

An aerial photograph of Pittsburgh, Pennsylvania, showing the city's layout and the Allegheny River. The Pittsburgh International Airport area is highlighted with a blue and yellow overlay, indicating the focus of the development plan. The text is overlaid on the top left of the image.

Pittsburgh International Airport Area Development Vision Plan (Aerotropolis)

for Allegheny County Economic Development
Redevelopment Authority of Allegheny County
Allegheny County Airport Authority

September 2011

MGB & Associates, LLC
Aerotropolis Business Concepts, LLC
Remaking Cities Institute, Carnegie Mellon University
Master of Urban Design Students, Carnegie Mellon University

Pittsburgh International Airport Area Development Vision Plan (Aerotropolis)

for Allegheny County Economic Development
Redevelopment Authority of Allegheny County
Allegheny County Airport Authority

September 2011

MGB & Associates, LLC
Aerotropolis Business Concepts, LLC
Remaking Cities Institute, Carnegie Mellon University
Master of Urban Design Students, Carnegie Mellon University

Acknowledgements

County of Allegheny

Dan Onorato, County Executive

Dennis Davin, Director, Allegheny County Economic Development (ACED)

Maurice Strul, Assistant Director, ACED

Allegheny County Airport Authority

Glenn Mahone, Chairman

Bradley D. Penrod, Executive Director/CEO

Wm. Randell Forister, Senior Director of Development

Richard C. Belotti, Director, Planning & Environmental Affairs

Eric H. Buncher, Manager Planning Services

Allegheny Conference on Community Development

Dennis Yablonsky, Chief Executive Officer

Dewitt M. Peart, Executive Vice President, Public Affairs

Ken Zapinski, Senior Vice President, Energy & Infrastructure

Tri-County Area Partnership (TCAP)

Allegheny County

Beaver County

Washington County

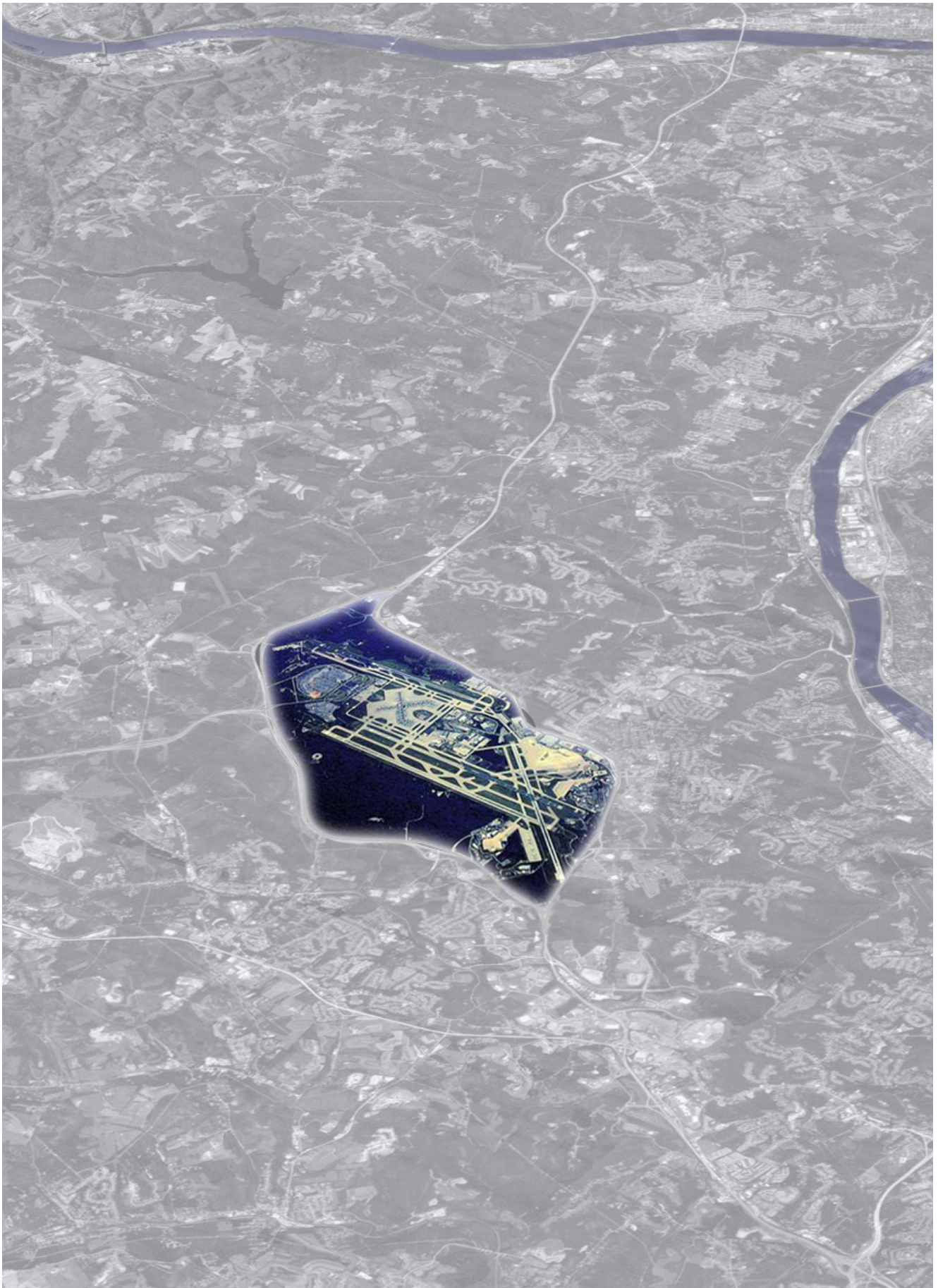
Southwestern Pennsylvania Commission (SPC)

Lew Villotti, Planning & Development Director

Sara Walfoort, Transportation Manager

Table of Contents

Acknowledgments	2
Table of Contents	3
1. Research Team	5
2. Executive Summary	6 - 9
3. Background	10
4. Planning Process	11
5. Aerotropolis Concept & Study Goals	12, 13
6. Data and Analysis	14 - 23
7. Stakeholder Meetings	24 - 29
8. Conceptual Development Program	30
9. Development Principles	31
10. Development Models and Selected Sites	32, 33
a. Airfield Related Model	
b. Infill & Redevelopment Model	
c. New Town Model	
d. Expansion & Connection Model	
11. Visioning Charrette	34 - 67
Appendix	68 - 75
Benchmark Aerotropolis Projects	
Carnegie Mellon University Master of Urban Design Student Projects	
Aerotropolis Business Concepts Report (separate document)	



1. Research Team

MGB & Associates, LLC

MGB & Associates is a full-service consulting firm focusing on real estate and economic development. Mulugetta Birru, Ph.D., is President and CEO of MGB.

- › Mulu Birru, Research Team Leader

Aerotropolis Business Concepts, LLC

Aerotropolis Business Concepts is an economics and market consulting firm led by John D. Kasarda, Professor, University of North Carolina (UNC), and Director of the Kenan Institute Center for Air Commerce.

- › John D. Kasarda, Principal Investigator
- › Stephen J. Appold, Research Assistant Professor, UNC

Remaking Cities Institute, Carnegie Mellon University

The Remaking Cities Institute (RCI) was formed within the School of Architecture to provide a better link between academic work and ongoing community initiatives undertaken by firms, government agencies and community groups. Donald K. Carter, Adjunct Professor of Urban Design, is the Director of the RCI.

- › Donald K. Carter, Principal Investigator
- › Stefani Danes, Research Associate, Project Manager
- › Jonathan Kline, Research Associate
- › Steven Quick, Research Associate
- › Karen Branick, Research Associate
- › Elise Gatti, Research Associate

Master of Urban Design Students, Carnegie Mellon University

Students in the Master of Urban Design program in the School of Architecture participated in the research and concept development under the direction of Adjunct Professor Jonathan Kline.

- › Ozge Diler
- › Saurabh Goenka
- › Rambha Seth
- › Mingming Wu

2. Executive Summary

Pittsburgh International Airport Area Development Vision Plan (Aerotropolis)

Background

The object of this study is to provide proof-of-concept research for the development of a Pittsburgh Aerotropolis, focused on the Pittsburgh International Airport, including developable properties within thirty minutes driving time of the airport.

An "aerotropolis" is a planned and coordinated multi-modal freight and transportation complex that provides efficient, cost-effective, sustainable, and intermodal connectivity to a defined region of economic significance centered around a major airport. Speed and agility are its hallmarks. The ideal aerotropolis has close access to the four fundamental R's of transportation: runways, roads, rail, and river.

Pittsburgh is uniquely suited for the development of an aerotropolis in the eastern United States because the airport has excess landing capacity and is not landlocked. The goal of the Pittsburgh aerotropolis is to attract new development and jobs to the airport area from outside the region rather than to relocate existing development and jobs from within the region.

MGB & Associates (MGB) was engaged by the Department of Economic Development (DED) of the County of Allegheny with participation of the Redevelopment Authority of Allegheny County and the Allegheny County Airport Authority. MGB brought on Aerotropolis Business Concepts and the Remaking Cities Institute as sub-consultants to provide market and urban design expertise.

Planning Process

The Pittsburgh Aerotropolis project has two phases:

Phase I: Moving the Pittsburgh Aerotropolis Concept Forward (January - August 2011)

In Phase I the research team collected physical planning data, benchmarked aerotropolis projects around the world, met with public and private stakeholders, prepared a conceptual development program, devised sustainable development principles, and conducted a Visioning Charrette at Robert Morris University in June 2011. This report is a record of the Phase I research and the Visioning Charrette.

Phase II: Implementation

A decision to enter into this phase has not been made and is contingent upon the completion and recommendations of Phase I and additional funding. If implemented, Phase II will include a detailed market study, an urban design master plan, and a governance plan.

Conceptual Development Program

The research team did not conduct a market study to determine quantities of development but did prepare a conceptual development program to indicate the types of uses that would be attracted to the Pittsburgh Aerotropolis. The conceptual program was based on typical uses at other aerotropolis projects and on the existing market strengths of the Pittsburgh region. The uses include:

- › Flex and distribution
- › Bonded warehouses
- › Freight forwarders
- › Free trade zone assembly and shipping
- › Just-in-time electronics repairs
- › Just-in-time manufacturing

- › Technology companies
 - information technology
 - robotics
 - bio-medical
 - energy
- › Satellite university campuses
- › Hospitals and trauma centers
- › Aerotropolis support services and uses
 - hotels
 - entertainment
 - conference centers
 - retail and food
 - mixed income housing
- › Headquarters
 - International
 - National
 - Regional
- › E-Fulfillment centers
- › Destination entertainment
- › R & D parks
- › Corporate campuses

The above uses assume airport dependency. Development that is not airport-related should be directed elsewhere in the region and not to the aerotropolis project area.

Development Principles

After reviewing the physical data, input from the stakeholder meetings, and the conceptual development program, the research team prepared the below list of development principles for the Pittsburgh Aerotropolis. The underlying strategy mandates a regional approach to sustainable development that crosses municipal and county boundaries and capitalizes on existing assets and infrastructure. The overall goal is to create a sustainable airport-related development strategy using the most recent environmental technologies and to establish an international aerotropolis identity.

- › Develop a multi-jurisdictional strategy
- › Plan primarily for airport-related uses
- › Develop airport compatible uses
- › Concentrate development
- › Preserve natural areas
- › Develop sustainably
- › Provide connectivity
- › Encourage mixed-use development
- › Encourage infill development
- › Make places, not sprawl

Four Development Models and Sites

Four prototype development models were selected by the aerotropolis research team to illustrate and test the aerotropolis concept for the Pittsburgh region: airfield related development; infill and redevelopment; new town development; and expansion and connection of existing development. Each prototype development model was then tested at a specific site at the Visioning Charrette.

Each Development Model included development components, precedents, concept plans, and a listing of opportunities and challenges. The models are illustrative only and represent prototype examples of aerotropolis development strategies. The sites are identified on the map opposite.

1. Airfield Related Model

The Allegheny County Airport Authority (ACAA) controls 8,800 acres of land, of which 2000 acres are within the secure perimeter of the airfield. Of the remaining acreage, approximately 3,800 acres are slated for future commercial development. In 2011 the ACAA commissioned IDC Architects to prepare the Airport Property Development Master Plan for the developable property. This was a logical site to test the Airfield Related Development prototype.

2. Infill & Redevelopment Model

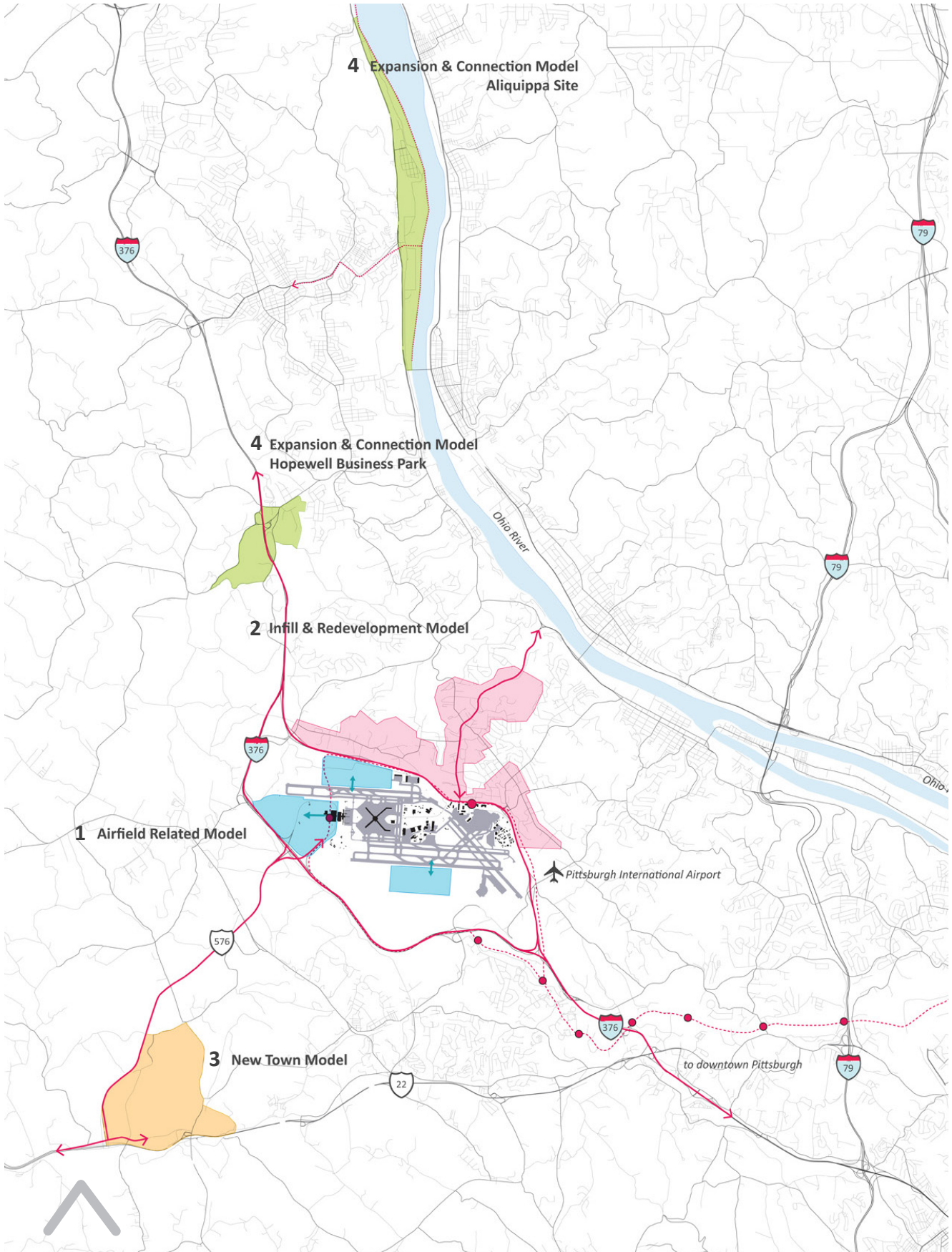
A central tenet of sustainable development is to reuse existing infrastructure and to densify and infill existing development. Opportunities for such development occur all along the I-376 (Parkway West) corridor from Downtown Pittsburgh to Beaver County. The site selected for further study in the Visioning Charrette was the University Boulevard area of Moon Township. Area of development around University Boulevard ranges from 1,200 acres to 3,000 acres.

3. New Town Model

Thousands of acres of privately owned vacant land exist to the south and west of the airport in Allegheny and Washington County and to the north in Beaver County. One possibility for aerotropolis development would be a new town close to the airport on undeveloped land. The site chosen to test the New Town Development prototype is at the intersection of Pennsylvania Turnpike 576 (Findlay Connector) and U.S. Route 22. The site straddles the Allegheny/Washington county border and includes both undeveloped land and remediated surface mined land. The selected site for the New Town Model is between 600 and 1000 acres.

4. Expansion & Connection Model

The final development prototype examines expansion of existing airport-related commercial development and connection to rail and river cargo facilities. Two locations were chosen to test this prototype in the Visioning Charrette, both in Beaver County: the Hopewell Business Park along I-376; and the Aliquippa Industrial Park adjacent to the Ohio River and the CSX railroad. The Hopewell Business Park location is approximately 500 acres, and the Aliquippa Industrial Park is approximately 800 acres.



3. Background

Mulugetta Birru, president and CEO of MGB & Associates (MGB), received a consulting contract with the Department of Economic Development (DED) of the County of Allegheny with participation of the Redevelopment Authority of Allegheny County and the Allegheny County Airport Authority. MGB brought on Aerotropolis Business Concepts and the Remaking Cities Institute as sub-consultants to provide market and urban design expertise. The object of the research study is to develop a master plan concept for the development of an “aerotropolis,” focused on the Pittsburgh International Airport, including developable properties within a ten to twenty mile radius of the airport.

According to John Kasarda of Aerotropolis Business Concepts, the aerotropolis concept has been successful in Amsterdam, Beijing, Indianapolis, Milwaukee, and Denver. Some U.S. airports, such as Washington Dulles (Reston) and Dallas Fort Worth (Las Colinas), have aspects of the concept but not in a master planned way. Detroit is pursuing an aerotropolis plan.

Pittsburgh is uniquely suited for the development of an Airport City in the eastern United States because the airport has excess landing capacity and is not landlocked. Development of a Pittsburgh Aerotropolis will require multiple partners, including adjacent municipalities, counties, private land owners, public agencies, and manufacturing and distribution companies reliant on air cargo logistics and free trade zones.



4. Planning Process

Phase I: Moving the Pittsburgh Aerotropolis Concept Forward

The Pittsburgh Aerotropolis project will proceed in two phases:

1. Phase I: Moving the Pittsburgh Aerotropolis Concept Forward
2. Phase II: Implementation

The key tasks in Phase I were:

- › Collecting and analyzing physical planning data
- › arranging focus group meetings with key public and private stakeholders
- › benchmarking best practices in international aerotropolis development
- › determining the potential aerotropolis market for the Pittsburgh region
- › conducting a Visioning Charrette to test the aerotropolis concept
- › preparing the research report

Phase I included three steps:

- › Data and Analysis (January to May 2011)
- › Visioning Charrette (June 2011)
- › Research Report (July to August 2011)

This research report documents the results of Phase I.



Visioning Charrette

Phase II: Implementation

A decision to enter into this phase has not been made and is contingent upon the completion and recommendations of Phase I and funding. If implemented, Phase II will include a detailed market study, an urban design master plan, and a governance plan. Phase II may include, among other things, master plans for selected and specific areas, detailed market studies, detailed marketing studies to determine highest and best uses for specific end uses, and development and operational incentives.

5. Aerotropolis Concept & Study Goals

Definition and Summary

As defined by John Kasarda an aerotropolis “ is a planned and coordinated multi-modal freight and transportation complex that provides efficient, cost-effective, sustainable, and intermodal connectivity to a defined region of economic significance centered around a major airport.”

Speed and agility are its hallmarks. The ideal aerotropolis has close access to the four fundamental R’s of transportation: runways, roads, rail, and river.

The sketch and the diagram below depict the aerotropolis concept.

Air Cargo Statistics

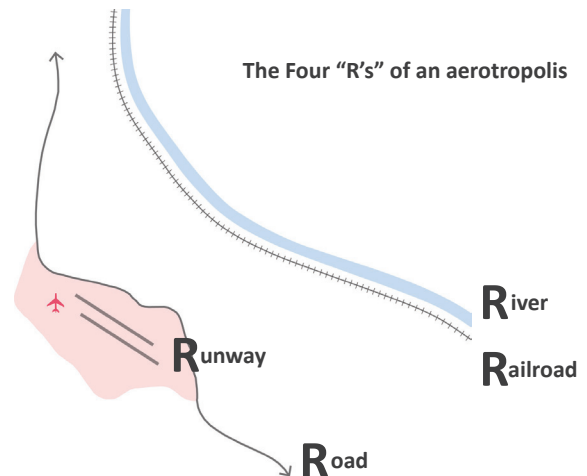
Aerotropolis Business Concepts projects that between 2010 and 2029 world-wide commercial air passenger traffic will increase from 4.6 billion annually to 11 billion. In the same period world-wide air cargo traffic will more than triple. Over 30% of the value of world trade already goes by air, versus under 2% by weight. High value, low weight, cargo such as electronics, computer parts, pharmaceuticals, fashion, and flowers make up this market. Air logistics and the new economy are thus inextricably interwoven.

Benchmark Airports

The Appendix to this report includes development plans for Aerotropolis projects in Amsterdam, Hong Kong, Dallas/Fort Worth, Dubai, and Detroit.

Study Goals

The objective in implementing an aerotropolis concept for Pittsburgh is to attract new development and jobs to the airport area from outside the region rather than to relocate existing development and jobs from within the region. However, it is equally important to target the valuable vacant land adjacent to the airport for uses that are airport-related or airport-dependent rather to uses that could exist anywhere in the region. The overall goal is to create a sustainable airport-related development strategy using the most recent environmental technologies and to establish an international aerotropolis identity.



6. Data & Analysis

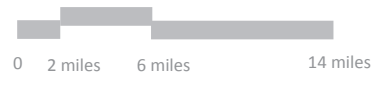
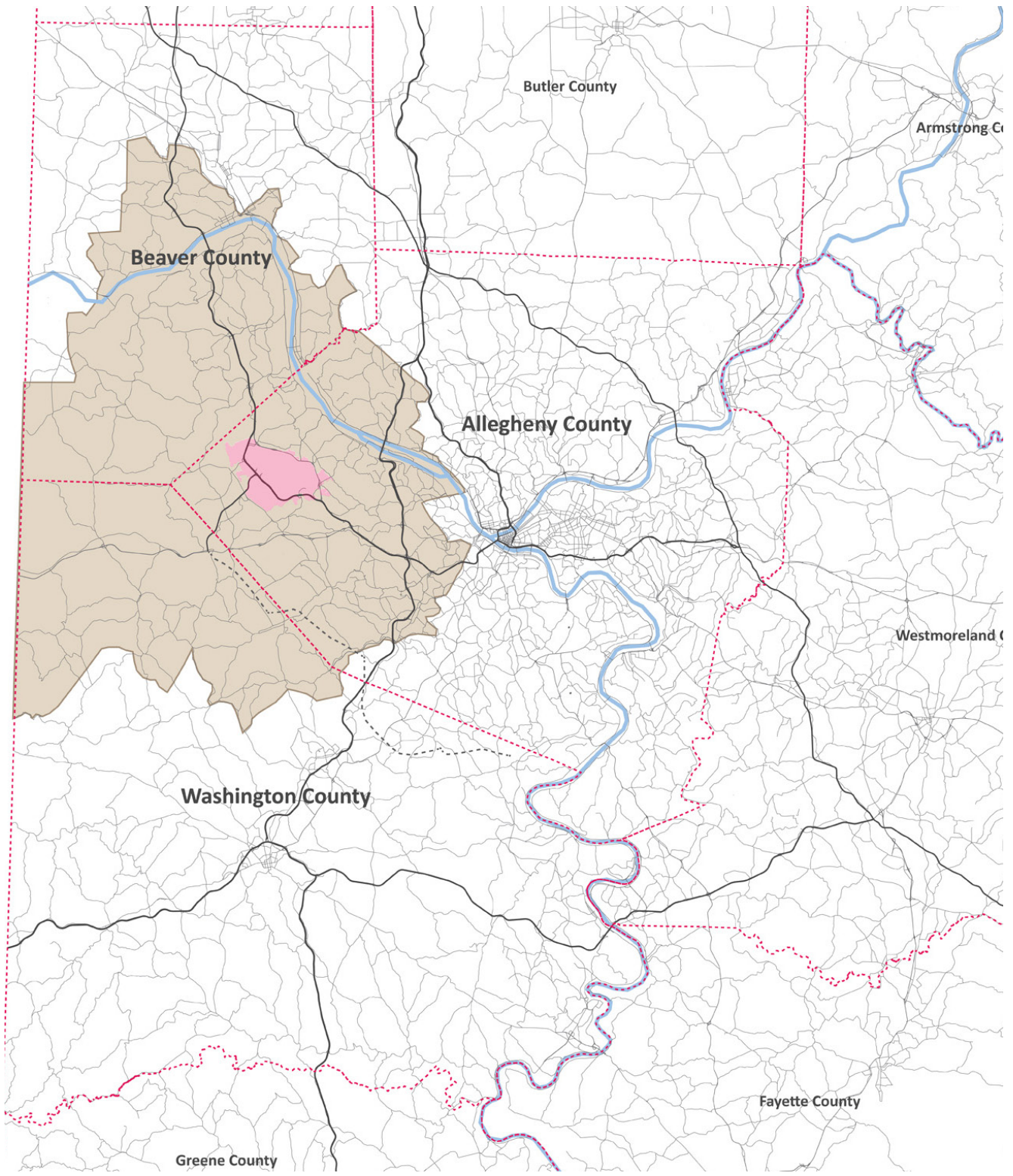
The project area of an aerotropolis is typically defined as a thirty-minute driving distance from the airport. The map at the right shows the thirty minute catchment area around the Pittsburgh International Airport for the counties of Allegheny, Beaver, and Washington, as defined by the Southwestern Pennsylvania Commission.





The maps on the following pages represent the physical planning data base collected for the project. Included is the regional highway network, regional railroad network, the 2040 Plan of the Southwestern Pennsylvania Commission, and comprehensive plans for the three counties. Also included is the 2011 Master Development Plan for the developable areas on the property of the Pittsburgh International Airport. The Appendix includes aerotropolis development plans for airports in Amsterdam, Hong Kong, Dallas/Fort Worth, Dubai, and Detroit.

In addition, local municipal master plans and zoning ordinances (not illustrated this report) in the three county catchment area were reviewed for their permitted uses and development regulations. Meetings with municipal officials were held to further clarify the opportunities and constraints for airport-related development.

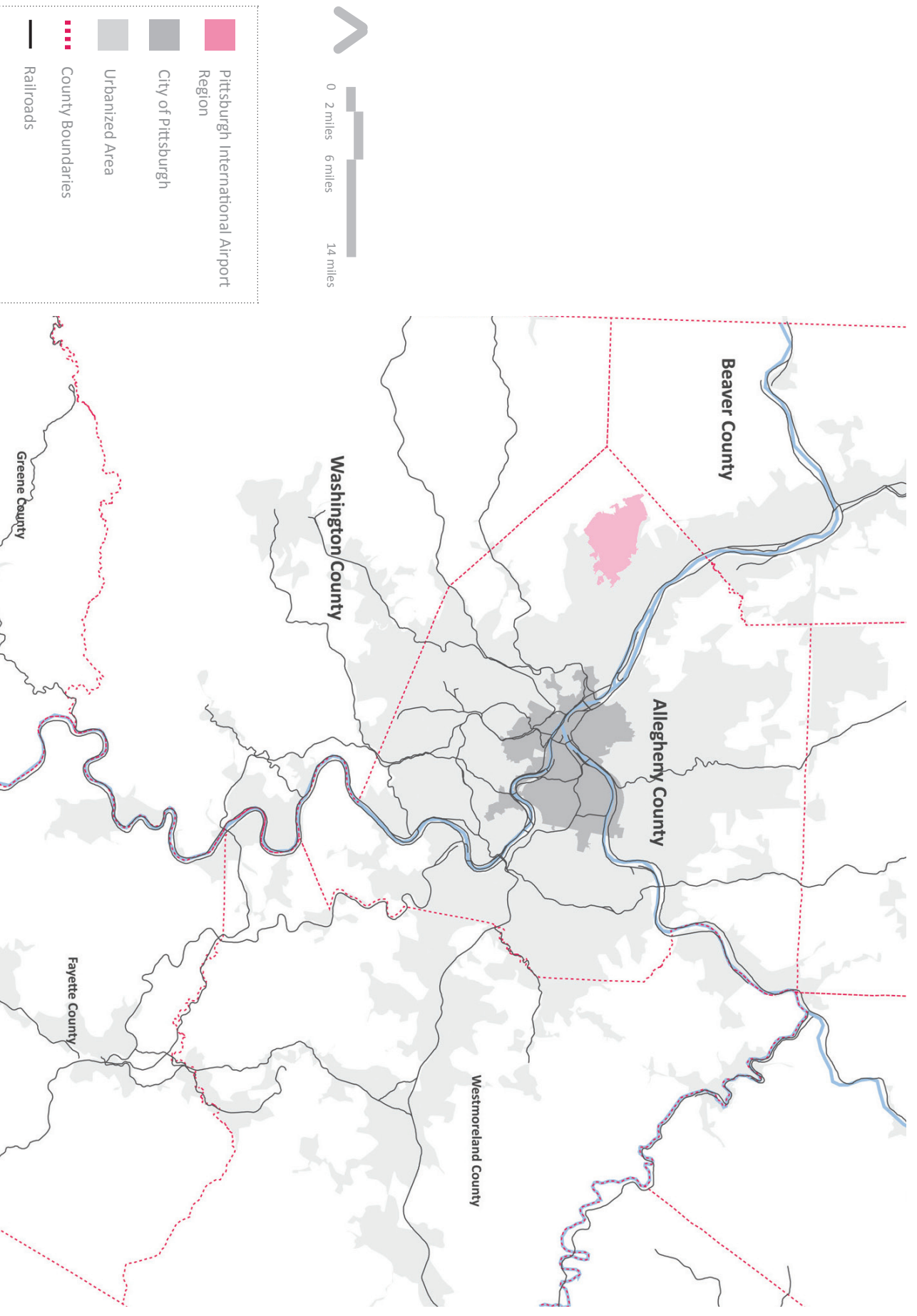
As a result, the research team was able to identify areas that are available for new or infill development that have strategically located sites with good highway access, utility infrastructure, and compatible zoning. Excluded from the aerotropolis initiative areas are sites with steep topography, poor highway access, and little or no utility infrastructure. Conservation areas (protected woodlands, wetlands, and parks) and undermined areas were also excluded.

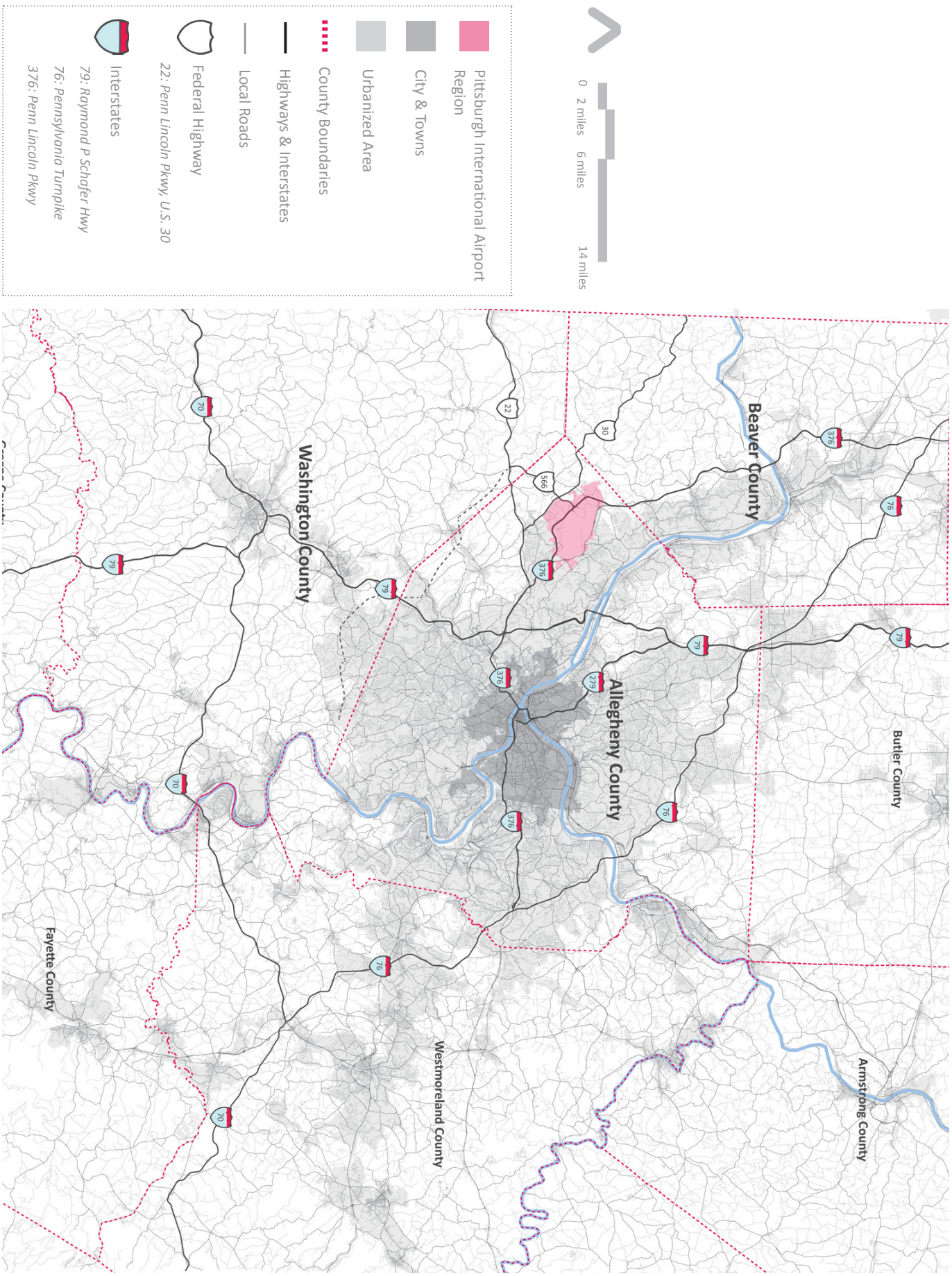
Based on the analysis of the collected data and meetings with municipal, county, and regional officials, the research team identified four sites in the thirty-minute catchment area to test the aerotropolis development concept. Concept designs for the four sites are shown in chapter ten.

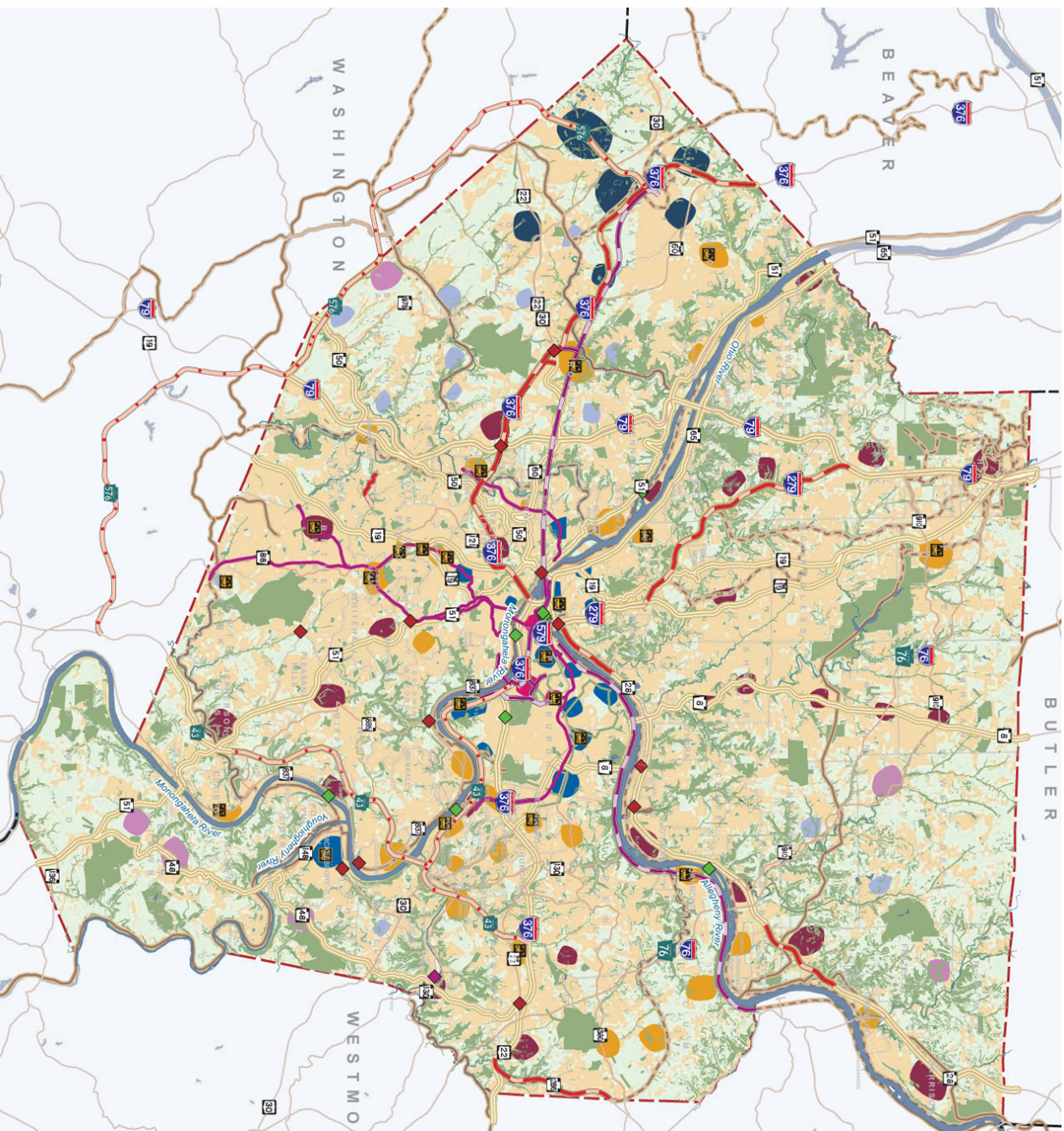
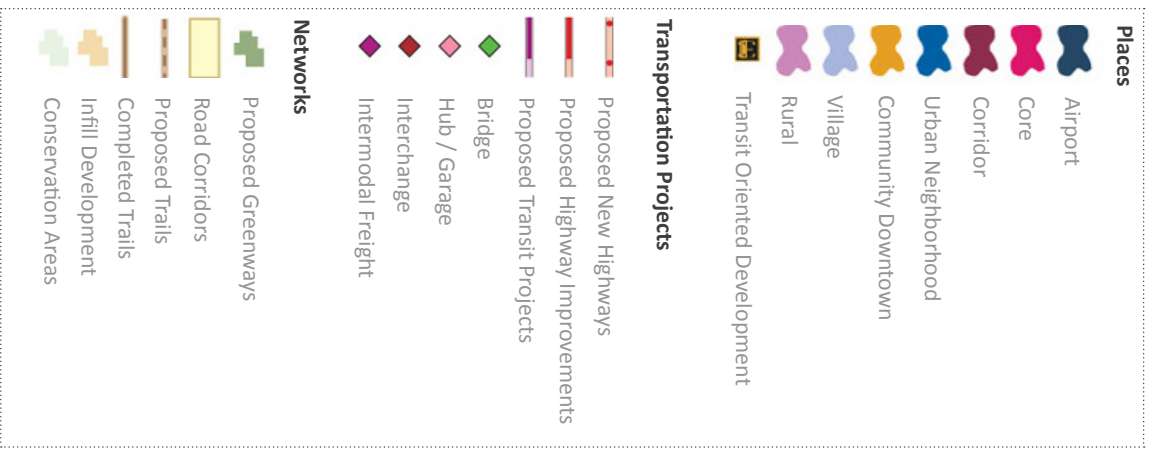


	Pittsburgh International Airport Region		30 Minute Drive Time From Airport
	County Boundaries		Highways

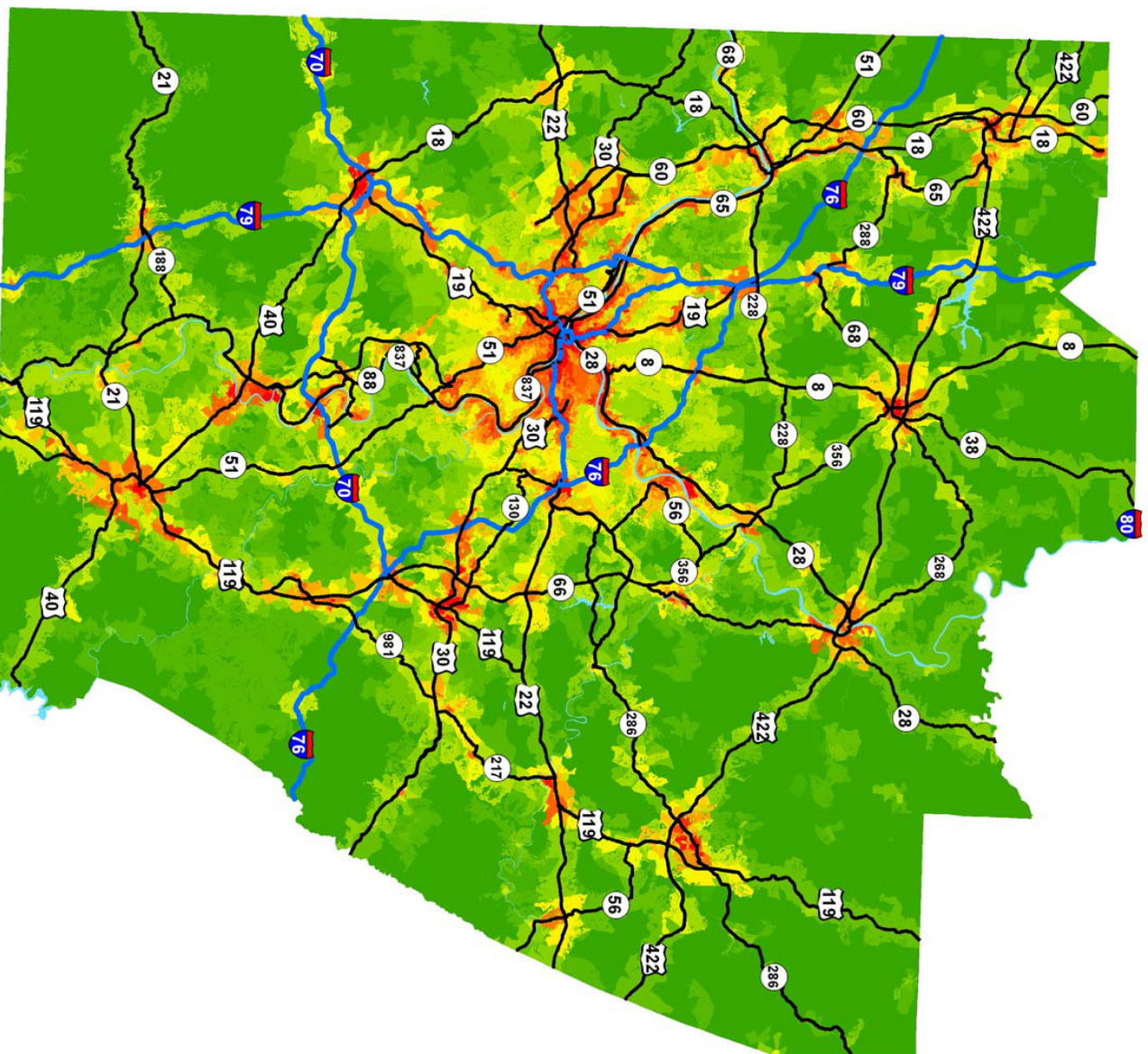
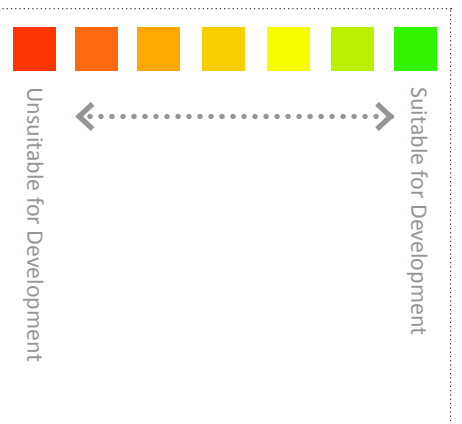
Regional Railroad Lines



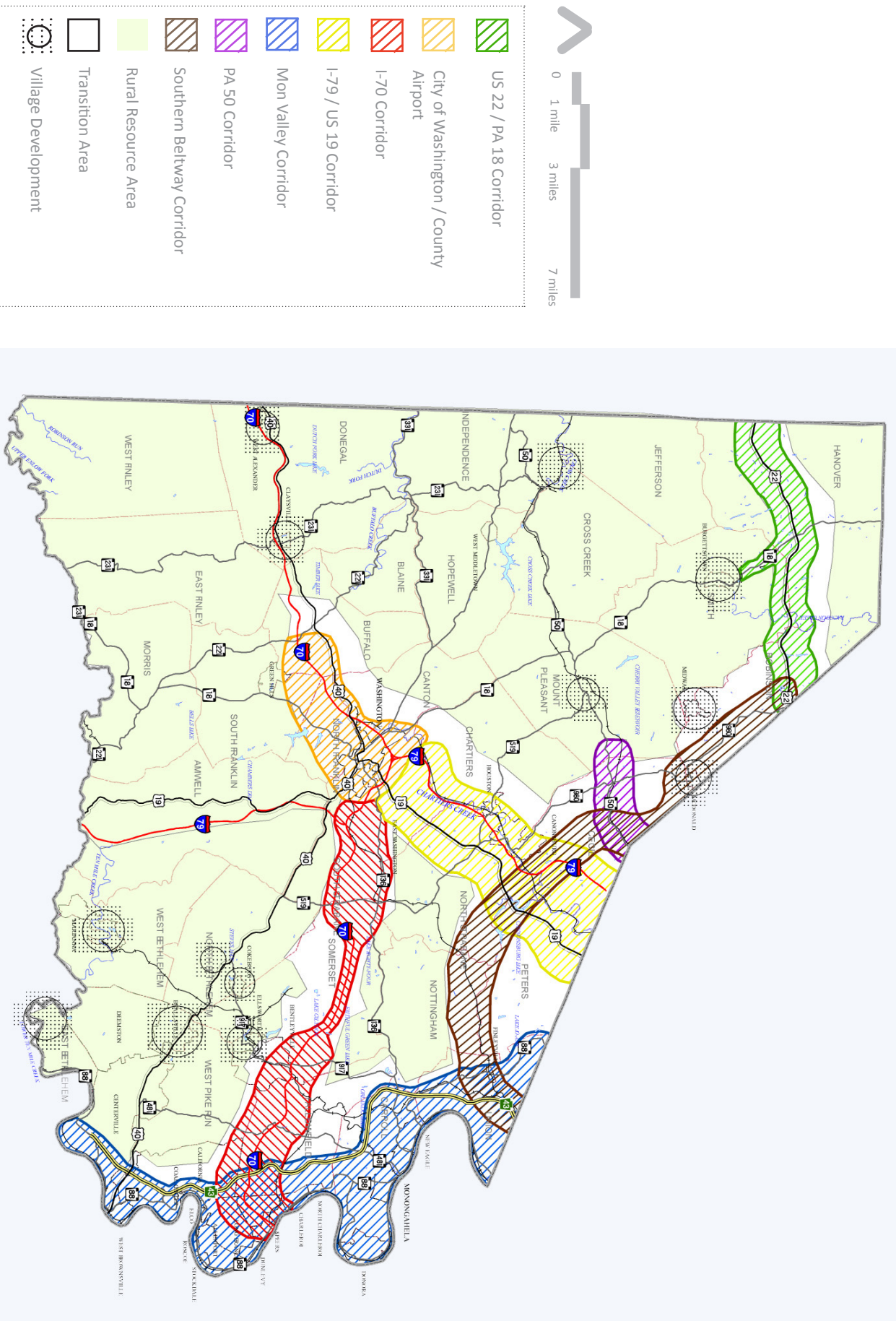




The Southwestern Pennsylvania Commission (SPC) is the federally-mandated Metropolitan Planning Organization (MPO) charged with regional transportation policy-making and planning for the ten county region surrounding the City of Pittsburgh. Congress created MPO's in order to ensure that existing and future expenditures of governmental funds for transportation projects and programs are based on a continuing, cooperative, and comprehensive planning process. Federal funding for transportation projects and programs is channeled through this planning process. The Southwestern Pennsylvania 2040 Transportation and Development Plan, or 2040 Plan, is an update of the 2035 Transportation and Development Plan. The 2035 Plan was developed through a community engagement process called Project Region. Project Region was led by the Southwestern Pennsylvania Commission, and was conducted in partnership with a wide range of other public, private, and non-profit organizations. This planning process was used as the backbone and basis for the 2040 Update.



Washington County Comprehensive Plan





0 1 mile 3 miles 7 miles

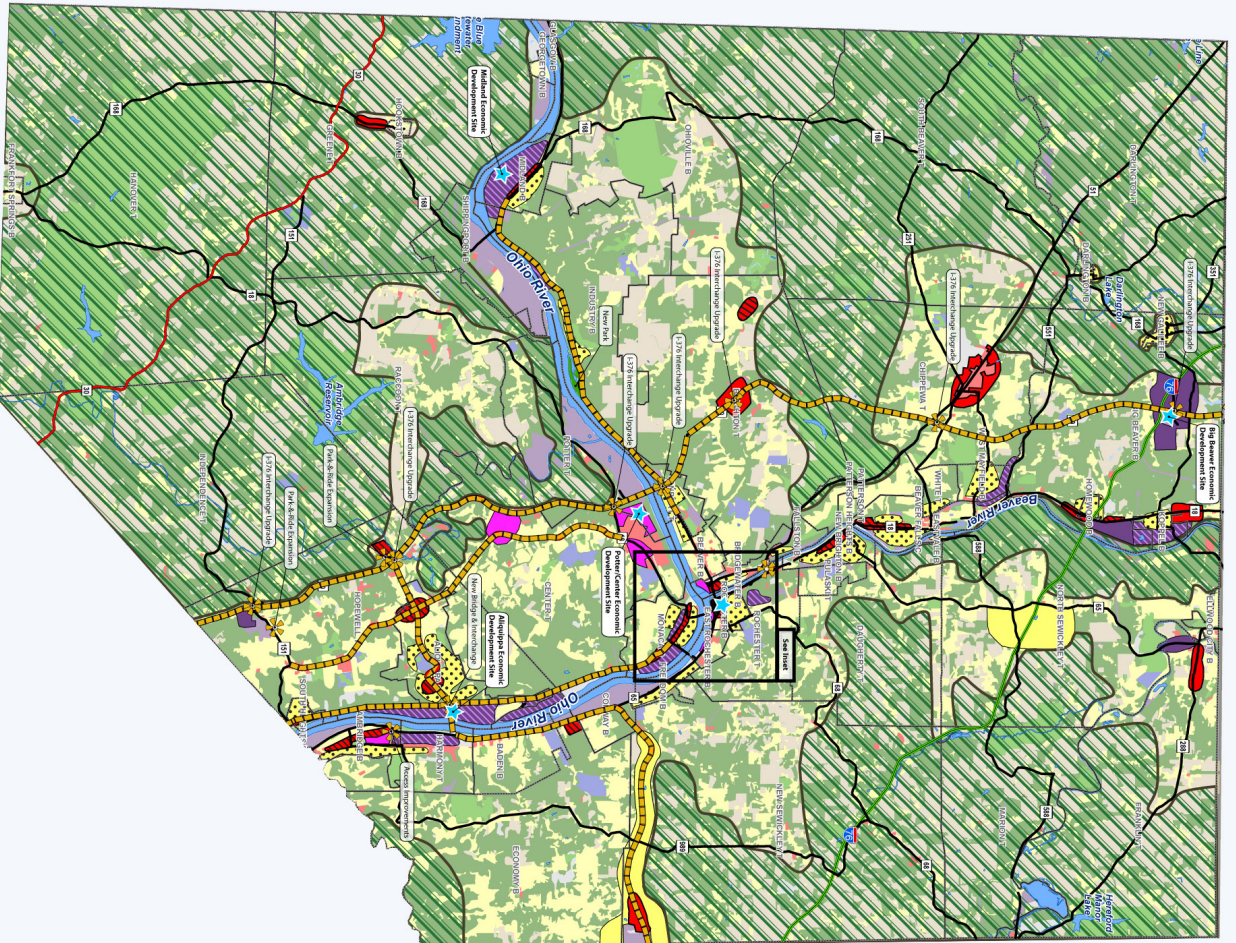
- County Boundary
- Municipality
- Lake-Reservoir
- River
- Interstate
- US Highway
- State Route

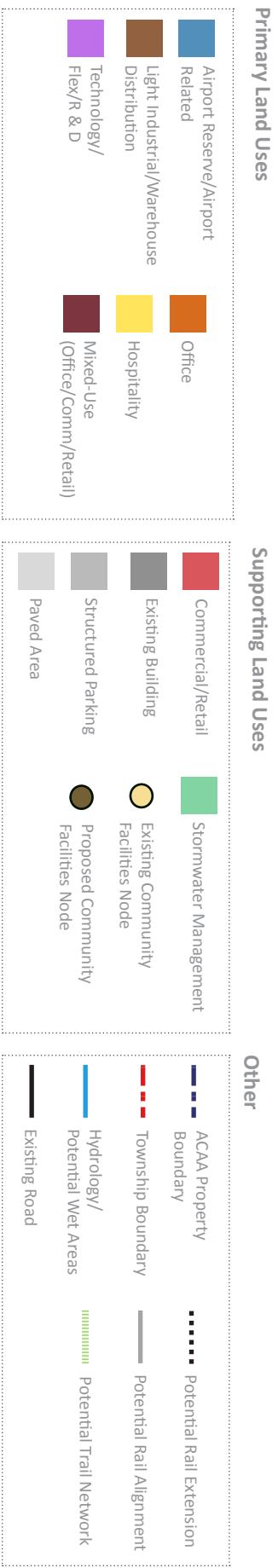
Future Land Uses

- Mixed Use Development
- Residential Development
- Res. Rehab/Infill Development
- Commercial Development
- Comm. Rehab/Infill Development
- Industrial Development
- Indst. Rehab/Infill Development
- Rural Resource Area
- New Parks/Open Space
- Target Economic Development
- Transportation Improvement Site
- Transportation Improvement Route

Existing Land Uses

- Agriculture
- Residential
- Institutional
- Industrial
- Commercial & Services
- Parks or Recreation Land
- Undeveloped Land
- Water
- Other





In 2011, the Allegheny County Airport Authority (ACAA) updated the Development Master Plan for the Pittsburgh International Airport. The development plan aims to direct the growth of the property surrounding the airport operated by the ACAA.

The 2011 development plan is an updated version of an analysis conducted in 2003 to determine the site capacity of the ACAA's land. In 2004, a Site Prioritization Analysis was completed to outline priority development nodes to direct growth over the course of the following five years. Based upon the process undertaken in 2003 and 2004, the 2011 master plan engaged numerous stakeholders in the decision making process. Regional, county, and municipal leaders voiced their opinions regarding the development of property adjacent to the airport. As a result, the plan focuses on a variety of issues including airfield planning, economic development, and business development.



Existing Airport



7. Stakeholder Meetings

Between February and May 2011, the RCI team interviewed stakeholders from local government, the business community, real estate and development interests, non-profit organizations, and airport operations. The team also met twice with the Tri-County Airport Partnership (TCAP) and took part in reviewing the Allegheny County Airport Authority's most recent master plan.

Perspectives, Townships

Townships in the airport area are all interested in participating in airport-related development, but they have different interests: Moon and Robinson are looking for new commercial (including industrial, business, office, research, and retail) development to bring new jobs; North Fayette, which has seen considerable commercial development in recent years, wants to attract a larger resident population; Findlay, the least developed to date, is looking for growth in both commercial and residential development. Moon Township, which is updating its comprehensive plan, is looking to create a distinctive town center and also hopes to see development of a research/development park near the airport. Robert Morris University is an important community asset and partner. Robinson Township considers itself nearly "built out", though a few industrial sites remain. The large commercial sites that have been developed along the airport corridor offer additional opportunities for infill development, particularly on the acreage currently used for parking if alternatives can be provided. All of the townships have difficulty acquiring funding for infrastructure, and development plans have been impeded by shortfalls in state and federal budgets.

North Fayette Township

Area: 16,000 acres

Population: 13,000

- › Have attracted a considerable amount of commercial development
- › Priority going forward is more residential around Pointe and other existing business uses
- › Sees itself as a "bedroom community" and expects to grow to 21,000 by 2030
- › New commercial only in areas already designated and prepared for development

Moon Township

Area: 15,000 acres

Population: 22,500

- › Includes northern part of airport and old airport access
- › High residential growth of last twenty years is slowing; most land is developed
- › Seeking a balance of uses
- › Priority is light industrial, research and development, office uses
- › Planning goals: town center, better front doors, and improved University Boulevard

Robinson Township

Area: 12,000 acres

Population: 14,500

- › Township has stable low-density suburban population; most land is developed
- › Priority is commercial or industrial development that will create new jobs
- › Want to hold current population steady
- › See opportunity for infill development on existing commercial sites, to minimize new infrastructure

Findlay Township

Area: 32,000 acres

Population: 5,000

- › Airport occupies one-quarter of township area
- › See population increasing to 15,000
- › Priority is attracting new businesses and jobs
- › Capacity for 20 million square feet of new commercial/industrial space
- › Recently focusing more on protecting environmental quality

Perspectives, Counties

Beaver County

Beaver County has seen airport-related residential development, primarily in Hopewell Township. They are looking for new industrial/office development in their business parks, such as Hopewell Business Park and the Aliquippa LTV Site. Beaver County has a number of development sites, including Aliquippa, along the Ohio River, but they are less likely to see airport-related development because they are distant or disconnected from the airport. Beaver County's plans call for denser development in its riverfront communities and at highway intersections. The townships near the airport are primarily agricultural and are not looking to become more urbanized. County representatives indicated an interest in participating with Allegheny and Washington Counties in pursuing a regional approach to airport-related development, especially on the I-376 corridor.

Washington County

The high-priority development sites for Washington County are the SouthPointe and StarPointe business parks. They feel they have been successful in attracting development there and are concerned that the improvement of sites near the airport will limit the demand for their sites. Most of the northwestern area of the county--the area within a thirty-minute drive of the airport--is agricultural or recreational. The county planning documents call for policies that will improve the quality of existing communities and reduce sprawl. They emphasize consolidated development and management of natural resources to assure continued quality of life in the county.

Allegheny County

Allegheny County has taken an increasingly active role in promoting and facilitating airport-area development. The recently completed comprehensive county plan, "Allegheny Places", envisions the airport area as the largest development opportunity in the county. The County's Economic Development department and the Airport Authority have engaged in public-private partnerships that currently have approximately 2,000 acres under development, including Clinton Commerce Park and Imperial Park. The extension of the Cherrington Parkway is a strategy for opening additional acreage for development. Allegheny County's plan puts a high priority on infill and redevelopment in existing urban areas, on developing a better system of public transit, and on preservation of natural land.

Real Estate Interests

Southwest Pennsylvania has not yet attracted developers to build the kind of mixed-use, higher-density development that is now seen in other parts of the country. Major landholders and real estate developers see the airport area primarily as an opportunity for conventional suburban highway-related uses: warehousing and distribution, business and light industrial uses, chain hotels, and other such low-density development. The area is well-served by both the airport and highways. The biggest issue is the cost of preparing large flat “pads” for development. Much of the undisturbed land is steeply sloped and much of the land that has been mined is still contaminated. Large areas of Findlay Township have been used as landfills. The Imperial Land Company, however, has large holdings of already remediated land that they are improving for business park development. They look to local government to provide access to funding for infrastructure, which is essential to their development plans. Public agencies that engage in development are seen as competitive, especially when they obtain infrastructure funding from the same sources as the private sector.

Businesses

Businesses that have located in the airport area have been attracted by both the availability of affordable land and the accessibility of the location by air and road. Dick’s Sporting Goods corporate campus is an example of the kind of enterprise that the Airport Authority and Allegheny County would like to see occupying the perimeter of the airport. Other businesses, primarily shippers such as UPS and FedEx, occupy the warehouse space along the north runway.

Pittsburgh International Airport

The development of excess airport property is one goal of the Airport Authority, and they see the master plan as a useful tool to maximizing the development potential of the land. They are strictly interested in commercial development and have ruled out residential development on airport property. Their past and current efforts to promote air cargo and attract freight forwarders have not been as successful as planned. The forwarders are well-established in the major air cargo hubs, particularly New York, Miami, and Chicago, and unless circumstances change, are likely to remain there despite increasing delays due to increased air and land traffic. The benchmarking study by Aerotropolis Concepts cites the high cost of Pittsburgh’s airport as a deterrent to attracting new users, which is largely a legacy of the financing structure used to construct the new airport. On the other hand, local airport services, including security, customs, and immigration, pride themselves on their record of efficiency and responsiveness.

Non-Profit Organizations

Civic, professional, and public interest organizations, such as the Pittsburgh Airport Area Chamber of Commerce, are interested in development around the airport that contributes to the overall quality of life in the region. They are committed to a regional perspective on development and support inter-jurisdictional as well as public-private partnerships. These organizations work very closely with state, county, and local governments, as well as educating the public and marketing the region nationally and internationally. The Airport Corridor Transportation Association (ACTA), for example, works with SPC and localities to promote transit, pedestrian-friendly streets, and transit-oriented development.

Common Themes

Among the comments made by stakeholders over the course of many meetings, several themes emerged that suggest commonly held views:

- › The area around airport is seen as underdeveloped, and it is assumed that the best and most likely uses are suburban highway-related uses. Those that are air-related should be on or near the airport property.
- › The cost of new infrastructure is seen as a major obstacle to development.
- › All the landholding entities, both private and public, are committed to maximizing the value of their own property, in terms of both real estate and jobs. There is a sense of competition not only among private developers but among public agencies and jurisdictions. There is a willingness to meet together but a cautiousness about pursuing joint projects or adopting joint development policies.
- › There is concern over the obstacles to airport-related growth, since the airport has lost flights and passengers over the last few years and the international air cargo system seems resistant to the idea of a Pittsburgh hub. However, it is commonly acknowledged that Pittsburgh International Airport offers great operational capacity, low-cost land, and excellent highway access.

Airport Area Public and Private Stakeholders

Jennifer L. Antonoff, TSI Cargo, US Department of Homeland Security
Joseph H. Aversa, Customs Officer, U.S. Department of Homeland Security
Brian S. Bernarding, Import Traffic Manager, Dick's Sporting Goods
Gerald Bunda, President, Imperial Land Corporation
Jason Bunda, Imperial Land Corporation
Chris Caruso, Assistant Manager/Planning Zoning Administrator, Findlay Township
Ryan Chismark, Allegheny County Department of Development
Dennis Davin, Director, Allegheny County Economic Development
Thomas M. Deasy, TSI Cargo, US Department of Homeland Security
Fred Dupin, Inspections and Regulatory Enforcement, US Department of Homeland Security
Randy Forister, Development Director, Allegheny County Airport Authority
Bob Grimm, Township Manager, North Fayette Township
Sally Haas, President, Pittsburgh Area Airport Chamber of Commerce
Lynn Heckman, Allegheny County Economic Development
Jeffrey Heithaus, Development Manager, Washington County Planning Commission
Gary Klingman, Findlay Township Manager
Frank Mancini, Jr., Executive Director, Redevelopment Authority of Beaver County
Lynn Manion, Executive Director, Airport Corridor Transportation Association
Adam McGurk, Former Assistant Township Manager/Planning Director, Moon Township
Bob Miller, Director of Facilities, AFCO Aviation Facilities Company, Inc
Jim Palmer, President, Beaver County Corporation for Economic Development
Dewitt Peart, President, Pittsburgh Regional Alliance, Allegheny Conference on Community Development
Bradley D. Penrod, Chief Executive Officer, Allegheny County Airport Authority
Cece Poister, Director of Cargo Facilities, Pittsburgh International Airport
JoAnn Pollock, General Manager, Worldwide Flight Services
Dan Reitz, Executive Director, Washington County Council on Economic Development
Jennifer Rennard, Import Traffic Analyst, Dick's Sporting Goods
Maurice Strul, Allegheny County Department of Development
Brian D. Sukitch, Air Gateway Manager, UPS
Jason Theakston, Land Use Planner, Washington County Planning Commission
David Totten, Southwestern Pennsylvania Commission
Rick Urbano, Robinson Planning Department Director
Robert Wagner, Senior Manager, FedEx Air Ground Freight Services
Sara Walfoort, Transportation Planning Manager, Southwestern Pennsylvania Commission
Ken Zipinski, Allegheny Conference

Airport Area Land Owners and Developers

Beynon & Company

Brandywine Real Estate

Buncher Company

CB Richard Ellis

Chapman Properties

Dick's Sporting Goods

DiCicco Development

Elmhurst Group

FWG Real Estate

Grubb & Ellis

Horizon Properties

Imperial Land Corporation

Massaro Properties

Oxford Development Company

NAIOP Pittsburgh Chapter

Soffer Organization

TarquinCoRE

8. Conceptual Development Program

The research team did not conduct a market study to determine quantities of development but did prepare a conceptual development program to indicate the types of uses that would be attracted to the Pittsburgh Aerotropolis. The conceptual program was based on typical uses at other aerotropolis projects and on the existing market strengths of the Pittsburgh region. The uses include:

- › Flex and distribution
- › Bonded warehouses
- › Freight forwarders
- › Free trade zone assembly and shipping
- › Just-in-time electronics repairs
- › Just-in-time manufacturing
- › Technology companies
 - information technology
 - robotics
 - bio-medical
 - energy
- › Satellite university campuses
- › Hospitals and trauma centers
- › Aerotropolis support services and uses
 - hotels
 - entertainment
 - conference centers
 - retail and food
 - mixed income housing
- › Headquarters
 - International
 - National
 - Regional
- › E-Fulfillment centers
- › Destination entertainment
- › R & D parks
- › Corporate campuses

The above uses assume an airport dependency. Development that is not airport related should be directed elsewhere in the region and not to the aerotropolis project area.

9. Development Principles

After reviewing the physical data, the stakeholder meetings, and the conceptual development program, the research team prepared the below list of development principles for the Pittsburgh Aerotropolis. The underlying strategy mandates a regional approach to sustainable development that crosses municipal and county boundaries and capitalizes on existing assets and infrastructure.

- › Develop a multi-jurisdictional strategy
- › Plan primarily for airport related uses
- › Develop airport compatible uses
- › Concentrate development
- › Preserve natural areas
- › Develop sustainably
- › Provide connectivity
- › Encourage mixed-use development
- › Encourage infill development
- › Make places, not sprawl.

These development principles were presented and reaffirmed at the visioning charrette in June 2011.



Visioning Charrette

10. Development Models & Selected Sites

Four prototype development models (and related sites) were selected to illustrate and test the aerotropolis concept for the Pittsburgh region: airfield related development; infill and redevelopment; new town development; and expansion and connection of existing development. The models are describe below and are shown on the map opposite.

1. Airfield Related Model

The Allegheny County Airport Authority (ACAA) controls 8,800 acres of land, of which 2000 acres are within the secure perimeter of the airfield. Of the remaining acreage, approximately 3,800 acres are slated for future commercial development. In 2011 the ACAA commissioned IDC Architects to prepare the Airport Property Development Master Plan for the developable property. This was a logical site to test Airfield Related Development prototype.

2. Infill and Redevelopment Model

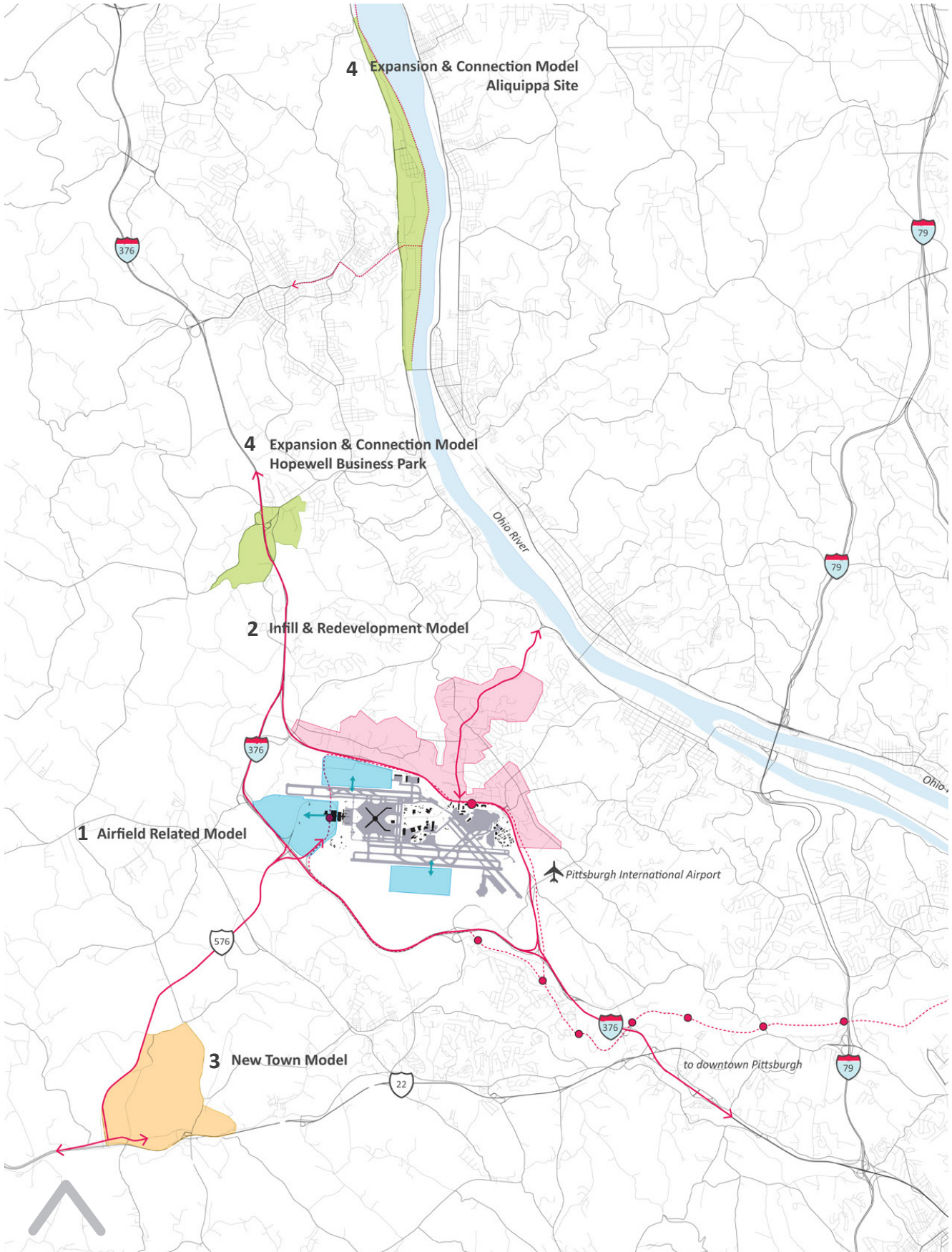
A central tenet of sustainable development is to reuse existing infrastructure and to densify and infill existing development. Opportunities for such development occur all along the I-376 (Parkway West) corridor from Downtown Pittsburgh to Beaver County. The site selected for further study in the Visioning Charrette was the University Boulevard area of Moon Township. Area of development around University Boulevard ranges from 1,200 acres to 3,000 acres.

3. New Town Development Model

Thousands of acres of privately owned vacant land exist to the south and west of the airport in Allegheny and Washington County and to the north in Beaver County. One possibility for aerotropolis development would be a new town close to the airport on undeveloped land. The site chosen to test the New Town Development prototype is at the intersection of Pennsylvania Turnpike 576 (Findlay Connector) and U.S. Route 22. The site straddles the Allegheny/Washington county border and includes both open/undeveloped land and remediated surface mined land. The selected site for the New Town Model is between 600 and 1000 acres.

4. Expansion and Connection Model

The final development prototype examines expansion of existing airport-related commercial development and connection to rail and river cargo facilities. Two locations were chosen to test this prototype in the Visioning Charrette, both in Beaver County: the Hopewell Business Park along I-376; and the Aliquippa Industrial Park adjacent to the Ohio River and the CSX railroad. The Hopewell Business Park location is approximately 500 acres, and the Aliquippa Industrial Park is approximately 800 acres.



11. Visioning Charrette

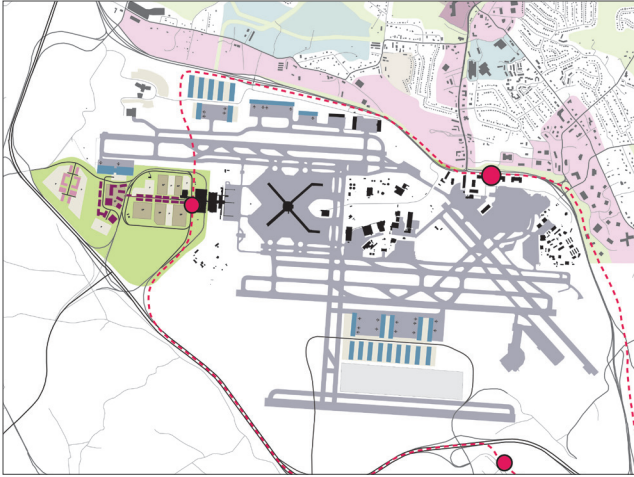
The Visioning Charrette was held at Robert Morris University Monday and Tuesday, 13-14 June 2011. Participants included the research team of MGB & Associates, Aerotropolis Business Concepts, and the Remaking Cities Institute. Master of Urban Design students from the School of Architecture of Carnegie Mellon University assisted the research team.

Public stakeholders, including the Allegheny County Airport Authority and elected and appointed officials from the three counties (Allegheny, Beaver, and Washington) and local municipalities, attended and assisted in the working sessions. Private stakeholders included landowners, developers, real estate brokers, and the Allegheny Conference on Community Development.

The charrette began on Monday morning with a slide show presentation of the results of Step 1 (Data and Analysis) by Mulu Birru of MGB Associates, John Kasarda and Steve Appold of Aerotropolis Business Concepts, and Donald Carter of the Remaking Cities Institute. The aerotropolis research team and the graduate students then went to work testing the four development prototypes Monday afternoon and evening and all day Tuesday. A lunch meeting with county and municipal officials was held on Tuesday to review progress of the work and to receive feedback. A final slide show presentation of the four development models and sites was made to officials and stakeholders late Tuesday afternoon.

On the following pages the four development models and related sites that were developed and presented at the charrette are documented, including existing conditions, project precedents, development program, concept plans, and opportunities and challenges.

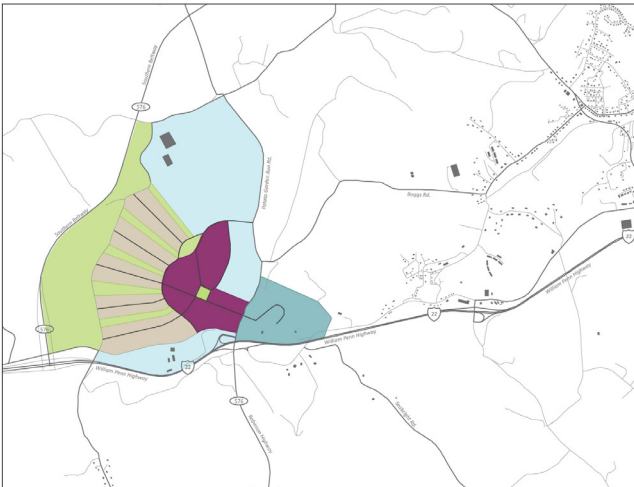




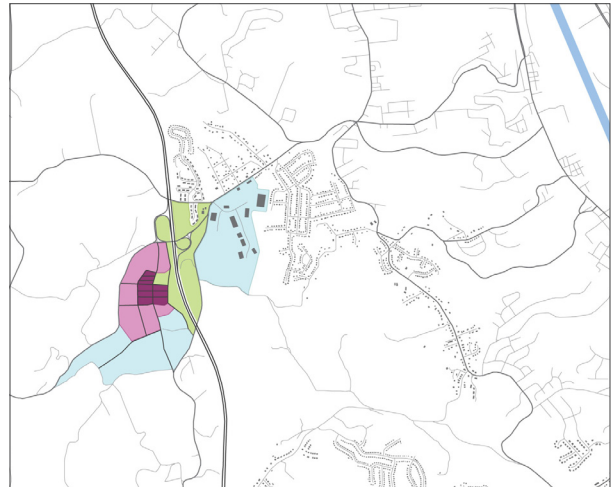
Airfield Related Model



Infill & Redevelopment Model



New Town Model



Expansion & Connection Model

11.a. Airfield Related Model

Pittsburgh International Airport

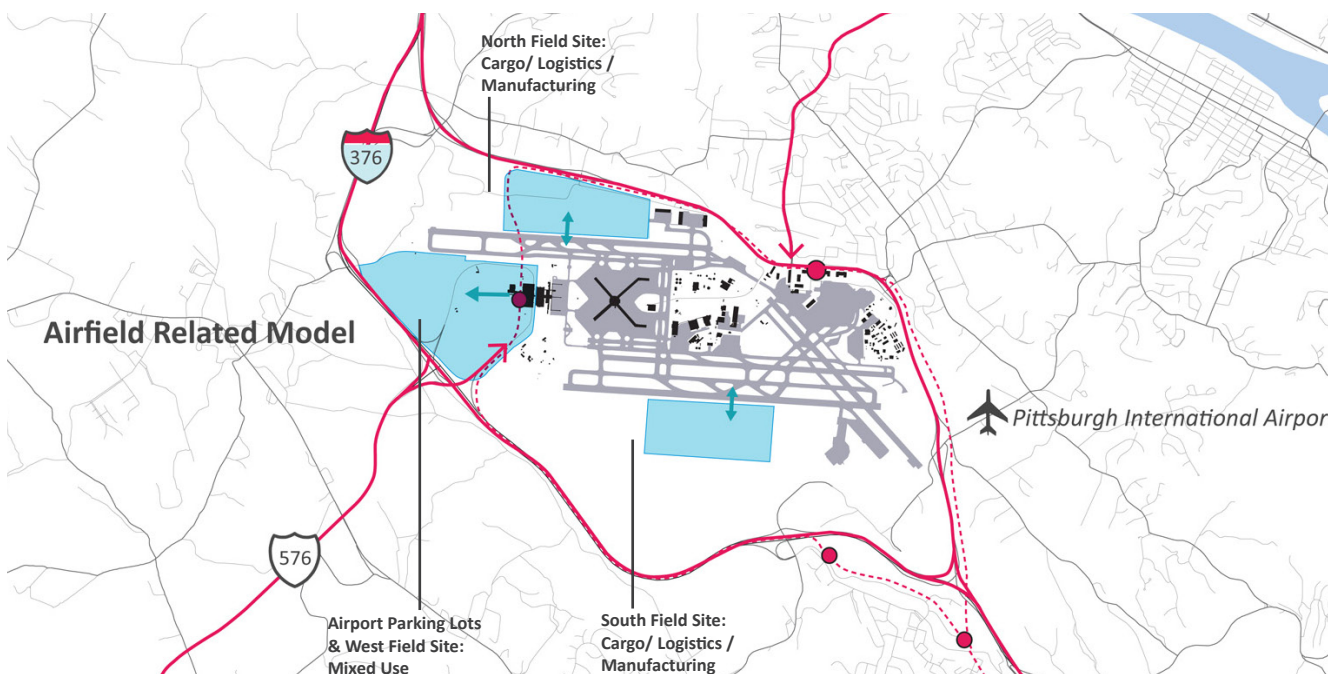
The conceptual plans for the Airfield Related Model in this section are variations and enhancements to the 2011 Allegheny County Airport Authority Development Master Plan as described on pages 22 and 23 of this report.

Existing Conditions

The Pittsburgh International Airport (PIT) is served by a midfield terminal with parallel east-west runways to the north and south of the terminal. The passenger terminal and parking sit to the west. The airport is surrounded by a loop of highways with limited access Interstate 376 to the south and north. Significant airfield related development opportunities exist on the northern, western and southern sides of the airport. To the north and south there are opportunities for cargo related development along the north and south runways with truck access connecting directly to the Interstate System. Investment in the North Field site has already begun with the construction of Dick's Sporting Goods corporate headquarters and the completion of grading and infrastructure for new cargo / logistics / manufacturing buildings. Similar opportunities exist along the southern runway, but will require significant regrading and the construction of a new access road, as well as the completion of the planned Enlow Road I-376 interchange. West of the terminal there exist opportunities for continued office, hospitality and limited retail development with direct terminal and highway access. Today this zone is devoted to surface parking lots partially served by an enclosed moving walkway. Since the opening of the terminal in 1992, one major terminal related development has occurred with the construction of a Hyatt Regency Hotel connected directly to the moving walkway.

Geographic Setting

Pittsburgh International Airport sits on one of the largest flat plateaus in Allegheny County, surrounded by a complex and steep topography of hills and creek valleys. Land to the north and west of the airport is roughly at the same elevation as the airfield, while land to the south descends rapidly into the Montour Run Watershed. The underlying geography makes development at the North Field and West Field sites relatively easy, while the proposed South Field site and future runway will require significant grading.



Development Components

Airfield Related development opportunities fall into two categories:

On the **North and South Field Sites** opportunities exist for new cargo, logistics and high value manufacturing buildings with direct airfield and highway access. On both sites there is enough space for multiple new buildings with both truck and runway access. Both sites also can accommodate multiple flex buildings with primarily truck access.

On the existing **Airport Parking Lots** and adjacent **West field Site** there is an opportunity for mixed use development with direct terminal access including significant new office space, additional hotel space, meeting and conference space, limited retail and restaurant uses. New development would be supported by a mix of structured and surface parking.

Precedents

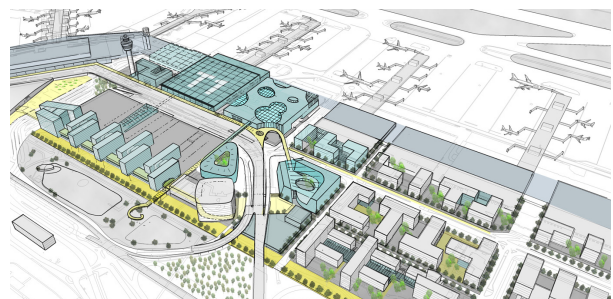
New Mixed-Use Development

› **Gate Village, Dubai International Finance Centre (Hopkins Architects)**

A development of primarily office uses on a multistory podium of structured parking. At the pedestrian podium level Gate Village contains limited retail uses such as restaurants, cafes and galleries along with office lobbies.



Gate Village



Schiphol Plan

New Airport Terminal Development

› **Schiphol Airport, Amsterdam (KCAP - Planner)**

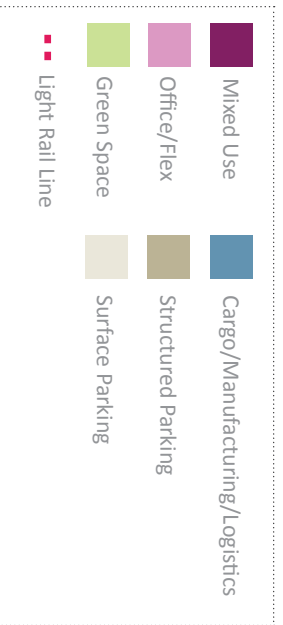
New mixed use development adjacent to the existing Schiphol including offices, retail, hotels and structured parking. The Schiphol aerotropolis creates a walkable environment that is connected to the airport terminal, a regional and national rail station and parking and highway networks.



Schiphol Airport



0 1,250 ft 5,000 ft 10,000 ft

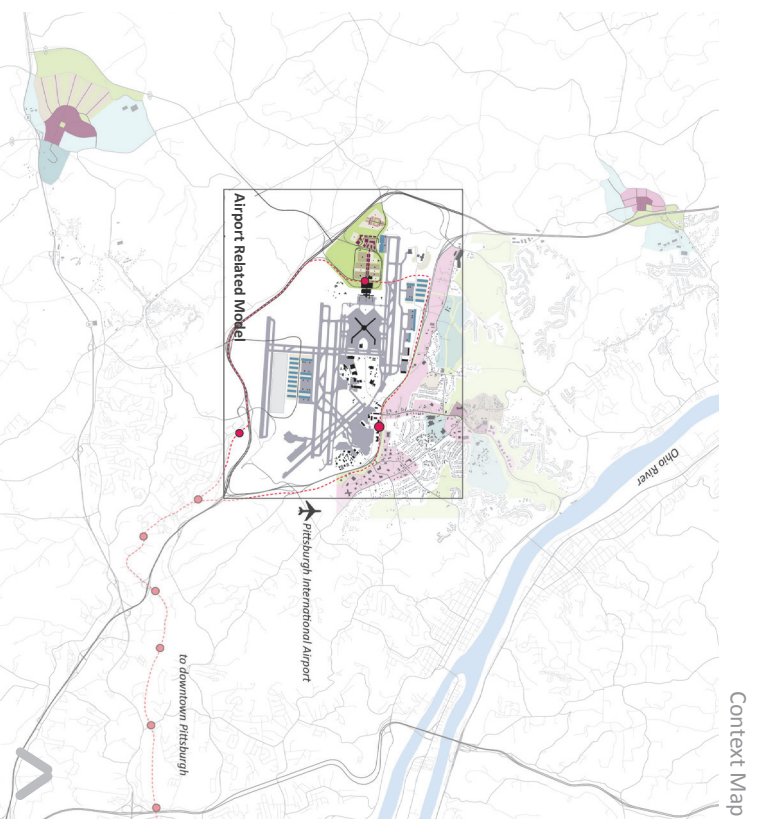


- 1** South Field cargo center with direct airfield access on a new taxiway
- 2** South Field cargo / manufacturing / logistics buildings with truck access to 376
- 3** Future airfield maintenance zone
- 4** Future new runway
- 5** New truck cargo access road between Mc Claren Road interchange and new Enlow Road interchange
- 6** North Field cargo / manufacturing / logistics center with truck access to business 376
- 7** Airport Parking Lots Site
- 8** West Field Site

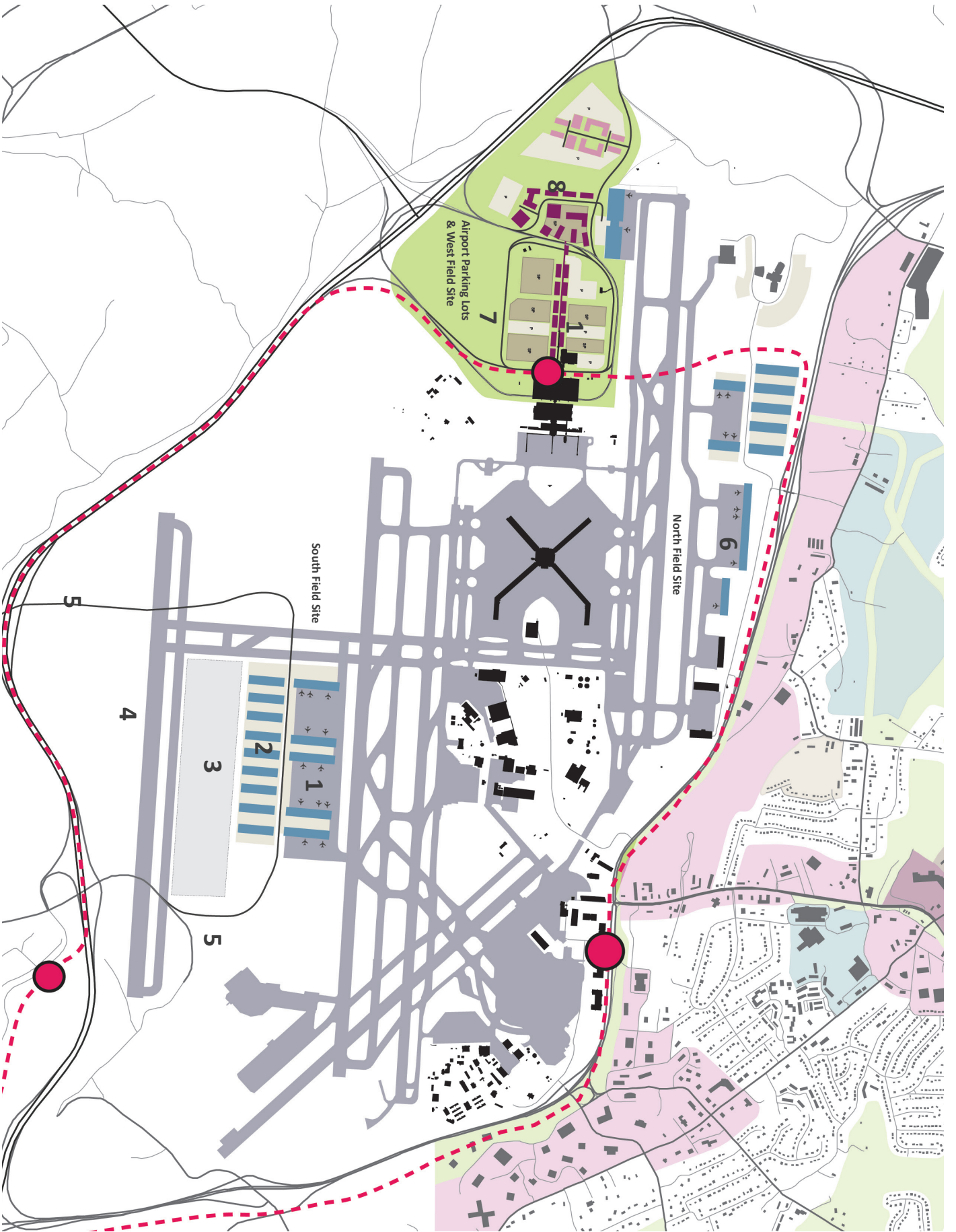
North Field and South Field Sites

Today the North Field Site is already well established with significant regrading, utilities and road infrastructure already in place for the construction of new cargo / logistics / manufacturing buildings. This study recommends a similar strategy be taken on the South Field site in the zone between the existing airfield and the proposed new southern runway (4). The area between the runways would be divided into two zones. Along a new taxi way adjacent to the runway would be a new South Field Cargo Center (1) with 5 new cargo buildings with both truck and plane access, and 9 flex buildings with truck access only. The remainder of this area would be reserved for a future airfield maintenance zone (3). To serve the South Field site a new loop access road would need to be constructed connecting the existing McClaren Road Interchange with the proposed Enlow Road interchange (5).

Developing a cargo center on the South Field Site will require limited regrading and the construction of new utility and road infrastructure. In the short term grading can be limited to the building and parking pads, a limited new taxi way and the access roads. In the long term the grade of the entire South Field area would be leveled to that of the existing air field to accommodate a new runway. In the ultimate configuration shown at right the access loop road would tunnel under the new runway and taxi ways.

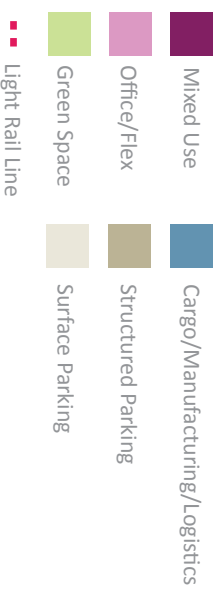


Context Map





0 420 ft 840 ft 1,680 ft



- 1 Build structured parking on existing airport surface lots
- 2 Develop new mixed use buildings along an extended people mover spine
- 3 Develop a mix of uses on top of a structured parking podium connected to the terminal by an extended people mover
- 4 Create a campus on the West Field hill top for new corporate office uses
- 5 Connect West Field sites to the existing terminal road loop with a new road network
- 6 Create new cargo / logistics or corporate hangar buildings with airfield access
- 7 Locate future Light Rail Transit station at the interface between the terminal, people mover, mixed use development and existing structured parking

Airport Parking Lots & West Field Site

To date limited development has occurred adjacent to the airport terminal with the construction of the Hyatt Regency Hotel. Currently this zone is a large basin of surface parking lots served by a one way loop access road and a linear pedestrian people mover connected directly to the terminal.

On the Airport Parking Lots this study recommends continuing the pattern of development established by the Hyatt and building new mixed use buildings along both sides of the people mover spine (2). Uses could include office space, additional hotels, meeting and conference space and limited supporting retail and restaurants. The adjacent surface parking lots would be converted to structured parking as needed to support new development and to replace lost airport parking (1). It is also recommended that the location of the future light rail transit station be optimized to serve both the airport and the future terminal related development. Ideally the station would be located above or below the people mover between the existing structured parking garage and the Hyatt Regency (7).

On the West Field site new development is organized into three zones. Adjacent to the existing parking lots on the west side of the airport access roads there is an opportunity to create a campus of mixed use buildings at the terminus of the people mover. This study recommends this area be organized as a grouping of buildings sitting on top of a multi story structured parking podium (3). This strategy would allow for the creation of a pedestrian oriented podium level with direct terminal access via the people mover. Uses could include office space, additional hotels, meeting and conference space and limited supporting retail and restaurants. This zone could be the first phase of terminal development and could be built without disrupting the existing parking lots, which are crucial to maintaining parking revenues to support the operations of the airport.

The second zone further west is envisioned as a campus environment of primarily office uses, for one or more users. Buildings are organized around a central street and green space, with surface parking organized around the periphery.

As agreed by the ACAA during the charrette, a zone at the western edge of the runway offers opportunities for limited cargo / logistics / manufacturing uses or dedicated corporate hangar space with airfield access (6).

This study recommends that the West Field development sites be served by a new road network that connects to both the Moon Clinton I-376 interchange and the existing airport access loop. This is particularly important for any new mixed use that where users would be a mix travelers and local residents. At minimum the mixed use development (3) should have its parking access connected to the airport access roads allowing travelers to arrive either via the people mover or rental car without “leaving” the airport.



11.b. Infill & Redevelopment Model

University Boulevard, Moon Township

Existing Conditions

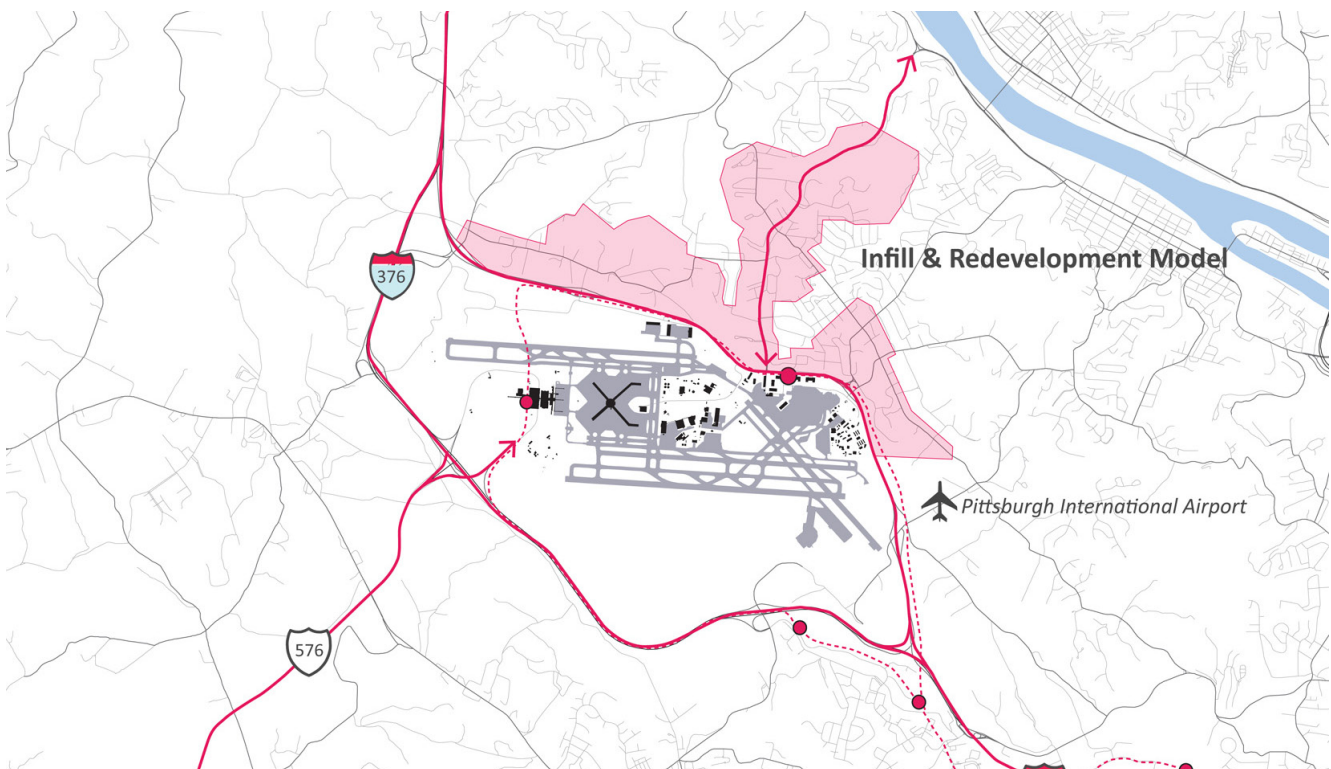
The original airport was a major factor in the growth of Moon Township, and, although the airport moved its main passenger terminal and entrance away from its former location, Moon has continued to grow as airport-related supportive development.

The township's original farming and hunting economy transformed into an industrial economy in the 19th century and into a business economy in the mid 20th century. With the opening of the Greater Pittsburgh Airport in 1952 Moon experienced its greatest growth. Although economic growth became challenged in the mid-1990's with the opening of the Pittsburgh International Airport, the area has continued to grow its office, industrial, and commercial development. Recent growth has also included residential development as employees desire to live closer to where they work.

Moon Township today covers 24 square miles and has a population of over 23,000. Moon Township is the oldest township in Allegheny County. Its original 143 square miles was subdivided over the years into Fayette, Findlay, and Crescent Townships and the Borough of Coraopolis. Moon's location north of the airport retains its airport connection to Sewickley, the Ohio River valley, and Pittsburgh northern communities.

Geographic Setting

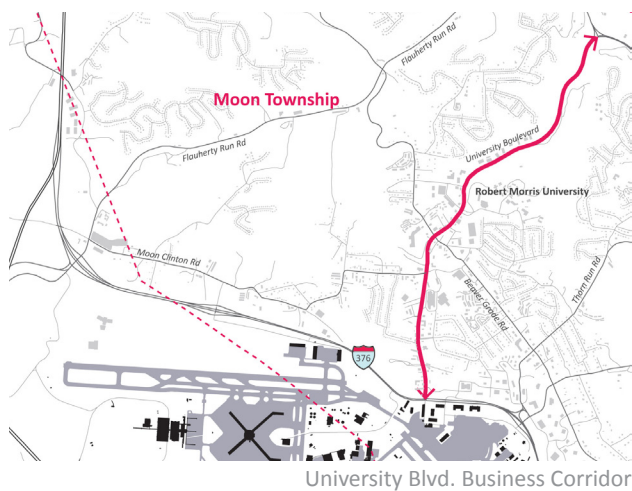
Moon's topography contains the higher and flatter Pittsburgh plateau at the airport at its eastern area and the valley ravines at its western and northern portions where the topography drops to the Ohio River. University Boulevard is the primary connector from the plateau to the river. Most of the valley areas have steep slopes and are heavily wooded, creating a beautiful and sometimes inaccessible landscape. Slopes define ridges and the edges of settled areas from University Boulevard west.



University Boulevard

Moon's main street is University Boulevard, which connects the former airport entrance at Business I-376 (Business Route 60) at its southern end to the Ohio River and Sewickley to the north. It has a two-mile long commercial strip beginning at I-376 before transforming into a green and steep valley connector as it nears the river. The southern section near the airport developed as hospitality uses originally serving the former airport, including motels, hotels, and restaurants. At University Boulevard's center are big box stores and strip retail malls, Moon's "town center," and the entrance to Robert Morris University which sits atop the plateau disconnected from the commercial activity. The strip's northern section consists primarily of auto-oriented uses, such as car dealerships and auto supply stores.

Business Environment



University Blvd. Business Corridor



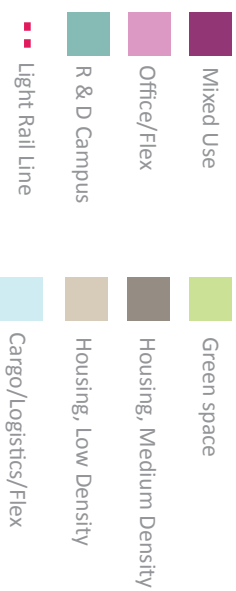
Robert Morris University

Moon has been a business oriented community since its beginning. Today, its commercial activities are primarily along University Boulevard. Office activities are concentrated east of University Boulevard close to Business I-376 and the airport. Moon's larger residential areas are located to the east of University Boulevard and less dense residential pockets are interspersed throughout the landscape to the west where there are flat building sites.

The direct impact of airport development has been along Business I-376. The Moon Transportation Authority was formed in the late 1980's to make transportation improvements along this corridor to promote development. The Thorn Run Transportation Improvement District (TID) was set up as a partnership to use assessments on development east of University Boulevard to help fund improvements. These assessments have paid for the engineering and pre-construction work for the Thorn Run intersection and are in the process of collecting more funds for its construction. The district has been successfully built out with office buildings and hotels. Recently, a TID was attempted west of University Boulevard but failed due to homeowner opposition. The proposal was then restructured as an assessment district with "impact fee" type charges placed on new development to support infrastructure improvements. The area was subsequently rezoned for Research/Technology and Mixed Use. Because of the lack of recent airport and economic growth little development has occurred. The Rubenstein Group is a major landholder.



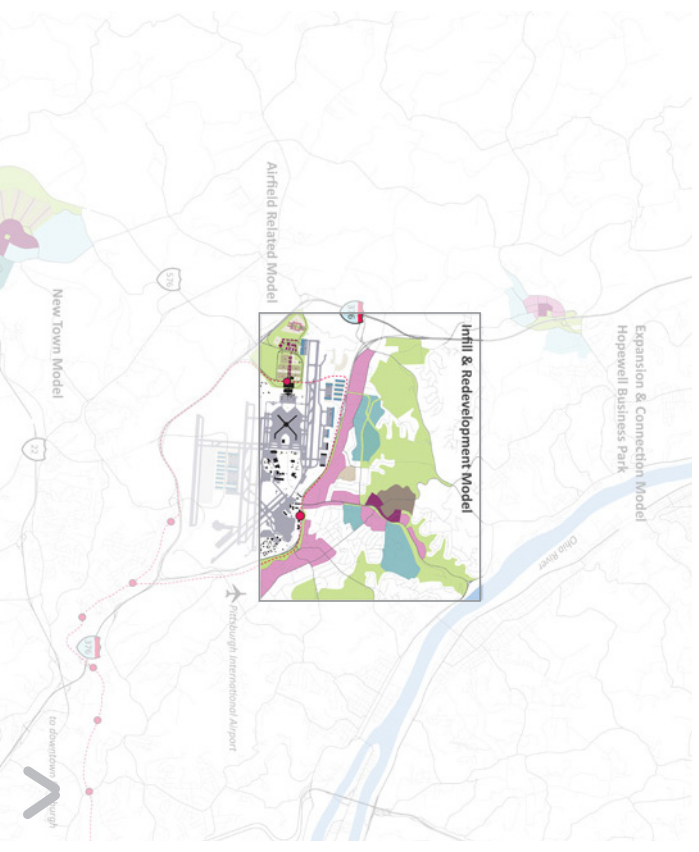
0 1,250 ft 5,000 ft 10,000 ft



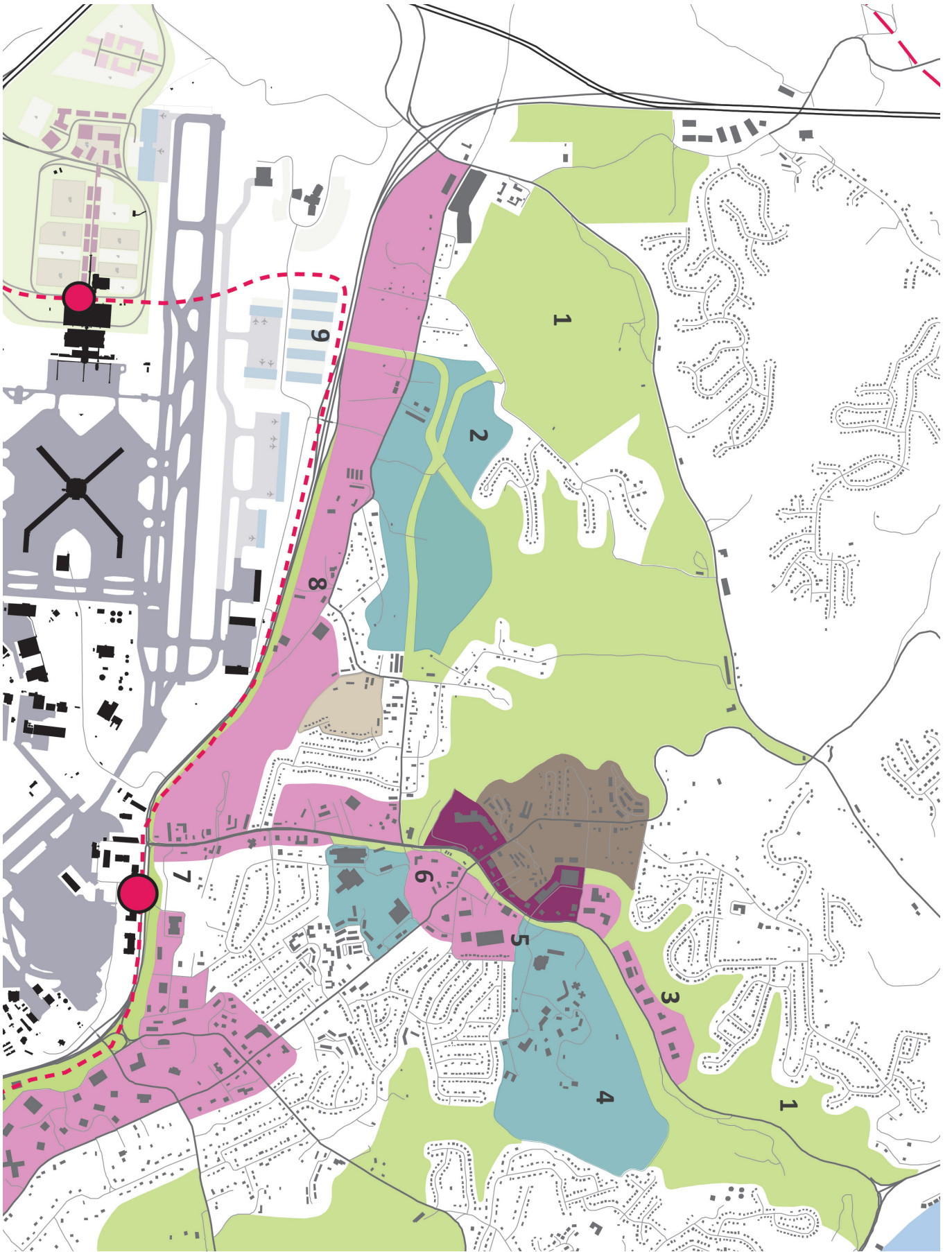
- 1 Extend green landscape into business areas
- 2 Develop Brandywine site as "Center for Logistics Excellence"
- 3 Convert auto-oriented commercial to university-related office and research
- 4 Integrate airport-related & business-oriented applied research & development with the Robert Morris University campus
- 5 Link campus to town center
- 6 Create a Town Center as a mixed use and walkable destination
- 7 Develop University Blvd. at I-376 intersection as a transit-oriented location
- 8 Extend I-376 corridor business development west of University Blvd. as airport-related businesses
- 9 Connect I-376 corridor business development to airport logistics

Concept Plans & Development Components

The proposed concept plan for Moon Township as an Infill and Redevelopment Model seeks to reinforce and strengthen the existing land use patterns with an airport-related agenda. It is generally consistent with Moon's Comprehensive Plan. Airport-related businesses, including logistics type operations, are encouraged along Business I-376 across from the airport's current cargo and logistics operations. Robert Morris University is proposed to become more business-oriented and open to logistics and logistics-support research and development activities on its campus and along University Boulevard, replacing the present auto-oriented uses. University Boulevard is repositioned with a new Town Center at the intersection of the University Boulevard and Beaver Grade Road/Broadhead Road. It is also reinforced south to I-376 as a designated hospitality zone to support logistics, office, research & development, and other commercial activities. To increase diversity and sustain its business base, Moon Township is encouraged to support an airport-related and mixed use economic base as its next level business growth. A green agenda, including stormwater management and open space, would overlay all development to encourage sustainable best practices and a healthy environment.



Context Map



Development Components & Program

Logistics Center of Excellence

The Rubenstein's Brandywine property, just off Business I-376 and directly accessible to the airport's current cargo and logistics operations, is proposed as a "Logistics Center of Excellence" and linked with Robert Morris University. Amenities to be provided include:

- › Classrooms and Training
- › Distant Learning
- › Continuing Education
- › Office and Research
- › Conference Center
- › Hotel/Hospitality

Robert Morris University

The University is proposed as a "Logistics Research & Development Campus." The Massey Center for Business Innovation and Development could assist in transforming the campus into a teaching and applied research center in partnership with business corporations. In this scenario, the Massey Center would work hand-in-hand with the business community and the Logistics Center of Excellence to lead and foster North American Aerotropolis design and support for the global community.

- › Logistics Research & Development Campus
- › On-campus Applied Research & Development Facilities
- › Classroom Teaching
- › Business Training
- › Logistics Degrees

Business I-376 Corridor

Taking the lead from the success of the Thorn Run Transportation Improvement District, the western frontages along I-376 would become an extension of the airport's cargo and logistics operations with a direct connection below I-376 to the airport property.

- › Cargo/Logistics/Flex
- › Research & Development
- › Office Development
- › Office Services
- › Light Manufacturing

University Boulevard

University Boulevard is envisioned as a mixed-use and multi-modal corridor with a walkable Town Center at the crossroad of Beaver Grade Road/Broadhead Road. University-related office/research & development uses would replace the auto-oriented uses across from the campus. Hospitality uses would continue to serve the expanded business community and Moon's residential communities from south of the Town Center to I-376. The intersection at I-376 is envisioned as an inter-modal transit and park-and-ride center with rapid transit to downtown Pittsburgh and the airport.

- › Multi-Modal Corridor
- › Town Center
- › Office and Office Support
- › Research & Development
- › Hospitality Uses
- › Transit Center

Town Center

A compact and walkable Town Center is proposed as the heart of Moon Township. Located at the intersection of University Boulevard and beaver Grade Road/Broadhead Road, the Town Center would become a destination for area residents and Moon's business and university community. It should contain a mixture of shopping, restaurants, nighttime activities, municipal facilities, a post office, business services, university outreach services, and residential uses in a pedestrian environment with festive public space. Robert Morris University should connect directly to the Town Center with a transit/car access road and a pedestrian walkway.

- › Shops
- › Restaurants
- › Municipal Facilities
- › Off-Campus University Services
- › Office Space
- › Residential Apartments
- › Public Open Space for Community Events

Examples

Logistics Center of Excellence and Robert Morris University attract national and international experts

New Town Center links airport, university, and community

Opportunities & Challenges

An infill and redevelopment model is an appropriate typology for an existing context, usually one with established land uses, different types of development, and a variety of building types. Often this model utilizes existing assets as opportunities to encourage different development priorities and/or create a vision that sets a new direction. Moon Township's location, infrastructure of land uses, and its university-centric commercial area provide strong assets that support the Aerotropolis concept. Its challenges center on a new identity and development scenario that can overcome the loss it incurred when the airport entrance moved to the other side of the airport.

Opportunities

› **Adjacency to Airport**

The only access to the airport's present logistics center is from a I-376 in Moon, about 1.5 miles west of University Boulevard. This direct access to the airport and University Boulevard's nearby corridor of airport-support uses provides the direct connectivity needed to support a logistics and business-oriented Aerotropolis. New office buildings confirm that airport adjacency is one of the stronger assets of University Boulevard.

› **Utilizes Existing Infrastructure and Existing Community Investment**

While University Boulevard's terminus at the airport property formerly served as the gateway and hospitality center for the airport, Moon Township's encouragement of other forms of airport-related economic development since then has proven to be beneficial. Investment in commercial development, primarily office and office service uses, continues to be strong and has begun to spur reinvestment in some of the hospitality uses, such as hotels and restaurants, along University Boulevard. Moon's business environment and Robert Morris University's strong relationship with the region's business community are significant assets for creating an infill and redevelopment Aerotropolis strategy.

› **Responds to Community Priority with a New Town Center**

University Boulevard and Moon's community identity would be strengthened by a well-defined center for the Township within the strip commercial corridor of University Boulevard. The logical location for a town center is at the intersection of University Boulevard and Beaver Grade Road / Broadhead Road, the main north-south and east-west intersection at the center of Moon Township. A strong town center creates identity of place and a hierarchy to the uses and activities that support and surround it. A town center is where business and people congregate and is the public hub of an Aerotropolis.

› **Creates a Green Setting**

Moon Township's geography of valleys and ridges, with its wooded slopes and woodlands, provides a natural green setting for Moon's urbanized development. The setting is dramatic and beautiful. Preserving this quality within all new development will continue this legacy with the natural environment and help increase value, quality, and livability for both business and residential uses.

› **Develops Land for Airport-Related Uses**

The I-376 corridor developed for logistics, office, and research and development uses will thematically link Moon Township and University Boulevard to the airport. Creating a new town center and encouraging hospitality uses south of the town center and university-related office and other support development north of the town center will position University Boulevard as the center of the Aerotropolis concept. As these uses and development begin to mature, residential and mixed-use growth will increase and densify University Boulevard as an inter-modal and mixed-use center of the Aerotropolis community.

Challenges

› **University Boulevard in Transition**

With the opening of the airport's new passenger and airplane terminals, University Boulevard as a location for airport-related hospitality and passenger service uses lost its identity. New office development along Beaver Grade Road and the growth of Robert Morris University has helped sustain its primacy as the area's commercial corridor, yet University Boulevard remains a strip commercial corridor with little identity. Vacant properties, big box development, and an auto-oriented environment are not conducive to a sense of place nor a commitment to a sense of community.

› **Town Center Needs Better Definition**

The town hall and retail center of University Boulevard is non-descript and auto-oriented. Shopping is at strip mall and big box locations, which are fronted with large parking lots. The design of the environment is not conducive to walking or strolling, essential elements of an active town center. The uses are now the destination, not the place. Creating a pedestrian-oriented and dense town center will be necessary to define Moon Township's commercial, business, and public core and change University Boulevard to a destination location instead of a linear strip with little sense of place.

› **Little University Integration with the Community**

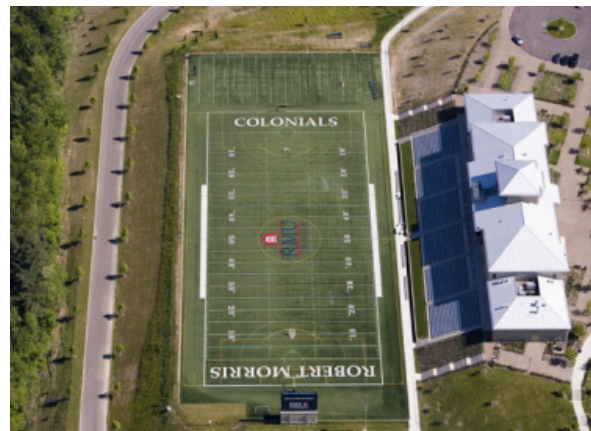
Robert Morris University, although almost at the center of the Moon Township community and near the center of University Boulevard's retail activity, is not linked by symbiotic uses or spatial layout to University Boulevard, except for its entrance drive. University buildings are located on the higher plateau away from the retail activity of University Boulevard. Street access onto the University is limited and the property's steep hillside facing University Boulevard is a deterrent to business and pedestrian access between the two.

› **Identity is still Weak**

University Boulevard has not yet recovered from the relocation of the airport's passenger and airplane terminals over 15 years ago. While it remains a retail and commercial corridor, it is littered with vacant properties and parking lots, and has no sidewalks. Its auto-oriented nature values automobiles and parking over a sense of a traditional community. Its density is low and sense of under utilization apparent, giving the perceptual sense that it is outdated with little sense of place as the center of the Moon community.



Moon Township golf course



Robert Morris University

11.c. New Town Model

Beech Hollow

Over the next fifty years, as businesses and workers from elsewhere are attracted to the benefits of a region with excellent air service, airport-related development will impact not only the airport and surrounding townships, but the region as a whole. The New Town Model proposes to guide the increased demand for space into one or more planned mixed-use developments. The New Town is a public-private undertaking that creates a distinct new place with a well-defined identity. It differs from the other models because it is, by definition, a stand-alone development that concentrates, enhances, and multiplies the impact of new airport-related investment.

In its transformative development potential, the New Town Model is the most ambitious of the four models. It offers the opportunity to realize the greatest overall synergy but requires a strong commitment by regional leadership. Its success depends not only on attracting investment to the new town site, but more generally on establishing it as a priority site for the region.

The New Town is the opposite of sprawl. Our research showed that an increase in sprawl is one of the common negative impacts to airport-related development. It is typically due to ineffective land use controls and the lack of a regional planning framework. Sprawl not only dissipates the potential positive impact of development, but it increases costs to both businesses and taxpayers in building and maintaining infrastructure; it exacerbates inefficient patterns of transportation and pollution caused by fossil fuels; it reduces the availability of land for more productive purposes; and it lacks the identity of place that creates visibility and therefore greater marketability for the aerotropolis.

Features of the New Town Model include:

- › It is within thirty minutes of the airport, but not directly in flight paths.
- › It is located on land that is not within a developed community.
- › It is well situated within the regional transportation system. If it is not served by current public transit, then it has the potential for future service.
- › It is planned as a multi-use development at the density of older small towns in the region.
- › It does not occupy prime agricultural or recreational land.
- › It is anchored by airport-related development, though not uses that need immediate proximity to the airfield.
- › It is intended to attract new businesses and in-migrating workers, not relocate or compete directly with already-established local industries.
- › Its economic sustainability is supported by a growing diversity of enterprises and employment opportunities. It is not restricted to serving an upper-income market in jobs or housing.

Location

The Beech Hollow site is at the intersection of a new limited-access highway with a major state road. The Findlay Connector, which provides a direct link to the airport, is intended to become part of the future Southern Beltway around Pittsburgh. Route 22 is an important link between Pittsburgh and Washington County to the west.

The site includes land in both Allegheny and Washington Counties.. It consists of 600-1000 acres around the highway intersection, most of which is coal-mining brownfields.

Access to Airport

The site is fifteen-twenty minutes from the airport via a new express highway, the “Findlay Connector”, which connects directly to the airport entrance as well as the loop road around the airport.

Existing Conditions

The area west of Pittsburgh is largely agricultural and wooded land. It is one of the least populated areas in the Pittsburgh metropolitan region. There are small rural settlements that have not grown much in the last fifty years, though the western part of Findlay Township in Allegheny County has seen subdivision of farmland into suburban tracts. Most of the area is in the ownership of mining companies that have extracted the profitable coal. Today, some of the land must be remediated before it can be developed; some is used for large landfills. Other land has been remediated and is being subdivided and sold for low-density highway-oriented industrial/warehousing development.

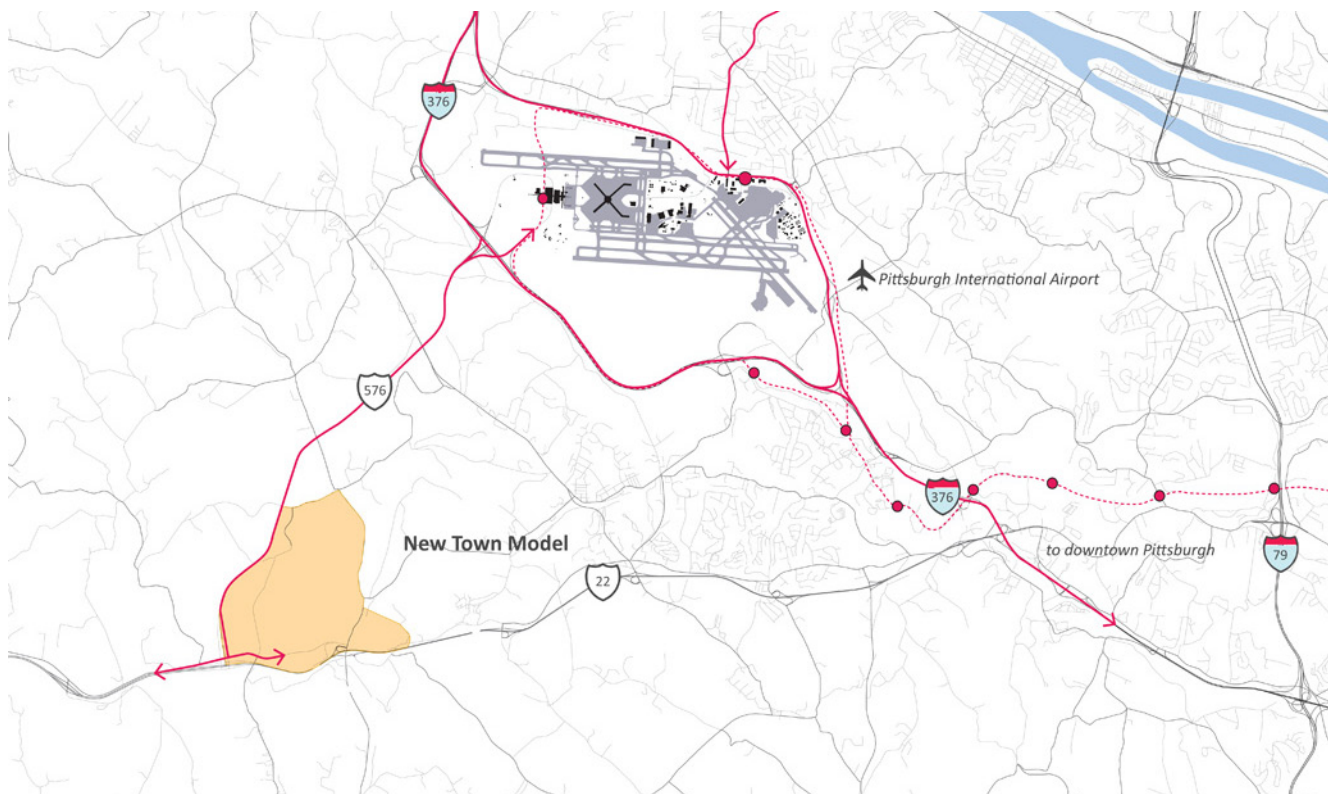
The entire region of southwest Pennsylvania is part of the plateau/ravine topography of the western Alleghenies. Landform is typically irregular with steep slopes along streams and rivers that have cut their way into the plateau. Buildable area is typically anywhere from 50% to 75% of properties.

Economy

Historically, the region, and this area in particular, has produced wealth largely through the extraction of fossil fuels, which today takes the form of drilling the Marcellus shale beds for natural gas.






Governance

- › Townships and counties: increased inter-jurisdictional cooperation would be critical to the New Town Model, even if the site did not straddle a boundary
- › Local land use controls
- › County plans, county water management





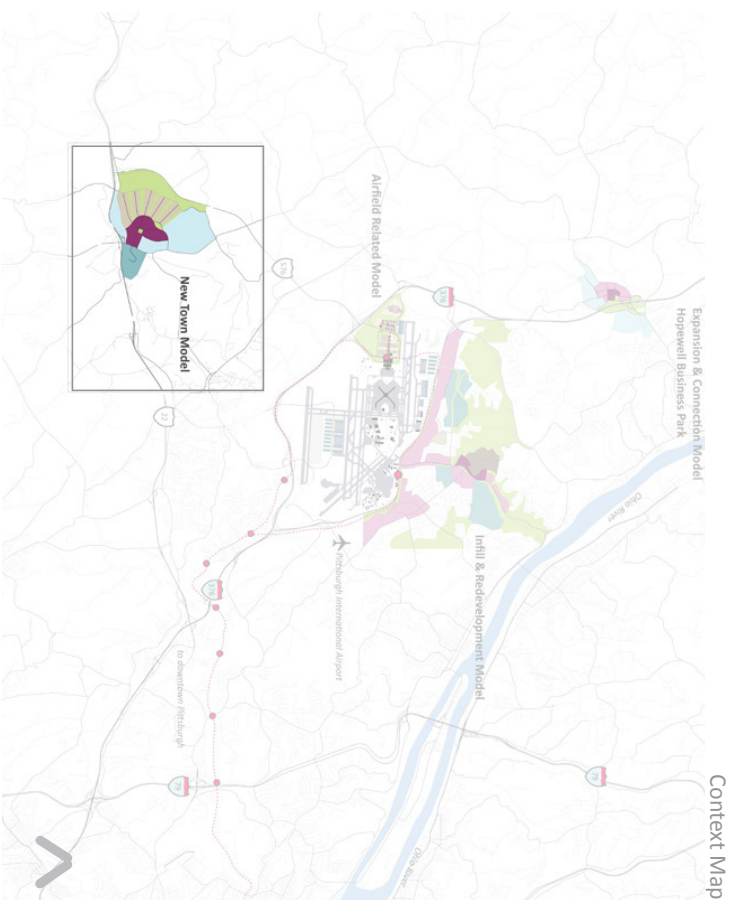
0 1,250 ft 5,000 ft 10,000 ft

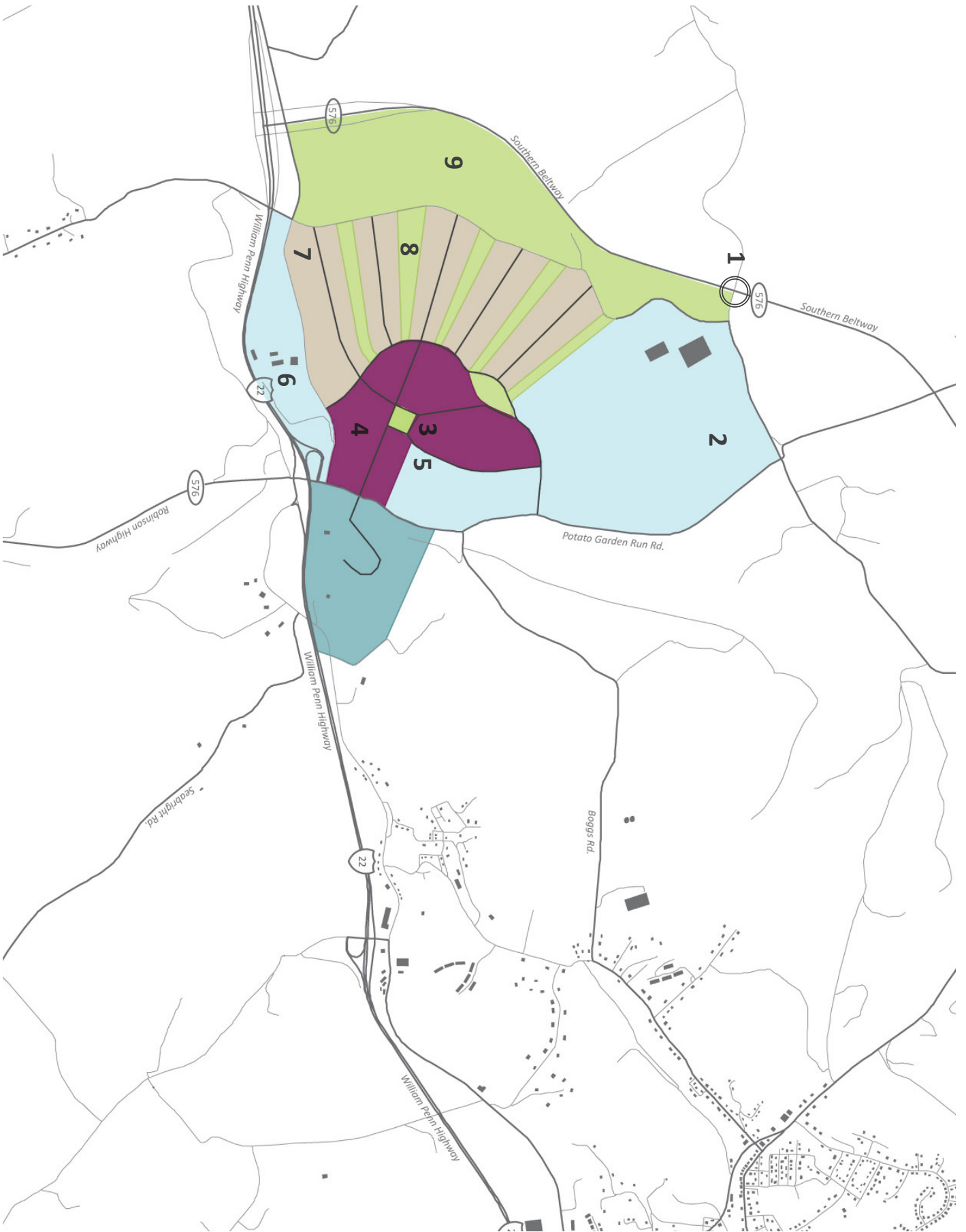
	Mixed Use		Green space
	Office/Flex		Housing, Low Density
	R & D Campus		Cargo/Logistics/Flex

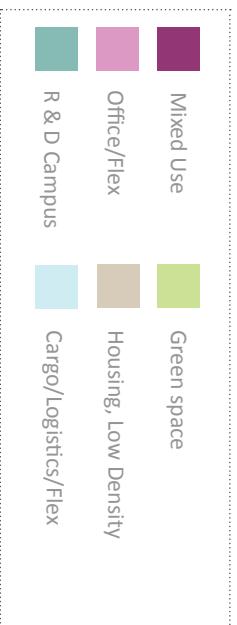
- 1 Interstate highway access
- 2 Develop new sites for businesses in energy industry or related support industries
- 3 Create a green town center
- 4 Create a town center with a mix of uses: office, hotel, restaurant, apartments, retail, etc.
- 5 Provide parking at perimeter and create a pedestrian-friendly center
- 6 Create a new campus at town center with corporate offices and research park
- 7 Develop new housing (single family and townhouses)
- 8 Link town center to large parks with greenways between residential blocks
- 9 Maintain natural wooded landscape with trails

Concept Plans & Development Components

Alternative I



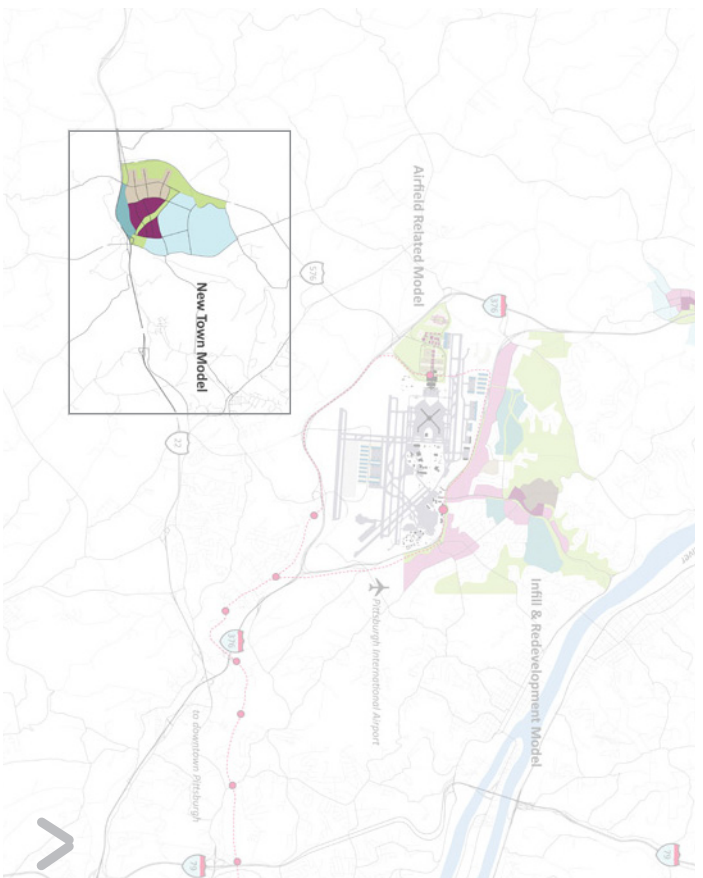


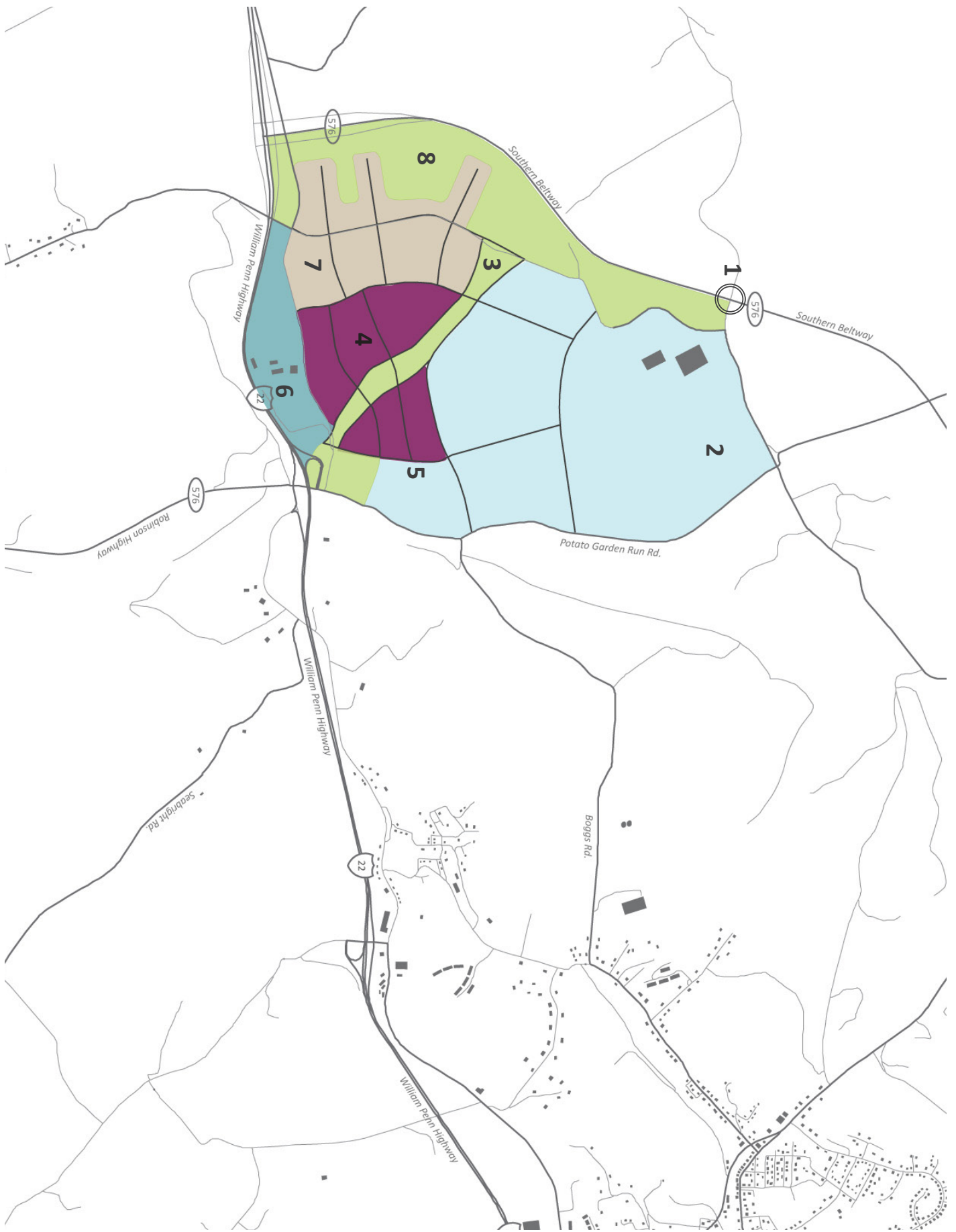


- 1 Interstate highway access
- 2 Develop new sites for businesses in energy/industry or related support industries
- 3 Introduce a park/greenway that links the new town to regional trail system
- 4 Create a town center with a mix of uses: office, hotel, restaurant, apartments, retail, etc.
- 5 Provide parking at perimeter and create a pedestrian-friendly center
- 6 Create a new campus at town center with corporate offices and research park
- 7 Develop new housing (single family and town-houses), continue trails through residential area
- 8 Maintain natural wooded landscape with trails

Concept Plans & Development Components

Alternative II





Precedents

American New Towns

- › **Riverside, Illinois**
- › **Reston, Virginia**
- › **Columbia, Maryland**
- › **Radburn, New Jersey**

New Urbanist New Towns

- › **Kentlands, Maryland**
- › **Old York Village, New Jersey**
- › **Celebration, Florida**



Kentlands, Maryland



Columbia, Maryland

Development Components & Program

Primary Anchor: Energy Development Center

- › Energy production company offices (natural gas and oil, co-generation, geothermal, solar, wind)
- › Energy efficiency systems
- › Energy systems equipment manufacturing (specialized equipment, parts, controls)
- › Energy-related fabrication
- › Brownfield and mining remediation specialists
- › Professional services offices (attorneys, surveyors, engineers, finance/accounting, marketing, public relations, data management/communications)

Other Related Components

- › International Center for Geo-Energy Research and Development (extraction, distribution, and reclamation technologies)
- › Research labs
- › Classrooms and distance learning facilities
- › Conference center
- › Administrative offices

Town Center

- › Offices
- › Restaurants/club
- › Coffee shops, diner
- › Local services (groceries, drug store, cleaning/laundry)
- › Farmers market
- › Bike and camping shop

Housing

- › Single-family houses and townhouses
- › Low-rise rental apartment buildings
- › Greenways, bike trails, park, town square



Celebration, Florida

Opportunities & Challenges

Opportunities

› **Creates an international magnet to draw passengers to the airport**

One of the important synergies this model offers is the development of a large-scale development anchored around the Energy Center that is global in its scope and influence, attracting technical experts, leaders, and workers from all parts of the world. Not only would the airport serve the new development, but the new town would increase the demand for flights and other airport services.

› **Offers easy access to the airport**

The Findlay Connector offers fast and direct access to the airport. It offers capacity beyond its utilization in the foreseeable future, and if the Southern Beltway is built, it will be a key stop between the airport, major regional destinations, and the interstate highway system.

› **Redevelops brownfield sites**

One of the benefits of the Beech Hollow site is that it is not only ideally located in terms of future airport-related development, but it transforms an environmental liability into a major regional asset. Because the brownfield has already been regraded and filled, it offers a large and relatively flat buildable area, which is hard to find in the region.

› **Limits infrastructure costs for new development by concentrating it**

The new town achieves high-value development opportunities at a much lower infrastructure cost than the alternative of single-use suburban development. Planned sites for multi-use development provide a mutually supportive context--eg, workplaces within walking distance of dining/entertainment and housing.

› **Enhances open space system**

The New Town Model focuses development on land that has been compromised by prior use, leaving prime land available for amenities, which are assets not only to the new town but to the existing communities in the region.

› **Offers high quality of life: small community in natural setting**

Aside from the economic benefits of bringing greater airport-related development to the region, the New Town Model creates a “new town” environment that has been shown to be one of the most successful models of growth in the last several decades.

› **Provides a distinctive sense of place**

More than any of the other three models, the New Town Model creates an identifiable place that demonstrates the positive impact of the airport as a regional amenity and can become a major asset in promoting the region.

Challenges

› **Land assembly and remediation**

A planned new town development requires the acquisition of 600 to 1000 acres. Fortunately, the Beech Hollow property is in large landholdings that will facilitate assembly. However, the financial and political effort to obtain site control of such a large area requires dedication and time.

› **Timing and phasing**

New town development is larger in scale than property--by-property development, which means that it brings greater risks, financial and otherwise. The phasing strategy must create marketable sites that are “complete” in themselves but initially not burdened by excessive costs of infrastructure or amenities. Successful timing involves strategies to “land” major anchor uses at the critical points in the process.

› **Cooperative agreements between townships and counties**

As mentioned earlier, this model requires a greater level of inter-jurisdictional cooperation and planning than has been achieved to date. As explained in the ULI’s airport development study, this will have many benefits beyond the new town itself.

› **Design guidelines needed for good quality development and public spaces**

Successful new communities need to establish an attractive physical identity and a coherence that can be created only with agreements concerning the form and location of buildings, streets, and common spaces. Since planning will need to go beyond the level of land use plans that have been the norm in the region, there will be an even greater emphasis on cooperation at the local, county, and regional levels.

11.d. Expansion and Connection Model

Hopewell Business Park & Aliquippa Site

Developers of business parks and distribution/warehouse complexes prefer to locate their facilities along major highways, at freeway interchanges, and near airports. Typically such parks and complexes are in single use developments with large surface parking lots. Numerous examples exist in the thirty-minute drive time catchment area of the Pittsburgh Aerotropolis, dotting the landscape in a random pattern. Although business parks and distribution centers produce tax revenues and jobs for the region, they also contribute to sprawl and increased vehicle miles traveled (VMT's). This disconnected development pattern and the lack of nearby housing, retail, and open space amenities are indicative of the lack of community identity in the airport environs.

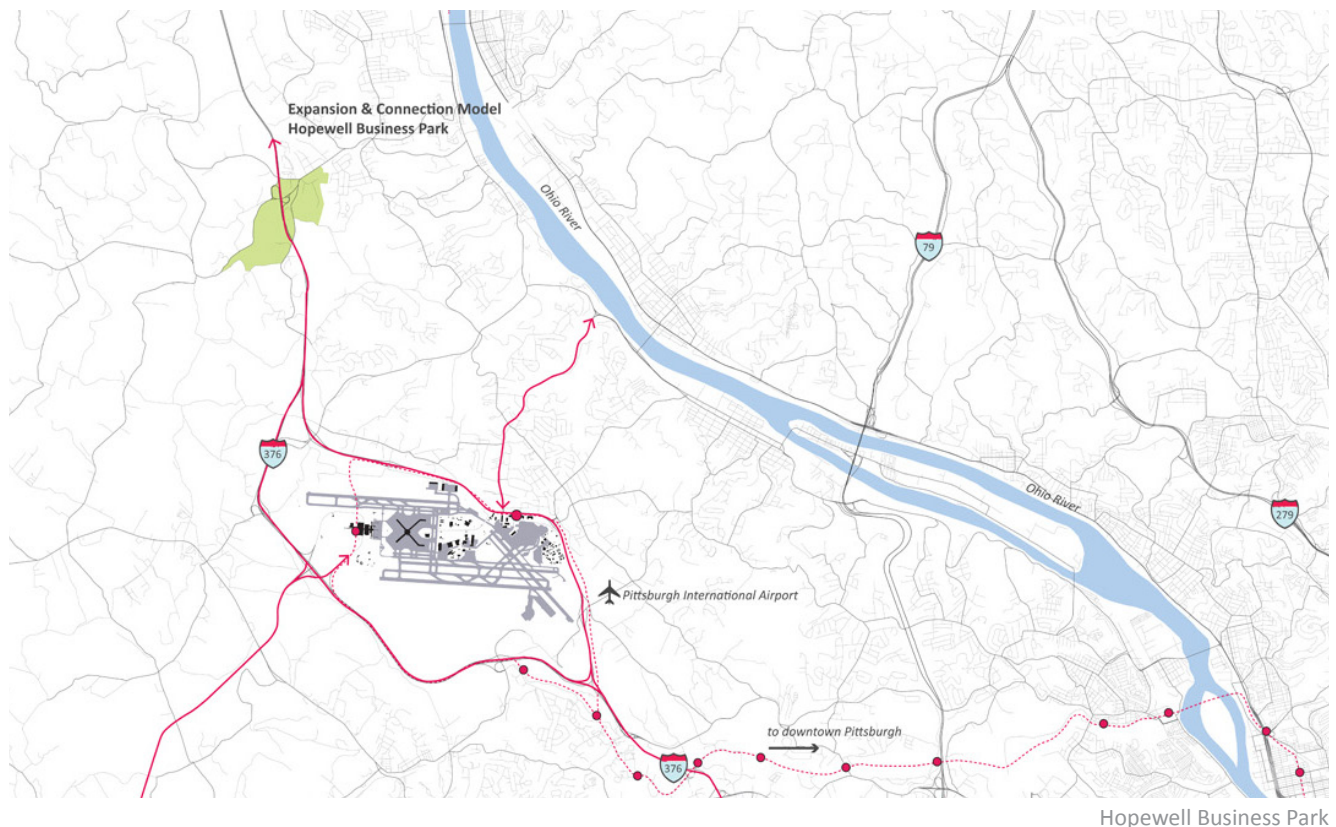
In addition, road connections between airports and transportation hubs, such as river barge facilities and rail-road freight marshalling yards, are not often factored into airport-related business location decisions.

The Expansion and Connection Development Model takes on both the single use nature of business parks and distribution centers and the lack of connection to river and rail. The object of the development prototype exercise was twofold:

- › to expand an existing office park while adding mixed use
- › to simplify the connection of the airport to rail and river hubs

Location

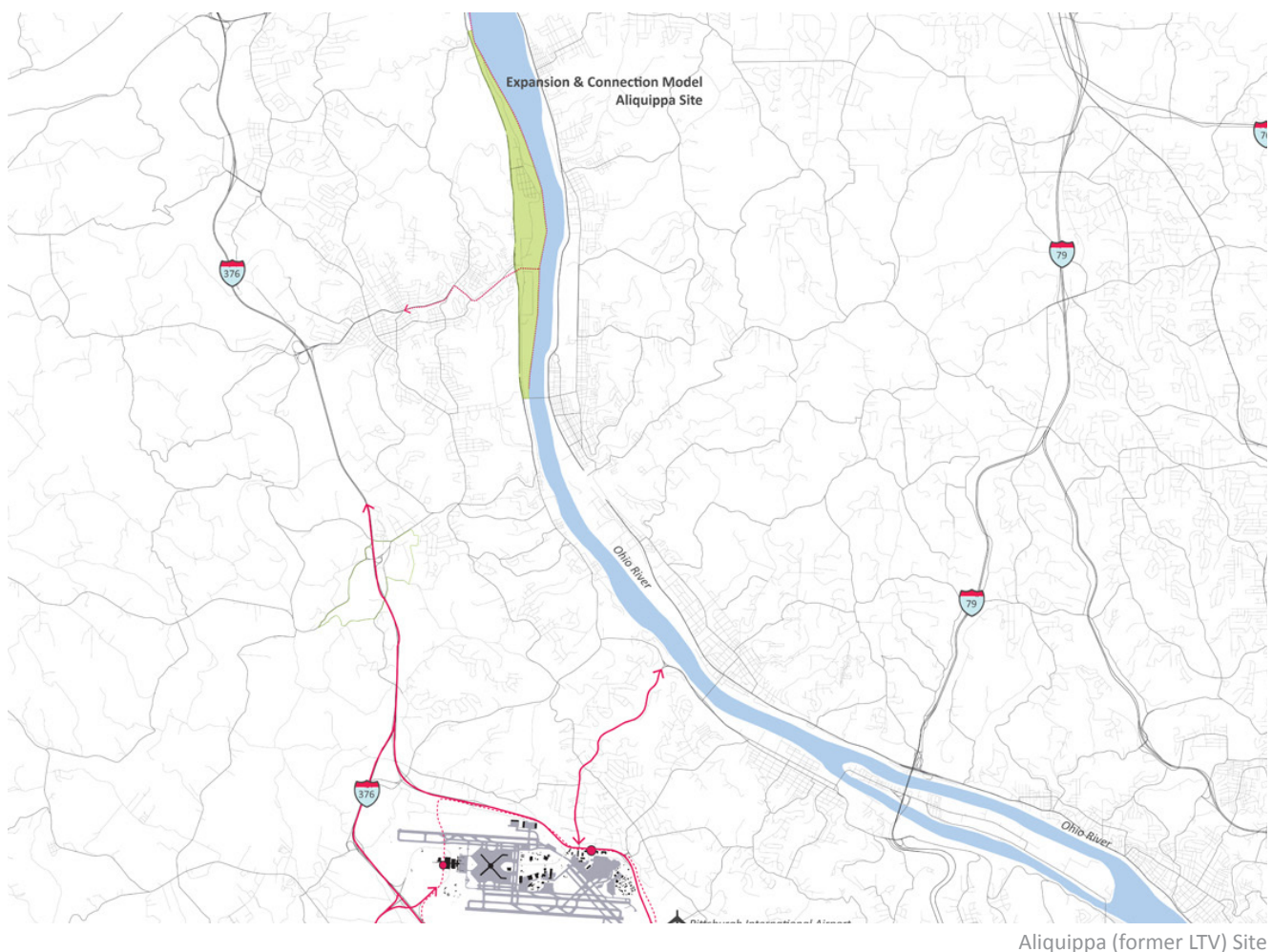
The business park selected was the Hopewell Business Park in Beaver County just north of the Allegheny County line at the I-376 Hopewell interchange. The connection to the river and rail hubs was explored from I-376 Aliquippa Interchange to the Aliquippa Industrial Park along the Ohio River.

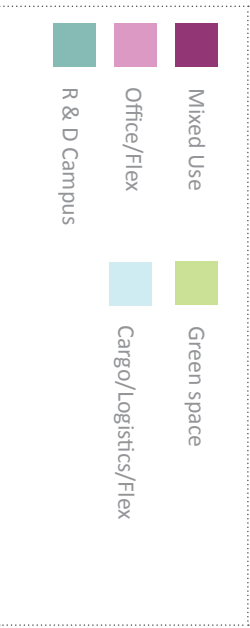


Existing Conditions

The Hopewell Business Park is currently on the east side of I-376. The park includes only offices and distribution warehouses. An additional site of vacant land was identified across the Hopewell interchange that could be connected to the existing business park. The vacant site is wooded and has topographic challenges. In addition, road and utility infrastructure will need to be extended to the property. However, its location close to the airport cargo area and at an Interstate highway interchange, makes the prospect of expanded development viable.

The connection from the airport to the Aliquippa Industrial Park poses difficulties. The existing path from the I-376 interchange is along a local two-lane road that drops down in elevation through the City of Aliquippa. Alternate connections are even more difficult because of topography and distance. In order for this connection to work, the existing roadway through Aliquippa will have to be upgraded while preserving the existing residential and commercial buildings.

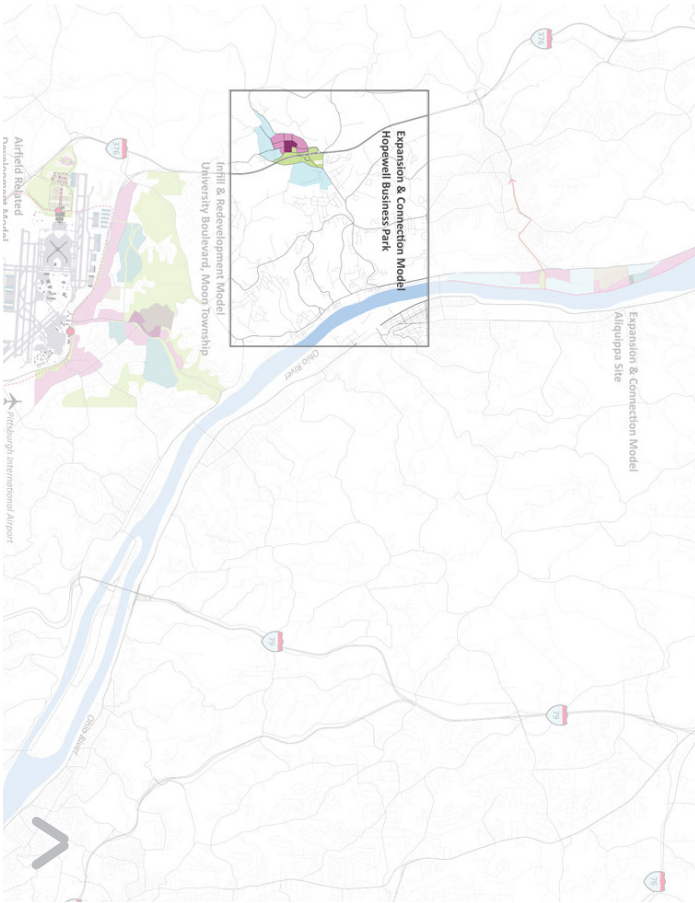


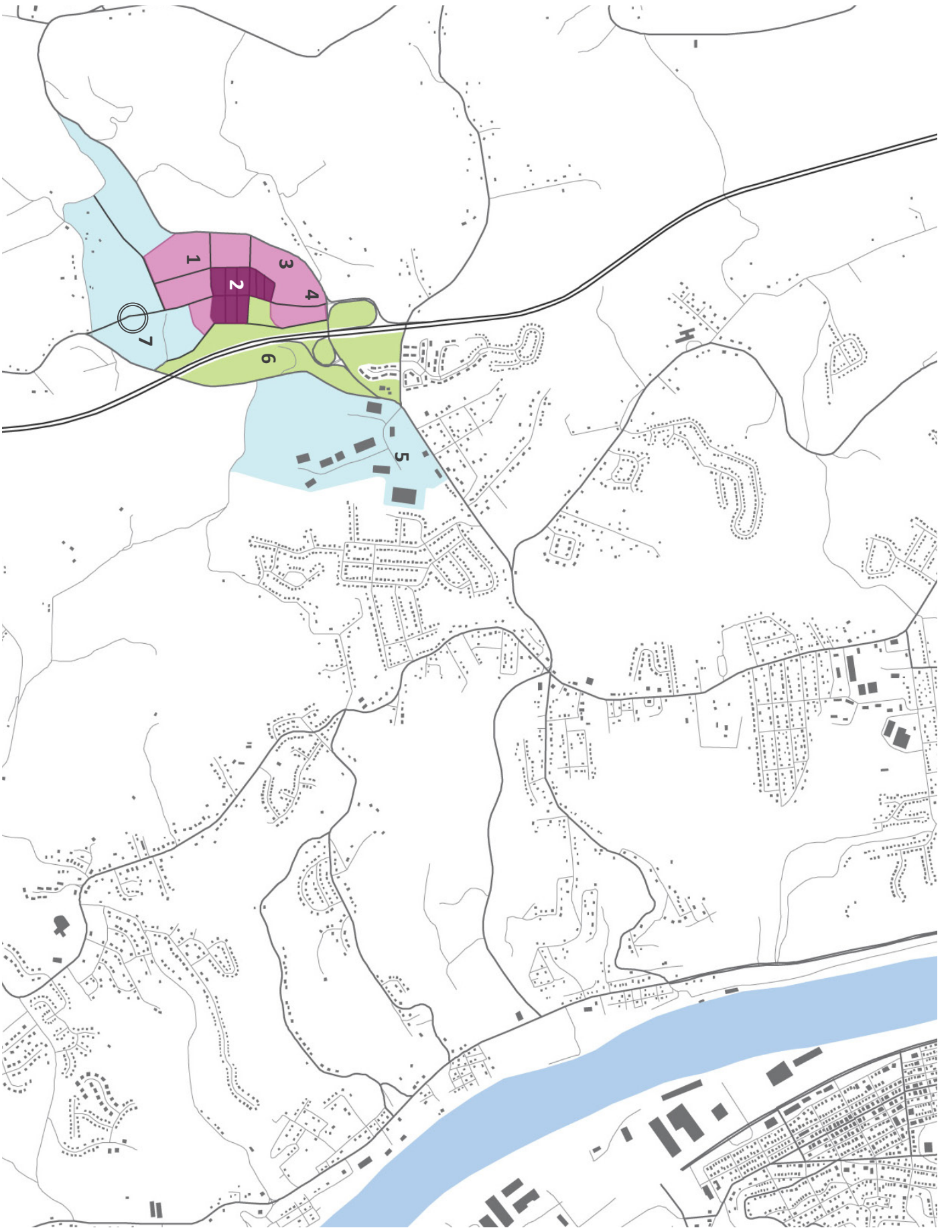


- 1 New office/flex development
- 2 New retail and hotel village center
- 3 New office/flex development
- 4 New service road
- 5 Existing Hopewell Business Park
- 6 Preserve woodlands and steep slope
- 7 New service road

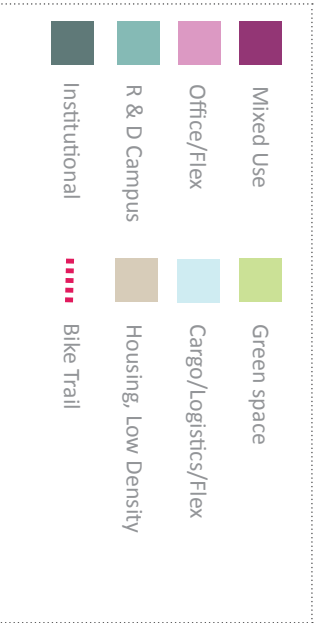
Expanded Hopewell Business Park

- > warehousing and distribution
- > multi-modal shipping services
- > freight forwarders
- > flex buildings
- > offices
- > business services
- > retail
- > restaurants
- > hotel



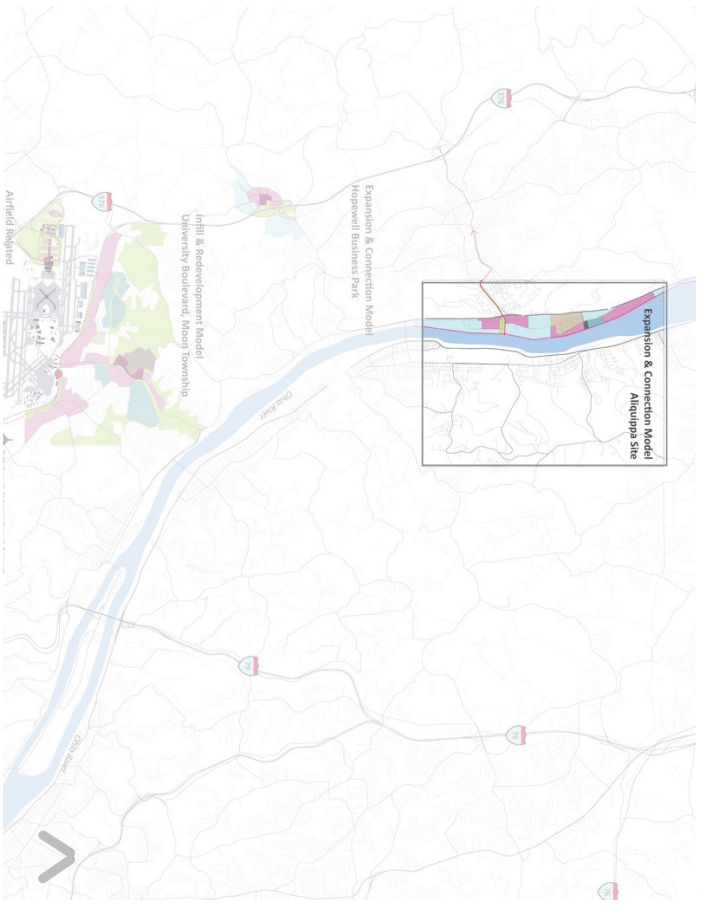


Hopewell Business Park, Expansion & Connection Development Model

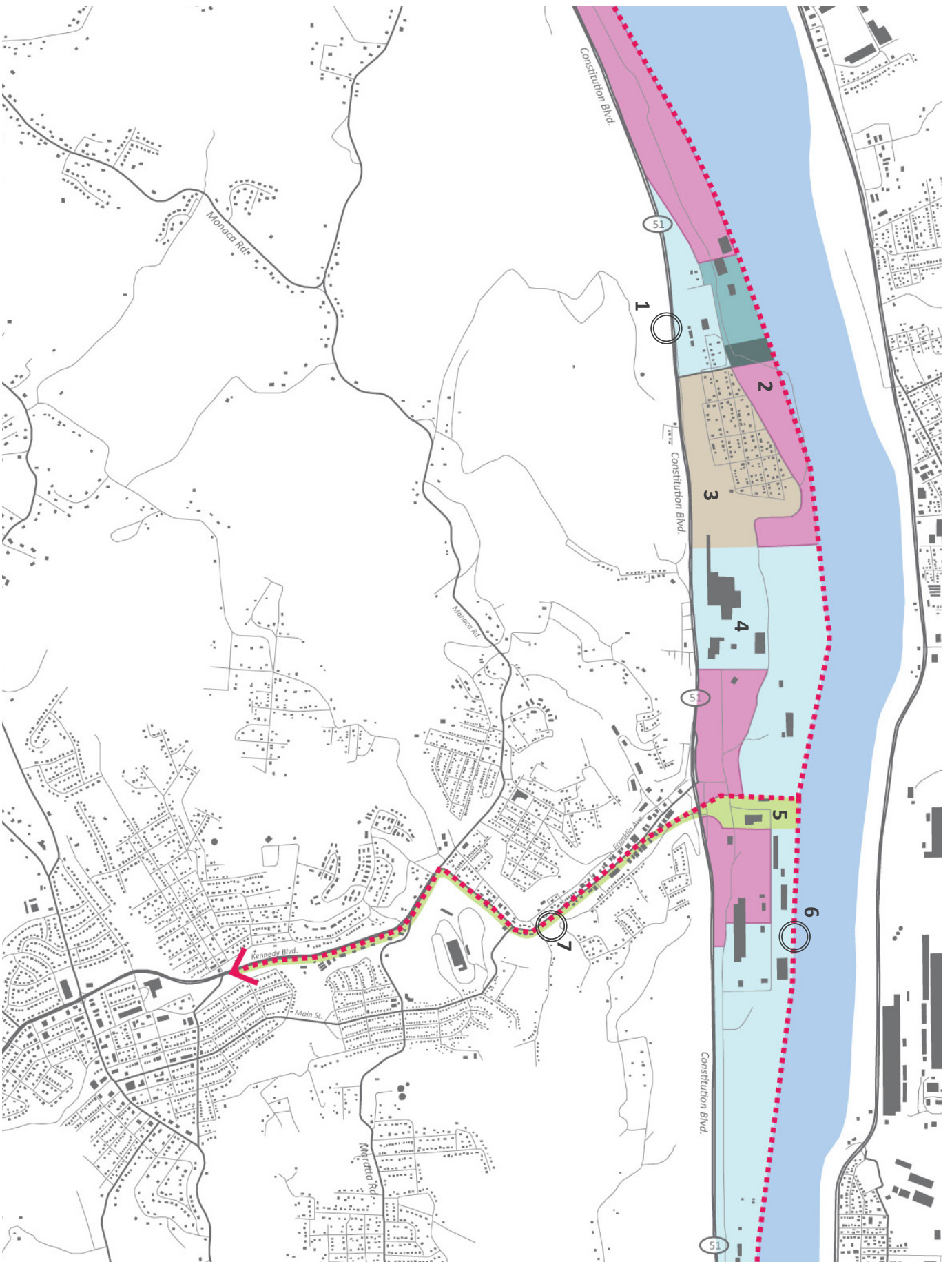


- ### Aliquippa Business Park
- > rail loading and shipping
 - > barge loading and shipping
 - > heavy industrial
 - > light industrial
 - > materials processing
 - > offices
 - > institutional

- 1** Route 51 and adjacent CSX railroad
- 2** County Jail
- 3** Existing residential
- 4** Existing USG sheetrock plant
- 5** New riverfront park
- 6** New riverfront trail
- 7** Upgraded street with bike path



Aliquippa Site, Expansion & Connection Development Model



Opportunities and Challenges

Opportunities

Hopewell Business Park

- › I-376 links to airport and Pennsylvania Turnpike
- › undeveloped land is available
- › lack of nearby competition and other developable sites
- › builds on successful first phase
- › develops land for airport-related uses

Aliquippa Industrial Park

- › redevelopment of brownfield (LTV steel plant)
- › available land zoned for industrial and commercial
- › lack of nearby competition
- › new barge loading facility
- › on CSX Railroad mainline

Challenges

Hopewell Business Park

- › distance from urbanized areas
- › density must be increased to offset infrastructure costs
- › distinctive identity needed
- › further expansion is limited

Aliquippa Industrial Park

- › access from I-376 needs to be improved
- › not on a major highway
- › heavy industrial uses are not airport-related
- › environmental quality is not good

Appendices

Benchmark Airports

- › Amsterdam Airport Schiphol
- › Dallas/Fort Worth International Airport
- › Detroit Metropolitan Wayne County Airport
- › Dubai World Central
- › Hong Kong International Airport

CMU Master of Urban Design Projects

- › Ozge Diler
- › Saurabh Goenka
- › Rambha Seth
- › Mingming Wu

Benchmark Airports

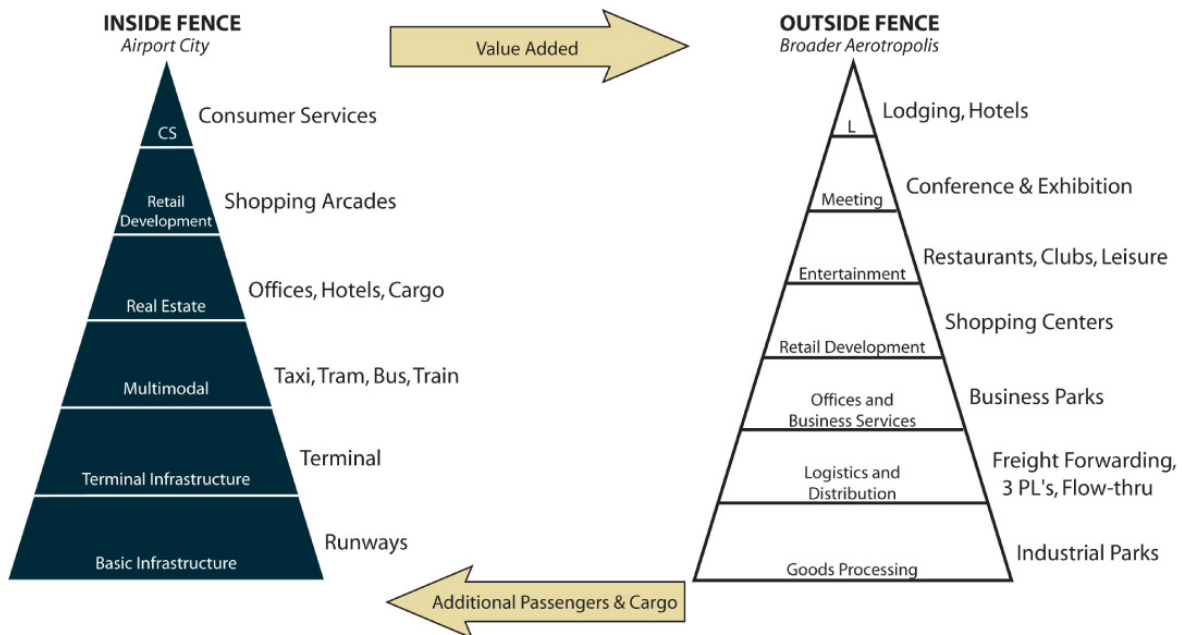
› Amsterdam Airport Schiphol

Amsterdam Airport Schiphol is the main international airport of the Netherlands, located about 20 minutes south of Amsterdam. With both a high volume of passengers and cargo, Schiphol is considered an Airport City due to its strategic development both within airport property and in areas adjacent to the airport. The airport itself is a shopping destination for travelers and non-travelers, and also offers other amenities for passengers such as a small museum and library. The airport infrastructure includes a comprehensive transportation network for buses, trams, taxis, and trains in addition to the runways and terminal infrastructure. In the areas surrounding the airport, consumer services geared towards travelers, such as hotels, restaurants, and conference spaces have been developed to strategically attract passengers traveling through the Airport City. The broader aerotropolis of Schiphol also includes industrial parks and logistics and distribution centers to manage the cargo that travels through the airport.



Schiphol Airport

Amsterdam-Schipol Airport City – Aerotropolis Synergies



› **Dallas/Fort Worth International Airport**

As the largest airport in the state of Texas, the Dallas/Forth Worth Airport is the fourth busiest airport in the United States for aircraft movement and is considered a pioneer in the creation and development of the Airport City. Developments within and around the airport include the International commerce Park, numerous warehouses and distribution centres, golf courses, and two high quality hotels that cater to travelers. Aviation-related developments and airport infrastructure investment has also propelled the airport’s success. Future development plans include establishing new opportunities for entertainment, hospitality, retail, and restaurants to better serve passengers. Mixed-use developments and improved transportation infrastructure such as rail lines and light rail lines are also part of future development plans to encourage the continued growth of both passenger and freight business.



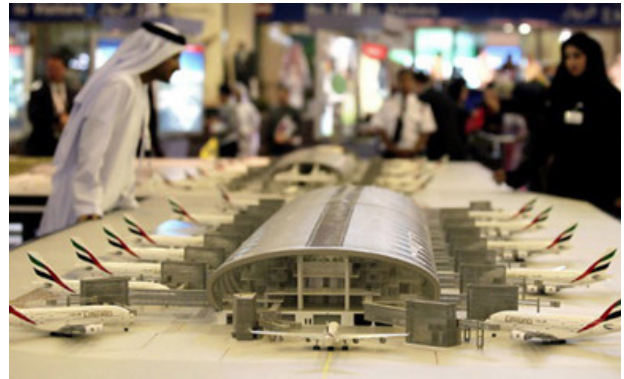
Dallas/Forth Worth Airport

› **Detroit Metropolitan Wayne County Airport**

The Detroit Metro Airport is an international airport located in the Detroit suburb of Romulus, Michigan. At present, the Detroit Airport is working to develop itself into an aerotropolis to capture more global logistics traffic, improve transportation infrastructure, and to encourage technological development. The scale of the redevelopment area is relatively large and involves multiple municipalities, two airports, two counties, and numerous stakeholders. The developing aerotropolis hopes to spur much-needed economic growth through the addition of new business locations, air logistics, industrial complexes, and passenger services.

› **Hong Kong International Airport**

The Hong Kong International Airport, built on the Chek Lap Kok island via land reclamation, experiences an enormous volume of both passenger and cargo movement. The airport continues to pursue development to define the area as an airport city. Present development plans include the establishment of three commercial districts adjacent to the airport operating area for entertainment, exhibition, office, retail, and logistics. New housing is also an integral part of the plan to provide residences for airport workers and families. Transportation infrastructure is being developed to better connect the airport to both Hong Kong and the Chinese Mainland, and plans for a nearby Hong Kong Disneyland would allow for the Airport Express Train to create a direct link between the Disneyland and the terminal area.



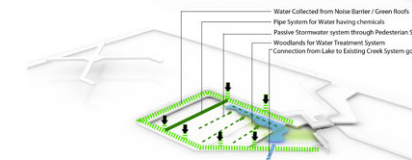
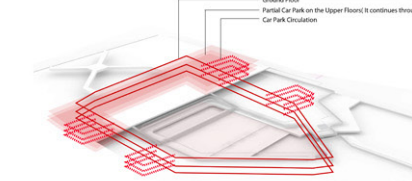
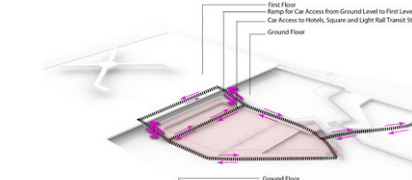
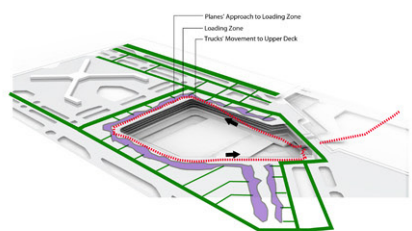
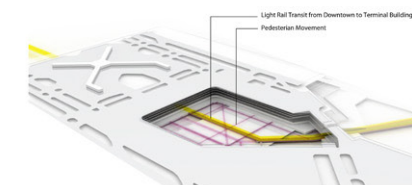
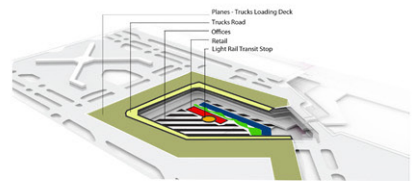
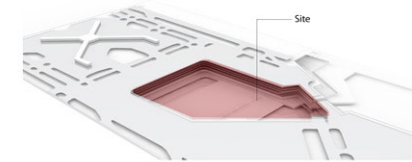
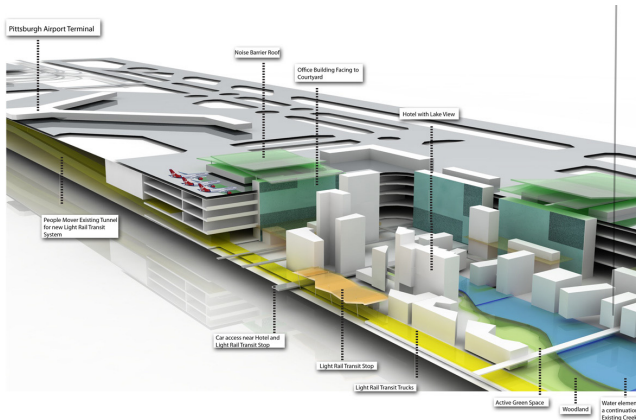
Dubai World Central



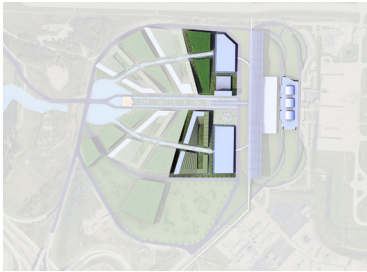
Hong Kong Airport

CMU Master of Urban Design Student Projects

› Ozge Diler



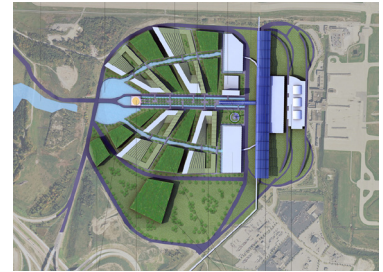
› Saurabh Goenka



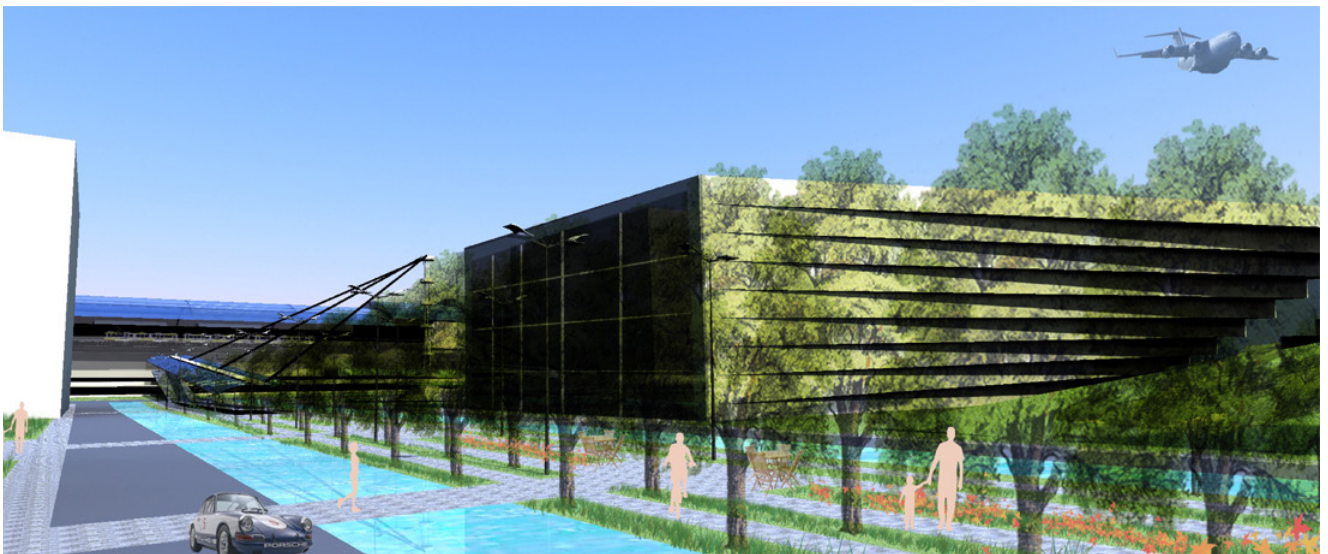
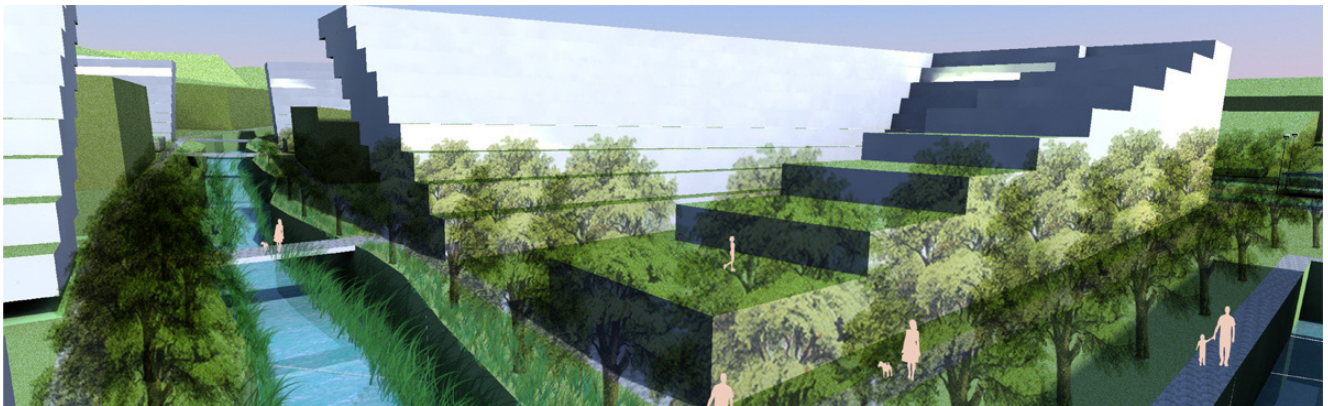
Phase I



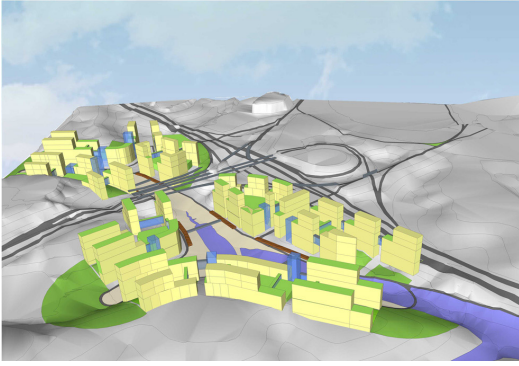
Phase II



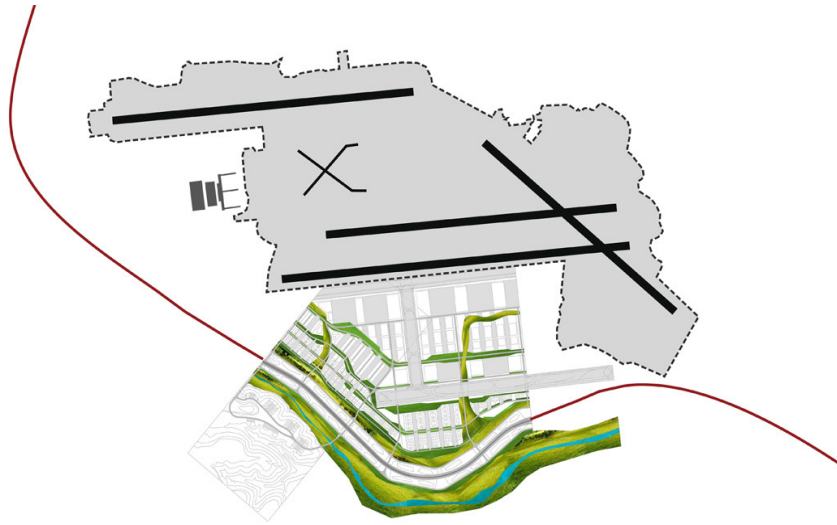
Phase III



› Rambha Seth

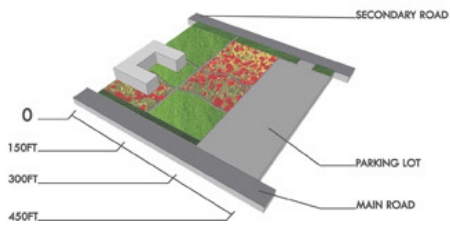


> Mingming Wu

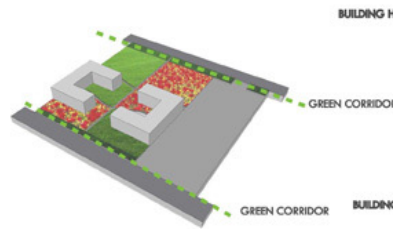


1

PHASE ONE



PHASE TWO



PHASE THREE

