



**CH2MHILL®**

**IDC ARCHITECTS**

# Technology-Based Economic Development Master Planning

Overview & Case Studies

9 Oct12



# Solutions Track Session Overview

## TBED Master Planning

### Who are we?

- **Roger Pearson**, Director of Planning, IDC Architects/CH2M HILL, Pittsburgh, PA
- **Jon (Jack) Kelley**, Director of Economic Development, Prime Companies, Albany, NY (Formerly Senior VP Saratoga Economic Development Corp)

### Why are we here?

- To share tech-based economic development ideas, case studies & success stories.

### What will we accomplish?

- Review economic development criteria & methodologies for attracting technology companies to local communities.

### What can you glean from listening to us?

- Ideas for tech-based economic development in your community.

# Representative Economic Development & Technology Clients

## TBED Master Planning

### ECONOMIC DEVELOPMENT ORGANIZATIONS

- Allegheny Conference on Community Development, PA
- City of Hillsboro, OR
- CODEMIG/INDI, Brazil
- Dubai Airport Free Zone Authority, UAE
- Empire State Development Corporation, NY
- Genesee Gateway Local Development Corporation, NY
- Hudson Valley Economic Development Corporation, NY
- Kakinada SEZ, India
- Kunming Digital Forest, China
- MODON Saudi Industrial Property Authority, Saudi Arabia
- Newfoundland-Labrador Department of Business, Canada

### TECHNOLOGY COMPANIES

- Applied Materials
- Bayer Corporation
- Carrier Corporation
- Chi Mei Optoelectronics Corporation
- Chunghwa Picture Tubes, Ltd
- Confidential Semiconductor Manufacturing Client
- GlaxoSmithKline
- Huawei Technologies Company, Ltd
- IBM Corporation
- Micron Technology, Inc
- Motorola
- Pacific Solar, Pty Ltd
- Samsung
- Taiwan Semiconductor Manufacturing Corporation
- Vestas Wind Technologies

# Agenda

## TBED Master Planning

### **Presentation**

**50 minutes**

- TBED Value Proposition
- Planning Roadmap
- Case Studies

### **Q&A**

**10 minutes**

# Value Proposition

Technology-Based Economic Development Master Planning

# Technology Sector Profile

## TBED Master Planning

- Sector includes telecommunications, IT services, semiconductor manufacturing, software, internet services, biotechnology, and scientific research, including aerospace research.
- Since the global recession began in 2008, the technology sector has been a notable bright spot in an otherwise bleak economic landscape.
  - Global technology exports total nearly **\$2 trillion annually**, according to the World Bank.
  - Global IT spending was expected to grow **7.1 percent in 2011** and **8.7 percent in 2012**, according to Forrester Research.
  - Jobs in the high technology sector have grown nearly **four times faster** than the overall economy during the 18 months preceding Fall 2011, according to Jones Lang LaSalle.
- The tech industry is capital-intensive: Average annual revenue per worker is more than \$300,000.
- The profitability of individual tech companies is driven by their ability to develop and market new products.

Source: First Research Technology Sector Industry Profile, 6 Feb 12

# Value Proposition

## TBED Master Planning

- Constantly evolving products and markets require technology companies to regularly review how and where they manufacture goods. As a consequence, companies are constantly looking for sites for new facilities.
- Technology company site selectors utilize a fairly standard list of site selection criteria, including:
  - Financial incentives
  - Infrastructure & utilities
  - Workforce availability
  - Site development capacity
  - Site cost
  - Environmental regulatory issues
  - Zoning & building permits
  - Permit & system development fees
  - Miscellaneous

# Value Proposition

## TBED Master Planning

- By addressing regional/local strengths and weaknesses specifically related to tech company site selection criteria, a community can proactively position to attract technology sector enterprises.
- Tech-Based Economic Development Master Planning is a methodology to:
  - Understand and address community strengths and weaknesses related to tech company site selection criteria.
  - Determine if tech development is feasible for a community.
  - Identify community-specific tech sector market targets.
  - Identify community-specific sites for technology sector development.
  - Develop a community-specific implementation strategy for tech sector attraction.



# Planning Roadmap

Technology-Based Economic Development Master Planning

# Planning Roadmap: A 6-Step Process

TBED Master Planning



PLANNING ROAD MAP

# Case Studies

Technology-Based Economic Development Master Planning

# Case Studies

## TBED Master Planning

- **CS-1:** High Technology Cluster Analysis & Site Evaluation
  - Regional site evaluation driven by tech industry trends
- **CS-2:** Science & Technology Advanced Manufacturing Park
  - Developing a greenfield technology park
- **CS-3:** Carrier Site Reuse Plan
  - Re-purposing an aging, underutilized general manufacturing site
- **CS-4:** Luther Forest Technology Campus
  - An economic development “home run”

# **CS-1: High Technology Cluster Analysis & Site Evaluation**

Hudson Valley Region, New York – 2008

## **PROJECT SUMMARY**

- **Sponsoring Entity**
  - Hudson Valley Economic Development Corporation
- **Project Area**
  - 9 Counties in Hudson Valley between Albany & NYC
  - 3,886,720 Acres / 15,729 km<sup>2</sup> Site Area
- **Project Purpose**
  - Economic revitalization thru identification of an optimum site for a greenfield technology manufacturing campus
- **Project Approach**
  - Conduct technology industry trends & site requirements analysis
  - Analyze & evaluate 9 “Candidate Sites” nominated by the Counties
  - Develop “shortlist” and conduct further analysis
  - Recommend a site
- **Outcomes**
  - Clear identification of Winston Farm site in Ulster County as best suited to tech development
  - Development of tech-based master plan for Winston Farm
  - WF Consensus-building with Saugerties community
  - WF Master plan basis for strategies to fund GEIS
  - Funding for SEQR environmental permitting being sought



**PROJECT AREA**

# **CS-1: High Technology Cluster Analysis & Site Evaluation**

Hudson Valley Region, New York – 2008

## **INDUSTRY TRENDS SUMMARY**

### **Semiconductor**

- \$275B industry – Projected near-term annual growth at 6-10%.
- Largely mature industry with steady growth potential.

### **Flat Panel Display**

- \$73B industry – Projected near-term annual growth at 10-20%.
- Steadily growing industry.

### **MEMS / Nanotechnology**

- Pure nano is \$9.4B industry – Projected to grow to \$25B by 2011.
- Nano-enabled products market projected to be \$2.9 trillion by 2014.

### **Pharma / Biotechnology**

- \$700B industry – Projected near-term annual growth at 5-7%.
- Slowing growth in US – Robust growth in developing countries.

### **Medical Devices / Imaging**

- \$175B industry – Projected near-term annual growth at 8-10%.
- Steadily growing industry.

### **Photovoltaic**

- Solar PV manufacturing has expanded rapidly in Europe and Japan with the US expansion tied to price convergence (price of solar PV kWh and price of kWh on the grid become equal).
- Industry in temporary slump.

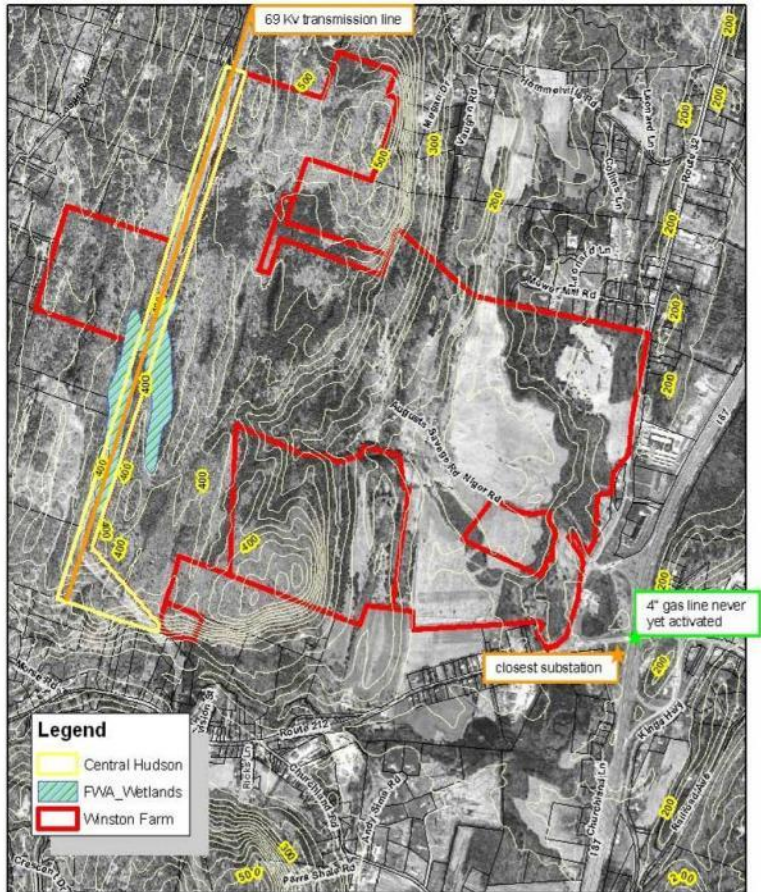
### **Data Centers**

- \$20B industry – Projected near-term annual growth at 6%.
- Steadily growing industry driven by internet / IT commerce.

# CS-1: High Technology Cluster Analysis & Site Evaluation

Hudson Valley Region, New York – 2008

## CANDIDATE SITE – WINSTON FARM



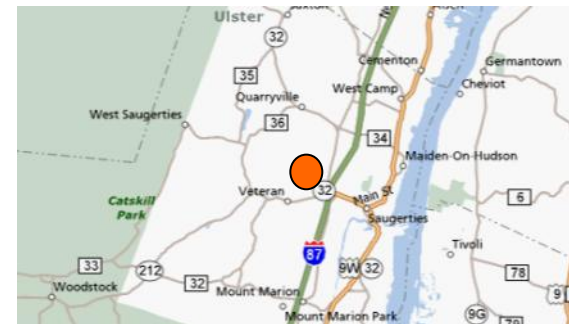
EXISTING CONDITIONS SITE PLAN– 741 Acres



EXISTING SITE CHARACTER



EXISTING SITE ENTRANCE



SITE VICINITY

# **CS-1: High Technology Cluster Analysis & Site Evaluation**

Hudson Valley Region, New York – 2008

## **SITE EVALUATION CRITERIA**

<b>Criteria</b>	<b>Weighting</b>
▪ Financial Incentives	10
▪ Site Taxes	9
▪ Income & Sales Taxes	8
▪ Infrastructure & Utilities	7
▪ Workforce	6
▪ Site Cost	5
▪ Site Characteristics & Conditions	4
▪ Environmental Regulations	4
▪ Land Use & Zoning	4
▪ Permit & System Development Fees	4



# CS-1: High Technology Cluster Analysis & Site Evaluation

Hudson Valley Region, New York – 2008

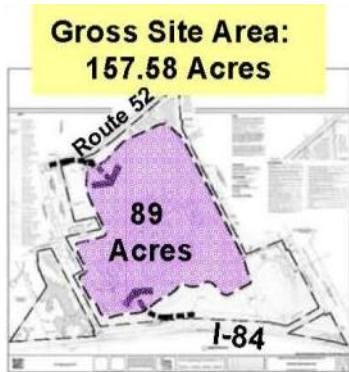
## SITE EVALUATION SUMMARY

	1	2	3	4	5	6	7	8	9
	Dutchess County	Greene County	Orange County	Putnam County	Rockland County	Sullivan County	Ulster County	Columbia County	Westchester County
Semiconductor	4.15	2.92	2.77	2.08	1.92	2.08	3.38	2.92	2.77
Flat Panel Display	4.04	3.07	2.78	2.04	1.96	2.11	3.52	2.93	2.78
MEMS/Nanotechnology	4.38	3.69	3.31	2.38	2.15	2.23	3.77	3.38	2.92
Pharma/Biotechnology	3.85	3.08	3.54	2.31	2.54	2.15	3.92	3.15	3.62
Medical Devices/Imaging	4.35	3.81	3.88	3.19	3.19	3.19	4.19	3.50	3.73
Photovoltaic	4.26	3.37	3.15	2.04	2.04	2.11	3.96	3.30	2.78
Data Centers	4.08	3.15	3.15	2.62	2.46	2.38	3.69	3.38	3.08

# CS-1: High Technology Cluster Analysis & Site Evaluation

Hudson Valley Region, New York – 2008

## SHORTLISTED SITES

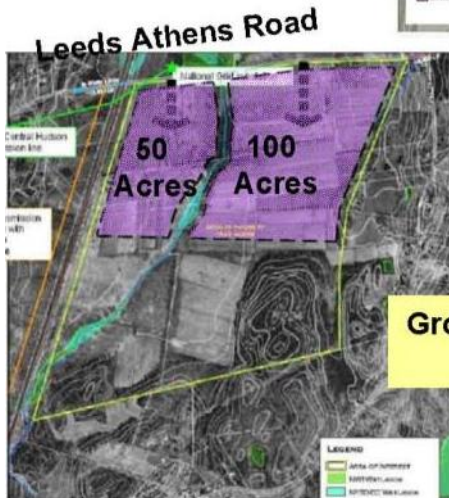


HVTC



Tech City

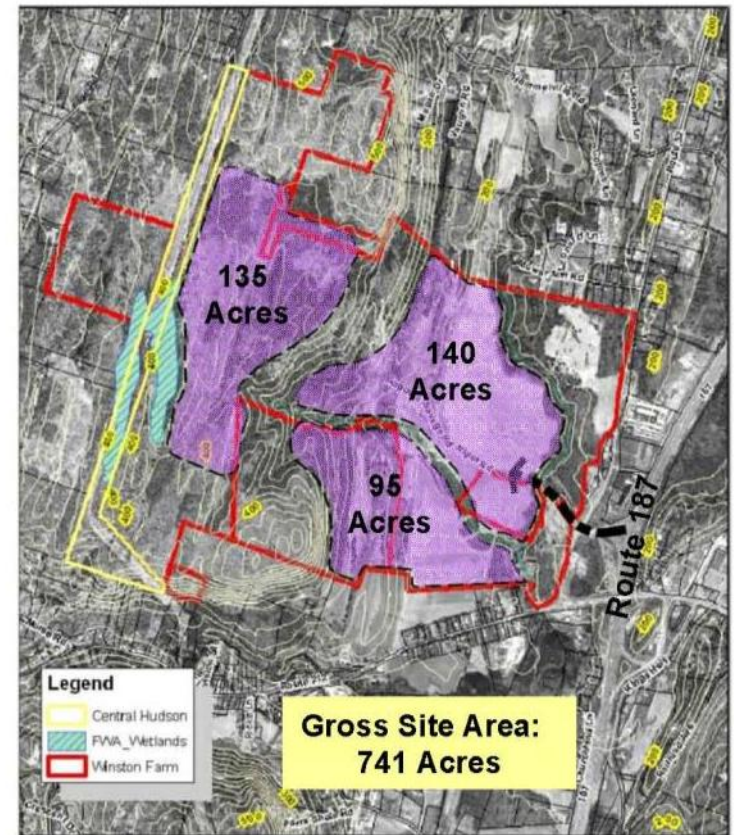
**Gross Site Area:  
257 Acres**



**Gross Site Area:  
349 Acres**

Athens Site

Preliminary Buildable Area



**Gross Site Area:  
741 Acres**

Winston Farm

# CS-1: High Technology Cluster Analysis & Site Evaluation

Hudson Valley Region, New York – 2008

## KEY SITE REQUIREMENTS

	Buildable Site Area Acres	Building Area SF	Water GPD	Sewer GPD	Power Watt-Hour Peak	Gas Therms/Yr
Semiconductor Range	200-250	1-2.5M	4-8M	3-7M	50-100M	3.6-7.2M
Flat Panel Display Range	200-250	1-3M	4-8M	3-7M	50-100M	3.6-7.2M
MEMS/Nano Range	20-100	0.2-0.8M	0.5-1M	0.4-1M	15-40M	1-3M
Pharma/Biotech Range	20-150	0.2-1.5M	0.01-0.5M	0.01-0.5M	10-50M	3.6-26M
Med Devices/Imaging Rang	10-40	0.2-0.7M	Municipal	Municipal	Municipal	Municipal
Photovoltaic Range	80-200	1-4M	0.5-2.3M	0.4-1.7M	51-208M	3.6-14.4M
Data Center Range	20-100	0.4-2M	300,000	14,000	100-500M	Minimal
<b>HVEDC Recommended</b>	<b>50-150</b>	<b>0.5-1.5M</b>	<b>0.5M</b>	<b>0.4M</b>	<b>51M</b>	<b>3.6M</b>

### Note

- HVEDC Recommended ranges will reasonably accommodate the following high-tech facility types: MEMS/Nano, Pharma/Bio, Medical Devices/Imaging and small Photovoltaic Manufacturing.

# CS-1: High Technology Cluster Analysis & Site Evaluation

Hudson Valley Region, New York – 2008

## DEVELOPMENT COST PER BUILDABLE ACRE

Site	Onsite Demolition	Offsite Roads	Offsite Water	Offsite Sewer	Offsite Power	Offsite Gas	Total Greenfield Cost	Gross Site Area Acres	Buildable Site Area Acres	Greenfield Cost per Buildable Acre
HVTC	\$15,000,000	\$0	\$0	\$8,000,000	\$5,500,000	\$325,000	\$28,825,000	157.58	89	\$323,876
Athens Site	\$0	\$1,700,000	\$0	\$8,500,000	\$10,000,000	\$405,000	\$20,605,000	349.00	150	\$137,367
Tech City	\$25,800,000	\$0	\$0	\$0	\$9,000,000	\$405,000	\$35,205,000	257.00	56	\$628,661
Winston Farm	\$0	\$0	\$0	\$0	\$6,000,000	\$1,275,000	\$7,275,000	741.00	370	\$19,662

**Conclusion: The Winston Farm site clearly provides the lowest cost per buildable acre to bring one of the Shortlisted Sites to greenfield, shovel-ready status.**

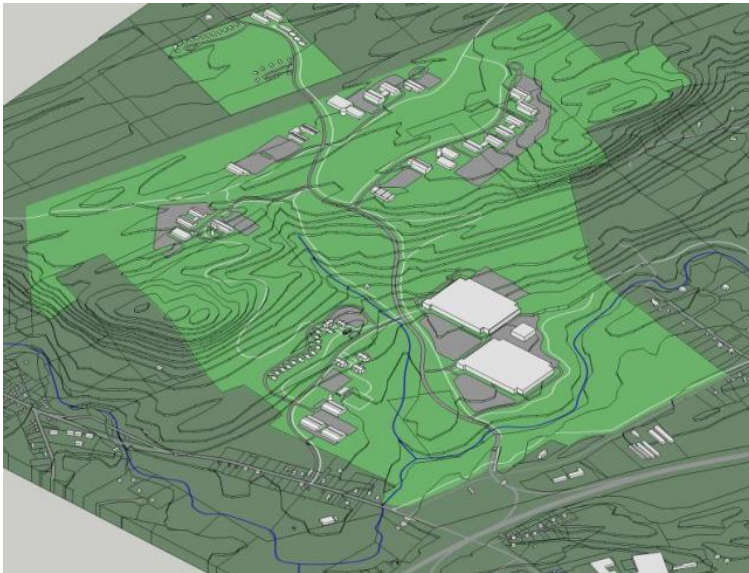
# **CS-1: High Technology Cluster Analysis & Site Evaluation**

Hudson Valley Region, New York – 2008

## **RECOMMENDED SITE – WINSTON FARM**

### **Winston Farm Recommendation Summary**

- **Winston Farm offers the flexibility of a large site in an environmentally attractive setting with good access and nearby utilities that can be cost-effectively provided to the site.**
- **The Saugerties community has opposed certain past development proposals at Winston Farm, notably a landfill proposal and a large casino resort proposal. There is evidence that a quality high-tech development proposal would be supported in the community, though this should be verified.**
- **Of 741 total acres, this analysis assumes that roughly half of the total acreage, or 370 acres, are buildable.**
- **Appx 235 buildable acres are located in the “lower” site adjacent to the primary site access, while appx 135 acres are located on the “upper” site.**
- **Of the target industries included in this analysis, Winston Farm could accommodate MEMS/Nano facilities, Pharma/Biotech facilities, Medical Devices/Imaging facilities and a small to medium size Photovoltaic Manufacturing facility.**



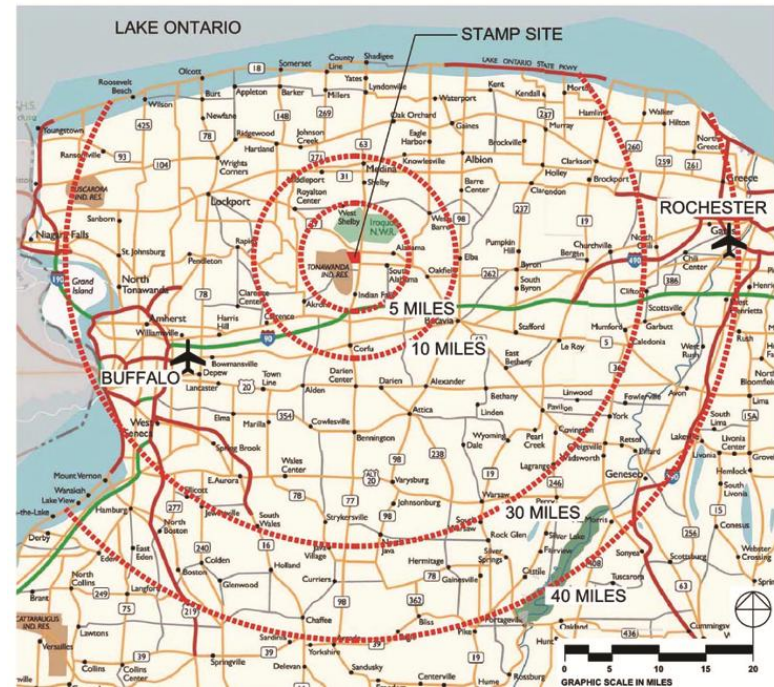
**WF TECHNOLOGY PARK MASTER PLAN**

# **CS-2: Science & Technology Advanced Manufacturing Park**

Genesee County, New York – 2006 to 2012

## **PROJECT SUMMARY**

- **Sponsoring Entity**
  - Genesee County Economic Development Center
- **Subject Site**
  - 1,243 Acres / 5 km<sup>2</sup> Site Area
- **Project Purpose**
  - Economic revitalization thru development of a greenfield technology manufacturing campus
- **Project Approach**
  - Prepare feasibility study & tech industry trends analysis
  - Conduct significant public outreach
  - Develop master plan & environmental impact statement
  - Develop business plan & economic impacts analysis
  - Prepare marketing plan
- **Outcomes**
  - STAMP has become a top-priority technology site for NYS
  - Significant NYS and NGRID funding commitments
  - Growing interest from technology manufacturing companies



**SITE LOCATION**

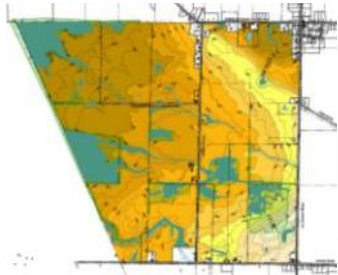


**EXISTING SITE CONDITIONS**

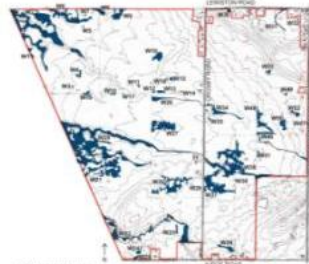
# CS-2: Science & Technology Advanced Manufacturing Park

Genesee County, New York – 2006 to 2012

## PROJECT SNAPSHOT



**SITE ANALYSIS**



**WETLANDS**



**BUILDABLE AREA**



**MASTER PLAN**



**MASTER PLAN**

Calculation of Return on Investment to New York State				
	Year 5	Year 10	Year 15	Total for 15 year period
Revenue from STAMP that goes to NYS:				
NYS income taxes on wages paid to park employees	\$ 12,909,998	\$ 56,826,925	\$ 77,881,321	\$ 147,618,243
Sales taxes paid to NYS from retail operations at park (4%)	-	5,670,000	15,120,000	20,790,000
NYS income taxes on wages paid to construction workers	4,926,253	13,400,982	16,696,397	35,023,631
Sales taxes paid to NYS on construction (would be abated)	-	-	-	-
<b>Total - Revenues to NYS</b>	<b>\$ 17,836,250</b>	<b>\$185,595,624</b>		<b>\$ 203,431,875</b>

### RETURN ON PUBLIC INVESTMENT

# CS-3: Carrier Site Reuse Plan

Syracuse, New York – 2006 to 2007

## PROJECT SUMMARY

- **Sponsoring Entities**
  - Central New York Regional Planning & Development Board and Carrier Corporation
- **Subject Site**
  - 240 Acres / 1 km<sup>2</sup> Site Area
  - 3 Million GSF Existing Building Floor Area
- **Project Purpose**
  - Economic revitalization thru re-purposing an aging, underutilized existing manufacturing campus
- **Project Approach**
  - Conduct market analysis
  - Evaluate existing site & building conditions
  - Develop reuse master plan
  - Prepare business & implementation plan
- **Outcomes**
  - Reuse Plan used as baseline for Carrier planning decisions
  - Consolidated site continues as one of several Carrier Global R&D Centers
  - Carrier has implemented capital improvements to position for change, including demolition of 4 buildings, construction of a parking lot and employee wellness trails



**EXISTING SITE CONDITIONS**



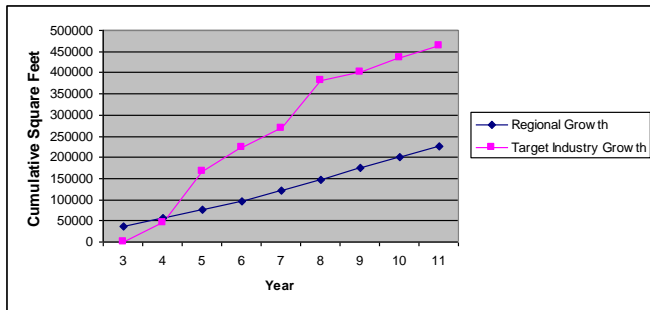
**SITE ANALYSIS**



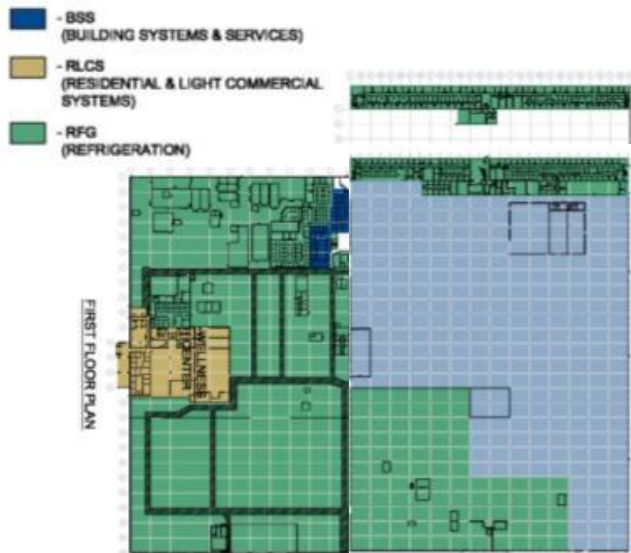
# CS-3: Carrier Site Reuse Plan

Syracuse, New York – 2006 to 2007

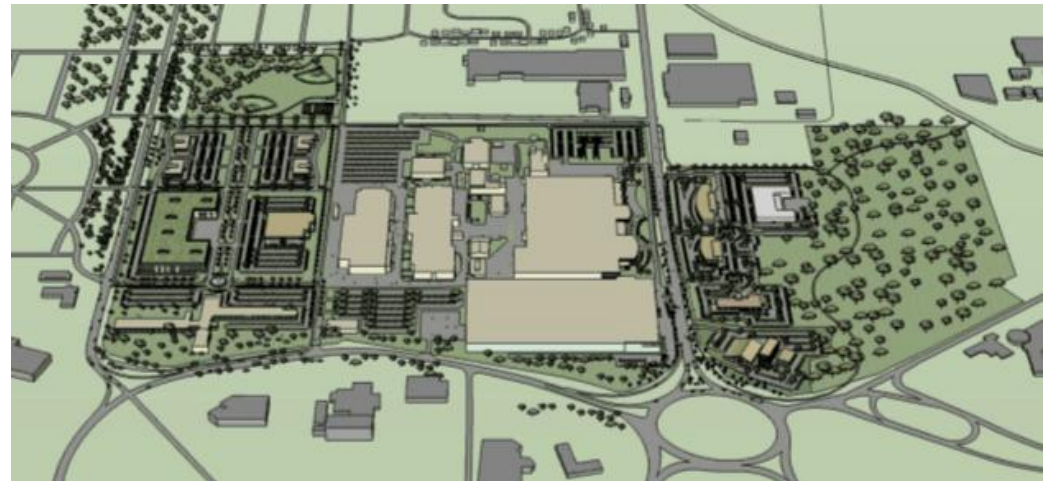
## PROJECT SNAPSHOT



**MARKET ANALYSIS**



**BUILDING ASSESSMENT**



**REUSE MASTER PLAN**

	Scenario 1	Scenario 2
	Upfront Payment	Phased Payments
Economic Development Value/Finance Proceeds	\$284.6 Million	\$284.6 Million
Residual Land Value	\$68.1 Million	\$68.1 Million
Client Land Sale Proceeds	\$26.3 Million	\$59.9 Million
Client Net Revenue	\$5.7 Million	\$27.5 Million
Present Value of Client Net Revenue	\$3.5 Million	\$15.6 Million

**FINANCIAL SCENARIOS**

# CS-4: Luther Forest Technology Campus

Saratoga County (Towns of Malta & Stillwater), NY – 1998 to 2009

## PROJECT SUMMARY

### ■ Sponsoring Entity

- Saratoga County Economic Development Corporation (SEDC)

### ■ Subject Site

- 1,350 Acres / 5.5 km<sup>2</sup> Site Area

### ■ Project Purpose

- Regional economic revitalization thru development of a world-class technology manufacturing campus

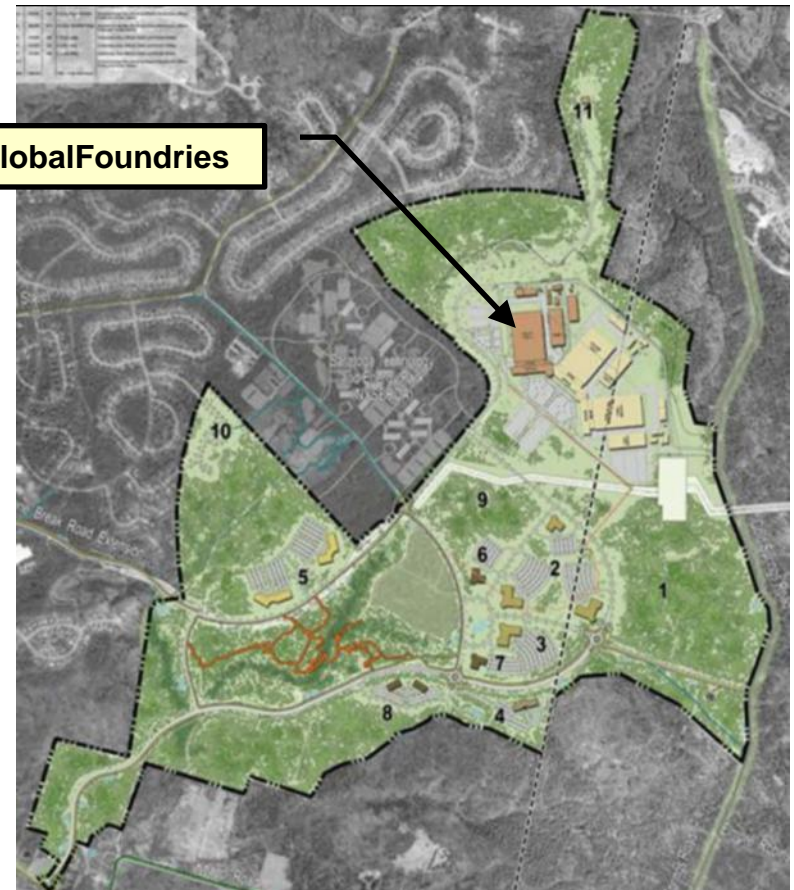
### ■ Project Approach

- 1998: Chip Fab 98 site evaluation identified deficiencies of LFTC site
- 1998 – 2007: SEDC proactively addressed site deficiencies and implemented an aggressive marketing campaign
- 2007: AMD / GlobalFoundries selected LFTC as the site of a major new technology fabrication campus
- 2009: AMD / GlobalFoundries broke ground on a \$3.2B computer chip manufacturing facility

### ■ Outcomes

- At the end of 2011, AMD / GlobalFoundries employed 1,000 persons at LFTC and was installing semiconductor tools and equipment expected to employ an additional 500 persons by the end of 2012

AMD / GlobalFoundries



LFTC MASTER PLAN

# **CS-4: Luther Forest Technology Campus**

Saratoga County (Towns of Malta & Stillwater), NY – 1998 to 2009

## **SEDC TRACK RECORD**



1981

Ball Metal Container Group



1984

Quad/Graphics

- World's Largest Printer of Weekly News & Catalogues
- Rated One of the Top 100 Companies to Work for in America



1987 – State Farm Insurance

Northeast Regional Headquarters

1996 – Target Distribution Center



# CS-4: Luther Forest Technology Campus

Saratoga County (Towns of Malta & Stillwater), NY – 1998 to 2009

## 2007 AMD / GLOBALFOUNDRIES

ALBANY

### Tech Valley vision pays off big

Chip maker AMD hopes rivals will also build plants in region

BY MICHAEL MULLANEY  
*Gazette Reporter*

Throughout all the hubbub surrounding Advanced Micro Devices' decision to build a \$3.2 billion computer chip manufacturing plant in Saratoga County, one group has been noticeably silent — the dissenters who for years have questioned if "Tech Valley" was real or merely a marketing ploy.

While AMD Chief Executive Officer Hector Ruiz didn't use the exact term on Friday, he did make it clear that Saratoga County's Luther Forest Technology Park was superior to other locations the company considered in Germany and Asia. He praised state and regional officials for putting the most "well-crafted" economic development package he could recall seeing.

"You have collected tremendous possible sites for future selections," he said, addressing the crowd of lawmakers, researchers, students and media gathered at the University at Albany's College of Nanoscale Science and Engineering. Ruiz also said that competition breeds innovation, and he wouldn't mind having an industry rival as a neighbor in Luther forest.

So not only is AMD coming to

'This is the pinnacle, this is the home run of economic development.'

KELLY LOVELL  
*Center for Economic Growth*

the Empire State in full force, it hopes others will follow.

Politicians and regional economic development officials were all smiles Friday, savoring and celebrating the biggest private investment ever in New York state. For years they have been campaigning to secure a computer chip manufacturing plant — or chip fab — in the Capital Region.

They consolidated these marketing efforts in the late 1990s under the umbrella of "Tech Valley." It took a few years but the name eventually stuck. Now they have a chip fab to go along with it.

"This is the pinnacle, this is the home run of economic development," Kelly Lovell, president of the Albany-based Center for Eco-

See **VALLEY**, page A4



PETER R. BARBER/GAZETTE PHOTOGRAPHER

Twelve-year-old Jennifer Kelley, of Corinth, listens at the news conference at the University at Albany on Friday. Behind her at right is her father, Jack Kelley, of the Saratoga County Economic Development Corp.

# CS-4: Luther Forest Technology Campus

Saratoga County (Towns of Malta & Stillwater), NY – 1998 to 2009

## IMPLEMENTATION



WETLANDS DELINEATION



GREEN SPACE & BUFFERS



VIBRATION, EMI & RF

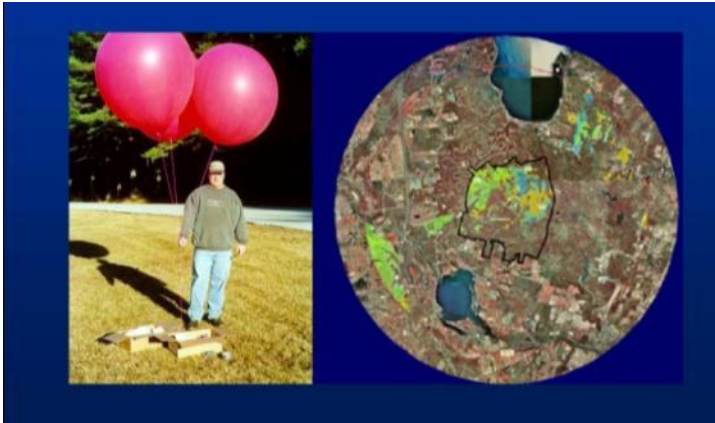


NOISE IMPACT STUDIES

# CS-4: Luther Forest Technology Campus

Saratoga County (Towns of Malta & Stillwater), NY – 1998 to 2009

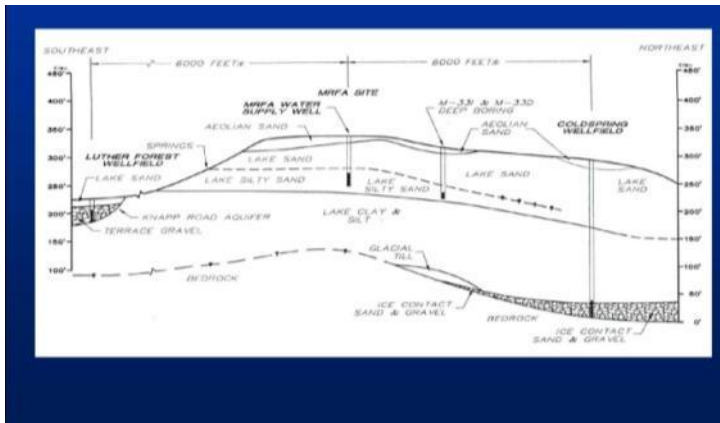
## IMPLEMENTATION



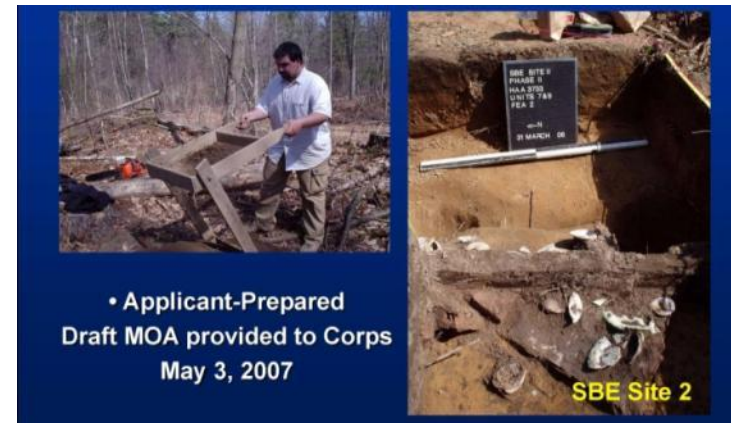
VISUAL IMPACT STUDIES

- Groundwater at 15-25 feet
  - Dynamic Site Response for MCE
  - Soil Liquefaction Assessment
- = Conventional Spread Footings

GEOTECHNICAL



SITE HYDROGEOLOGY



- Applicant-Prepared Draft MOA provided to Corps May 3, 2007

ARCHEOLOGY

# CS-4: Luther Forest Technology Campus

Saratoga County (Towns of Malta & Stillwater), NY – 1998 to 2009

## IMPLEMENTATION



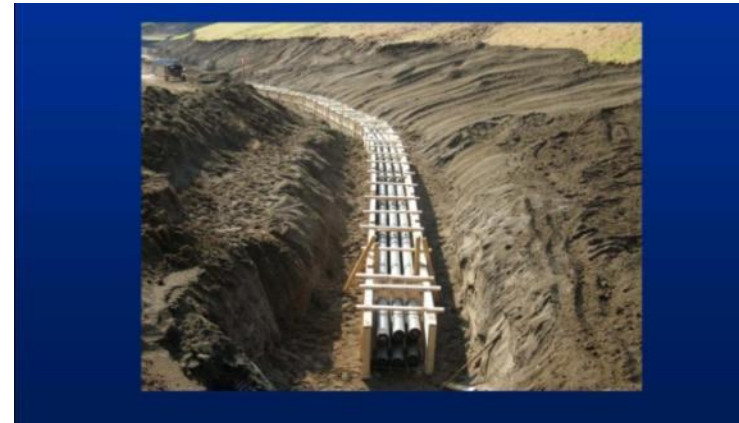
TRAFFIC ANALYSIS



NATURAL GAS SERVICE



WATER SERVICE



ELECTRICAL POWER





# **CS-4: Luther Forest Technology Campus**

Saratoga County (Towns of Malta & Stillwater), NY – 1998 to 2009

## **OUTCOMES**



**HVCC TECSMART**



**TECSMART CLASSROOM**

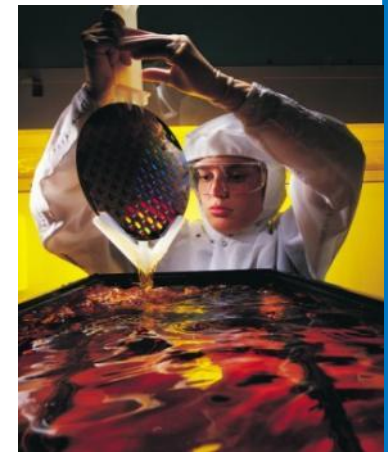


**AMD / GLOBALFOUNDRIES**

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Q&A

Technology-Based Economic Development Master Planning



**CH2MHILL®**

**IDC ARCHITECTS**

# Technology-Based Economic Development Master Planning

Overview & Case Studies

9 Oct12

