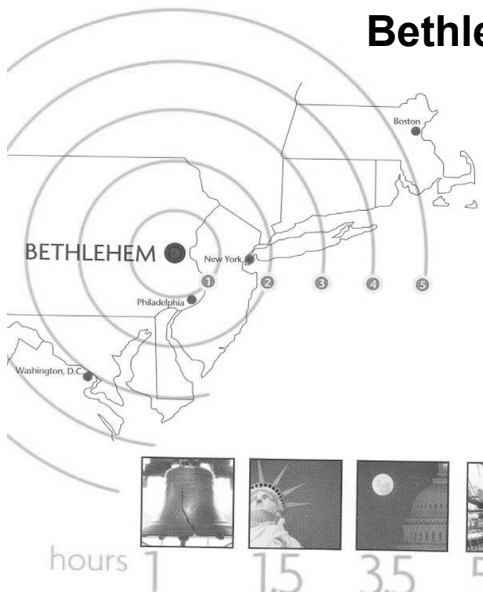




LEHIGH
UNIVERSITY.

Universities as Economic Engines for Regional Transformation

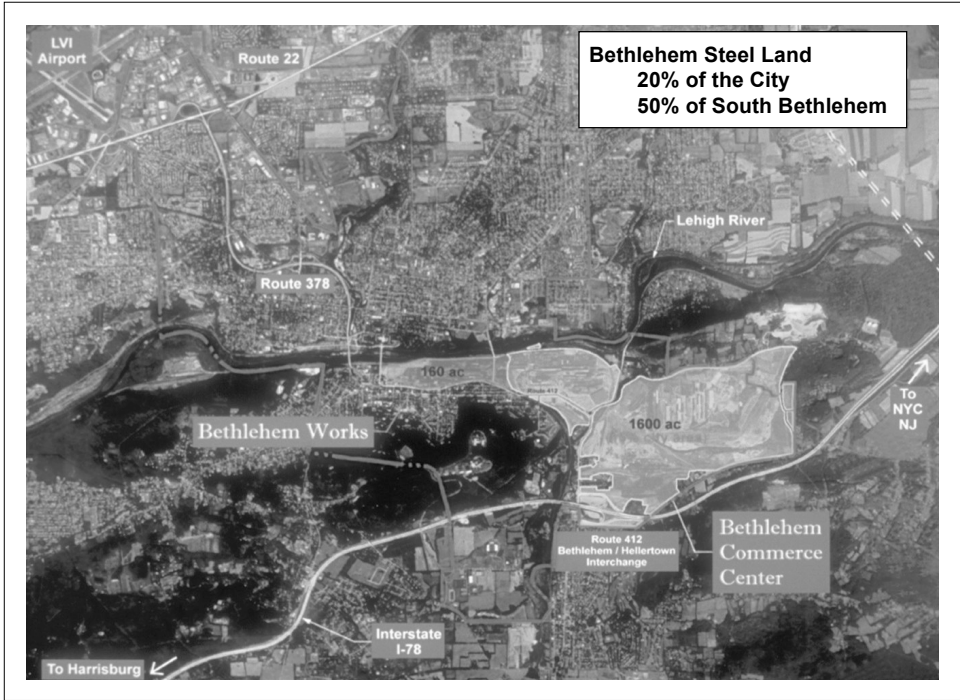
Bethlehem, Pennsylvania



The City of Bethlehem in Eastern Pennsylvania is within a day's drive of nearly 1/3 of the nation's population.

The market area includes 35 million people.

Bethlehem!



Regional Assets

- Strong history
- Vibrant downtown
- Shift to new economy
- Universities and colleges
- Location, location, location



Lehigh University as an Engine of Economic Growth

Today's Economy Driven By:

- Access to knowledge
- Application of new ideas
- Technology transfer
- Technology workforce



Precisely the business of universities!



Lehigh University as an Engine of Economic Growth

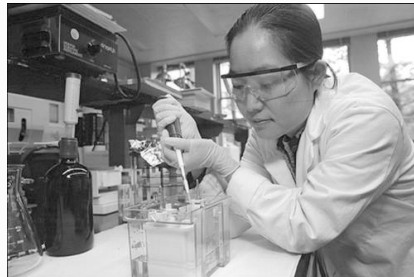
- Anchoring the community
- Generating a technology workforce
- Contributing to “brain gain”
- Attracting companies and jobs
- Partnering in R&D
- Creating new companies/attracting investments



Step 1: Focus Lehigh on Key Technology Areas

\$75 million academic venture capital initiative: “Lehigh 20/20”

- Materials Science
- Biotechnology
- Nanotechnology
- Optical Technology





Example: Center for Optical Technologies

- \$16 million in state funding over 5 yrs.
- \$15 million from Lehigh over 5-7 yrs.
- \$8 million in Congressional funding over 4 yrs.
- \$8 million in alumni investment
- Construction of new optics lab
- Partnerships with established and start-up businesses, Penn State, Ben Franklin, local community colleges



Step 2: Creation of Innovative Educational Programs

- Computer Science and Business
- Health and Biopharmaceutical Economics
- Entrepreneurship
- Bioscience/Bioengineering
- Global Citizenship





Step 3: A Funky College Town

- Goal: attract and retain new graduates
- Enhance quality of life
- Make area attractive to smaller companies
- Revitalize the community
- Lead!

Southside Bethlehem Master Plan

Principles of the Master Plan

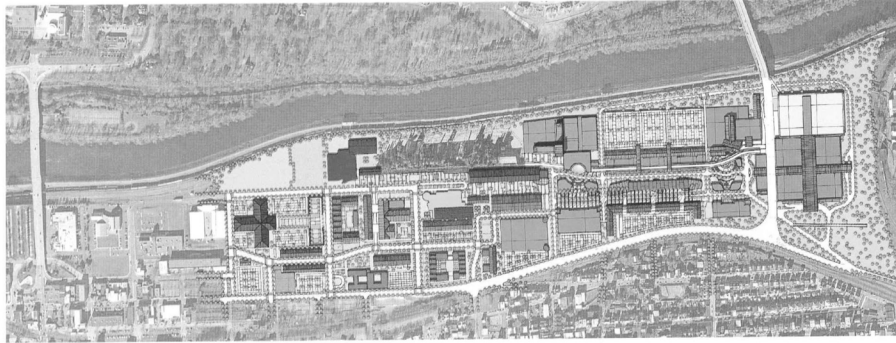
- Big Idea 1: Anchors
- Big Idea 2: Reconnections
- Big Idea 3: Open Space
- Big Idea 4: Gateways



**New Acorn
Street Lights**
\$2 Million
Public
Investment



BETHLEHEM STEELWORKS - OVERALL MASTER PLAN



COMMERCIAL / RESIDENTIAL	CULTURAL / EDUCATIONAL	OTHER HISTORIC STRUCTURES TO BE PRESERVED & RE-USED
■ SLOTS & HOTEL	■ ARTSQUEST & VISITOR'S CENTER	■ IRON FOUNDRY & GAS BLOWING ENGINE HOUSE
■ RETAIL & RESTAURANTS	■ PBS CHANNEL 39	■ BLAST FURNACES
■ RESIDENTIAL	■ NORTHAMPTON COMMUNITY COLLEGE	
□ PARKING	■ NATIONAL MUSEUM OF INDUSTRIAL HISTORY	

Bethworks

EDAW FRENCH & PARTNERS kostowgreenwood | architects LE SAIZEN ARCHITECTS, PC ARCHITECTS AND INTERIORS IITKL SPILLMAN FARMER

Lehigh University Campus Development

Campus Square
Retail, Restaurants
Residence Hall
Parking Garage
\$27 million



“Universities are communities, not separate worlds. We serve as an engine for economic development for the City.”

Dr. Gregory C. Farrington, President, Lehigh University



Southside Renaissance

- Campus Square
- Gold Plus Card
 - 63 local merchants
 - Over \$1.2 million in merchant sales
- Streetlights / Streetscape
- Enhanced integration of campus and community



Step 4: Programs to Stimulate Economic Development

- Small Business Development Center
- Iacocca Institute
- Manufacturers Resource Center (MRC)
- Entrepreneurship programs/internship programs



Entrepreneurship at Lehigh

- Office of Technology Transfer, Entrepreneurial Research, and Education
 - Funding from PA Dept. of Community and Economic Development Opportunity Grant and Keystone Innovation Grant
 - Supports commercialization of products/services for regional, state, and national economic development
- Curriculum in Entrepreneurship
 - Minor in Entrepreneurship, Global Village
- Governor's School for Global Entrepreneurship
 - Entrepreneurial scholarship



PA Infrastructure Technology Alliance (PITA)

- \$5 million from the Commonwealth annually, with Carnegie Mellon as partner
- State funding leveraged dollars 2 to 1
- 400 projects with 125 companies
 - 9 new start-up companies
 - Produced 11 patents and 3 provisional patents



Agile Manufacturing Enterprise


- \$750K in state funding
- Student consulting projects focused on cost-savings for Pennsylvania agencies and companies
- Worked with 18 Pennsylvania manufacturers in 2004
- \$10.7 million in savings to PennDOT



Step 5: New Company Formation

All on Lehigh's campus....

- Ben Franklin Technology Partners incubator
- Venture capital
- Lehigh University entrepreneurial programs
 - Integrated Product Development (IPD)
 - Office of Technology Transfer



Ben Franklin Technology Partners Incubator

- Business incubator located at Lehigh
 - Develops early stage companies
 - Improves established manufacturers
 - Promotes infrastructure initiatives
- Impact since '83:
 - Started 337 new companies
 - Created 9,373 new jobs
 - Retained 17,266 existing jobs
- Business-University link
 - Faculty experts -Facilities and equipment
 - Graduate students -Internships



Some Successes

- **Glucolyte**
 - Medical devices
 - Glucose sensor with optical technologies
- **Azevan Pharmaceuticals, Inc.**
 - Pharmaceutical
 - Licensed technology from Eli Lilly
- **OraSure Technologies, Inc.**
 - Medical devices
 - HIV testing
- **IQE, Inc.**
 - Microelectronics
 - Wafer manufacturing



OraSure Technologies, Inc.

- BF investments 1988-1990 \$231,817
- Born in business incubator
- Merged with a publicly-traded company
- Recently received one-day FDA approval for first rapid HIV test; announcement by President Bush
- Employs more than 190 people
- Built and expanded into Beth Tech III
- Lehigh alumnus co-founder; student hires; faculty consultants



IQE, Inc.

- BF investments 1989-1991 \$231,146
- Born in business incubator
- Microelectronics company
- After 10 years, company merged with another
- New company went public with a market cap in March 2000 of \$1.25+ billion
- All local jobs were retained
- Founder remains on faculty; student hires

Success Continues...

John Cook Tech Center

- Funded by Loan Pool Partnership
- Former Bethlehem Steel site
- Graduates of Ben Franklin Incubator



Step 6: Attracting New Companies

- Lehigh University
- Ben Franklin Technology Partners
- Lehigh Valley Economic Development Corporation
- Successes: *Olympus, SuperVision, Nanoblox, Inc.*



Keystone Innovation Zone (KIZ)

- Objectives
 - Create new technologies/support entrepreneurs by growing/locating companies near universities and colleges
 - Tech transfer
 - Infrastructure development
 - Curriculum development to support new technologies
- Additional Partners
 - City of Bethlehem, hospitals, community colleges, private sector



KIZ First-Year Accomplishments

- Awarded 7 tech projects/11 student internships
- Attracted 2 companies to the KIZ
- 4 companies within the KIZ received \$3 million in federally-funded research grants
- Transportation Linkage Study
- Wireless Telecommunications
 - Feasibility Study
 - Implementation Plan
- Life Sciences Study

The Power of Partnerships!

