



# Preparing Students for Tech Valley New Career Information Resource for High Tech Careers

**Presented by:**

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# Regional Talent Pipeline Study

- 1. Determine skill sets needed by workers in mid-level technical positions in high-tech industry**
- 2. Recommend how the region can best strengthen its workforce using a “talent pipeline”.**

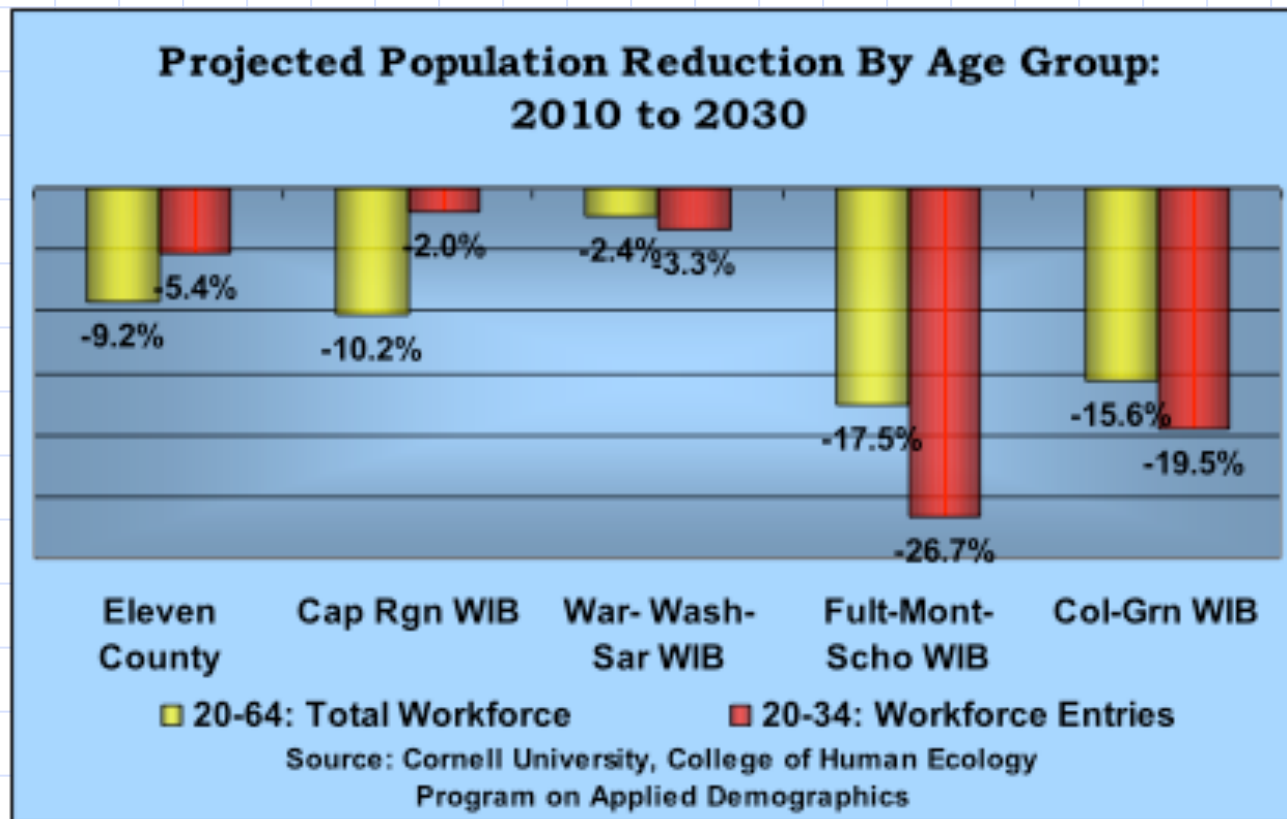
# Industry Sectors

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- **Advanced Construction**
- **Advanced Manufacturing**
- **Biotech/Biomedical Companies**
- **Energy Companies**
- **Nanotechnology Companies**

# The Key Finding

The jobs are coming, but we won't have the people with the skills to fill them.



# The Premise behind the Key Finding

- **GlobalFoundries has broken ground in Malta.**
- **General Electric is becoming actively engaged locally in alternative energy.**
- **Local universities are leaders in key high-tech research, supported by a strong community colleges.**
- **Small high-tech manufacturers and emerging biotech, nanotech and green energy companies are growing.**
- **An advanced construction industry related to clean room construction and renewable energy has arrived.**

# Other findings

- ◆ Desired Skill Set for Mid-Level Technicians:
  - Soft skills
  - Critical thinking skills
  - Math, science, computer, reading
- ◆ Education system skewed to 4 year college
- ◆ High schools don't adequately prepare students for college or work
- ◆ High schools don't connect with business – (local has great value)

# New Career Resource

- ◆ Web site focusing on high tech careers.
- ◆ Will illustrate a career ladder.
- ◆ Will illustrate an educational pathway.
- ◆ Will provide links to:
  - Career information
  - Local educational resources
  - Regional employers

# Semi-Conductor Manufacturing

## Career Ladder:

- Plant maintenance (high school)
- Wafer Fab Operator/Technician (specific 2 year college technical degree)
- Engineer (4 year degree and up)
- Research Scientist (PhD)

# **Semi-Conductor Manufacturing Educational Pathway – Mastery In:**

- Algebra and Algebra/Trigonometry
- Chemistry
- Physics
- 11th grade English
- Computer skills – Word, Excel, PowerPoint
- Electrical technology – understanding circuits
- Technology aptitude
- Working in teams to solve problems
- An internship in a scientific, technical or manufacturing facility

# **WAFER FAB OPERATOR (Semi-Conductor Manufacturing)**

## **What would I get paid as a Wafer Fab Operator?**

- Generally between \$40,000 and \$60,000.

## **How likely is it that I will be able to find a job?**

- Starting in 2011, there will be a large number of job openings for people trained for this position.

# What would I do each day as a Wafer Fab Operator?

- Work at computer station; run a machine (tool). Each “tool” costs millions of dollars.
- Check accuracy measured in nano-meters (billionths of a meter).
- May work with hazardous chemicals, and can involve lifting up to 65 pounds.
- Shift work; 24/7

# What is the workplace like?

- Clean Room environment - enter and leave thru airlocks and wear protective clothing such as hats, facemasks, gloves, boots, and cover-alls.
- Work as a team to meet manufacturing goals on a daily basis.

## **What are the opportunities for promotion once I'm hired?**

- Can be promoted to supervisor.
- Trained as a technician.
- With additional education, promoted to engineer.

## **Where can I find out more information about this career?**

- Link to websites that can provide more

# **Training or education needed to get hired?**

- Two-year college technical program (higher levels of math/science, statistics, advanced materials/electronics, use computers to run operations).

## **What do I need to know to be successful as a Wafer Fab Operator?**

- Strong in algebra, trigonometry and statistics.
- Electronics and working with machinery.
- Familiar with computers and software.
- Comfortable working in a “clean suit” (hands, head and most of face will be covered).
- Be dependable and have good people skills

## **WAFER FAB OPERATOR (Semi-Conductor Manufacturing)**

- **What would I get paid?**
- **How likely is it that I will be able to find a job in this region in next three to five years?**
- **What would I do each day?**  
(ideally include a short video or audio clip)
- **What is the workplace like?**
- **What are the opportunities for promotion?**
- **Where can I find out more about this career?**
- **What kind of training or education do I need to get hired?**
- **What do I need to know to be successful as a Wafer Fab Operator?**

# Links to Other Career Resources

NYS Dept of Labor Career Zone [http://  
www.nycareerzone.org/](http://www.nycareerzone.org/)

Hudson-Mohawk AHEC – Health Careers  
Resource:

<http://www.gohealthcareer.org/>

University of Buffalo – life sciences website: [http://  
isciwny.com](http://isciwny.com)

# Recommendations/Action Items

- 1. Move to implementation - stop further studies.**
- 2. Develop a virtual regional pipeline that enhances local efforts.**
- 3. Accelerate the way technicians and operators are trained.**
- 4. Improve societal perceptions of two-year technical degrees.**

# Recommendations/Action Items

5. Explore ways to connect individuals outside the labor force to training and jobs.
6. Expedite the P-16 data tracking system to track employment outcomes
7. Implement critical structural changes in K-12 education.
8. Increase the effectiveness of community colleges.
9. Examine the WIB structure and conduct a cost and feasibility analysis.

# Recommendations (cont'd)

## 10. Support training programs

- High Level Technician preparation
- Low Level Technician preparation
- Work readiness - critical thinking/interpersonal skills
- Training in the green/renewable energy field
- Advanced construction and weatherization training
- Certification in laboratory science
- General workplace safety
- For the future - life long learning

# For more information or copies of the Regional Talent Pipeline Report

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