



NEW YORK
STATE OF
OPPORTUNITY™

**Southern Tier
Regional Economic
Development Council**

Today's Meeting

- SIAT Tour Overview
- Staff Report
- Industry Cluster Recommendation
- Proposed URI Initiatives
- URI Next Steps
- Public Comment Period





**Southern Tier
Regional Economic
Development Council**

SIAT Tour Overview



**Southern Tier
Regional Economic
Development Council**

Staff Report



**Southern Tier
Regional Economic
Development Council**

Industry Cluster Recommendation

Round V Charge: Enhanced focus on key clusters

Each REDC will identify one established or emerging manufacturing industry cluster to be prioritized

Process to Develop Cluster Plan

- ❑ Establish Cluster Program working group
- ❑ Research and select priority cluster
- ❑ Support selection by highlighting existing/emerging companies and regional assets and strengths
- ❑ Develop strategies to advance the cluster
- ❑ Identify potential projects for funding
 - Company expansion
 - Equipment acquisition
 - Industry attraction
 - Workforce training



Industry Cluster

“Industry cluster” can mean a variety of things. Councils may identify their priority cluster based on these or other reasonable definitions.

- A set of proximately located firms in similar or related industries that benefit from shared regional assets [especially knowledge, markets, technologies] accessed through networks
- Michael Porter definition (1990; credited with popularizing the term): “Geographic concentrations of interconnected companies and institutions in a particular field,” including:
- Linked industries and other entities, such as suppliers of specialized inputs, machinery services, and specialized infrastructure
- Distribution channels and customers, manufacturers of complementary products, and companies related by skills, technologies, or common inputs



Cluster Analysis

What do we know?

Southern Tier is Manufacturing Centered

Manufacturing Labor Market Stats

Southern Tier regional manufacturers employed over 34,000 individuals in 2014 Q3

Manufacturing industry employs 13.3% of all workers in the ST region. This is above the statewide (5.1%) and national (9.0%) percentages

The ST region has lost 2,058 (5.7%) manufacturing jobs over the last 4 years.

The region's manufacturing industry pays an average annual wage of \$60,862 which is 41% above the average for all industries in the region (\$43,177)

Manufacturing Industry Clusters Experiencing Critical Mass

- Advanced Transportation Products, Components and System Controls
- Food and Beverage

Comparative Impact Factors

“America’s advanced industries are a critical anchor of national prosperity. Business leaders, government, and the civil sector need to work together in new ways to augment their vitality.”

The Brookings Institute, May 2015

- Employment (size, trend, location quotient, etc)
- Wages
- Exports
- Multipliers (employment, sales, earnings)



**Southern Tier
Regional Economic
Development Council**

Clusters of Interest

Southern Tier Region - Scorebook

Factor	Advanced Transportation Products, Components and System Controls	Food and Beverage Manufacturing
Number of Jobs Currently	11,010	4,762
Employment Trend	+197 (1.9%)	+884 (22.8%)
Average Wages	\$73,800	\$42,100
Location Quotient	8.968	2.934
Exports	\$3.9B	\$3.1B
Multiplier - Jobs	2.46	2.33
Multiplier - Sales	1.68	1.70

Advanced Transportation Products, Components and System Controls Cluster



65 + anchor and supply chain companies in all 8 counties

Anchors: Corning Incorporated, Hardinge, Hilliard, CAF Railway Solutions (Spain), Raymond Corporation (Japan [Toyota Industries Corp.]), BAE Systems (Britain), Alstom S.A. (France), Borg Warner, Dresser-Rand, GE, Lockheed Martin, Amphenol Aerospace, Unison Industries, GE Aviation and more

Advanced Transportation Products, Components and System Controls Cluster

Opportunity to:

- Create at least 1,500 – 2,000 high-paying, skilled worker jobs in next 3-5 years
- Increase foreign investment
- Expand export activity
- Develop and infuse emerging technologies in product innovation and commercialization to increase competitive position: Advanced Materials, 3D Printing, Electronics Systems and Packaging, Energy Storage, etc.
- Become a leader in key markets such as high speed rail and autonomous vehicles and unmanned aircraft, which can be applied to the region's agriculture industry as well
- Grow the supply chain, particularly among MWBE businesses



Southern Tier Industry Cluster

Work Group Recommendation:

Advanced Transportation Products, Components and System Controls



**Southern Tier
Regional Economic
Development Council**

URI Proposed Initiatives

Evaluation Criteria

- Innovation: Targeted industry development driven by creative ideas and technology that will contribute to building an advanced economy in the Southern Tier with potential for significant job growth, high wages, and long-term sustainability.
- Connectivity: The initiative and related projects have connections and relationships in sufficient scale and strength to bring about long-term transformational change, particularly in the region's key clusters.
- Investment: Private sector investment (5:1).
- Global: Expansion of global exports, foreign investment and foreign spending.
- Workforce development, with an emphasis on engagement of hard-to-place workers.
- Reinvestment in communities as required to support targeted industry development; and that leverages investment, inspires creativity and innovation, and attracts talent to the region.



Assets and Opportunities

- Abundance of natural resources, particularly and unparalleled access to clean, fresh water to support agriculture, manufacturing and a sustained quality of life
- Location at the crossroads of interstate highways and access to rail provides a valuable distribution system for both agriculture and manufacturing industries.
- Academic powerhouses: Cornell University and Binghamton University
- Deep involvement with private and academic technology research and development (R&D) and STEM (science, technology, engineering, and math) workers
- Rich history of innovation and growing capacity to develop and deploy emerging technologies that will catapult the region's advanced manufacturing and agriculture industries to the highest levels of competitiveness
- Strong agriculture and food processing base that is gaining momentum
- Cornell University's world renowned expertise in agriculture to develop and deploy new technology, including controlled environment agriculture and renewable energy



Assets and Opportunities

- Strong existing base of advanced industries that are a major component of the nation's "tech" sector, ranging from high-speed rail and aerospace, to high-tech materials, to controls and electronics
- Growth of Binghamton University's pharmaceutical, bio-engineering and 3-D printing expertise; combined with strength in manufacturing technology to make the Southern Tier a leader in "advanced industries"
- R&D capacity and commitment to integrate energy technology at all levels of the strategy ranging from housing and commercial space to manufacturing and agriculture
- Commitment to creating healthy communities, understanding they are an integral piece to the vision of an innovation district, as they are the physical places that help to attract and retain the skilled and diverse workforce that is the heart of innovation

Proposed Southern Tier URI Plan Initiatives



Advanced Industries Initiative ...
Nexus of Transportation Products, Components and Control Systems

Greater Binghamton
Innovation Ecosystem Initiative



Southern Tier
Food and Agriculture Initiative

Promoting the Southern Tier's Innovative Culture Initiative ...
A Magnet to Attract Entrepreneurs, Talent, and Investment

Southern Tier Food and Agriculture Initiative





We envision a future where the Southern Tier is a world-recognized leader in new agriculture technology and serves as a key food supplier for the Eastern Coast of the United States.

Why agriculture for the Southern Tier?

The food and agriculture system produces \$5.2 billion in output, 9.5% of regional total

These sectors combined provide 45,000 jobs in the region, 11.5% of the regional total

The regional trend in agriculture has momentum-- between 2009 and 2013 the food manufacturing sector gained 1,000 jobs, a 41% increase

(Schmdit, 2012 and UBRI, 2015)

Our Assets are Strong and Unique



We have 6,600 farms, more than any other region

We are home to the world's #2 College of Agriculture and Life Sciences at Cornell

We have unparalleled access to clean, fresh water

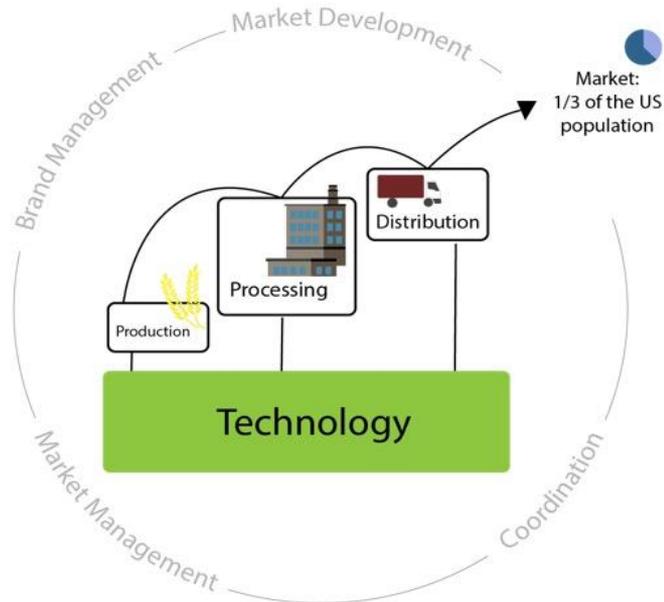
We sit at a crossroads of a distribution network made up of interstate highways and rail

Our market within 500 miles encompasses 1/3 of the U.S. population, or 115 million people



**Southern Tier
Regional Economic
Development Council**

Capitalizing on Assets with Transformational Strategies



1. Increasing access to food **processing** support and facilities
2. Advancing **distribution** via network and market development
3. Developing and deploying **new technology**, including controlled environment agriculture and renewable energy
4. Supporting **production** by increasing profitability and workforce development

Key Activity Examples

Food Processing: Aseptic packaging facility, USDA-certified slaughterhouse (Chenango County), Stonyfield Organic dairy processing facility, Binghamton Food and Beverage Business Incubator

Market and Business Development: The Southern Tier Agriculture and Food Development Cooperative will identify sites and developers, attract and execute private investment contracts, link producers with processing and distribution opportunities, and facilitate collaboration with other regional initiatives (tourism, brand development, manufacturing).

Controlled Environment Agriculture: Center for Excellence in Controlled Environment Agriculture Technology for innovation in greenhouse, high-tunnel, and hydroponics technology (to include solar panels, glass systems, controls)

Private Investment Opportunities

Private company investment in building/operating facilities

Private company job and wage growth

Higher education contributions (Cornell, SUNY Delhi, CCE Binghamton, SUNY Broome, TC3)

Financial institution and bank support (low-interest loans and revolving funds)

Federal funds including USDA, Department of Energy, and Appalachian Regional Commission investment

Advanced Industries Initiative ... Nexus of Transportation Products, Components and System Controls

Advanced Industries: Nexus of Transportation Products, Components and System Controls

Our Vision

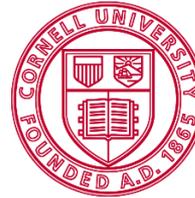
With the Southern Tier region already recognized worldwide for its advanced manufacturing prowess, this large and prominent sector of transportation products, components and system controls has the potential to be one of the most influential economic drivers in creating the region's advanced economy.

The sector is well poised to grow with the combination of market forces, innovative R&D, strategic private sector and academic collaborations, and industry leadership.

All indicators point to stability and growth among the anchor manufacturers and supply chain with a projected creation of at least 1,500 – 2,000 new jobs in the next five years.

CORNING

BINGHAMTON
UNIVERSITY
STATE UNIVERSITY OF NEW YORK



RAYMOND

CAF USA



Amphenol[®]
Aerospace

BorgWarner

UNISON



ALSTOM



Southern Tier
Regional Economic
Development Council

Advanced Industries: Nexus of Transportation Products, Components and System Controls

McKinsey Global Institute identifies 12 “Disruptive Technologies” that will *“transform life, businesses and the global economy”*



Southern Tier excels in 6 of these “Disruptive Technologies” that will be game changers for the region:

- Advanced robotics
- Advanced materials
- Autonomous vehicles and unmanned aircraft
- 3D printing
- Renewable energy
- Energy storage



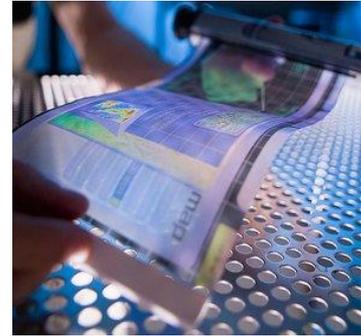
**Southern Tier
Regional Economic
Development Council**

Advanced Industries: Nexus of Transportation Products, Components and System Controls

*The Brookings Institute identifies
35 Advanced Manufacturing Industries for the future*

ST surpasses other regions in 8 industry sectors, all related to transportation equipment manufacturing:

- Aerospace Products and Parts
- Clay Products
- Commercial and Service Industry Machinery
- Computers and Peripheral Equipment
- Engines, Turbines, and Power Transit Equipment
- Navigation, Measurement, and Control Instruments
- General Purpose Machinery
- Transportation Equipment



Advanced Industries: Nexus of Transportation Products, Components and System Controls

Game Changing Investments

What will it take to power the growth and development of this industry sector?

- Commitment to Innovation and Infusion of Technology
- Continuously Recharging the Skills Pipeline and Attracting STEM Workers
- Strengthening the Advanced Manufacturing Ecosystem



Advanced Industries: Nexus of Transportation Products, Components and System Controls

Essential: Commit to Innovation and Infusion of Technology

Innovation will be the key to increasing the Southern Tier's competitive strength.



Ground-breaking research and innovative strategies are being introduced by Binghamton and Cornell Universities. Together with private sector R&D by international leaders, the region's competitive position will escalate with product innovation and commercialization.

Potential infuse of emerging technologies: Advanced Materials, 3D Printing, Electronics Systems and Packaging, Energy Storage, Autonomous vehicles and Unmanned Aircraft.

Sample Activities:

- Center for Technology Infusion and High-Tech Engineering Design to advance technologies
- Rail and powertrain test tracks for testing by companies in the northeast
- Incubator to nurture and grow the supply chain, particularly WMBE businesses



**Southern Tier
Regional Economic
Development Council**

Advanced Industries: Nexus of Transportation Products, Components and System Controls

Essential: Recharge the Skills Pipeline and Attract STEM Workers

- 11,000 workers with an average annual wage of \$73,800, more than double regional average wage
- Project adding 1,500 jobs. Challenge: 25% of workers are 55 yrs +
- More than 50% of workforce possesses an education less than BA, allowing hard-to-place workers an entry
- More qualified workers with different and more technical skillsets are critical to future competitiveness
- Skills prerequisites are changing faster than the region's ability to train needed workers
- Economy is heating up and firms are beginning to expand again. It is important to improve the availability of skilled workers by developing smart, industry-led, sector-specific, and regional skills initiatives.

Sample Activities:

- ✓ Region-wide advanced manufacturing workforce awareness and recruitment program
- ✓ Skills development programs established by community colleges and BOCES in collaboration with the private sector
- ✓ Specialized workforce development programs and facilities at key growth areas such as Raymond Corporation and the Manufacturing Hub for High Speed Rail in Hornell to help facilitate the transfer of technology from Japan and France



Advanced Industries: Nexus of Transportation Products, Components and System Controls

Essential: Enhance the Advanced Manufacturing Ecosystem

- ✓ Growth requires investment in infrastructure, as well as cutting-edge equipment and manufacturing systems.
 - Increase foreign investment and expand export activities
 - Take advantage of national transportation policy shifts toward increased rail technology
 - Compete for major high-speed line projects planned in major metro areas nation-wide

- ✓ Communities supporting the largest concentration of advanced manufacturing companies, skilled workers and supply chain networks require revitalization and enhancements of their urban cores and neighborhoods.

Sample Activities:

- I-86 Corridor Innovation projects such as enhancement of multi modal facilities to assist with product distribution and supply chain growth, and community revitalization projects in Corning, Elmira and Hornell (concentration in high distress and brownfield areas including infill development for mixed use projects, waterfronts and recreational trails, repurposing existing buildings, streetscape improvements)
- Expansion of inventory control and manufacturing systems of supply chain businesses
- Infrastructure for creation of a Manufacturing Hub for High Speed Rail Development in Hornell



Promoting the Southern Tier's Innovative Culture ...

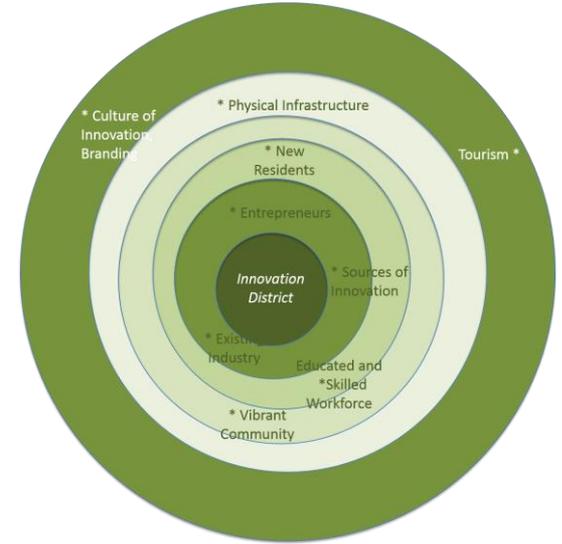
*A Magnet to Attract Entrepreneurs,
Talent, and Investment*

Promoting the Southern Tier's Innovative Culture

Overall Goal: To make the Southern Tier a well-recognized and highly desirable place to visit, live, and grow a business

Objectives

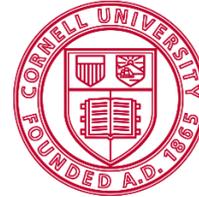
- Strengthen the tourism infrastructure and position it as a key economic development enabler
- Promote the region's increasingly vibrant communities and quality of life
- Promote the region's rich capacity for innovation, particularly its academic institutions and surrounding ecosystems
- Increase the "stay rate" of graduates of the higher education institutions
- Recruit talent and develop a critical mass of entrepreneurs
- Ignite fierce community pride that compels residents to be regional ambassadors



Promoting the Southern Tier's Innovative Culture

How?

1. Leverage the region's world-class academic institutions
2. Improve the tourist experience by leveraging and strengthening the assets of the region as attractions
3. Promote Southern Tier's innovative culture and quality of life to key target groups such as:
 - College and university students transitioning from student residency to permanent residency
 - Natives who left the area and are interested in returning
 - Millennials seeking quality of life available in the Southern Tier
4. Supporting the infrastructure for starting and growing new businesses – places (incubator spaces), services (incubation mentoring, workshops, advice), and resources (seed capital fund)
5. Identifying and promoting Southern Tier's global connections through time and trade



Promoting the Southern Tier's Innovative Culture

Game Changing Investments

1. *Brand and Promote the Southern Tier's Innovation Culture ... Visit, Love It, Live It*

Sample Activity: Undertake development of a regional brand with a focus on target markets including local residents, tourists, international travelers, young professionals and entrepreneurs.

2. *Strengthen Tourism Infrastructure*

Sample Activities:

- Incentivize (grants and low interest loan fund) entrepreneurs investing in tourism venues
- Enhance and promote both our “college” communities and local Main Streets
- Upgrade tourism destinations such as performing arts; wineries, breweries and distilleries; agri-tourism; museums; sports facilities; hiking/biking trails; major waterfront development projects
- Expand transportation and fueling options ; i.e., zip cars, bicycle rentals, PEVs and Hydrogen, etc.



**Southern Tier
Regional Economic
Development Council**

Promoting the Southern Tier's Innovative Culture

3. *Promote Southern Tier's Innovation Culture and Quality of Life to Talent and Entrepreneurs*

Sample activities:

- Develop and implement a Talent Attraction and Retention Campaign
- Increase financial resources in support of entrepreneurship
- Develop and promote entrepreneurial communities that catalyze connections between entrepreneurs
- Create community development and homesteading program for young talent (focus on distressed communities)

4. *Identify and Promote Southern Tier's Global Connections Through Time & Trade*

Sample activities:

- Develop and implement a program to promote the existing ST globally-relevant assets to high-value add visitors
- Create infrastructure and programming to stimulate new foreign direct investment in businesses that appeal to the foreign traveler



**Southern Tier
Regional Economic
Development Council**

Promoting the Southern Tier's Innovative Culture



Opportunities for Private Investment

- Enhanced tourism destinations and waterfront development
- Main Street revitalization
- Entrepreneurial endeavors focused on tourism attractions and interactive activities
- Foreign investment
- Tourism spending, with focus on international traveler

Greater Binghamton Innovation Ecosystem Initiative



Our Situation

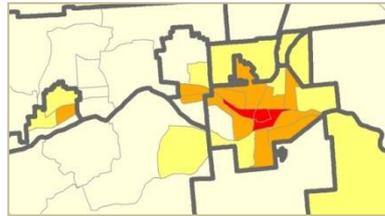
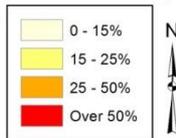
- vacant industrial space
- deteriorated housing stock
- abandoned brownfields
- population down 41%
- median age up 25%
- 28% poverty rates 2x NY average
- Unemployment – particularly among hard-to-place workers

Our Assets

- largest metropolitan area and workforce
- growing, premier university with science & engineering focus
- Anchor industries in transportation, defense, aerospace, and healthcare industries
- capacity for innovation - area in top 10 for creativity, top 15 for high-tech

Individuals Below Poverty

By Census Tract



Our Challenge

- reverse urban outmigration
- create vibrant centers
- smart growth
- attract brightest and most talented workers



Why the Greater Binghamton Innovation Ecosystem?

Our Strategy ... to create an *innovation ecosystem* that leverages:

- ✓ Commitment and collaboration
- ✓ University investments
- ✓ University and private sector partnerships
- ✓ Capitalize on the explosive job growth in emerging technologies; i.e., 3D printing, pharmaceuticals, autonomous vehicles
- ✓ Public Transportation System
- ✓ Large Workforce
- ✓ Smart Growth Principles
- ✓ Historic and Cultural Assets
- ✓ Geographic location as primary gateway into the Southern Tier Region

Transformative Outcomes

- ✓ Create 1,200 – 1,000 jobs
- ✓ Leverage projected \$1B in university, NYS and private sector investment in next 5 yrs
- ✓ Reverse outmigration and attract talent
- ✓ Rebuilt and attractive urban cores
- ✓ Become national leader in integrative approach to reversal of chronic conditions and regeneration
- ✓ Establish a cultural hub for the region
- ✓ Advance Southern Tier's Opportunity Agenda

Greater Binghamton Innovation Ecosystem



**Johnson City Health & Cultural
iDistrict**
Driver: Health Sciences &
Technology Innovation Park



**Binghamton Commerce Core
iDistrict**
Driver: High Technology Incubator

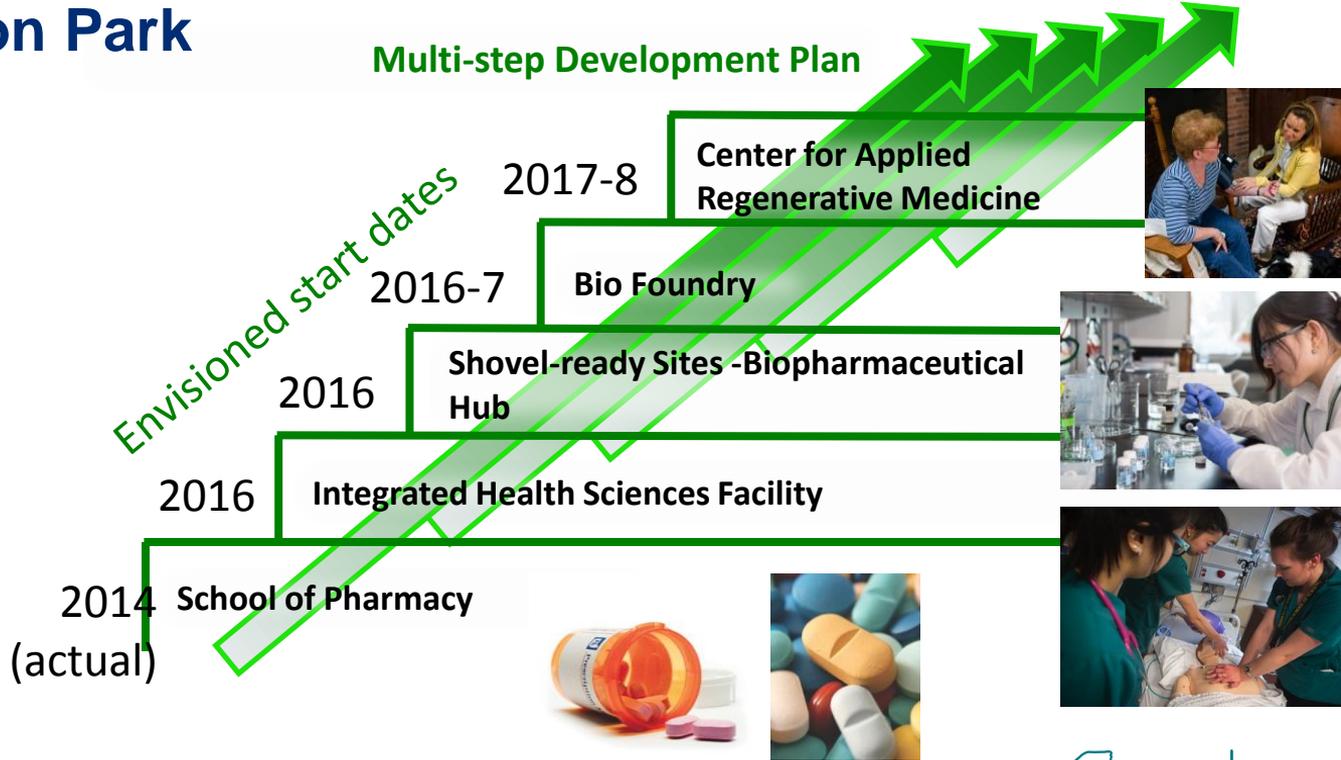


Endicott iDistrict
Driver: Advanced
Manufacturing Hub

Johnson City iDistrict: Health Sciences & Technology Innovation Park and Cultural District



Johnson City Health Sciences & Technology Innovation Park



Johnson City Health & Cultural iDistrict

96 Corliss Avenue

Integrated Health Sciences Facility: 2015
56,000 gsf building - 2019
\$53M economic impact by 2022-23
\$26M in leveraged funding
\$109M in linked funding

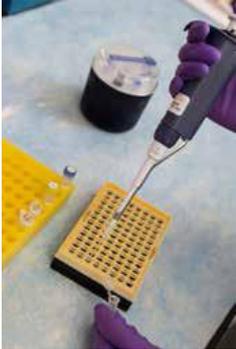
48 Corliss Avenue, 59 Lester Avenue and other sites as they become available (TBA)

2016: Biopharmaceutical Hub
2018: Center for Regenerative Medicine
2019: Binghamton BioFoundry

Restoration and Expansion of Cultural Facilities – Goodwill Theatre

New Housing Development

Revitalization of historic housing stock and Main Street



Endicott iDistrict ... Advanced Manufacturing Hub

- Revitalize Endicott's urban core – target areas with high concentration of blight and poverty
- Capitalize on emerging manufacturing trends to draw startup and established companies
 - Labs, offices, manufacturing space, electric supply, wastewater treatment in place in re-purposed, renovated Huron campus space
- Expand / Create multi-user shared facilities for industry technical assistance and product commercialization
 - CAMM for roll-to-roll printing of flexible electronics
 - Endicott Product Innovation Center (EPIC) for 3D Printing
 - Microgrid system integration / alternative energy
 - Hybrid Powertrain test center

flexible electronics on glass:
wearable electronics, large area
displays, solar cells



Endicott Advanced Manufacturing Center

revitalized manufacturing core • repurposed Huron campus • multi-user facilities

- Regional hub
- Thought leadership
- Manufacturing practice
- Product development
- Prototyping
- Production
- Testing
- Workforce training



STARTUPNY designation potential



Southern Tier
Regional Economic
Development Council

Endicott iDistrict ... Manufacturing Hub

Sample Projects

“Smart Housing” Re-development

Main Street Revitalization

Huron Campus, Building 258

• **Advanced Manufacturing Center**

– 10,000 sf CAMM; 10,000 sf EPIC 3D printing center; 20,000 sf Industry Lab/Office

• **2015:** 10-year facility lease, space renovations , operations start-up, Phase 1 equipment

• **2016:** Phase II equipment acquisition, operations & training

• **2017-19:** Final equipment fit-out, operations & training

Huron Campus, location TBD

• **Microgrid Pilot Project** – 2016 CFA with URI Intent

• **Hybrid Powertrain Test Facility** – 2017-18 CFA with URI Intent



3D printed product design with virtual reality visualization, prototyping, and testing



Binghamton iDistrict ... the Commerce Core

“an exciting place to be”

- Create an innovation economy in downtown Binghamton
- Strengthen the City’s role as a business, financial, legal, entrepreneurial and educational epicenter

Sample Projects

- **Populate Southern Tier Technology Incubator**

- Small scale manufacturing space
- Specialized laboratories for testing and prototyping



- **Extended entrepreneurial and business services and resources**

- Connect tenants to research and educational programming at Binghamton University and SUNY Broome
- Seed and venture funding

- **Revitalization Urban Core**

- Collier Street Commons mixed use development project
- Waterfront redevelopment
- Route 434 Connector



**Southern Tier
Regional Economic
Development Council**

URI Next Steps

Public Engagement

Complete or Ongoing:

- ✓ Website: Public information session dates, recorded WebEx sessions, Work Group meeting dates, Work Group PPT's, data analyses, posting of preliminary initiatives and projects for public review and comment
- ✓ Community meetings
- ✓ WebEx Sessions (live and recorded): Municipal leaders, general public
- ✓ Media Coverage: Print, TV/Radio, Social Media (Facebook)
- ✓ Work Group Meetings

Next Step:

- On-line survey to rate URI strategic priorities and receive input





**Regional Economic
Development Councils**

Public Comment