

 Center for Sustainable Communities
TEMPLE UNIVERSITY®

**Fort Washington Area Flooding and
Transportation Improvement Study**



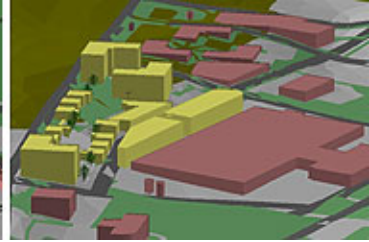
Revitalizing Fort Washington Office Park



Presented
June 6, 2006

Jeffrey Featherstone, Ph.D.
Susan Spinella

Center for Sustainable Communities

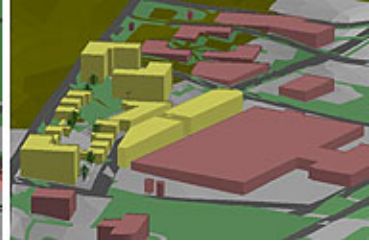


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CENTER FOR SUSTAINABLE COMMUNITIES

- Established in 2000, the Center offers educational programs, conducts interdisciplinary research, and serves as a community resource to address issues of the environment and sustainability.
- Associated faculty come from various disciplines, including engineering, architecture, landscape architecture, horticulture, geology, geography, planning, economics, and chemistry.



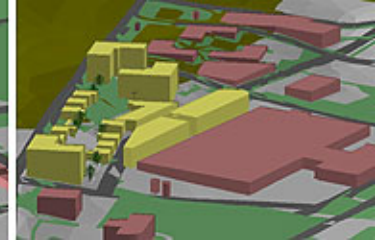


Revitalizing Fort Washington Office Park

PURPOSE

- Study the flooding and transportation problems plaguing the Fort Washington Office Park and to recommend solutions that will mitigate these problems and revitalize the Office Park
- Prepare an implementation plan with short-term and long-term recommendations, including a prioritized list of physical improvements

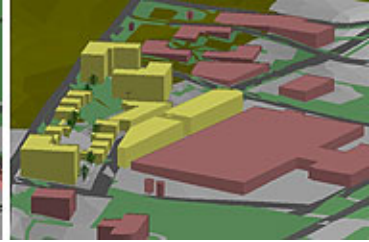




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STUDY ORGANIZATION

- Lead
 - ✓ Center for Sustainable Communities
Jeffrey Featherstone, Ph.D., Study Director
- Contractors
 - ✓ Orth-Rodgers & Associates
 - ✓ Coleshill Associates LLC
 - ✓ Engineering and Design Institute,
Philadelphia University



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FUNDING

- Federal Grant through Upper Dublin Township
\$420,000
- Federal Emergency Management Agency
\$200,000
- Possible Additional Sources
 - Department of Community and Economic Development
 - US Environmental Protection Agency



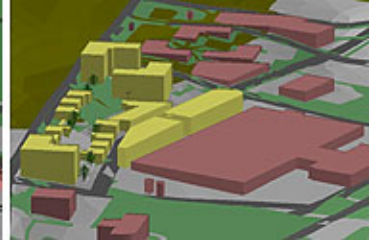
Rapp Run



Flash Flooding



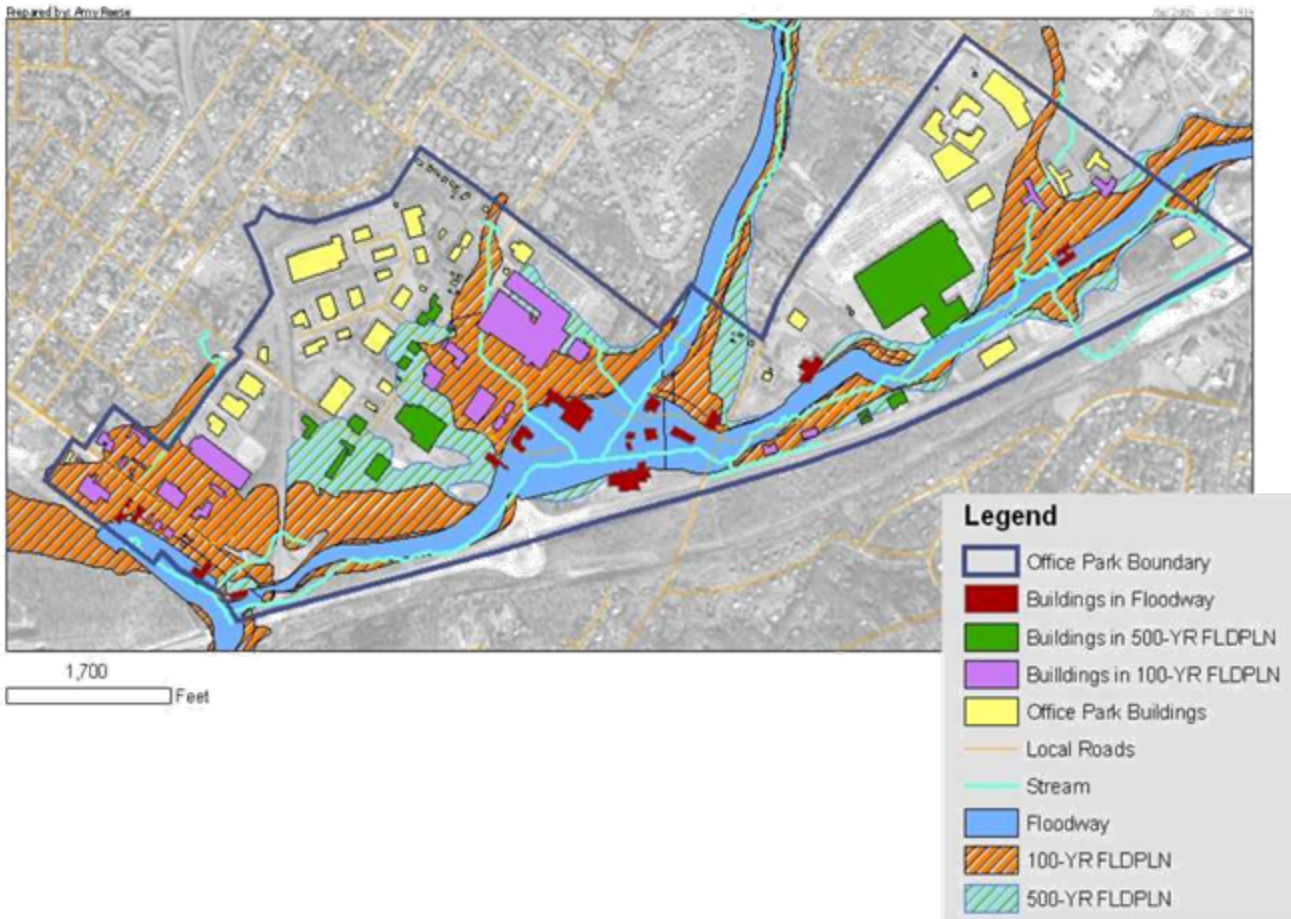
Pine Run across from 1005 Virginia Drive



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OFFICE PARK LOCATION

Upper Dublin Township, Montgomery County





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CURRENT ISSUES

- Frequent Flooding
- Excessive Impervious Surface
- Poor Stormwater Management
- Inefficient Transportation Network and Traffic Management
- Limited Growth Potential





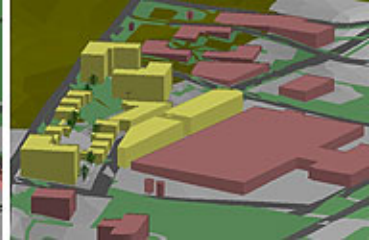
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PROJECT OUTLINE

The study will have six inter-related analyses:

- Hydrology/Hydraulics
- Digital Photogrammetry and GIS Mapping and Analyses
- Stormwater Management
- Transportations Systems
- Market Analysis
- Sustainable Design





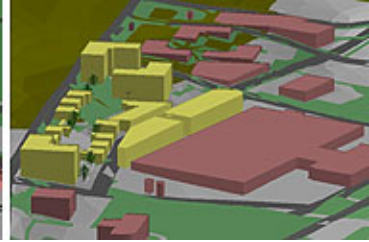
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INTERDISCIPLINARY TEAM

- Planners
- Engineers
- Geologists
- GIS Specialists
- Architects
- Landscape Architects



Office Park has 30% Vacancy Rate

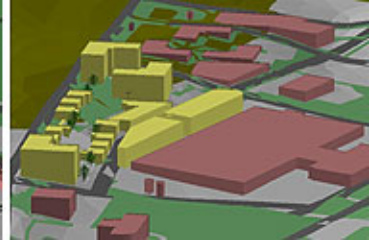


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FLOODING AND STORMWATER PROJECT COMPONENTS

- Hydrologic/Hydraulic Analyses and Modeling
- Predicting Runoff
- Delineating Floodplains
- Conducting Field Studies
- Recommending Widespread Use of BMPs
- Evaluating BMP Impacts on Flooding and Water Quality
- Incorporating Low Impact Development Techniques
- Recommendations



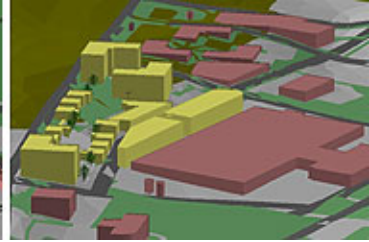


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TRANSPORTATION SYSTEM PROJECT COMPONENTS

- Assessing Current Transportation Network
- Assessing Impacts of the Existing Transportation System and Parking Facilities on Stormwater Management and Flooding
- Analyzing Cost-Effective Transportation System Alternatives
- Recommendations



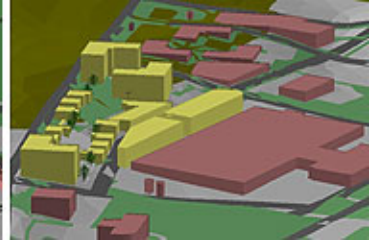


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TRANSPORTATION SYSTEM PROJECT COMPONENTS – cont.



Existing Stream Buffer Condition



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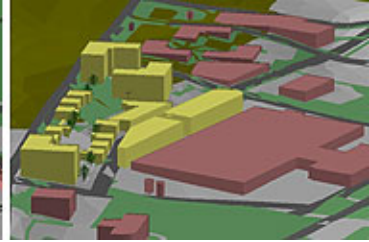
PUBLIC INVOLVEMENT

- Project Steering Committee
- Design Charettes
 - ✓ Fort Washington Business Alliance
 - ✓ Other Stakeholders
- Web Posting and News Releases
- Presentations to Upper Dublin Commissioners



Photo: <http://lcialveston.com>





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PROJECT APPROACH

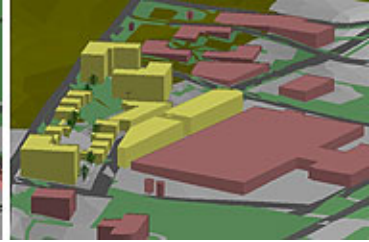
▪ Using State of the Art GIS Technology

- ✓ Prepare 2 ft resolution Digital Elevation Model and contour data
- ✓ Create new and updated GIS data, including stormwater management systems and impervious surface
- ✓ Simulate alternative transportation and development scenarios in 3D GIS

▪ Using Sustainable Design Approach

- ✓ Evaluate alternative combinations of flooding improvements, stormwater BMPs, and transportation and open space modifications
- ✓ Conduct sustainable design charrettes to seek public input



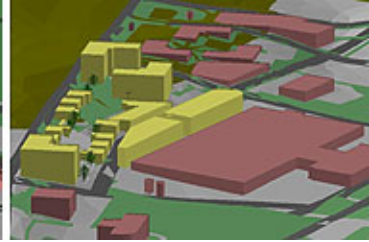


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PROJECT OUTPUTS

- New floodplain maps using existing conditions
- Recommendations for changes in transportation system
- Recommendations for implementing new BMPs
- Alternative floodplain maps to reflect proposed changes in transportation network and stormwater management
- Sustainable design guidelines and public input through design charettes
- Redevelopment implementation plan





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ENVISIONING THE FUTURE

- Design Guidelines using BMPs



Curb cuts & Vegetative Swale



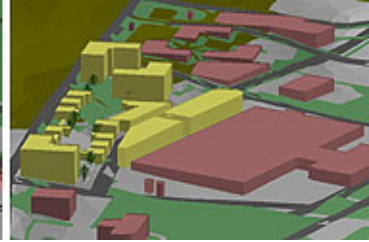
Constructed Wet Pond



Roof Garden



Porous pavement at the Morris Arboretum
photo taken during Hurricane Floyd (1999)



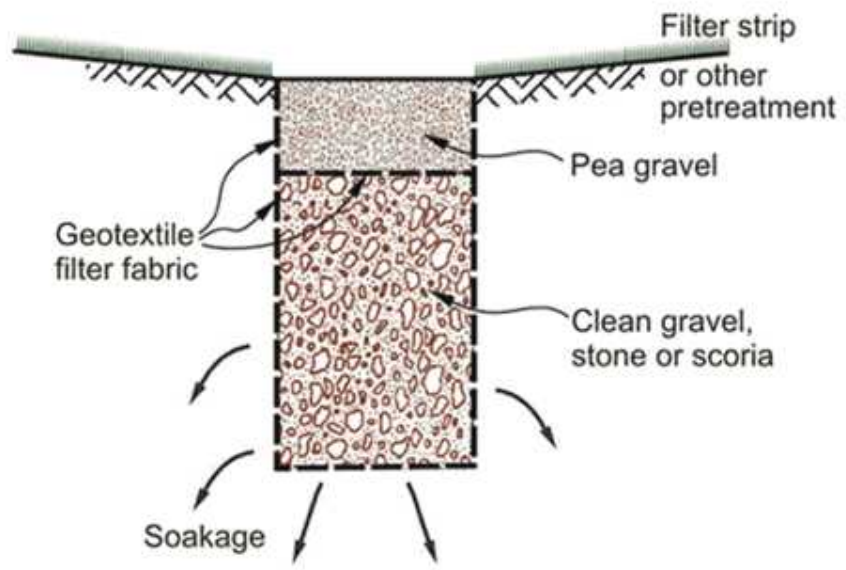
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ENVISIONING THE FUTURE – *cont.*

- Design Guidelines using BMPs



CULTEC Stormwater Retention/Detention Infiltration Chambers



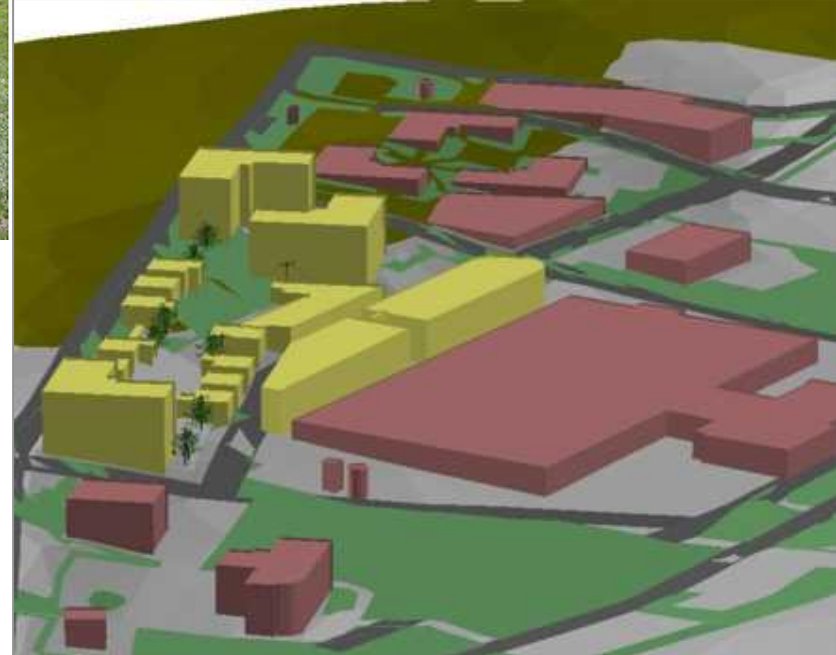
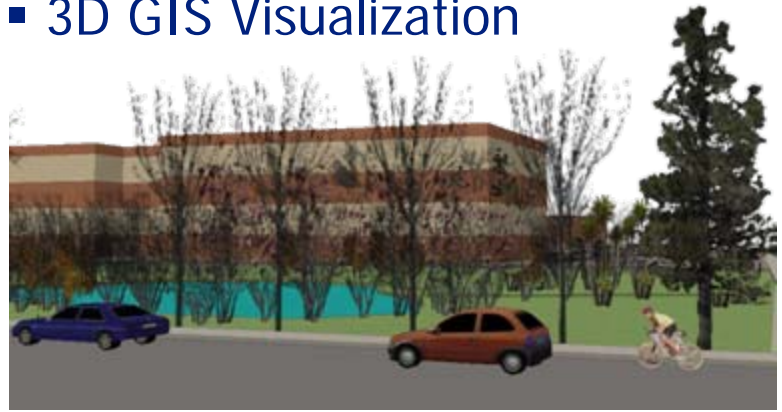
Infiltration Trench



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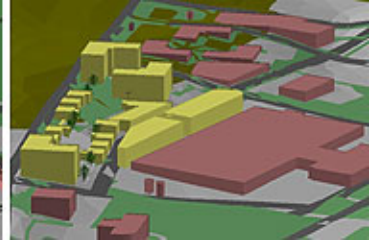
ENVISIONING THE FUTURE

- 3D GIS Visualization



Schematic 3D Scenes
Prepared by Temple Students





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