



Hauppauge Industrial Park

Regional Competitiveness and Growth Strategies

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The Suffolk County Industrial Development Agency (IDA) is a public benefit corporation of the State of New York. The Suffolk IDA was created to actively promote, encourage, attract and develop job and recreational opportunities throughout the County. The Suffolk IDA is empowered to provide financial assistance to private entities through tax incentives in order to promote the economic welfare, prosperity and recreational opportunities for residents of the County.

The Suffolk County IDA works in synergy with Suffolk County Executive Steven Bellone and the Deputy County Executive and Commissioner of Suffolk County Economic Development and Planning, Theresa Ward, to foster positive economic development within the County.

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Executive Summary

A New Economic Development Opportunity on Long Island

Long Island can leverage numerous assets to achieve greater economic growth. The legacy of the aerospace and defense industry leaves a strong foundation for advanced manufacturing to continue flourishing. High-quality natural and cultural amenities have attracted residential communities to the Island, which in turn drove the growth of service industries, healthcare, and education. The concentration of renowned research institutions, as well as the region’s highly educated workforce, is preparing the region for the future’s innovation economy.

Yet statistics show that the economy of Nassau and Suffolk has been expanding at a slower pace than national and state averages. Long Island, despite its possession of the various regional assets, has not yet succeeded in shaping a truly **competitive tradable economy**. Industries that export goods and services to other regions can bring in new dollars. Such tradable industries are small on the Island: they currently make up a mere 23 percent of Nassau and Suffolk’s economy - that is, in comparison, 13 percentage points lower than the national average.

Challenges facing the Island require new thinking about its industries and firms. After all, it is the individual companies that employ people, respond to policy incentives, and turn Long Island’s assets of workforce, transportation, and education into direct economic outputs. Firms and industries tie together the various aspects of local economic development, and the key to Long Island’s next wave of economic growth is to create conditions and ecosystems where competitive firms and industries can enter, cluster, and prosper.

The **Hauppauge Industrial Park** (the Park) is the largest concentration of firms on Long Island and thus offers an exceptional opportunity for adopting an industry-focused

Figure I-1: Focusing on industries and firms to understand the various aspects of local economic development

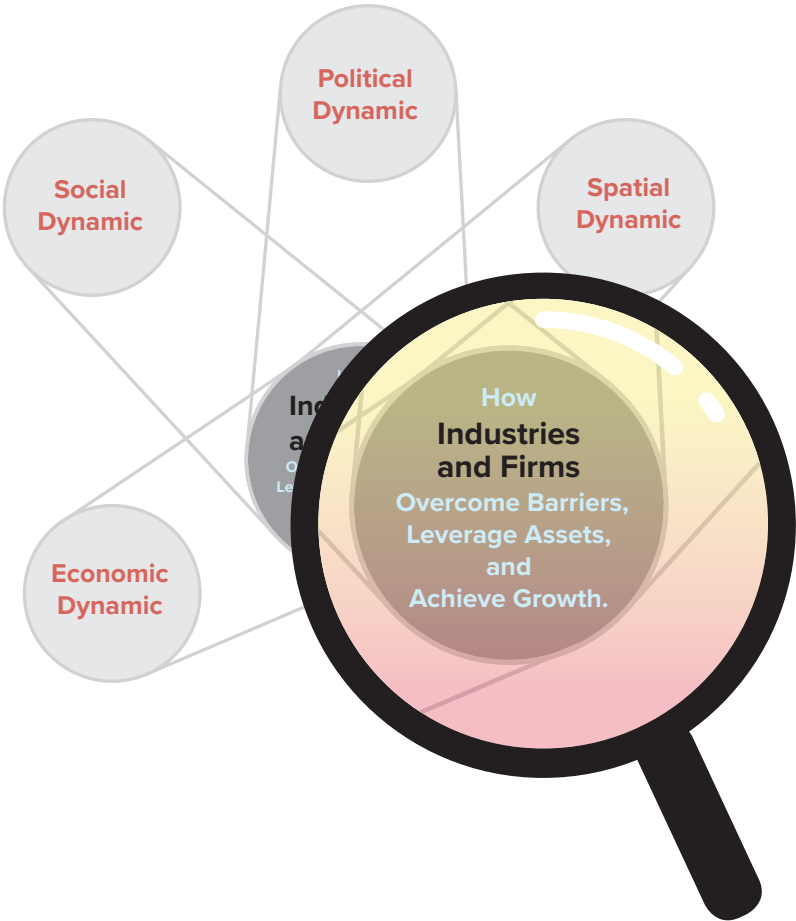
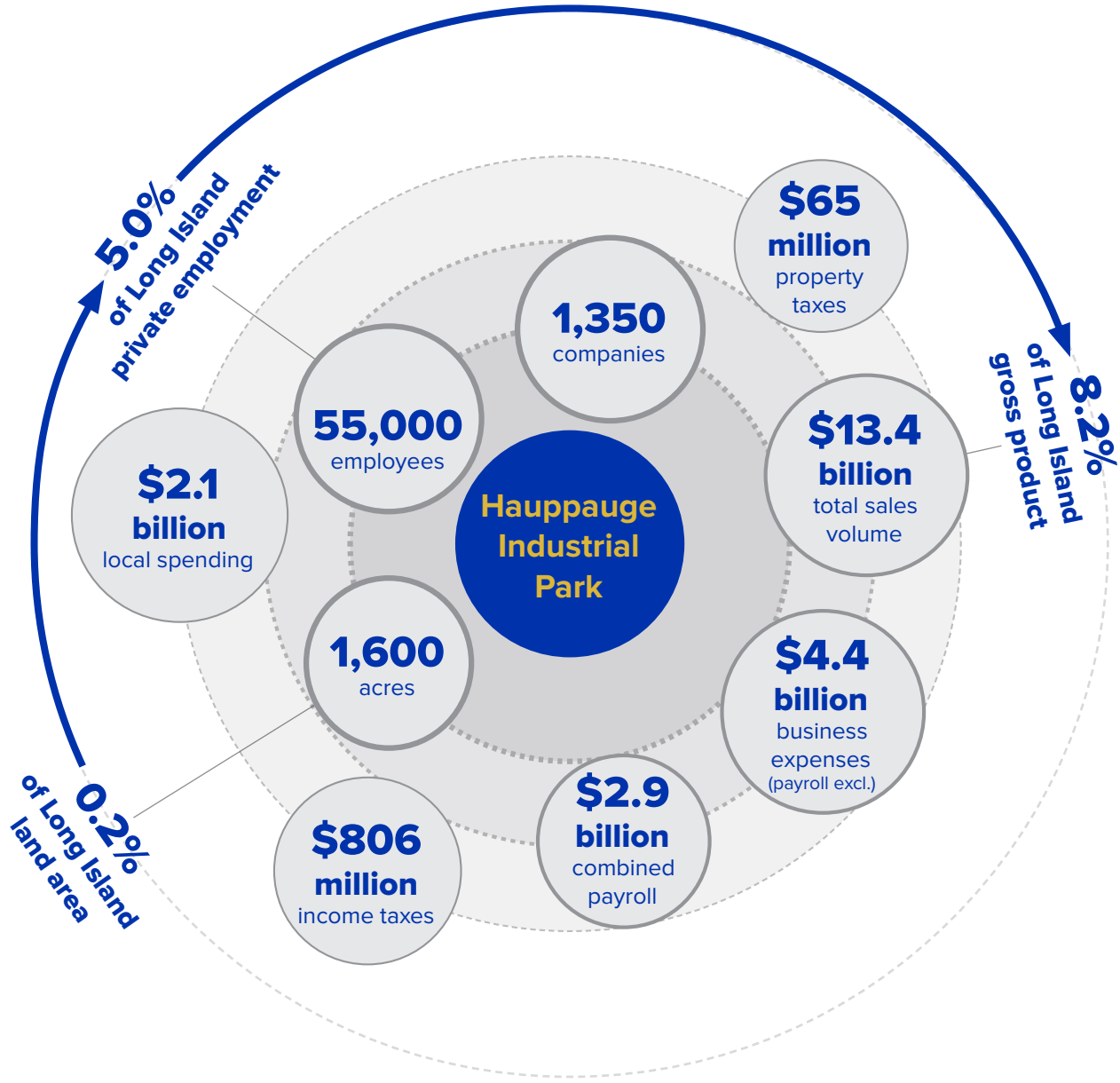


Figure I-2: Locational map



Figure I-3: Economic impact of the Hauppauge Industrial Park



approach to regional economic revitalization. Where 1,350 companies employ approximately 55,000 people, the Park produces an impressive total sales volume of \$13 billion. More importantly, the Park has been a magnet for the tradable economy (58% of jobs in the Park are in the exporting sectors), and it is a place where the region's most strategic industries begin to cluster, such as pharmaceuticals, distribution, IT, equipment, and food.

Recognizing the region's need for stronger tradable economy and the existing clustering of such industries right in Hauppauge, this report studies how the Hauppauge Industrial Park can further capture economic opportunities of the region and maximize its impact to become a key player in Long Island's overall economic development.

Drawing on extensive research of the Park's current conditions, in-depth analysis of Long Island's economic landscape, and an examination of best practices in other U.S. economic hubs, this report crafts a vision for the Park within its regional context, lays out the Park's strengths and weaknesses, and recommends a strategic plan with a series of implementable actions distributed across short-, medium-, and long-term time horizons.

The recommended strategies taken together are intended to form a comprehensive suite of economic development projects that include zoning and regulatory updates, public realm improvement, changes in the Park's management and

operations, and development of business facilities and amenities. Understanding the crucial role of cross-sectoral dialogue in economic development, this report also provides a framework for multiple public and private stakeholders inside and outside the Park to come together, collaborate, and share responsibilities in carrying out the proposed tasks.

A key objective of the Hauppauge Industrial Park should be to become the regional economic hub that fosters the greatest growth of competitive tradable industries; the Park can do so by providing the necessary facilities, amenities, talent pool, and knowledge infrastructure for further firm clustering and agglomeration, and marketing and branding the Park as the Island's premier hub for growing businesses. As a regional economic hub, the Park would no longer be a "lone wolf" on Long Island: the framework recommended in this report would help the Park's stakeholders to integrate the Park's resources into the Island's larger economic and social system, as well as to channel in the region's various assets to help businesses grow in Hauppauge. As an existing economic anchor aspiring to become the region's key player, the Hauppauge Industrial Park is the new opportunity for Long Island-wide economic development.

Building Strong Industry Clusters

Long Island needs to grow its tradable economy, and the Hauppauge Industrial Park can be the anchor. In order to understand where growth opportunities are and what types of actions are necessary, a comprehensive analysis of Long Island economic fundamentals was conducted. A wide range of public and proprietary databases inform the analysis, and the research process also involved interviews with dozens of stakeholders from the local business community, institutions, non-profits, and municipal, county, and state government agencies.

Specifically, the research looked into **industry clusters** to understand the agglomeration forces and multiplier effects that make certain groups of industries more competitive than others. Based on the comprehensive assessment of cluster strengths, the report recommends Long Island’s economic development practitioners focus on nine key industry clusters - all represented in Hauppauge, They each have uniquely local advantages regarding scale, specialization, workforce, and growth potential. These key clusters are:

- ▶ **Aerospace Vehicles and Defense**
- ▶ **Biopharmaceuticals**
- ▶ **Business Services**
- ▶ **Construction Products and Services**
- ▶ **Distribution and Electronic Commerce**
- ▶ **Education and Research Activities**
- ▶ **Financial Services**
- ▶ **Food Processing and Manufacturing**
- ▶ **Information Technology and Analytical Instruments**

Some of these key clusters have long established their positions on Long Island, such as aerospace and biopharma, while others are just emerging, such as certain IT and food processing clusters. They thus require different sets of strategies for growth. Understanding that one size will not fit all, this report is still able to synthesize and recommend five high-level economic development strategies shared across different key clusters:

- A. Facilitate business growth.** According to estimates, 90% of businesses on the Island have five or fewer employees, making it difficult for local firms to utilize scale economy and compete in the metro area and/or nationally. So in addition to attracting new businesses, Long Island should intensify its effort in growing its existing businesses. This is highly relevant for food processing, business services, construction, distribution, and IT. It can also help aerospace and biopharma clusters to further enhance their advantages, move up the value chain, and expand into new profit territories.
- B. Attract and retain knowledge workers.** Despite the fact that 39% of Long Island’s population over 25 years old has Bachelor’s degrees, many of the local talents do not work in the two counties. Thus, their presence is not translated into direct outputs in the Island’s tradable economy. The situation is exacerbated by the fact that Long Island’s young adult growth rate has been negative for decades. Long Island needs to address housing affordability in particular, and many positive steps have been taken to increase housing production and housing choices in Nassau and Suffolk Counties. Such tactics to attract knowledge workers can benefit most of the key clusters, and they are especially relevant for aerospace and IT, which both see their workforce aging faster than the regional average.

- C. Strengthen training and workforce development.** While Long Island benefits from the high educational attainment of its overall population, the region is also home to new immigrants, families in poverty, and other underserved communities, who cannot access quality career opportunities and professional advancement without adequate training. From an industry perspective, advanced manufacturing is currently faced with the severest skill-gap issues on Long Island. Particularly, many companies in the IT cluster have failed to fill their job postings, and such a workforce pipeline issue is also relevant for biopharma, aerospace, and to a lesser extent business and financial services. In order to address the lack of regional training resources for strategic sectors and the population's lack of awareness about industry careers, it is imperative for educational institutions and employers to collaborate and provide industry-driven, work-based training programs.
- D. Promote innovation and technology transfer.** Companies and universities need to work together. Many of Long Island's existing industries are not using enough technology, and educational and research institutions can further enhance their collaboration with the market. This is relevant for business services, distribution, and financial services, where new technologies are vastly disrupting the existing industry landscape. The "low-tech" issue is also relevant for industries facing the "reverse skill gap", where the companies are not posting enough high-skill jobs that can match the region's highly educated workforce profile; these include biopharma, food processing, and construction.
- E. Build connections among businesses, governments, and institutions.** Cross-sectoral collaboration is a prerequisite of, and a way to initiate and implement, the other four strategies discussed above. The lack of such collaboration has been a challenge faced by most of the key clusters studied in this report, as closely guarded trade secrets have been an obstacle to businesses benefiting from more strategic cooperation with industry competitors. For example, in the tech sector, information sharing via formal and informal channels has been the foundation for discovery of new technologies and market opportunities. In manufacturing, pooling resources together can help companies to reduce the various costs of doing business (such as workforce training, utilities, etc) and achieve higher profit margins. It is imperative for Long Island's various actors to have dialogue with each other and work together in a dynamic ecosystem.

Vision for Hauppauge

From tradable cluster growth to talent attraction, from workforce development to improvement in the local innovation and business ecosystems, the Hauppauge Industrial Park can provide a unique opportunity to test and implement high-level economic development strategies on the ground.

Given the extraordinary scale and high concentration of key tradable clusters at Hauppauge, there can be strong synergy between the Park’s continued growth and Long Island’s overall economic development. Stakeholders of the Park need to ensure that the Park’s internal priorities and investments always resonate with the bigger picture of the region, and the day-to-day operation of individual businesses should not efface the Park’s collective identity as a major economic hub on Long Island.

This requires actors inside and outside the Park to have a clear and compelling **vision**, form strong **leadership and alliances**, and implement a set of strategic **actions**. Before the report recommends specific projects and actions, the following elements should be emphasized:

Policy Alignment

- ▶ **Conversations with governments** are essential for the Park’s stakeholders to understand policy priorities, explore funding opportunities, and gain initial buy-in and support for potential projects in Hauppauge. From federal (Economic Development Administration and Department of Energy) to state (Empire

State Development), from county (Suffolk County) to local (Town of Smithtown and Town of Islip), multiple agencies can offer financial support for a wide range of economic development opportunities suitable for the Park. The subsequent recommendations in this report are aligned with existing funding priorities.

- ▶ **Advanced manufacturing** has gained renewed interest and investment on Long Island. While this report aims to offer a comprehensive outlook of nine diverse key clusters, all of which are represented in the Park, Hauppauge stakeholders may consider giving priority to industries that can ride the regional tide. Specifically, offshore wind, for example, is a major area of new development that received government funding and could potentially yield spillover effect to several businesses located in Hauppauge. The economic analysis in this report provides a framework and methodology for the Park’s stakeholders to continue monitoring and analyzing industry trends on Long Island.

Long Island-Wide Partnerships

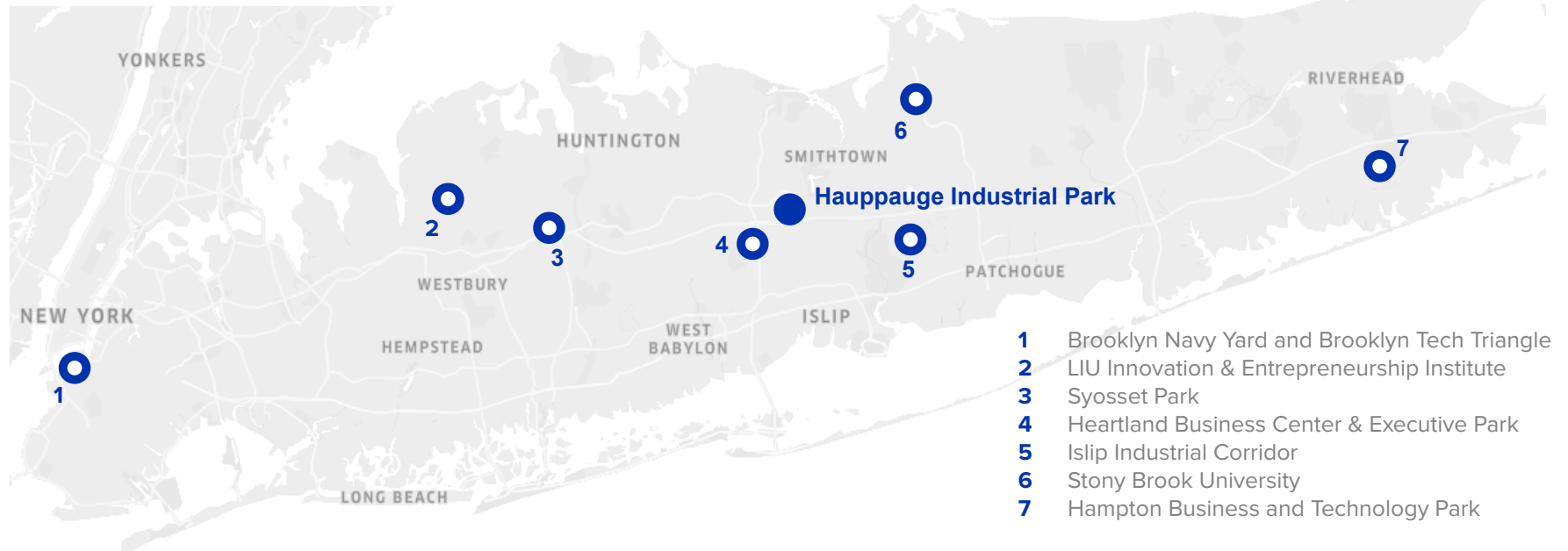
- ▶ **Industry-academia collaborations** help companies in key clusters to manufacture newer and higher-value products, translate the region’s strong intellectual capital into direct market outputs, and keep Long Island’s well-trained workforce in the local job market. Therefore, the Park needs to design and execute formalized partnerships with educational and research institutions.

- ▶ **Major private sector players** can generate very large spillover effects on Long Island. From Calverton to Ronkonkoma, for instance, industry leaders and real estate developers in the region are advancing highly ambitious economic development plans that may reshape the economic landscape of Long Island. The Park’s stakeholders should have more frequent conversations with major regional players to explore more opportunities for collaboration and/or business expansion.
- ▶ **Non-profit organizations** can often provide the capital, expertise, and/or network resources to help local economic development initiatives move forward. From high-tech workforce training to employee and social services, stakeholders of the Park can collaborate with Long Island’s non-profits to envision and deliver many different kinds of crucial initiatives.

Rethinking Competition

- ▶ **Many other places** on Long Island aspire to capture and maximize growth opportunities. From Heartland Business Center to the Islip Industrial Corridor, from Stony Brook University to the Hampton Business and Technology Park, these hubs can offer useful lessons, shared resources, and collaboration opportunities for Hauppauge. The regional vision for Hauppauge aims to change the traditional, inward-looking mentality of doing business on Long Island. For the Park as a whole, turning its competitors into a network of collaborative resources is an important step toward a new growth strategy. All parties on the Island should be uniting around common goals for workforce training, incubators, co-work space, high-tech shared equipment, and housing policies.

Figure I-4: Economic hubs on Long Island

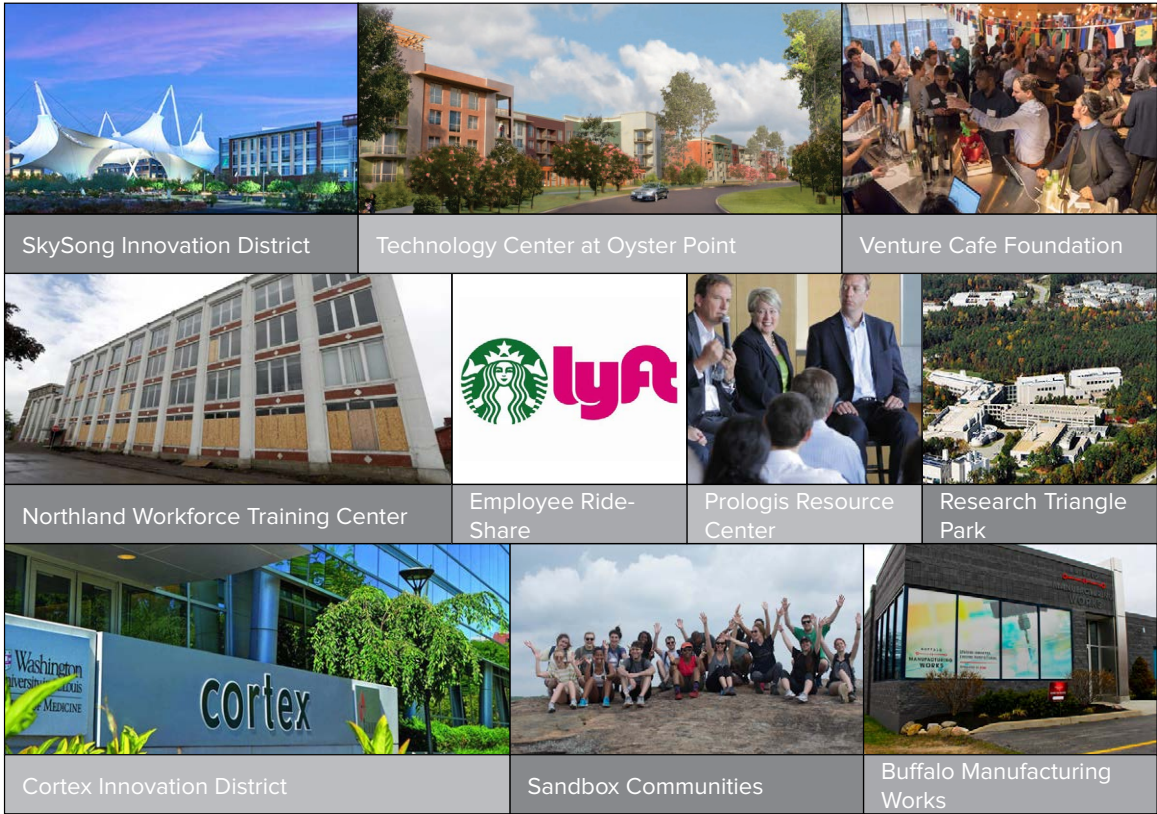


Lessons Learned from Economic Hubs Across the U.S.

Ultimately, the regional vision for Hauppauge needs to be formulated as specific action items, and Long Island’s high-level economic development strategies are the most effective when they are translated into implementable projects on the ground.

The research investigates 10 vibrant economic hubs and creative initiatives across the U.S., and finds that successful cases can realize their stakeholders’ economic development goals via different combinations of project approaches. To synthesize, this report discusses four main categories of **action types**, described below. Long Island’s economic developers should familiarize themselves with the different features and effects of these techniques and be creative in utilizing them.

Figure I-5: Case studies



See Appendix 2 for image credits

- 1. Regulation and zoning**, as well as financial incentives, public-private partnerships, and government-funded workforce training programs, are some of the most important tactics to promote large-scale changes in a region. Many large-scale district developments nationwide adopt zoning changes and innovative governance structures to jumpstart the projects and incentivize private-sector developments.
- 2. Public realm improvements** are critical to a place's economic success, because properly designed public spaces and desirable amenities are proven to boost worker satisfaction and productivity. Research has also demonstrated the role of space design in catalyzing knowledge spillover and information exchange between firms and individuals. Additionally, public realm improvement is closely linked to the place's identity and branding, which are crucial aspects that attract inward investments.
- 3. Business facilities and amenities** are essential for firm growth and talent attraction, and real estate development is often an integral part of district-scale economic development. From individual retrofit of old assets to large-scale comprehensive development of mixed-use environment, physical building increases visibility, generates public interests, and is often the anchor of economic development projects.
- 4. Management and operation** are often overlooked but can often provide some of the largest returns on investment. Improvements to an organization's soft infrastructures tend to get fast approvals and come with relatively low implementation costs. Yet, they often address some of the most serious and overlooked efficiency and collective-action issues. They are also crucial for local economic development because these mechanisms essentially are the channels that allow multiple stakeholders to communicate and work together toward common goals, hence thickening the social and institutional tissues of a place. Once again, this report emphasizes that a region where actors can effectively collaborate has a better chance of economic prosperity.

Designing the New Park and Taking Strategic Actions

As identified by the case studies, a wide range of strategies are typically deployed and needed to foster a successful economic hub. Zoning regulations, strategies for management and operations, public realm improvements, and development of business facilities and amenities will all play critical roles in realizing the regional vision for the Hauppauge Industrial Park.

This report provides a detailed list of such action items, indexed below. The report also discusses ways to manage these proposed projects **spatially** (in the Park territory, as an illustrative concept plan), **temporally** (across short-, medium-, long-term time horizons), and **organizationally** (by different stakeholder groups).

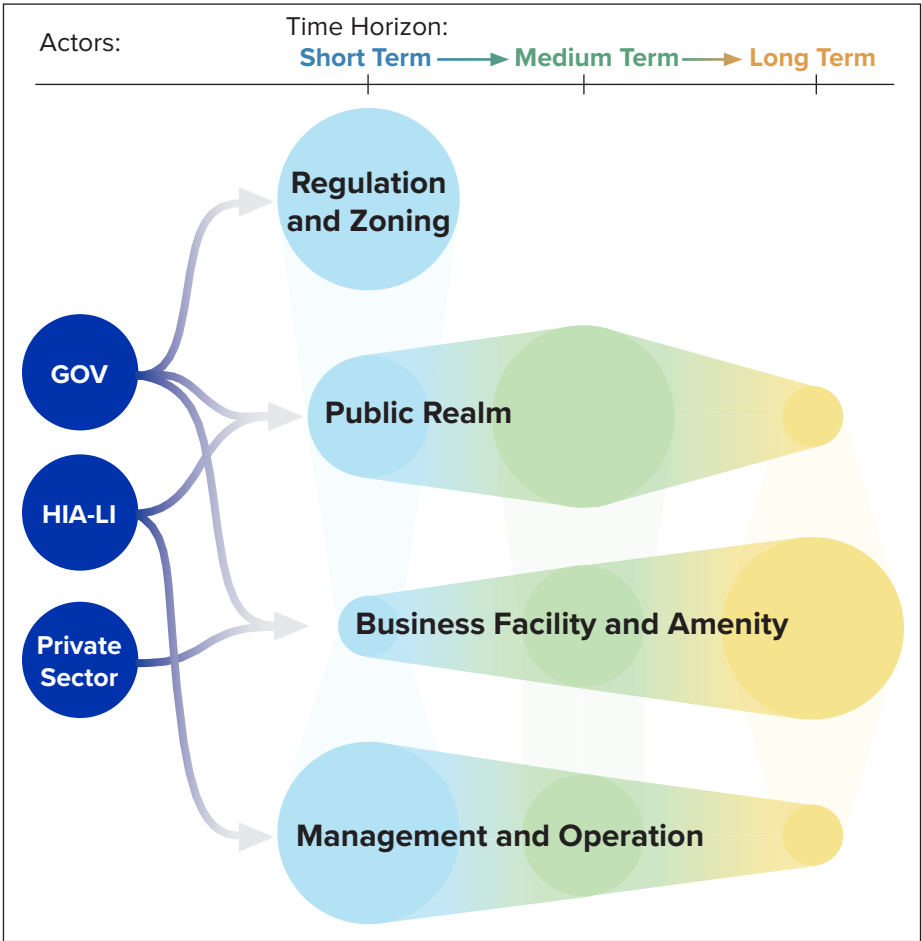
Regulation and Zoning

The **Town of Smithtown** and the **Town of Islip** will be the main actors for zoning change and building code updates. These initiatives are necessary for the Park’s businesses to grow and expand and for a more dynamic live-work environment to emerge.

As these policy changes will likely involve less direct cost, and because they are the precondition for other improvements, zoning and regulatory actions should be **front-loaded** in the Park’s strategic plan. Specific actions include:

- ▶ **Zoning amendment**
 - Expand the list of use groups in zoning to include personal services, entertainment, and retail

Figure I-6: Phased collaboration matrix



- Allow new mixed-use buildings along Motor Parkway and the southern section of Old Willets Path between Engineers Road and Motor Parkway
- Adjust height criteria
- Modify dimensional and density regulations
- ▶ **Building code**
- Allow new structures to be clipped on to big-box factory buildings

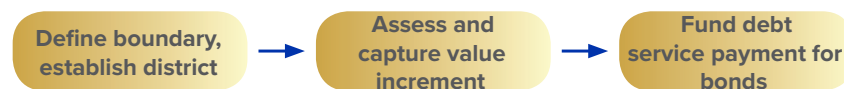
Public Realm

Improvements to the Park’s public realm will be spearheaded by the **Towns** and the **HIA-LI**. These projects will play a crucial role in making the Park more attractive to businesses and employees.

The current fragmentation of property ownership in the Park is a challenge for the planning and implementation of Park-wide public realm upgrades. The concept plan thus strategically concentrated the recommended projects at locations where there are common ownerships and potentially willing owners.

Alternatively, stakeholders of the Park can explore options to form governing structures that can finance district-scale improvements via structures and mechanisms such as value capture districts, betterment levy, and concessions. In the value capture district scenario, the Park would define the geographic boundary and establish the district, assess and capture value increment, and fund debt service payment of bonds.

Figure I-7: A potential financing mechanism



The cost of implementing these public-realm changes ranges from low to medium-high, and they will be placed primarily in the **medium- and short-term** time scales. It is anticipated that these public investments will later drive up private developments. Specific actions in this category include:

- ▶ **Reinvent the Park’s brand and identity** with upgraded signage and wayfinding system
- ▶ **Enhance physical connections**
 - Delineate walking, biking, and running routes in the Park
 - Build a greenway system with new trails and park course throughout the Park to encourage interactions
 - Reroute transit and add new stops
 - Add connections to surrounding areas (nearby LIRR stations, Suffolk Community College, Hoyt Farm Nature Preserve, and Blydenburgh County Park)
- ▶ **Build public spaces as “innovation nodes”**, with new parks, outdoor meeting rooms, and multi-modal transportation
- ▶ **Commit to green infrastructure** and link the existing green space into a passive stormwater management system
- ▶ **Provide amenities that improve health and quality of life**, such as exercise stations, bike lanes, and health clubs.

Business Facility and Amenity

Business growth and associated real estate development can be spearheaded by **the private sector**. **Suffolk County IDA** can provide crucial support and tax incentives for these transactions and developments.

As these actions are typically capital intensive, and because the market takes time to mature, real estate development is proposed as an action that is mostly in the **long term**. Specific project ideas include:

- ▶ **Innovation spaces**
 - Renovate existing properties into coworking spaces in the short term
 - Build incubator with additional facilities in the medium term
 - Construct full-blown Regional Innovation Center in the long term, to include spaces for material testing, lab, conferencing, events, and production
- ▶ **Mixed-use development.** Build dynamic live-work environment along the north side of Motor Parkway
- ▶ **Building retrofits.** Transform the big-box factories and make them more visible, welcoming, and integrated with the Park’s public realm

Management and Operation

Improvements to the Park’s soft infrastructure will be spearheaded by **HIA-LI**, with support from its members. HIA-LI should collaborate with as many internal and external stakeholders as possible to make these initiatives successful.

Similar to zoning changes in the public realm, these management and operational initiatives in the private and community realm will mostly be low-cost. Therefore, they are also **front-loaded** and should be carried out as the initial signal to kickstart the larger redevelopment effort. Specific actions include:

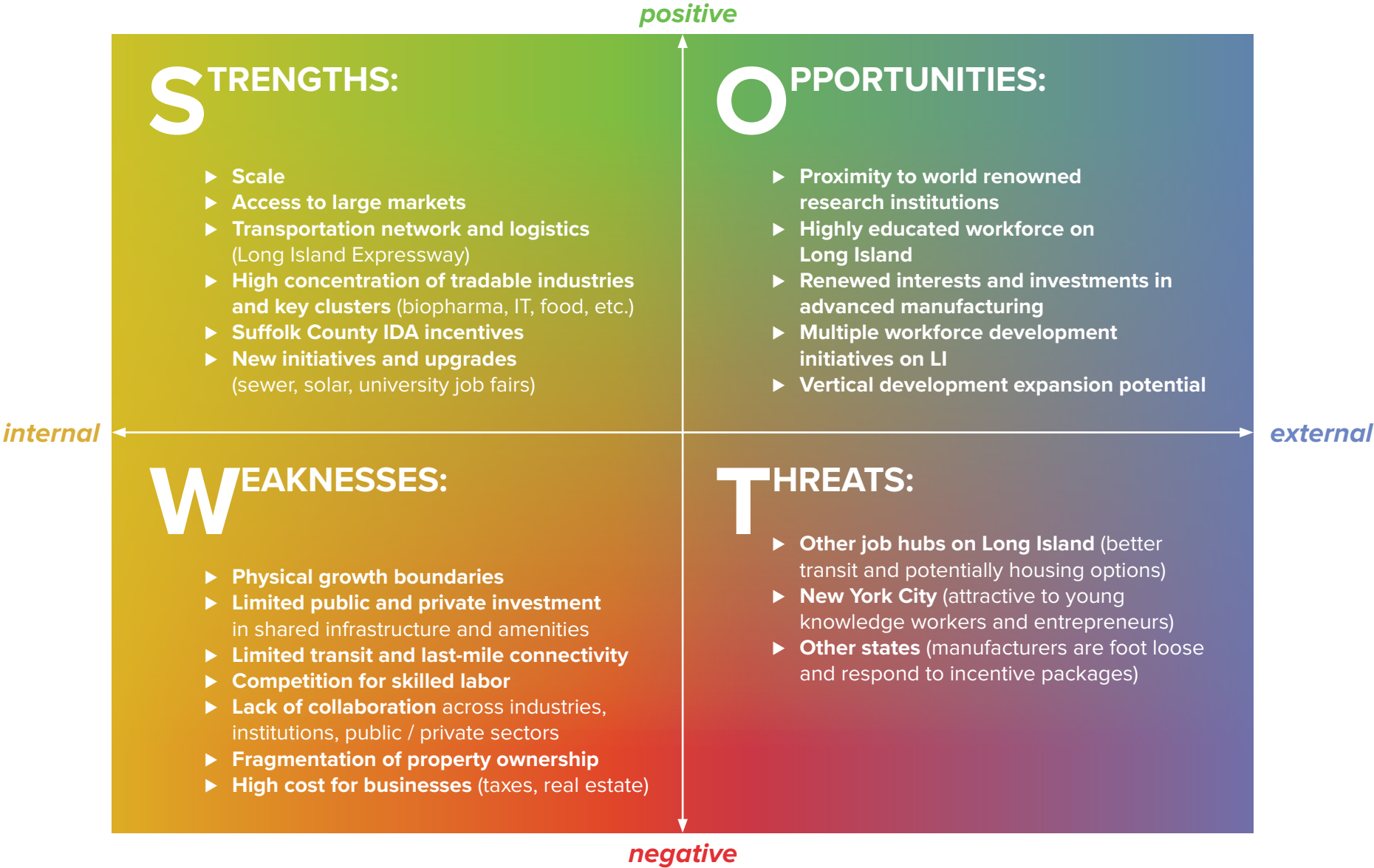
- ▶ **Social network for special industries**
 - In addition to general events open to all Park businesses, host regular social programs and conferences for specific industries, such as advanced manufacturing
 - Set up a manufacturing committee or taskforce to further advocate for the growth of key industries in the Park
 - Set up a cultural committee to organize and manage social events and programming in the Park

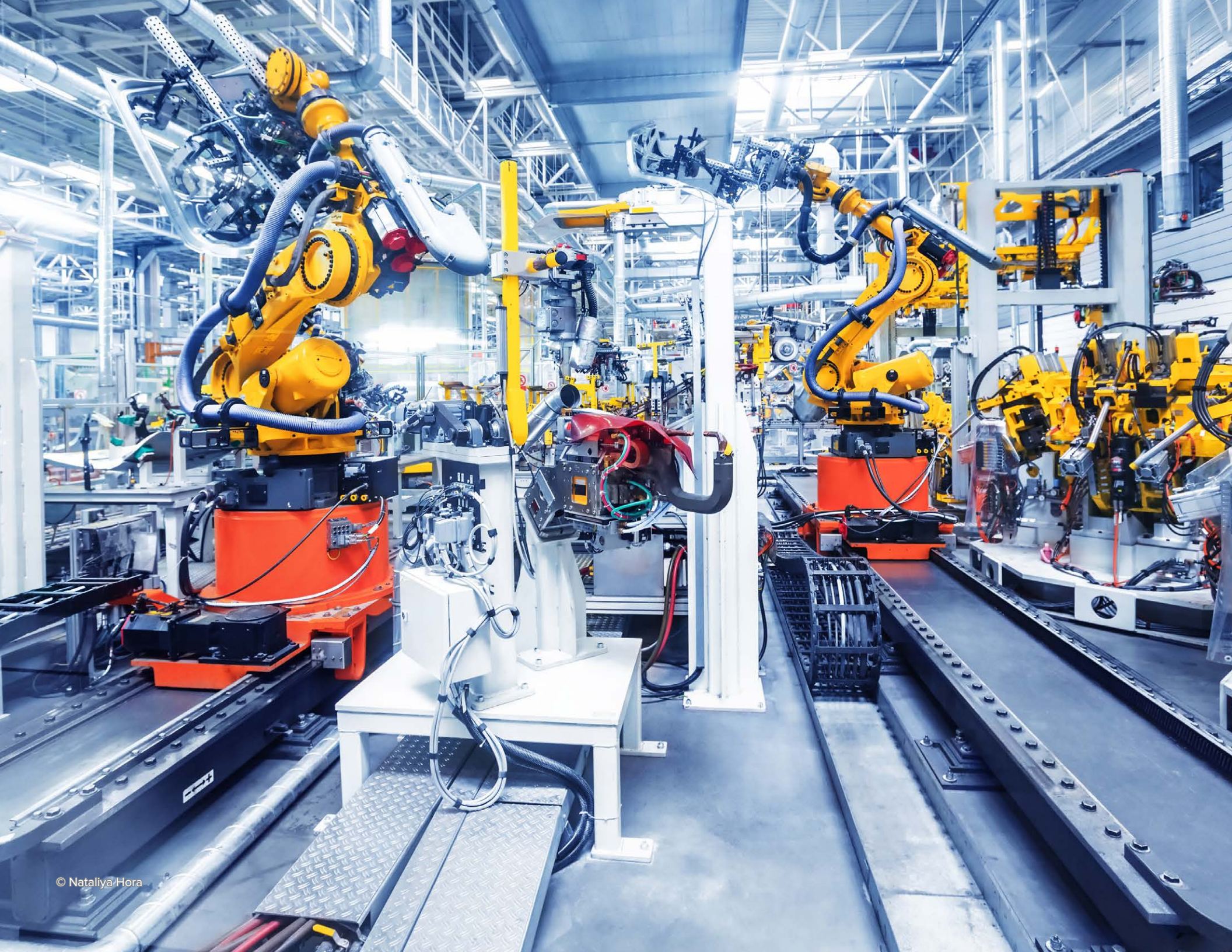
- ▶ **Resource for innovation and research**
 - Create and manage a database of companies and Long Island institutions for them to “match” and collaborate on funded research, patent use, and consulting assignments
 - Hire a dedicated staff to manage the database, conduct surveys with companies, and liaise with research institutions Island-wide
- ▶ **Value-add membership services**
 - Procure and provide business services with a membership-based fee structure, such as property tax consulting, government regulation compliance, and funding application support
 - Manage shuttle buses and carpooling services to employees of companies that subscribed
- ▶ **Workforce**
 - Continue to organize university job fairs and outreach to Long Island-wide institutions
 - Organize field days and company open houses in the Park
 - Manage formalized, industry-led training programs
- ▶ **Other initiatives**
 - Reinvent the Park’s brand and identity
 - Continue to advocate solar and green energy initiatives
 - Conduct surveys with building owners and businesses and make the data useful

The Park covers a large geography with complex ownership patterns, and so it is neither realistic nor strategic to impose a single and fixed master vision for how the Park will evolve. This report argues for a **flexible structure** that can be adapted to evolving business priorities, cost and complexity factors, and new market opportunities.

Among several possible structures around which the above-mentioned design elements can be organized, this report presents an illustrative concept plan that places strategic projects

Figure I-9: SWOT analysis for the Hauppauge Industrial Park



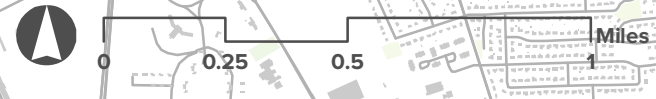


Hauppauge Industrial Park

Regional Competitiveness and Growth Strategies



The Hauppauge Industrial Park - Existing Condition



The key objective is for the Hauppauge Industrial Park to anchor the growth of competitive tradable industries on Long Island.

The Park can do so by providing the necessary **facilities, amenities, talent pool,** and **knowledge infrastructure** for further firm clustering and agglomeration, as well as by **marketing and branding** the Park as the Island's premier hub for growing businesses.

Introduction

[A Local Strategy for the Regional Economy](#)

[Report Structure](#)

With new strategic investments, the Hauppauge Industrial Park, as one of the largest industrial parks in the U.S., has the potential to become the key player in strengthening the Long Island economy.

Introduction

A Local Strategy for the Regional Economy

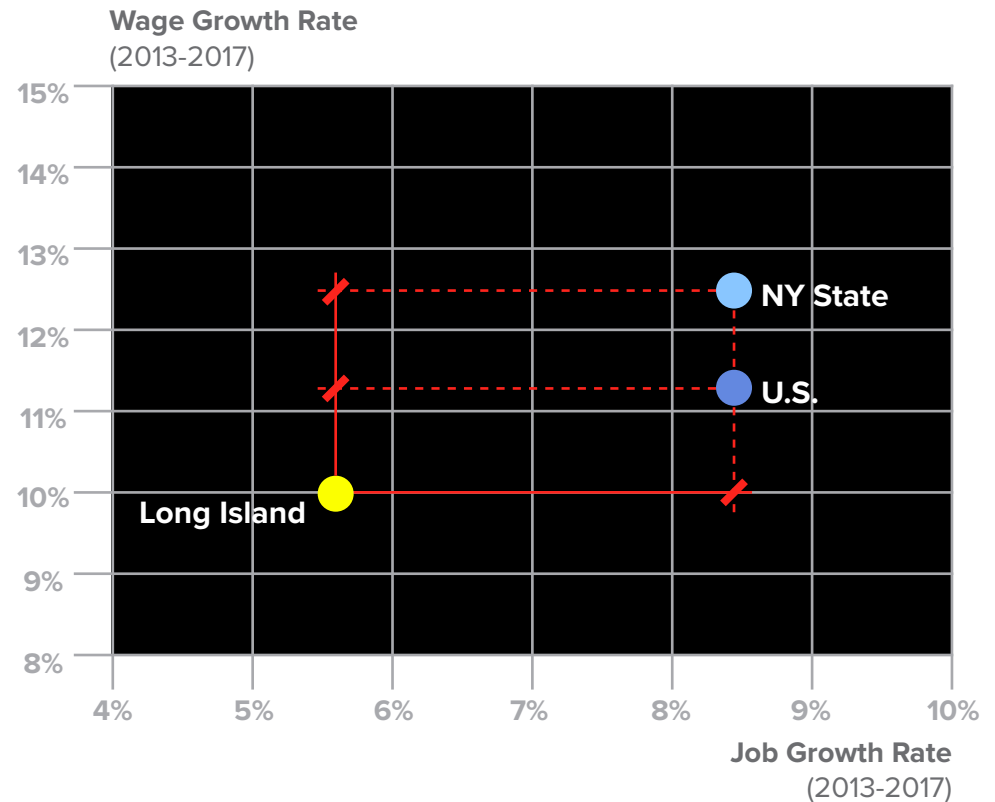
Long Island has undergone a series of great economic transformations. From the initial bedroom community upon its inception, to a place with the burgeoning aerospace and defense sector in the postwar era, and to the current hub of health, education, and service industries, Long Island's \$194 billion economy continues to change and expand, offering jobs and business opportunities for the larger region.

Yet the pace of economic growth on the Island is slowing down. Specifically, both the GDP figure and the employment number of Nassau and Suffolk grow at a lower rate than the U.S. average. The quality of jobs on Long Island is also an area of concern, as the existing job growth is primarily driven by low wage sectors, casting shadows for the region's future growth potential.

Given such challenges, Long Island still holds a multitude of valuable assets that, if deployed well, can propel strong growth in the future. Nassau and Suffolk's favorable socioeconomic conditions include:

- ▶ **Highly educated workforce:** 39% of the population over 25 years old on Long Island has Bachelor's degrees or higher – a sizable nine percentage points higher than the U.S. average.
- ▶ **World renowned research institutions:** Stony Brook, Brookhaven National Laboratory, Cold Spring Harbor, Hofstra, and Northwell Health are pioneers in scientific discovery.
- ▶ **Extensive transportation network:** Long Island Rail Road and multiple highways connect the Island to the larger regional

Figure II-1: Wage and job growth rates
- Comparing Long Island with NY State and the U.S.



market. Policy shift toward transit-oriented development and investments in the Third Track will make the Island more connected and competitive.

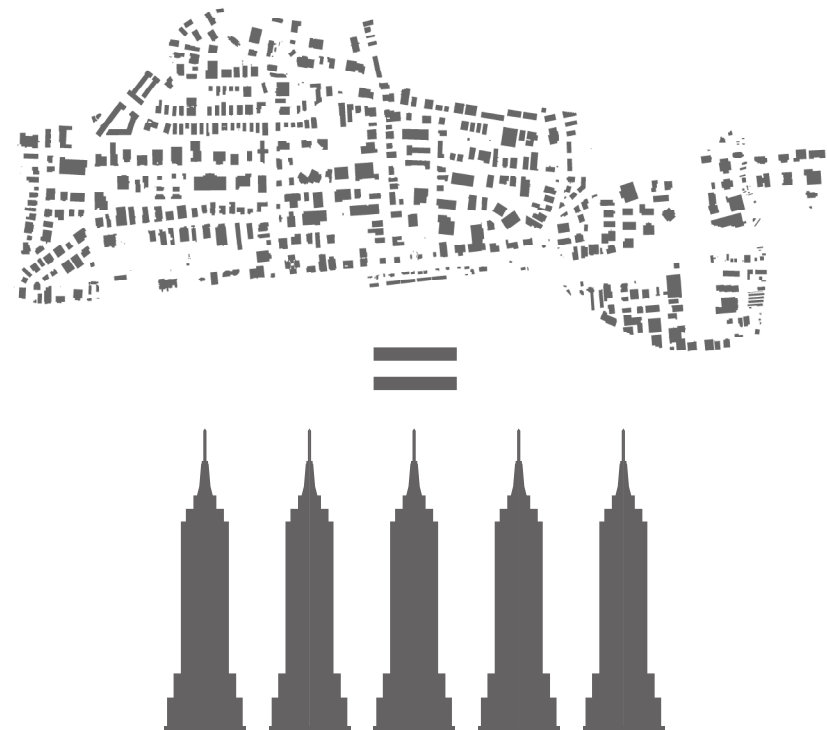
- **Quality of life benefits:** the rich cultural, recreational, and natural amenities, as well as good schools, make Long Island an attractive place to live and work.

To fully leverage these assets, Long Island needs a clear and compelling industry strategy. Firms and industries are the engines of economic prosperity. In a dynamic market with individual creativities, it is firms and industries that can utilize the various regional assets mentioned above to produce goods, offer services, and ultimately yield economic outputs, wages, and taxes that fund public services.

On Long Island, the largest concentration of firms happens in the **Hauppauge Industrial Park**. Within the 1,600 acres of land area (Smithtown and Islip), 1,350 companies employ approximately 55,000 people. In fact, one in 20 jobs (private sector) on Long Island depends on the Park. The 13 million square feet of manufacturing and commercial spaces can fit five Empire State Buildings, and the \$13 billion sales volume in the Park accounts for 1.35% of gross state product in New York.

The Hauppauge Industrial Park has the critical mass to be the key player in strengthening the regional economy. The Park shares many of the challenges facing the region as a whole, such as physical growth boundaries and high tax environment; but unlike other parts of Long Island, it offers very high concentration of businesses in tradable industries, such as pharmaceuticals, information technology, analytical instruments, and the emerging food processing industry.

Figure II-2: The Hauppauge Industrial Park's manufacturing and commercial spaces can fit five Empire State Buildings



Recognizing Long Island's need for greater economic growth and the existence of such tremendous potential in Hauppauge, this report analyzes the region's competitive industries, and argues that the Hauppauge Industrial Park can offer a unique opportunity to implement the various actions needed to strengthen the regional economy.

As this report will demonstrate, **the role of the Hauppauge Industrial Park in the regional economy is to foster the key industries that Long Island has competitive advantages for, by providing the facilities, amenities, talent pool, and knowledge infrastructure for their continued growth and agglomeration.** This requires all stakeholders to assess regional economic trends and conditions, and engage in cross-sectoral conversations that shape the future of the Long Island economy, such as:

- ▶ What industries thrive on Long Island more than in any other parts of the U.S.?
- ▶ What do they need the most for further growth and agglomeration?
- ▶ What kind of capital investment and management improvement can make the Park more attractive to businesses in those industries?
- ▶ What kind of zoning and policy support are needed in order to incentivize private-sector actions?
- ▶ How can public and private actors come together and collaborate?

This report aims to answer those questions, offers a rigorous examination of opportunities and challenges for the Hauppauge Industrial Park, and provides lessons and actionable

recommendations to prepare the Park for its role as a strong player in Long Island's economic revitalization.

The Park is already full of valuable and tangible assets, something that many places will spare no expense in order to possess; the Park's existing assets will yield even greater economic impact if they work with the region's broader aspirations. Making Hauppauge a truly regional project will require a clear vision, proper strategies, and effective actions.

Report Structure

Economic Opportunities

The analysis begins with regional-level, comprehensive research of competitive industries. This chapter identifies nine key sectors in the tradable economy and provides a menu of economic development strategies to maximize their strengths. All of the identified key industries are represented in the Hauppauge Industrial Park; specific design and policy recommendations for the Park should aim to enhance the growth and agglomeration of these key industries.

The Vision

Having understood the economic opportunities on Long Island, this chapter envisions the Park as a key player in the region's economic revitalization and lays out the key elements required to achieve that goal. Emphasizing the importance of policy alignment, partnership, and Island-wide networks, this chapter can serve as a guide for the Park's stakeholders to articulate and communicate the regional vision.

Cases That Work

Broad strategies and visions are the most useful when they can be implemented on the ground as specific projects. This chapter surveys successful economic hubs around the country and provides a menu of diverse action types that can be used to help the Park capture the economic opportunities. The studied actions include both the intervention in the physical realm and the soft, intangible elements of management and social network.

Design Framework: An Action Plan

The final chapter of this report provides a series of actionable recommendations and offers a plan for the different stakeholders to collaborate in the short, medium, and long terms. Listing the specific elements required for a successful regional economic hub, this chapter discusses the different types of actions required in detail and provides a design framework that organizes the various action items into a clear system that speaks to the Park's overall economic vision. ■

Economic Opportunities

Assess, Understand, Capture

An Industry Cluster-Based Approach

A Diverse Pallet of Cluster Strengths

Objectives for Long Island's Key Clusters

Broad Economic Development Strategies

Design strategies and policy recommendations should be formulated based on a solid understanding of the regional economy.

Economic Opportunities

Assess, Understand, Capture

Long Island presents its businesses and governments with a unique combination of opportunities and challenges. For Hauppauge, any design strategies and policy recommendations should be formulated based on a solid understanding of the regional economy. The purpose of this comprehensive economic analysis is to inform overall strategies that unlock the region’s economic potential. These strategies will further inform the vision and recommended actions for the Hauppauge Industrial Park.

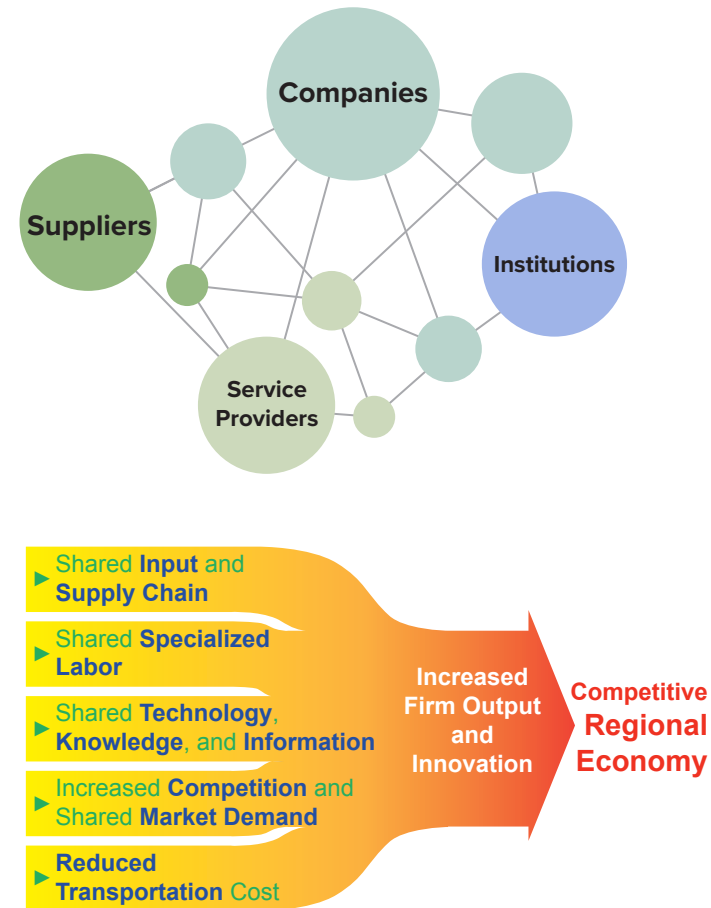
An Industry Cluster-Based Approach

Clusters as the Drivers of Local Economic Development

By studying industry clusters, this research aims to understand Long Island’s opportunities and barriers for economic growth.

Clusters, in comparison to individual industries or businesses, are about the important connections among firms across various sectors. Clusters thus unveil a region’s competitive advantages by capturing important agglomeration dynamics such as labor pooling, knowledge spillover, and input-output exchange. According to Edward W. Hillton and John F. Brennan, “The co-location of firms or industries that complement each other, compete against each other, or share common resources (e.g., technology, specialized labor) leads to increasing returns to scale.” Looking beyond individual actors, the research studies clusters to understand how Long Island’s business environment is unique.

Figure III-1: Clusters and their sources of strength



**Harvard Business School,
US Cluster Mapping**

“Clusters enhance productivity and spur innovation by bringing together technology, information, specialized talent, competing companies, academic institutions, and other organizations. Close proximity, and the accompanying tight linkages, yield better market insights, more refined research agendas, larger pools of specialized talent, and faster deployment of new knowledge.”

Figure III-2: Local vs tradable clusters

Tradable Clusters

Mainly exported to other places. Concentrated in a subset of geographic areas.



Local Clusters

Goods and services consumed by local residents. Present in most places.



A Focus on Tradable Clusters

Related industries are grouped into clusters. Among all the clusters in a region, tradable clusters hold particular significance due to their direct role in local economic growth.

The tradable economy consists of industries that export to other regions and hence “bring outside money in”. Examples of tradable clusters are electrical equipment, aerospace and defense, and biopharmaceuticals. According to the law of comparative advantage, regions tend to specialize and differentiate their industry mix, and as a result, tradable clusters are often concentrated in a subset of geographic areas.

In comparison, non-exporting goods and services are classified as local clusters. These refer to businesses such as restaurants and childcare, which mainly address the needs of local residents. These locally consumed goods and services hold lower priority in the discussion of economic development.

Data and Methodology

This study analyzes trends and current conditions of all industry clusters present in Nassau and Suffolk and then compare the statistics with those in the Park. The research then selected nine key clusters for further qualitative analysis, deducing lessons and objectives for each of the key clusters.

This research utilized a diverse array of public and proprietary datasets as well as information gathered from over 20 interview sessions.

The definitions of industry clusters are based on Harvard Business School’s **U.S. Cluster Mapping project**, which groups

1,291 NAICS codes into 51 tradable clusters and 16 local ones. Job-related statistics are based on data from the **U.S. Bureau of Labor Statistics**. Other socioeconomic characteristics of workforce are based on the **U.S. Census**. Only private-sector jobs are counted in studying the above-mentioned attributes. In addition to employment and workforce characteristics, the study also analyzes each cluster's labor demand, based on job opening data from **Burning Glass's Labor Insight / Jobs** dataset. Statistics on firms located in the Park were provided by the **Miller Business Center**. The **interviews** were conducted from July to October 2018 with local stakeholders from governments, institutions, and the business community.

For a more detailed description of datasets and methodology, as well as discussions of analytical caveats of the quantitative research, please refer to Appendix 1.

A Diverse Pallet of Cluster Strengths

Bringing New Dollars

Long Island's economy is skewed toward locally consumed goods and services. The relative size of its tradable economy is small. Industries that export and bring new dollars to Long Island, such as advanced manufacturing and software engineering, make up altogether just 23% of the private-sector employment base. In comparison, the U.S. average is 36%.

Therefore, one of the most imperative economic development goals for Long Island is to strategically grow its tradable clusters. This is no small task. From 2013 to 2017, Nassau and Suffolk had lost 15 thousand jobs in the tradable economy. Had the region

been growing in a similar pattern to the U.S. average, the net change would have been an increase of 20 thousand. Long Island's shrinking tradable clusters, if not adequately addressed, can present serious harm to the region's overall economic vitality.

Fortunately, the Hauppauge Industrial Park has a more desirable ratio of exporting industries. In the Park, more than half of the workers are employed in tradable clusters such as IT and biopharma. Given such a unique and favorable industry mix, Hauppauge Industry Park can and should provide anchors to amplify the overall tradable economy on Long Island.

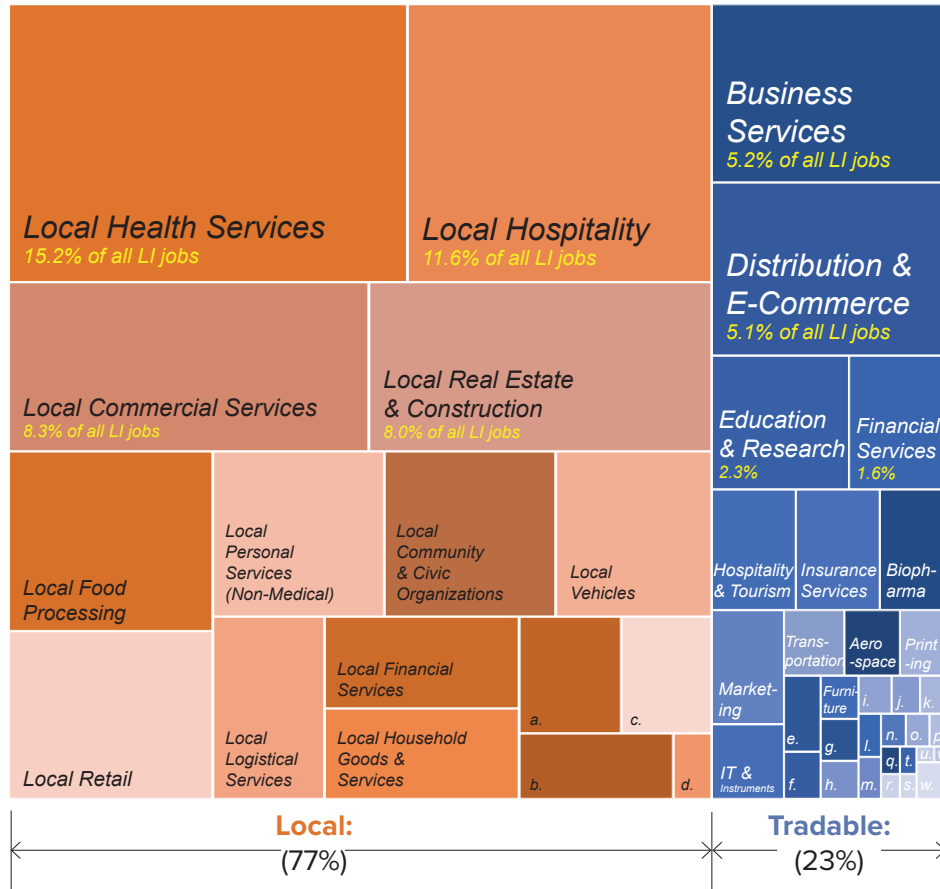
Matching Strength with Size

To improve the general condition of tradable clusters, Long Island should pay particular attention to industries that already demonstrate extraordinary potential to grow and prosper.

Currently, on the Island, the largest tradable clusters are not necessarily the most specialized ones. Among Long Island's top 10 tradable clusters by employment size, only biopharma demonstrates a strong level of specialization (on the Island, biopharma constitutes 4.4% of private-sector employment, while the U.S. average is just 1.1%). Other large clusters on Long Island tend to be similar to or smaller than the national average, indicating a mismatch between size and specialization.

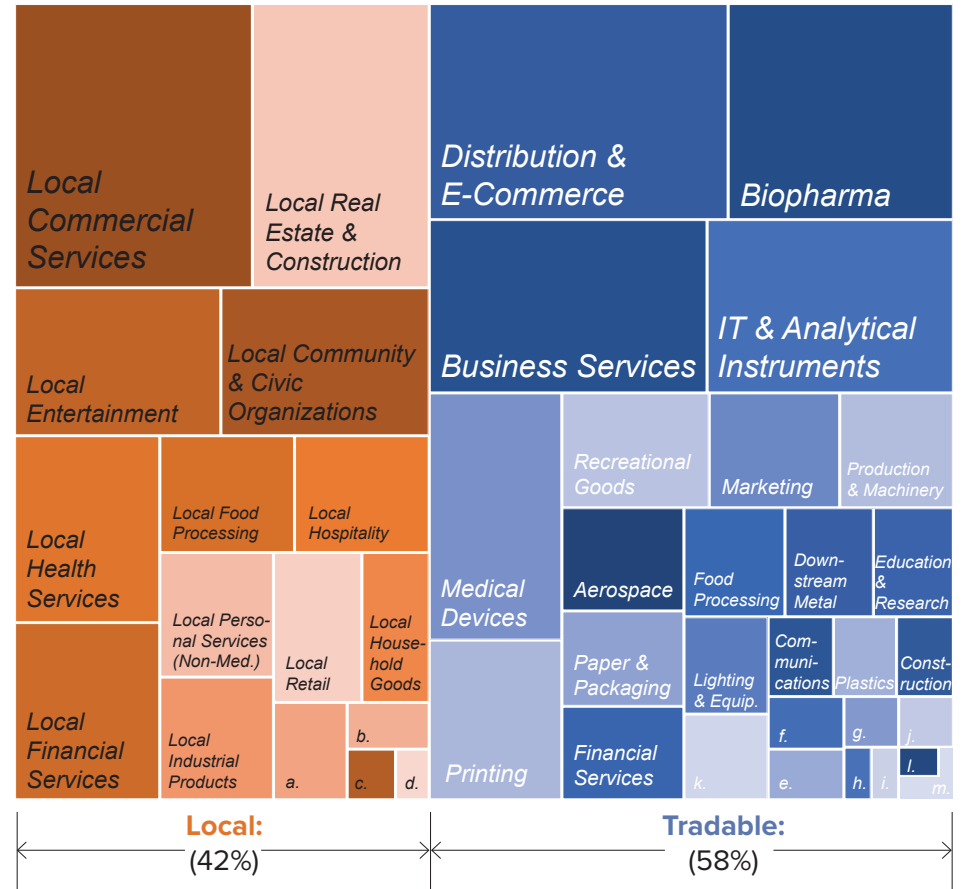
In addition to the static picture, local advantage can also be judged based on job growth. Current data reveal that some of the fastest growing clusters in the nation are instead declining on Long Island, while for some other clusters, Long Island outperforms the national average. For example, construction grew by 8% from 2013 to 2017 in the U.S., while on Long

Figure III-3: Long Island cluster distribution
(Jobs data, 2017)



a. Local Entertainment; b. Local Education; c. Local Utilities; d. Local Industrial Products; e. Performing Arts; f. Downstream Metal; g. Communications; h. Metal; i. Performing Arts; j. Paper & Packaging; k. Production & Machinery; l. Food Processing; m. Medical Devices; n. Lighting & Equipment; o. Plastics; p. Recreational Goods; q. Apparel; r. Water Transportation; s. Wood; t. Environmental Services; u. Upstream Metal; v. Textile; w. Other (Vulcanized Materials, Video Production, Oil, Music, Leather, Jewelry, Fishing, Electricity, Downstream Chemicals, Automotive, Agricultural Inputs and Services)

Figure III-4: Hauppauge Industrial Park cluster distribution
(Jobs data, 2017)



a. Local Logistical Services; b. Local Vehicles; c. Local Education; d. Local Utilities; e. Performing Arts; f. Hospitality & Tourism; g. Metal; h. Insurance Services; i. Upstream Metal; j. Transportation; k. Vulcanized Materials; l. Automotive; m. Other (Agricultural Inputs, Furniture, Jewelry, Nonmetal Mining, Oil, Water Transportation, Wood)

■ Tradable clusters
■ Local clusters

Top 10 largest tradable clusters on Long Island
(Jobs data, 2017)

- ▶ Business Services
- ▶ Distribution
- ▶ Education & Research
- ▶ Financial Services
- ▶ Hospitality & Tourism
- ▶ Insurance Services
- ▶ Biopharma
- ▶ Marketing
- ▶ IT & Instrument
- ▶ Transportation

Specialization assessment
(Measured by location quotients)

- ▶ **Less than U.S. Average**
- ▶ **Specialized only in the State**
- ▶ **Similar to U.S. Average**
- ▶ **Similar to U.S. Average**
- ▶ **Less than U.S. Average**
- ▶ **Similar to U.S. Average**
- ▶ **Highly specialized**
- ▶ **Less than U.S. Average**
- ▶ **Less than U.S. Average**
- ▶ **Less than U.S. Average**

Top 10 fastest growing tradable clusters in the U.S.
(Jobs data, 2013-2017)

- ▶ Video Production
- ▶ Performing Arts
- ▶ Food Processing
- ▶ Automotive
- ▶ Marketing
- ▶ Business Services
- ▶ Wood Products
- ▶ Furniture
- ▶ Distribution
- ▶ Hospitality & Tourism

Growth rate
(Jobs data, 2013-2017)
U.S. vs Long Island

- ▶ **+17%** **-75%**
- ▶ **+16%** **+1%**
- ▶ **+14%** **+120%**
- ▶ **+13%** **-74%**
- ▶ **+12%** **-31%**
- ▶ **+12%** **+4%**
- ▶ **+11%** **-8%**
- ▶ **+10%** **-12%**
- ▶ **+10%** **-1%**
- ▶ **+9%** **-10%**

***Location quotient** is a ratio that quantifies how specialized an industry is in a region compared to a larger geographic area (such as the state or nation), calculated by comparing the industry’s share of regional employment with its share of national/state total employment.

Island, the growth rate in the same period is an impressive 75%. Therefore, instead of blindly chasing the national industry trend, Long Island should fully assess and understand its own “edge” and aim to become leader in its uniquely advantageous industries.

Ultimately, looking at both a snap shot (specialization) and a dynamic picture (growth rate), the study aims to provide data-driven approaches to amplifying the region’s strongest assets.

Selecting Key Clusters for In-Depth Analysis

In order to develop a targeted approach to understanding Long Island’s economic opportunities, the research focused on nine key clusters in the region for further analysis.

The **nine key clusters** are:

- ▶ Aerospace Vehicles and Defense
- ▶ Biopharmaceuticals
- ▶ Business Services
- ▶ Construction Products and Services
- ▶ Distribution and Electronic Commerce
- ▶ Education and Research Activities
- ▶ Financial Services
- ▶ Food Processing and Manufacturing
- ▶ Information Technology and Analytical Instruments

All being part of Long Island’s tradable economy, these key clusters satisfy one or more of the following criteria: 1. providing large employment base (top 5 on the Island), 2. highly specialized (national or state location quotient* larger than 1.25), 3. experiencing substantial job growth (top 5 on the Island), 4. outperforming other regions in terms of job growth (local growth rate larger than national), 5. highly concentrated in the Hauppauge Industrial Park (top 5 in the Park). This key cluster list

has been verified by external experts who work extensively on Long Island’s economic development.

While all of the nine key clusters are represented in the Hauppauge Industrial Park, the Park’s overall percentage of key cluster employment is smaller than the Long Island average. If the Park strives to become a more important driver to grow Long Island’s tradable economy, stakeholders of the Park need to apply a targeted push to these key clusters.

Percentage of Total Jobs in Tradable Clusters:

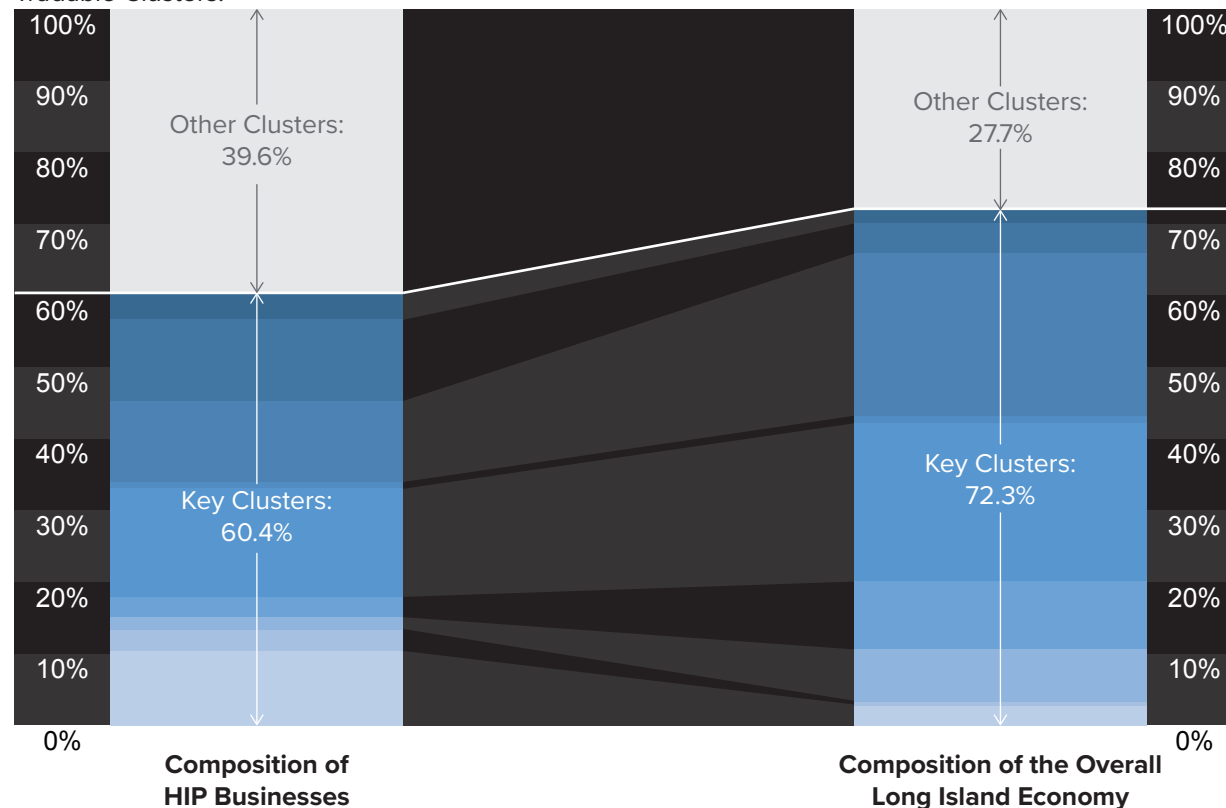


Figure III-5: Key clusters, Hauppauge Industrial Park vs Long Island
(Jobs data, 2017)

- Key Clusters:**
- Aerospace
 - Biopharma
 - Business Services
 - Construction
 - Distribution & E-Commerce
 - Education & Research
 - Financial Services
 - Food Processing
 - IT & Instruments

Key Cluster “Report Cards”

To understand how the key clusters grow, this report provides in-depth analysis for each of the nine key clusters’ business and labor fundamentals. The detailed analyses are included in Appendix 1 as “Report Cards”.

The “Report Cards” contain statistics of the cluster’s jobs and labor demand situations, as well as qualitative analysis that probes the reasons behind the cluster’s changing trends, challenges, and opportunities.

For Long Island’s economic development, these nine key clusters provide a unique combination of opportunities. Some clusters, such as financial services, provide exceptional pay to the workforce, while some of the other clusters are better positioned to grow and innovate based on their linkages to other strategic clusters (distribution, education, and business services).

While the report cannot recommend to put all resources into the “best” cluster(s), the summary profiles of each cluster’s advantages and disadvantages are provided to help economic developers prioritize and strategize their investments. Visions for Long Island and the Hauppauge Industrial Park should be based on such a full understanding of these cluster profiles.

Figure III-6: Earnings for Long Island’s key clusters
(Earning level data, 2009-2017)

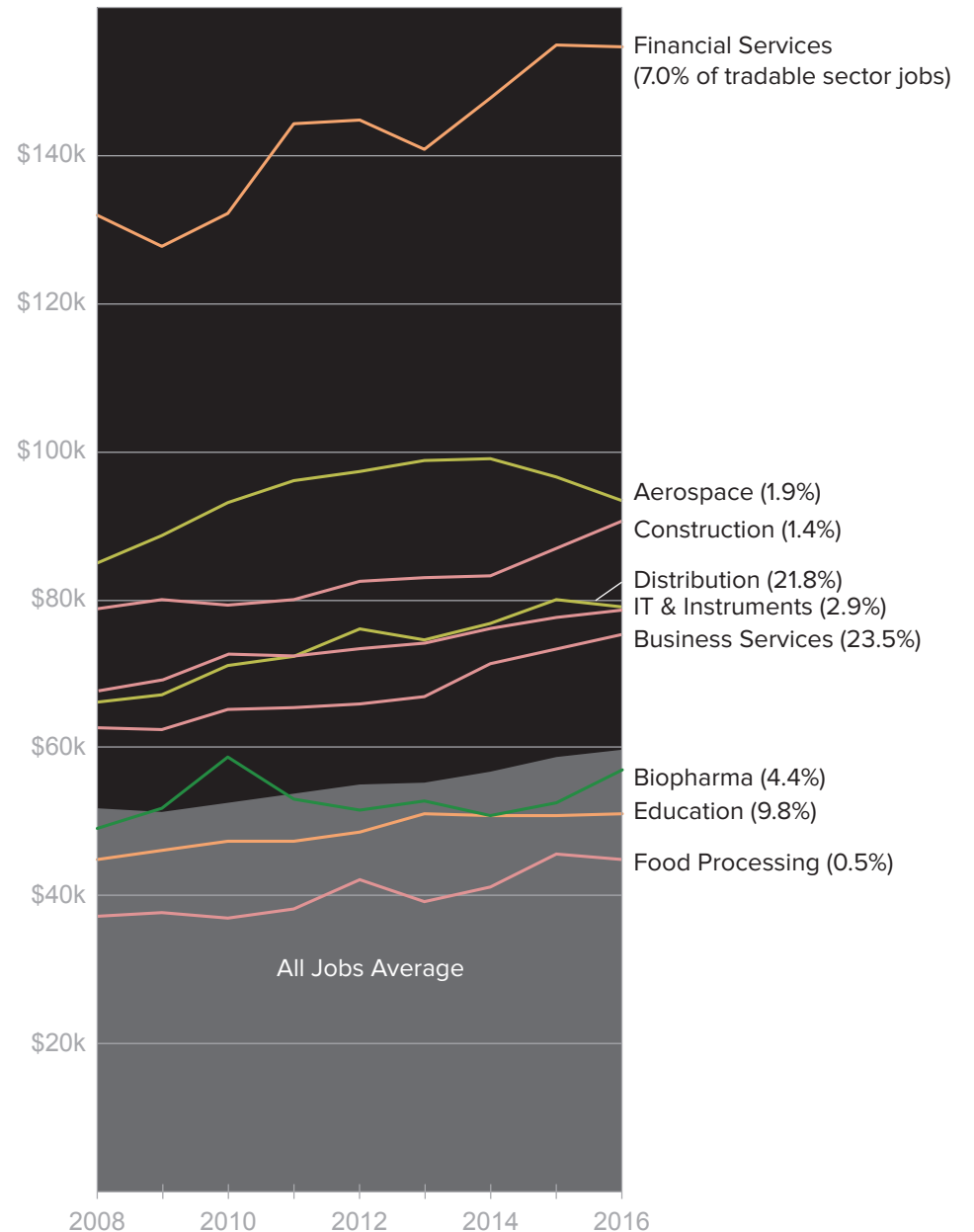


Figure III-7: Clusters form interconnected ecosystems
 - Demonstrating the relative positions and potential connections of Long Island's tradable clusters (Jobs data, 2013-2017)

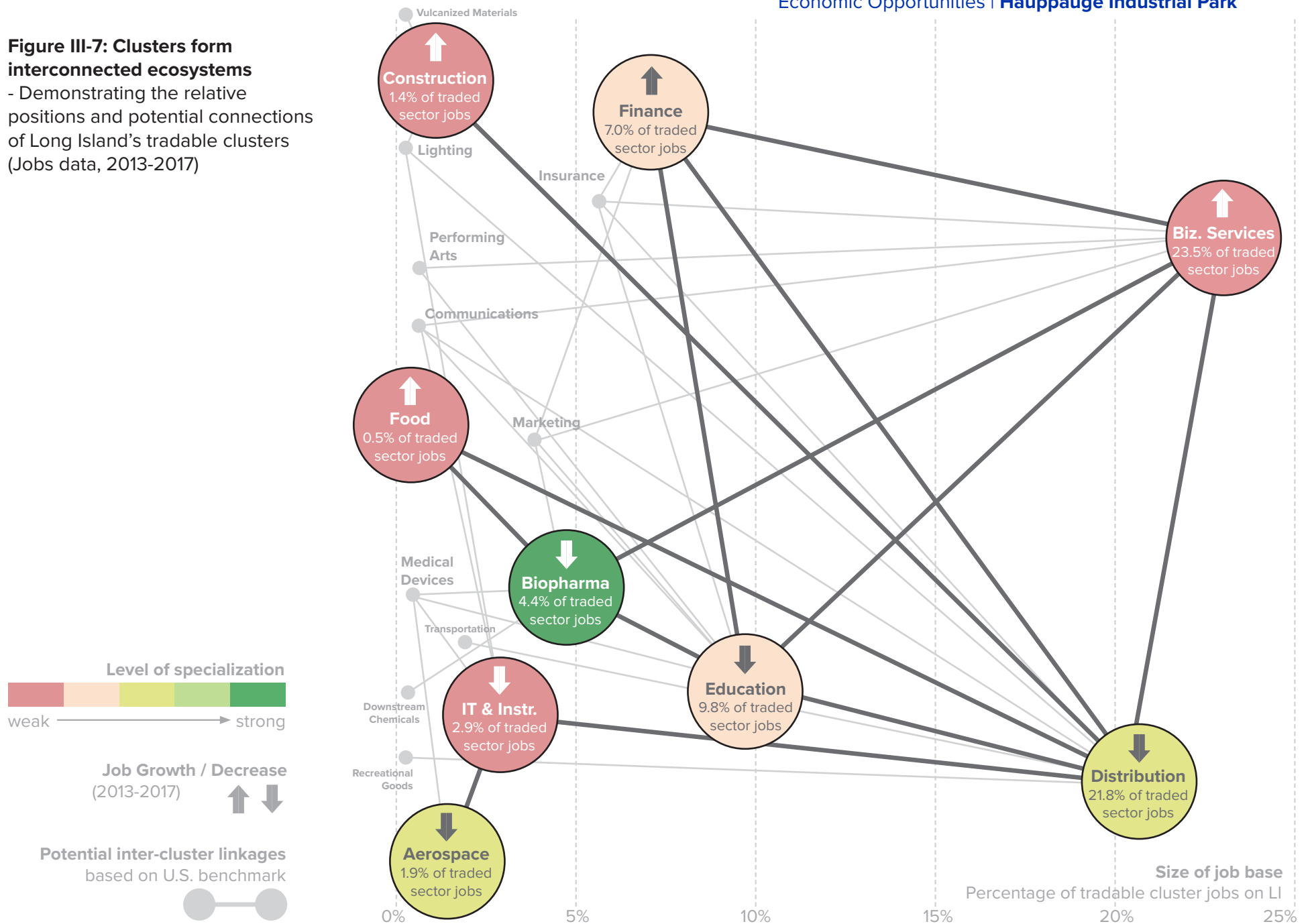


Figure III-8: Education attainments for Long Island’s key clusters
(Workforce characteristics, 2017)

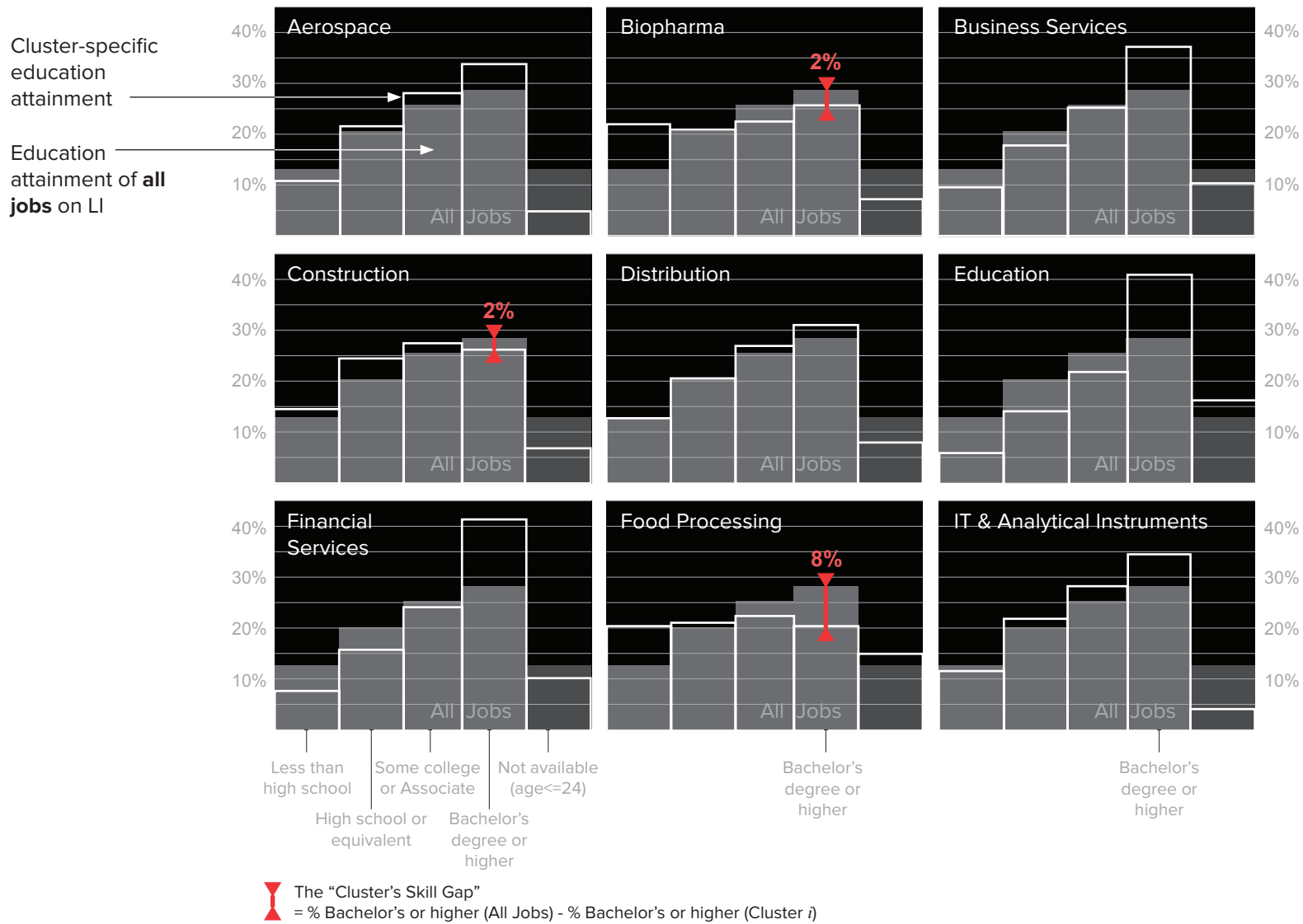


Figure III-9: Age distribution for Long Island’s key clusters
(Workforce characteristics, 2017)

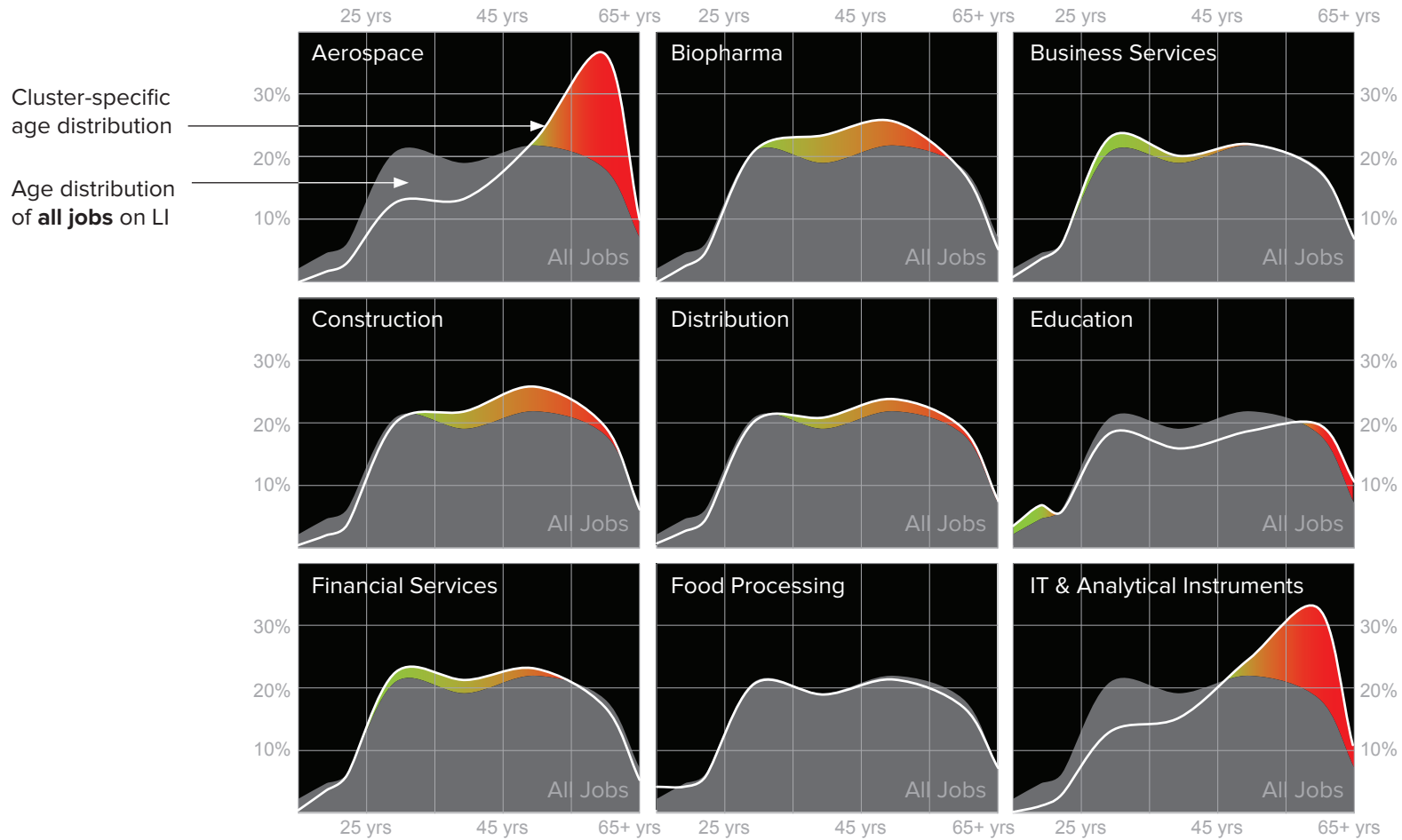
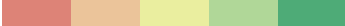


Figure III-10: Long Island key cluster profile (advantages and disadvantages) - A tool for cluster assessments and prioritization, based on industry data of Suffolk and Nassau combined.

	AEROSPACE	BIOPHARMA	BUSINESS SERVICES	CONSTRUCTION Not incl. local real estate
▶ Size of job base:	Small (4,439)	Small (10,098)	Largest (51,168)	Very small (3,310)
▶ Regional specialization:	Specialized within the state	Extremely specialized	Not specialized	Not specialized
▶ Nation-wide job growth rate:	Negative (-3%)	Positive (+5%)	Positive (+12%)	Positive (+8%)
▶ Regional job growth rate:	Negative, better than national (-2%)	Negative, worse than national (-1%)	Positive, worse than national (+4%)	Positive, better than national (+75%)
▶ Job posting / employment ratio:	Medium (1:10)	Low (1:16)	Medium (1:6)	Medium (1:9)
▶ Risk of automation in posted jobs:	Low risk	Medium risk	Very high risk	Low risk
▶ Earning level:	High but declining	Below-average and volatile	High and steadily increasing	High and recently growing
▶ Education of workforce:	Highly educated	Lower education attainment	Highly educated	Lower education attainment
▶ Age distribution of workforce:	Significantly older than average	Concentrated in mid ages	Slightly younger than average	Concentrated in mid ages
▶ Number of inter-cluster linkages:	Few	Medium-level	Many	Few

Disadvantage Advantage

	DISTRIBUTION & E-COMMERCE	EDUCATION Private sector only	FINANCIAL SERVICES	FOOD PROCESSING	IT & INSTRUMENTS
Size of job base:	2nd largest (49,920)	3rd largest (22,342)	Large (16,095)	Very small (1,228)	Small (6,583)
Regional specialization:	Specialized within the state	Similar to national average	Similar to national average	Not specialized	Not specialized
Nation-wide job growth rate:	Positive (+10%)	Negative (-3%)	Positive (+3%)	Positive (+14%)	Positive (+7%)
Regional job growth rate:	Negative, worse than national (-1%)	Negative, worse than national (-11%)	Positive, worse than national (+2%)	Positive, better than national (+120%)	Negative, worse than national (-6%)
Job posting / employment ratio:	Low (1:15)	High (1:4)	Very high (1:2)	High (1:6)	High (1:5)
Risk of automation:	High risk	Low risk	High risk	Medium risk	Low risk
Earning level:	High but volatile	Below-average	Very high	Below-average and volatile	High and growing
Education of workforce:	Educated	Highly educated	Highly educated	Lower education attainment	Highly educated
Age distribution of workforce:	Concentrated in mid ages	Concentrated in old and young	Slightly younger than average	Similar to average	Significantly older than average
Number of inter-cluster linkages:	Many	Many	Medium-level	Few	Medium-level

Disadvantage  Advantage

Objectives for Long Island’s Key Clusters

Based on the summary of advantages and disadvantages presented in the previous page, as well as the qualitative analyses excerpted below and detailed in the “Report Cards” (Appendix 1), the research distilled two to three main objectives for each key cluster. Serving as the economic developer’s “to-do” list, these objectives address the most important challenges and opportunities that are faced by industries and other stakeholders.

**Figure III-11:
The “To-do” list for Long
Island key clusters**

	AEROSPACE	BIOPHARMA	BUSINESS SERVICES	CONSTRUCTION
<p>► Qualitative assessment:</p>	With stronger local employment pipelines and sector strategies, Long Island can fully capitalize on the globally growing aerospace industry.	Long Island’s existing edge in pharmaceuticals will bring greater economic prosperity if firms move up the skill ladder and value chain.	Large as it is, Long Island’s business services cluster should better compete against big corporations, NYC-based firms, and digitalization of service functions.	Market demand and government spending in regional infrastructure and real estate development can support the growth of Long Island’s construction industry.
<p>► Cluster-specific objectives:</p>	<p>Catch up on commercial aircraft manufacturing</p> <p>Backfill the aging workforce</p>	<p>Provide training for production and management skills</p> <p>Enhance innovation capacity and research commercialization</p> <p>Move up the value chain and expand in biotech and life science</p>	<p>Provide finance, training, and tax incentives to support local firm growth</p> <p>Design programs that build advanced technology into core services</p>	<p>Capitalize on local and regional infrastructure spending</p> <p>Address the demand for residential, industrial and mixed-use real estate</p> <p>Find value-add in new material, product and technology</p>

DISTRIBUTION & E-COMMERCE

Technological development might reduce jobs in the distribution cluster, but changing demands in the different consumer markets bring new growth opportunities.

Bring value-add functions with new technology and digital tools

Tailor services to submarkets and industries

Meet demand for warehouse real estate

EDUCATION

Education catalyzes the entire economy by benefiting the region's full range of knowledge and skill spectra, from vocational and language training, to scientific research and innovation.

Design curriculum and training programs that meet industry needs

Enhance research commercialization and academic entrepreneurship

FINANCIAL SERVICES

Long Island's finance sector can be more competitive if service providers attend to local business needs and incorporate the newest development in technology.

Use new technology to revolutionize core service functions

Do business with local industries

Attract and train the workforce to embrace tomorrow's trends

FOOD PROCESSING

Food is only a small cluster currently, but the specific industry mix and demographic change of Long Island do offer many ways for it to grow and prosper.

Promote wine and food tourism

Increase product variety and broaden the supply and distribution channels

IT & INSTRUMENTS

Keeping up with the global trend of technological development, Long Island can use IT to drive the growth of other related industries.

Rebalance the aging workforce

Promote the software industry and leverage IT's linkage to other clusters

Enhance venture capital presence and entrepreneurial support

Broad Economic Development Strategies

This report translates the cluster-specific objectives into high-level policy directions related to physical growth boundaries, talent and workforce, innovation, and business ecosystem. As demonstrated below, the five strategies can each address multiple objectives designed for different key clusters. It should be understood that each strategy will have different effects on key clusters. Economic developers on Long Island and the stakeholders of the Hauppauge Industrial Park shall set clear priorities and then employ these broad strategies strategically to realize the goals and capture the economic opportunities. ■

STRATEGY A:
Facilitate business growth

STRATEGY C:
Strengthen training and workforce development

STRATEGY E:
Build connections among businesses, governments, and institutions

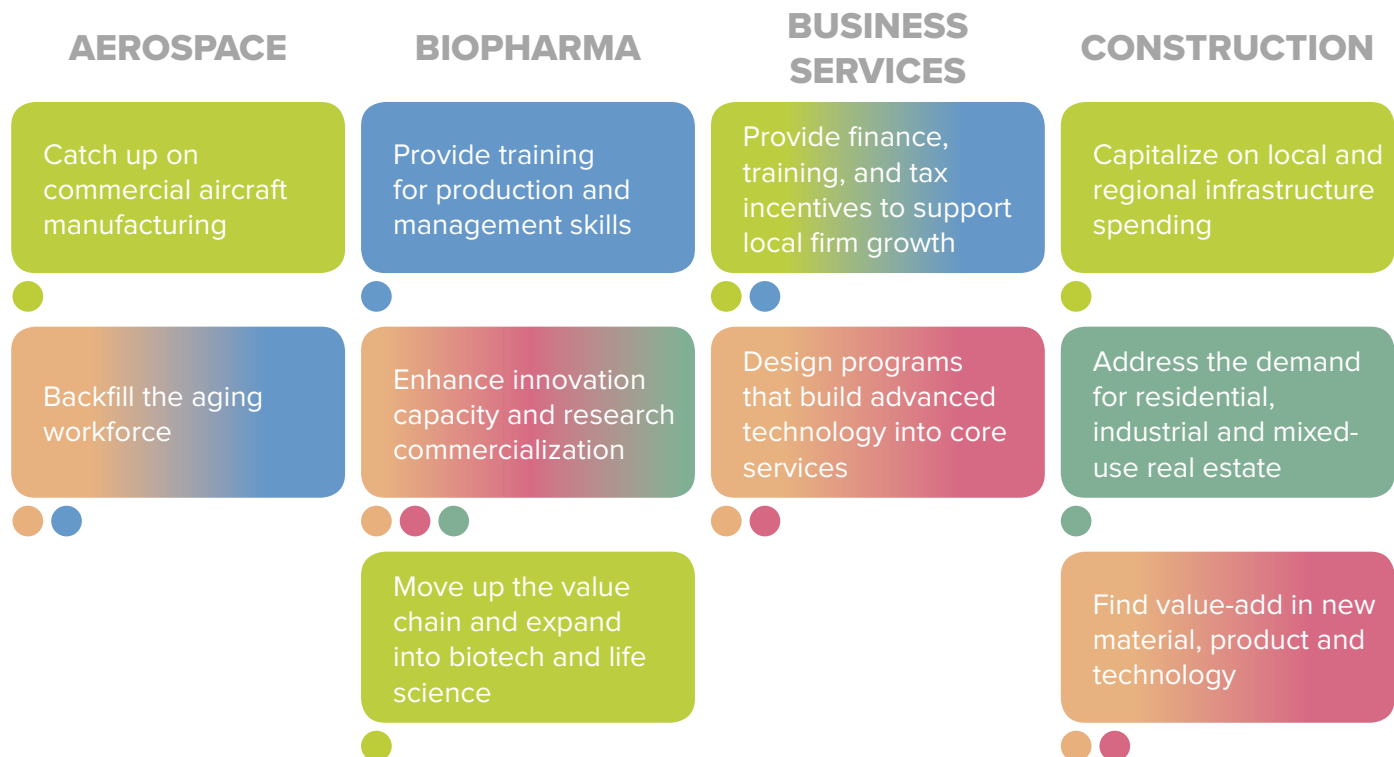
STRATEGY B:
Attract and retain knowledge workers

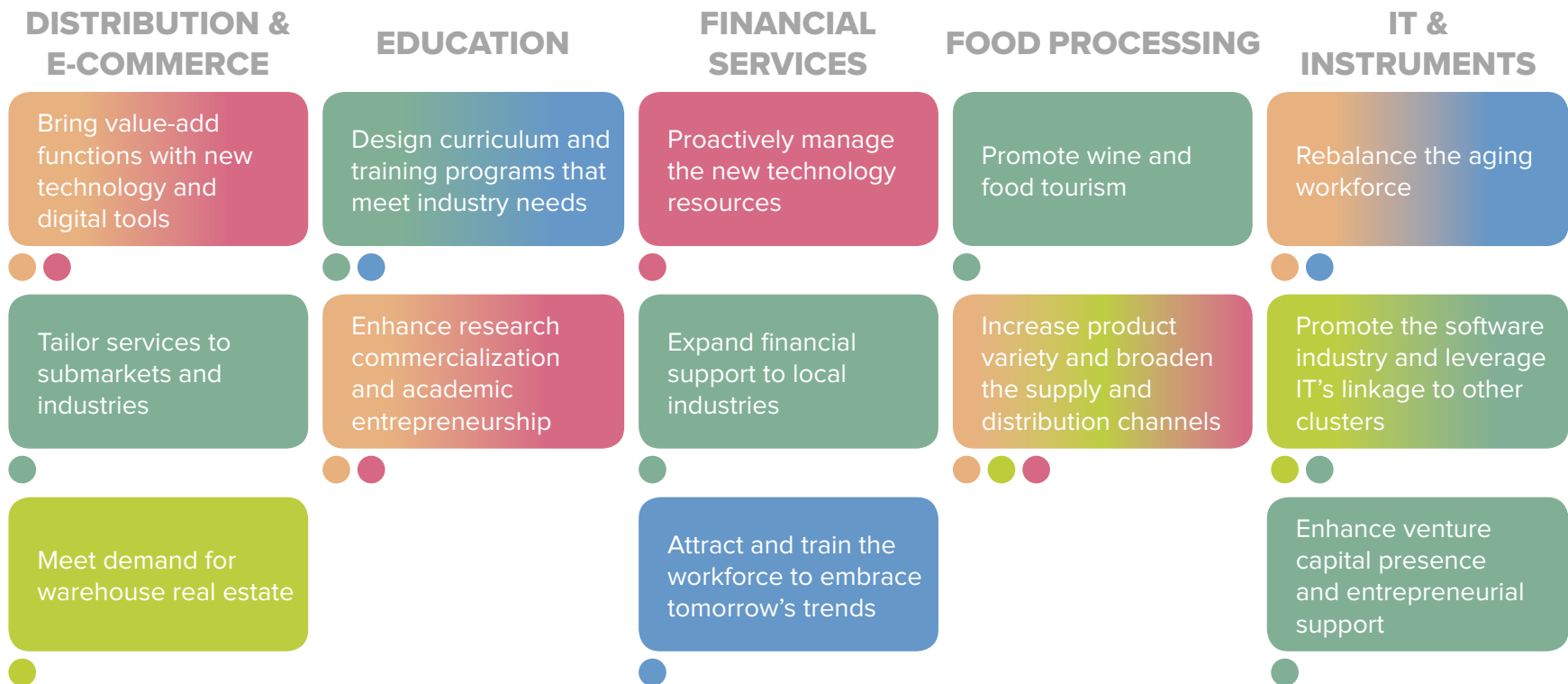
STRATEGY D:
Promote innovation and technology transfer

Figure III-12: Assigning broad economic development strategies to key cluster objectives

Text box: Long Island key cluster objective

Color: broad economic development strategy





The Vision

A Regional Project

Policy Alignment

Long Island-Wide Partnerships

Competition Repositioning

The continued growth and redevelopment of Hauppauge is essentially a regional project.

The Vision

A Regional Project

The Hauppauge Industrial Park provides a unique opportunity to implement the five economic development strategies recommended in the previous chapter. From tradable cluster growth to talent attraction, from workforce development to improvement in the local innovation and business ecosystem, these high-level policies can yield direct benefits to the Park’s businesses; in return, stronger agglomerations in Hauppauge can potentially boost the regional economy, given the Park’s existing size and high concentration of key cluster companies.

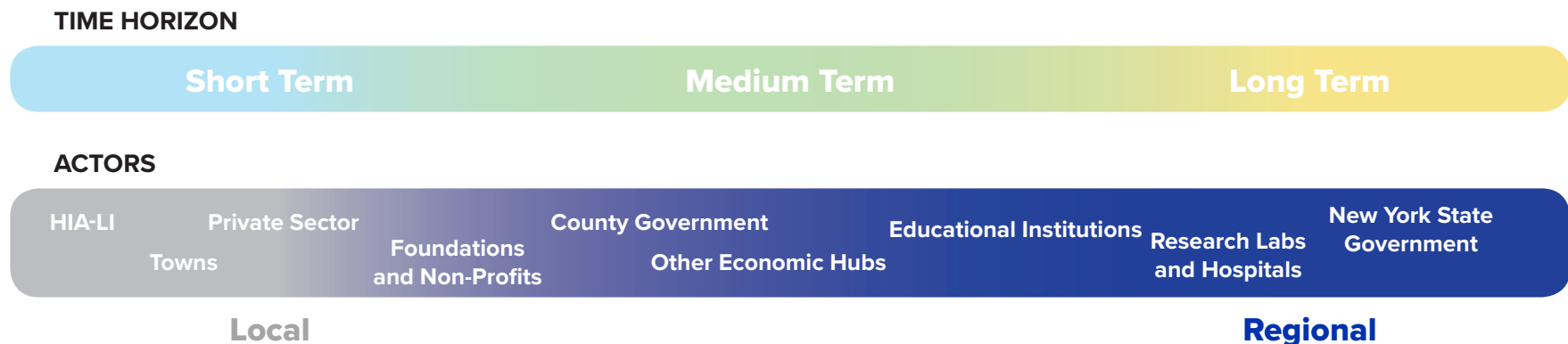
Essentially, the continued growth and redevelopment of Hauppauge is a *regional project* that closely interacts with economic revitalization initiatives across Long Island. **These endeavors will require actors inside and outside of Hauppauge**

to have a clear and compelling vision, form strong leadership and alliances, and implement a set of strategic actions.

This chapter lays out the key components of the regional vision for Hauppauge, and provides guidance for the various entities to have constructive cross-sectoral conversations.

Stakeholders of the Park, including Suffolk County IDA, Hauppauge Industrial Association - Long Island (HIA-LI), the business community, and the Towns, can use this guide to initiate conversations and discuss potential interest alignment between Hauppauge businesses and major regional players. Specific themes include policy and funding, public and private partnerships, and a rethinking of the Island-wide competitive landscape.

Figure IV-1: Broad alliances on Long Island



Policy Alignment

Government and Funding Opportunities

In order for Hauppauge to strengthen its status as a crucial anchor in the regional economy, stakeholders of the Park need to engage in conversations with governments to gain initial buy-in and support for the planning and implementation of potential projects in Hauppauge.

Multiple funding opportunities are available for a wide range of economic development initiatives, summarized below. It is highly advisable for the Park advocates to explore them and have a clear understanding of different agencies' priorities.

- ▶ **U.S. Economic Development Administration**
 - Regional Innovation Strategies Program
 - EDA Planning and Local Technical Assistance Program
- ▶ **U.S. Department of Energy**
 - Small Business Innovation Research funding
 - Small Business Technology Transfer funding
 - Biological & Environmental Research funding
 - Basic Energy Sciences funding
 - Advanced Scientific Research Computing funding
- ▶ **NYS Empire State Development**
 - Empire State Economic Development Fund
 - Excelsior Jobs Program
 - Start-Up NY
 - Jobs Retention Program
 - Life Sciences Tax Credit Program
 - Employee Training Incentive Program

Commercial Tax Credit Program

***Regional Economic Development Council** manages the Consolidated Funding Application

- ▶ **Suffolk County**
 - Multiple tax incentives
 - BOOST Program
- ▶ **Town of Smithtown**
 - Capital budget
- ▶ **Town of Islip**
 - Capital budget

Specifically, the **Long Island Regional Economic Development Council**, through the Consolidated Funding Application (CFA) process, has been administering NYS funding for a wide range of economic development projects on Long Island. CFA-funded projects include both capital and operational initiatives, such as multiple transit-oriented downtown revitalizations, job training programs, university laboratories, and community-based STEM centers. CFA's funding priorities are four main areas:

- ▶ [Placemaking](#)
- ▶ [Workforce](#)
- ▶ [Tradable sectors](#)
- ▶ [Innovation](#)

It is advisable for Hauppauge stakeholders to align potential development actions in the Park with these funding priorities, and ensure that grant writing in the next application cycle emphasizes such policy alignment.

Figure IV-2: Deepwater Wind's plan for offshore wind



Advanced Manufacturing & Offshore Wind

While the previous chapter offers a comprehensive outlook of nine key clusters for economic development, Hauppauge stakeholders shall consider giving priorities to industries that can ride the regional tide.

Specifically, there have been renewed interests and investments in advanced manufacturing on Long Island. Offshore wind, for example, is a major area of new development that could potentially yield spillover effect to several industry clusters represented by Hauppauge businesses.

The offshore wind energy is relatively new but fast growing in the U.S. Different from land-based wind energy installations, this technology constructs wind farms in water bodies, which can bring higher wind speeds and hence yield greater efficiency in electricity generation. The first commercial offshore wind project in the country was commissioned by **Deepwater Wind** in December 2016, off Rhode Island. This project is planned to generate power for 17,000 homes in the state.

New York State has committed to building over 5,500 MW of offshore wind. The federal and the state governments will grant \$39 million to fund a new National Offshore Wind Research and Development Consortium based at Stony Brook University's Advanced Energy Research and Technology Center. Deepwater Wind has obtained a fully-approved Power Purchase Agreement to construct New York's 1st offshore wind farm - South Fork Wind Farm, located approximately 30 miles off Montauk, NY, with an expected in-service date of 2022.

Wind energy is an important advanced manufacturing job creator, and Hauppauge can potentially support offshore wind installation in the state or even across the nation. In fact, while the installed wind energy capacity is currently concentrated in the West and Central U.S., manufacturers of wind turbines are spread across 41 states, with a concentration in the East Coast and the Midwest. A typical wind turbine consists of 8,000 components. Given the existing concentration of manufacturing firms in the Park - particularly in aerospace, IT, and analytical instruments, Hauppauge stakeholders need to have exploratory conversations with the offshore wind industry regarding potential supply-chain relationships and design workforce training programs to prepare for new opportunities.

Long Island-Wide Partnerships

Educational and Research Institutions

As part of the regional vision, the Hauppauge Industrial Park should pursue direct partnerships with academic and research institutions. They can potentially provide large efficiency gains for Park businesses, because industry-academia collaborations help companies in key clusters to manufacture new and high-value products, translate the region's strong intellectual capital into direct market outputs, and keep Long Island's well-trained workforce in the local job market.

Currently, industry-university partnerships are lacking in the Hauppauge Industry Park. Interviews with local and regional stakeholders revealed a two-fold dilemma. On the one hand, because many Long Island institutions are represented in the

Figure IV-3: Stony Brook University presented to Middle Country businesses



The presentation in October 2016 was on how to tap into the university for business-building resources and new clients. The event was developed through a partnership with the Miller Business Resource Center, the Greater Middle Country Chamber of Commerce and the Stony Brook University Office of Community Relations.

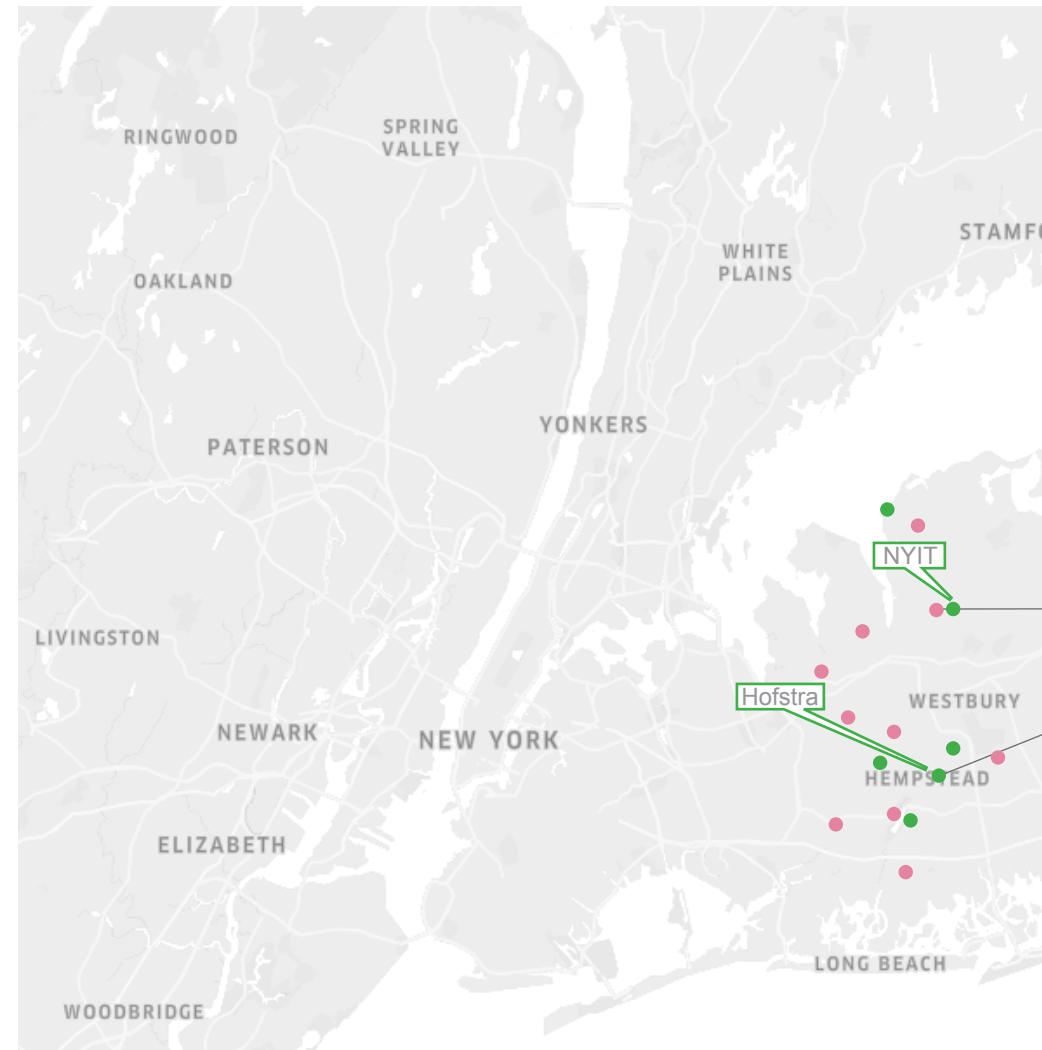
Hauppauge Industrial Park | The Vision

HIA-LI Board, any potential partnership between the Park and a given academic institution will likely be disapproved by Board members that feel excluded from such arrangements. On the other hand, because Long Island's jurisdictions are highly fragmented, academic institutions are disincentivized from forming place-based partnerships, on the grounds that investing in one area can potentially upset a large number of "suitor" municipalities in Nassau and Suffolk.

To solve such dilemma, Hauppauge stakeholders need to re-strategize their approach to academic partnerships. A company-based bulk partnership model might offer a viable route. This model works with two elements:

First, companies, instead of the Park or the Towns, need to be the primary party of academic partnerships. HIA-LI will play a facilitating role in promoting industry-university collaborations, but not to be in a position that directly hosts them. The company-based approach is aligned with many Long Island universities' economic development approaches, which are business-focused, instead of place-based.

Second, when helping Park businesses to seek academic partners, HIA-LI shall manage and offer a "bulk", or pool, of qualified Long Island institutions. This will create a level playing field for the many institutions represented on the HIA-LI board. To ensure a good rate of "matching" in this bulk model, HIA-LI will need to assess the research and skill needs of businesses and present such information to qualified institutions, and vice versa.



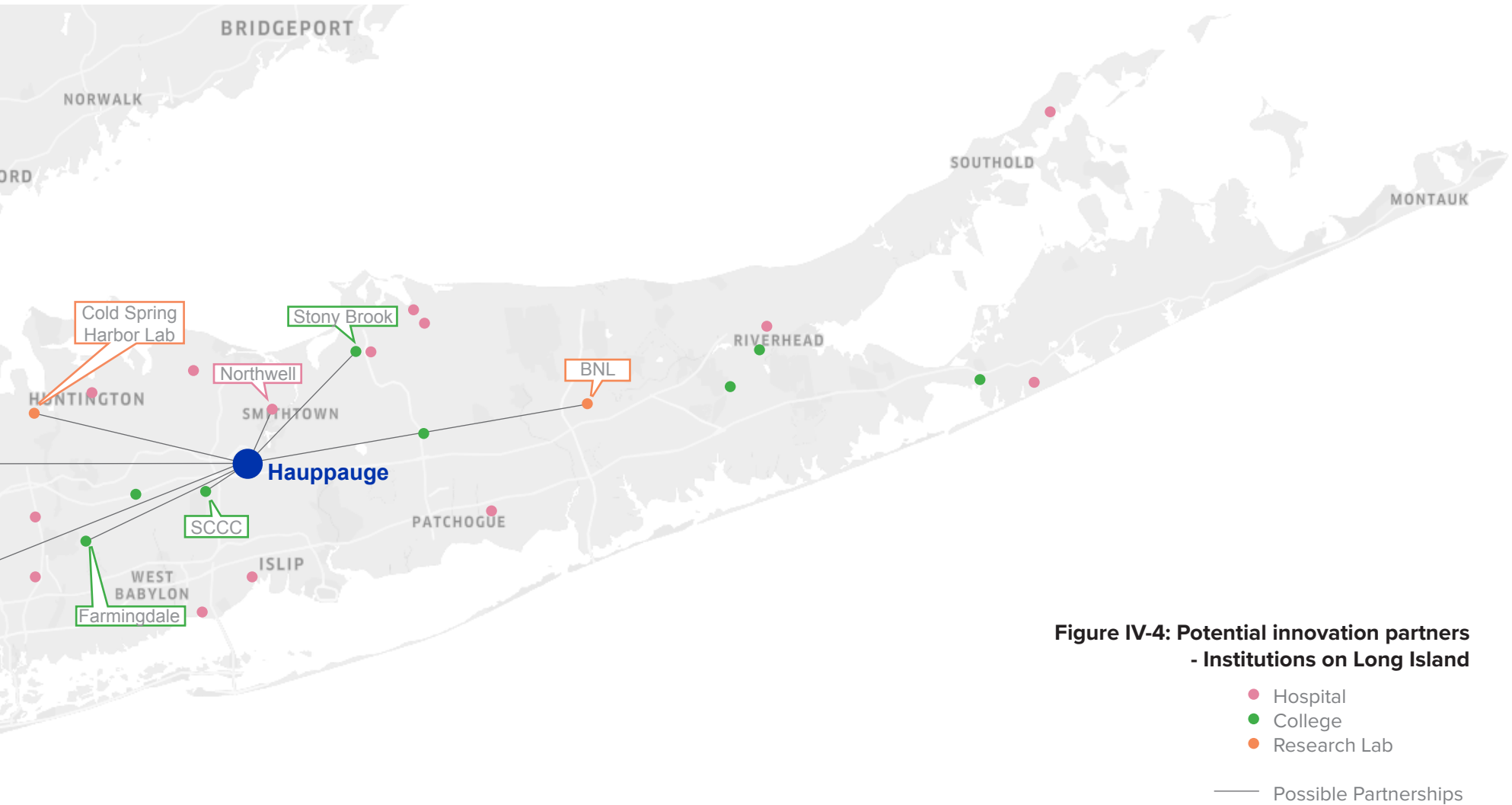


Figure IV-4: Potential innovation partners - Institutions on Long Island

- Hospital
- College
- Research Lab

— Possible Partnerships

HIA-LI can still manage such a research partnership matching program in a membership-based mechanism, potentially as a value-add service that members subscribe to with a fee.

The next step for Hauppauge stakeholders is to scan Long Island's many educational and research institutions, assess their potential synergies with Park businesses, and formulate a roster of strategic partners. For illustrative purposes, below is a list of potential institutions for the proposed partnership model:

- ▶ **Stony Brook University**
- ▶ **Suffolk County Community College**
- ▶ **Farmingdale State College**
- ▶ **Cold Spring Harbor Laboratory**
- ▶ **Brookhaven National Laboratory**
- ▶ **Northwell Health**

The contents of industry-institution partnerships include, but are not limited to, the following items:

- ▶ Industry-funded research; Patenting
- ▶ Incubator
- ▶ Hiring academics; Merging companies launched by faculty
- ▶ Consulting engagement
- ▶ Conference and workshop
- ▶ Workforce training classes, certificates, and degree programs
- ▶ Executive training
- ▶ Entrepreneurship and small-business resources
- ▶ Industry open-house for students
- ▶ Job fair

Major Private Sector Players

A regional vision for Hauppauge also requires its advocates to look into businesses beyond the current Park boundary. On Long Island, some major private sector players generate large spillover effects that can be captured. For Hauppauge, a smart strategy for business growth will be to form strong alliances with influential companies in key tradable clusters. Below are illustrative examples of how Hauppauge can approach them.

▶ Calverton

Given Long Island's history as a hub of aviation during the 20th century, there is a lasting legacy of aerospace and defense companies operating in the region. More recently, Calverton Aviation and Technology was green-lit to purchase the 1,643-acre Enterprise Park at Calverton and develop the site into an industrial park focused on aviation and advanced technology. Such a large-scale development can potentially generate large agglomeration effects on nearby businesses and communities.

Hauppauge stakeholders should actively explore ways to build synergies with Calverton. First, Hauppauge stakeholders should design and implement intra-regional programs that share resources with Calverton. Examples include business services and financial services, which have a substantial firm concentration in Hauppauge.

Second, Park businesses should propose and advocate for manufacturing collaborations at the supply-chain level, facilitating companies in the Park to produce products that future Calverton businesses will buy. The supply-chain spillover effect can be particularly strong for Park businesses in aerospace, IT, distribution, and other sectors of manufacturing.

Figure IV-5: The Calverton site



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Figure IV-6: TRITEC's proposed Ronkonkoma Hub



© TRITEC Real Estate Co.

► Real estate developers

For the Hauppauge Industrial Park, efforts about management, stewardship, marketing, and business attraction can benefit from the large local presence of real estate community. On the one hand, the real estate and construction communities currently make up a sizable portion of Park businesses. On the other hand, senior executives of **TRITEC Real Estate Co.**, **Kulka Construction Corp.**, and **AIRECO Real Estate Corp.** are on the HIA-LI Board of Directors, and **Rechler Equity Partners** is the largest property owner in the Park. The **Long Island Builders Institute** provides a large network of real estate and construction businesses in the region.

Many real estate developers are actively pursuing medium- and large-scale development projects across Long Island. They can provide expert opinions on market trends and development risks. It is highly advisable for Hauppauge stakeholders and Long Island economic developers to actively engage in conversations with the region's real estate industry before pursuing specific development projects within the Park.

Non-Profit Organizations

On Long Island, non-profits can often provide the crucial resources to help local economic development initiatives move forward. In some cases, those resources are specific expertise and/or patient capital; in other cases, just the extensive network of help that a regional non-profit brings to the table can help local entities multiply their efforts and make big progress.

From apprenticeship programs to social and community events, stakeholders of the Park can collaborate with regional non-profits for many different kinds of important initiatives. Below is an illustrative list of potential partnerships that can bring resources to Hauppauge businesses and HIA-LI.

► Workforce Development Institute (WDI)

WDI is a state-wide non-profit that provides information, expertise, and funding to grow and keep jobs in NYS. Currently, WDI has a branch on Long Island. It adopts an employer-lens and takes an industry-side approach to economic development, offering job training programs that target companies instead of individuals. The main priority of WDI on Long Island is manufacturing. Given workforce development being one of the economic strategies recommended in the previous chapter, it is imperative for Hauppauge stakeholders to start having conversations and building synergies with WDI, which can help many of the Park's companies that face labor and talent issues.

► Composite Prototyping Center (CPC)

Based in Plainview, CPC provides prototype manufacturing, workforce development, and technical training services to industries. Its existing capacities are highly synergistic to the economic development priorities recommended for Hauppauge. Particularly, for long-term projects aimed at improving local innovation capacity and workforce pipeline, Hauppauge stakeholders should proactively learn from CPC's expertise and/or collaborate with them directly.

Rethinking Competition

A scan of the region reveals that Hauppauge, though having the largest concentration of firms on Long Island, is one of the many places in the region that aspire to capture growth opportunities and revitalize local economies. Stakeholders of the Park, in addition to knowing thyself, ought to know the competition thoroughly, in order to: first, assess relative strengths and achieve differentiation; second, learn useful lessons; and third, share resources and collaborate with other economic hubs on strategies that can lift all boats in the Island-wide economy.

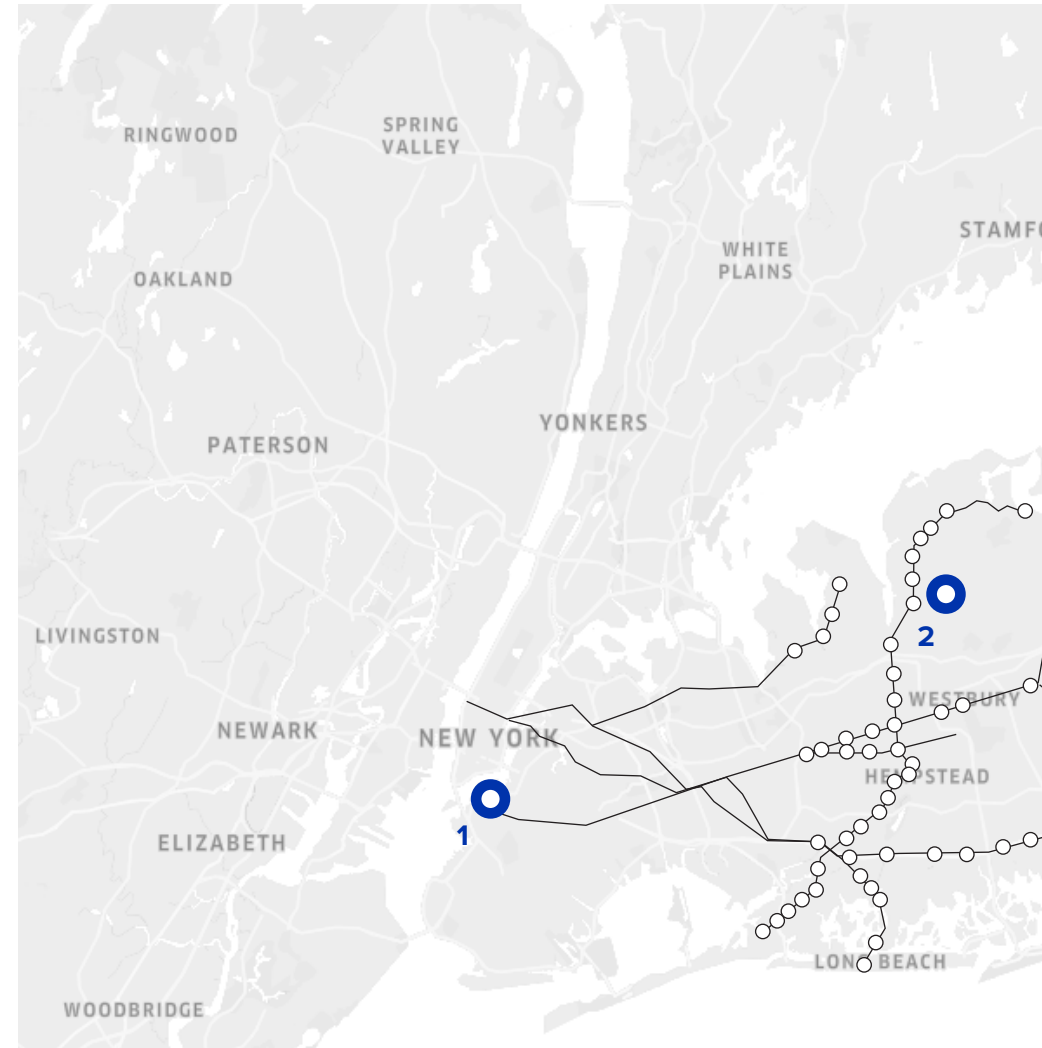
Below is a list of major employment hubs on Long Island:

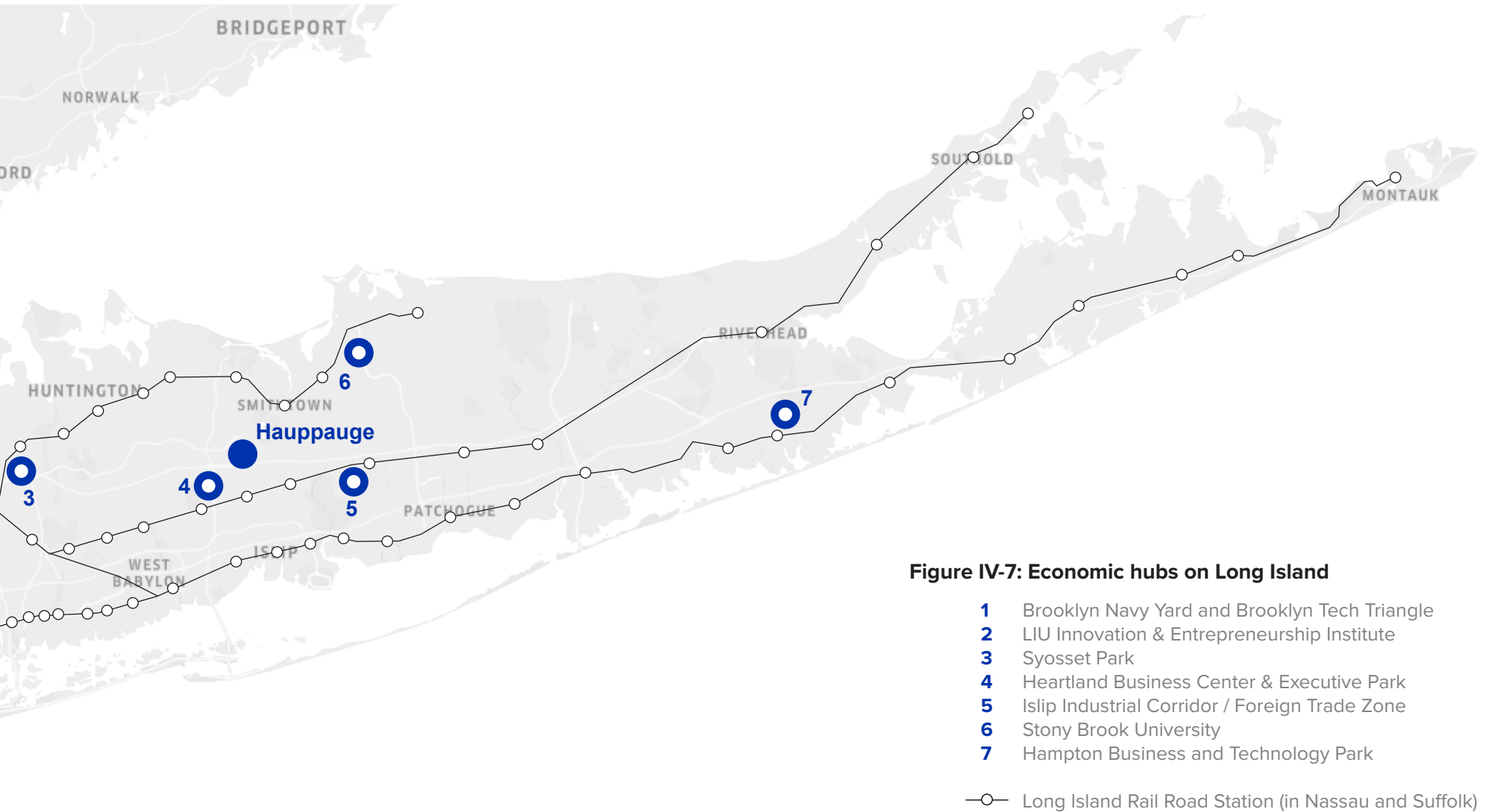
- ▶ **Heartland Business Center & Executive Park**
- ▶ **Islip Industrial Corridor / Foreign Trade Zone**
- ▶ **Syosset Park**
- ▶ **Hampton Business and Technology Park**

There are also university-based innovation hubs:

- ▶ **Stony Brook University**
- ▶ **LIU Innovation & Entrepreneurship Institute**

In addition, thinking about competitors via a regional lens can also help Hauppauge stakeholders to prioritize certain investments over others. For example, an Island-wide transportation analysis reveals that many of Hauppauge's competitors are located closer to transit, which gives them an advantage in the fierce competition for labor. In the later chapters, this report offers recommended actions to address such issues. ■





Cases That Work

A Survey of Four Action Types

Economic development strategies can be implemented on the ground via a wide range of actions.

Cases That Work

Ultimately, the regional vision for Hauppauge and Long Island's economic development will need to be formulated as specific projects implementable on the ground.

Execution takes creativity. The research hence investigated diverse cases that realize policy goals recommended in this report via different types of project actions. They offer practical lessons to Long Island and the Hauppauge Industrial Park's stakeholders, and provide ideas and prototypes that inform this report's recommendations.

The cases are:

- ▶ Buffalo Manufacturing Works (Buffalo, NY)
- ▶ Northland Workforce Training Center (Buffalo, NY)
- ▶ Cortex Innovation District (St. Louis, MO)
- ▶ SkySong Innovation District (Scottsdale, AZ)
- ▶ Technology Center at Oyster Point (Newport News, VA)
- ▶ Research Triangle Park (Raleigh, Durham, Chapel Hill, NC)
- ▶ Venture Cafe Foundation (Cambridge, MA)
- ▶ Sandbox Communities (Atlanta, GA)
- ▶ Prologis Resource Center (national)
- ▶ Lyft X Starbucks Employee Ride-Share (proposed)

Admittedly, it is unrealistic for a single project to achieve all the economic development goals. Hence it is important to understand how these cases are different in terms of accomplishments and tactics - and the relationship between these two. Long Island's economic developers should prioritize and strategize their investments accordingly.

Detailed descriptions of these cases are available in Appendix 2.

A Survey of Four Action Types

Projects in the case study are designed and implemented using different approaches, ranging from direct intervention in the physical space (public realm, business facility and amenity) to amendments of a place's intangible assets and soft infrastructures (regulation and zoning, management and operation).

What this study has uncovered is that successful cases realize their stakeholders' economic development goals via different combinations of actions. While large, district-scale developments typically employ all the listed action categories, effective projects do have distinctive emphases and offer different inspirations. Long Island's economic developers should hence familiarize themselves with the features and effects of these techniques and be creative in utilizing them - in one shot, pairs, and/or bundles.

Action Type 1: Regulation and Zoning

Policies, such as zoning, financial incentives, public-private partnerships, and government-funded workforce training programs, are some of the most important tactics to promote large-scale changes in a region.

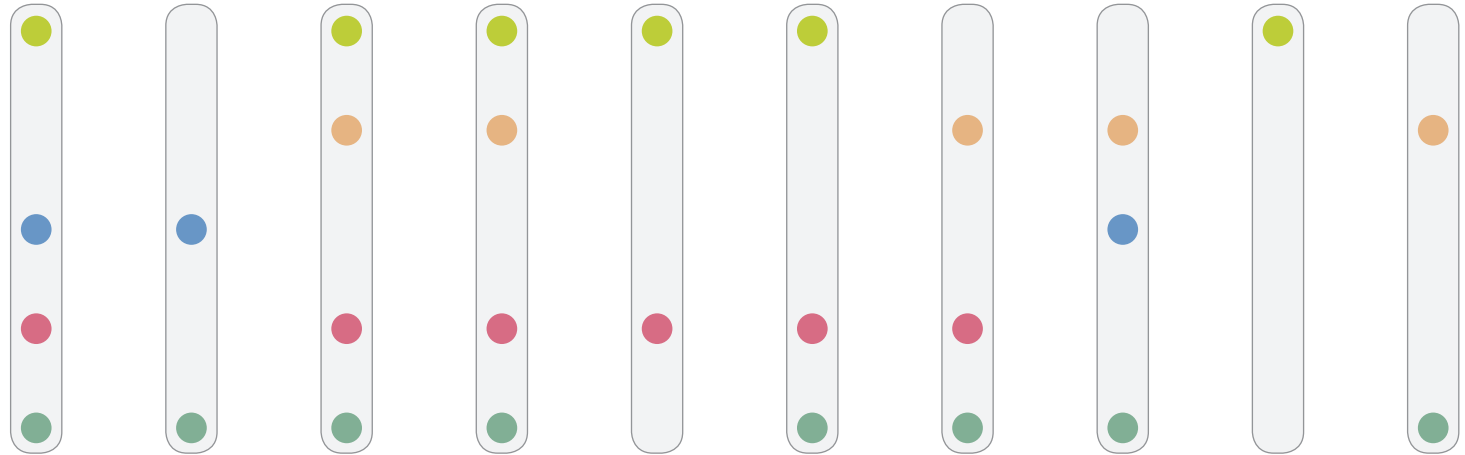
For example, many successful innovation districts use zoning change to strategically include housing development on site or in close proximity. On the one hand, residential development helps to attract workforce; on the other hand, such development cross subsidizes industrial and public-space development. In the Technology Center at Oyster Point, multifamily apartments are

Figure V-1:
Case study summary



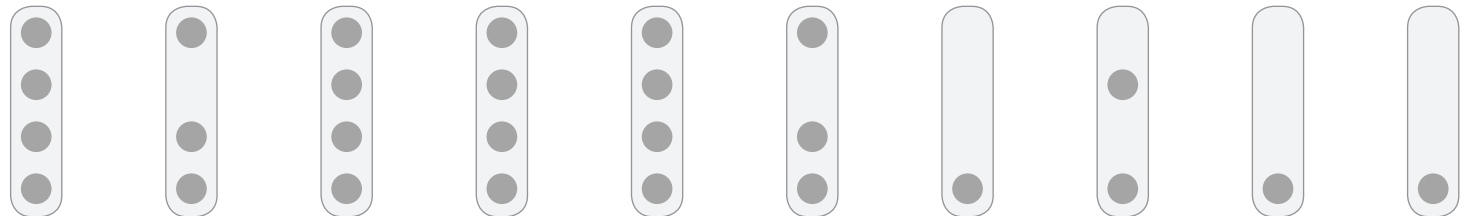
Economic development strategy realized:

- STRATEGY A:**
Facilitate business growth
- STRATEGY B:**
Attract and retain knowledge workers
- STRATEGY C:**
Strengthen training and workforce development
- STRATEGY D:**
Promote innovation and technology transfer
- STRATEGY E:**
Build connections among businesses, governments, and institutions



Action type adopted:

- Regulation and zoning
- Public realm
- Business facility and amenity
- Management and operation



developed on site to satisfy the need of international scientists visiting the Jefferson Lab.

In some other cases, zoning and policy are deployed in the context of greater institutional innovation. For example, mixed-use and residential developments are indispensable for Cortex Innovation District's success, yet behind the project's innovative planning is the City of St. Louis that granted zoning authority to Cortex. Cortex, a 501(c)3 organization formed by multiple local partners, owns only few properties by itself. Without the City's transfer of power, the innovation hub would not be able to control the character of the district.

Action Type 2: Public Realm

Improvement to the public realm is critical to a place's economic success, because properly designed public spaces and desirable amenities can boost worker satisfaction and productivity. Research has also demonstrated the role of space design in catalyzing knowledge spillover and information exchange between firms and individuals. Additionally, public realm improvement is closely linked to the place's identity and branding, which are crucial aspects that attract inward investments.

For example, in the SkySong Innovation District, a 120-foot tall, visually striking tensile structure is built at the road intersection to define the community's main public space. 50,000 sf of shading is provided underneath, accompanied by outdoor seating and ample vegetation. Such a space is both a place for individuals to rest and interact and a memorable, strong image that represents the district's unique character.

Figure V-2: Proposed mixed-use planning at Cortex - an example of zoning and policy incentive



Figure V-3: SkySong's public plaza and tensile structure - an example of public realm improvement



Figure V-4: Northland Workforce Training Center’s adaptive reuse project - an example of real estate development



Figure V-5: Sandbox’s community publication - an example of management and operational initiatives



Action Type 3: Business Facility and Amenity

Whether the goal is to expand a firm or factory’s business line or to provide facilities for workforce development and neighborhood services, real estate development is often an integral part of district-scale economic development.

In some occasions, the task is about creative retrofit and redevelopment. Cortex, for example, started it all by evaluating the space needs of emerging biotech companies and renovating obsolete industrial buildings accordingly. In the case of Buffalo, a 237 thousand sf adaptive reuse project is currently housing the Northland Workforce Training Center, Buffalo Manufacturing Works facilities, a restaurant, and multiple office, commercial, and light industrial tenants.

In other cases, the project is about creating new mixed-use environment. In Technology Center at Oyster Point, a group of private real estate developers planned and built the 100-acre mixed-use development, where a pedestrian spine with multiple activity nodes acts as the connector between a shopping center and business tenants.

Action Type 4: Management and Operation

The fourth type of project approach is about management and operational initiatives. This can provide potentially the largest return on investment, because these changes tend to get fast approvals and come with relatively low implementation costs. Yet, they often address some of the most serious and overlooked efficiency and collective-action issues.

For example, in Atlanta, Sandbox Communities is an organization specialized in the programming of innovation hubs. Offering membership-based services ranging from event management to tech job fairs, they design and implement creative ideas that bring various members of the community together, and these linkages in turn improve the economic vitality of these innovation hubs. Venture Cafe Foundation, which operates in Cambridge Innovation Center and Cortex, offers similar services that connects people and build relationships between entrepreneurs, investors, and innovators.

Many other examples demonstrate that the secret to a successful business environment is not only in the development of physical assets. What's intangible can be just as important, if not more so. For example, Prologis provides real estate tax management

services to its tenants, helping them to find every possibility that reduces property tax. Such a centralized service, which leverages the economy of scale, is a useful model that can be imitated to provide many additional amenities and services.

In all, management and operational initiatives are important not only because they solve immediate issues of organizational structure or cost reduction. They are crucial for local economic development because these mechanisms essentially are the channels that allow multiple stakeholders to communicate and work together toward common goals, hence thickening the social and institutional tissues of a place. A region where actors can effectively collaborate has a better chance of economic prosperity. ■

Figure V-6: Venture Café's networking event - an example of management and operational initiative



Design Framework: An Action Plan

Elements for a New Hauppauge

Detailed Action Items

Change will require a multi-layered, multi-phased approach, one that is adaptable to new market opportunities, promotes place-based identity, and cultivates a healthy and collaborative business ecosystem in Hauppauge.

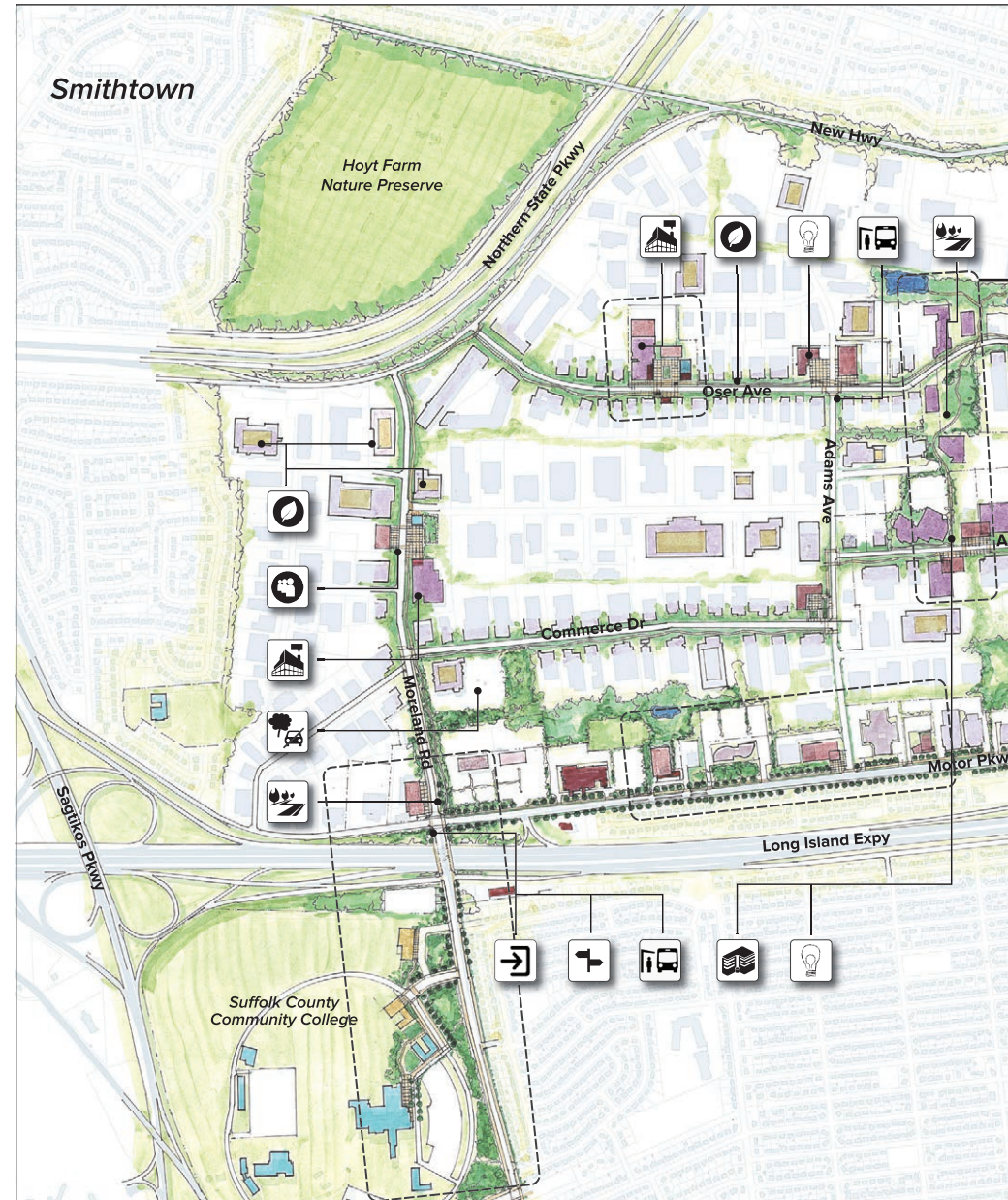
Design Framework: An Action Plan

As identified by the case studies in the previous chapter, a wide range of strategies are typically deployed and needed to foster a successful economic hub. Zoning regulations, strategies for management and operations, public realm improvements, and development of business facilities and amenities will all play critical roles in realizing the regional vision for Hauppauge. This chapter provides several actionable recommendations for the Park and a phasing strategy that is adaptable to new market opportunities.

Elements for a New Hauppauge

This design framework delineates the essential elements for a vibrant economic growth hub, where dynamic social and physical infrastructures will foster connections throughout the Park and beyond. To realize the regional vision for Hauppauge, the Park's appearance, layout, design, programming, and management will be rethought and improved (illustrated by the concept plan), to promote a place-based identity that welcomes talent, fosters innovation, and cultivates a healthy and collaborative business ecosystem.

As indicated in the phased collaboration matrix (next page), Suffolk County IDA, HIA-LI, the Towns, and the private sector need to pool resources together and implement the various initiatives in the short-, medium-, and long-term timeframes. The section afterward will discuss the action items in greater detail.



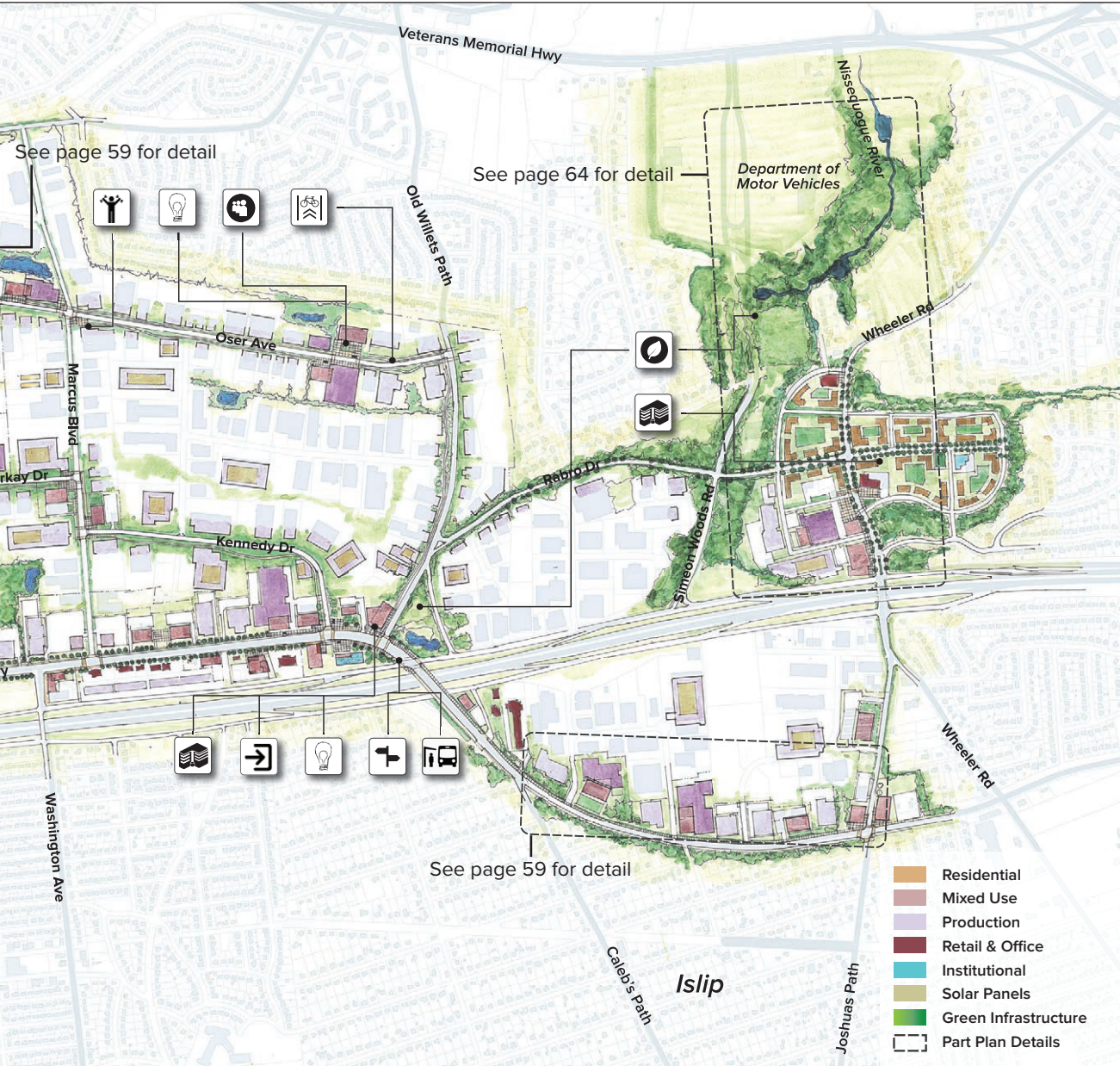


Figure VI-1: Illustrative concept plan

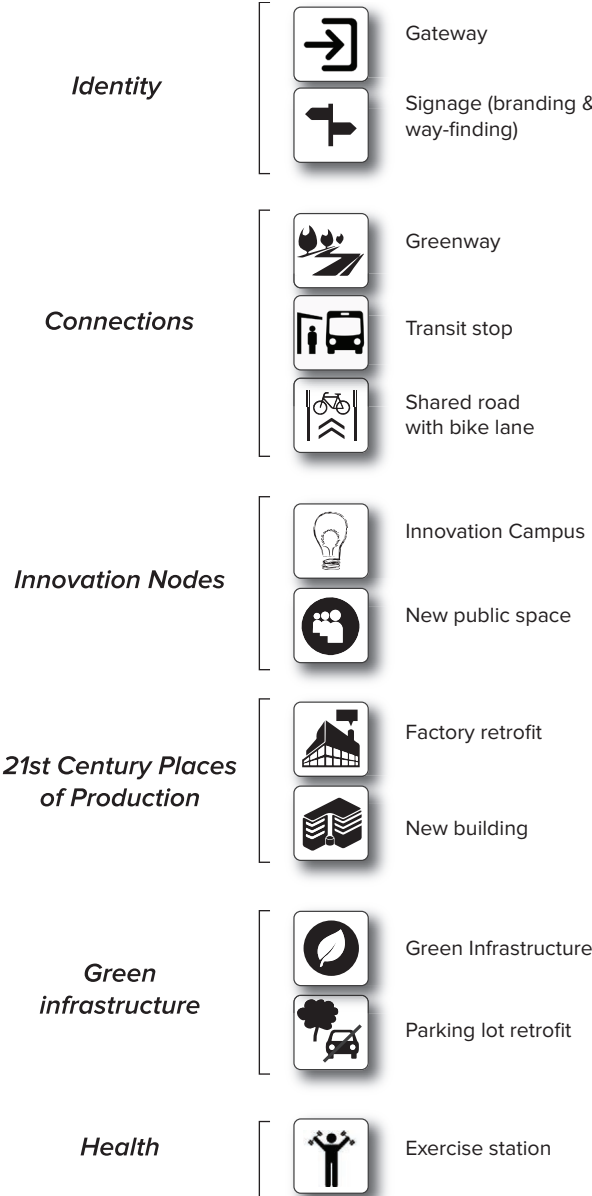
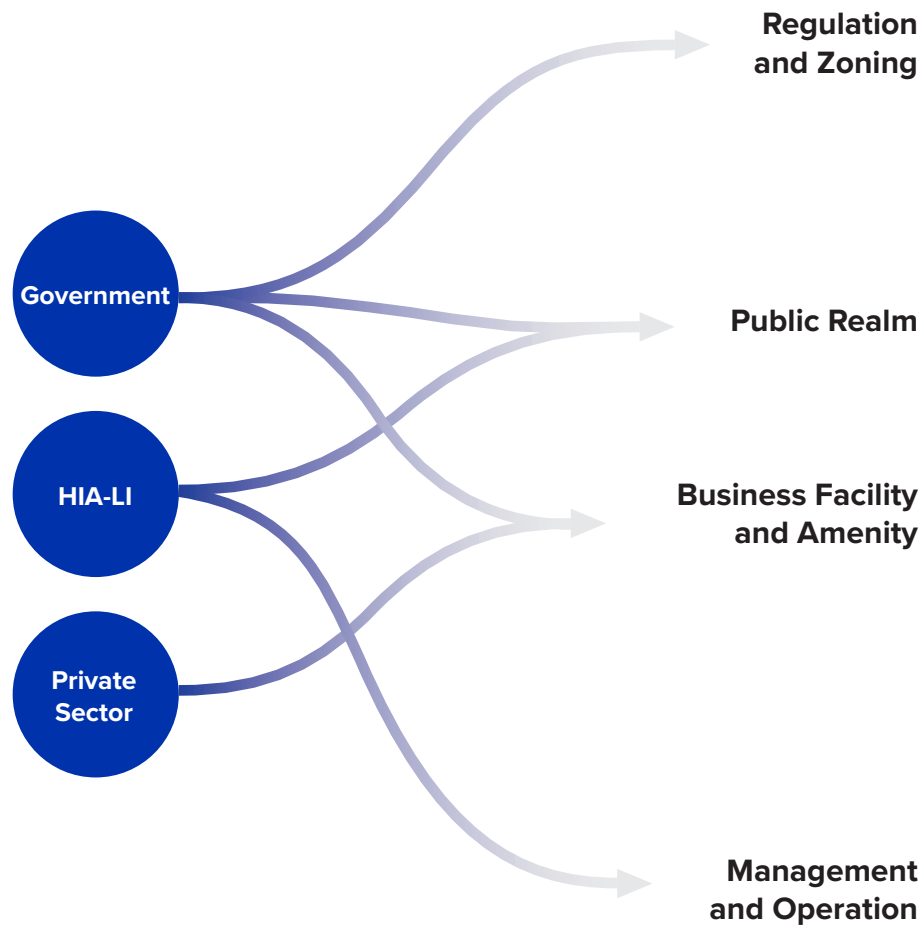


Figure VI-2: Phased collaboration matrix



Short Term

Zoning amendment	
▶ Expand the list of use groups in zoning	\$
▶ Allow new mixed-use buildings at select locations	\$
▶ Adjust height criteria	\$
▶ Modify dimensional and density regulations	\$
Building code	
▶ Allow new structures to be clipped on to big-box factory buildings	\$
▶ Gateway	\$\$
▶ Signage	\$\$
▶ Delineated walking / biking / running routes	\$
▶ Exercise station'	\$
▶ Sewage expansion	\$\$\$
▶ Coworking space	\$\$
Workforce	
▶ Job fairs	\$
▶ Company open houses; field days	\$
▶ Workforce training programs	\$\$
Key industry social network	
▶ Regular social event programming	\$\$
▶ Manufacturer networking	\$
Group resources	
▶ One-stop business resource center (membership-based cost reduction programs)	\$\$
▶ Shuttle buses from the Park to nearby transit stations and community colleges	\$\$\$
▶ Ride-share and carpooling services for employees	\$\$
Other	
▶ Marketing and branding	\$
▶ Company and building owner survey	\$
▶ BID structure for financing and governance	\$

Medium Term

Long Term

- ▶ Transit rerouting; new stops \$\$
- ▶ Shared road with bike lane \$\$
- ▶ New trails; park course \$\$
- ▶ New park \$\$
- ▶ Parking lot retrofit \$\$
- ▶ Green infrastructure (storm water) \$\$

- ▶ New signature public space \$\$\$

- ▶ Incubator \$\$\$
- ▶ Factory retrofit \$\$\$

- ▶ Vertical development (north side of Motor Parkway) \$\$\$\$
- ▶ Regional Innovation Center for Advanced Manufacturing \$\$\$\$

- ▶ Industry X University research partnerships \$
- ▶ Green energy; community solar \$\$
- ▶ Inclusive innovation events \$

- ▶ Regional Workforce Training Center \$\$\$\$

Organizing and Implementing Changes

Many types of Park improvements will be needed to enable the vision of a dynamic and forward looking 21st century place of business and production. The Park covers a large geography with complex ownership patterns, and so it is neither realistic nor strategic to impose a single and fixed master vision for how the Park will evolve over the next five to twenty years. Instead, this report conceives various design interventions as a kind of “kit of parts” that may be deployed across the park in different ways depending on a variety of factors including cost, complexity and business owner interest.

In order to rationalize and help prioritize the location of the design improvements, this report provides the concept plan that illustrates one way in which the various interventions – “kit of parts” - might come together and interact with each other. The proposed framework takes into account the location of parcels with common ownership and proximity to key industries identified by the economic assessment. As one of several possible scenarios, this concept is illustrative, not prescriptive.

The analytical diagrams on the right help foreground the public realm design concepts outlined above, in particular, the concept’s relation to the Park’s industry cluster distribution, creation of Motor Parkway Boulevard, the greenway network, a comprehensive strategy for best practice storm water management, and possible locations for the “Innovation Nodes” (described in the next section). Again, the final disposition of these elements will depend on cost and owner interest.

The plan also shows connections of Park improvements to land use changes that may occur beyond the core area. In this plan, the mixed-use boulevard concept along Motor Parkway is extended to the portion of County Road 67 that extends westward and south of the Long Island Expressway. Also, new buildings are imagined in the northeast corner of the Suffolk

Figure VI-3: Hybrid framework – improving connectivity within the core and beyond



Figure VI-4: Motor Parkway boulevard – mixed use residential buildings offering more and diverse housing options

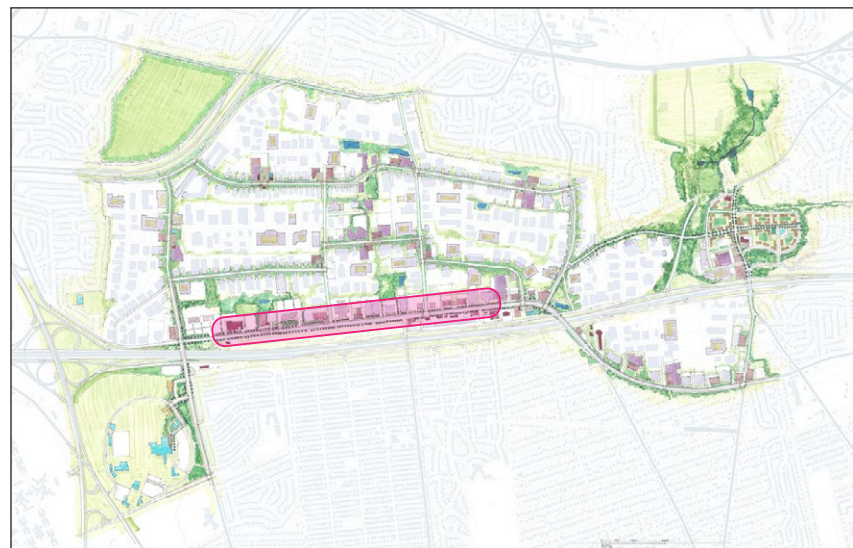


Figure VI-5: Framework diagram with industry cluster overlay
(**BLUE** = key cluster, **WHITE** = others)



Figure VI-7: Comprehensive strategy for best practice storm water management

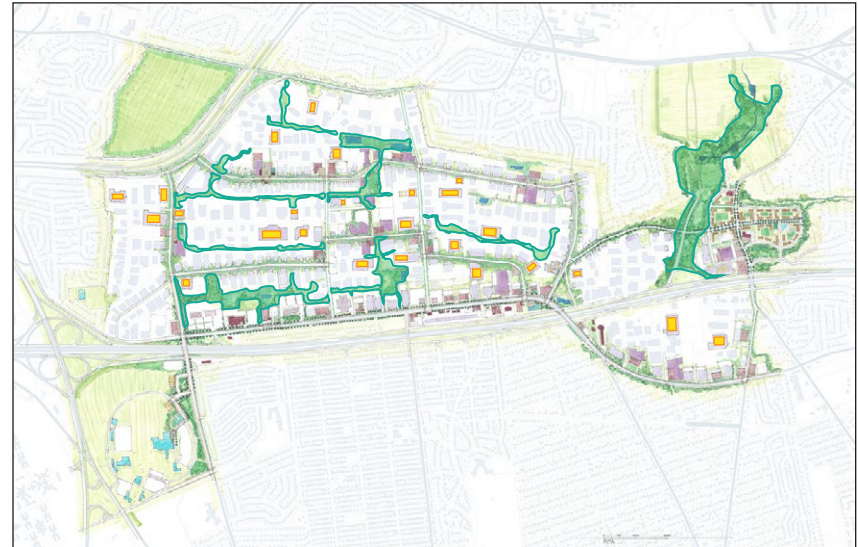


Figure VI-6: Innovation nodes – campus-like settings organized around flexible outdoor public spaces

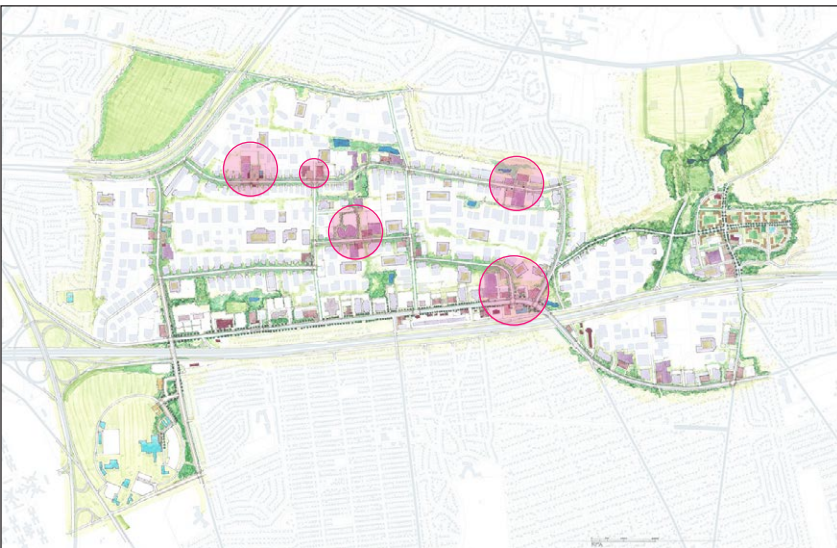


Figure VI-8: Greenway network – multi-modal network for biking and walking



County Community College campus in recognition of a more robust link between the school and the new Park. Finally the research examined the area around Wheeler Road and Rabro Drive, which is the one condition where the industrial uses push into a residential area. For that reason, a design speculation is offered for a new mixed-use neighborhood that could provide a mixture of housing types for nearby workers as well as extended stay suites for entrepreneurs on the move. On the whole, mixed use residential buildings offering more and diverse housing options, would benefit existing and future workers.

Detailed Action Items

Regulation and Zoning

Manufacturing is changing rapidly both as a result of technological advancements and changes in the regional and national economies. The existing buildings, depending on their age and configuration, may or may not be well suited for the next generation of production activities, mixed uses, and residential programming. Interdisciplinary collaboration and interaction will require buildings that can accommodate more activities at various scales. In addition to more conventional assembly line work, warehousing and distribution, buildings will host flexible, shared office spaces for design, small “fab-labs” for prototyping and small run production, and meeting spaces. In some cases, new buildings will replace existing buildings. In other cases, existing buildings can be modified by subdividing them, adding onto them, and opening them up. Motor Parkway, because it is at the edge of the Park and because of its scale, can become more of a boulevard with larger mixed-use buildings. One of the design objectives will be for all of the new and renovated buildings to open out onto the streets and public spaces as a way of making the Park’s activities more visible.

Changes to zoning identified by the assessment would facilitate business growth by providing a flexible list of use groups and enabling adaptable bulk configurations. **The Town of Smithtown** should consider several amendments to the Light Industrial Overlay (LIO). **The Town of Islip**, on the other hand, should implement its own special district or review modifications to the predominant Industrial 1 (IND 1) district. In order to foster the Industrial Park as a high-quality business hub, both towns should consider the following modifications:

- ▶ **Expand the list of use groups**
- ▶ **Allow new mixed use buildings at select locations**
- ▶ **Adjust height criteria**
- ▶ **Modify dimensional and density regulations**
- ▶ **Examine building code**



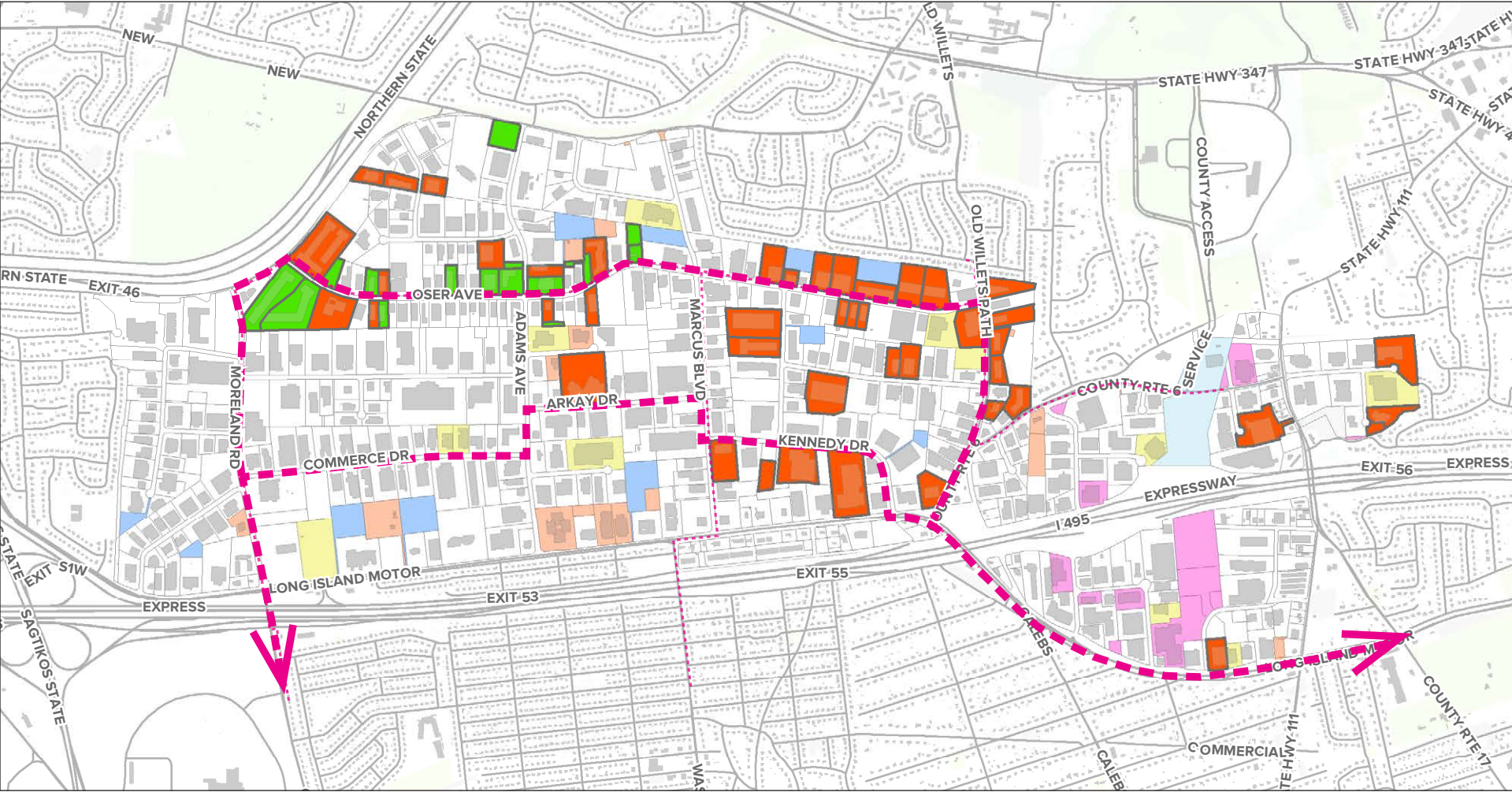
A detailed explanation of zoning recommendations can be found in Appendix 4.

Public Realm

Investments and improvements to the public realm will play a crucial role in achieving the vision for the park. The “kit of parts” includes a variety of design interventions that fall into several categories relevant to the public realm: park identity, physical connections, innovation nodes, green infrastructure, and healthy living. **The Towns** and **Suffolk County IDA** should spearhead investments and provide incentives for improvements in the Park’s public realm.

Currently, the lack of a master developer and the fragmentation of property ownership in the Park are challenges for the planning and implementation of Park-wide public realm upgrades. Stakeholders of the Park should thus explore options to form governing structures, similar to the Hauppauge Sewer District of Smithtown, that can finance district-scale improvements via revenue mechanisms such as betterment levy and concessions.

Figure VI-9: Property Ownership



- | | |
|---|--|
| Property with Common Ownership | PILOT or in Transaction with Local Agency |
| ■ Heartland Associates | ■ Suffolk County IDA |
| ■ Rechler Equity Partners | ■ Other Suffolk County Agency |
| | ■ State of New York |
| | ■ Town of Islip |
| | ■ Town of Smithtown |

Figure VI-10: New identity reference - CIT Campus Wayfinding in Minale Sydney



© Minale Tattersfield

Alternatively, the Park can also begin to strategically initiate “pilot projects” at locations where there are common ownerships and willing owners. Based on Suffolk County’s Real Property Tax Service Agency dataset it is estimated that the following entities have at least two or more properties in the park: Rechler Equity Partners (42 parcels), Heartland Associates (15 parcels), Suffolk County (34 parcels - including parcels in transaction owned by the IDA*), Town of Islip (13 parcels), Town of Smithtown (11 parcels), and the State of New York (two parcels). The location of such properties was used to inform the illustrative framework plan, where investments concentrate near common ownership.

Specific investments and development options include:



► **Park identity, signage, and wayfinding**

The term “industrial park” is heavily associated with the Island’s industrial legacy – with forms of production that are no longer current. The Park will be rebranded and renamed to distance itself from the past and signal a commitment to innovation. The new branding should capture key words such as: “innovation”, “campus”, “sustainability” and other words or phrases indicating the new Park’s commitment to being a modern and forward-thinking economic hub. There are strategic places to project this new identity such as the “gateway” locations where the most important connecting corridors meet the official park boundaries. These are places for new signage, distinctive landscaping, signature buildings, and welcoming public spaces. In keeping with the goal of creating new connections outside of the official Park boundary, new wayfinding signage within the park should direct visitors to shared amenities and the “innovation nodes.”



► **Physical connections**

In keeping with the way this generation of industrial parks was designed, the existing Park is essentially inward-looking. That era of the industrial activities was less compatible with residential areas than the new cleaner and greener processes of the new economy. The new Park is committed to making



Figure VI-11: Physical connections - Port Jefferson Greenway trail



*The dataset shows that there are nine tax lots showing Suffolk County IDA as the owner; there are other four parcels located on the Islip side where the IDA is listed in treasury mailing address field, but with private owners, potentially indicating that PILOT is in place at these four parcels. There are another eight parcels where the Town of Islip IDA is listed in the treasury mailing address field but with private owners.

Figure VI-12: Connecting corridor: Motor Parkway South - As with the portion of Motor Parkway to the northeast, this edge of the industrial area could be lined with vertical, innovation-supporting, mixed-use buildings without compromising the more traditional industrial activities. Pedestrian and bike improvements will encourage movement between this area and the parts of the Park north of the LIE.

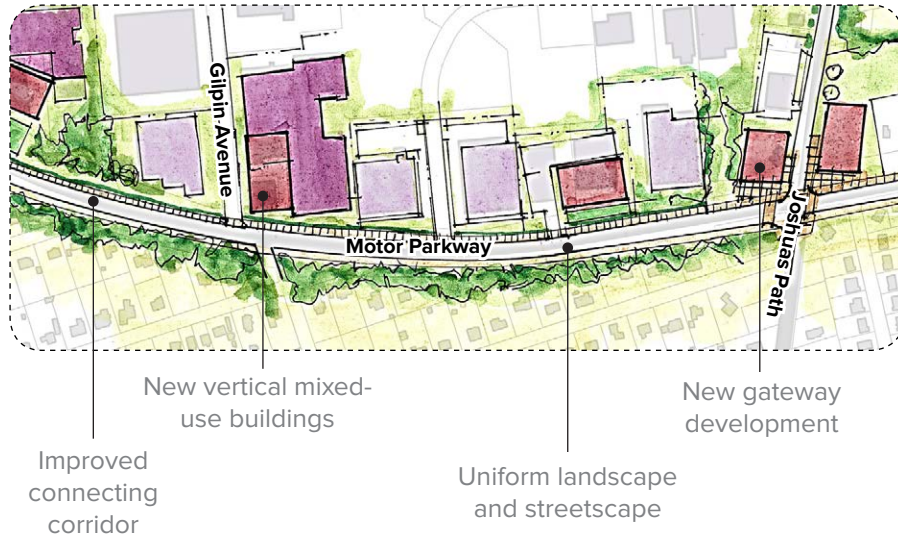


Figure VI-13: Connecting corridor: Wicks Road - The framework plan suggests that this is one of the key corridors connecting the Park to the rest of the County. Within a quarter mile of the intersection with Motor Parkway, an improved corridor will link the Park to the LIU Brentwood Campus. New buildings and connecting paths create a new public-facing “gateway” to the campus.

Improved Wicks Road converting corridor

New campus gateway buildings

Open space and multimodal path connections into the campus



Figure VI-14: Greenway connections inside the Park - In some locations it is possible to link together what are now disconnected “leftover” green areas on adjacent properties to create a comprehensive greenway corridor.

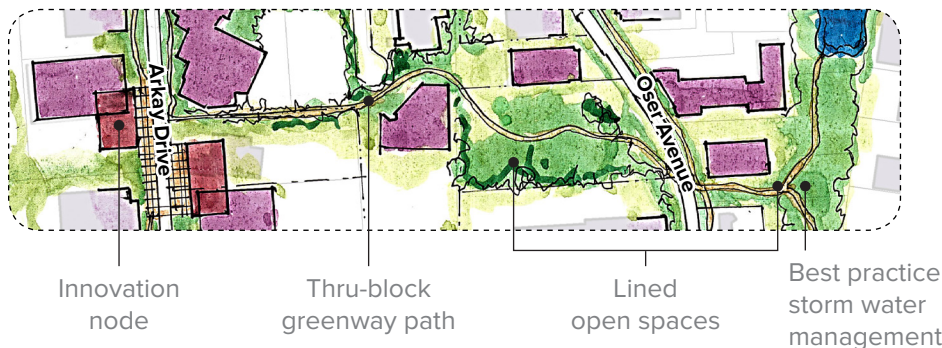
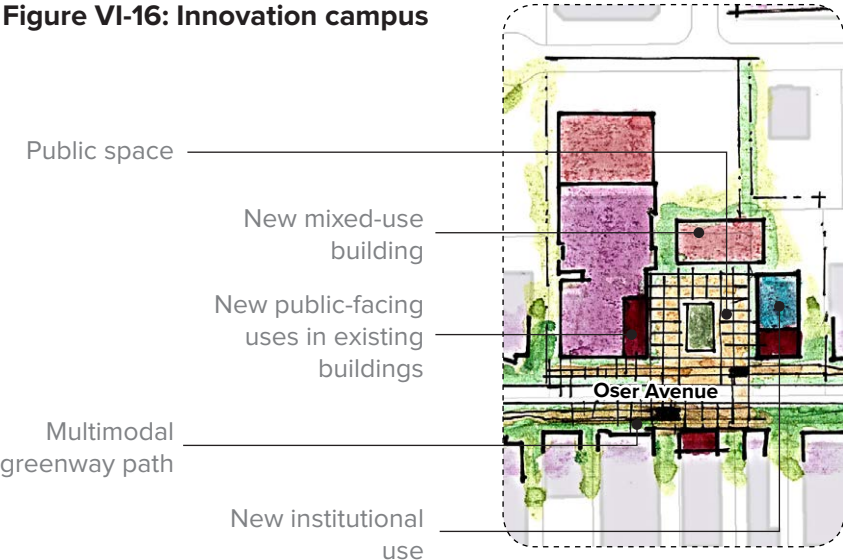


Figure VI-15: Innovation nodes - Google campus



Figure VI-16: Innovation campus



new connections: not just programmatic connections with Long Island institutions, but physical connections as well.

Within the new Park, a network of greenway connections will enable more interaction among the industries. This also enables a more comprehensive approach to best practice storm water management. The greenway connections can be some combination of off-road trails and streets redesigned to be multi-modal for healthy biking and walking. Transit stops can be real amenities with wayfinding, real-time service information, and accommodations for on-demand services with connections to the greenway network.

Connections beyond Hauppauge are also important: Within a short distance is Suffolk Community College, Hoyt Farm Nature Preserve, and a possible Nissequogue River greenway connection to Blydenburgh County Park. Transit services to nearby LIRR stations should also be enhanced.

► **Innovation node**

The innovation economy is based on interdisciplinary collaboration and interaction, both formal and informal. To that end, the new Park is host to several “innovation nodes” - campus-like settings organized around flexible outdoor public spaces, indoor meeting rooms, and shared work-spaces. In these locations, many of the initiatives discussed here come together and can be showcased: connections to the multi-modal trail network, transit stops, new mixed-use buildings, renovated older buildings and green infrastructure strategies.



Figure VI-17: Green infrastructure - Viborg City Hall



► **Green infrastructure**

The new Park will embrace sustainability both as a way of signaling a commitment to a vibrant future and as an economic strategy. In keeping with the original design for this industrial park, there is actually a substantial amount of green throughout the Park including well-manicured front lawns, retention ponds and informal trees-and-greens in the middle of the wide blocks. There is an opportunity to link these green resources into a passive storm water management system which can reduce the load on the traditional storm water system as well as create an off-road multi-modal trail network for biking, walking and exercising. Underutilized paved areas can be reclaimed with permeable materials or reprogrammed as shared open spaces. The Park can also lead on the energy front by expanding the current solar energy program. Many of the industrial buildings have large expanses of flat roof that are ideal for solar panels as well as solar canopies over parking lots. These could be networked into a micro grid for increased reliability and efficiency. In other instances, where solar panels are unwanted or infeasible, buildings should be encouraged to incorporate cool roofs as to reflect more sunlight and absorb less heat.



Figure VI-18: Health and quality of life - Fit Trail



► **Health and quality of life**

The next generation of workers and entrepreneurs is interested in health and quality of life. Throughout the new Park, there will be opportunities for both occupants and visitors to exercise. This could take many forms: exercise stations along the greenways, bike lanes on the redesigned multi-modal streets, and health clubs which also create opportunities for the kind of incidental interaction the innovation economy thrives on. This health agenda is more than just amenity: studies show the economic benefits in the form of increased



productivity and reduced insurance costs. RPA’s State of the Region’s Health report from 2016 showed that places where we live, work and play are now known to have a profound impact on our overall health and well-being, as well as on the ability to make healthy lifestyle decisions. Furthermore, human resource management studies have demonstrated the relation between economic benefits in the form of increased productivity and reduced insurance costs.

Business Facility and Amenity

With new zoning that encourages more diverse uses and greater density at strategic locations in the Park, as well as several improvements in the public realm, the new Park is intended to become a more vibrant business environment, capable of hosting several development hospots. These might include:

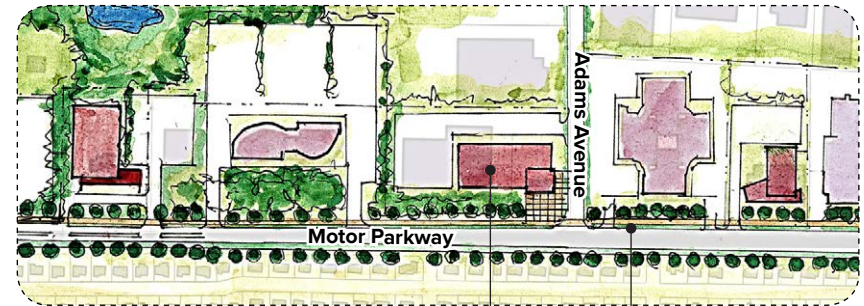
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▶ **Vertical, mixed-use developments** - including commercial and residential developments that make the Park an attractive live-work environment for employees, especially along the north side of Motor Parkway.
- 

▶ **Building retrofits** - transforming the big-box factories by “clipping on” new program elements and/or “carving out” interior courtyards. This will integrate the buildings with the Park’s public realm and make them more attractive, creative, and welcoming.
- 

▶ **Residential developments**
At the east side of the Park, the edges between the industrial uses and the surrounding neighborhoods is currently defined in a less clear way. In this location, some new residential

Figure VI-19: Motor Parkway boulevard - This edge of the Park is an opportunity to create an attractive, tree-lined, multi-modal boulevard lined with vertical, innovation-supporting, mixed-use buildings. The green buffer down the middle of the block enables this transformation along the edge without compromising the more purely industrial activities that are still the foundation of the Park.



New vertical mixed-use buildings

Uniform landscape and streetscape

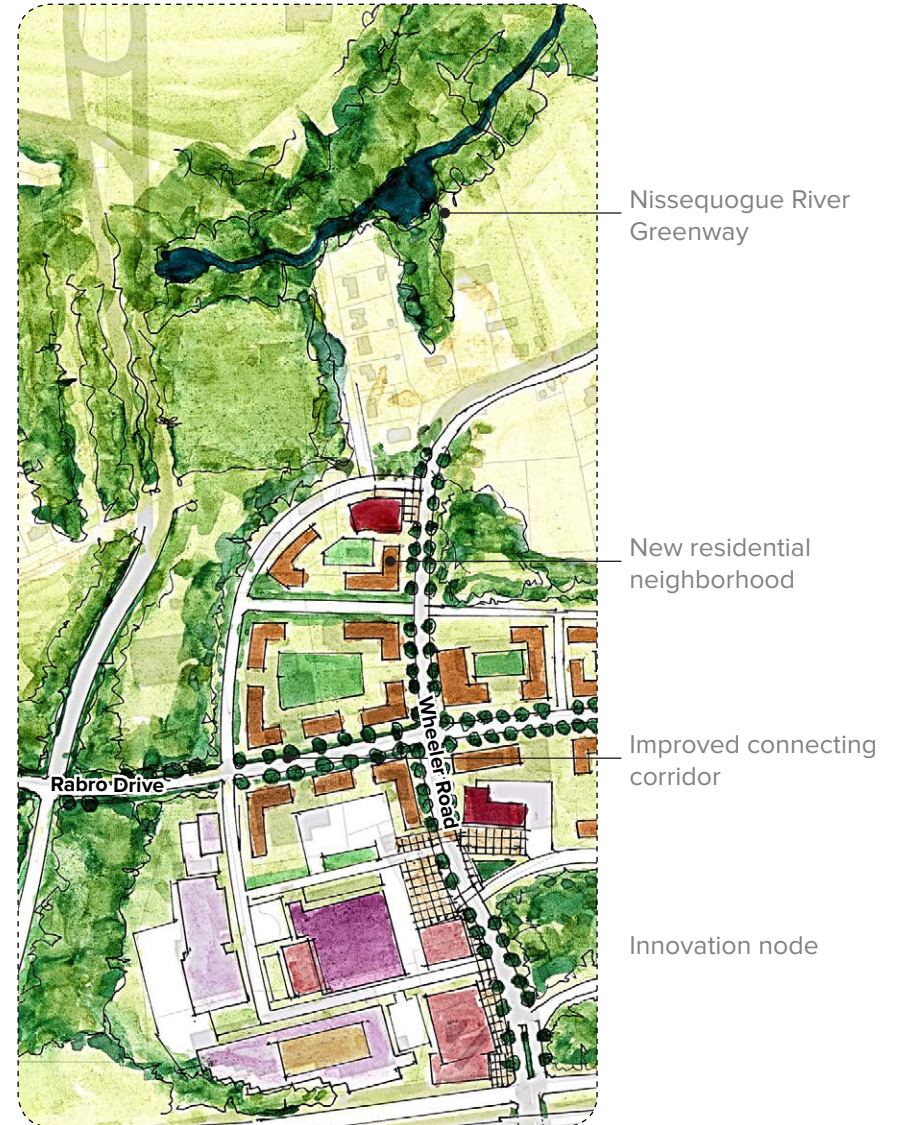
Figure VI-20: Mixed-use development - Pike & Rose, MD



Figure VI-21: Building retrofits - MGA Center



Figure VI-22: New neighborhood



development may be appropriate. This would be combined with another innovation node. Extension of the Nissequogue River/Blydenburgh County Park open space network creates another nearby amenity for workers in the Park.



- ▶ **Innovation spaces** - working together with public realm improvements around the proposed “innovation nodes”, new facilities for research, material testing, production, and office work will also be developed. These can take the form of coworking space in the short term, incubator in the medium term, and a full-blown Regional Innovation Center for Advanced Manufacturing in the long term.

The above mentioned strategies will be primarily developed by **the private sector**, with incentives provided by **Suffolk County IDA** and other **local, state, and federal resources**. These developments will further invigorate the Park to attract and enable additional businesses and organizations to develop necessary facilities.

Management and Operation

Small investments in the Park’s soft infrastructure can potentially yield sizable returns. **HIA-LI**, with its strong existing relationship with the Park’s stakeholders, should take the lead in designing and implementing changes to the Park’s management and operations.

▶ **Social network for special industries**

HIA-LI has been building relationships among businesses with regular events and social outings. The next step is to provide additional programs tailored to the needs of key industry companies. For example, special networking events for advanced manufacturing might spark new business collaborations and in-depth discussions that are difficult to foster in events open to general businesses. HIA-LI can also potentially set up a manufacturing committee or taskforce to further advocate for the growth and development of key industries in the Park.

▶ **Resource for innovation and research**

As described in the Vision chapter, partnerships for research are vital and HIA-LI should manage a membership-based resource database that matches companies to institutions. HIA-LI can potentially hire a dedicated staff to manage the database, conduct surveys with companies, and liaise with research institutions Island-wide.

▶ **Reinventing membership services**

HIA-LI should utilize the economy of scale to procure or provide services to Park businesses, at a reasonable fee. Such services can include business resources, property tax consulting, government program consulting, shuttle buses, and employee carpooling. These services are crucial to reduce the cost of doing business, and they can make the Park attractive to employees; yet it can be too expensive for individual companies to provide these programs on their own. HIA-LI

Figure VI-23: Buffalo Manufacturing Works



Figure VI-24: Innovation Week - Tech Square ATL



Figure VI-25: Edison Welding Institute Tour and TechSolve Shop Hop - Ohio Manufacturing Month



should represent the Park businesses to generate solutions in a cost-effective way. Some of the new programs can be designed and implemented in coordination with HIA-LI's Small Business Task Force.

► **Workforce**

HIA-LI should continue to expand the reach of its job fairs at local universities. In addition, given the high concentration of key industry companies within the Park, HIA-LI can organize company open houses or field days to introduce college and high school students, as well as educators, to industry trends. With additional resources, formalized workforce training programs can be implemented in the Park.

► **Other initiatives**

HIA-LI should continue to reinvent the Park's brand and identity, actively branding itself as a regional economic hub; advocate for green energy initiatives; conduct surveys with building owners and make the data useful; and initiate conversations among business and property owners regarding creating Business Improvement District-like structures to finance larger capital improvements. ■





Appendix 1 - Key Cluster Report Cards

The research selected nine tradable clusters as the key clusters for Long Island's and Hauppauge's economic development.

These key clusters are:

- ▶ Aerospace Vehicles and Defense
- ▶ Biopharmaceuticals
- ▶ Business Services
- ▶ Construction Products and Services
- ▶ Distribution and Electronic Commerce
- ▶ Education and Research Activities
- ▶ Financial Services
- ▶ Food Processing and Manufacturing
- ▶ Information Technology and Analytical Instruments

This appendix compiles the detailed quantitative and qualitative analyses for each of the key clusters. The data sources and methodological constraints are described on the opposite page.

Quantitative research component	Data source	Dataset	Time period	NAICS Code	Private empl. only
Cluster Definition (incl. List of Linked Clusters)*	Harvard Business School	US Cluster Mapping	-	6-digit	Yes
Number of Jobs Statistics (incl. Location Quotient Analysis)	U.S. Bureau of Labor Statistics	Quarterly Census of Employment and Wages	2017	6-digit	Yes
Job Growth Statistics (incl. Shift-Share Analysis)	U.S. Bureau of Labor Statistics	Quarterly Census of Employment and Wages	2013, 2017	6-digit	Yes
Earning Level	U.S. Census Bureau	Quarterly Workforce Indicators	2008 - 2016 (9 years)	4-digit	Yes
Current Workforce Characteristics (Age and Education Attainment)	U.S. Census Bureau	Quarterly Workforce Indicators	2017	4-digit	Yes
Workforce Demand (Job Postings)	Burning Glass	Labor Insight / Jobs	2017	4-digit	No



* The research defines industry clusters based on benchmark definitions used in Harvard Business School's US Cluster Mapping project. Per US Cluster Mapping, "Researchers from Harvard Business School, MIT Sloan School of Management, and Temple University's Fox School of Business generated cluster definitions based on a novel algorithm that allows for the systematic generation and comparison of clusters across the United States." The clusters are sets of mutually exclusive 6-digit NAICS codes, grouping 778 NAICS industries into 51 tradable clusters and 310 NAICS industries into 16 local cluster categories.

AEROSPACE VEHICLES AND DEFENSE

The Big Picture

- ▶ Small job base (~4k jobs)
- ▶ High but declining earning
- ▶ Specialized within the State
- ▶ Slight job number decline
- ▶ Medium Job Posting-to-Current Employment Ratio (1:10)

Industry Job Growth Performance

- ▶  National decline
- ▶  Local strength in this industry slightly offsets the national job decline

Current Workforce Characteristics *

- ▶ Highly educated
- ▶ Significantly older than local average age

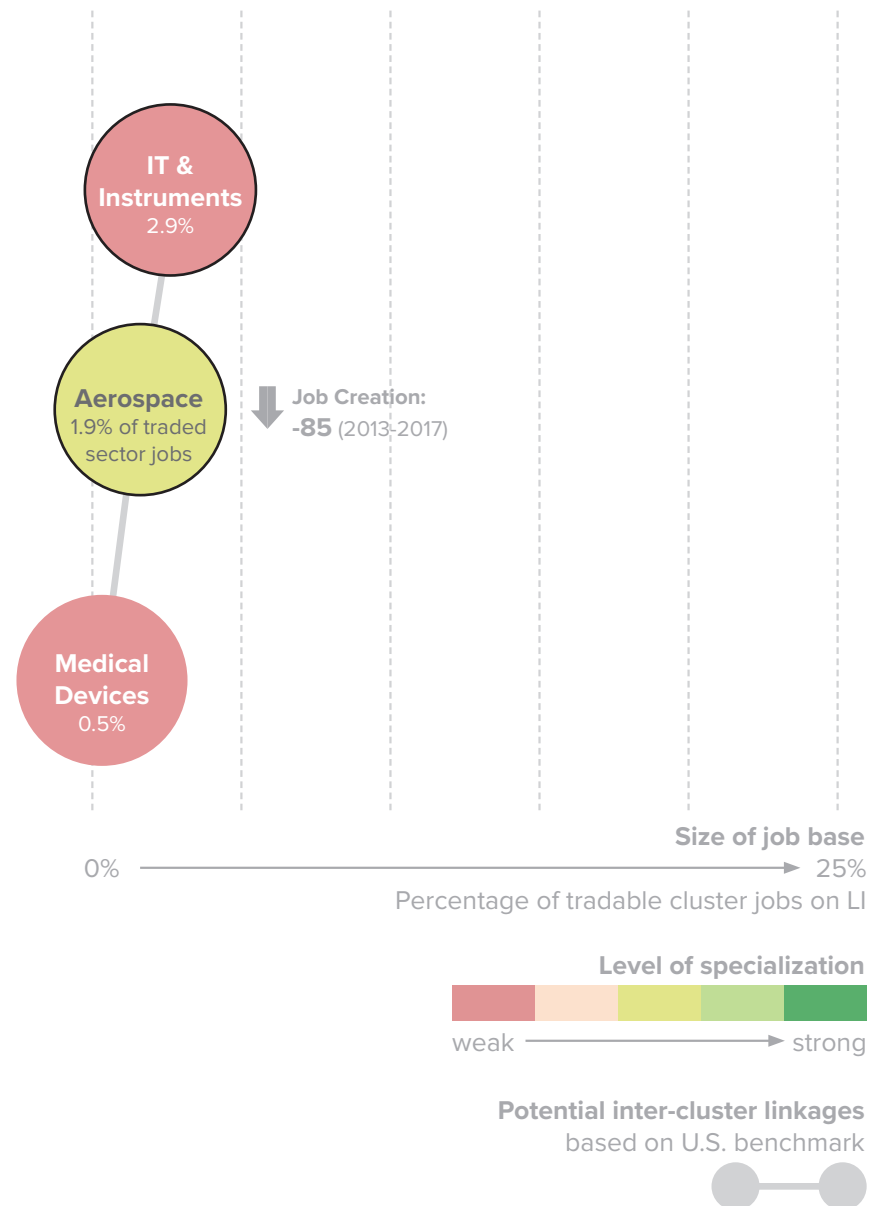
Inter-Cluster Linkages

- ▶ Few cluster linkages
- ▶ Linked to unspecialized and small clusters



Diagnosis & Opportunity






- ▶ Catch up on commercial aircraft manufacturing
- ▶ Backfill the aging workforce






Workforce Demand **

- ▶ 451 job postings in 2017
- ▶ Nassau: 255 postings
Location quotient: 0.4
Very low concentration of job postings in this cluster compared with U.S. average
- ▶ Suffolk: 196 postings
Location quotient: 0.3
Very low concentration of job postings in this cluster compared with U.S. average

▶ Top occupations in job postings

Occupation	Number of postings	Location quotient
 Software Developers, Applications	28	0.3 (Very low)
 Managers, All Other	21	0.5 (Low)
 Sales Representatives, Wholesale and Manu., Except Tech. and Sci. Products	17	0.6 (Low)
 Financial Analysts	12	0.7 (Low)
 Engineers, All Other	12	0.9 (Average)

 and  represent the Risk of Automation (medium and high respectively), based on the probability of computerization for an occupation within the next 20 years. The symbol  represents low risks.

▶ Top skill requirements in job postings

Skill	Percentage of postings
Repair	13.4%
Budgeting	12.5%
Scheduling	12.0%
International Traffic in Arms Regulations (ITAR)	11.8%
Customer Service	11.6%

Qualitative Assessment: With stronger local employment pipelines and sector strategies, Long Island can fully capitalize on the globally growing aerospace industry.

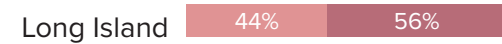
1. The industry is projected to grow, especially on the commercial side.

The commercial flight industry is expected to grow globally, and Long Island, which has a legacy in the defense industry, needs to act strategically. Deloitte projects the overall industry to grow by 4.1% in revenue in 2018 (Deloitte. *2018 Global aerospace and defense industry outlook*). It remains a question as to whether or not Long Island, as well as the U.S. in general, can be part of the global industry growth and translate the expanding revenue into job growth and benefit the local economy.

Passenger travel will continue to grow in the next 20 years.

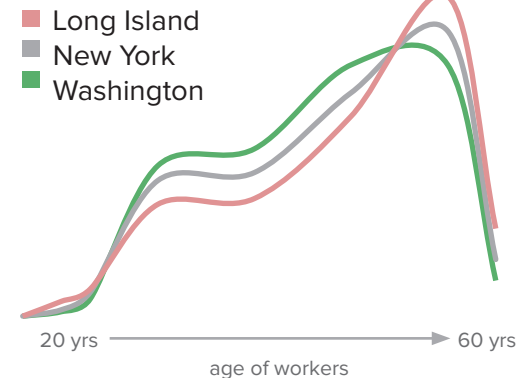
Over the next 20 years, the volume of global passenger travel is projected to grow by 4.7% annually. This is mainly due to stable commodity prices and growing demand for passenger travel in emerging markets, mainly in Asia-Pacific, the Middle East, and Latin America. Such a strong projected growth can lead to an increase in aircraft production. Specifically, according to Deloitte’s 2018 Report, 36,780 aircrafts (excluding regional jets) will need to be produced in the next 20 years.

Aerospace Cluster Employment



- Aircraft
- Search and Navigational Equipment
- Missiles and Space Vehicles

Distribution of Aerospace Employment across Ages



Long Island has the potential to increase its participation in aircraft manufacturing.

Long Island has its potential to benefit from the growth of air travel, although the current industry landscape on the island is mainly dominated by firms operating on defense contracts. Currently, Long Island's employment in aircraft manufacturing makes up 44% of total private-sector aerospace and defense employment. This is lower than the national average of 68%. Therefore, Long Island should rethink its sector strategy in aerospace during peacetime and leverage its strength in navigational devices and composites for the growth of the manufacturing of engines and aircrafts.

2. Without an effective employment pipeline, Long Island's educated but aging workforce is yet to fuel the growth of aerospace.

The highly educated workforce of Long Island can be very attractive to aerospace manufacturers. According to PwC, New York State as a whole is appealing to aerospace firms because of its emerging status as a major hub for research and technology (PwC. *2017 Aerospace manufacturing attractiveness rankings*). However, earning and employment numbers have both been declining for Long Island's aerospace and defense cluster in recent years.

The old workforce of Long Island's aerospace cluster presents both challenges and opportunities.

The age distribution of Long Island's aerospace workers is heavily skewed toward the older end, more so than the New York State average and Washington State, the latter being one of the strongest aerospace clusters in the U.S. When Long Island's existing aerospace engineers and manufacturers retire, new positions will need to be backfilled if companies expect to keep operating and expanding to capture new market opportunities. However, without a working employment pipeline that provides core competency training to individuals and match the educated, young workforce to the available positions, Long Island's aerospace might contract significantly due to the foreseeable wave of retirements.

President,
Aerospace Manufacturing Firm on Long Island:

"We ended up doing our own training for employees. It would be ideal if the firms and institutions on Long Island can act together to provide the program."

Interviewed 09/24/2018

NAICS Code in this Cluster

336411	Aircraft Manufacturing
336412	Aircraft Engine and Engine Parts Manufacturing
336413	Other Aircraft Parts and Auxiliary Equipment Manufacturing
336414	Guided Missile and Space Vehicle Manufacturing
336415	Guided Missile and Space Vehicle Propulsion Unit and Propulsion Unit Parts Manufacturing
336419	Other Guided Missile and Space Vehicle Parts and Auxiliary Equipment Manufacturing
334511	Search, Detection, Navigation, Guidance, Aeronautical, and Nautical System and Instrument Manufacturing

Notes

*Because the data source for Workforce Characteristics (Census) specifies industries by 4-digit NAICS codes, while the cluster definition and BLS data are disaggregated by 6-digit NAICS codes, the statistics in the Workforce Characteristics section are affected by other related clusters that share certain industries (4-digit codes). For this cluster, the confounding cluster with partial code sharing is:

Information Technology and Analytical Instruments

**The data for Workforce Demand is provided by Labor Insight / Jobs (Burning Glass Technologies). This data source, unlike the BLS and Census data, does not distinguish private sector and public sector jobs. Additionally, the above mentioned confounding clusters due to data availability only at the 4-digit level of NAICS codes also applies to the Workforce Demand section.



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BIOPHARMACEUTICALS

The Big Picture

- ▶ Small job base (~10k jobs)
- ▶ Below-average and volatile earning
- ▶ Extremely specialized
- ▶ Stable job number / slight decline
- ▶ Low Job Posting-to-Current Employment Ratio (1:16)

Industry Job Growth Performance

- ▶  Modest national decline
- ▶  Local weakness in this industry exacerbates the national job decline

Current Workforce Characteristics

- ▶ Lower education attainment
- ▶ Concentrated in mid ages

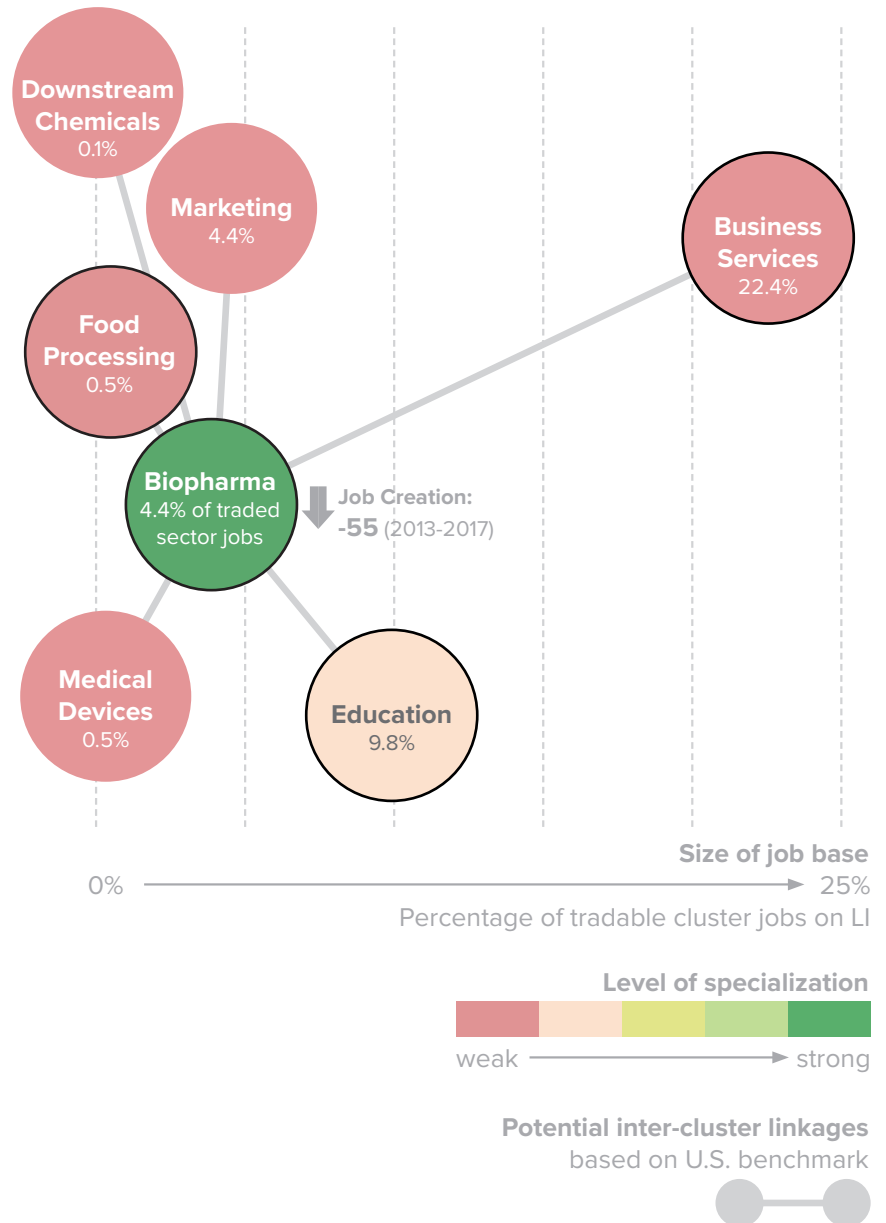
Inter-Cluster Linkages

- ▶ Medium-level cluster linkages
- ▶ Linked mainly to unspecialized clusters



Diagnosis & Opportunity






- ▶ Provide training for production and management skills
- ▶ Enhance innovation capacity and research commercialization
- ▶ Move up the value chain and expand into biotech and life science






Workforce Demand *

- ▶ 622 job postings in 2017
- ▶ Nassau: 475 postings
Location quotient: 0.8
Low concentration of job postings in this cluster compared with U.S. average
- ▶ Suffolk: 147 postings
Location quotient: 0.3
Very low concentration of job postings in this cluster compared with U.S. average

▶ Top occupations in job postings

Occupation	Number of postings	Location quotient
 Quality Control Systems Managers	68	5.1 (Very high)
 Sales Representatives, Wholesale and Manu., Except Tech. and Sci, Products	55	0.8 (Low)
 Managers, All Other	19	0.4 (Very low)
 Chemists	16	0.8 (Low)
 Production Workers, All Other	15	2.0 (Very high)

 and  represent the Risk of Automation (medium and high respectively), based on the probability of computerization for an occupation within the next 20 years. The symbol  represents low risks.

▶ Top skill requirements in job postings

Skill	Percentage of postings
Current Good Manufacturing Practices (CGMP)	35.8%
Quality Assurance and Control	25.0%
Packaging	19.4%
Sales	18.8%
Chemistry	16.8%

Qualitative Assessment: Long Island’s existing edge in pharmaceuticals will bring greater economic prosperity if firms move up the skill ladder and value chain.

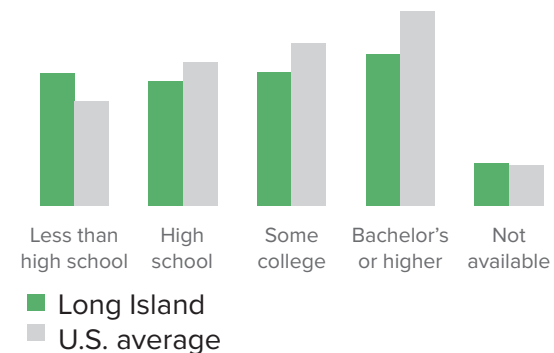
1. Pharmaceutical companies on Long Island tend to focus on manufacturing generic drugs instead of investing in R&D.

Business specialization has implications for the educational attainment of workers and their earning levels. Compared with the U.S. average, Long Island’s biopharma employments include a higher proportion of workers without high school degrees. In terms of product diversification, Long Island’s biopharma cluster is concentrated solely in drug and dietary supplement manufacturing; there are other closely related products, such as biological products and diagnostic substances, that are high-value and currently non-existing on Long Island.

R&D and manufacturing in the biopharma cluster require different kinds of investments and create different amounts of values.

Biopharma firms tend to consist of three components, R&D, marketing, and manufacturing. R&D in the biopharma cluster is characterized by high risk, high capital intensity, and long cycle times. Manufacturing can function relatively independent from research activities and operate on licenses and third-party contracts.

Distribution of Biopharma Employment across Education Attainments



**Senior Executive,
Pharmaceutical Firm on Long Island:**

“We’ve been expanding, but it’s costly to do so on Long Island. Other states offered attractive financial assistance for us to move. Without the IDA’s support, we wouldn’t have chosen to stay here.”

Interviewed 09/10/2018

Manufacturing is a “footloose” activity that is sensitive to Long Island’s high costs of factor inputs.

With the reduction of distribution costs due to development in transportation and e-commerce, manufacturing firms can operate virtually from anywhere and thus choose more remote locations to save costs. Long Island is facing threats from other states that offer pharmaceutical companies attractive relocation packages. Therefore, too much reliance on the manufacturing side of the biopharma cluster will make Long Island vulnerable, especially given the region’s high-tax, high-wage business environment.

R&D is a more resistant area to build lasting cluster strength in a place.

Innovation related activities, such as research, development, and product design, are characterized by higher trade costs than manufacturing, because these processes depend on constant, often face-to-face exchanges of ideas among individuals and firms. Therefore, innovation’s geographic distribution is less affected by the reduction of transportation costs, and if a local system of innovation exists in the region, firms tend to further agglomerate and stay in that region, offering stronger economic resilience for the place as well as higher earnings in that cluster. Long Island’s aspiration to be a national leader in the biopharma cluster thus requires a shift of focus from manufacturing to innovation.

2. Companies on Long Island have a strong latent capacity to capture the value of scientific innovation.

Granted that in-house R&D might be too risky and capital intensive for firms, biopharma companies on Long Island can still improve their innovation capacity based on several available models and partnerships in the region.

Long Island should build industry-wide collaborative relationships.

Several opportunities exist to strengthen the ties between firms and organizations in the region. For example, Long Island Association’s LI-Bio Initiative, supported by LIREDC, assists in the recruitment of large pharmaceutical firms and provides opportunities for them to network and share ideas.

Firms should partner with academic institutions and labs.

Long Island is home to world-renowned universities and research facilities, which, if aided by effective commercialization channels, can substantially boost the firms’ innovation capacity. The following are examples of academic and institutional partners.

- ▶ Center for Biotechnology at Stony Brook University
- ▶ Stony Brook Innovation & Discovery Center (promoting start-ups)

- ▶ LI Bioscience Hub (NYS x universities x national labs)
- ▶ Feinstein Institute for Medical Research
- ▶ Cold Spring Harbor Lab
- ▶ Northwell Health
- ▶ Brookhaven National Laboratory

3. Innovation is not only about science. It can also enhance the business and management side for biopharma companies.

Because supply chain management and marketing are such critical aspects of the biopharma business, improvement in efficiency, consumer research, and service delivery can significantly enhance the performance and prospect of Long Island's biopharma cluster.

Applying big data analytics in the biopharma industry can unlock value.

Advanced technology and the data-driven approach can help biopharma firms observe the changes in market demand, keep up with the product cycle in a heavily regulated industry, and design new products to ultimately move up the value chain.



© Long Island Association

Center for Biotechnology at Stony Brook University Programs:

Business Development

- BioEntrepreneur-in-Residence Program
- BioStrategy Sessions
- Long Island Innovation Boot Camp
- Life Sciences Summit

Technology Development

- Innovative Technology Development Program
- Applied Research and Development Program
- Technology Commercialization Clinic
- BioPartnering Meetings
- Corporate Sponsored Research

Workforce Development

- Fundamentals of the Bioscience Industry Program
- Technology Commercialization Fellowship Program
- Scholarships

(Soft) Infrastructure Development

- Business Incubation Programs
- Economic Development and Trade Associations
- Research Programs and Facilities

4. Other skill-related problems also exist for manufacturers, scientists, and entrepreneurs.

Manufacturers face serious training and recruiting challenges.

Long Island’s pharmaceutical companies compete vehemently and struggle in hiring qualified talent with the technical skills to operate the machines and production lines. Pharmaceutical firms also face competition from other manufacturers, which share many core competencies in the workers’ skill profiles. More intensive investment in training is necessary to produce a larger labor pool with the right skill sets.

Facing “brain drain”, firms need to keep their knowledge workers.

In the business of biopharma, it is common to see scientists who leave big pharmaceutical companies for better career advancement in biotech, which tend to be located in urban centers. Firms on Long Island need to keep their scientists by creating leadership and management roles for top talent.

For entrepreneurs, the industry’s high-risk environment and emphasis on experience become barriers to entry.

The national trend of the biopharma cluster has not been booming. Unlike tech startups, the biopharma cluster is extremely risky and emphasizes much more on experience and judgment, which deters entrepreneurship and firm creation.

Senior Executive,
Pharmaceutical Firm on Long Island:

“Pharmaceutical companies on Long Island are differentiated by products, but their manufacturing processes are pretty much the same, which makes the competition for labor pool extremely fierce.”

Interviewed 09/10/2018

President,
Pharmaceutical Firm on Long Island:

“We have tons of openings that we cannot fill, both for skilled labor and unskilled labor.”

Interviewed 08/14/2018

NAICS Code in this Cluster

325411	Medicinal and Botanical Manufacturing
325412	Pharmaceutical Preparation Manufacturing
325414	Biological Product (except Diagnostic) Manufacturing
325413	In-Vitro Diagnostic Substance Manufacturing

Notes

*The data for Workforce Demand is provided by Labor Insight / Jobs (Burning Glass Technologies). This data source, unlike the BLS and Census data, does not distinguish private sector and public sector jobs.

BUSINESS SERVICES

The Big Picture

- ▶ Largest job base (~51k jobs)
- ▶ High and steadily increasing earning
- ▶ Not specialized
- ▶ Biggest job number growth
- ▶ Medium Job Posting-to-Current Employment Ratio (1:6)

Industry Job Growth Performance

- ▶ ■ National growth
- ▶ ■ Local weakness in this industry offsets the national job growth

Current Workforce Characteristics *

- ▶ Highly educated
- ▶ Slightly younger than local average age

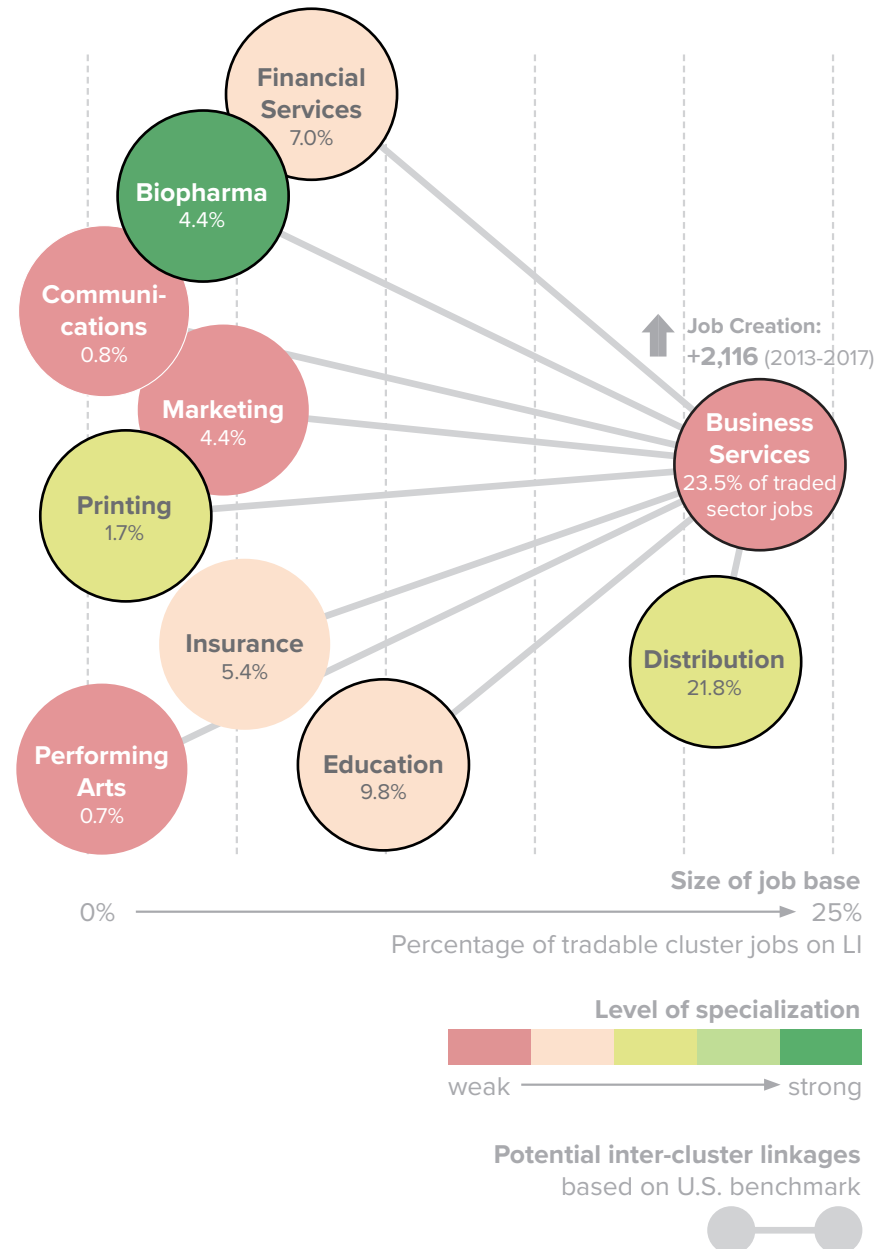
Inter-Cluster Linkages

- ▶ Many cluster linkages
- ▶ Linked to specialized and big clusters



Diagnosis & Opportunity






- ▶ Provide finance, training, and tax incentives to support the growth of local firms
- ▶ Design programs that build advanced technology into core services






Workforce Demand **

- ▶ 8,268 job postings in 2017
- ▶ Nassau: 4,257 postings
Location quotient: 0.6
Low concentration of job postings in this cluster compared with U.S. average
- ▶ Suffolk: 4,011 postings
Location quotient: 0.6
Low concentration of job postings in this cluster compared with U.S. average

▶ Top occupations in job postings

Occupation	Number of postings	Location quotient
 Customer Service Representatives	1,348	1.0 (Average)
 Sales Representatives, Wholesale and Manu., Except Tech. and Sci. Products	793	0.8 (Low)
 Bookkeeping, Accounting, and Auditing Clerks	242	1.1 (Average)
 Software Developers, Applications	236	0.3 (Very low)
 Retail Salespersons	194	1.1 (Average)

 and  represent the Risk of Automation (medium and high respectively), based on the probability of computerization for an occupation within the next 20 years. The symbol  represents low risks.

▶ Top skill requirements in job postings

Skill	Percentage of postings
Customer Service	35.2%
Sales	22.7%
Scheduling	12.5%
Customer Contact	11.5%
Accounting	8.9%

Qualitative Assessment: Large as it is, Long Island’s business services cluster should better compete against big corporations, NYC-based firms, and digitalization of service functions.

1. Business service firms on Long Island are facing different challenges.

Currently, this cluster is the biggest base for tradable sector jobs on Long Island. It supports the operation of many other industries, and is thus closely related to the overall health and vibrancy of the local economy. However, Long Island cannot quite claim itself to be a leader in business services, and if nothing is done, Long Island might lose those jobs to other places.

Business service leaders can and often choose to locate themselves in New York City.

Location is crucial for the profitability of business services, because affluent and economically vibrant regions tend to generate greater demand for a variety of services. New York City is a huge magnet for business service providers (Manhattan is ranked 4th out of all the counties in the U.S.); for Long Island, being next to New York City means the constant threat of losing business service jobs to the neighboring giant.

The cluster is highly sensitive to economic cycles.

As shown in the large number of inter-cluster linkages of business services, this cluster feeds back to other sectors and therefore is highly sensitive to economic cycles. In a downturn, for example, manufacturing firms will spend less money on hiring advertising firms, mailing services, employment agencies, etc. Therefore, this cluster is essentially beholden to the success of other industries.

Long Island businesses tend to be small, while the national trend of business services is consolidation.

Nationally, business service firms nowadays increasingly bring IT and marketing services in house. This industry trend makes it harder for smaller Long Island firms to survive, who work mainly on contracted services.

Internet can displace traditional service providers.

With the development of technology and digital tools, traditional business service functions can now be performed online, usually with greater efficiency. For example, websites like Indeed, Monster, and Jobs.com are in direct competition with the traditional human resource firms in the business services cluster.

Innovative Tools and Concepts for Business Services:

- AR (augmented reality): for virtual conference services etc.
- Social media adoption: finding and engaging clients online, monitoring competitors
- Value-oriented revenue model: charging perceived value of service (vs. hourly rate)
- Emergence of modularization: unbundling services and project components

2. Opportunities do exist to strengthen the business service cluster on Long Island.

Given the important role of business services in the overall regional economy, Long Island cannot afford to not invest in this important sector of its economy.

Business services create attractive jobs for the young and the educated.

On Long Island, business service providers employ more young and educated people than the average firm. It is possible that young people are drawn to this sector because it meets their salary expectations, workplace culture preferences, and lifestyle. Therefore, business services have the potential to be the sector that Long Island strategically promotes with the broader goal of attracting and retaining young talents.

Long Island houses many corporate headquarters, which can grow in size.

Corporate headquarters make a subcluster of the overall business services cluster, and this subcluster makes up 30% of the cluster employment (compare to the 26% for U.S.). If these relatively large establishments can grow and improve in terms of size, technology, and innovative management practices, they might become more competitive and add business advantage to the region. Long Island should try its best not to lose them.

Firms and service providers should enhance competitiveness by proactively adopting new technology.

From digital tools to new management concepts, knowledge and innovation provide a wide range of opportunities for business service firms to increase output and stay competitive.

NAICS Code in this Cluster

551111	Offices of Bank Holding Companies
551112	Offices of Other Holding Companies
551114	Corporate, Subsidiary, and Regional Managing Offices
541611	Administrative Management and General Management Consulting Services
541612	Human Resources and Executive Search Consulting Services
541614	Process, Physical Distribution, and Logistics Consulting Services
541618	Other Management Consulting Services
541690	Other Scientific and Technical Consulting Services
533110	Lessors of Nonfinancial Intangible Assets (except Copyrighted Works)
541199	All Other Legal Services
541214	Payroll Services
541930	Translation and Interpretation Services
541990	All Other Professional, Scientific, and Technical Services
561210	Facilities Support Services
561330	Professional Employer Organizations
561421	Telephone Answering Services
561422	Telemarketing Bureaus
561920	Convention and Trade Show Organizers
514210	Data Processing Services
518210	Data Processing, Hosting, and Related Services
541511	Custom Computer Programming Services
541512	Computer Systems Design Services
541513	Computer Facilities Management Services
541519	Other Computer Related Services
561310	Employment Placement Agencies
561311	Employment Placement Agencies
561312	Executive Search Services
541330	Engineering Services
541310	Architectural Services
541320	Landscape Architectural Services
541340	Drafting Services

485310	Taxi Service
485320	Limousine Service
485999	All Other Transit and Ground Passenger Transportation
532112	Passenger Car Leasing

Notes

*Because the data source for Workforce Characteristics (Census) specifies industries by 4-digit NAICS codes, while the cluster definition and BLS data are disaggregated by 6-digit NAICS codes, the statistics in the Workforce Characteristics section are affected by other related clusters that share certain industries (4-digit codes). For this cluster, the confounding clusters with partial code sharing are:

- Distribution and Electronic Commerce
- Financial Services
- Local Commercial Services
- Local Financial Services
- Local Logistical Services
- Local Personal Services (Non-Medical)
- Local Real Estate, Construction, and Development
- Marketing, Design, and Publishing
- Oil and Gas Production and Transportation

**The data for Workforce Demand is provided by Labor Insight / Jobs (Burning Glass Technologies). This data source, unlike the BLS and Census data, does not distinguish private sector and public sector jobs. Additionally, the above mentioned confounding clusters due to data availability only at the 4-digit level of NAICS codes also applies to the Workforce Demand section.



CONSTRUCTION PRODUCT & MATERIALS

Data not including local real estate development. See NAICS codes.

The Big Picture

- ▶ Very small job base (~3k jobs)
- ▶ High and recently growing earning
- ▶ Not specialized
- ▶ 2nd biggest job number growth
- ▶ Medium Job Posting-to-Current Employment Ratio (1:9)

Industry Job Growth Performance

- ▶  Modest national growth
- ▶  Local strength in this industry amplifies the national job growth

Current Workforce Characteristics *

- ▶ Lower education attainment
- ▶ Concentrated in mid ages

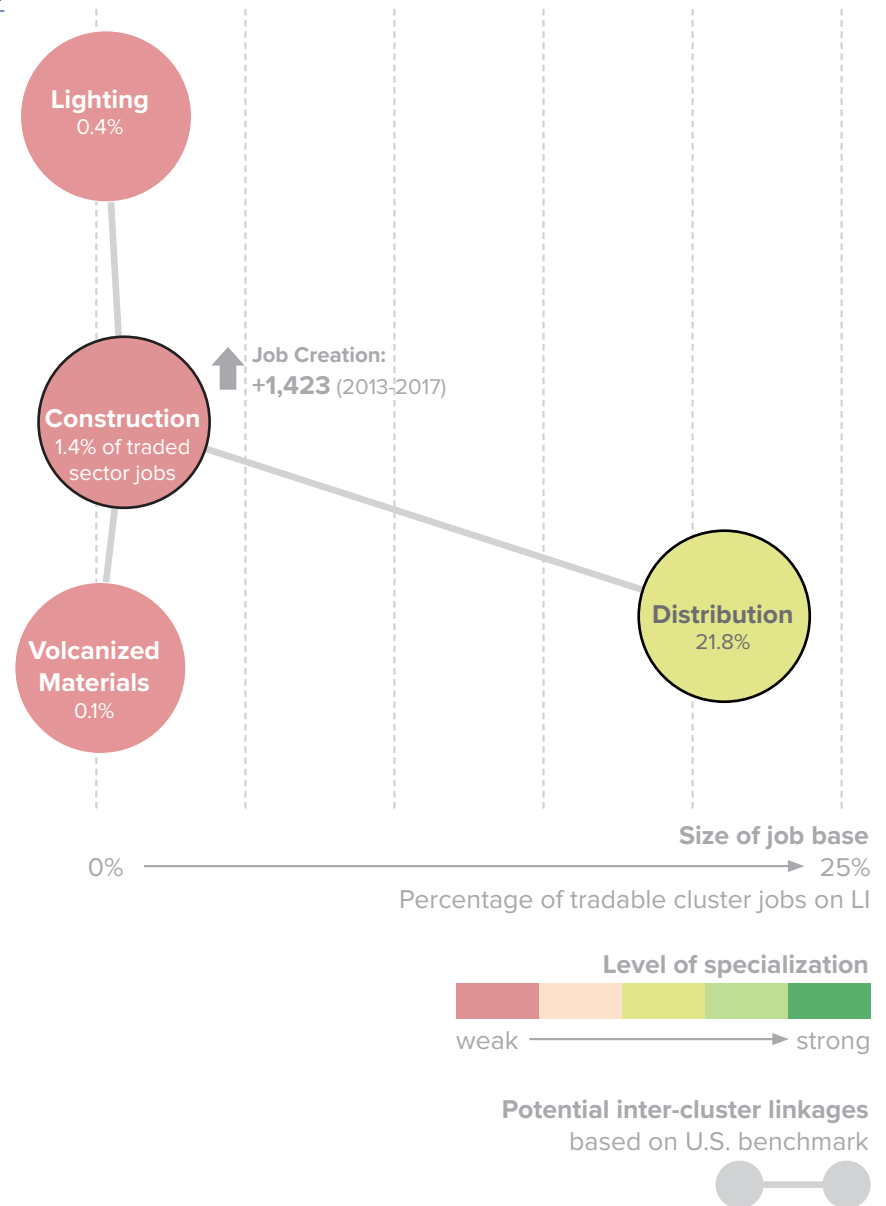
Inter-Cluster Linkages

- ▶ Few cluster linkages
- ▶ Linked to a specialized and big cluster



Diagnosis & Opportunity






- ▶ Capitalize on local and regional infrastructure spending
- ▶ Address the demand for residential, industrial and mixed-use real estate
- ▶ Find value-add in new material, product and technology






Workforce Demand **

- ▶ 372 job postings in 2017
- ▶ Nassau: 196 postings
Location quotient: 0.4
Very low concentration of job postings in this cluster compared with U.S. average
- ▶ Suffolk: 176 postings
Location quotient: 0.4
Very low concentration of job postings in this cluster compared with U.S. average

▶ Top occupations in job postings

Occupation	Number of postings	Location quotient
 Construction Managers	40	0.5 (Very low)
 Heavy and Tractor-Trailer Truck Drivers	25	0.8 (Low)
 Sales Representatives, Wholesale and Manu., Except Tech. and Sci. Products	25	1.0 (Average)
 Sales Managers	17	0.9 (Average)
 Electrical Power-Line Installers and Repairers	15	0.6 (Low)

 and  represent the Risk of Automation (medium and high respectively), based on the probability of computerization for an occupation within the next 20 years. The symbol  represents low risks.

▶ Top skill requirements in job postings

Skill	Percentage of postings
Scheduling	29.3%
Customer Service	25.1%
Repair	24.2%
Project Management	20.9%
Sales	19.4%

Qualitative Assessment: Market demand and government spending in regional infrastructure and real estate development can support the growth of Long Island's construction industry.

The analysis below incorporates industry insights related to local real estate development.

1. Recent public investment spurs the construction of large-scale projects on Long Island.

Long Island has been receiving public dollars for transit infrastructure upgrades, downtown redevelopments, and projects related to climate resiliency. These projects are boosting the region's construction industry.

Opportunity 1: Long Island Rail Road

Governor Cuomo announced a \$5.6 billion plan for LIRR, including construction of the Main Line Third Track, Double Track, Jamaica Station Reconstruction, 5 underpasses, fortifying 12 bridges, and upgrading 13 power substations and 39 stations.

Opportunity 2: Climate resiliency

After Hurricane Sandy, funding has been directed to projects that react to and plan for climate changes and sea level rises. Capital projects are booming on Long Island as towns and villages transform their shorelines and local service infrastructure, including sewage collection system.

Opportunity 3: TOD and downtown redevelopment

Downtown revitalization plans, which typically surround LIRR stations, also boost the construction cluster. Downtowns on Long Island have a high potential for redevelopment, due to the demand for alternative housing choices as well as for commercial and retail uses.

2. Local real estate development and the distribution industry can also help the construction cluster grow.

Construction is closely related to real estate development, which is Long Island's 4th biggest local (non-tradable) industry cluster. Jobs in real estate increased by 14% from 2013 to 2017. Real estate market demand is concentrated particularly in residential, healthcare, and warehouse.

Opportunity 4: Housing and infrastructure construction

Long Island Index (2018) indicated that the region has the potential to add more than 150,000 households in the next 20 years. There is also a strong market demand in Long Island for quality, market-rate rental. This is booming due to the scarcity of supply. These residential developments will further spur the construction of infrastructure systems.

**Long Island Regional Economic Development Council
2017 Progress Report:**

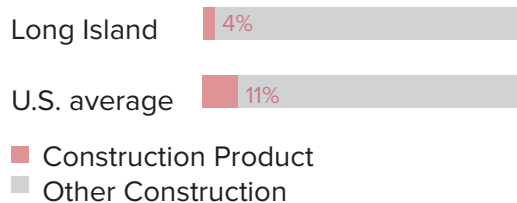
New collection system for Point Lookout in Nassau County that will become part of the County’s Sewer and Storm water Collection Waterfront District.

**Mitch Pally, CEO
Long Island Builders Institute:**

“It’s about time Long Island moved to the 21st century. It’s no longer time to build facilities for single use.”

Interviewed 07/24/2018

**Construction Product Employment
in the Construction Cluster**



Opportunity 5: Mixed-use

Because there is now a limited amount of land and opportunities on Long Island, mixed-use development becomes attractive to developers.

Opportunity 6: Warehouse

Long Island has a large local consumer base and proximity to NYC, which support the strong demand for warehousing and efficient delivering of goods. Cushman & Wakefield (Q1 2018) indicated that there was strong pent up demand for high-quality industrial and distribution real estate on Long Island.

3. New building technology has the potential to push the construction cluster to a higher level of value creation.

Green construction is an important area for growth. As policies and standard practices begin to become “cleaner and greener” for the construction industry, many new projects will be required to satisfy high standards for energy efficiency and use of green materials. Firms will need to retrain their workers to fully capture the value of technological change and the demand for green construction.

Long Island should develop more strength in construction products.

Within Long Island’s construction cluster, most jobs are directly related to construction activities (72%). There is only 4% of construction-cluster jobs in the Construction Product subcluster, which is seven points lower than the U.S. average. Hence there remains space for Long Island to invest more in product development and manufacturing - these have potentially higher technological content than traditional construction jobs.

Innovation, however, should be supported by market demand.

Innovation in product and material technology is less likely to happen on Long Island if building heights and densities continue to be restricted. This is because many new building technologies only become desirable with increased building intensity.

4. Social and political dynamics on Long Island might prevent the construction cluster from realizing its full potential.

Long Island’s fear of density and political fragmentation particularly hurt industries related to physical construction. These forces, however, have then been countered by construction unions, which advocate for greater investments in building and infrastructure projects.

“Building more” often faces local resistance.

Many residents on Long Island are vocal about their fear of Long Island “becoming the next Queens”, and they demonstrate strong resistance to proposals of increased building height, density, and the idea of “urbanizing” on Long Island, in fear that construction and densification will reduce the quality of life.

Unions can advocate for the growth of the construction sector.

Construction as an industry is also heavily influenced by the power and politics of its unions. Building and construction trades unions are some of the most powerful in the area, which advocate for local investment in construction projects.

NAICS Code in this Cluster

233310	Mfg & Industrial Building Construction
234920	Pwr/Communication Transmsn Line Construction
234930	Industrial Nonbuilding Structure Construction
234990	All Other Heavy Construction
236210	Industrial Building Construction
237120	Oil and Gas Pipeline and Related Structures Construction
237130	Power and Communication Line and Related Structures Construction
237990	Other Heavy and Civil Engineering Construction
221310	Water Supply and Irrigation Systems
221330	Steam and Air-Conditioning Supply
332410	Power Boiler and Heat Exchanger Manufacturing
332420	Metal Tank (Heavy Gauge) Manufacturing
332913	Plumbing Fixture Fitting and Trim Manufacturing
332996	Fabricated Pipe and Pipe Fitting Manufacturing
327310	Cement Manufacturing
327331	Concrete Block and Brick Manufacturing
327332	Concrete Pipe Manufacturing
327410	Lime Manufacturing
327420	Gypsum Product Manufacturing
327991	Cut Stone and Stone Product Manufacturing
327993	Mineral Wool Manufacturing
327999	All Other Miscellaneous Nonmetallic Mineral Product Manufacturing
324121	Asphalt Paving Mixture and Block Manufacturing
324122	Asphalt Shingle and Coating Materials Manufacturing

Notes

*Because the data source for Workforce Characteristics (Census) specifies industries by 4-digit NAICS codes, while the cluster definition and BLS data are disaggregated by 6-digit NAICS codes, the statistics

in the Workforce Characteristics section are affected by other related clusters that share certain industries (4-digit codes). For this cluster, the confounding clusters with partial code sharing are:

Downstream Chemical Products
 Downstream Metal Products
 Information Technology and Analytical Instruments
 Local Real Estate, Construction, and Development
 Local Utilities
 Metalworking Technology
 Oil and Gas Production and Transportation
 Production Technology and Heavy Machinery
 Vulcanized and Fired Materials

**The data for Workforce Demand is provided by Labor Insight / Jobs (Burning Glass Technologies). This data source, unlike the BLS and Census data, does not distinguish private sector and public sector jobs. Additionally, the above mentioned confounding clusters due to data availability only at the 4-digit level of NAICS codes also applies to the Workforce Demand section.

DISTRIBUTION AND E-COMMERCE

The Big Picture

- ▶ 2nd largest job base (~50k jobs)
- ▶ High but volatile earning
- ▶ Specialized within the State
- ▶ Declining job number
- ▶ Low Job Posting-to-Current Employment Ratio (1:15)

Industry Job Growth Performance

- ▶ ■ National growth
- ▶ ■ Local weakness in this industry offsets the national job growth

Current Workforce Characteristics *

- ▶ Educated
- ▶ Concentrated in mid ages

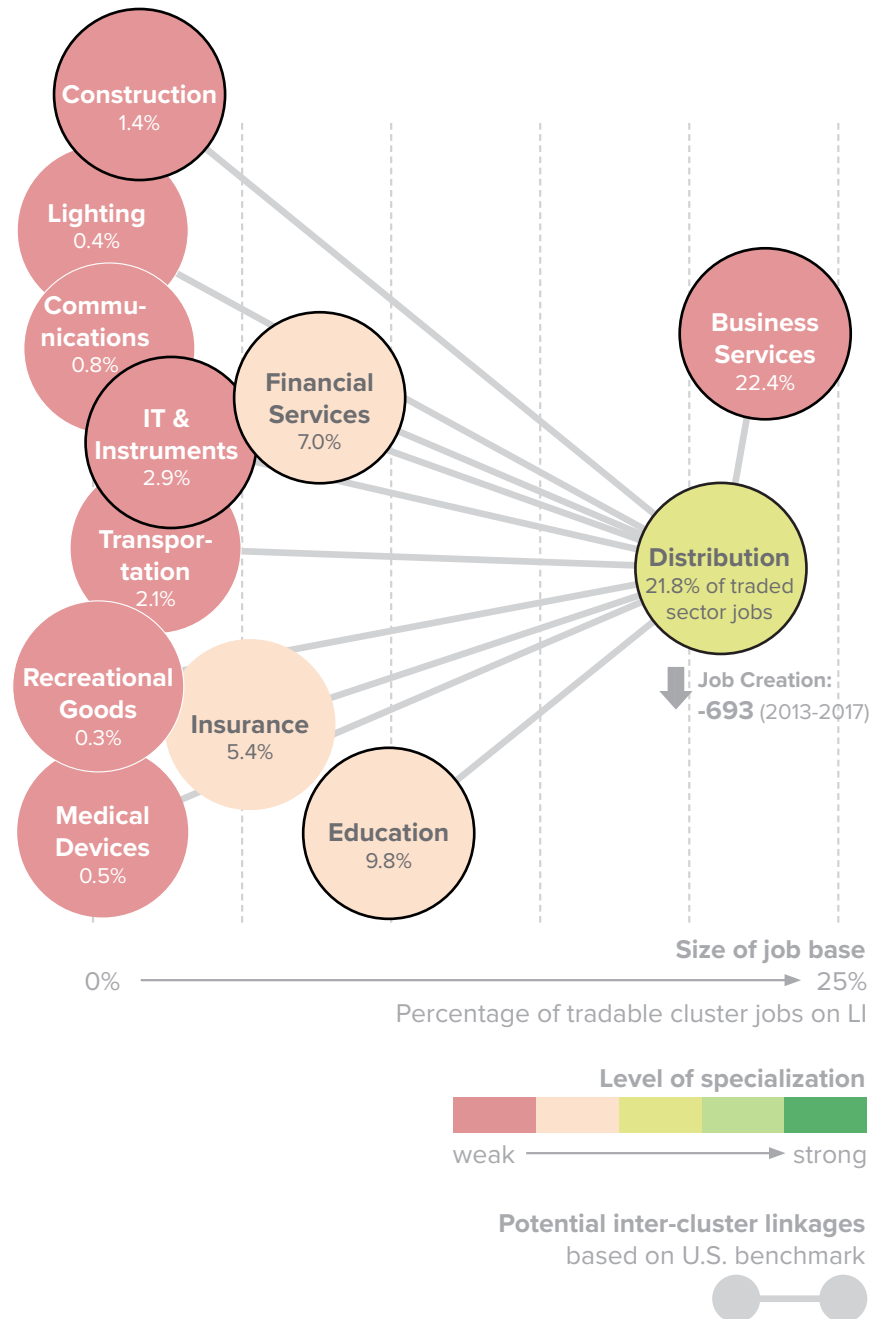
Inter-Cluster Linkages

- ▶ Many cluster linkages
- ▶ Linked mainly to unspecialized clusters



Diagnosis & Opportunity






- ▶ Bring value-add functions with new technology and digital tools
- ▶ Tailor services to submarkets and industries
- ▶ Meet demand for warehouse real estate






Workforce Demand **

- ▶ 3,419 job postings in 2017
- ▶ Nassau: 1,795 postings
Location quotient: 0.8
Low concentration of job postings in this cluster compared with U.S. average
- ▶ Suffolk: 1,624 postings
Location quotient: 0.8
Low concentration of job postings in this cluster compared with U.S. average

▶ Top occupations in job postings

Occupation	Number of postings	Location quotient
 Customer Service Representatives	1,192	1.1 (Average)
 Sales Representatives, Wholesale and Manu., Except Tech. and Sci. Products	616	0.8 (Low)
 Retail Salespersons	115	1.3 (High)
 Computer Programmers	59	12.0 (Very high)
 Managers, All Other	54	1.1 (Average)

 and  represent the Risk of Automation (medium and high respectively), based on the probability of computerization for an occupation within the next 20 years. The symbol  represents low risks.

▶ Top skill requirements in job postings

Skill	Percentage of postings
Customer Service	58.5%
Sales	36.1%
Customer Contact	16.4%
Scheduling	12.8%
Data Entry	10.9%

Qualitative Assessment: Technological development might reduce jobs in the distribution cluster, but changing demands in the different consumer markets bring new growth opportunities.

1. Digitalization and automation are quickly transforming the distribution and e-commerce industry.

Distribution-related industries are expected to change radically over the next ten years, as digital supply chains become more developed and institutionalized. Technology, however, is a double-edged sword for the distribution cluster. On the one hand, smarter warehouse and supply chain management tools enable the growth of e-commerce and distribution industries. On the other, automation and machinery can also replace workers currently employed in distribution centers.

Automation might displace distribution workers.

Although distribution is currently a large employment base on Long Island, future job growth is at risk due to automation. Customer service representatives and salespersons, which are jobs in demand now, face major automation risks.

Value-added functions will be the key to bringing new competitiveness to the distribution industry.

As robots and computers take mechanical jobs in the distribution cluster, humans are better suited for jobs that call for emotional

contact and judgment; these human-centered functions can make distribution remain a relevant and competitive job base on Long Island. The educated labor force on Long Island is particularly conducive for such functions. Value-added services in the distribution cluster include: logistics, management, data analysis and synthesis, and system design.

2. Yet physical footprints and location choices are ever more important in the digital age.

As e-commerce and development of virtual interfaces begin to gradually wipe out physical retail stores, functions such as logistics, wholesaling, and warehousing are experiencing growth and they require more physical space.

Long Island needs more distribution centers and warehouses.

There is record demand for industrial property on Long Island, mostly driven by warehousing and distribution. Real estate developers can reposition suburban properties, such as office, to meet such demand. This translates to jobs: currently, only 4% of jobs in Long Island's distribution cluster are in the Warehousing and Storage subcluster, while the U.S. average is 17%.

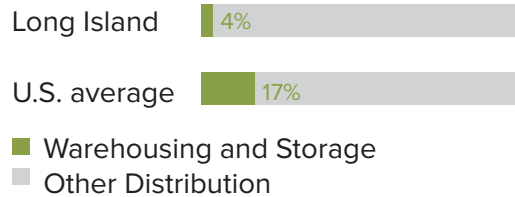
Distribution needs new business models.

The industry is experiencing increasing demand for "just-in-time" inventory and rapid delivery, such as Amazon's one-hour

Technological Development in the Distribution Cluster:

- Simplified supply chain, which means fewer suppliers.
- Autonomous truck convoys and self-driving delivery robots, which may provide faster and more reliable delivery times, lower labor costs, elimination of human error, and reduced emissions.
- 3D printing, which transforms spare parts value chain and can produce items needed on site.

Warehousing and Storage Employment in the Distribution Cluster



Noteworthy Real Estate Deals: The Real Deal (3/2017)

- Storage Post: 228,852-square-foot space in Floral Park for \$157 per foot
- Pharmaceutical manufacturing company based in India: 110,000-square-foot warehouse/manufacturing property in Hauppauge for \$13 million, which will be used to produce generic drugs.

order. Such new market demands require more and smaller distribution facilities to form a network in a given geography, which necessitates advanced planning, sourcing, and logistics – particularly in the “last mile”. These trends are especially relevant for Long Island, considering its large local consumer market and the “Amazon-ization” of the various goods produced on the Island, such as pharmaceutical products.

Siting remains a critical driver for competitiveness.

Transportation infrastructure and vehicle routing are crucial for the success and strength of distribution. For warehouses, highways, railroads, airport, and port access, as well as transit costs, are major factors in siting. Long Island enjoys an extensive transportation network that connects the island to New York, yet internal cohesion within the island can be further enhanced.

3. Ultimately, distribution is highly interconnected with other clusters.

The distribution cluster moves and sells goods produced in other sectors. Such interconnectedness implies that distribution can be sensitive to supply and demand changes of other industries.

Long Island’s distributors should observe other sectors’ market trends and actively respond to them.

The one-size-fits-all approach to distribution and e-commerce will not make the cluster more competitive. Long Island’s distribution companies should pay close attention to the type of material and product of different industries, which often require specific set up

and logistics. For example, the pharmaceutical industry requires specific warehousing and distribution practices, including electronic stock sheets, refrigerated storage, high-level security, and packaging/repackaging services. Those who bring tailored services to specific industries will have a competitive advantage on Long Island.

It is important for distribution facilities to be collocated with linked industries and support facilities.

In addition to improving efficiency and reducing transaction costs, locating in proximity to other industries and facilities will also help distribution businesses to closely monitor the changing demand, new technologies, and possibilities for business innovation.

NAICS Code in this Cluster

493110	General Warehousing and Storage
493120	Refrigerated Warehousing and Storage
493190	Other Warehousing and Storage
425110	Business to Business Electronic Markets
454110	Electronic Shopping & Mail-Order Houses-Rtl
454111	Electronic Shopping
454112	Electronic Auctions
454113	Mail-Order Houses
425120	Wholesale Trade Agents and Brokers
561499	All Other Business Support Services
561910	Packaging and Labeling Services
422310	Piece Goods, Notions & Other Dry Goods Whsle
422320	Men’s & Boys’ Clothing & Furnishings Whsle
422330	Women’s/Children’s/Infants’ Clothing Whsle
422340	Footwear Whsle
424310	Piece Goods, Notions, and Other Dry Goods Merchant Wholesalers
424320	Men’s and Boys’ Clothing and Furnishings Merchant Wholesalers
424330	Women’s, Children’s, and Infants’ Clothing and Accessories Merchant Wholesalers
424340	Footwear Merchant Wholesalers
422920	Book, Periodical & Newspaper Whsle
424920	Book, Periodical, and Newspaper Merchant Wholesalers
422610	Plastics Materials & Basic Forms/Shapes Whsle
422690	Other Chemical & Allied Products Whsle
424610	Plastics Materials and Basic Forms and Shapes Merchant Wholesalers
424690	Other Chemical and Allied Products Merchant Wholesalers
422210	Drugs & Druggists’ Sundries Whsle
424210	Drugs and Druggists’ Sundries Merchant Wholesalers
422590	Other Farm Product Raw Material Whsle
422910	Farm Supplies Whsle
422930	Flower/Nursery Stock/Florists’ Supplies Whsle
422940	Tobacco & Tobacco Product Whsle

424590	Other Farm Product Raw Material Merchant Wholesalers	422950	Paint, Varnish & Supplies Whsle
424910	Farm Supplies Merchant Wholesalers	422990	Other Miscellaneous Nondurable Goods Whsle
424930	Flower, Nursery Stock, and Florists' Supplies Merchant Wholesalers	424950	Paint, Varnish, and Supplies Merchant Wholesalers
424940	Tobacco and Tobacco Product Merchant Wholesalers	424990	Other Miscellaneous Nondurable Goods Merchant Wholesalers
493130	Farm Product Warehousing and Storage	421820	Farm & Garden Machinery & Equipment Whsle
422440	Poultry & Poultry Product Whsle	423820	Farm and Garden Machinery and Equipment Merchant Wholesalers
422460	Fish & Seafood Whsle	421810	Const & Mining (exc Petroleum) Equip Whsle
422470	Meat & Meat Product Whsle	423810	Construction and Mining (except Oil Well) Machinery and Equipment Merchant Wholesalers
422480	Fresh Fruit & Vegetable Whsle	421830	Industrial Machinery & Equipment Whsle
422820	Wine & Distilled Alcoholic Beverage Whsle	421840	Industrial Supplies Whsle
424440	Poultry and Poultry Product Merchant Wholesalers	423830	Industrial Machinery and Equipment Merchant Wholesalers
424460	Fish and Seafood Merchant Wholesalers	423840	Industrial Supplies Merchant Wholesalers
424470	Meat and Meat Product Merchant Wholesalers	421850	Service Establishment Equip & Supplies Whsle
424480	Fresh Fruit and Vegetable Merchant Wholesalers	423850	Service Establishment Equipment and Supplies Merchant Wholesalers
424820	Wine and Distilled Alcoholic Beverage Merchant Wholesalers	421860	Transportation Equip/Supplies(exc MV) Whsle
421210	Furniture Whsle	423860	Transportation Equipment and Supplies (except Motor Vehicle) Merchant Wholesalers
421220	Home Furnishing Whsle	421410	Photographic Equipment & Supplies Whsle
423210	Furniture Merchant Wholesalers	421420	Office Equipment Whsle
423220	Home Furnishing Merchant Wholesalers	421430	Computer & Peripheral Equip & Software Whsle
421940	Jewelry/Watch/Precious Stone & Metal Whsle	421440	Other Commercial Equipment Whsle
423940	Jewelry, Watch, Precious Stone, and Precious Metal Merchant Wholesalers	421450	Medical/Dental/Hospital Equip & Supp Whsle
422110	Printing & Writing Paper Whsle	421460	Ophthalmic Goods Whsle
422120	Stationery & Office Supplies Whsle	421490	Oth Professional Equipment & Supplies Whsle
422130	Industrial & Personal Service Paper Whsle	423410	Photographic Equipment and Supplies Merchant Wholesalers
424110	Printing and Writing Paper Merchant Wholesalers	423420	Office Equipment Merchant Wholesalers
424120	Stationery and Office Supplies Merchant Wholesalers	423430	Computer and Computer Peripheral Equipment and Software Merchant Wholesalers
424130	Industrial and Personal Service Paper Merchant Wholesalers	423440	Other Commercial Equipment Merchant Wholesalers
421910	Sporting & Recreational Goods & Supply Whsle	423450	Medical, Dental, and Hospital Equipment and Supplies Merchant Wholesalers
423910	Sporting and Recreational Goods and Supplies Merchant Wholesalers		
421920	Toy & Hobby Goods & Supplies Whsle		
423920	Toy and Hobby Goods and Supplies Merchant Wholesalers		

423460	Ophthalmic Goods Merchant Wholesalers
423490	Other Professional Equipment and Supplies Merchant Wholesalers
421610	Elec Equip/Wiring Supp/Const Material Whsle
421620	Electric Appliance/TV/Radio Set Whsle
421690	Other Electronic Parts & Equipment Whsle
423610	Electrical Apparatus and Equipment, Wiring Supplies, and Related Equipment Merchant Wholesalers
423620	Electrical and Electronic Appliance, Television, and Radio Set Merchant Wholesalers
423690	Other Electronic Parts and Equipment Merchant Wholesalers
421510	Metal Service Centers & Offices
421520	Coal & Other Mineral & Ore Whsle
423510	Metal Service Centers and Other Metal Merchant Wholesalers
423520	Coal and Other Mineral and Ore Whsle
422710	Petroleum Bulk Stations & Terminals
422720	Petroleum Prod Whsle (exc Bulk Sta/Terminals)
424710	Petroleum Bulk Stations and Terminals
424720	Petroleum and Petroleum Products Merchant Wholesalers (except Bulk Stations and Terminals)
532411	Commercial Air, Rail, and Water Transportation Equipment Rental and Leasing
532412	Construction, Mining, and Forestry Machinery and Equipment Rental and Leasing
532420	Office Machinery and Equipment Rental and Leasing
532490	Other Commercial and Industrial Machinery and Equipment Rental and Leasing

Notes

*Because the data source for Workforce Characteristics (Census) specifies industries by 4-digit NAICS codes, while the cluster definition and BLS data are disaggregated by 6-digit NAICS codes, the statistics in the Workforce Characteristics section are affected by other related clusters that share certain industries (4-digit codes). For this cluster, the confounding clusters with partial code sharing are:

- Business Services
- Financial Services
- Food Processing and Manufacturing
- Livestock Processing
- Local Commercial Services
- Local Financial Services
- Local Food and Beverage Processing and Distribution
- Local Industrial Products and Services

**The data for Workforce Demand is provided by Labor Insight / Jobs (Burning Glass Technologies). This data source, unlike the BLS and Census data, does not distinguish private sector and public sector jobs. Additionally, the above mentioned confounding clusters due to data availability only at the 4-digit level of NAICS codes also applies to the Workforce Demand section.

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EDUCATION & RESEARCH ACTIVITIES

Private sector data only. See NAICS codes.

The Big Picture

- ▶ 3rd largest job base (~22k jobs)
- ▶ Below-average earning
- ▶ Similar to national average level of specialization
- ▶ Declining job number
- ▶ High Job Posting-to-Current Employment Ratio (1:4)

Industry Job Growth Performance

- ▶  National decline
- ▶  Local weakness in this industry exacerbates the national job decline

Current Workforce Characteristics *

- ▶ Highly educated
- ▶ Concentrated in old and young

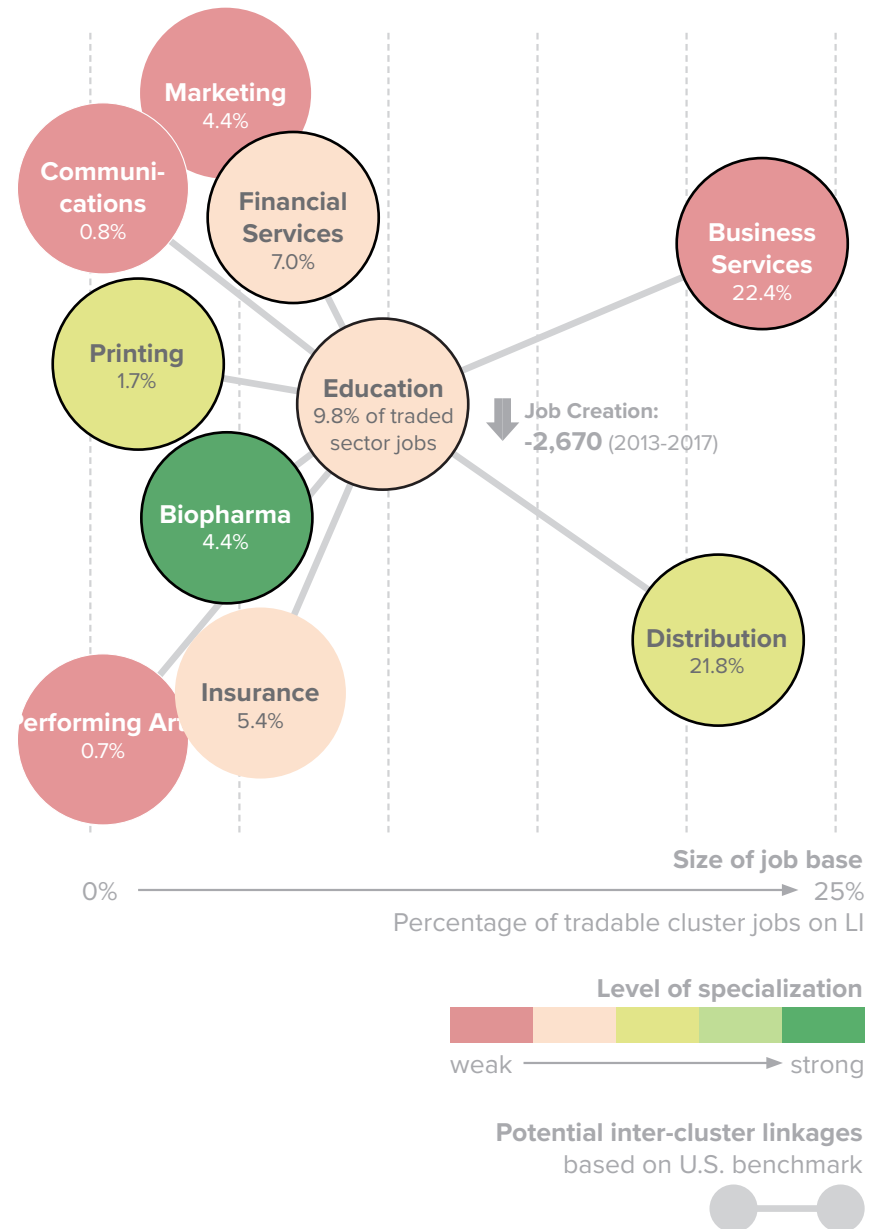
Inter-Cluster Linkages

- ▶ Many cluster linkages
- ▶ Linked to specialized and big clusters



Diagnosis & Opportunity






- ▶ Design curriculum and training programs that meet industry needs
- ▶ Enhance research commercialization and academic entrepreneurship






Workforce Demand **

- ▶ 5,036 job postings in 2017
- ▶ Nassau: 2,703 postings
Location quotient: 0.7
Low concentration of job postings in this cluster compared with U.S. average
- ▶ Suffolk: 2,333 postings
Location quotient: 0.6
Low concentration of job postings in this cluster compared with U.S. average

▶ Top occupations in job postings

Occupation	Number of postings	Location quotient
 Postsecondary Teachers, All Other	278	0.5 (Very low)
 Registered Nurses	257	2.1 (Very high)
 Medical and Clinical Laboratory Technologists	191	5.5 (Very high)
 Tutors	186	1.1 (Average)
 Education Administrators, Postsecondary	176	0.5 (Very low)

 and  represent the Risk of Automation (medium and high respectively), based on the probability of computerization for an occupation within the next 20 years. The symbol  represents low risks.

▶ Top skill requirements in job postings

Skill	Percentage of postings
Teaching	24.0%
Patient Care	16.3%
Budgeting	16.1%
Scheduling	12.9%
Quality Assurance and Control	11.3%

Qualitative Assessment: Education does not function in isolation. It catalyzes the entire economy by benefiting the region's full range of knowledge and skill spectra, from vocational and language training, to scientific research and innovation.

1. It takes a village to close Long Island's skill gaps and prepare the workforce for a changing economy.

Where deep skill gaps exist, such as in the biopharma and IT clusters, workforce training is the key to the successful operation of companies and the economic wellbeing of Long Island workers.

Skill training programs are more imperative than ever due to Long Island's demographic shifts and the shrinkage of traditionally strong industries.

Two different kinds of skill gaps exist on Long Island. On the one hand, as Long Island's immigrant population and poverty rate increase, training programs are needed for the underserved population to gain technical skills, learn English as a second language, and successfully find quality job opportunities. On the other hand, as Long Island's traditional job bases experience shrinkage (such as aerospace and defense), mid-career workers currently employed in those sectors need to learn new skills for anticipated career changes.

Industries need to collaborate with educational institutions and invest in workforce development.

Funding for workforce development should not only depend on government subsidies and non-profit organizations. Employers should also take the lead in providing and enhancing workforce training programs for the local labor force. In fact, because many companies on Long Island face a similar talent problem, enhancement in the local workforce pipeline can benefit everyone, helping the region to further foster the agglomeration of key industry clusters. A collaborative approach can help firms to reduce their individual training costs and risks, as well as generate positive spillovers across the region.

Different entities in the public and non-profit sector should also be coordinated, turning training programs into workforce development systems.

Many of the existing workforce development programs function in isolation and fail to ensure that Long Island's workers can complete the programs, find good jobs, and succeed at them. To better deliver training services, different stakeholders need to work together and address different angles of socioeconomic wellbeing. In addition to the governments working with educational institutions and businesses to deliver job training programs:

- ▶ Social services should link child care and food assistance to workforce development efforts.
- ▶ Local philanthropy and non-profits should provide mentorship support to further help the learners.

John Lombardo, Associate Vice President
Suffolk County Community College:

“Certain industries on Long Island are severely underserved and could be enhanced by the right educational development.”

Interviewed 07/17/2018

Example: Automotive Manufacturing Technical Education Collaborative:

AMTEC (formed in 2005) is a collaboration of community and technical colleges, universities, K-12, and industry partners who originally came together to better prepare highly skilled mechatronics technicians for work in the automobile manufacturing environment.

- 19 automotive companies
- 26 community colleges
- In 13 states

Administrators of workforce training initiatives should measure the impact of their programs.

Currently, many people and employers are reluctant to participate in workforce training because there is a lack of clear evidence that such programs result in salary increases, promotions, and, for companies, a positive return on investment. Therefore, program administrators should work with educational institutions to design necessary evaluation frameworks, collect data, analyze them, and quantify the impact of the training programs. Ultimately, the success of workforce training should not only be indicated just by the number of enrollees; the impact of workforce training should also be measured by the actual shift of economic outcome due to investment in workforce training.

2. Long Island needs to more aggressively promote research commercialization and technology transfer.

In the age of intense technological progress, new product development and innovation become increasingly critical for firms. Even though Long Island is home to a number of world-renowned research institutions, their economic value will not be fully unlocked unless local actors define clear strategies for research commercialization and broad knowledge spillover.

Knowledge is not only transferable in the form of patents.

To boost the flow of scientific innovation from universities to the market, both educational institutions and companies need to understand the full spectrum of knowledge spillover mechanisms. Scientific research can be embedded in diverse media, including information, materials, equipment and instruments, human capital, networks, and prototypes. All of them have distinctive ways of diffusion. Some knowledge is codified, while others are tacit, and they travel in our society via different routes. Therefore, in addition to diffuse knowledge via patenting and licensing, academic institutions can work with the market via other ways, such as:

- ▶ Incubator
- ▶ Academic entrepreneurship
- ▶ Consulting engagement
- ▶ Conference and workshop
- ▶ Workforce training classes, certificates, and degree programs
- ▶ Executive training
- ▶ Entrepreneurship and small-business resources
- ▶ Industry open-house for students
- ▶ Job fair

Universities need to foster a stronger *culture of academia-industry knowledge transfer.*

Faculty members and students are at the forefront of scientific discovery and innovation, but the academic environment is not necessarily the most conducive to commercialization, unless the institutions intentionally foster an entrepreneurial culture and

explicitly encourage industry partnerships and collaborations. For example, when faculty members commercialize their research, the university can receive part of the profits via prearranged IP agreements or donation, whichever provides the most incentive for faculty members to engage in commercialization activities.

Commercialization can be enhanced via larger networks.

In addition to the individualistic approach of fostering knowledge transfer, a broader alliance of local and regional actors can further enhance the speed and volume of research commercialization. For example, universities within the same region can form consortia to develop and implement commercialization mechanisms, as long as the alliance is well coordinated and fair to participants of all sizes. Alternatively, the alliance can take the form of an internet-based platform to put institutions in direct contact with buyer industries.

**Example:
Internet-based Research Commercialization Network**

iBridge Network. Created in 2007, with over 170 participating universities showcasing over 18,000 intellectual properties and connecting to companies.

NAICS Code in this Cluster

611410	Business and Secretarial Schools
611420	Computer Training
611430	Professional and Management Development Training
611512	Flight Training
611513	Apprenticeship Training
611630	Language Schools
611691	Exam Preparation and Tutoring
611699	All Other Miscellaneous Schools and Instruction
611210	Junior Colleges
611310	Colleges, Universities, and Professional Schools
611710	Educational Support Services
541710	Research and Development in the Physical, Engineering, and Life Sciences
541711	Research and Development in Biotechnology
541712	Research and Development in the Physical, Engineering, and Life Sciences (except Biotechnology)
541720	Research and Development in the Social Sciences and Humanities
813920	Professional Organizations

**The data for Workforce Demand is provided by Labor Insight / Jobs (Burning Glass Technologies). This data source, unlike the BLS and Census data, does not distinguish private sector and public sector jobs. Additionally, the above mentioned confounding clusters due to data availability only at the 4-digit level of NAICS codes also applies to the Workforce Demand section.

Notes

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- Local Community and Civic Organizations
- Local Education and Training
- Local Hospitality Establishments
- Local Personal Services (Non-Medical)

FINANCIAL SERVICES

The Big Picture

- ▶ Large job base (~16k jobs)
- ▶ Very high earning
- ▶ Similar to national average level of specialization
- ▶ Medium-level of job number growth
- ▶ High Job Posting-to-Current Employment Ratio (1:2)

Industry Job Growth Performance

- ▶  National slight decline
- ▶  Local weakness in this industry exacerbates the national job decline

Current Workforce Characteristics *

- ▶ Highly educated
- ▶ Slightly younger than local average age

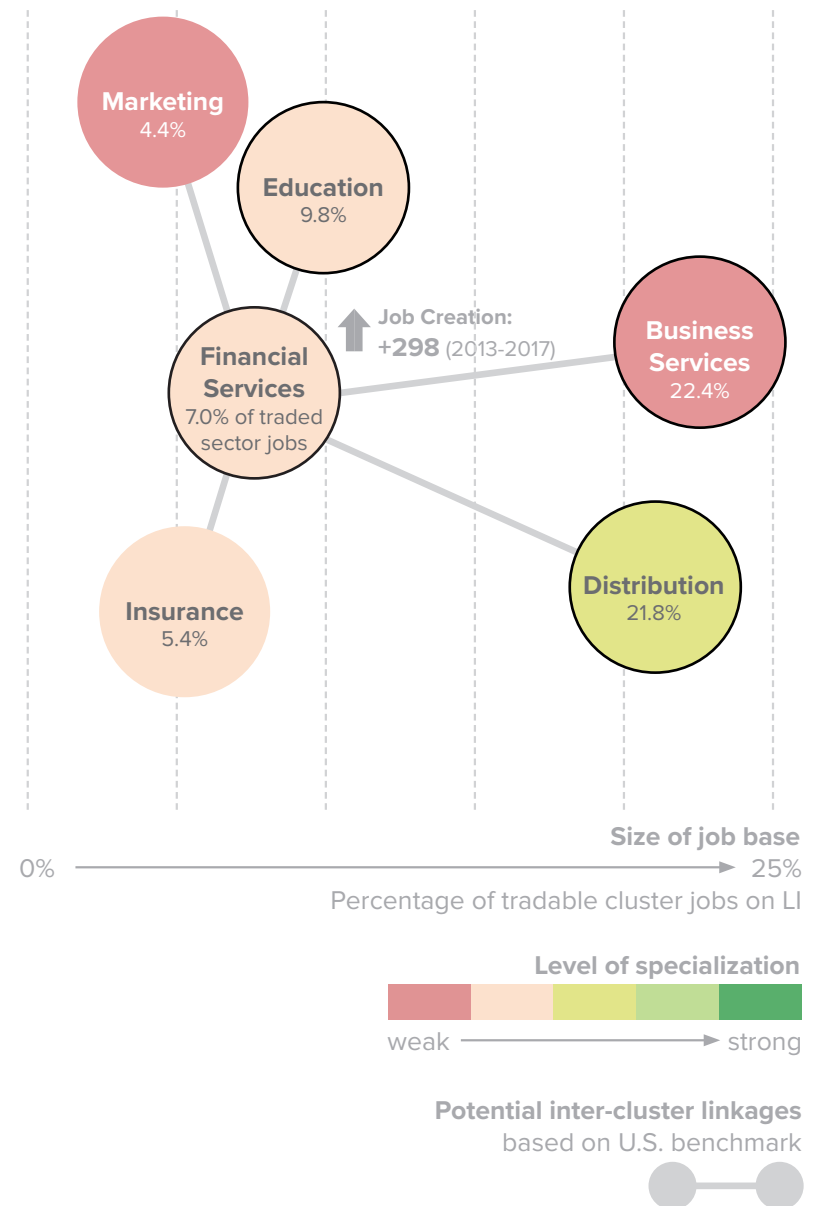
Inter-Cluster Linkages

- ▶ Medium-level cluster linkages
- ▶ Linked to a specialized and big cluster



Diagnosis & Opportunity






- ▶ Use new technology to revolutionize core service functions
- ▶ Do business with local industries
- ▶ Attract and train the workforce to embrace tomorrow's trends






Workforce Demand **

- ▶ 8,476 job postings in 2017
- ▶ Nassau: 4,251 postings
Location quotient: 0.9
Similar concentration of job postings in this cluster compared with U.S. average
- ▶ Suffolk: 4,225 postings
Location quotient: 0.9
Similar concentration of job postings in this cluster compared with U.S. average

▶ Top occupations in job postings

Occupation	Number of postings	Location quotient
 Customer Service Representatives	1,403	1.0 (Average)
 Tellers	936	1.3 (High)
 Sales Agents, Financial Services	879	1.4 (High)
 Sales Representatives, Wholesale and Manu., Except Tech. and Sci. Products	633	0.7 (Low)
 Personal Financial Advisors	446	1.7 (High)

 and  represent the Risk of Automation (medium and high respectively), based on the probability of computerization for an occupation within the next 20 years. The symbol  represents low risks.

▶ Top skill requirements in job postings

Skill	Percentage of postings
Customer Service	51.4%
Sales	33.9%
Customer Contact	18.2%
Product Sales	12.6%
Cross Sell	12.4%

Qualitative Assessment: Long Island's finance sector can be more competitive if service providers attend to local business needs and incorporate the newest development in technology.

1. The finance industry on Long Island should respond more agilely to new technology on the market.

Banks and financial service companies should manage their technology assets in a proactive way in order to better serve the customers, differentiate the companies, and ensure security.

Fintechs are leading the wave of innovation in the banking industry.

According to Deloitte, fintech and big tech firms are beginning to disrupt the traditional banking sector's core business functions, including operations, finance, and marketing. Long Island's banks and financial service providers are hence facing increasing competition from fin-tech startups based elsewhere. Therefore, a more aggressive approach to developing and/or adopting new technology is imperative in order for Long Island firms to stay competitive in the market.

Adopting new technology might help Long Island attract more young professionals.

As technology becomes increasingly the core of banking services, the financial service cluster will witness a potentially

sizable influx of knowledge workers trained in hi-tech related disciplines, such as software engineers, computer scientists, and UI/UX designers. This presents an opportunity for Long Island to attract young people, especially given the fact that the earning level of the financial cluster is among the highest on Long Island.

Cyber risks should be mitigated.

With the plethora of new systems, software, services, and tools, many of which are still built upon old data infrastructure, the potential for cyber risk in the banking sector is well-recognized yet growing to be more complex. Managers and chief officers at banks and financial service firms should consider cyber risk as a core decision-making factor in order to stay proactive, because potential data breaches can be extremely costly for the business.

2. On Long Island, the finance sector can play a critical and direct role in enabling other industries to grow.

Financial services can support the broader regional economy by providing leases, loans, and other capital to businesses and helping firms manage their day-to-day cash flow, among other services.

Finance is a key enabler for other industries.

On Long Island, the financial sector has been instrumental in supporting local industries. Particularly for manufacturing companies, financial services are crucial for the procurement and development of large equipment.

Long Island should focus on strengthening local businesses by creating more accessible financing options.

While banks and investment companies in New York City serve a wider international market, Long Island finance companies can specialize in supporting Long Island’s existing and emerging businesses. Disintermediation (investing directly in securities rather than going through a bank) is a threat to the finance industry; developing local relationships based on needs of local industries may be a way to diversify products and services and mitigate disintermediation threats.

NAICS Code in this Cluster

523910	Miscellaneous Intermediation
523920	Portfolio Management
523930	Investment Advice
523991	Trust, Fiduciary, and Custody Activities
523999	Miscellaneous Financial Investment Activities
525910	Open-End Investment Funds
525930	Real Estate Investment Trusts
525990	Other Financial Vehicles
522120	Savings Institutions
522190	Other Depository Credit Intermediation
522210	Credit Card Issuing
522220	Sales Financing
522291	Consumer Lending
522292	Real Estate Credit
522293	International Trade Financing
522294	Secondary Market Financing
522298	All Other Nondepository Credit Intermediation
522320	Financial Transactions Processing, Reserve, and

	Clearinghouse Activities
522390	Other Activities Related to Credit Intermediation
561450	Credit Bureaus
521110	Monetary Authorities - Central Bank
522310	Mortgage and Nonmortgage Loan Brokers
523110	Investment Banking and Securities Dealing
523120	Securities Brokerage
523130	Commodity Contracts Dealing
523140	Commodity Contracts Brokerage
523210	Securities and Commodity Exchanges

Notes

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- Business Services
- Distribution and Electronic Commerce
- Local Commercial Services
- Local Financial Services



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FOOD PROCESSING & MANUFACTURING

The Big Picture

- ▶ Very small job base (~1k jobs)
- ▶ Below-average and volatile earning
- ▶ Not specialized
- ▶ 3rd biggest job number growth
- ▶ High Job Posting-to-Current Employment Ratio (1:6)

Industry Job Growth Performance

- ▶  Modest national decline
- ▶  Local strength in this industry amplifies the national job growth

Current Workforce Characteristics *

- ▶ Lower education attainment
- ▶ Similar to local average age distribution

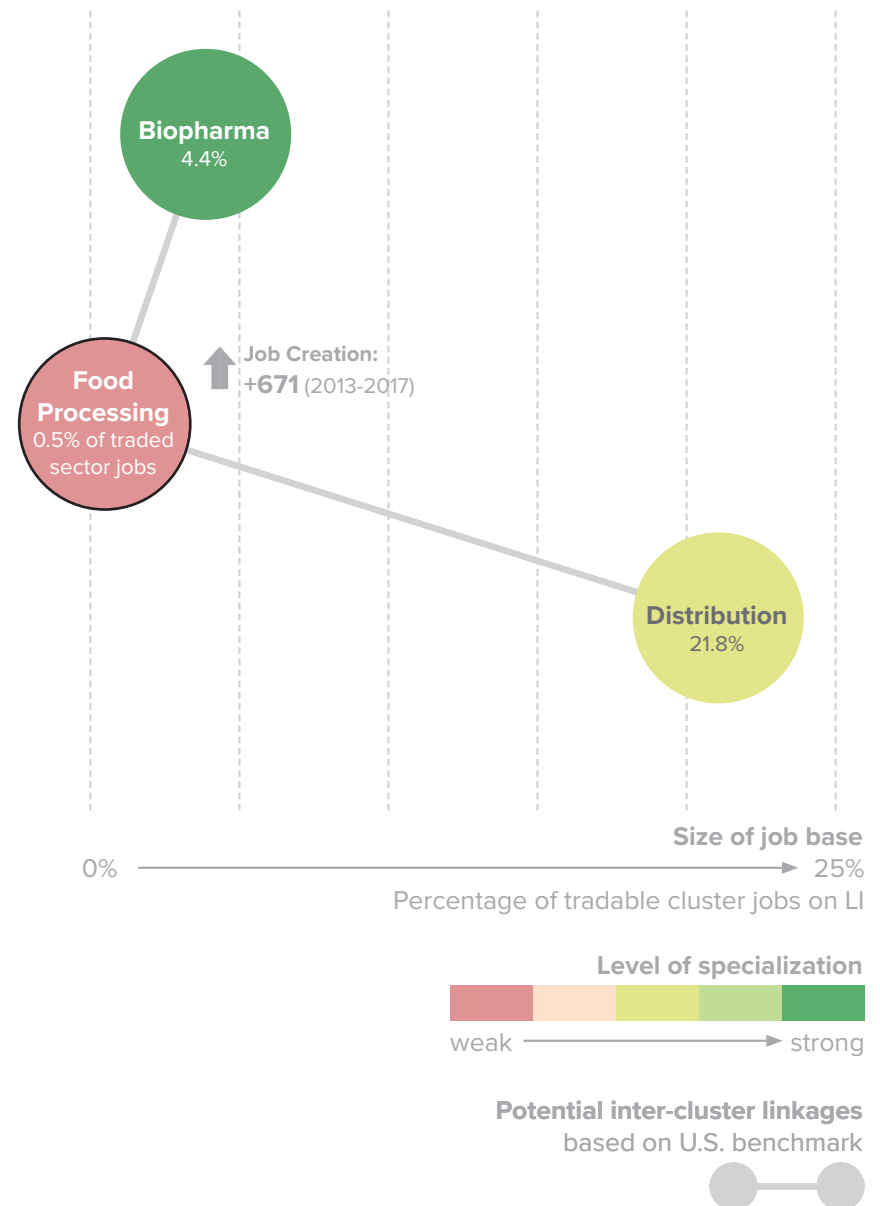
Inter-Cluster Linkages

- ▶ Few cluster linkages
- ▶ Linked to specialized and big clusters



Diagnosis & Opportunity






- ▶ Promote wine and food tourism
- ▶ Increase product variety and broaden the supply and distribution channels






Workforce Demand **

- ▶ 224 job postings in 2017
- ▶ Nassau: 117 postings
Location quotient: 0.3
Very low concentration of job postings in this cluster compared with U.S. average
- ▶ Suffolk: 107 postings
Location quotient: 0.3
Very low concentration of job postings in this cluster compared with U.S. average

▶ Top occupations in job postings

Occupation	Number of postings	Location quotient
 Merchandise Displayers and Window Trimmers	58	0.6 (Low)
 Sales Representatives, Wholesale and Manu., Except Tech. and Sci. Products	26	0.6 (Low)
 Driver/Sales Workers	22	1.0 (Average)
 Laborers and Freight, Stock, and Material Movers, Hand	16	0.4 (Very low)
 Heavy and Tractor-Trailer Truck Drivers	15	0.4 (Very low)

 and  represent the Risk of Automation (medium and high respectively), based on the probability of computerization for an occupation within the next 20 years. The symbol  represents low risks.

▶ Top skill requirements in job postings

Skill	Percentage of postings
Merchandising	55.8%
Sales	40.6%
Customer Service	18.8%
Product Sales	17.8%
Inventory Management	15.7%

Qualitative Assessment: Food is only a small cluster, but the specific industry mix and demographic change of Long Island do offer many ways for it to grow and prosper.

1. Long Island produces wine, and wineries can be opportunities for tourism.

One of the most value-added activities related to food production is food tourism, which brings people from the outside to spend locally, producing revenue on top of the export of tradable goods. Long Island is at a unique position to maximize the value of its food cluster via wine tourism.

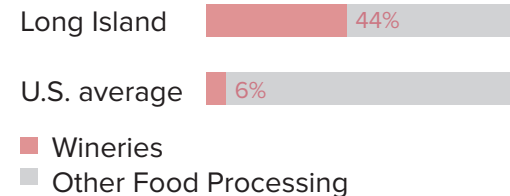
There is something special about Long Island’s wine.

New York is the 3rd largest wine producing region in the country, and Long Island is considered to have some of the best wineries in the State. This is demonstrated in the region’s employment pattern. Within Long Island’s food cluster, 44% of the jobs are in the wineries subcluster. This number is significantly higher than the U.S. average (6%), indicating a high level of specialization in wine production on Long Island.

Opportunities lie in the alignment of food and tourism.

Wineries are great sites for tourism, and tourism is an important money-making sector on Long Island. In fact, food and wine tours are effective ways to brand the place and attract a diverse range of people, including the young population, to Long Island. The opportunity for food-related tourism can be further enhanced by the State’s “Taste of New York” tourism initiative.

Wineries Employment in the Food Cluster



2. Long Island needs to, and it can, make a greater variety of food products.

The increase in Long Island's immigrant population, strength in pharmaceuticals, and concentration of research institutions can all revolutionize the food industry.

Immigrant communities are key players in food entrepreneurship.

As Long Island becomes more diverse in population, with significant increases in Hispanic, Asian and other immigrant population, the region sees growth in the manufacturing and processing of ethnic and international foods, which is an important channel to supply new products to the market.

Long Island's strength in biopharma and distribution may have a spillover effect for the food cluster.

Another way for the food industry to innovate and develop new products is to tap into the pharmaceutical and nutraceutical industry, which Long Island is at a leading position nationally in terms of specialization. In fact, the food industry and the biopharma cluster are closely linked by their shared supply chain and distribution requirement.

Additionally, a strong distribution cluster will support the growth of the food cluster, by helping manufacturers to reach larger regional and national markets and stay competitive with energy efficient, temperature-controlled warehousing facilities.

It's time that food companies hired research scientists.

Fostering closer collaboration between farmers, manufacturers, and scientists can enhance regional output. Overall, current food-related jobs on Long Island have lower-than-average educational attainment, but this does not need to be the permanent truth. Much value can be created by innovation and more intense investment in R&D. In fact, Long Island does have a strong capacity for food-related research and commercialization.

Long Island Regional Economic Development Council 2017 Progress Report:

"Several cold storage facilities have opened on Long Island offering energy efficient space for the many cold and frozen food manufacturers in the region."

Example: Elmhurst 1925 (Elmhurst Milked, LLC)

The Western New York-based dairy uses new food technology to produce plant-based milk alternatives based on the HydroRelease™ method.

Example: Calverton/Riverhead Food Incubator

Operated by Stony Brook University, this incubator provides food processing facility for startups in the Agricultural Consumer Science Center.

NAICS Code in this Cluster

311412	Frozen Specialty Food Manufacturing
311422	Specialty Canning
311930	Flavoring Syrup and Concentrate Manufacturing
311941	Mayonnaise, Dressing, and Other Prepared Sauce Manufacturing
311942	Spice and Extract Manufacturing
311991	Perishable Prepared Food Manufacturing
311999	All Other Miscellaneous Food Manufacturing
311211	Flour Milling
311230	Breakfast Cereal Manufacturing
311813	Frozen Cakes, Pies, and Other Pastries Manufacturing
311821	Cookie and Cracker Manufacturing
311822	Flour Mixes and Dough Manufacturing from Purchased Flour
311823	Dry Pasta Manufacturing
311824	Dry Pasta, Dough, and Flour Mixes Manufacturing from Purchased Flour
311830	Tortilla Manufacturing
311919	Other Snack Food Manufacturing
311320	Chocolate and Confectionery Manufacturing from Cacao Beans
311330	Confectionery Manufacturing from Purchased Chocolate
311340	Nonchocolate Confectionery Manufacturing
311351	Chocolate and Confectionery Manufacturing from Cacao Beans
311352	Confectionery Manufacturing from Purchased Chocolate
311920	Coffee and Tea Manufacturing
311411	Frozen Fruit, Juice, and Vegetable Manufacturing
311421	Fruit and Vegetable Canning
311423	Dried and Dehydrated Food Manufacturing
311911	Roasted Nuts and Peanut Butter Manufacturing
311511	Fluid Milk Manufacturing
311512	Creamery Butter Manufacturing

311513	Cheese Manufacturing
311514	Dry, Condensed, and Evaporated Dairy Product Manufacturing
311520	Ice Cream and Frozen Dessert Manufacturing
311111	Dog and Cat Food Manufacturing
311119	Other Animal Food Manufacturing
312111	Soft Drink Manufacturing
312112	Bottled Water Manufacturing
312113	Ice Manufacturing
311213	Malt Manufacturing
312120	Breweries
312140	Distilleries
312130	Wineries
311212	Rice Milling
311221	Wet Corn Milling
311222	Soybean Processing
311223	Other Oilseed Processing
311224	Soybean and Other Oilseed Processing
311225	Fats and Oils Refining and Blending
311311	Sugarcane Mills
311312	Cane Sugar Refining
311313	Beet Sugar Manufacturing
311314	Cane Sugar Manufacturing
422510	Grain & Field Bean Whsle
424510	Grain and Field Bean Merchant Wholesalers
327213	Glass Container Manufacturing

Notes

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confounding clusters with partial code sharing are:

- Distribution and Electronic Commerce
- Livestock Processing
- Local Food and Beverage Processing and Distribution
- Vulcanized and Fired Materials



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IT & ANALYTICAL INSTRUMENTS

The Big Picture

- ▶ Small job base (~7k jobs)
- ▶ High and growing earning
- ▶ Not specialized
- ▶ Declining job number
- ▶ High Job Posting-to-Current Employment Ratio (1:5)

Industry Job Growth Performance

- ▶  Modest national trend of job growth
- ▶  Local weakness in this industry offsets the national job growth

Current Workforce Characteristics *

- ▶ Highly educated
- ▶ Significantly older than local average age

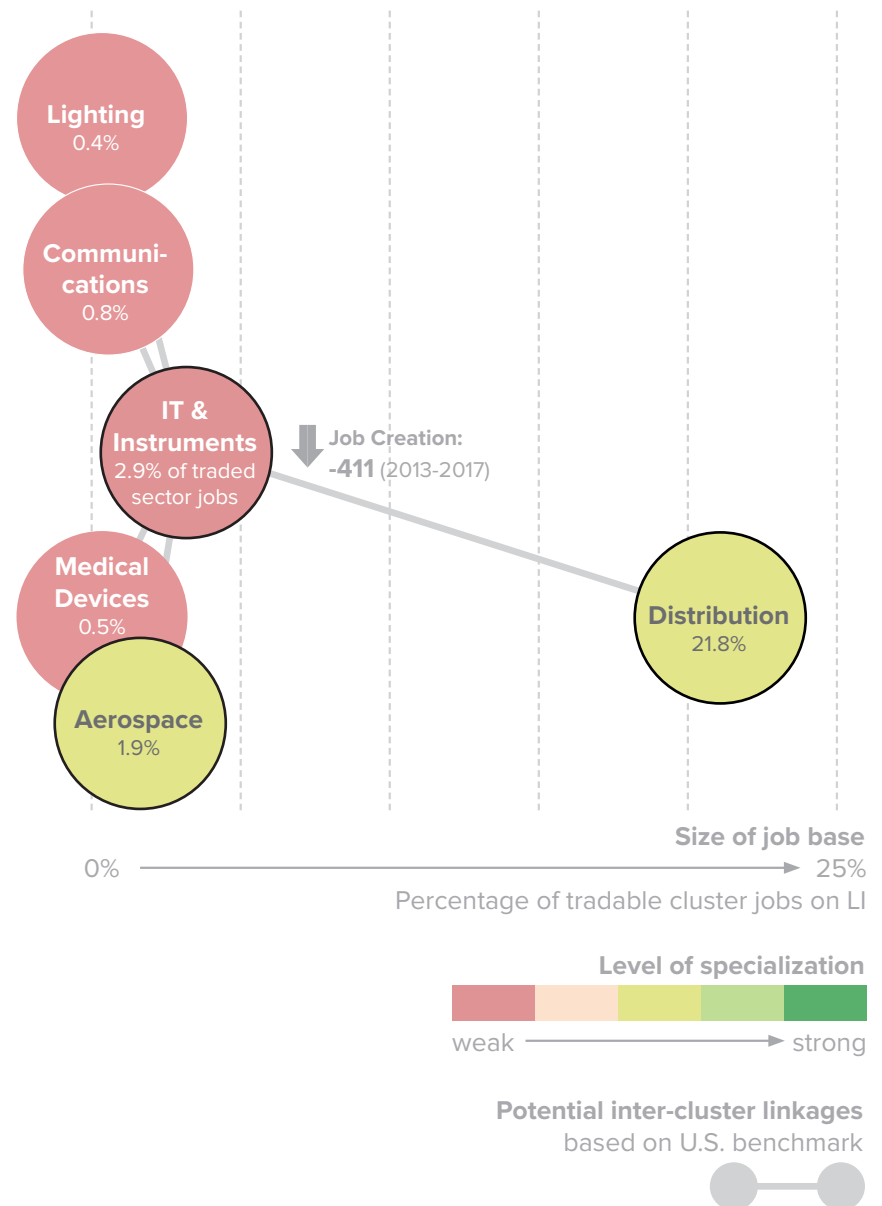
Inter-Cluster Linkages

- ▶ Medium-level cluster linkages
- ▶ Linked to specialized and unspecialized clusters



Diagnosis & Opportunity






- ▶ Rebalance the aging workforce
- ▶ Promote the software industry and leverage IT's linkage to other clusters
- ▶ Enhance venture capital presence and entrepreneurial support






Workforce Demand **

- ▶ 1,349 job postings in 2017
- ▶ Nassau: 1,108 posting
Location quotient: 0.9
Similar concentration of job postings in this cluster compared with U.S. average
- ▶ Suffolk: 241 postings
Location quotient: 0.2
Very low concentration of job postings in this cluster compared with U.S. average

▶ Top occupations in job postings

Occupation	Number of postings	Location quotient
 Sales Representatives, Wholesale and Manu., Except Tech. and Sci. Products	128	0.7 (Low)
 Software Developers, Applications	126	0.5 (Very low)
 Marketing Managers	48	0.7 (Low)
 Market Research Analysts and Marketing Specialists	43	1.7 (High)
 Financial Analysts	42	1.8 (High)

 and  represent the Risk of Automation (medium and high respectively), based on the probability of computerization for an occupation within the next 20 years. The symbol  represents low risks.

▶ Top skill requirements in job postings

Skill	Percentage of postings
Empower	20.9%
Sales	20.0%
Budgeting	15.2%
Customer Service	14.2%
Project Management	13.6%

Qualitative Assessment: Keeping up with the global trend of technological development, Long Island can use IT to drive the growth of other related industries.

1. IT industry as a whole is flourishing with exciting new opportunities.

As digitalization and hi-tech disrupt industries, IT is at the forefront of economic growth globally. Several new technological developments are expected to drive the growth of the industry.

The world is entering a new phase of human-machine partnership, enabled by AI technology.

AI and Intelligent automation is among top tech trends currently. New opportunities exist in several industries and activities that could see hi-tech-induced productivity growth. Specifically, robots are projected to be increasingly integral in sectors such as:

- ▶ Heavy and light industry
- ▶ Transportation
- ▶ Medicine and healthcare
- ▶ Military services
- ▶ Safety and security
- ▶ Education
- ▶ Entertainment
- ▶ Household
- ▶ Retail

Cloud services continue to grow.

As of 2015, approximately 50% of firms worldwide have adopted cloud technology in their businesses. Hybrid and private clouds are growing as well, as multi-cloud strategic approach is predicted to become mainstream soon.

Other technological developments further propel the growth of IT cluster and produce spillover effects for other related industries.

- ▶ Drone
- ▶ AR / VR
- ▶ 5G networking
- ▶ 3D printing
- ▶ Wireless charging

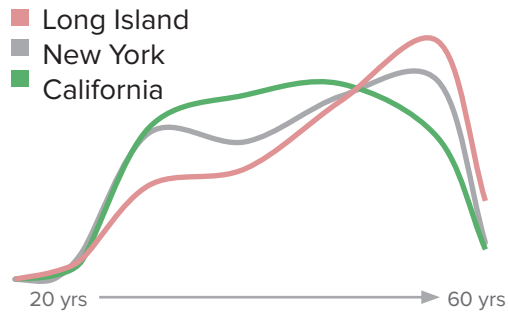
2. However, Long Island is not yet fully ready to capture the opportunities.

Despite the national and global growth trends, Long Island's IT cluster has been losing jobs and remains very small. Without significant improvement in talent pipeline, sectoral composition, and business improvement, Long Island's IT companies will face critical challenges for future growth.

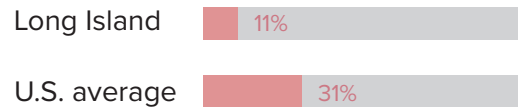
The shortage of young talent is especially severe for the IT cluster.

On Long Island, the age distribution of the IT and Analytical Instrument cluster is heavily skewed toward the older end,

Distribution of IT and Instruments Employment across Ages



IT & Instruments Cluster Employment



- Software
- Other (Audio and Video Equip., Computers and Peripherals, Electronic Components, Medical Apparatus, Process and Lab Instruments, Semiconductors)

Many Long Island Companies Drop out of Start-Up NY: *Newsday* (7/2017)

“More than half of the participants from Long Island have dropped out of Start-Up NY, the state program that promises businesses “no taxes for 10 years” if they move to a college and create jobs...This poor showing points to the challenges Long Island faces in nurturing tech startups. The loss rate for Start-Up NY on the Island is 54 percent, more than double the statewide rate of 24 percent.”

more so than the New York State average and California, the latter being one of the strongest IT clusters in the U.S. Without sufficient supply of new talent, it is difficult for the industry to become competitive and drive local economic growth.

Long Island has potential to land more software companies.

Long Island’s employment in software makes up only 11% of total private-sector IT employment. This is lower than the national average of 31%. Therefore, Long Island has the potential to re-balance its sector strategy in IT and increase the share of software jobs.

Business environment for Long Island’s IT companies is not the most competitive.

Long Island faces challenges in nurturing tech startups, especially compared to New York City, which lures companies with a highly vibrant tech scene. Besides general institutional conditions such as high tax and multiplicity of jurisdictions and government agencies acting as barriers to entry, the lack of these following assets particularly affects the tech industry.

- ▶ Local venture capital
- ▶ Entrepreneurial coaching and support

3. There are ways to grow Long Island's IT cluster smartly.

IT is connected to several significant Long Island industries.

Luckily, IT is not a cluster that functions in isolation. Its many linkages to the other significant Long Island industries provide opportunities of growth. Examples include:

- ▶ Distribution (drone pick-up / delivery)
- ▶ Education (instructional tech, remote learning)
- ▶ Business Services (cloud, network, e-conference)
- ▶ Finance (Fin-Tech)
- ▶ Retail (contactless shopping, personalized shopping)
- ▶ Healthcare (tele-health, diagnostic gadgets)

Local universities should be partners to enhance the IT employment pipeline.

There is no shortage of academic programs for IT on Long Island, but it remains a challenge for Long Island to retain the trained talent and match them to local job opportunities that meet their salary and life-style expectations.

IT Programs in Long Island's Universities:

- ▶ New York Institute of Technology
 - Graduate and Undergraduate courses and programs in the School of Engineering & Computing Sciences
- ▶ Stony Brook University
 - Center for Information and Technology Studies
- ▶ Long Island University
 - B.S. in Information Management and Technology
 - M.S. in Information Technology Education
 - Internship program with leading corporations
- ▶ Hofstra University
 - Continuing Education with IT courses and certificate programs
- ▶ St. Joseph's College
 - B.S. in Computer Information Technology
 - Internship program
- ▶ SUNY Old Westbury
 - B.A. in Computer and Information
- ▶ Farmingdale State College
 - B.S. in Computer Engineering Technology
 - B.S. in Electrical Engineering Technology
 - B.S. in Telecommunications Technology

NAICS Code in this Cluster

- 334411 Electron Tube Manufacturing
- 334412 Bare Printed Circuit Board Manufacturing
- 334414 Electronic Capacitor Manufacturing
- 334415 Electronic Resistor Manufacturing
- 334416 Electronic Coil, Transformer, and Other Inductor Manufacturing
- 334417 Electronic Connector Manufacturing
- 334418 Printed Circuit Assembly (Electronic Assembly) Manufacturing
- 334419 Other Electronic Component Manufacturing
- 333315 Photographic and Photocopying Equipment Manufacturing
- 333316 Photographic and Photocopying Equipment Manufacturing
- 334111 Electronic Computer Manufacturing
- 334112 Computer Storage Device Manufacturing
- 334113 Computer Terminal Manufacturing
- 334118 Computer Terminal and Other Computer Peripheral Equipment Manufacturing
- 334119 Other Computer Peripheral Equipment Manufacturing
- 333242 Semiconductor Machinery Manufacturing
- 333295 Semiconductor Machinery Manufacturing
- 334413 Semiconductor and Related Device Manufacturing
- 511210 Software Publishers
- 334611 Software Reproducing
- 334612 Prerecorded Compact Disc (except Software), Tape, and Record Reproducing
- 334613 Magnetic and Optical Recording Media Manufacturing
- 334614 Software and Other Prerecorded Compact Disc, Tape, and Record Reproducing
- 334512 Automatic Environmental Control Manufacturing for Residential, Commercial, and Appliance Use
- 334513 Instruments and Related Products Manufacturing for Measuring, Displaying, and Controlling Industrial Process Variables
- 334514 Totalizing Fluid Meter and Counting Device Manufacturing
- 334515 Instrument Manufacturing for Measuring and Testing

- Electricity and Electrical Signals
- 334516 Analytical Laboratory Instrument Manufacturing
- 334518 Watch, Clock, and Part Manufacturing
- 334519 Other Measuring and Controlling Device Manufacturing
- 334510 Electromedical and Electrotherapeutic Apparatus Manufacturing
- 334517 Irradiation Apparatus Manufacturing
- 334310 Audio and Video Equipment Manufacturing

Notes

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- Distribution and Electronic Commerce
- Livestock Processing
- Local Food and Beverage Processing and Distribution
- Vulcanized and Fired Materials

**The data for Workforce Demand is provided by Labor Insight / Jobs (Burning Glass Technologies). This data source, unlike the BLS and Census data, does not distinguish private sector and public sector jobs. Additionally, the above mentioned confounding clusters due to data availability only at the 4-digit level of NAICS codes also applies to the Workforce Demand section.

Appendix 2 - Case Studies

Ten case studies were analyzed in depth to understand how different project approaches can be deployed to achieve economic development goals. These cases are:

- ▶ Buffalo Manufacturing Works (Buffalo, NY)
- ▶ Northland Workforce Training Center (Buffalo, NY)
- ▶ Cortex Innovation District (St. Louis, MO)
- ▶ SkySong Innovation District (Scottsdale, AZ)
- ▶ Technology Center at Oyster Point (Newport News, VA)
- ▶ Research Triangle Park (Raleigh, Durham, Chapel Hill, NC)
- ▶ Venture Cafe Foundation (Cambridge, MA)
- ▶ Sandbox Communities (Atlanta, GA)
- ▶ Prologis Resource Center (national)
- ▶ Lyft X Starbucks Employee Ride-Share (proposed)



© Buffalo Manufacturing Works

BUFFALO MANUFACTURING WORKS

Buffalo, NY (Opened in 2015, Urban context)

The project directly realized the following economic development strategies:

STRATEGY A:

Facilitate business growth

STRATEGY D:

Promote innovation and technology transfer

STRATEGY C:

Strengthen training and workforce development

STRATEGY E:

Build connections among businesses, governments, and institutions

The project mainly utilized the following approaches and tactics:

Regulation and zoning

- Began as part of New York State's Buffalo Billion Investment Development Plan with an investment of \$45 million toward facility, equipment and staff.

Public realm

- Improved roads and sidewalks.

Business facility and amenity

- Renovated 22,200-square-foot building in downtown Buffalo. State-of-the-art advanced manufacturing facility includes space for manufacturing research, testing, training, and events.

Management and operation

- Operated by an experienced non-profit engineering services R&D company - EWI.
- Formed Buffalo Manufacturing Works Founders Council - an active group of local manufacturing companies that represent industry, advise on development, and committed to long term development and impact.
- Providing applied R&D services in several key growing sectors (advanced manufacturing, food processing, medical devices, pharma).
- Allowing companies to tap into resources and develop new technologies in an affordable way, ultimately improving existing products and processes.



© Buffalo News

NORTHLAND WORKFORCE TRAINING CENTER

Buffalo, NY (Revealed in 2015, Opened in 2018, Inaugural class: 120 students, Suburban context)

The project directly realized the following economic development strategies:

STRATEGY C:

Strengthen training and workforce development

STRATEGY E:

Build connections among businesses, governments, and institutions

The project mainly utilized the following approaches and tactics:

Regulation and zoning

- Financed through a partnership between ESD, NYPA, and the City of Buffalo. ESD paid for core and shell, tenant outfitting, equipment, and furnishing. NYPA provided funding to address shortage of electrical utility workers.
- Utilized Historic, New Markets, and Brownfield tax credits.
- Buffalo Urban Development Corporation (BUDC) acted as the developer.
- Industry-driven, public-private partnership between employers, educational institutions, community and faith-based organizations, and state and local government.

Business facility and amenity

- Two adaptive reuse projects: the Advanced Manufacturing Training Center; the Utility of the Future & Clean Energy Training Center. They house offices, classrooms, and industrial shops/labs.

Management and operation

- Offering for-credit, certificate and degree programs through educational partners. Emphasis on removing barriers that prohibit students from enrolling and completing (costs, transportation, childcare, academic readiness).
- Evidence-based placement strategies, such as co-ops, apprenticeships and internships, with an emphasis on permanent employment.
- Faith-based groups have many years of experience in workforce and education. Their role is to provide outreach, recruiting, career coaching and wrap-around case management services for students.



© Cortex

CORTEX INNOVATION DISTRICT

St. Louis, MO (200 acres, Started in 2002, Funded by consortium of local institutions, Urban context)

The project directly realized the following economic development strategies:

STRATEGY A:

Facilitate business growth

STRATEGY D:

Promote innovation and technology transfer

STRATEGY B:

Attract and retain knowledge workers

STRATEGY E:

Build connections among businesses, governments, and institutions

The project mainly utilized the following approaches and tactics:

Regulation and zoning

- City of St. Louis granted Cortex zoning authority, allowing the organization to control the character of development in the district even though it owned little property.
- Multifamily development throughout the midtown submarket - targeting a combination of students, young professionals, and other knowledge workers. Mixed-use environment (emphasizing retail amenities, which catalyzes residential development).
- State of Missouri awarded \$12M in tax credit to further aid in land assembly.

Public realm

- Integrating attractive common areas into a research park setting.
- New MetroLink rail station on site.

Business facility and amenity

- Renovating obsolete industrial buildings after evaluating the space needs of biotech companies. Over 1 million square feet of office, lab, and retail spaces have already been constructed.
- Site chosen because of 1. proximity to consortium institutions, and 2. proximity to green spaces, cultural institutions, and transit. These are thought to promote entrepreneurship.
- Cortex realized the spillover effect on surrounding real estate and strategically acquired land outside its jurisdictional boundaries.

Management and operation

- Created Cortex as one entity, 501(c)3 formed by a consortium of local institutions (BJC HealthCare, the Missouri Botanical Garden, St. Louis University, Uni of Missouri-St. Louis, and WashU St. Louis).
- Partnered with Venture Cafe for programming. Agreement with Cambridge Innovation Center, a real estate services company specialized in entrepreneurial and innovation spaces, to operate some facilities.
- Offered training programs to help start-up companies development business plans, identify market opportunities and access capital.



© SkySong

SKYSONG INNOVATION DISTRICT

Scottsdale, AZ (42 acres, Started in 2005, Funded by local institutions and City, Suburban context)

The project directly realized the following economic development strategies:

STRATEGY A:

Facilitate business growth

STRATEGY B:

Attract and retain knowledge workers

STRATEGY D:

Promote innovation and technology transfer

STRATEGY E:

Build connections among businesses, governments, and institutions

The project mainly utilized the following approaches and tactics:

Regulation and zoning

- ASU Foundation attained the legal control of the site from the City via a 99-year land lease.
- City provided patient capital (\$81 million through municipal bonds to acquire the site and pay for needed infrastructure improvements) and modified ground lease terms during recession.

Public realm

- Giant, visually striking tensile structure (120 feet) at the road intersection to define public space (50k sf of shade) and provide a strong, memorable brand.

Business facility and amenity

- 1.2 million square feet of commercial spaces buildout.
- Partnership between University and City. Hired a master developer via RFP process.
- A real estate firm was brought to the deal as a JV equity provider.
- Site chosen to help ASU better serve a part of the metropolitan area where it had a limited presence.
- Conference space brought businesses for over 500 monthly events and meetings.
- Garage parking.
- 325-unit apartment on site, which provide profits to the University foundation.

Management and operation

- Partnership: Arizona State U, ASU Foundation for a New American University, and the city of Scottsdale. Provided finances as well as occupancy. This is an example of University-led real estate development
- Arizona State University places its initiatives for student start-ups, incubators, tech transfer accelerator, and exec education in the District.
- Strategic tenant prospecting, vetted to ensure consistency with University's mission and objectives.



© Divaris Real Estate Inc.

TECHNOLOGY CENTER AT OYSTER POINT

Newport News, VA (100+ acres, Started in 2010, Private development, Semi-urban context)

The project directly realized the following economic development strategies:

STRATEGY A:

Facilitate business growth

STRATEGY D:

Promote innovation and technology transfer

The project mainly utilized the following approaches and tactics:

Regulation and zoning

- The developer hired individuals involved in the planning and development of Virginia Tech Corporate Research Center to create a comparable high-tech/research business environment, which gave the municipality confidence and reasons for rezoning.

Public realm

- Outdoor conference rooms and public event space encourage informal interactions and allow common areas to function as an extension of the office environment.
- A pedestrian spine with multiple activity nodes connects shopping center with tech park.

Business facility and amenity

- First phase includes 250,000 square feet of retail spaces.
- Private sector-led vision: A group of real estate developers (W.M. Jordan Company as the master developer, S.J. Collins Enterprises and Ellis-Gibson Development Group in the retail and multifamily components respectively).
- Site chosen for the proximity to Jefferson Lab, and US National Laboratory.
- Architectural and planning references to Virginia Tech, to evoke the feel of a college campus.
- Multifamily development on site (288 units). The apartment also satisfies the need of international scientists visiting the Jefferson Lab.
- Whole Foods-anchored shopping Center known as The Marketplace at Tech Center.

Management and operation

- Aggressive tenant recruitment efforts to increase market awareness of the tech park among foreign and domestic firms, because the location is slow in tech commercialization (even with Jefferson Lab), lacked knowledge-based and entrepreneurial firms, and has historically depended on manufacturing and federal contracting.



© Discover Durham

RESEARCH TRIANGLE PARK

Raleigh, Durham, and Chapel Hill, NC (7000 acres, Started in 1951, Suburban Context, Regional scale)

The project directly realized the following economic development strategies:

STRATEGY A:

Facilitate business growth

STRATEGY D:

Promote innovation and technology transfer

STRATEGY E:

Build connections among businesses, governments, and institutions

The project mainly utilized the following approaches and tactics:

Regulation and zoning

- Significant federal, state, and local funding for research and infrastructure. Three universities provide strong research capabilities (Duke, UNC, and NC State). Medical centers at Duke and UNC are premier health institutions. These universities receive large amount of federal R&D funding.
- State government identified the need for the Park and commissioned a concept report, helped fund infrastructure projects, including new highway and an international airport.
- Federal contracting spurs demand for innovation and research.

Business facility and amenity

- Major redevelopment effort, “Park Center Development” (\$50M) to include major amenities such as retail, restaurant, new public parks, a central marketplace, multifamily residential and hotels, and creative work spaces (The Frontier).

Management and operation

- Created the Research Triangle Foundation (current owner and manager of the Park) - Private development that is hinged upon the collaboration among business, government and universities.
- Well designed website with map directory feature (<https://www.rtp.org/directory-map/>).



© Venture Cafe

VENTURE CAFÉ FOUNDATION

Cambridge, MA (501(c)3 non-profit)

The project directly realized the following economic development strategies:

STRATEGY B:

Attract and retain knowledge workers

STRATEGY D:

Promote innovation and technology transfer

STRATEGY E:

**Build connections among businesses,
governments, and institutions**

The project mainly utilized the following approaches and tactics:

Management and operation

- Enhancing and accelerating innovation in a region/place by offering meeting space, programming, and connections that build relationships between entrepreneurs, investors, and innovators. Active in Cambridge Innovation Center and Cortex.
- Events include: Cafe Nights (networking), StartHub (online community), Civic Innovation Conversations Series (quarterly panel with civic/community focus), Veterans Entrepreneurship, Venture Cafe Presents (online video series/talks), etc..



© Sandbox ATL

SANDBOX COMMUNITIES

Atlanta, GA (501(c)3 non-profit)

The project directly realized the following economic development strategies:

STRATEGY B:

Attract and retain knowledge workers

STRATEGY C:

Strengthen training and workforce development

STRATEGY E:

Build connections among businesses, governments, and institutions

The project mainly utilized the following approaches and tactics:

Public realm

- Redesign signage and graphic identity to energize common areas and develop a greater sense of community.

Management and operation

- Membership-based organization specialized in programming research parks and innovation districts.
- Helping organizations to connect with talent and companies via: community network, media content, experience design, event management, workspace, and event venue.
- Managing resume database, hosting tech job fairs.
- Programming and managing the 9,000 sf collaboration space in Technology Square (Georgia AZ)
- Creating and distributing Resource Books for the Technology Square, capturing the events and stories that define the community.



© Prologis

PROLOGIS RESOURCE CENTER

National (Centralized business resource provider to individual tenants in Prologis industrial parks)

The project directly realized the following economic development strategies:

STRATEGY A:

Facilitate business growth

The project mainly utilized the following approaches and tactics:

Management and operation

- Dedicated real estate tax team to ensure Prologis customers pay no more than their fair share of taxes. Team includes former assessors, consultants and appraisers, utilizing latest technology and longstanding assessor relationships.
- Remote digital building management tool “EEGLE”, enabled by BIM and AI technology. The interface helps users to monitor energy consumption, manage maintenance deadlines, and detect operational malfunctions. It also stores building information such as technical documents, building measurements and blueprints so that customers can access their information anywhere.



© Starbucks; Lyft

LYFT X STARBUCKS EMPLOYEE RIDE-SHARE

Proposed (Business partnership)

The project directly realized the following economic development strategies:

STRATEGY B:

Attract and retain young and educated workforce

STRATEGY E:

Build connections among businesses, governments, and institutions

The project mainly utilized the following approaches and tactics:

Management and operational initiative

- Lyft announced a program that would provide Starbucks employees with free Lyft rides to and from work, when they need it most.
- Free transportation gives the worker more disposable income and will be particularly helpful in markets with unreliable public transportation.

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Appendix 3 - Physical Environment Analysis

List of Maps

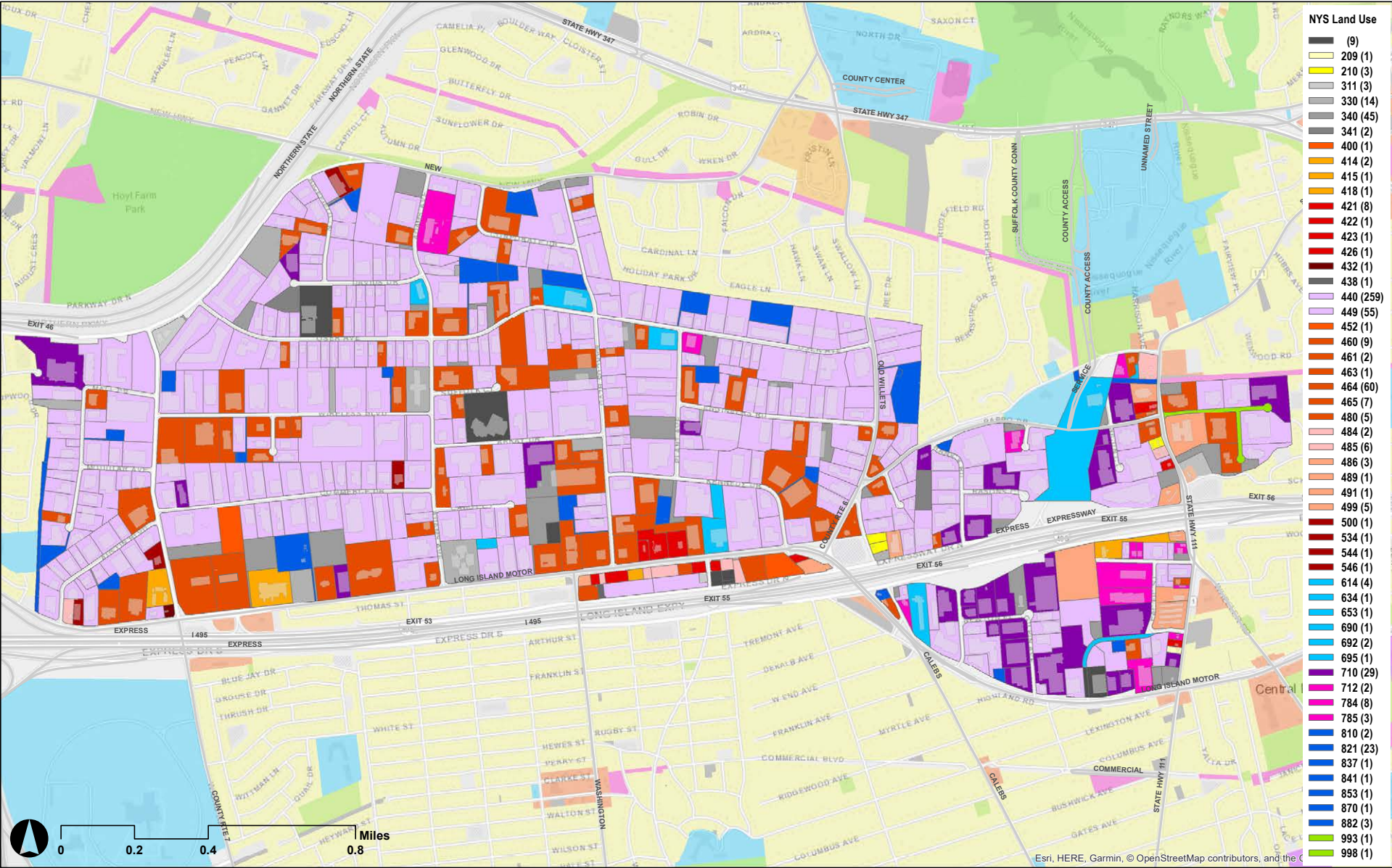
- ▶ Land use: Hauppauge Industrial Park
- ▶ Land use: surrounding areas
- ▶ Common property ownership
- ▶ Key industry clusters
- ▶ Housing
- ▶ Parks and open space
- ▶ Soils

Land Use:

Hauppauge Industrial Park

The Hauppauge Industrial Park is the largest Industrial Park in the northeast with 1,350 companies that employ 55,000 people. The park has approximately 13 million square feet of built floor area, enough to fill five Empire State Buildings. The park is composed of almost 600 parcels, with approximately 440 parcels that are part of the Town of Smithtown and 140 parcels that part of the Town of Islip. The total land area is spread across 1,600 acres, almost large enough to fit two Central Parks.

Current land uses defined by New York State codes and documented by Suffolk's County Real Property Tax Service Agency, indicate a predominant amount of commercial uses with 407 lots, 314 of which are classified as storage, warehouse and distribution facilities. These commercial uses are followed by public services (30 lots), industrial (26 lots), transportation (29 lots), vacant (60 lots), community services (9 lots), a handful of recreation in the Smithtown portion of the park and a small strip of conservation lands in Islip.



Land Use Code

200 – RESIDENTIAL

210 - One Family Year-Round Residence

A one family dwelling constructed for year-round occupancy (adequate insulation, heating, etc.).

300 - VACANT LAND

311 - Residential Vacant Land

Vacant lots or acreage located in areas.

330 - Vacant Land Located in Commercial Areas

340 - Vacant Land Located in Industrial Areas

341 - Industrial Vacant Land with Minor Improvements

400 – COMMERCIAL

410 - Living Accommodations

411 - Apartments

414 - Hotel

415 - Motel

416 - Mobile Home Parks (trailer parks, trailer courts)

The mobile homes are usually owner occupied but the land and facilities are rented or leased. (See code 270 for individual mobile homes.)

417 - Camps, Cottages, Bungalows

Usually rented on a seasonal basis.

418 - Inns, Lodges, Boarding and Rooming Houses, Tourist Homes, Fraternity and Sorority Houses

Sleeping accommodations with or without meals or kitchen privileges.

420 - Dining Establishments

421 - Restaurants

Facilities which serve full course meals with or without legal beverages.

422 - Diners and Luncheonettes

Usually year-round facilities with counter service and limited seating.

423 - Snack Bars, Drive-Ins, Ice Cream Bars

Usually seasonal, with window and/or car service, possibly limited

counter service (e.g., A&W Root Beer, Tastee Freeze Ice Cream, etc.).

424 - Night Clubs

Facilities which feature an extensive menu, legal beverages and live entertainment.

425 - Bar

Facilities which serve only legal beverages, not food.

426 - Fast Food Franchises

Year-round, with counter service, limited menus and a drive-up window (e.g., McDonald's, Burger King, etc.).

430 - Motor Vehicle Services

431 - Auto Dealers - Sales and Service

Includes truck or farm machinery dealerships, auto or truck rental agencies, motor home sales and service facilities, etc.

432 - Service and Gas Stations

Sell gasoline and/or provide minor repairs and services.

433 - Auto Body, Tire Shops, Other Related Auto Sales

Specialized auto equipment and repair (e.g., Goodyear Tire Center, Firestone Stores, etc.).

434 - Automatic Car Wash

Car is pulled through a series of cleaning processes.

435 - Manual Car Wash

Car is driven into a stall; revolving brushes rotate around the car (semiautomatic).

436 - Self-Service Car Wash

Usually a multi stall structure featuring a car owner operated coin system with spray type hoses for washing and rinsing a car.

437 - Parking Garage

Usually a multistory structure with elevators and/or ramps, used mainly for car storage.

438 - Parking Lot

A commercial open parking lot for motor vehicles.

439 - Small Parking Garage

A garage with two or more stalls, usually found in a residential area, being rented for parking.

440 - Storage, Warehouse and Distribution Facilities

441 - Fuel Storage and Distribution Facilities

Facility for fuel storage and distribution including gasoline, oil, liquid petroleum bottled gas, natural gas, and coal.

442 - Mini Warehouse (Self Storage)

This use reflects the partitioned warehouse space used for multiple tenant self service storage.

443 - Grain and Feed Elevators, Mixers, Sales Outlets

444 - Lumber Yards, Sawmills

445 - Coal Yards, Bins

446 - Cold Storage Facilities

Used for perishables, produce or other items.

447 - Trucking Terminals

448 - Piers, Wharves, Docks and Related Facilities

449 - Other Storage, Warehouse and Distribution Facilities

450 - Retail Services

451 - Regional Shopping Centers

Multi occupant facilities with ten or more stores, usually featuring a large department store or two, and ample paved parking.

452 - Area or Neighborhood Shopping Centers

Smaller shopping facilities which usually feature a junior department store, several other stores, and ample parking; may include a supermarket.

453 - Large Retail Outlets

These facilities are usually complemented by a large supermarket and have ample parking (e.g., Ames, Wal-Mart, etc.).

454 - Large Retail Food Stores

These facilities usually belong to a chain and sell food and sundry items (e.g., Price Chopper, Hannaford, Topps, Wegmans, P&C, Big M, etc.).

455 - Dealerships - Sales and Service (other than auto with large sales operation)

Boats (also refer to code 570), snowmobiles, garden equipment, etc.

460 - Banks and Office Buildings

461 - Standard Bank/Single Occupant

462 - Drive-In Branch Bank

463 - Bank Complex with Office Building

464 - Office Building

465 - Professional Building

470 - Miscellaneous Services

471 - Funeral Homes

472 - Dog Kennels, Veterinary Clinics

473 - Greenhouses

474 - Billboards

475 - Junkyards

480 - Multiple Use or Multi-purpose

A building readily adaptable, with little physical change, for more than one use or purpose.

481 - Downtown Row Type (with common wall)

Usually a two or three story older structure with retail sales/services on the first floor and offices and/or apartments on the upper floors; little or no on-site parking.

482 - Downtown Row Type (detached)

The same type of use as in code 481, above, but this is a separate structure without party walls.

483 - Converted Residence

A building usually located in a residential area, which has been partially converted or adapted for office space (e.g., a doctor's or dentist's office with an apartment upstairs).

484 - One Story Small Structure

Usually a modern, one occupant, building adaptable for several uses (e.g., retail clothing store, small office, warehouse, pet shop, etc.).

485 - One Story Small Structure - Multi occupant

Usually partitioned for two or more occupants, such as a liquor store, drug store, and a laundromat; limited parking on site.

486 - Minimart

Combination snack bar, market and gas station.

500 - RECREATION AND ENTERTAINMENT

534 - Social Organizations

Elks, Moose, Eagles, and Veterans' Posts, etc., whose primary purpose is social activities for members.

544 - Health Spas

546 - Other Indoor Sports

Tennis courts, archery ranges, billiard centers, etc.

600 COMMUNITY SERVICES

614 - Special Schools and Institutions

Used for the physically or mentally impaired.

653 - Parking Lots

Owned by any governmental jurisdiction; includes land and appurtenant structures such as open single level lots as well as multilevel parking garages.

690 – Miscellaneous

692 - Roads, Streets, Highways and Parkways, Express or

Otherwise (if listed) Including Adjoining Land

695 – Cemeteries

700 – INDUSTRIAL

710 - Manufacturing and Processing

712 - High Tech. Manufacturing and Processing

These buildings are used as research laboratories with a high percentage of office/laboratory space. The construction costs of these facilities are higher than other warehouse/manufacturing facilities reflecting their architectural design, super adequate upgrades, and more comprehensive finish.

800 - PUBLIC SERVICES

821 - Flood Control

Land used for the accumulation, storage or diversion of water for flood control purposes only.

837 - Cellular Telephone Towers

841 - Motor Vehicle

Land used in the provision of transportation services by motor vehicles (e.g., bus terminals, taxicab garages, truck terminals and warehouses, etc.). Does not include public highways, bridges, tunnels, subways and property used in the maintenance (except by persons providing transportation services), manufacture and sale of motor vehicles.

853 - Sewage Treatment and Water Pollution Control

870 - Electric and Gas

882 - Electric Transmission Improvement

900 - WILD, FORESTED, CONSERVATION LANDS AND PUBLIC PARKS

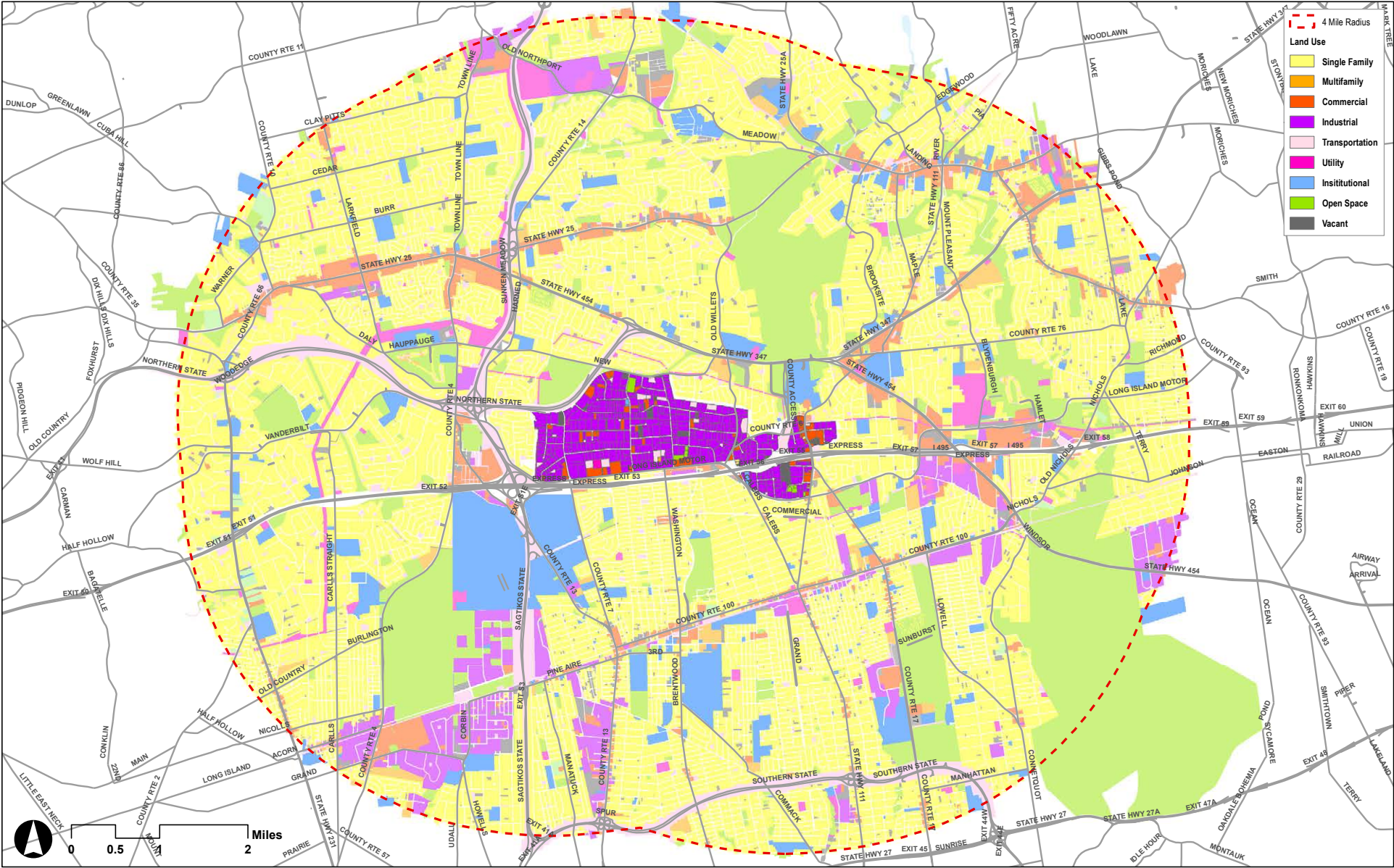
993 - Transition Assessments for Taxable State Owned Land (Real Property Tax Law, Section 545)

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Land Use : Surrounding Areas

Properties within a 4-mile radius of the Industrial Park have a predominant use for single family residential housing. However, the assessment demonstrated a number of clusters with commercial and light industrial uses:

- ▶ Heartland Business Center to the southwest of the Park (adjacent to the Deer Park LIRR Station)
- ▶ Big box retail and storage businesses to the west of the Park (between Veterans Memorial Highway and the Long Island Expressway)
- ▶ Auto dealerships and storage businesses to the northwest of Park along Middle Country Road in Smithtown)
- ▶ Construction material storage and sanitation facilities to the north of the Park (along Old Commack Road in Smithtown)
- ▶ Hampton Business and Technology Park, to the west of the Park
- ▶ Stony Brook Technology Center to the north of the Park
- ▶ Suffolk County Community College to the southwest of the Park



Key Industry Clusters

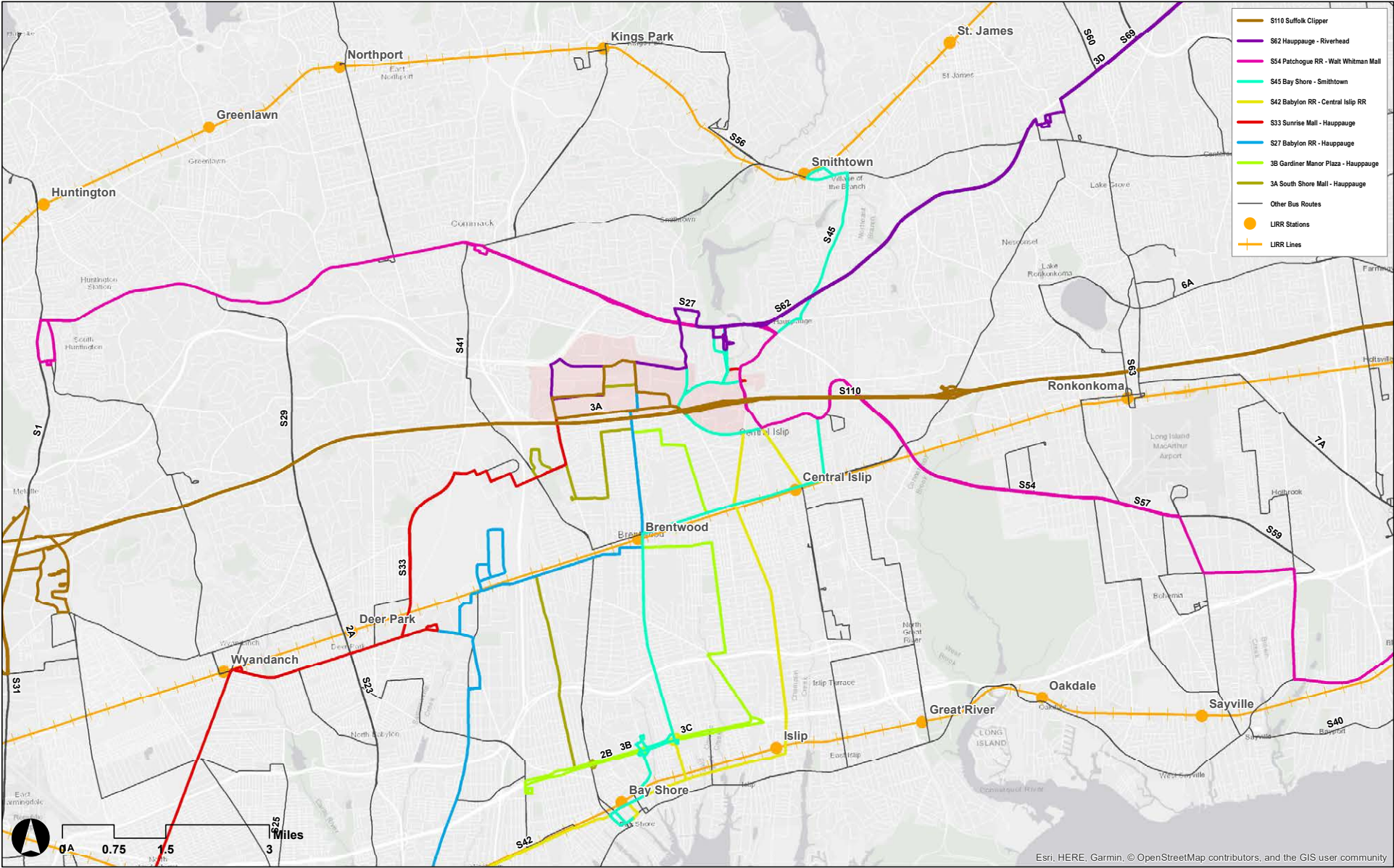
The key tradable industries identified by the economic assessment were georeferenced and then visualized as a map. As in the case of properties with common ownership, the location of key industries was used to inform the proposed framework plan. The final version of the framework incorporates parcels with most of the tradable industries identified by the assessment.



Transit Options

The physical assessment identified eight bus routes serving the park: S110 (Suffolk Clipper), S62, S54, S45, S33, S27, 3B, and 3A. Routes S42, S45, 3B, and S27 are connecting the park with neighborhoods in Islip. Route S33 is serving areas in Babylon and Route S62 is serving areas in Smithtown. Route S54 serves neighborhoods in Huntington and a section of Islip to the southwest of the park. The Suffolk Clipper is an affordable express route that brings commuters from eastern Long Island. The route has been modified over the years to enter into the park and make multiple stops.

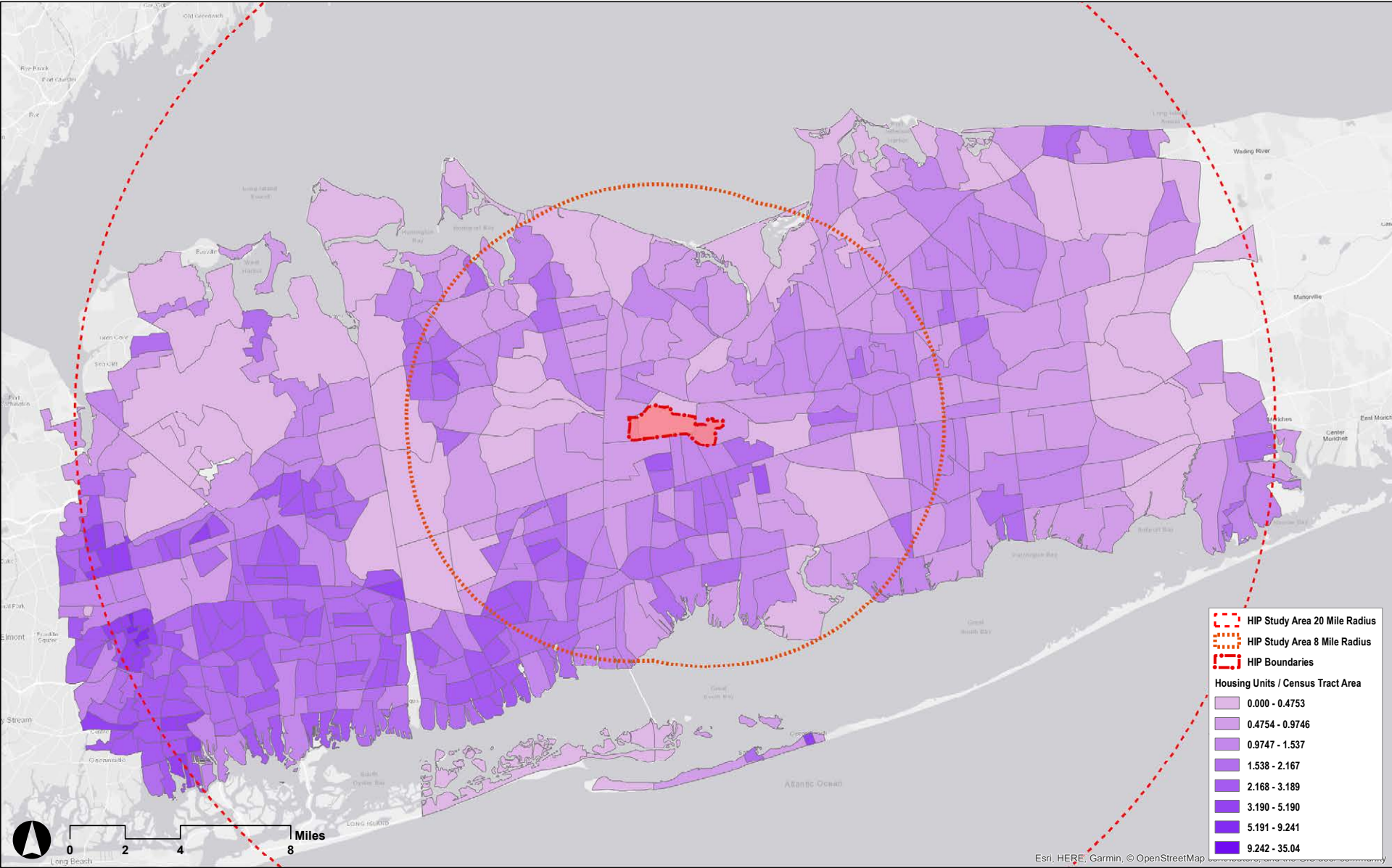
The park is also in relative proximity to several Long Island Rail Road stations. The Brentwood and Central Islip train stations along the LIRR Ronkonkoma branch are within a two-mile radius of the park. The Smithtown and Kings Park train stations along the LIRR Port Jefferson branch are within a four-mile radius of the park. The Deer Park train station along the Ronkonkoma branch is also within a four-mile radius.



Esri, HERE, Garmin, © OpenStreetMap contributors, and the GIS user community

Housing

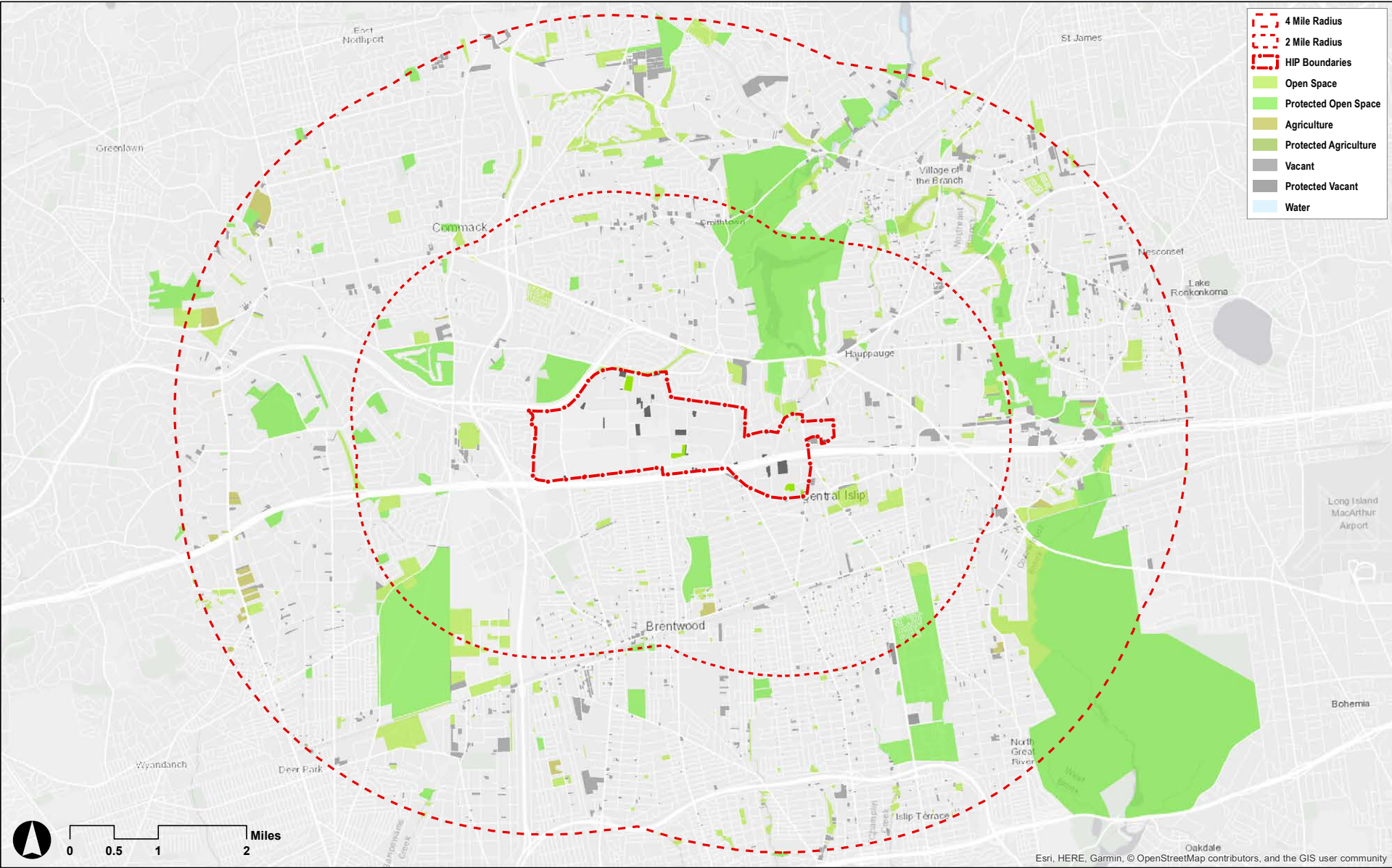
Based on the 2013-2017 American Community Survey 5-year estimates, there are almost 750,000 dwelling units within an approximate 30-minute drive of the park, and 270,000 units within 15 minutes. Most of the existing housing is concentrated to the southeast of the park towards West Islip, Babylon, Amityville, and Massapequa (almost 40% of housing is located in these municipalities).



Parks and Open Space

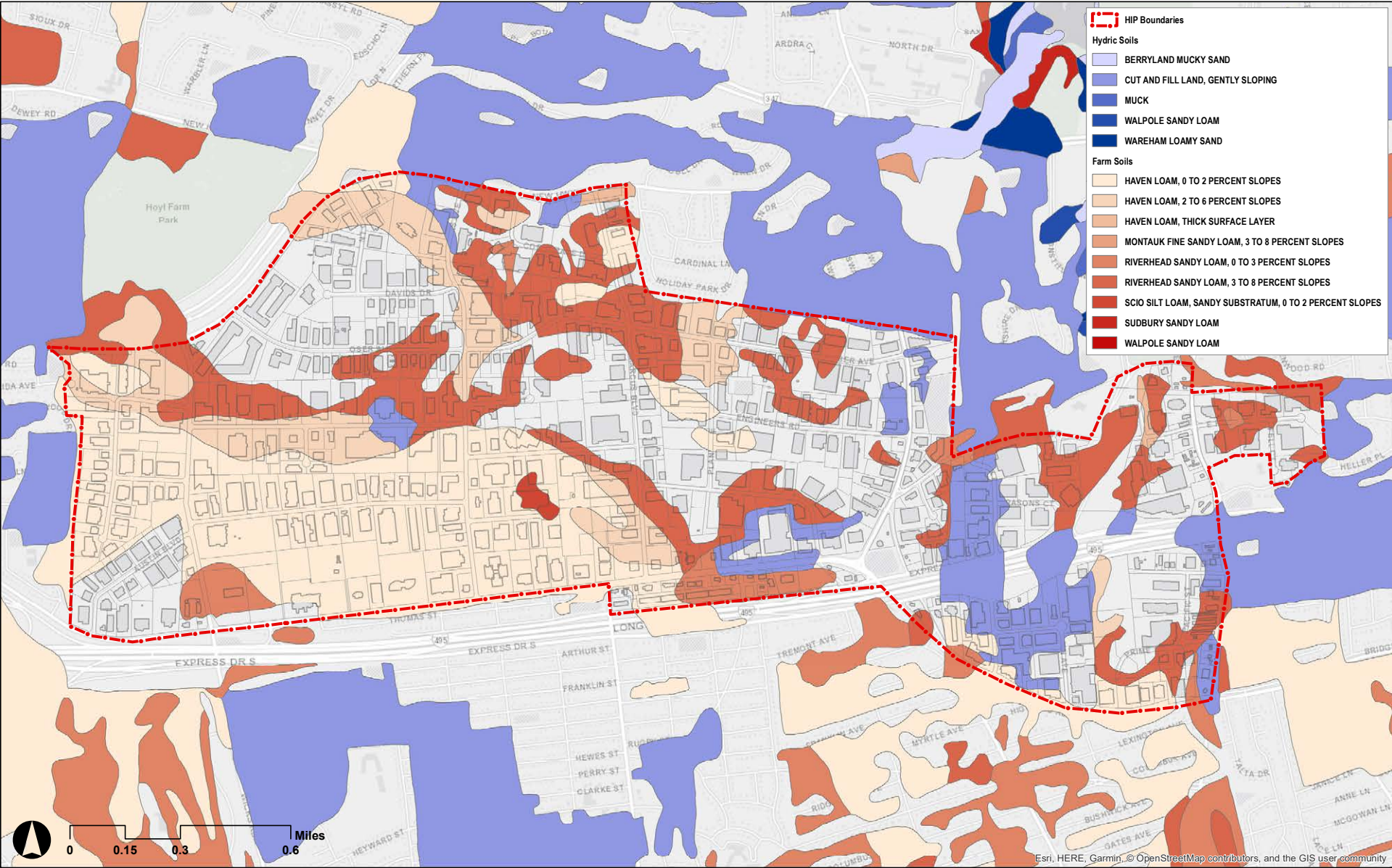
While there are several Open Space resources in proximity to the park, some of them are restricted to town residents and private users.

- ▶ Hoyt Farm Nature Preserve across Northern State Parkway (with restricted access –located northwest of the park)
- ▶ Blydenburgh County Park including the New Mill Pond (northeast of the park)
- ▶ Edgewood Oak Brush Plains Preserve (southwest of the park)
- ▶ Brentwood Country Club and Golf Course (with restricted access-located south of the park)
- ▶ Central Islip Community Park Playground (southeast of the park)
- ▶ Connetquot Preserve (southeast of the park)



Soils

Soils within the Industrial Park tend to be classified as farms soils with the majority identified as haven loam with percent slopes ranging between 0 to 6 percent. Peripheral areas tend to have hydric soils classified as cut and fill land, with gentle slopes.



Appendix 4 - Detailed Zoning Recommendations

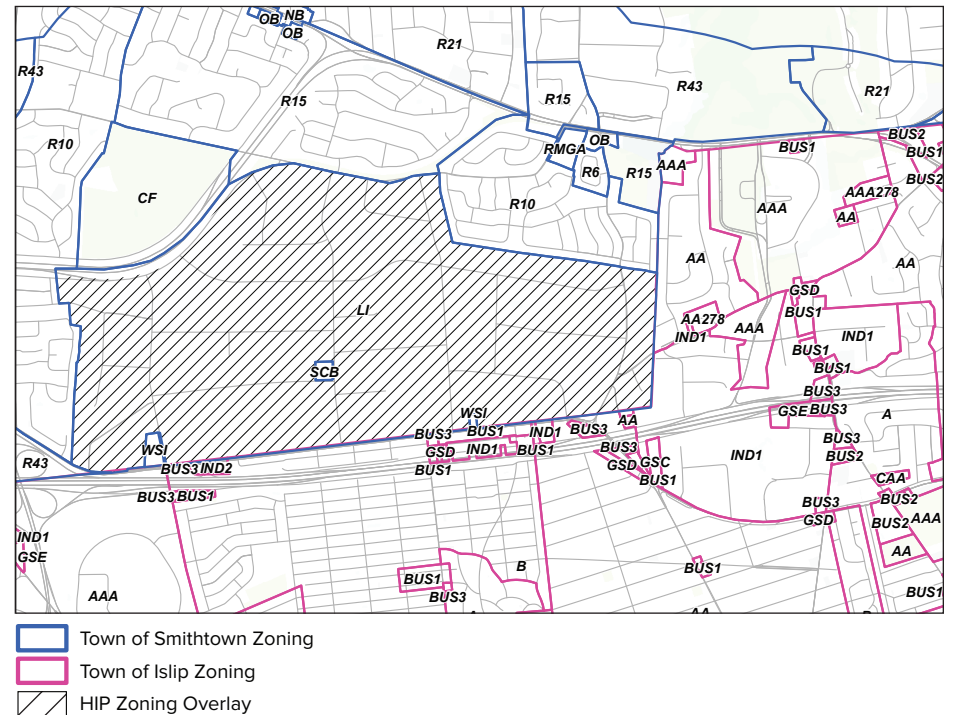
The team made an assessment of Smithtown’s Light Industrial Overlay (LIO) and Islip’s Industrial 1 (IND 1) zoning to determine whether changes could better promote business development within the park. The assessment demonstrated that while the LIO approved in 2015 made important modifications to the parcels in Smithtown, the pre-existing use groups and general dimensional regulations are still governed by the underlying Light Industrial (LI) zoning. Moreover, parcels under the jurisdiction of the town of Islip are primarily governed by the Industrial 1 (IND 1) District, in which regulations have not been amended since 2005.

In order to foster the Industrial Park as a high-quality business hub, both the towns should consider the following zoning amendments:

Expand List of Use Groups to Include Personal Services*, Entertainment, and Retail

Some key use groups are currently prohibited by the underlying LI district in Smithtown and the IND 1 district in Islip. Both towns should consider expanding the list of permitted use groups to allow an environment that promotes work and life coexistence. Smithtown should consider allowing establishments that offer personal services, entertainment retail (including food & beverage), and retail outlets for factories. Although local experience with these uses may justify the prohibitions,

Figure X: Existing Zoning Districts



Personal Services is a use that provides a personal service (nonmedical) and may include accessory retail sales of products related to the services. These uses include, but are not limited to: Barber and beauty shops; Clothing rental; Dry cleaning pickup stores with limited equipment; Home electronics and small appliance repair; Laundromats (self-service laundries); Shoe repair shops; Tailors; Travel agencies; Video rental.

and further consideration needs to be taken in order to identify specific portions of the park where additional uses might be appropriate, RPA identified the following list that should be examined: microbreweries, bars, theaters, bowling lounges, barber shops, laundromats, day care centers, retail establishments, contractor showrooms, and appliance and office machine repair establishments.

Allow New Mixed Use Buildings with Residential at Select Locations

While the existing LIO in Smithtown does not mention mixed-use buildings, the underlying LI district explicitly prohibits residential uses or apartments. In addition, the Islip IND 1 district does not allow for residential uses either. A residential component within the peripheral areas of the park would not only provide potential housing for Hauppauge's workforce, but would enable the park to retain vitality and dynamism that could go beyond business hours and into the weekends. The LIO district should be evaluated as to consider allowing apartments with commercial on base along Motor Parkway (62 feet height limit corridor) and the southern section of Old Willets Path, between Engineers Road and Motor Parkway. This can be partially incentivized by allowing aggressive shared parking ratios and addressing building code issues related to the separation of uses and egress.

Adjust Height Criteria

The implementation of the LIO district increased the maximum heights for buildings from 35 feet (allowed in the LI district) to 50 feet within the core area, and up to 62 feet for properties facing Vanderbilt Motor Parkway. The height increase excluded properties located within a 1,000 foot buffer from the Northern State Parkway or from residential districts.

In order to reduce ambiguity regarding height limitations, the LIO could specify the percentage of lot area contained within the 1,000 foot buffer to determine which regulations would be applicable for parcels split by the buffer boundary.¹ Similarly, the LIO should define minimum lot frontage for parcels along Motor Parkway that would be subject to the 62 feet height limit.

The assessment also demonstrated that limiting buildings to a maximum height of 35 feet for parcels within a 500 feet buffer instead of the existing 1,000 feet, would allow for an additional 200,000 square feet of floor area. RPA also created section drawings demonstrating that such height adjustments are unlikely to cause adverse impacts to view corridors. As an alternate option Smithtown could consider intermediary height limits within a staggered buffer zone. One example of this would be a 35 foot maximum height limit within 500 linear feet, a 42 maximum height limit between 500 and 1,000 linear feet, and a 50 foot maximum height limit after 1,000 linear feet.

Figure X: Existing Buffer Areas for Height Limitations

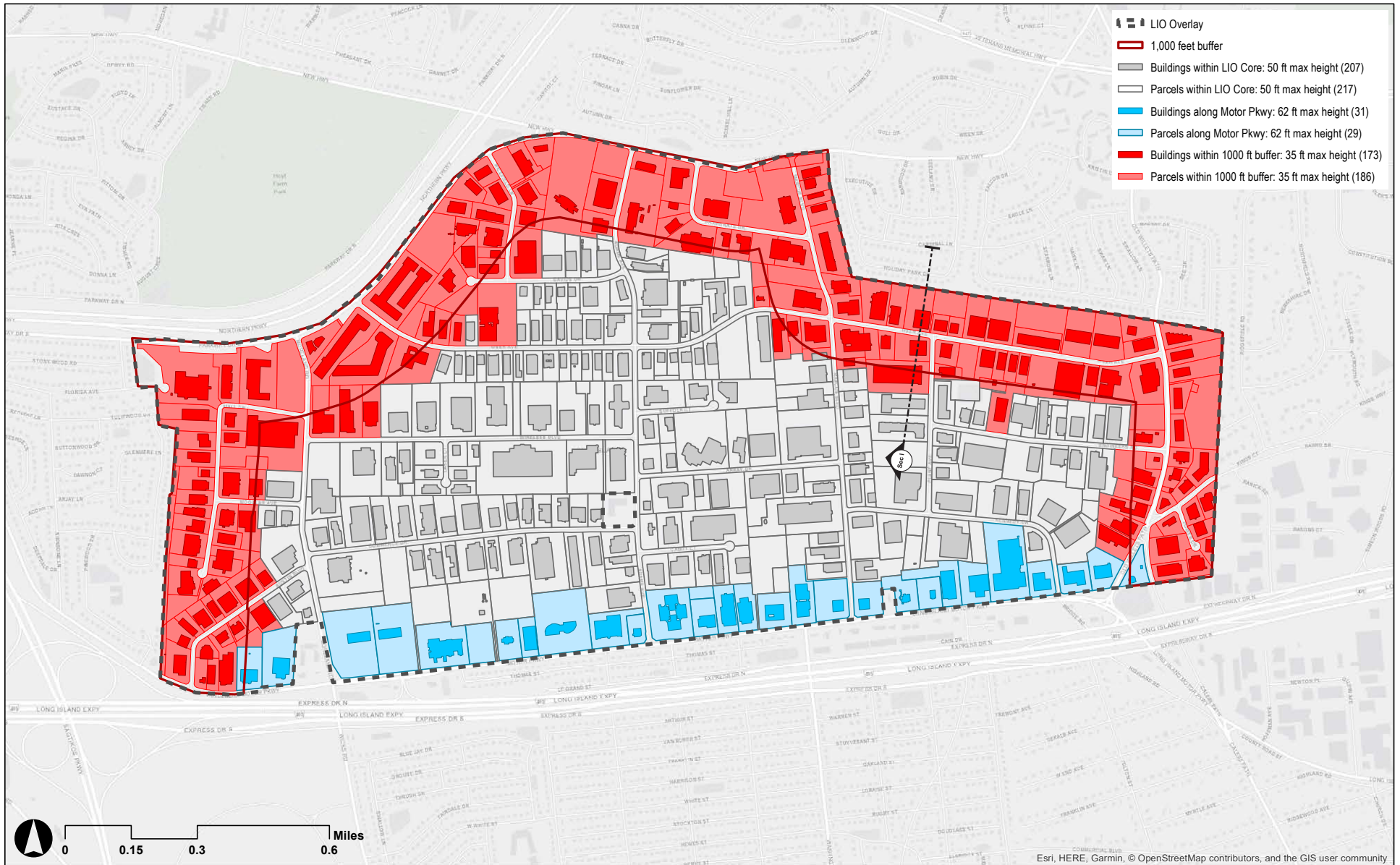


Figure X: Alternate Buffer Areas for Height Limitations

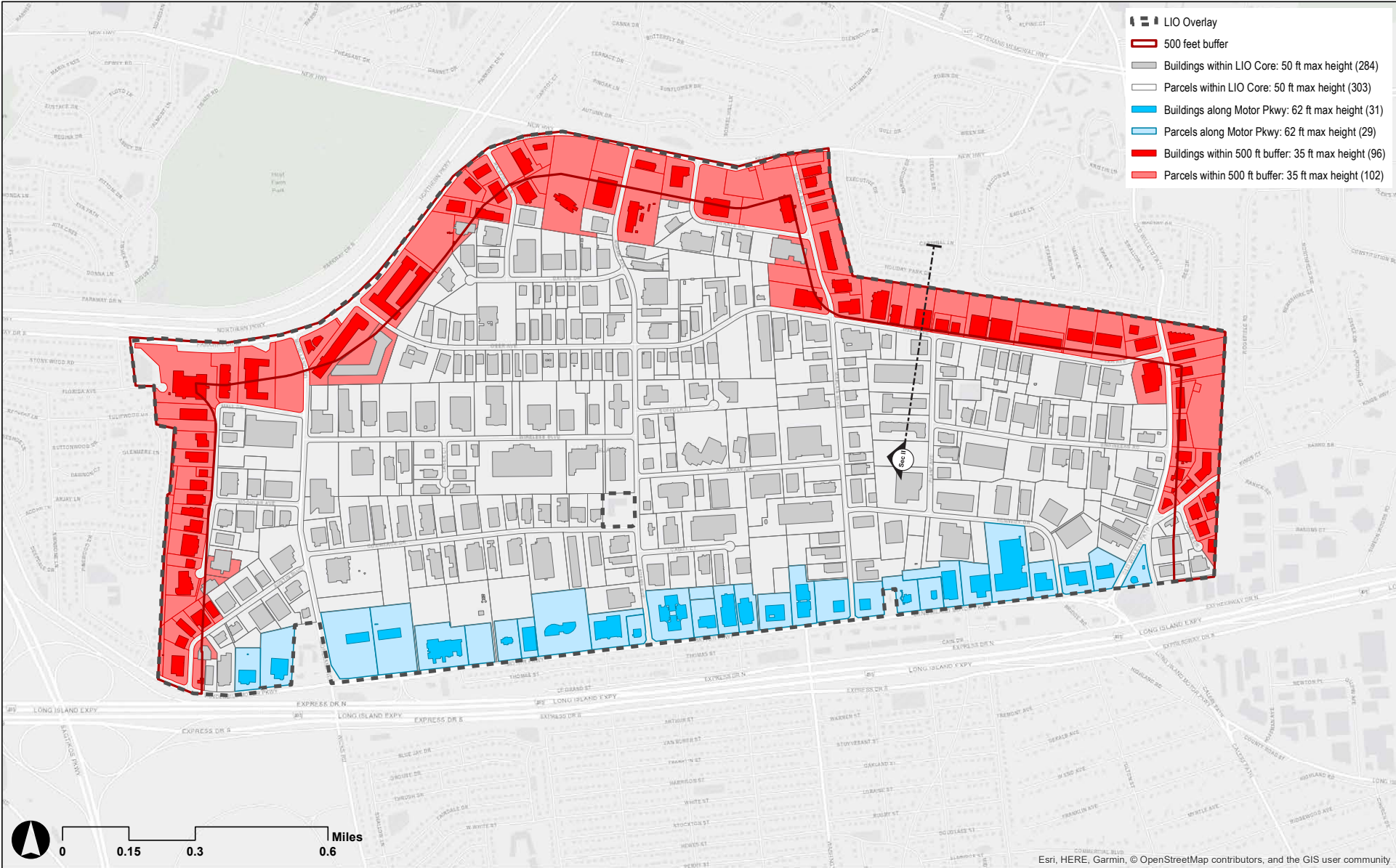


Figure X: Top and Section Drawings Showing Hypothetical Build Out Under Existing Height Limitations

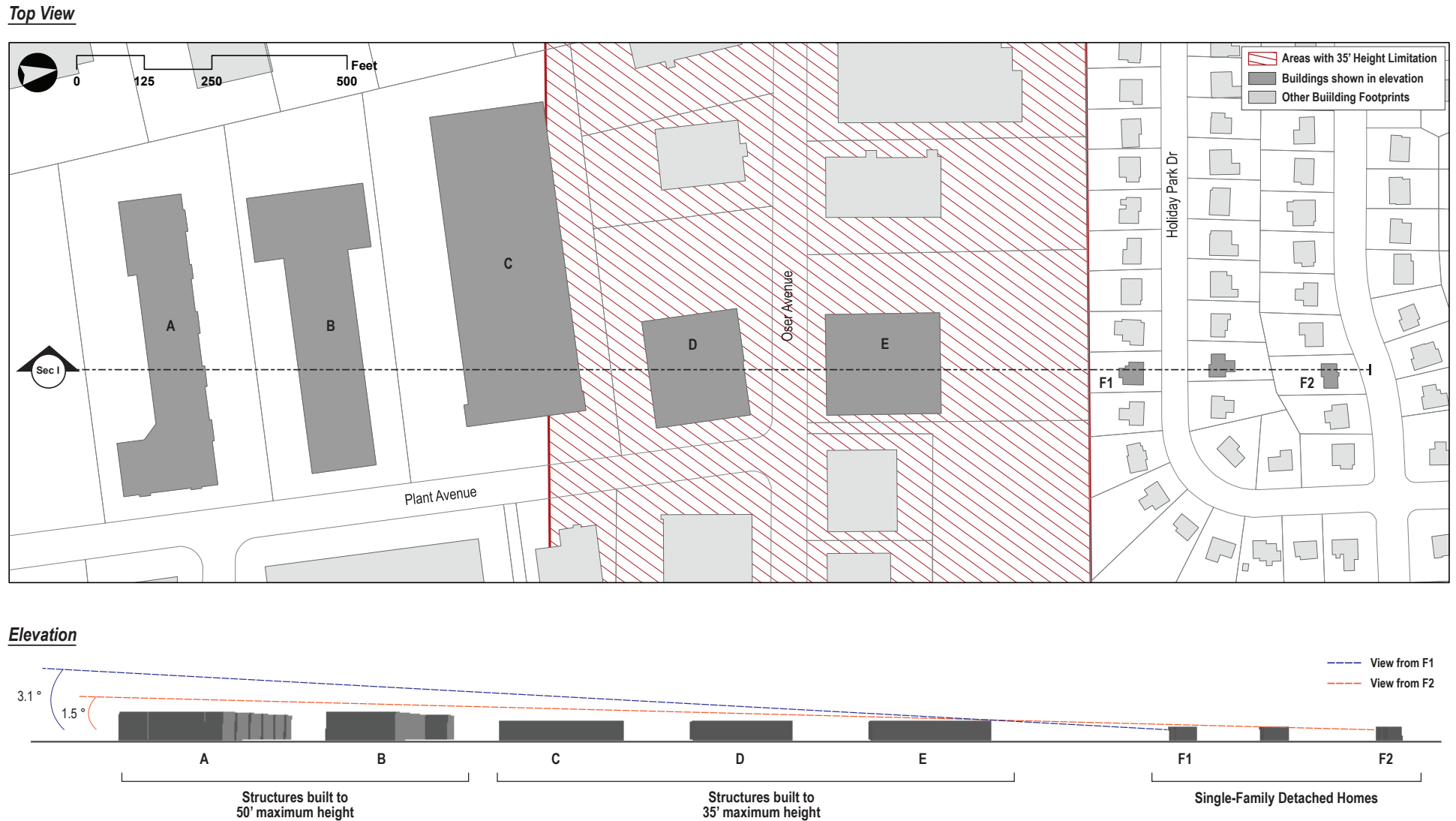
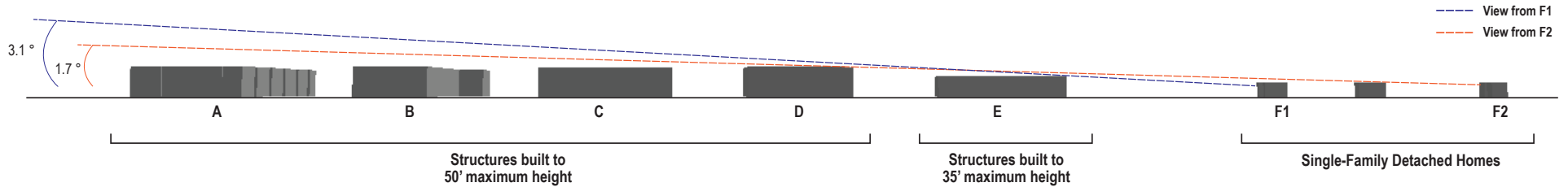


Figure X: Top and Section Drawings Showing Hypothetical Build Out Under Alternative Height Limitations - Residential views to the horizon before obstruction would remain unaltered

Top View



Elevation



Modify Dimensional and Density Regulations

Smithtown should consider relaxing dimensional regulations and increasing density within selected areas of the overlay. While the LIO made changes to maximum building heights, other dimensional regulations were left untouched. Buildings of the industrial park within Smithtown are still governed by the underlying LI district dimensional regulations, which establish a maximum gross Floor Area Ratio (FAR) of 0.42. The existing density and dimensional regulations pose significant challenges for implementing building configurations compatible with a more pedestrian friendly right of way. The current regulations also undermine the concept of “making what you do visible” proposed in Hauppauge’s Economic Opportunity Analysis released by RPA in August 2017.

RPA selected a representative sample of properties within the LIO district and estimated the mean existing FAR within the park at approximately 0.3 FAR. While most properties still have an incentive to take advantage of the existing LI regulations, approximately 10% within the Smithtown portion of the park (almost 50 properties) already surpass the maximum allowed FAR of 0.42.² As a result, the incentive for redeveloping properties with existing densities above 0.42 FAR becomes significantly reduced. Consequently, Smithtown should consider increasing the maximum as-of-right FAR from 0.42 to 0.5. In certain instances, the LIO could allow up to 0.6 FAR as a bonus in exchange for a development committing to pre-identified improvements aligned with the Industrial Park objectives.

Yard regulations should also be reconsidered. The LIO should reduce minimum yard dimensions to allow building configurations compatible with a more pedestrian friendly right of way. Instead of the 50 feet required for front yards, structures should be allowed to be built up to approximately 30 feet from the right-of-way, sufficient distance for a potential multimodal network and yet close enough to provide building configurations that interact at a human scale. In addition, the LIO should reduce the minimum side yard requirement to 20 feet instead of 40 feet (for the total measurement for both side yards).

Launch a Zoning Bonus Pilot Program

The LIO district could set a maximum achievable density of 0.6 FAR, allowing developments to build above maximum as-of-right as a bonus in exchange for contributing to desired improvements. The bonus would only be granted to developments that incorporated predefined public realm improvements aligned with the Industrial Park objectives. Some of the improvement options could be:

- ▶ Commitment to install a certain amount of solar arrays through the HIP Solar Initiative Program
- ▶ Easements for right of way and construction of multimodal networks
- ▶ Development of amenities like fitness areas or public space areas
- ▶ Inclusion of best practices for storm water capture

Parking Requirements

Smithtown should examine reducing parking ratios for select uses within the overlay. The parking requirement for research laboratory facilities, one of the most common uses within the park, is 5 spaces per 1,000 square feet of floor area. For other uses that might be permitted in the future, parking requirements can go as high as 10 spaces per 1,000 square feet of floor area (the current requirement for retail stores and restaurants). The Town of Smithtown should consider including provisions in the LIO district to relax some of these requirements. In RPA's experience the ratios could be reduced approximately by half: 2-3 spaces for every 1,000 square feet in the case of research facilities, and 6 spaces for retail and restaurants and retain sufficient parking for employees.

Additional Considerations

The Town of Smithtown should also consider small modifications to their zoning text to provide more clarity, as well as more certainty for future development. For example, Article V, sections 322-31 through 322-35, is the only part of the zoning text that references the LIO. All other aspects of the underlying light industrial (LI) zoning district remain in place unless specified by Article V. The Town of Smithtown should consider referencing the LIO in the section enumerating districts and well as in any other pertinent sections of the zoning text.

Improvements to relevant datasets should also be considered. In order to promote accurate and fact based decision making related to future zoning modifications, both towns should

consider including zoning information as part of a georeferenced dataset. The towns should expand information based on the tax maps provided by Suffolk County Real Property Tax Service Agency. Zoning information in this dataset could include but should not be limited to:

- ▶ Built Floor Area
- ▶ Estimated Built Floor Area Ratio
- ▶ Maximum Achievable Floor Area Ratio
- ▶ Number of Build Floors
- ▶ Maximum achievable height
- ▶ Dimensions for lot width and lot frontage

Notes

1. RPA estimated that approximately 50 parcels within the LIO are split by the 1,000 foot buffer boundary.

2. The table of dimensional regulations for the Town of Smithtown defines FAR as the maximum gross floor area divided by the site area (total lot area) provided that all parking and dimensional requirements are met.

Hauppauge Industrial Park

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