

# Envisioning the Science and Technology Campus

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*Senior Vice Provost for Research and Strategic Initiatives*

# The Path to Prominence™

## Strategic Milestones – May 2008

I. A Diverse and Stimulating Undergraduate Academic Environment

II. A Premier Research and Graduate University

*We will achieve levels of excellence, intensity and breadth of research and of graduate and post-doctoral education never before seen at the University of Delaware.*

III. Excellence in Professional Education

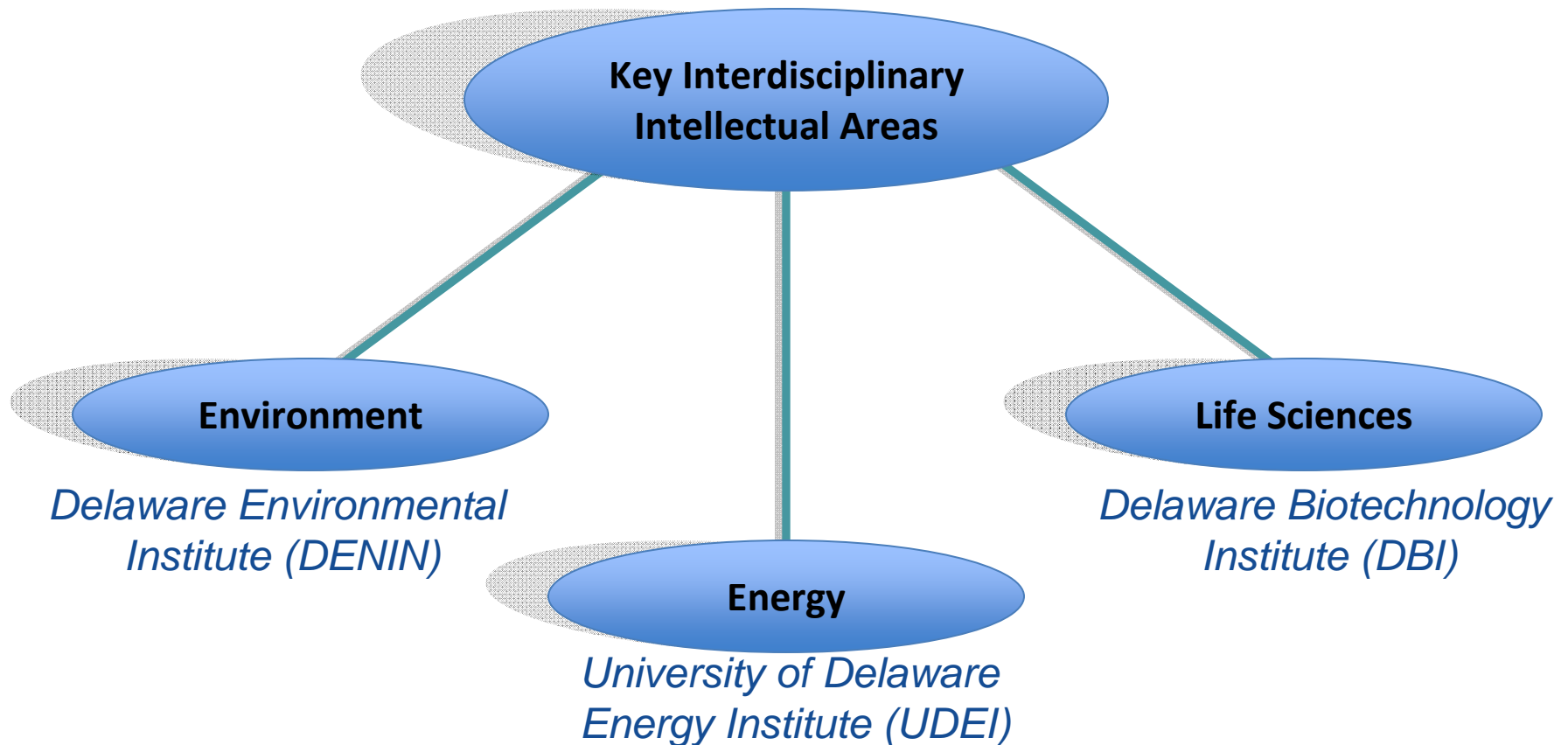
IV. The Initiative for the Planet

*Our overarching objective is to make the University of Delaware a national and international resource for environmental research, technology, education and policy—today and into the future.*

V. The Global Initiative

VI. The Engaged University

## Interdisciplinary Research Initiatives Identified in the Path to Prominence



*Interdisciplinary institutes built on existing expertise and accomplishments.*

## Delaware Biotechnology Institute

- Established in 1999 by UD, located at Delaware Technology Park
- Statewide interdisciplinary research, education and economic development hub for life sciences cluster
- Start-up funding in 1999: \$65M (State, UD, Private Sector)
- Competitive funding secured since: \$237M (NIH, NSF, DOE, Foundations)
- State of Delaware five-folded annual funding secured from NIH in 10 years
- Over 130 faculty from 6 institutions participate in statewide Network
- Catalyst for hiring over 50 life sciences faculty, including faculty leaders
- Impact on over 6,000 high-paying jobs over the past 10 years



## Delaware Environmental Institute (DENIN)



### Statewide Institute

- UD, DSU, Wesley, DTCC, DNS
- State Agencies
- 85 Affiliates

### *Environmental Highlights*

- DENIN launched with \$15M NSF grant plus \$5M State Commitment
- UD receives \$4.3M NSF Critical Zone Observatory to study the Christina River Basin
- UD receives \$440K USDA grant to study fate and transport of hormones and antibiotics in runoff from agricultural watersheds
- Collaboration established with Delaware Nature Society on Watershed Monitoring

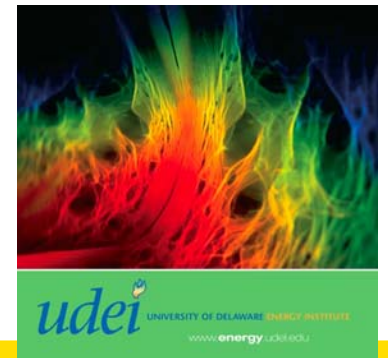
# University of Delaware Energy Institute (UDEI)

Launched September 19, 2008

[www.energy.udel.edu](http://www.energy.udel.edu)

## Mission

- To create the enabling science and advance the development and deployment of new and emerging energy technologies
- To leverage the University's strengths in research, education and policy, in partnership with industry and government, to meet the challenges posed by our future energy needs
- To make the University of Delaware a leading resource for energy education and innovation to benefit the State of Delaware and to promote the Nation's energy independence and security



# Recent Energy Highlights and Partnerships

***UD is one of only 6 universities nationwide leading both an EFRC and first round ARPA-E program***

- Energy Frontier Research Center (DOE): Development of new technologies to convert biomass to fuels and chemicals – total funding \$17.5M
- ARPA-E (DOE): Advanced Permanent Magnets for Higher Power Density and Energy Efficiency – total funding \$4.5M
- UD is also a partner on the second and third round ARPA-E program (with MIT on Electrofuels and with Virginia Tech on “Power Supplies on a Chip”)

## ***Other Projects***

- UD’s V2G technology licensed to AutoPort
- Sustainable Energy Utility implemented in Delaware
- Partnership with GAMESA has erected 2 MW wind turbine, 4.5 MW planned
- CRADA with NREL on Wind Test Facility
- Partnership with Standard Solar for 850 kW solar electric power on UD main campus



## Interdisciplinary Science and Engineering Laboratory

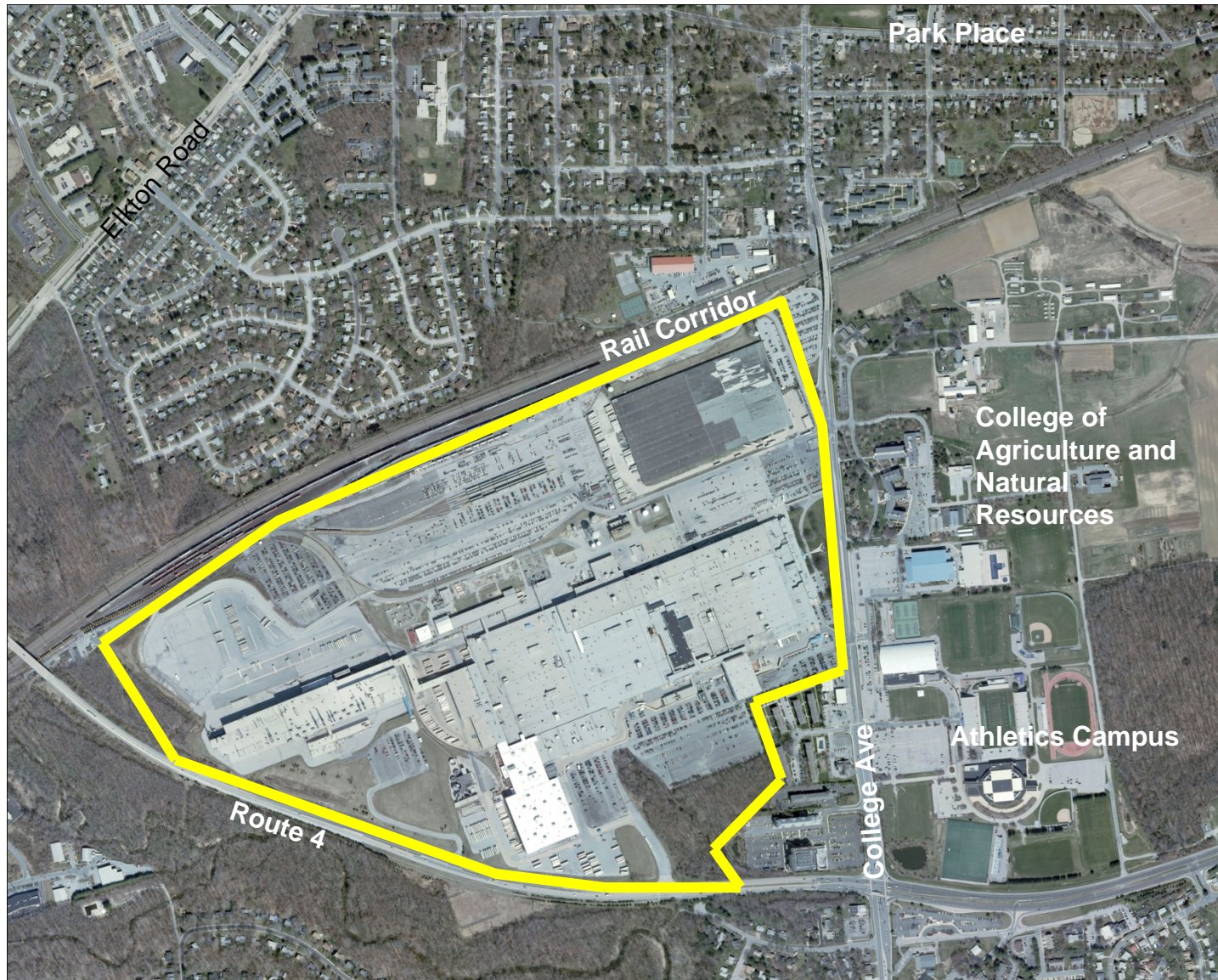




# **Science and Technology Campus**

*A Vision for Partnership Opportunity and Economic Growth*

## Existing Site





## Scale Comparison



# ***Science and Technology Campus***

## **3 + 1 Strategy**

***Aligning Strategic Priorities with Opportunities:*** (BRAC moves to APG, Delaware Health Sciences Alliance)

***Energy and Environment***

***Life and Health Sciences***

***National Security and Defense***

- *Areas of UD strength that align with national priorities*
- *Focus of our strategic investments & initiatives*
- *Focus of our major external partnership efforts*

**+**

***Enabling Infrastructure***

# Delaware Health Sciences Alliance

[www.delawarehsa.org](http://www.delawarehsa.org)



A strategic alliance between the *University of Delaware, Thomas Jefferson University, Christiana Care* and *Nemours*, built on a common vision of the need to provide the finest healthcare education, to conduct research to generate new knowledge at the forefront of the health sciences that addresses today's most pressing health concerns, and to improve regional health and health care services.



## Delaware Health Sciences Alliance

HEALTHCARE EDUCATION, RESEARCH & SERVICES

◆ CHRISTIANA CARE HEALTH SYSTEM ◆ NEMOURS ◆ THOMAS JEFFERSON UNIVERSITY ◆ UNIVERSITY OF DELAWARE

## **BRAC: Aberdeen Proving Ground Collaborations**

*The University of Delaware is already engaged in collaborative research with a number of units at APG in areas as diverse as:*

- **Advanced Composites**
- **Multifunctional Materials**
- **Computer and Information Science**
- **Electronics**
- **Prosthetics, Orthotics, Robotics, and Imaging**
- **Biological and Chemical Sciences**
- **Management, Business and Finance**

***UD-RDECOM CRADA signed Jan 26, 2010***



## UD-RDECOM CRADA

- Established framework for research collaboration between UD and Army
  - 20 SOWs signed or in progress
- Joint initiative to perform gap analysis to identify critical Army-wide needs and establish UD and multi-RDEC collaborative research groups
- **Long-Term Vision: establishment of RDECOM UARC (University Affiliated Research Center) on the Science and Technology Campus**

## Enhancement of Education and Training Collaborations

- Courses taught at RDECOM site or distance learning
- New graduate programs/courses to meet RDECOM-wide needs
- Internship programs
  - RDECOM-wide Undergraduate summer intern programs
  - RDECOM interns at UD labs under guidance of faculty/staff
- UD/local area job opportunities at APG: BRAC + future retirement projections  
~3000 jobs over next 5 years
- Professional Development
  - Graduate co-advisement
  - Joint research for MS/PhD theses

## Our Energy Partnership Vision

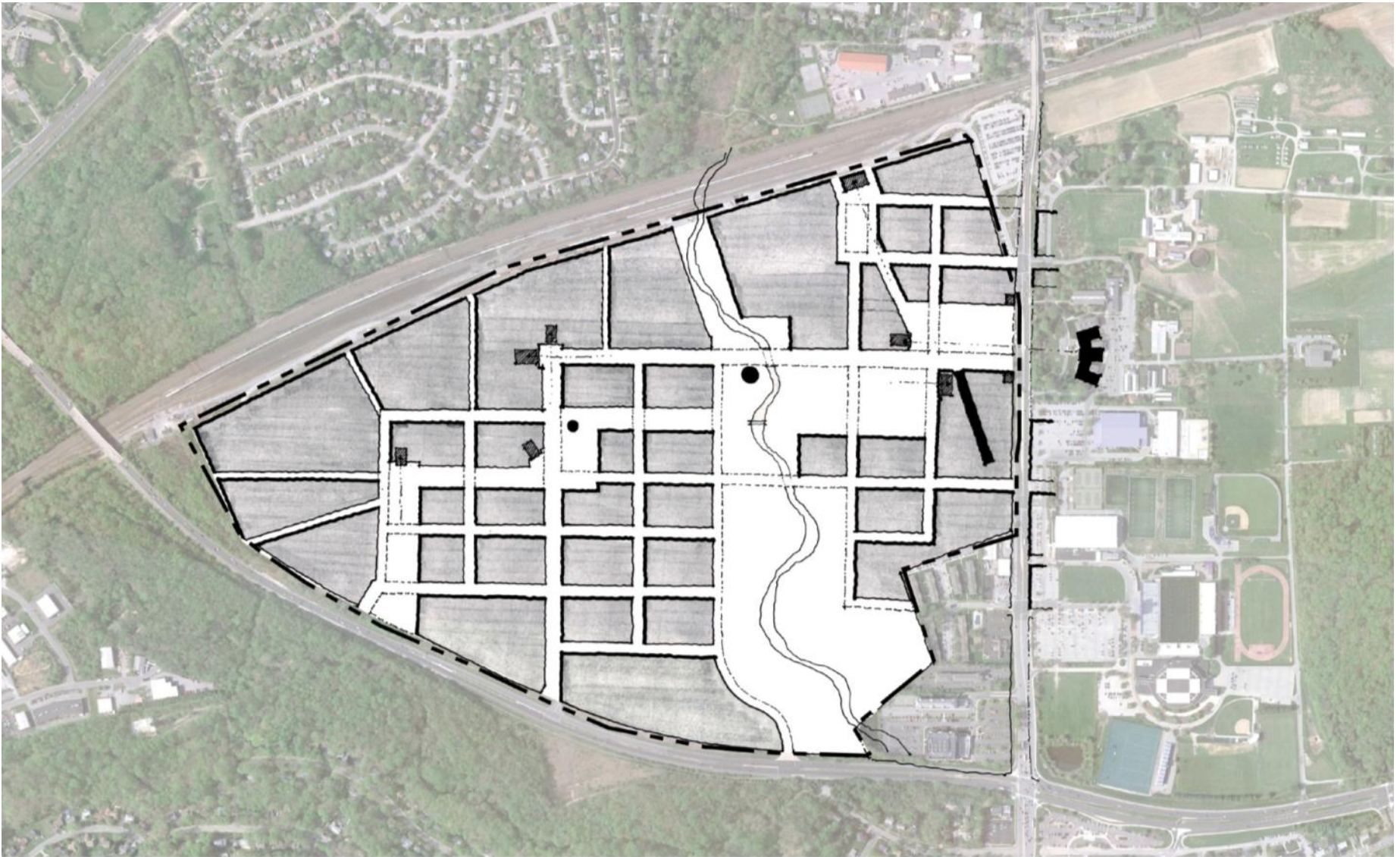
### ***A world-class UD-based Research and Education Institute***

- With strong National Laboratory partnerships
- Anchored by a partner facility at the Science and Technology Campus

#### *That will*

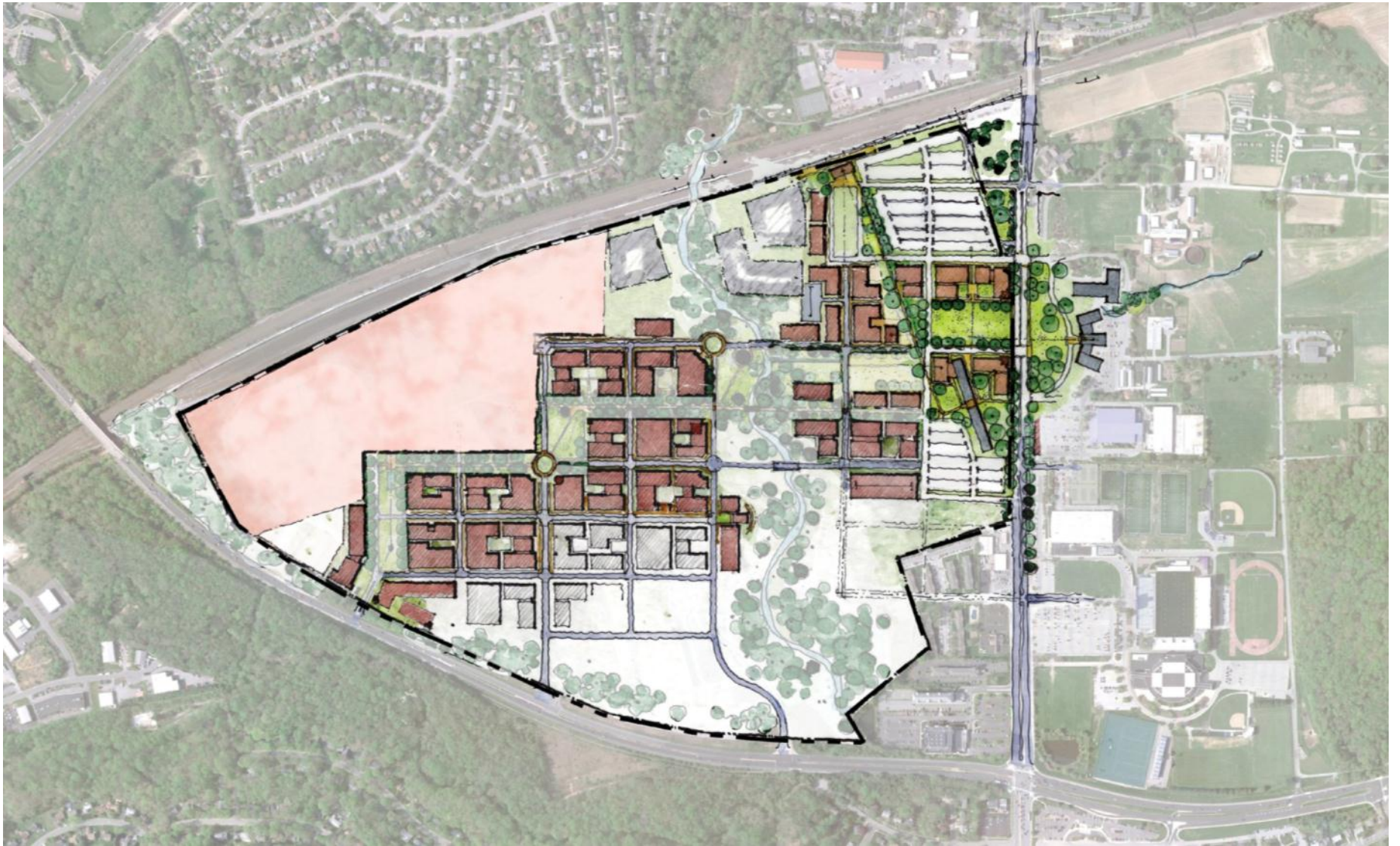
- Provide the innovation, science and engineering to advance renewable energy technologies
- Effectively transfer laboratory results to manufacturing
- Educate and train the work force required by industry
- Develop new policy and economic models for the deployment of renewable energy technologies.

## Revised Concept Plan

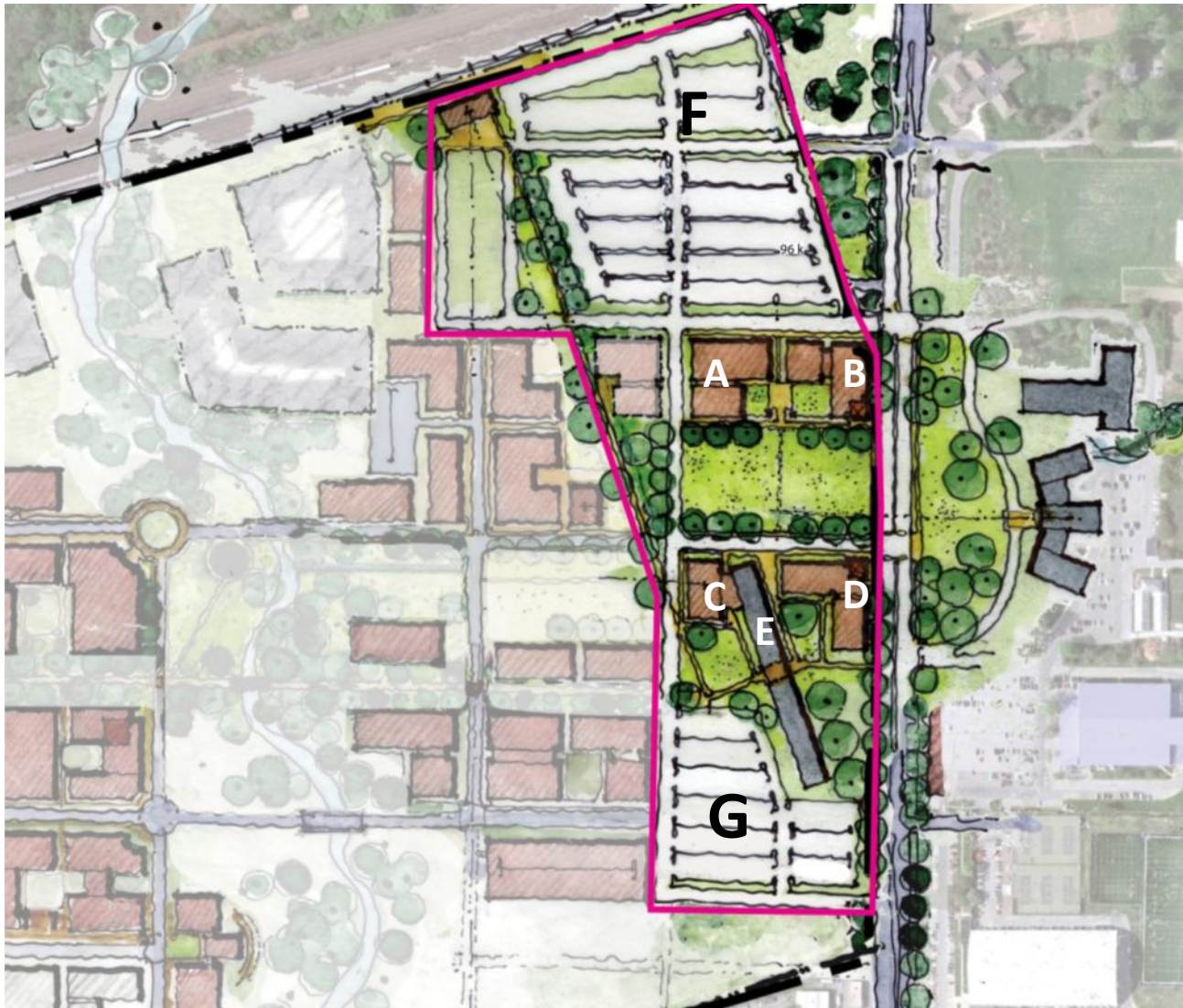




## Build-out Scenario





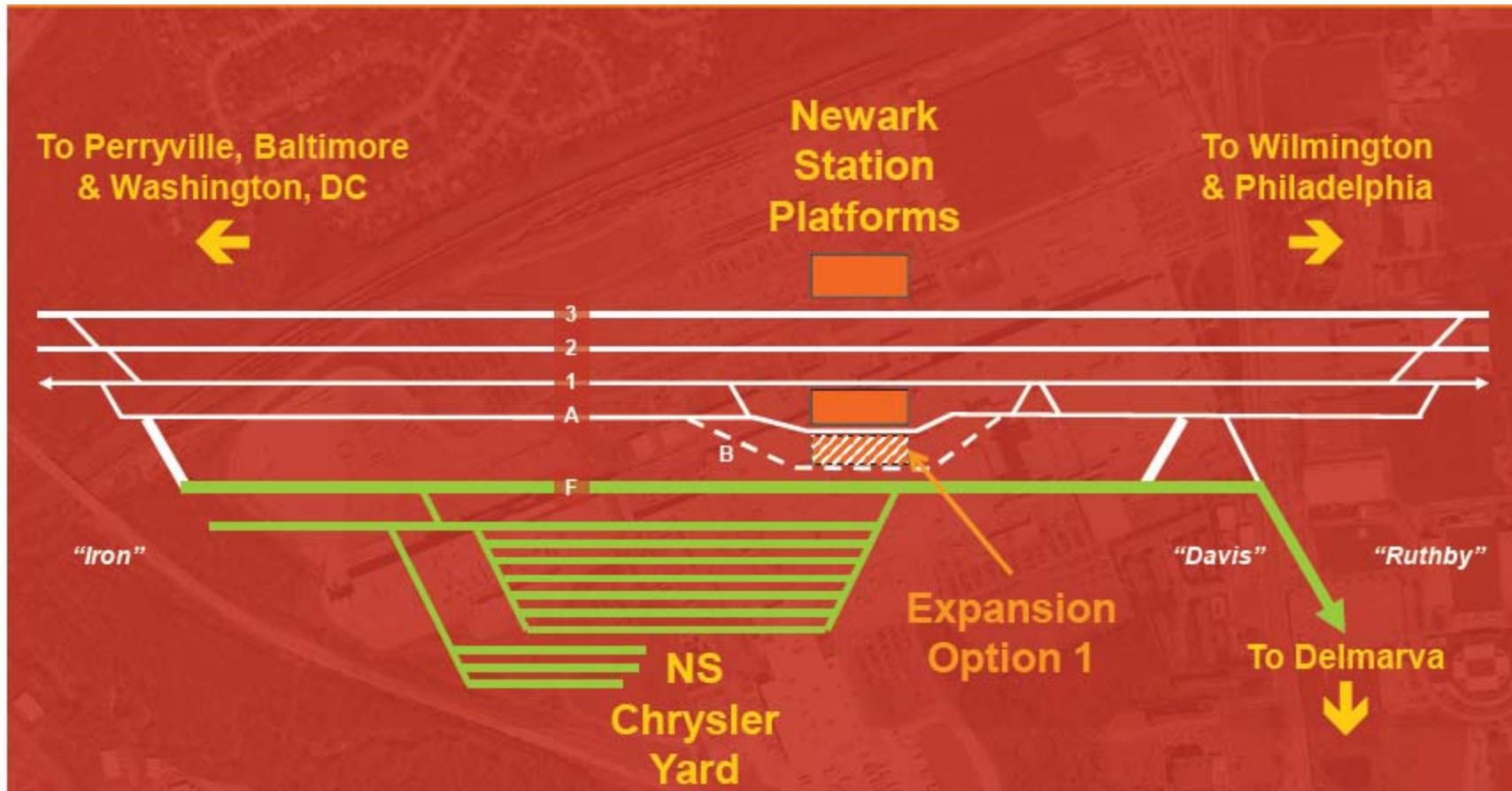


## Phase One

- A. 112,000 SF  
4 sty
- B. 112,000 SF  
4 sty
- C. 32,000 SF  
2 sty
- D. 96,000 SF  
4 sty
- E. 72,000 sf
- F. 793 spaces
- G. 466 spaces

Phase One Site  
Area: 32.4 acres

## Newark Train Station Expansion Plan





# Science and Technology Campus

## Timeline

