the future)
- Encourage collaborative relationships among property owners, businesses, school district and not-for-profits to develop resources to provide quality childhood education, particularly on-site daycare for those who can't afford it.
- Continue to engage a range of K-12 stakeholders – businesses, college, teachers, parents, and principals – in discussions about skill creation, educational/career pathways, and emergent growth sectors
- Develop a mix of paid internships and registered apprenticeships that offer opportunities for skill development at various points in the educational trajectory (before and after career choice)
- Target training resources to address skill gaps
- Expand workforce system resources to provide multiple tiers of training, and coordinate labor exchange and rapid response activities
- Reduce silos of organizational isolation and increase awareness of resources that are already available in the region

What follows reflects the research and recommendations of the Natural Assets Working Group.

2. Natural Assets

"There is tremendous opportunity to expand agriculture, fisheries, and tourism via strategic investment…"

Natural assets are a key component of the economic character and development of Long Island. While most of the island is in some way developed, it must be noted that the success of the region depends on sound management of the its natural resources, particularly ground water, near-shore environments, and natural habitat. Indeed, the outcome of any economic plan relies on maintaining and improving the region's rich natural assets -- the waterways, waterfront, beaches, and agricultural landscapes that make Long Island truly unique. Of particular significance is the natural capital of the East End of the island. On Long Island, there are approximately 2500 people employed in agriculture and fishing related industries with cash receipts totally more than $240 million. There is tremendous opportunity to expand agriculture, fisheries, and tourism via strategic investment within the economic development plan.

There are three economic opportunities associated with natural assets on Long Island that are appropriate for investment: Sustainable Agriculture, Fisheries and Aquaculture, and Ecotourism and Tourism Infrastructure.

Critical Issue: Sustainable Agriculture

While sustainable agriculture is present and strong on the island, it needs greater support in order to transition conventional agriculture into more sustainable

practices and in order to transport produce to communities in need of fresh produce.

Strengths

Long Island has a long tradition of agricultural activity that is currently undergoing somewhat of a transformation. Most of the agricultural activity is in Suffolk County. In 2007, Nassau County had 59 farms with 1288 acres under production. The average farm size was 22 acres, although most of the farms were less than 10 acres in size. In contrast, Suffolk County had 585 farms with an average size of 59 acres. While most of the farms are quite small (less than 10 acres), several are rather large with two farms over 1000 acres in size. Regardless, agricultural activity on the island, characterized by farms with greater specialization and direct market appeal, is different from that in most other areas of the state. For example Suffolk County ranks 15th of all counties in the U.S. by sod production. It also leads the state in producing ducks and aquaculture products, BS ranks second in chicken production. However, Suffolk County ranks 1st in the state in the value of crops sold. Clearly agriculture has a big economic impact on the region.

The agricultural character of the region is unique. Due to the nature of local tourism, weekend travel, and the strong locavore movement on the island, Suffolk County is perceived as a leader in wine production and market and truck farming. (Market farming is the growing of vegetables for local markets and truck farming is growing of vegetables for non-local markets.) This perception is largely ture, as Suffolk ranks third in the state in grape production and seventh in harvested vegetables for sale. When combined with local seafood and poultry, it is evident that we have a unique locavore region of particular interest to agro-tourism. Vineyards attract 1.2 million annual visitors, spending $90 million during their visits and $33.3 million directly at wineries.

According to the USDA, organic farming has been one of the fastest growing segments of U.S. agriculture for over a decade. According to the Organic Trade Association's 2011 Organic Industry Survey, U.S. sales of organic food and

beverages have grown from $1 billion in 1990 to $26.7 billion in 2010. Sales in 2010 represented 7.7% growth over 2009 sales.

While there have not been any formal studies of the rapid growth of organic farming and local food communities on Long Island, there are numerous indicators of rapid growth. In the past 5 years, Long Islanders have established a number of family-owned and non-profit organic farms, many farmers markets, several wineries that implemented sustainable practices, numerous small-scale food processing businesses, and community gardens. In addition, there is a strong desire to promote a community supported fishery model.

Equine activities have a strong impact due to the historic significance of horse racing, polo, and other equestrian activities and competitions. Likewise, Long Island's dozens of high-quality golf courses and golf championships are important for local and international tourism.

Weaknesses

For agriculture to remain and expand as a principal regional economic driver, several needs have to be addressed: infrastructure for commercial production, a central meat processing facility, environmental stewardship, farmland preservation, increased accessibility to fresh, locally grown produce, development and training of new farmers, public education, financial risk indemnity, marketing and serious reconsideration of critical policies and regulations.

Opportunities

Long Island is uniquely poised to take advantage of a growing interest in local and sustainable food sources and agricultural activities. This opportunity is due to its long history in niche agricultural markets such as ducks, wine, sod, market and

truck farming, and horses. Indeed, agricultural activities are increasing on the island as is the value of crops raised. While the success of agricultural activities re are currently limited, the investment in agriculture can help transform the region.

Threats and Consequences of Inaction

Failure to invest in this economic activity will affect the long-term success of agriculture on Long Island. There is great threat to farmers from suburban encroachment and NIMBY attitudes. Sometimes this conflict leads to zoning and permitting issues for farmers, vintners, and those involved with agro-tourism. In addition, there are conflicts between larger farm operations and smaller farmers that could be mitigated through a holistic approach to sustainable agricultural development. The development of projects to address these and other issues will greatly enhance the likelihood of success of agriculture into the future.

Critical Issue: Fisheries and Aquaculture

Long Island is home to commercial and sport fishing industries and many world-class events associated with its marine setting. It is especially known for its sailing, surfing, and fishing competitions and expositions. Fisheries, both commercial and recreational, and aquaculture are important economic activities on Long Island, but there are regulatory limitations to its overall success. There needs to be greater infrastructure development for fisheries, better marketing of Long Island seafood, and expansion of bay scallop fisheries.

Strengths

In 2009, New York State Fisheries landed over 34 million pounds of finfish, shellfish and crustaceans with a landed value of $49.3 million, 99% of which occurs in Nassau and Suffolk counties. With a standard economic multiplier of 4.5, this translates into a regional economic value of close to $220 million annually. NYS fisheries support thousands of jobs, and hundreds of Long Island businesses. Fishing related industries are a hybrid of local serving, resource dependent and traded industries. They act as an economic driver through marketing of fishery products to New York City and the world. With targeted economic development support, this impact will grow and be sustainable. One particular fishery, bay scallops, has tremendous opportunities for enhancement via aquaculture. Bay scallops grow rapidly allowing for marketing of a live product within 12 months.

Weaknesses

The commercial fishing industry is challenged by being somewhat fragmented and threatened by water pollution, competition, and a lack of infrastructure that supports getting products to multiple markets locally and regionally. Bay scallops in particular have declined since 1980, leaving a void in the Northeast seafood markets with very favorable name recognition.

Opportunities

Key marine research organizations on Long Island can assist with rebuilding damaged ecosystems and conduct research on aquaculture. In addition, Long Island's transportation and marine infrastructure is large and can assist in enhancing the marine infrastructure to accommodate growth in this area. Finally, there are opportunities to market Long Island seafood in order to brand its identity more effectively. Opportunities also exist to develop aquaculture to support bay scallop production in the region as there is a growing demand. With over 5000

restaurants in the northeast serving bivalves, Long Island has tremendous potential to sell its seafood.

Threats and Consequence of Inaction

Failure to invest in marine fisheries can result in declining or stagnant marine production. It will be difficult to grow the fisheries without investment in infrastructure to get seafood to market. In addition, failure to invest in the development of aquaculture and habitat protection and restoration will limit the ability of Long Island's fisheries to compete.

One regulatory threat to the scallop industry relates to the production of 1-2 inch diameter shell scallops used in appetizers. Currently, surrounding states provide a regulatory exemption to market this size scallop during any season of the year. Indeed, these states ship these scallops to New York restaurants in what is believed to be a $3 million industry. Presently New York has a minimum legal size of 2.25 inches, which is too big for the in-shell market. NYSDEC has been hesitant to allow this exemption because the agency wants to prevent poaching of wild scallops that are below minimum legal size, an activity that in surrounding states is effectively prevented through conservation law enforcement. New York harvesters need a level market -- to have the same regulations as their competitors from surrounding states -- by allowing culturists to market a smaller scallop during any season. Since this product is in-shell and intended as an appetizer it will not compete with wild harvest product.??????

Critical Issue: Ecotourism and Tourism Infrastructure.

There is a need for better infrastructure and marketing associated with ecotourism and tourism in general on Long Island. With its abundant natural beauty, Long Island is well situated to take advantage of the public's desire for eco-tourism.

However, there is a lack of infrastructure, information, marketing and coordination that limits the potential for overall tourism development.

Strengths

Long Island has an abundance of natural beauty. Its shorelines have long been destinations for tourists and the interior natural landscapes are home to significant natural habitat. In 2010, the Trust for Public Land (TPL) issued a report, commissioned by the Long Island Community Foundation and the Rauch Foundation, entitled ***The Economic Benefits and Fiscal Impact of Parks and Open Space in Nassau and Suffolk Counties, New York***. The report was groundbreaking in that it established the principle that Long Island's parklands and open spaces serve as a "significant driver" to Long Island's economy, and not as a drain on fiscal resources as some might maintain. The study noted:

> *"Long Island's parks and open space are a regional treasure. Its 1,180 miles of shoreline and 60,000 acres of trails, gardens, farmlands, woodlands, waterways, day camps, ball fields, and playgrounds provide us with recreation, relaxation, beauty, peace, and wonder. "*
>
> *Long Islanders have always valued these resources but usually as intangible assets. Their material, economic benefits have gone unexamined and largely overlooked. We typically—but uncritically— think of open space as a sort of luxury, for which we have agreed to pay a rather handsome price….*
>
> *The study… quantifies for the first time the fiscal impacts of parks and open space over a wide range of activity. It identifies* ***direct economic benefits to the region amounting to $2.74 billion per year****, in areas ranging from boosting tourism and reducing government costs to improving air quality and public health."*

Open space also captures precipitation or slows its runoff, thereby reducing storm water management costs by $23.9 million annually. Trees and shrubs remove air pollution control costs by $18.9 million annually. Over 600,000 people engage in physical activities in parks, generating health benefits of $164 million annually.

The TPL study made it very clear that Long Island's "natural capital," which includes both its living and non-living elements, makes a positive and substantial contribution, on an annual basis, to our regional economy and quality of life. In addition, partnering with agro-tourism concerns will enhance eco-tourism opportunities. Also, dozens of diverse museums, sports facilities, conference centers, lodging establishments and performing arts venues round out the Island's ability to provide tourism opportunities. Its rich heritage as an early site of American colonization and its role in key phases of American history also lends itself to heritage tourism.

Most importantly, Long Island is the second most popular tourist destination in New York State after New York City with travelers spending over $4.6 billion in our region in 2010. This spending was distributed as 41% in Food, Beverage & Lodging, 26% in Transportation and the remainder amongst Retail, Service Stations, Recreation and Second homes. Traveler spending is relatively evenly divided between Nassau and Suffolk. Overall, tourism supports more than 70,000 jobs or 5.9% of all jobs on Long Island and is responsible for generating nearly $600 million in state and local tax dollars. Based on a 4.3 economic multiplier, 2010's Tourism spending had a phenomenal $19.7 billion dollar economic impact on Long Island.

Weaknesses

Currently, there are limited, localized and discrete opportunities to access and observe some of Long Island's more ecologically significant areas or prominent wildlife and plant resources. Unfortunately, these receive limited advance publicity that tends to emphasize enhancement of public awareness and appreciation for these resources more than targeting and marketing to non-residential participants. Long Island has a wealth of unique and noteworthy natural assets. If properly highlighted and if access opportunities to them were improved, non-Long Islanders would appreciate and visit them more often – and bring more revenues into the region. Overall there is a lack of public transportation, access, funding to maintain

infrastructure, comfort stations, and overall awareness and marketing of general tourism and ecotourism opportunities.

Opportunities

Public awareness of sustainability has increased, as has the desire to participate in healthy outdoor activities. In addition, in the current economic downturn, low cost activities – such as hiking, biking, and kayaking – are in greater demand. These activities also are softer on the environment. Long Island is uniquely poised to carry the banner as the leader in ecotourism in the New York metropolitan region, a reputation that would bring us tourists from throughout the metropolitan region and beyond. But investments need to be made in order to be a credible player in this economic enterprise.

Threats and Consequences of Inaction

Long Island is not the only location in the northeast with abundant natural beauty. While few regions are capitalizing on ecotourism opportunities, it is only a matter of time before one region takes leadership on the issue. Long Island should be the first and best in this economic activity given its combination of natural amenities and cultural attractions. Currently Long Island is the home to some of the best beaches in the country. Serious consideration must be given to a sustained program of protection and replenishment of these priceless natural attractions. If our beaches continue to fall victim to storm damage and erosion , the tourism industry on Long Island along with its jobs, revenues and tax contributions will surely suffer. Many environmental threats to the maintenance of Long Island's natural beauty, especially water quality, also should be noted. Runoff and groundwater pollution quality must be maintained and improved in order to ensure that we have healthy environments for people to enjoy and appreciate. We must preserve and protect our harbors, bays, and beaches.

From a policy perspective, it is important to restore and enhance the Environmental Protection fund. [which fund is this????] In addition, there should be a New York State Uniform Enabling Authority for local governments to create community investment funding that would allow votes for investments in land conservation, parks, and community purposes without seeking Albany's approval every time. In

addition, a program to map and collect data regarding Long Island's natural resource base will help manage and guide decision making.

Protecting natural assets suggests that the region should promote investments in clean energy, incentivize consistency among jurisdictions for zoning and land use regulations, and promote sustainable growth including in-fill and mixed-use development, multi-modal transportation access, reduced energy use, investment in existing infrastructure, increased housing opportunities, and protection of natural resources.

Strategies

We have identified three main strategies and components around our natural assets: Sustainable Agriculture, and Sustainable Marine Fisheries Economic Development, and Ecotourism and Tourism.

- **Sustainable Agriculture –** One key area of potential economic development in Long Island is the improvement of sustainable agriculture enterprises. In recent years, there has been a growing interest world-wide on sustainable agriculture and the concomitant locavore movement. Long Island is uniquely poised to become an international leader in this area through the development of key projects. There is tremendous expertise in the East End of the island with many consumers interested in sustainable and local food in the New York Metro region and beyond. There are a number of strategies that can improve the situation for those interested or engaged in agricultural development:
    - Enhance environmental stewardship on the island in order to reduce the impacts of agricultural pesticide and fertilizer application on ground and surface waters. The adoption of best management practices by farmers will help this effort.
    - Market Long Island's agriculture as high-quality in order to enhance retail traffic and visits to local farms and wineries.

- Build a strong agricultural processing center, or enterprise park, that would: 1) allow new farmers to lease small parcels of land for production; 2) provide distribution, cooling, and storage of produce; 3) allow meat processing; 4) provide educational and outreach programs on best management strategies; and 5) provide a mobile farmers market to ship "grown on Long Island" food to local farmers markets.
- Develop tools and programs that keep farmland affordable due to intense development pressure, escalating real estate values, a decline in food production farming, and a scarcity of new and startup farmers. Farmers, now and in the future, face complicated issues of farmland accessibility, affordability, and sustainability. These issues threaten the viability of the agricultural industry in general and the security of our food supply systems on Long Island. Economic trends over the past 20 years have had a negative impact on the availability of agricultural land and the business of farming on Long Island, making it increasingly more difficult for new and established farmers. We must reverse this trend if we hope to maintain vitality within the sector.

- **Fisheries and Aquaculture –** Long Island is known for its many fisheries and sport fishing opportunities. There are several strategies that can be considered that will improve the economic potential and employment opportunities of this sector of the economy. While fisheries in New York support thousands of jobs, there are strategies that can improve fishery production.
  - Continue to improve water quality on the island. In recent years, there have been tremendous strides in water quality improvement and these must continue.
  - Expand some sectors of the fisheries industry, particularly in the development of bay scallop fisheries by producing greater number of production of greater numbers of scallops to be used for planting via private/public partnerships with local shellfisheries, collection of scallop larvae from natural populations via spat collectors, concentrated large scale plantings of scallops in Flanders Bay, which is currently under producing, and the creation of a private culture industry for bay scallops that would produce scallops on the half-shell for use in NYC restaurants.

- Develop and improve fisheries infrastructure on Long Island. Unfortunately, deteriorating conditions caused the relocation of some operations to move to other states. Thus, there is a need for a challenge grant initiative to provide funding support on a leverage basis, for land based industry projects through a competitive process that would address local infrastructure needs such as dock improvement, dredging, and improved facilities.
- Similar to, and perhaps in partnership with the proposed agricultural marketing initiative above, market Long Island seafood as a quality products produced by local fishermen and women. In fact, Long Island should be the marketed as the gold standard in conservation: good for the fish, the fishermen, and their communities.

- **Ecotourism –** Ecotourism in Long Island is also a strong economic activity worthy of investment, and could focus upon the region's many parks, trails, and preserves. Particular opportunities are in ecotourism and agritourism:
  - Improve and repair tourism infrastructure, particularly comfort stations, trails, trail maps/descriptions, and online information (which should be coordinated and easily available).
  - Preserve and protect of natural landscapes is crucial to sustain the long-term success of ecotourism enterprises.
  - Protect and replenish beaches must in order to be a draw for tours.
  - Market Long Island as an agri- and ecotourism destination. Given our miles of beaches and accessible shorelines and parks, the tourism sector can be improved through marketing and outreach.

As noted above, protecting natural assets suggests that the region should promote investments in clean energy, incentivize consistency among jurisdictions for zoning and land use regulations, and promote sustainable growth including in-fill and mixed-use development, multi-modal transportation access, reduced energy use, investment in existing infrastructure, increased housing opportunities, and protection of natural resources.

What follows reflects the research and recommendations of the Infrastructure Working Group.

3. Infrastructure

The development of infrastructure was essential to Long Island's robust growth, and will be indispensible to its revitalization. Our region is grappling with the challenges of an aging and outdated transportation system; failing or absent sewers; homogenous and unaffordable housing stock; deteriorating downtowns and commercial areas; and outdated land use policies that often seem to obstruct promising projects more than protect the environment and community character. Without urgently-needed improvements to infrastructure, Long Island will face continued stagnation and forfeit future economic development and prosperity. This analysis of regional infrastructure will highlight opportunities and recommend strategies to change the course of Long Island's future.

Critical Issue: Revitalizing Downtowns and Commercial Centers

Long Island is virtually built out. Currently, less than 9% of Long Island's total land is both undeveloped and available for the development of new residential, commercial or industrial activity.[3] Many existing commercial and industrial spaces, on the other hand, require creative solutions for reuse and redevelopment. With the onset of the economic recession, many of the strip malls and big-box stores that were built as a result of local zoning policies are now vacant, graffiti-ridden eyesores.

Giving Long Island's existing downtowns a much-needed facelift would stimulate economic growth. Shifting from a sprawling development pattern to one that focuses on downtown revitalization better positions the region for sustainable development. Downtowns can accommodate new, diverse housing opportunities, entertainment venues, restaurants, and shopping. They attract high-tech companies and young, skilled workers. According to the Long Island Index, "Long Island's downtowns, linked by one of the nation's most extensive suburban transit

[3] http://www.rpa.org/pdf/LI2035_Visioning_Initiative_Report.pdf

networks, can provide most of the housing and jobs that Long Island needs, helping to hold down property taxes with minimal changes to the Island's existing single-family neighborhoods and open spaces.[4]" Redevelopment of downtowns also ameliorates another major problem on Long Island – high property taxes. New housing and shopping can expand the local tax base.

Strengths

Long Island has existing downtowns that can serve as models for redevelopment – such as the Village of Patchogue, where government officials have driven the redevelopment process and worked with the community to revitalize the downtown. There has been limited opposition to the redevelopment of blight.

The effort to revitalize downtowns could present an opportunity to site new, affordable, and rental housing for our young people, empty nesters, and low-income families.

Weaknesses

Local governments often struggle to facilitate the revitalization of existing commercial centers and downtowns. Impediments related to land assembly and environmental remediation can make redevelopment appear more challenging than greenfield construction. When downtown revitalization includes plans for multi-family housing proposals, developers may encounter community opposition. At the same time, developers and local elected officials often fail to engage community groups and a diverse set of stakeholders in the redevelopment process. Successful redevelopment requires commitment to community participation and an explicit consideration of likely community benefits, community costs, and equity outcomes.

Opportunities

[4]http://www.longislandindex.org/fileadmin/Reports_and_Maps/2011_Index/Getting_it_Done_2011_LI_Index_Special_Analysis.pdfv

Long Island downtowns have the potential to become centers of economic activity. A 2010 study found that there is 8,300 acres of undeveloped land and surface parking lots within a half mile of downtown centers and Long Island Rail Road (LIRR) stations, enough to provide 90,000 new housing units with a range of town houses, garden apartments and mid-size apartment buildings[5].

The region could capitalize on its extensive commuter railroad system to revitalize downtowns and encourage intra-island travel through mass transit connections. Mixed-use, transit-oriented developments (TOD) would maximize access to transit and generate short-term and mid-term construction jobs. In the long term, TOD would generate employment opportunities as employers seek to capitalize on the increased accessibility and attractiveness of Long Island locations. A TOD neighborhood typically has a center with a transit station surrounded by relatively high-density development with progressively lower-density development spreading outward from the center. By centering TODs around LIRR stations, it would be possible to link these developments to employment opportunities on Long Island and into New York City. Long Island has existing and proposed TODs in Ronkonkoma, Farmingdale, East Farmingdale, Wyandanch, Brentwood, Copiague, Bay Shore, Patchogue, Hicksville, Bellport, Mineola, and Hempstead. Other downtowns that have plans for revitalization include Glen Cove, Freeport, and Riverhead. These efforts are important to our region because they help address regional challenges by creating new job opportunities, strengthening small businesses, creating vibrant places attractive to young people, and diversifying our housing stock.

The development of Nassau County's Hub area is a unique opportunity to create a vibrant mixed-use downtown. Surrounded by regional assets such as Hofstra University, Nassau Community College, Museum Row, Roosevelt Field, Eisenhower Park, the Mitchell Field Athletic Complex, class A office space, and the community of Uniondale, the Hub's location will enable it to become a major economic engine that creates quality jobs. Office space will enable nearby academic and research institutions to spur new business creation, particularly in biotech. It will also provide opportunities to link Hub enterprises with small businesses and incubators in Uniondale and Hempstead, creating new industrial

[5] http://www.longislandindex.org/fileadmin/Reports_and_Maps/2010_Index/2010_Index.pdf

cluster. The Hub will also include mixed-income rental housing to attract generations X, Y, and baby boomers, as well as entertainment venues. In short, the Hub will integrate a mix of daytime and nighttime uses – housing, offices, restaurants, and retail – into a walkable/bikable destination that provides a range of living-wage workforce opportunities.

Threats and Consequences of Inaction

Fiscal austerity at every level of government limits the resources available to stimulate downtown reinvestment. Without government support, many developers are hesitant to take risks where they perceive that redevelopment will be more difficult and reap smaller returns. There is also a danger, however, that downtowns will be rebuilt, but in ways that disregard local housing, transportation, and employment needs.

If the region does not support planned and equitable redevelopment, it may become harder to retain the young workers who seek out denser, less car-dependent places to live and work. Continued disinvestment in downtown areas may also perpetuate patterns of racial and economic segregation that shut out certain communities from the benefits of growth.

Critical Issue: Expanding and Maintaining Long Island's Sewer Infrastructure

The regional sewer infrastructure – which is either failing or absent across much of the island – is a key roadblock to successful economic growth. A US Conference of Mayors Report called sewer infrastructure "the foundation of economic development," and a 2008 U.S. Bureau of Economic Analysis found that for every dollar spent on sewer infrastructure in New York State, 2.34 jobs are created.[6]

Not only does sewer infrastructure stimulate economic development, but it also protects Long Island's waterways and limits the pollution of our groundwater – a link between the infrastructure and natural assets sections of the plan. Wastewater

[6] http://www.usmayors.org/urbanwater/documents/LocalGovt%20InvtInMunicipalWaterandSewerInfrastructure.pdf

treatment facilities are especially critical on Long Island, which relies on its sole source aquifer for drinking water. Waste that seeps into groundwater through septic systems threatens the long-term quality of our drinking water and the bays that are central to the tourism and fishing industries.

Strengths

The majority of Nassau County is served by wastewater treatment facilities, including three County-run facilities. The County-run facilities process 85% of the sewage collected within the County and ten other independent treatment facilities process the remaining 15%. In addition, six municipal sewer districts collect sewage and pump it to County facilities to be treated.

Weaknesses

Though Nassau and Suffolk Counties have acutely different needs, both systems have long suffered from a lack of strategic planning and investment. Evidence of episodic area well water contaminations and beach closures indicate that Long Island must coordinate its water use and sewer management planning and make critical investments to protect valuable and vulnerable natural resources. Sewer upgrades and water supply protection will improve Long Island's capacity to change its development patterns to better meet emerging housing and transportation needs.

Nassau's sewers urgently need to be upgraded to reduce the level of nitrates released into its bays and enable its downtowns to expand. (The county is contemplating privatizing its sewage treatment plants, and it is unclear how this plan would affect the prospects for repair.) [More info coming]

Suffolk's sewer construction has not expanded to meet the demands of past growth. Less than 30 percent of Suffolk County's 900 square miles have operating wastewater treatment facilities.[7] Suffolk County operates one regional sewage treatment plant, the Southwest Sewer District, and there are many small, private sewage treatment plants serving local communities and isolated developments. The Bergen Point Sewage Treatment Plant is the headquarters of Suffolk's

[7] http://www.newsday.com/opinion/oped/opinion-suffolk-can-protect-water-grow-1.3114117

Southwest Sewer District, and its ocean outfall pipe needs to be repaired so effluent is not discharged into the Great South Bay.

Opportunities

Downtowns revitalization and large-scale new construction both amplifies the needs for sewer construction while also providing the opportunity to plan for adequate sewer service.

The last decade has seen a change in attitude regarding the need for sewage treatment facilities. Today, there is an unprecedented consensus that Long Island must build new sewage treatment plants and upgrade existing ones. Nassau County is prepared to rehabilitate and/or expand waste water systems in the amount of $807 million, which includes $376 million for a Bay Park ocean outfall pipe. Suffolk County, which went through a major scandal over sewer construction 30 years ago, has created an annual fund that will dedicate as much as $200 million for the construction of wastewater treatment facilities over the next ten years. Multiple studies are underway to plan for sewers in a number of communities around the County. But a critical funding gap remains: it will cost almost $800 million in design and construction to meet Suffolk's sewer needs.

Threats and Consequences of Inaction

Lack of sewers is a problem for developers, because construction of sewage treatment plants is costly and makes revitalization cost-prohibitive. It also places a considerable burden on municipalities that attempt to supply sewer services for new developments without county support. The Village of Patchogue's economic rebirth, for example, would not have been possible without the expansion of its sewage treatment plant

More generally, it is essential to modernize sewer infrastructures with filtering and treatment capacity to support the introduction of innovative technologies such as biomedical research, while preserving public health. Failure to do so will reactivate regional fears (of adverse health effects such as cancer clusters) that present barriers to community support for economic growth.

Critical Issue: Creating an Adequate Transportation System

Historically, Long Island's infrastructure reflected and reinforced a particular development pattern: its East-West orientation and automobile-centered transportation system provided easy access to New York for commuters in sprawling bedroom communities. Yet, this system has kept us from meeting critical regional needs. Communities and businesses across Long Island are demanding reduced congestion, faster transport, and improved North-South connectivity to Long Island assets. Many communities need better transit connections to living wage employment centers so that they can benefit from new job growth, and remediate economic inequalities exacerbated by poor transportation access. Businesses lack rail freight options, forcing trucks onto already-congested roadways. In the long term, this congestion may cost the region dearly: Long Island's disproportionately high greenhouse gas emissions (GHG) may contribute to the vulnerability of its coastal assets; federal and state policies that incentivize energy conservation will reward our region if we invest in energy-efficient transportation solutions while penalizing us if we do not.

Strengths

Long Island's infrastructure improvements build upon an existing roadway network, an extensive transit system, and several regional airports.

Long Island benefits from being home to the largest commuter railroad in the United States, the Long Island Rail Road (LIRR), which is operated by the Metropolitan Transit Authority (MTA). Predominantly focused on providing access to New York City, the LIRR carries 282,358 customers each weekday on 713 daily trains. The system is comprised of over 700 miles of track on 11 different branches, stretching 120 miles from Montauk - on the eastern tip of Long Island - to Penn Station in the heart of Manhattan, and Atlantic Terminal in Brooklyn.

MTA Long Island Bus provides service in Nassau and western Suffolk Counties, and is the nation's largest suburban bus provider, serving 100,000 daily riders. LI

Bus operates a public transit bus system and a parallel paratransit system (Able-Ride) for eligible customers, linking together communities. The bus system has developed around the commuter railroad, bringing commuters to rail stations and expanding to serve other key destinations.[8] Long Island Bus has routes that serve all 48 Long Island Rail Road stations, along with several malls, colleges, museums and beaches. LI Bus service is complemented by Suffolk County Transit (SCT), a public transit bus system consisting of 50 bus lines. The bus system is County owned, planned, and managed, but operated by privately owned companies under contract with Suffolk County.

A 2010 New York State Study found that Long Island's airports were economic engines for the region.[9] Long Island MacArthur Airport (LIMA) hosts terminals for Southwest Airlines and U.S. Airways Express, connecting the region to major destinations across the country. The entrance to MacArthur Airport is less than four miles from the Ronkonkoma Train Station and if the north side of the airport is expanded, it will be adjacent to the train Station. Owned and operated by the Town of Islip, the airport has recently undergone a significant expansion to improve efficiency and comfort. LIMA is minutes away from the Ronkonkoma Long Island Rail Road Station and close to the Long Island Expressway and Sunrise Highway.

Several smaller community airports also provide ready access to air transportation:

- Republic Airport (Farmingdale), a business-oriented airport that accommodates charter and larger jet traffic, located along the NY Route 110 Business Corridor;
- Brookhaven Calabro Airport (Shirley), which mainly takes in single and twin engine planes and is home to several fixed-based operators that offer additional services, including tie-down pads, T-hangars and conventional hangars, as well as aircraft refueling and flight instruction.
- Francis S. Gabreski Airport (Westhampton Beach), a general aviation facility with two fixed based operators and a 9,000 foot runway (one of the New York area's longest after JFK International) to accommodate aircraft of any size. Gabreski is utilized by corporations, businesses, private aviation and air taxi services.

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[9] https://www.nysdot.gov/divisions/operating/opdm/aviation/repository/NYS%20Economic%20Study%202010%20Exec%20Summary%20Report-Final.pdf

- Enterprise Park at Calverton, the former Grumman facility, which hosts a 10,000 foot runway used by businesses located in the surrounding business park;
- East Hampton Airport and Montauk Airport, two smaller airports on the East End.

Weaknesses

Long Island suffers from extreme traffic congestion, and faces challenges in providing alternatives to car transportation. The average Nassau and Suffolk County motorists travels 35 and 40 miles per day, respectively, exceeding the statewide average. The design of Long Island's roadways and parking does not easily accommodate pedestrian- and bike-oriented development, as per New York State's new "Complete Streets" standards. Poor and inconsistent walkability in many areas contributes to overdependence on cars and contributes to congrestion.

The transit system is also inadequate to the needs of today's residents and commuters, providing easy access to Manhattan but limited north-south service. There is a pronounced need to maintain and expand the availability of connecting services, including north-south oriented bus rapid transit service, to link LIRR stations with various Long Island destinations. Walkable communities will be less attractive to young workers – and provide less true accessibility for the elderly – if their mobility is constrained by poor transit options at the regional scale. In many communities, inadequate North-South service has cut workers off from job opportunities and worsened economic inequality. If the region wants to utilize rail as a way to get people off the roads, expanded and improved north-south bus or multimodal surface transit service is critical.

Improvements are also needed to ensure the quality of the services that do exist. The LIRR's Main Line consists of a single electrified at-grade track between Farmingdale and Ronkonkoma, with few passing sidings. The total length of the corridor is 17.9 miles, with single track segments totaling 12.6 miles. This magnifies the effects of service interruption and greatly compromises on-time performance.

There are significant unmet needs to accommodate both cars and buses at LIRR stations. At Long Island's busiest train stations, there is a need not only to maintain the current supply of commuter parking spaces, but to construct new intermodal facilities (e.g., parking structures with street-level bus bays), expand the supply of parking spaces at the station, and facilitate connections between bus and rail. With the economic downturn, it has been a challenge for Long Island municipalities to maintain existing levels of bus service on Long Island.

Finally, Long Island's rail system and roadway network lack the freight capacity needed to fuel economic development. More than 98% of the goods coming on to Long Island travel via truck – generating congestion and air pollution. Each day, over 434 million tons of freight move into, through and out of New York Metropolitan Council (NYMTC) region (Long Island, New York City, Westchester, Putnam, and Rockland counties).[10] By 2030, this volume is expected to increase by 85 percent[11]. Over 80% of all freight in the tri-state region is transported via truck[12]. Yet, the Long Island Expressway is the only east-west highway open to trucks serving Nassau and Suffolk Counties, and point-to-point road travel is hampered by traffic. Freight trains also face congestion, as they must share publicly-owned and intensively-used passenger rail lines. The result is a higher price for goods and services.

Opportunities

The LIRR is readying the railroad for a monumental new network expansion – East Side Access service to Grand Central Terminal. The East Side Access project will connect the Long Island Rail Road's Main and Port Washington lines in Queens to a new terminal beneath Grand Central Terminal in Manhattan. The new connection will increase the Long Island Rail Road's capacity, dramatically shorten travel time for Long Island and eastern Queens commuters traveling to the east side of Manhattan, and provide a new commuter rail station in Sunnyside, Queens[13]. It will also encourage reverse commuting between NYC and Long Island. ESA

[10] http://www.nymtc.org/project/freight_planning/freight_index.html
[11] http://www.nymtc.org/project/freight_planning/freight_index.html
[12] http://www.nymtc.org/project/freight_planning/freight_index.html
[13] http://www.nymtc.org/rtp/documents/CHAPTER/0_NYMTC_RTP_ExecSummary.pdf

service does not simply mean that existing trains will be re-routed to Grand Central; rather it represents an entire new service operation, with a huge increase in the number of trains operated across Long Island each day. ESA service initiation is anticipated on or before April 2018. This is the LIRR's first network expansion in over a century.

ESA can serve as a catalyst for economic growth and revitalization in Long Island downtowns – encouraging further investment in all communities. It can also stimulate the creation of new transit-oriented developments. ESA will also strengthen Long Island's ability to attract tourists and reap economic benefits associated with increased tourism by providing commuter rail access between densely-developed, affluent Manhattan communities and Long Island's beaches, wineries, colleges and other attractions. It will make LIRR service more attractive for commuters working on Long Island who currently commute to work by car, thus improving regional air quality and lessening traffic congestion.

ESA will truly transform Long Island, and has the potential to benefit all of Long Island communities, particularly if a North-South rapid connection between the LIRR main lines supports a complete public transportation commute to ESA from any point within an intermodal network. Innovations in bus rapid transit systems and intermodal hubs can maximize transit investment and make transit more sustainable in the long run. Rapid transit systems provide functional gains to the commuter experience that support commuter buy-in and a shift away from car dependency.

The Nassau Hub offers another opportunity to integrate thoughtful multi-use development into the transportation infrastructure. Enhanced connectivity via public transportation will help the Hub realize its potential, while promote transit services that can reduce our regional car dependency and increase buy-in for environmentally beneficial change while improving the vitality of diverse and vibrant foot traffic. Diverse foot traffic will support sustainable prosperity for the Hub to retain its high profile as a true Hub of regional significance and landmark stature.

There is renewed interest in freight intermodal facilities, and several sites could serve this function. The 28-acre Brookhaven Rail Terminal (BRT) on Sills Road

near the Long Island Expressway presents an opportunity for freight transit on Long Island. The BRT is expected to receive and ship at least 500,000 tons of construction material and commodities each year, relieving truck congestion and thereby promoting economic development. There is also potential for expansion at the BRT, with an expectation that the facility will handle a million tons of goods per year by 2016. Each rail car that transports freight on Long Island can remove four tractor trailers from our already over-burdened highway system.

There is tremendous economic development opportunity at Long Island's airports. Investments in this area of the transportation system have the potential to help improve the health of local economies and the state as a whole.

Threats and Consequences of Inaction

East Side Access project and development around train stations will exacerbate the existing need for new parking around the train stations. At many LIRR stations along the Main Line, Babylon and Port Washington Branches, there is a pronounced need to expand parking availability, particularly at some of the busiest LIRR stations. Again, there is a need to integrate LIRR into a complete transit system with north-south connectivity; otherwise, East Side Access may disproportionately favor North Shore communities.

Bus service also faces an uncertain future. Since 1973, MTA Long Island Bus has provided service on behalf of Nassau County under a lease and operating agreement. That agreement made MTA responsible for management and operation, while the county owned all of the assets and funded operation costs. In 2011, Nassau County decided to hire a private operator to run the bus system, including fixed route and paratransit services, and has indicated that service will be turned over to a private operator by January 1, 2012.

Failing to provide adequate transit options will make it difficult to retain young workers who either cannot afford a car or prefer to live a car-free lifestyle. More generally, inadequate transportation infrastructure costs commuters and businesses time and productivity. High transportation costs divert resources from our local businesses. The combined safety and environmental impacts of fragmented, auto-

dependent, poorly-engineered pedestrian environments increase accidents, increase indirect taxpayer costs, and generally degrade communities' quality of life, particularly in aging communities.

Critical Issue: Creating Affordable Housing

When Levittown, New York offered its first homes for sale in 1947, it was a place where young, returning veterans could buy affordable homes to raise their families. Today, Long Island's housing stock is aging, its population is aging, and its homes are far less affordable. Research has shown that young people and low-to-moderate income workers face particularly heavy housing burdens. There is also a growing preference for condo/townhouse development within walkable communities, even though little existing housing fits this description. The region urgently needs more affordable, multi-family, and transit-accessible housing stock if it hopes to meet shifting consumer demand.

New housing opportunities will not only keep our young, educated population from moving away, but will create immediate construction and long-term employment opportunities. Jobs in food services, wholesale and retail trade, health and education services, and business and professional services support the ongoing consumer activity of households occupying new affordable housing units.[14] The construction of 100 multi-family affordable units creates 80 jobs through new construction (both directly and indirectly), 42 induced jobs supported by new spending of locally earned wages, and 30 jobs supported by the households who occupy these new homes.[15] Affordable housing also attracts new employers and opportunities for job creation.[16]

Strengths

Long Island is home to established, high-capacity organizations, most notably the Long Island Housing Partnership and the Community Development Corporation of

[14] New York State Association for Affordable Housing Fact Sheet.
[15] New York State Association for Affordable Housing Fact Sheet.
[16] In a national survey of more than 300 companies found, 55% reported that was not sufficient affordable housing near their workplaces (New York State Association for Affordable Housing Fact Sheet)

Long Island, which have initiated valuable programs that encourage the construction of affordable and multi-family housing. Groups such as the Long Island Progressive Coalition and the Long Island Index have educated the public about how their neighborhood and region benefit from affordable, rental, and transit-oriented housing development.

The multi-family housing that does exist is an asset to local residents, communities, and local governments. A recent report commissioned by the Long Island Housing Partnership found that out of 300 housing complexes studied, almost two-thirds were tax positive. [**add link**]

Weaknesses

Although Long Island added 79,000 residents during the last decade, our population grew older.[17] U.S. Census data shows that the 20-34 year old population on Long Island decreased from 2000-2010, while the 55 and over population increased. As Long Island's population ages, it becomes more important to attract and retain young workers. Yet, many young people cannot afford the high cost of living in an area that also has some of the highest real estate tax rates and utility costs in the country.

But the problem of affordability is not confined to young workers. Between 2000 and 2007, the number of households spending more than 35% of their income on housing increased from 27% to 37%.[18] The strain is especially pronounced for families earning less than 80 percent of median family income. According to the Department of Housing and Urban Development Comprehensive Housing Affordability Strategy, 40% of households in this group pay more than 50% of their incomes on housing.

The paucity of rental housing drives up rents and exacerbates the affordability problem. This is partly a legacy of Long Island's earlier patterns of housing construction; single-family homes, mostly built before 1980, now constitute 83% of the region's housing stock. But consumer demand has changed: a recent Long

[17] Long Island Association Annual Business Factbook, 2011.
[18] http://www.rpa.org/pdf/LI2035_Visioning_Initiative_Report.pdf

Island Index Study found that one-third of Long Islanders want to live in a condo or townhouse and 40% say they would like to live in a walkable downtown community. Nevertheless, some communities and local governments still resist new affordable housing construction, for fear that it (or its residents) will negatively affect local "quality of life". This resistance often reflects deep regional histories of class and race segregation. In case of affordable housing construction, long-standing inequalities and prejudices directly and starkly hamper economic development.

Given the region's high utility rates, the energy-inefficiency of Long Island's housing stock stretches household budgets still further, for both renters and owners. Although there are public-sector incentives for retrofitting owner-occupied units, rental housing developers lack the support that they need to produce units that are both affordable and "green**". [double check – Marianne says there may be new programs available]**

While the housing crisis and the recent recession have reduced median home values in many parts of the region, they have delivered little real affordability. Those homeowners who bought before the crash are still saddled with unaffordable (and seldom-modified) loans; 11% of Long Island's homeowners are at least three months delinquent in their payment, and may face the threat of foreclosure. Without ready access to affordable rental housing, these families may be forced to leave the area.

Communities with high concentrations of foreclosed properties (including Islip, Brentwood, Hempstead, and Uniondale) also suffer, as the foreclosure process often leaves homes vacant for extended periods. Un- and underemployment prevent many from taking advantage of low prices, while those who do have stable incomes and down payments often find it difficult to secure financing in the present lending environment.

Opportunities

The 2000s saw growing recognition of affordable housing's importance among Long Island's private, public non-profit, and civil society sectors. More recently, there have been new efforts at coordination in the field of affordable housing.

Three of the Island's major non-profit housing developers – the Community Development Corporation of Long Island (CDCLI), Long Island Housing Partnership (LIHP) the Kimmel Housing Development Foundation (KHDF) – have partnered with the Long Island Community Foundation and others in a task force that is studying affordable housing needs on Long Island and working toward a coordinated housing strategy.

The development of regionally significant projects and the revitalization of Long Island downtowns provide potential sites for housing that meets urgent regional needs. Growing demand for downtown living may help convince local governments and developers that denser, rental development will be profitable and enhance the community's quality of life.

Declining housing prices and vacant, bank owned real estate may offer opportunities to make existing single family homes more affordable and sustainable. Millions of federal neighborhood stabilization program funds have been used by developers to purchase, rehab and then either rent or sell foreclosed properties as a strategy to remove blight from low income communities across the island. Many communities have recently formed or are exploring community land trusts or other legal means of maintaining affordability in perpetuity.

Threats and Consequences of Inaction

If the region does not focus on improving the affordability and desirability of its housing stock, it stands to lose the labor force and industries that it needs to recapture its dynamism. Failure to produce affordable housing will deter new workers and businesses from moving to the region, while imposing added housing burdens and labor costs for those who remain.

Unless we address current and emergent regional housing needs, it may be difficult to sustain job creation. If employment growth puts further pressure on the regional housing supply, a return to rising prices may strangle our recovery in its earliest stages. We must therefore plan an affordable housing strategy that can be sustained in the long term.

Critical Issue: Fostering Coordination and Cooperation among Fragmentation

Long Island's historical fragmentation has produced a patchwork of town governments, village governments, and special districts. The overlapping and duplicative nature of Long Island governance creates inefficiencies, direct problems of coordination, and regulatory inconsistencies that discourage and obstruct new development and business creation. More generally, local-level zoning has produced an uncoordinated and haphazard development pattern, which is, at its worst, a sprawling landscape of strip malls and subdivisions that lack a sense of place. A 2011 survey of 44 Long Island municipalities found that many of them had not updated their zoning codes in ten years[19]. New and updated zoning codes are needed to accommodate the revitalization of downtowns, redevelopment of blighted properties, and multi-family, mixed-use development.

Strengths

Elected officials and local planners have begun to recognize the challenges facing our built-out region, and to see the possibilities for channeling development towards transit hubs and downtowns. Many are starting to plan strategically and developing special zoning categories to accommodate regionally significant projects.

Long Island is also home to eight Industrial Development Agencies (IDAs). IDAs are charged with the acquisition, construction, reconstruction, and equipping of commercial and industrial facilities. They have the authority to issue tax-exempt and taxable bonds and notes and can grant property tax abatements, mortgage recording tax exemptions, and full sales tax exemptions for qualified applicants. IDA projects are financed by investors, financial institutions, or in some cases, the U.S. Small Business Administration. Projects are evaluated based on job creation and/or retention and capital improvements that will be made. Fees from Local IDAs fund other economic development activities for the local governments they serve, including industrial parks operations, small business incubators,

[19] http://www.longislandindex.org/fileadmin/Reports_and_Maps/2011_Index/Getting_it_Done_2011_LI_Index_Special_Analysis.pdfv

infrastructure development, business marketing, and workforce development. Without local IDAs, these services would have to be paid by the local taxpayer or not be provided. IDAs have created or retained thousands of jobs on Long Island, and streamline otherwise complex and time-consuming municipal approvals for new and/or expanding businesses.

Weaknesses

The segregated, fragmented, and decentralized government structure on Long Island is a critical issue. It has wide-ranging effects, perhaps most notably on the educational sector, where disparities in available tax base create yawning funding gaps between poorer and wealthier districts.

Fragmentation also has strong effects on non-educational infrastructure and the built environment. Locally-controlled zoning discourages the revitalization of downtowns and commercial centers. It may take years for a large, regionally significant project to win final approval, if it does at all. Without the guarantees of an expeditious process, developers face uncertainly for even regionally significant projects. Further complicating matters, no two municipalities on Long Island have the same land use approval process.

Long Island's byzantine governmental structure, with over 700 separate taxing entities and overlapping layers of service delivery, aggravates the problem. Counties, towns, villages and cities all spend significant amounts on public safety, sanitation, and transportation.[20] This not only makes the government approval process even more cumbersome, but contributes to the high cost of living on Long Island – per capital local government costs exceed the state average by 26 percent.[21]

IDAs are not involved in retail businesses, except for those with a tourism component, and cannot be involved with for-sale housing. As unelected but powerful governmental entities, they are open to the criticism that they are

[20] Long Island Strategies for 2035 Report
[21] http://www.nyslocalgov.org/pdf/Long_Island_Local_Govt.pdf

unaccountable and unresponsive to the communities where they facilitate redevelopment.

Opportunities

There are many 'low-hanging' fruit which could mitigate fragmentation's worst effects. Joint purchasing agreements and shared service partnerships would reduce cost, and by extension, the local tax burden. This types of collaboration could lay the foundation for more ambitious initiatives, such as service centralization and coordinated planning at the regional level, enabling economies of scale and encouraging development.

Threats and Consequences of Inaction

Fragmentation makes government expensive and inefficient for residents, and cumbersome for regional businesses and developers who try to work across jurisdictions. Educational disparities have long-term effects on the skills and qualifications of Long Island's workforce, perpetuating inequality between communities and individuals.

State level budget cuts may create opportunities to advocate for greater cooperation and even consolidating between duplicative service districts. On the other hand, austerity may lead to heightened competition for tax base, fiscal zoning, and fears that regionalism will cost localities resources that they cannot afford to lose in an era of austerity.

Critical Issue: Redeveloping the Hub

The 77 acres that make up the Nassau Hub have the physical space and location for an exciting mix of business, entertainment and housing that could become a model for the next generation of suburban development.

Strategies

- **Revitalize Downtowns and Commercial Centers** - Long Island should create downtowns that are centers of economic activity and provide the community with a pedestrian-oriented sense of place and are an attractive place for young people to live, work, and play. Community participation in planning efforts is a key element in successful downtown revitalization. Government needs to take the lead in driving the revitalization process and work with community stakeholders and shareholders alike to build consensus for less rigid, more flexible land-use policies. Specific strategies for revitalizing downtowns and commercial centers include:
    - Support the development of walkable/bikable redevelopment at Nassau Hub that leverages local assets to maximize transportation connections, economic dynamism, and living-wage job opportunities for surrounding communities.
    - Plan for transit-oriented development and downtown revitalization, particularly near LIRR stations and near new transit centers
        - Zone for mixed-use development (see below)
        - Oriented buildings towards the street, and improve façades and streetscapes
        - Improve wastewater treatment capacity
        - Construct structured parking facilities and shared parking
        - Design for pedestrians and bicyclists, incorporating traffic calming elements
        - Use public spaces like plazas to create a "main street" feel
        - Coordinate with law enforcement to improve local safety, security and quality of life, while maximizing access to public spaces for a broad range of users
        - Encourage green construction

- **Aging Infrastructure**
    - Develop and repair sewer infrastructure:
        - Upgrade and expand regional wastewater treatment facilities to meet future capacity and improve treatment and energy efficiency. Priority should be given to sewer infrastructure that will stimulate redevelopment projects and transit-oriented developments and revitalize downtowns and economically distressed communities. The sewer infrastructure project should result in the creation of jobs and the construction of affordable and mixed use housing. When sewers are constructed, efforts

should be made to utilize sustainable, low energy using, and lower cost alternatives.

- Expand Sewer Infrastructure in Suffolk County. In order for the County to grow in a sustainable way, sewer infrastructure is needed at the following locations: Ronkonkoma Hub, Mastic/Shirley Peninsula, Southwest Sewer District (West Islip, North Babylon, West Babylon, Wyandanch, and Deer Park, Bergen Point Sewage Treatment Plant Outfall Pipe), District 6 (Smithtown/Kings Park downtowns), District 1 (Port Jefferson), Sag Harbor Sewer District, Patchogue Sewer District, Bellport, Sayville, Middle Island, Yaphank, Southampton, Mattituck, Center Moriches, Flanders/Riverside, Riverhead
- Upgrade Sewer Infrastructure in Nassau County - Nassau County's sewage treatment plants are in need of serious capital repairs in order to continue to meet the needs of communities. One of the most important capital expenditures is the construction of an ocean outfall pipe at Bay Park Sewage Treatment Plant, which will contribute to the health of Reynolds Channel and the Great South Bay. Nassau's sewer lines are decades old and hinders redevelopment in downtowns. If sewer lines in Nassau's downtowns are repaired and upgraded to increase capacity, they will support downtown revitalization.

- **Build an LIRR second track** from Farmingdale to Ronkonkoma. Construction of a full second track on the LIRR Main Line between Farmingdale and Ronkonkoma would be a tremendous advantage for revitalization efforts around the future Republic Hub, Wyandanch Rising, and the Ronkonkoma Hub; and will also greatly improve the access and reliability of connections to MacArthur Airport. It can expand the role of the Ronkonkoma LIRR station as an airport gateway and stimulate further economic development in the area. Improvements would include associated traction power infrastructure, including third rail; a new south platform at Wyandanch Station; new north and south platforms and station building at Pinelawn station; signal upgrades/modifications as required; retaining walls and earth work; right of way clearing as necessary; new switches / crossovers / interlocking; modified grade crossings to accommodate second track; and drainage improvements (i.e culverts, ditches) as required.
- **Construct a new Republic Station** - The LIRR envisions constructing a new Republic Hub Station after the double track is

constructed to serve the Route 110 corridor in western Suffolk County. The Route 110 Corridor is the largest employment center in Suffolk County, with almost 20% of Suffolk County's workforce employed in this area. A new Republic Station would play a key role in increasing rail access to Long Island MacArthur Airport. The reopening of this station would also play a critical role is supporting the proposed Bus Rapid Transit (BRT) service on Route 110; which would establish the first north-south mass transit connection on Long Island.

- **Devise LIRR Parking Solutions** - In order to accommodate future transit-oriented developments around LIRR stations, new parking structures will be needed to free-up land currently occupied by surface parking. The ideal solution is to establish intermodal facilities at selected LIRR stations, to provide commuter parking and sheltered bus bays adjacent to the train station. Many LIRR stations have connecting bus service, which frequently is challenging and even dangerous to access because of busy nearby roadways and local traffic patterns. An intermodal facility is a central location where local residents, employees, and visitors can conveniently access and/or transfer between several different modes of transportation. Intermodal facilities will serve communities by providing more travel opportunities and encouraging economic development in downtown districts.
- **Develop bus/multimodal rapid transit** – Bus Rapid Transit could serve a solution to providing transit on north-south corridors not served by the Long Island Rail Road.
  - Support and expand existing bus/multimodal transit options, particularly to maximize access to emergent job centers and revitalizing downtowns.
  - Encourage transit use to minimize the impact of congestion and air pollution in the short run, and of greenhouse gas emissions in the long run.
  - Develop Hub transportation that
- **Generate new freight opportunities** – Long Island needs to improve the physical infrastructure of the transportation system for freight-related transport between shipping and receiving points. Strategies to increase freight access and options include:
  - Rail freight intermodal terminals to link the nation's rail freight system and relieve truck congestion.

        - Freight Villages, a fusion of land use and transportation planning to cluster freight dependent companies around a concentration of shared transportation infrastructure. Freight villages can generate an entirely new market for small- and mid-sized businesses to reduce transportation costs and relieve truck congestion on regional and local roadways, and improve air quality.
    - **Tap into the Economic Potential at Long Island's Airports**
        - Attract more commercial carriers to MacArthur Airport and develop the north side of the airport to have better access to the Ronkonkoma Rail Road Station.
        - Build a sewage treatment plant to serve the Ronkonkoma Hub to expand Long Island MacArthur Airport and connect it to a transit-oriented development.
        - Develop the underdeveloped west side of Long Island MacArthur Airport.
        - Tie Long Island's airports to regionally significant projects to heighten economic potential.
        - Attract businesses to locate near Long Island's airports to leverage economic activity and attract fixed-based operators to locate on or near Long Island's airports.
        - Brand, market, and promote Long Island's airports.

- **Create New Housing Opportunities**
    - **Create new, affordable housing for young people, empty-nesters, and low-income households** - Long Island needs to build new affordable, rental, and multi-family housing for youth, empty-nesters, and low-income households. Government needs to also work members of the community to build consensus for affordable rental housing. These new housing opportunities should:
        - Create multi-family rental housing opportunities at varying levels of affordability (below 120%, 80%, and 50% AMI).
        - Site and affirmatively market new housing to provide access to new living-wage jobs and reduce racial segregation
        - Develop for-sale homes that are affordable to households with incomes near or below AMI.
        - Support affordability tools such as land trusts and limited-equity cooperatives, that preserve affordability in the long term.
        - Provide a range of housing opportunities in downtowns and around train stations, including larger (e.g., 3-bedroom) units

        - Commit to the siting and construction of multifamily rental buildings in scale with the surrounding community
        - Require energy conservation, specifically include solar where feasible, in all new affordable housing
        - Link clean energy, environmental and housing funding sources in order to provide for the initial increase in design/construction costs needed to incorporate solar and other "green building" elements in multi-unit affordable buildings.
    - **Maintain and Support existing housing programs** – Beyond developing new housing, there are many other strategies currently used by Community Development Corporation of Long Island, the Long Island Housing Partnership, the Kimmel Housing Foundation, and other non-profits and local municipalities that address critical housing needs that we believe need to be continued. These include:
        - Providing opportunities for down payment assistance for first time buyers.
        - Pre-purchase homeownership education.
        - Grants and loans to homeowners needing health and safety repairs to their dwelling, as well as energy efficiency improvements.
        - Employer assisted housing, which helps employers recruit and retain workers in a high cost area and provides down payment and rehab assistance to homebuyers.
        - Foreclosure prevention services.
        - Handicapped accessibility.
        - Purchase, rehabilitation, and disposition of foreclosed houses that are blighting neighborhoods.
        - The 72-H program, which transfers properties in tax default for the development of affordable housing.
        - Provide education and awareness about fair housing.

- **See blight as opportunity** – Government should provide incentives to stimulate the redevelopment of vacant, abandoned, blighted properties that are appearing all over Long Island. Many of these blighted properties are in the middle of commercial centers and strip malls and the blight should be seen as an opportunity to redesign suburbia. Community civic organizations are most often supportive of the redevelopment of blighted sites, but

engagement with a wide range of stakeholders is critical for maximizing the community benefits that can flow from redevelopment.

- **Promote new Government Policies to Foster Economic Growth**
  - Streamline approval process – Governments should make efforts to "cut the red tape" and increase transparency in the land use approval process. An example is the newly launched Suffolk Unified Permit Portal, a multiyear effort to create an online process for development applications that provides transparency and accountability for land use across Suffolk's 43 municipalities. Town Planning Departments can also look to reorganize their departments to give priority to regionally significant and transformative projects.
  - Innovate new zoning codes – In order to facilitate and accommodate redevelopment of downtowns and large, mixed-use regionally significant projects around train stations, governments should develop new zoning codes such as form-based zoning or planned development districts that encourage redevelopment of community centers. Innovative zoning codes should encourage the efficient use of land, be a catalyst for revitalization, and foster a sense of place.
  - Update zoning codes to:
    - Discourage segregated zoning and strip malls.
    - Create land use and street design guidelines to promote walking and cycling.
    - Ensure that guidelines for the improvement of existing streets and the development of new streets encourage multi-modal road networks.
    - Encourage diverse housing types and demographics.
  - Governments could also take a balanced approach to land preservation and management – protecting land in some places and selecting targeted areas for redevelopment in others. This will build consensus for proposed redevelopments, but at the same time open space and sensitive water supplies will be protected.
  - Foster inter-municipal cooperation – Many regionally significant projects cross municipal boundaries. If these projects are to succeed, municipalities should think regionally from the early stages. Inter-municipal cooperation is critical to securing funding for projects and ensuring a smooth approval process.

- Support Industrial Development Agencies – Local IDAs are the most efficient and effective economic development program available to local governments. They are often self-sufficient and the average statewide cost per job created for projects they assist is $2,400. The role of IDAs in helping to create and maintain jobs in their communities is much greater than just serving as a conduit financing vehicle for the project. IDAs are the lead economic development agency of a county, town, or city, and serve as the nexus between the public and private sectors on economic development activities. IDAs have played and should continue to play a central role in the development of our economy, while engaging with local governments and encouraging the participation of community stakeholders.

What follows reflects the research and recommendations of the Innovation and Industry Clusters Working Group.

4. Innovation and Industry Clusters

Long Island is in a long-term economic transition, one that started with the decline of the defense industry and in once-surging population growth. But the region has the assets to remake its economy on the strength embryonic and emerging technologies: the industrial heritage, research capacities, highly skilled workforce and educational and training institutions, access to necessary financial resources and professional business services, and entrepreneurial tradition. The goal is to become a versatile, nimble global center of innovation.

As previously stated, Long Island also faces formidable obstacles that inhibit the broad, long-term cooperation required for success. But the collaborative new process put in place by Gov. Cuomo through the new Regional Economic Development Councils, including monetary incentives to produce the best strategic plan, has inspired an unprecedented degree of focused cooperation among the region's technology industry, research, educational, and broad business and

financial communities. The result is an integrated strategy of interrelated proposals with three major themes. These strategic themes, reflected in the Accelerate Long Island initiative, embrace a structured approach to capitalizing on the region's innovation assets and sustaining and enhancing its technology-intensive manufacturing base. The strategic themes also require undertaking bold, complementary steps to increase the proportion of STEM-educated graduates entering the workforce pipeline, while augmenting a broad regional structure for training workers at all levels.

Accelerate Long Island envisions the completion of nothing less than an innovation infrastructure stretching from Great Neck to Riverhead will foster and sustain traded industry clusters in biotechnology/life sciences, defense/homeland security, energy, and information technology. The region's heritage of a vital advanced manufacturing base will support these clusters, as well as a varied spectrum of niche industries. The region's educational resources are a critical partner in fulfilling this vision. But, while Long Island possesses innovation assets rivaling those of Silicon Valley, the Route 128 corridor or Research Triangle, our technology economy pales in comparison with these or newer high-tech industry centers. What Long Island has been lacking – and what is a fundamental premise of the Regional Council's strategies -- is a comprehensive, structured regional framework not only to encourage discovery and invention but to transform them into new technology products and ventures to manufacture and bring them to market.

Critical Issue: Exploiting the Concentration of Federal, State and Private Research Institutions to Commercialize New Technologies

Strengths

Long Island's concentration of world-class federal, state and private research institutions is nearly unique in the nation. Collectively, Brookhaven National

Laboratory, Cold Spring Harbor Laboratory, the Feinstein Institute for Biomedical Research at North Shore-Long Island Jewish Health System, and Stony Brook University bring more than $1 billion a year into the region in external funds, primarily from federal research agencies. These funds support more than 5,000 high technology jobs. Perhaps more importantly, the revenue underpins the processes of discovery and invention that produce the intellectual outputs essential for creating new technology-based products in biomedicine, biomedical devices and biotechnology/biopharmaceuticals, in software and information technology, in national defense, homeland and commercial security systems, and, potentially, in alternative and renewable energy -- "clean-tech." The new medical school recently opened by Hofstra University and North Shore-LIJ, and Hofstra's new engineering school, will expand these formidable innovation assets.

Commercialization facilities associated with these institutions, including the Broad Hollow Bioscience Park, a Cold Spring Harbor collaboration with Farmingdale State College, and the first two buildings in the Stony Brook Research and Development Park -- the New York State Center of Excellence in Wireless and Information Technology (CEWIT) and the Advanced Energy Research and Technology Center (AERTC) – already are proven models. They have demonstrated the potential for using these exceptional research resources to commercialize new technologies through new ventures and existing companies, to collaborate with established companies in R&D, and to foster the growth of start-ups. CEWIT has collaborated with 94 companies, helped industry partners win nearly $100 million in joint federal contracts and create or retain almost 1,000 jobs. It also has helped start-ups and young companies obtain nearly $38 million in investment.

Although AERTC opened in the summer of 2011, its affiliated researchers have generated some $35 million in federal and other external funding, including the $12.4 million DOE Smart Energy Corridor Smart Grid Demonstration project in partnership with the Long Island Power Authority and Farmingdale State College, and two DOE Energy Frontier Research Centers, one in emergent

superconductivity at Brookhaven National Lab and one in battery technology led by Stony Brook. AERTC was instrumental in creating the New York State Smart Grid Consortium, whose mission is to establish a leadership position for New York in Smart Grid technologies, the biggest energy technology revolution in the last century. The Morrelly Homeland Security Center, located at a former Northrop Grumman site, is a cutting-edge "C41" facility – Command, Control, Communications, Computer, and Intelligence. It is extending Long Island's defense tradition into the 21st Century. And only 30 miles from Ground Zero, where more than 300 Long Islanders died, it is at the forefront of fighting terrorism by providing a "living lab" for the development of new first responder and homeland security solutions. The Morrelly Center also is the home of the region's Regional Technology Development Center, the Long Island Forum for Technology. Long Island's two New York State Small Business Development Centers – with a competence in technology-based business development that has generated than $400 million in economic impact – are located at Farmingdale State, near Broad Hollow, and in the Stony Brook R&D Park.

Weaknesses

The federal government is the only U.S. institution capable of sustaining significant investments in basic science and engineering research, as it has since World War II, so the current lack of support for existing and future initiatives presents a serious problem for a region that wishes to base its economy on Big Science-based initiatives. Science, engineering and technology development is dependent not only on maintaining levels of funding but also on the consistency and predictability with which it is available – businesses and research institution need to know they can count on funding if they are to be willing to base their success on STEM discovery. So the current lack of support – whether reflecting budgetary or ideological disputes -- is deeply troubling for its national and regional implications.

Long Island's research institutions have demonstrable track records of technology commercialization and new venture incubation, but many of the resulting businesses leave Long Island. That is a waste of economic potential that the region cannot afford. Cold Spring Harbor technologies have formed the basis for 13 companies; only two have been retained within the region. Of the 37 companies started around Stony Brook technologies, 21 are on Long Island or in New York State. Technology commercialization needs to scale up significantly in the next five years. As shown in the history of Silicon Valley in California and the Research Triangle in North Carolina, these activities must be supported by regional and state leaders over time, well beyond any individual's term of office.

Long Island has a proud record of entrepreneurial achievement in the defense sector and has given birth to start-ups that have become market leaders, notably CA Technologies, a $4 billion IT management and software company with customers in almost every country, and Symbol Technologies, which made bar code scanning a global phenomenon and is now the enterprise mobility division of Motorola. Long Island has benefited greatly from the managerial talent these giants have trained and seen populate executive suites throughout the region's software industry. But the impact has been uneven across the technology-based sectors and communities. The virtuous circle that characterizes successful technology regions is not turning smoothly on Long Island. Not enough new science and engineering graduates start companies; not enough of the start-ups grow to become established companies, absorbing increasing numbers of new science and engineering graduates, acquainting them with the concepts and skills of growing such businesses; not enough of the students and businesses find allies in research and educational institutions equipped to help them develop a new business so that they can become a new cadre of entrepreneurs who, inturn, inspire and nurture new students. As noted in the Workforce and Education section, the region's shortage of technical talent is a significant drag on this wheel of progress. Long Island should also be doing much more to encourage young entrepreneurs, especially young technology experts, to learn marketing, finance and other business skills.

Opportunities

An unprecedented collaborative effort, Accelerate Long Island, offers new means to scale up industry-university research, technology commercialization and new enterprise development and get the wheel turning smoothly and swiftly. Accelerate Long Island derives from a report commissioned by one of the region's industrial development agencies and presented in January 2011 to the heads of Long Island's research institutions, as well as other regional leaders. The Long Island Association, the region's largest business and civic organization and itself a potential catalyst for sustainable growth, has formed an Accelerate Long Island committee to oversee its initial development. Meanwhile, a not for profit corporation is being created by a diverse, distinguished group of institutions, including Brookhaven National Laboratory, Cold Spring Harbor Laboratory, Hofstra University, North Shore-LIJ Health System and its Feinstein Institute, and Stony Brook University, as well as the Long Island Association, the Rauch Foundation, CA Technologies, Canrock Ventures LLC, and Jove Equity Partners LLC. Its mission is to identify promising technologies within the partner research institutions and connect them with the entrepreneurial and investment resources to bring them to the marketplace. The founding institutions have each committed $100,000 a year for three years for partial operational support and they are seeking state matching support to pull the innovation ecosystem pieces together and initiate the first round of new enterprises.

One of Accelerate's key features is a Long Island is a corridor of innovative enterprises from Great Neck to Riverhead. This program of technology commercialization will create "communities of innovation" providing access to multidisciplinary R&D resources for early stage technology development, proof of concept and prototyping, entrepreneurial mentoring facilities for new companies at start-up and through initial growth, and strategic partnering opportunities with established technology companies. Developed by LIFT and LISTnet, the Long Island Software and Technology Network, the Innovation corridor already is under construction. Completed are: New York State Center of Excellence in Wireless and

Information Technology (CEWIT - wireless, software and information technology – 2009); Morrelly Homeland Security Center (defense and homeland security – 2010); and the Advanced Energy Research and Technology Center (AERTC – "cleantech" energy - 2011.

In the coming years, new components of the program will emerge.

Threats and Consequences of Inaction

These programs will represent the most extensive collaborations ever among Long Island's research institutions, technology-based businesses and business organizations and financial community. They have been assembled around visionary but targeted programs for which substantial private and other support is committed and anticipated. The failure of these efforts would be more than disappointing. It would signify to Long Island's national and global competitors, and to the region itself, that we are not seriously engaged in technology-based economic development and that our commitments are insufficient to our world-class aspirations. It would be a clarion call to the bright, the ambitious, the innovative, and the entrepreneurial among us to run, not walk, to the exits. The region's population would continue to age, placing increasing demands on public and private sector services for which there would be diminishing resources to support.

Critical Issue: Strengthening the Shrinking but Still Powerful Advanced Manufacturing Base

Strengths

More than 3,500 companies on Long Island are currently classified as manufacturing companies. They represent a range of industry sectors. (These companies do not include almost 4,500 information technology firms not currently regarded as manufacturers under state policy.) They provide a variety of job opportunities with a significant proportion of them high skill and high wage. For example, the median salary for chemists in chemical manufacturing, which includes biotechnology, is $71,642; for computer software engineers $92,132, for electrical and electronic engineering technicians $57,037; for first-line supervisors/managers of production and operating workers in fabricated metals manufacturing $69,269; for tool and die makers in machinery manufacturing $56,879. They have strong external markets for their advanced materials, biomedical, electrical and electronic components, fabricated metal and machinery (including computer and transportation machinery), software and information technology products. Many of them fall into four large industry clusters where Long Island has the opportunity to capture and maintain a position of global leadership. But some already have achieved such prominence and are a critical component of Long Island's pipeline of job creation. **[examples to be added]** The manufacturing of high value added products for markets off Long Island, across the nation and around the world, is a key foundation of the regional economy that must be preserved and strengthened.

The Long Island Forum for Technology, our region's state-designated Regional Technology Development Center, has established the Morrelly Homeland Security Center, a 90,000 s.f. facility that is helping resident companies grow and assisting numerous additional manufacturing companies annually in defense and homeland security. The Morrelly Center provides a strong foundation for additional specialized support to enable all Long Island manufacturers to compete in the 21st century marketplace.

As noted above, the Strategic Partnership for Industrial Resurgence (SPIR) at Stony Brook provides advanced technology assistance on a fast turnaround basis across the engineering disciplines for companies of any size at any stage of growth.

SPIR has assisted more than 425 companies through 2,420 projects, ranging from R&D and new product prototyping to failure analysis and manufacturing process improvement. It has helped these companies to bring $104M in federal funding to Long Island and to create or retain 12,144 jobs.

In addition to the Morrelly Center's training facilities – and those planned for the AMMTIC – Long Island's educational resources include electrical and mechanical engineering programs at Hofstra, NYIT and Stony Brook, along with the rest of the traditional engineering disciplines at atleast one of these campuses. Additional training resources for manufacturing occupations include the Advanced Manufacturing and Industrial Training Program at Suffolk County Community College and the Solar Energy Center at Farmingdale State. The Connect Long Island initiative provides access to certificate and other non-credit programs supported by the region's Workforce Investment Boards.

Weaknesses

Manufacturing jobs have declined on Long Island, as they have across the country. According to the New York State Department of Labor, Long Island lost 10,700 manufacturing jobs between August, 2007, and August, 2010, while New York was losing 85,400 manufacturing jobs overall. To remain competitive in national and global markets, Long Island manufacturers as a group need to follow the example of their highly successful peers and dramatically increase their productivity. Offshore manufacturers are price-competitive, but other considerations enter into buying decisions for the high value-added products that are a regional specialty. For example, D'Addario & Company dominates the global market for music accessories, selling in 101 countries. Omega Molding and Framerica make Brookhaven Town one of the nation's largest manufacturers of wholesale picture framing products. The region is a national center of the food supplements industry.

In addition, manufacturers on Long Island across industry sectors lack access to facilities that would enable them to develop competence in manufacturing with composite materials. For example, 55 percent of Boeing's new Dreamliner aircraft will be made of composite materials, as were the fuselage and rotors of the Stealth helicopters that played a critical role in the capture of Osama Bin Laden. Finally, Long Island manufacturers will need to adopt "green" or sustainable manufacturing practices throughout their own processes as well as in their supply chains. Sustainable manufacturing goes far beyond the ISO 14000 environmental management system standard. It requires them to consider not only the environmental impact and resource consumption characteristics of the manufacturing process, but also the environmental and economic impacts of the product life cycle through the end of its useful life. This will require innovation in the architecture of manufacturing systems.

Opportunities

The Advanced Material and Manufacturing Technology Innovation Center being planned by the Long Island Forum for Technology, will address two of these critical challenges to sustain and expand Long Island's manufacturing sector. Regarding composites, it will provide access to state-of-the-art composite materials formulation, testing and fabrication equipment, otherwise prohibitively costly at the R&D stage. As for "green" manufacturing, it will provide access to leading edge technologies for environmentally benign manufacturing – net zero energy, low carbon footprint and zero waste. This will enable manufacturers to conduct life cycle analyses during the new product development process and test-manufacture prototypes or small runs. It also will assist manufacturers in retrofitting their own plants, helping them to preserve our island's natural assets and compete successfully in an increasingly environmentally-conscious marketplace. The critical importance for our innovation economy of building Long Island's expertise in these critical new manufacturing processes is highlighted in this 2009 article in the *Harvard Business Review*: " . . the decline of manufacturing in a region sets off a chain reaction. Once manufacturing is outsourced, process-engineering

expertise can't be maintained, since it depends on daily interactions with manufacturing. Without process-engineering capabilities, companies find it increasingly difficult to conduct advanced research on next-generation process technologies. Without the ability to develop such new processes, they find they can no longer develop new products. In the long term, then, an economy that lacks an infrastructure for advanced process engineering and manufacturing will lose its ability to innovate." [HBR cit to come]

The principles of "lean" manufacturing – derived most notably from the Toyota Production System – first caught Americans' attention in the 1980s, when Japanese manufacturers were cleaning the clocks of our country's automobile industry, the most memorable example. The troubles experienced by the Japanese economy over the last decade and the U.S. economic boom that preceded our own troubles have not changed that picture: the list of technology products invented in the United States and now manufactured primarily offshore includes industrial robots and electron microscopes in addition to the more familiar products such as color TVs and microwave ovens. But in the excitement of the boom that we borrowed to pay for, we lost our appreciation for "lean." The example of Long Island companies who have embraced those principles and triumphed against much lower cost international competitors is a wake-up call. There is a real opportunity to "reshore" manufacturing jobs in our selected industry sectors and niches where we can dominate: a May, 2011, study by the Boston Consulting Group suggests that China's manufacturing cost advantage over the U.S. will be lost in the next five years, as skilled wages climb because of the supply-and-demand imbalance for skilled labor. We expect net labor costs for manufacturing in China and the U.S. to converge by around 2015." [Harold L. Sirkin, Boston Consulting Group partner and author of *GLOBALITY: Competing with Everyone from Everywhere for Everything*, quoted in May 5, 2011 press release announcing the BCG analysis.]

Long Island shouldn't follow the lead of low-paying states such as Mississippi and South Carolina, whose cost of living is so much lower. We will learn from our Long Island success stories, such as D'Addario & Company, whose 650 employees

in Westbury and Farmingdale have brought the company to its globally dominant position in musical instrument strings and related products by implementing lean principles. Jim D'Addario's Make It in New York program would use grants, loans and tax credits to help manufacturers mitigate the risk of the substantial capital startup costs (tooling, molds and engineering fees) required to achieve globally competitive ultra-efficient tooling and automation; and to enable them to cover the costs of extensive training or retraining of workers to recapture lost skills.

Doubling the advanced technology assistance provided by Stony Brook's Strategic Partnership for Industrial Resurgence (SPIR), a program of SUNY's colleges of engineering, will double the number of companies helped and the number of jobs they will create or retain.

Threats and Consequences of Inaction

Although a few manufacturing enterprises with commanding positions in their market niches are likely to survive, a severe decline in manufacturing will leave the region with a bifurcated set of traded industry sectors: with R&D in our key technology-based industry sectors at the high-paying end, and many tourist activities at the low-paying end. (The exception would be a substantial and desired increase in higher-value ecotourism and agritourism.)

Critical Issue: Erasing the Critical Shortage of Engineering Professionals and STEM Competent Workers

As stated in the Workforce and Education section, college and high school students are pursuing STEM educational programs in insufficient numbers to provide the volume of professional engineering and skilled technical employees needed for advanced manufacturing, in the large industry clusters and the niche industries.

There already is a shortage of engineers, and while the region's highly skilled workforce is aging, there are 129,000 fewer 25 to 34 year olds -- too few to replace this critical population group.

Strengths

Long Island has a wealth of engineering and STEM educational resources. These include a maturing public College of Engineering and Applied Sciences at Stony Brook with a strong record of research growth. It offers accredited degree programs at the bachelors, masters and doctoral levels in biomedical engineering, computer science, electrical and computer engineering, and mechanical engineering, as well as materials science and engineering and applied mathematics and statistics, chemical and molecular engineering. Two private institutions are growing players in engineering. Hofstra University has taken steps to create a School of Engineering. It is seeking accreditation for its undergraduate engineering science degree and to transform its current Bachelor of Science offerings in Electrical Engineering, Industrial Engineering and Mechanical Engineering into accredited Bachelor of Engineering programs; in addition, it plans to initiate BE degree programs in Biomedical Engineering and Civil Engineering. New York Institute of Technology offers B.S. and M.S. programs in electrical and computer engineering and computer science, an accredited B.T. in electrical and computer engineering technology, a B.S. in mechanical engineering, engineering management, information technology, electrical and computer engineering technology, and telecommunications network management, and an M.S. in energy management and environmental technology.

Other public institutions also add to the region's engineering assets. Farmingdale State College offers an accredited bachelors degree engineering technology programs in Electrical Engineering Technology, Computer Engineering Technology, Mechanical Engineering Technology, and Software Technology; and Nassau and Suffolk County Community Colleges have pre-engineering and associate degree technology programs.

Collectively, these institutions of higher learning draw undergraduate students primarily from within the region and attract quality students nationally and internationally, especially at the graduate level. They are supported by a strong K-12 system of public education with national recognition for its quality. Twenty-six of Long Island's schools appear in *Newsweek*'s 2011 list of America's (Top 500) Best High Schools. Individual students excel as well: a remarkable 61 of the 2011 Intel Science Scholarship's 300 semi-finalists came from Long Island including eight of the 41 finalists and two "Best in Category" winners. Overall graduation rate and test scores consistently exceed the rest of the state. The region's three BOCES (Boards of Cooperative Educational Services) provide a diverse menu of career and technical education offerings that are beyond the means of most school districts, including computer technology, electrical trade and alternative energy, and welding and metal fabrication.

Another regional strength is a technically-oriented support system including Local Workforce Investment Boards (LWIBs), Long Island Works, and the Long Island Forum for Technology (LIFT). In 2007, the LWIBs and LIFT launched Connect Long Island, a partnership that has since grown to include Long Island leaders in government, education, and industry.

Weaknesses

The existing educational infrastructure is insufficient to produce the number of engineering professionals that the economy needs. For example, Hofstra currently produces approximately 175 graduates a year, while Stony Brook produces some 600. In this regard, Long Island lags well behind other high technology regions that are our competitors. Per 1 million in population, Long Island produces 265 engineers a year, in contrast to the Seattle region, which produces 741, and Silicon Valley, at 788. Despite earnest efforts, there is a lack of K-12 technical graduates and programs aligned with the skilled non-professional needs of technology-based and manufacturing industries. The national phenomenon of international student-

heavy graduate programs in engineering plagues Long Island as well: highly qualified graduates are unable to remain on Long Island with employers who want to hire them because of visa constraints and, in the case of the defense industry, citizenship restrictions.

Opportunities

The EngINE: Increase Engineering Enrollments proposal will provide challenge funding to enable the engineering institutions to obtain the additional faculty and other teaching resources. They are needed to increase engineering graduates across the spectrum of disciplines by 175 a year in the first two years, and a similar number in the second two years.

Long Island is well supplied with students who are bright and want good jobs. The ongoing impact of the recession on our region limits educational opportunities more than in boom times, leaving many students and their families unwilling to pay the additional costs of attending college out of town. This creates the opportunity to attract our own high school graduates to Long Island engineering and pre-engineering, engineering technology and technical programs. The pressure on students to choose potentially high-paying fields creates an opportunity at the K-12 level to attract more Long Island kids to STEM programs, where the skills they learn will prepare them for such programs at the college level. The STEM Hub proposal seeks to address this opportunity.

The tag line of an educational fundraising campaign several years ago was “A mind is a terrible thing to waste.” A democratic society that allows such waste is failing its ideals; a regional economy that neglects a significant pool of talent, which has the added characteristics of being eligible for federal and private funding assistance to meet college expenses, and more likely to remain within the region to seek employment, is ignoring a critical economic asset. The Long Island

Community STEM program will bring STEM education and encouragement into the school districts of every one of Long Island's distressed areas. Based on program already conducted, students in poorer districts, many of them minorities, have the potential to succeed in STEM education and reap the benefits. It is an economic, as well as moral imperative, that they be given every chance.

Threats and Consequences of Inaction

Without the talent they need to succeed in global competition, our region's manufacturers and technology-based companies are in danger of shrinking, failing or leaving Long Island where these critical needs receive a more helpful response. Unless a concerted effort is made to reach into distressed school districts, a large pool of human beings will lose their opportunity to achieve the American dream and the region will have lost an opportunity to replenish a scarce resource.

The three strategies summarized above reflect a combination of bold new ideas and proven programs that together will mobilize and exploit regional assets to make Long Island a global leader in four key industry clusters that will shape the world economy in the 21st century.

How We Get There … and Know We are..

Implementation of Strategies, Projects and Performance Measures

(to be added)