



# CHARRETTE DISCOVERIES





## OVERVIEW

The *2009 Philadelphia Regional Infrastructure Charrette* was held from July 27 through July 29, 2009. It involved more than 90 participants from city, regional and state government; local design professionals; national experts in economics, transportation and urban design; and other stakeholders. Its objective was to develop ideas for a regional infrastructure investment framework that can advance Philadelphia as the center of a prosperous 21st-century metropolitan region. Working with the Philadelphia City Planning Commission as the executive client, the charrette tested the implications of a regional transportation and natural systems framework on key sites in Philadelphia while exploring the relationship between federal policy, regional economic geography, and sustainability. With federal agencies working on integrated urban policy and Congress poised to draft legislation that will affect infrastructure funding in the coming months, the Greater Philadelphia region has the opportunity to articulate a vision that can position us for economic growth, while providing a model for other regions across the country. New ideas can inform these conversations and energize regional coalitions to work together toward common purposes, as well as make specific contributions to the Philadelphia City Planning Commission as it begins its comprehensive planning process.

The concepts expressed herein reflect the work and conversations of the *2009 Philadelphia Regional Infrastructure Charrette*. They are not the views of PennDesign, PennPraxis, Penn Institute for Urban Research, Philadelphia City Planning Commission, William Penn Foundation or the Office of the Provost

of the University of Pennsylvania, nor are they presented as recommendations. They are the products of the two days of small-group work and are offered as a springboard for further discussion. The ideas were the product of two days of small-group work around five different subject areas:

### *Day 1: Investigating Regional Infrastructure Investments*

- Transportation
- Natural Systems
- Philadelphia International Airport

### *Day 2: Testing Regional Systems in Philadelphia*

- Transportation and Natural Systems
- Philadelphia International Airport
- Central Schuylkill Urban Design

Please read the following sections to learn more about the charge and findings of each charrette group.

## DAY 1: INVESTIGATING REGIONAL INFRASTRUCTURE INVESTMENTS

### REGIONAL TRANSPORTATION

*Rachel Weinberger, PennDesign, team leader*

#### Existing Conditions

The Philadelphia region has a more extensive network of highway and public transportation infrastructure than many other regions in the country. There are numerous public transportation agencies that serve the region (SEPTA, New Jersey Transit, PATCO, Amtrak) as well as infrastructure to accommodate pedestrians and bicycles as well as the

automobile. Philadelphia's 30th Street Station is the third busiest station in Amtrak's network, and SEPTA's total ridership for FY2008 was 325 million. However, there are also constraints in our regional transportation network. Many highways and bridges are congested and overdue for scheduled maintenance or reconstruction, creating safety concerns for drivers. Passenger rail infrastructure has similar challenges, along with maintaining cleanliness and frequency of service amid serious, ongoing budget shortfalls. Furthermore, there are vacant and underutilized rail (freight and passenger) lines across the region that could be utilized to improve access to areas currently underserved.

BELOW: Team leader Rachel Weinberger of PennDesign (top right) divides the participants into small groups to discuss Philadelphia's transportation networks.



Charge

In today's world of regional choice and fast-paced travel, it can be argued that transportation access is the key to the region's success or failure as an economic center along the Northeast Corridor. The goal for this session was to:

- Assess the strengths and weaknesses of the region's highway and transit infrastructure and identify priority improvements.
- Devise a list of priority projects that meet the HUD-DOT-EPA Interagency Partnership for Sustainable Communities principles and that fit into the region's future vision and identity.
- Prioritize the many different requirements of infrastructure: safety, speed, frequency of service, ridership, providing access to new areas, strengthening access to existing areas, etc.
- Identify the importance of investing in all types of transportation: heavy rail, light rail, bus, water, highway, non-motorized.
- Assess whether the Obama administration's emphasis on high-speed rail corridors is the key to unlocking the economic potential of the Philadelphia region, or if the answer is elsewhere.
- Examine the inactive and underutilized freight rail throughout the region and see if there are valuable linkages that can be established using existing infrastructure.

Suggested Questions to Answer

- The goals when developing standards for infrastructure projects are ...
- Which elements of the HUD-DOT-EPA Interagency Partnership for Sustainable Communities

principles will the new transportation system prioritize?

- For the region to thrive, it is important that it invest in the following types of transportation infrastructure ...
- Should high-speed rail be the focus of the Philadelphia region's transportation agenda going forward?
- Can any use be made of inactive rail and underutilized freight corridors?

#### Discussion

The regional transportation group investigated how to support and improve regional networks through three frameworks: creating value, tying transportation to land use, and exploring issues of equity and environmental justice. The following principles help to frame the discussion within the larger HUD-DOT-EPA Interagency Partnership for Sustainable Communities principles:

**We must use space to accommodate the most efficient transportation mode.** More people can walk two miles than can drive two miles because of congestion and vehicle size constraints. This means bikes are competitive with cars for distances of up to six miles, and since 60 percent of trips are shorter than five miles, it is important from both an economic and environmental perspective that we shift our thinking from supporting an auto-centric region to planning for a more multimodal transportation network.

**We need to cultivate transit-dependent citizens.** Citizens in the region need to think of car ownership as an option, not a necessity. When you have that option, you have a real choice of whether or not to use a car. But at the moment, it is unimaginable for most

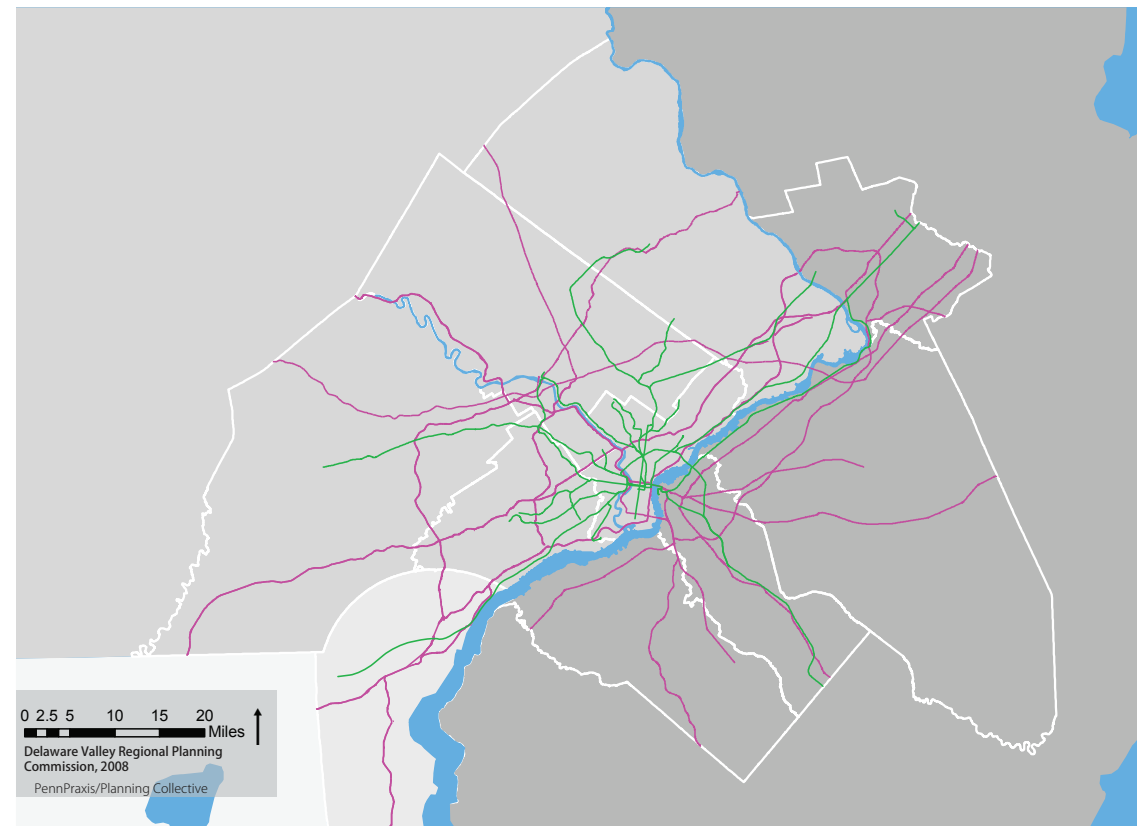
citizens of the Philadelphia region to survive without owning a car because we do not give them the opportunity to do so. We must plan with this goal in mind—cultivating transit-dependent citizens.

Group then members reviewed the strengths and weaknesses of the Philadelphia region's existing "hub and spoke" rail system.

#### *Strengths*

- Solid existing rail infrastructure.
- Rail transit is provided to the older suburbs.
- There are many opportunities for transit-oriented development.
- This in turn increases opportunities for land conservation.
- The existing transit system brings value in terms

BELOW: A map prepared for the charrette that shows regional highway and passenger rail networks.



of economic return on investment as well as quality-of-life improvements.

- Strong freight rail system, though not always straightforward and connected.

*Weaknesses*

- Lack of connection/integration between different transportation systems and modes.
- The highway system provides better suburban connectivity than alternative transportation choices.
- There are transit-oriented development opportunities that are not yet realized.
- Much of the transit system is in a state of disrepair or delayed repair.
- The “last mile,” or the gap between the existing regional rail stations and where people live and work, forces many to use cars instead of public

transportation.

- Decision-making and funding allocation for transportation is often limited by local land use decisions and regressive tax policies.
- Transit use is generally not encouraged because of overall “fear of density” and public policies that focus on highway investments and not public transportation.

Three priority areas were identified in the discussion:

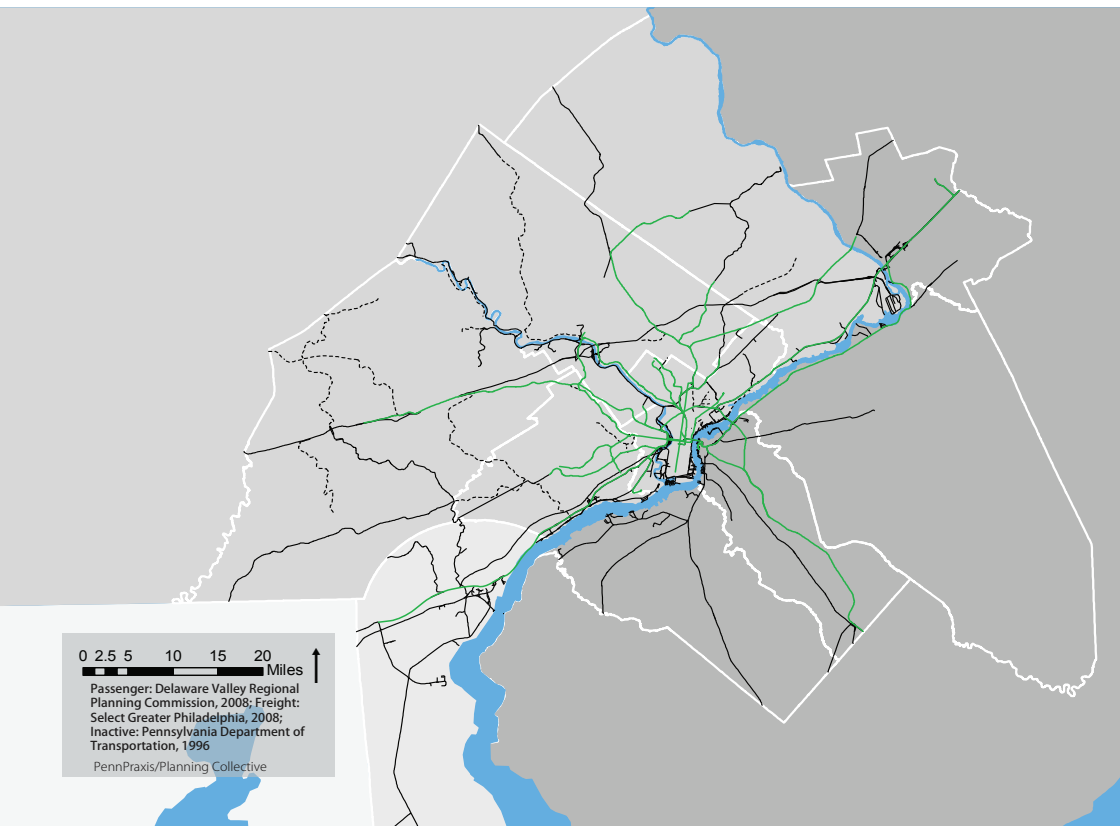
*1. Improved Transportation Creates Value*

In order for our transportation system to help unlock future economic growth, it must be integrated into a region-wide strategy. Today, we fund discrete projects on a political and geographic basis without respect to strengthening our existing economic centers.

Creating a strategy that aligns transit and transportation investment with existing jobs and population centers will acknowledge that population and job density creates economic value for the region and should be identified as part of a transportation strategy for the region. The Delaware Valley Regional Planning Commission, the region’s municipal planning organization (MPO), currently includes a map of “centers” in its long-range plan, but targeting growth and development around these centers is part of only one possible growth scenario, and the overall plan does not endorse this particular recentralizing scenario.

We must assess our current transit and transportation system to see how well it serves existing centers of population and employment density. How do we plan to benefit centers not currently served by our

BELOW: A map prepared for the charrette that shows freight rail (solid black), passenger rail (solid green) and rail lines that are currently inactive (dashed black).



0 2.5 5 10 15 20 Miles ↑  
 Passenger: Delaware Valley Regional Planning Commission, 2008; Freight: Select Greater Philadelphia, 2008; Inactive: Pennsylvania Department of Transportation, 1996  
 PennPraxis/Planning Collective

transportation systems?

For example, is it worth increasing transit access in order to turn King of Prussia into a mixed-use center similar to the current plan for Tyson's Corner, Va., or should the region focus on adding employment to existing residential centers to create live-work environments that minimize the need for further transportation infrastructure?

If we assume the region's population will continue to grow, this group argued that we need a variation on an urban growth boundary that both stimulates growth and conserves land and natural resources.

## 2. Connect Transportation and Land Use Decisions

In order to effectively integrate transportation and land use, the region must plan collectively for a specific development pattern and scenario, given that the region has sprawled significantly without the guidance of a metropolitan regional plan.

The group discussed the following regional development typologies:

**Current system:** Strong center in Philadelphia with low-density development on the fringe.

**Corridor system:** Similar to the Metro Rail in the metropolitan area of Washington, D.C., this system would plan for development along specific transportation corridors, with numerous transit nodes with increased density provisions along each corridor.

**Suburban activity center model:** Expand at nodes where activity currently exists, such as King of Prussia, Pa., and Cherry Hill, N.J.

**Amalgam:** Using the existing system, offer higher speed and higher frequency local service within the Philadelphia boundaries. Outside the city, offer express rail to locations in the Greater Philadelphia

region. These stations will then become prime future suburban activity centers. This is akin to the CityRail model suggested by the Philadelphia 2040 PennPlanning studio in spring 2009, and based on the work of Richard Voith of Econsult.

The group emphasized that no such strategic growth can occur when decisions about transportation network improvements are made according to regional politics or trend-based computer models. There should be a new system of prioritizing criteria, and all should be benchmarked and measured so planning organizations can evaluate performance. This would be a change in method from how DVRPC currently plans for the region, which raises the larger question of the resources and capacity for the metropolitan planning organization model both locally and nationally. Such

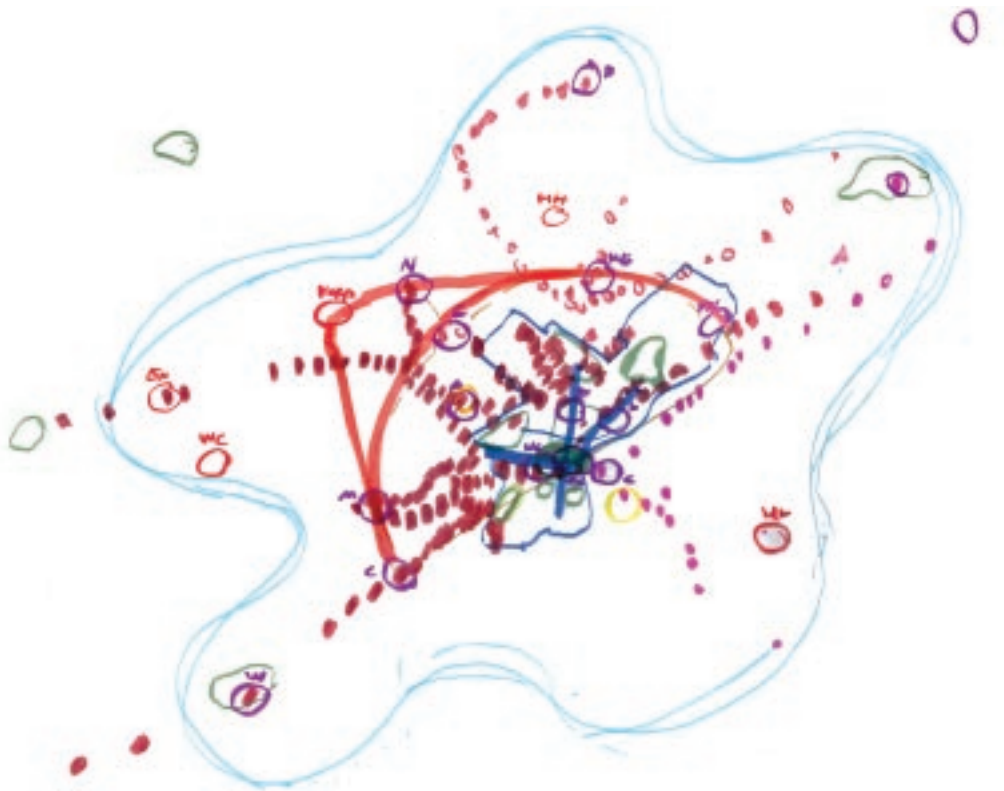
BELOW: Participants  
Clint Randall of  
Planning Collective LLC  
and Elaine Elbich of  
PennDOT review  
Greater Philadelphia's  
highway and transit  
connectivity.



benchmarks could include:

- Do the investments support the region's overall land use concept?
- Do the investments reduce the region's carbon footprint?
- Do the investments increase accessibility or provide connections that are needed but currently unavailable?
- Are investments being made to provide access for those with the least access right now?
- Are the investments in concert with community values?
- Do the investments improve or maintain freight transportation?

BELOW: A sketch drawn by the Regional Transportation group during the charrette showing the basic outline of some of its proposals to raise density and improve transit choices.



### 3. Improve Transportation for Equity and Environmental Justice

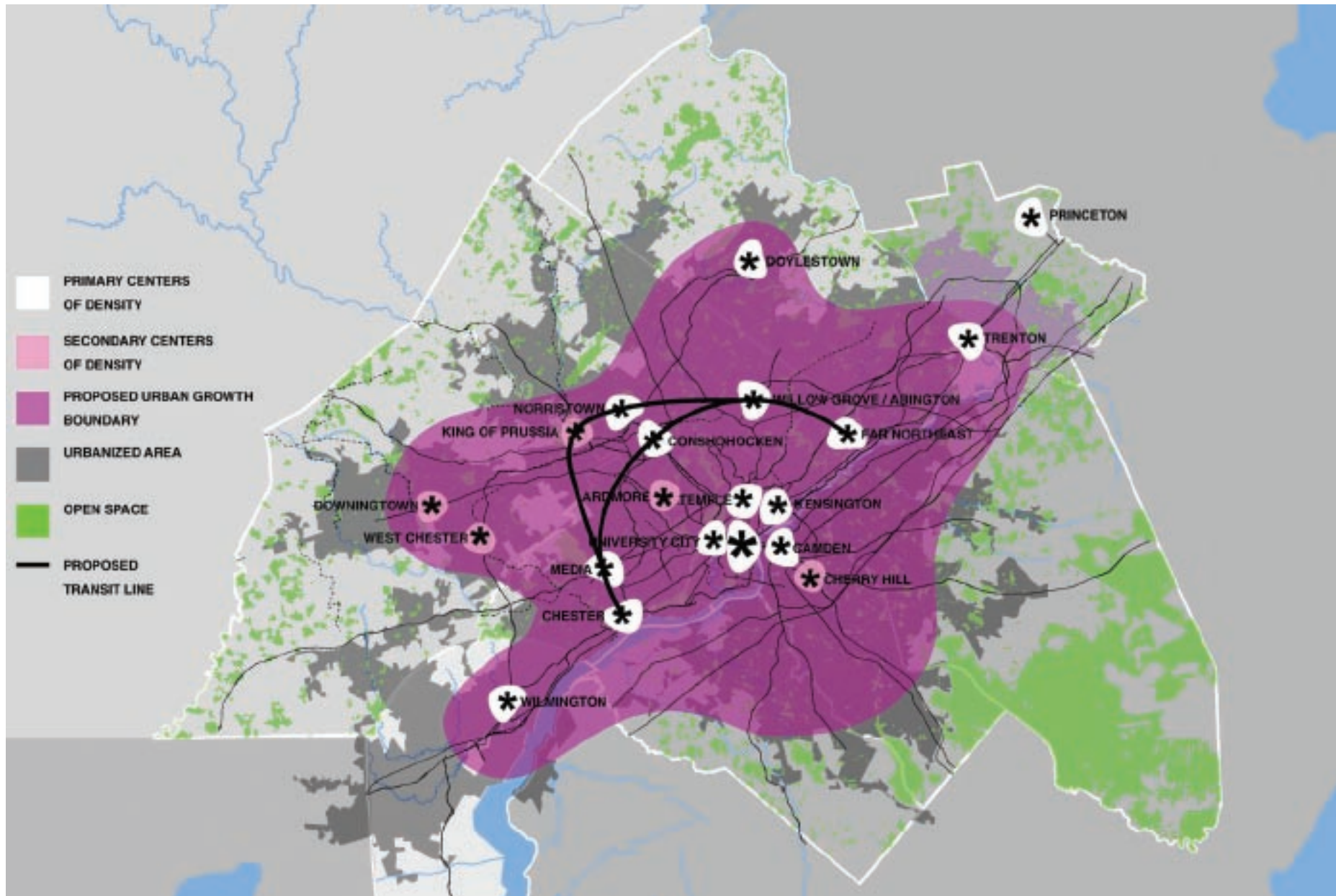
In order to plan and implement transportation improvements that support equity and environmental justice, we must resolve the misconception in many parts of the region that density is a bad thing. The group concluded that when properly designed and implemented, density brings value and leverages existing assets, which can benefit residents of the region as a whole. For example, increased transit ridership in areas of high density alleviates congestion on area highways.

When it comes to planning for density, the group emphasized the need to facilitate effective transit-oriented development (TOD)—not just a series of high-rises built near train stations according to the cheapest land value. Instead, development should be planned in accordance with urban design guidelines to generate value through the creation of a sense of place. This must be TOD in both density and land use mix—a complete and integrated land use and transportation system and not simply a collection of disparate development nodes.

Regional policy must be structured to integrate equity and environmental considerations. As noted earlier, it was the consensus of the group that the current MPO system is not designed to operate in this fashion, so this system must respond to this deficit if the region is to benefit from coordinated transportation and land use policies.

Finally, look at service frequency and travel times for existing transit. The Philadelphia region has an extensive transit network relative to other parts of the country, and improving service could go a long way toward increasing ridership—generally a more cost-





ABOVE: This map is a digitized version of the Regional Transportation group's vision of a regional urban growth boundary to concentrate growth in and around population and employment centers. This map also shows two spurs of a new "arc" rail system that would connect regional economic centers without requiring travel to 30th Street or Suburban stations in Philadelphia. This rail line resembles a portion of the R0 line as proposed by a PennPlanning studio in 2008.

effective measure than constructing entirely new transit lines. There is a significant amount of transit infrastructure in the region that is currently underutilized.

### Proposals

The Transportation group had a wide variety of proposals, from policy changes to adding rail lines and transit stops. They included:

General priorities and areas of importance for future policy and planning include:

- Establish a system for prioritizing transit improvements. Link transit investment to goals that support the future growth of the region, including reinforcing the notion of supporting existing economic centers.
  - Facilitate TODs through initiatives such as updated zoning and tax increment financing.
  - Restrict funding for transit and other public improvements to areas of high density.
  - Conduct public outreach and education about the relationship between density and economic value, how to deliver amenities and services, and the fact that functional transit service can offset negative impacts of increased density.
- Do not construct any new highways—instead focus on new transit improvements and fixing existing highway infrastructure so it is stable. Expand transportation choices for residents, employees and visitors so as to overcome the obstacles inherent in our legacy “hub and spoke” transit system. Create cross-city and cross-region transit options that allow access to regional employment centers without a car.
  - Improve transit service.

- This will likely require implementing funding strategies that are new for the region, such as user fees on highways and adjusted fare prices depending on distance traveled.

- While improving existing service, add new routes that fill the gaps in the network and transit hubs that target density.

- Any additions to the regional network should build on existing infrastructure and align with existing centers of employment and population.
- Look for opportunities to reuse existing facilities or reactivate inactive rail.

New stops and systems include:

- A new rail system that connects secondary regional centers via an arc or semicircle. This would include stops in Northeast Philadelphia, Willow Grove, Norristown and West Chester.
  - Extend the SEPTA R3 to West Chester.
  - Extend the SEPTA R8 to Newtown.
  - Extend the SEPTA Broad Street Line south to the Navy Yard and add a northeast spur along Roosevelt Boulevard. Note: There were differing opinions about the Navy Yard extension, which is referenced later in this section.
  - Extend PATCO into Gloucester County, N.J.

Inside the SEPTA system: Do not burden buses and trolleys with the same responsibility that we give to subway and regional rail. Improve them to better serve residents by offering express buses, Bus Rapid Transit, and new routes that connect urban and suburban dwellers in meaningful ways instead of keeping old routes that are no longer useful.

There are two systems that must be of high priority to the Philadelphia region, as each will likely bring billions of federal improvement dollars to the region in the years ahead.

- *Interstate 95*, which is being reconstructed from Bucks County south to the Delaware state border.
- *High-speed rail*: Since the High-Speed Rail Act lists the Northeast Corridor as one of 11 areas to get structural improvements to allow for high-speed rail connections, the line will undoubtedly run through the region with a stop at 30th Street Station.
- It is a rare opportunity to have such potentially transformative projects at one time, so a strategy must be established to ensure that the region maximizes the benefits from these transit and transportation investments.

The following three transportation improvement statements were identified as “game changers,” prioritizations that could significantly enhance the economic competitiveness of the region.

- Higher quality transit connection to Philadelphia International Airport (numerous other charrette groups addressed this issue in greater detail).
- Shift focus away from improving service for the Philadelphia Navy Yard. The group argued that development should progress before extending the Broad Street Line, which is estimated to cost hundreds of millions of dollars, when that money could go toward small measures to connect existing centers with greater employment figures.
- Turn North Broad Street from Center City to Temple University into Philly’s “Champs Élysées” for transit and pedestrians. This would offer complete

multimodal transportation access to an academic and employment hub, providing total activity that one cannot get anywhere else in the region.

#### Responses to HUD-DOT-EPA Principles

Since the group’s main charge was to reimagine the region’s transportation networks, it is clear that the ideas addressed the HUD-DOT-EPA principle for improving transportation choices. However, well-planned and successful transportation access can be the key to unlocking economic prosperity, environmental health and affordable living, while strengthening existing communities.

#### Conclusion

Restructuring our regional transportation policy priorities to integrate land use, equity and environmental concerns is crucial to the future of Greater Philadelphia. Practitioners are beginning to make these connections at the local level, but this conversation must be elevated across the region if positive collaboration is going to occur. A recurring question is whether the current national model of allocating federal transportation funding and decision-making to regional metropolitan planning organizations (DVRPC here) is the appropriate model going forward. Whatever the method, it must be one that prioritizes existing areas of economic strength, regardless of county and municipal boundaries, to benefit the region as a whole.

## REGIONAL NATURAL SYSTEMS

*Alex Krieger, Harvard University Graduate School of Design, team leader*

### Existing Conditions

The Philadelphia region has an extensive open space system from the New Jersey Pinelands in Gloucester County to the 9,200-acre Fairmount Park system. However, like many metropolitan regions that have grown over the last 60 years, urban and suburban development has replaced undeveloped greenfields, increasingly taxing the natural systems and leaving many residents without easy access to open space while burdening stormwater management systems. In recent years, the definition of “open space” has evolved beyond passive areas into active working

landscapes that have environmental as well as economic benefits for the region. This ranges from the water health issues of stormwater management to the economic and public health benefits of trails and waterfront land, to new forms of “green” infrastructure that beautify while alleviating the strain that urban areas place on our natural systems. *Greenworks Philadelphia* begins to lay out a plan for the city to improve its environmental sustainability, and neighboring counties and townships are putting together similar plans as well.

### Charge

A diverse region like Philadelphia’s possesses an array of natural systems, from creeks and conservancies to overgrown vacant row house lots, and there should be uses for each of them. The goal for this session was to:

- Determine how the region should protect and strengthen existing natural systems, and identify areas of improvement where open space is currently lacking.
- Identify pinch-points where natural systems meet urbanized areas, and strategies needed to resolve these tensions.
- Determine whether it is better to maintain existing systems or create new ones; this answer could be different depending on the part of the region.
- Devise a list of priority projects that meet the HUD-DOT-EPA Interagency Partnership for Sustainable Communities principles and that fit into the region’s future vision and identity.

### *Suggested Questions to Answer*

- How should the region strengthen existing

BELOW: The Natural Systems group begins the day by discussing open space and natural features as assets that must be maximized.



natural systems, and what are the primary areas where it should improve?

- Which elements of the HUD-DOT-EPA Principles will the new open space system prioritize?
- Where are the pinch-points where natural systems come into serious conflict with urbanized areas on which we must concentrate?
- Is it better to maintain existing open spaces or to create new ones?
- The list of priority open space projects for the region is ...

### Discussion

The Natural Systems group began its overview of the region by looking at the system of rivers, tributaries and open spaces in the region, the urbanized area created on or around these systems, and the overlap between the two. This comparison showed both the promise and difficulties in trying to resolve a sprawling urbanized area with an array of natural features that are fast being depleted. The group identified the following strengths and weaknesses in the region's water and open space systems:

#### *Strengths*

##### *Water*

- Protected creeks within city borders.
- Connectivity of parks to neighborhoods (in many areas).
- Rivers as amenities—to quality of life, housing, recreation.
- Improved water quality on the Delaware and Schuylkill rivers over last 20 years.
- Philadelphia Water Department's innovative responses/approaches to stormwater management.

#### *Open Space*

- All counties except Delaware County have open space programs.
- Plenty of vacant land, especially within the City of Philadelphia—potential for greenway development.
- There is a history of and public support for protection of natural resources and historic places/landscapes.
- There are state and national parks in the region.
- There is ongoing work in the region to reclaim land for open space, and public support for connecting the region with a network of trails, parks and open space.

#### *Weaknesses*

##### *Water*

- Water quality issues persist in rivers and creeks.
- Lack of protection upstream—13 treatment plants on the Wissahickon Creek outside Philadelphia city limits.
- Stormwater management remains a problem; taxing our combined sewer and storm overflow system.
- Flooding in low-lying development zones.

##### *Open Space*

- General passivity and underuse of open space in region.
- Disconnection of park spaces within city and region.
- No regional forum for getting green infrastructure built and connected.
- Inequity of green resource distribution and recreation amenities (such as recreation centers).
- No clear articulation of why the region should protect open space.
- Lack of funding for parks.

- Fate of parks and open space tied to larger fiscal conditions.

The group centered its work on the following concepts:

- Look at the region’s natural systems in terms of its watersheds (i.e., major rivers, creeks). Protect the headwaters because everything flows down to Philadelphia and its adjacent suburbs.
- There are notable gaps in the region’s natural systems that should be priority projects going forward:

*Park systems*

- Completion of linear park at Frankford Creek in Philadelphia.
- FDR Park needs better connections to South Philadelphia neighborhoods and the Navy Yard.

*Water systems*

- The region needs a water taxi system pending further waterfront development; a possible connection from Center City to the airport could exist here.
- Waterfront trail, water recreation and accessibility.

*Pedestrian connectivity gaps*

- University City and Center City.
- South Street, from the Schuylkill River to Front Street.

- Many natural features in the region are both assets as well as weaknesses, such as vacant land and stormwater management (the region generally manages both of these poorly, but there is a long history of members of the public launching grassroots efforts and Philadelphia deploying innovative efforts to strengthen both).

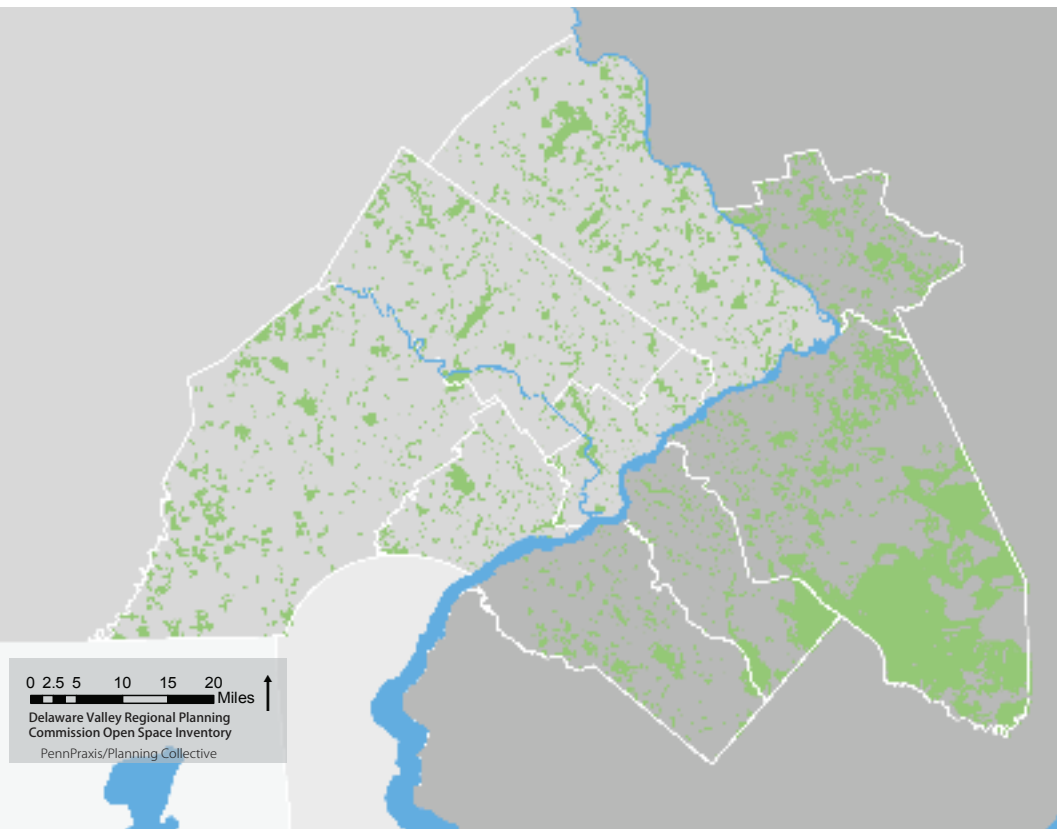
- There are numerous “pinch-points” where natural systems come into conflict with urbanized areas. Some of the most notable are:

- Some of our most desirable communities in terms of livability are within the 100-year or 500-year floodplain. Such natural constraints can create stormwater management challenges as well as the risk of damage caused by storms as dense development occurs in these areas. Consideration for such environmental issues is necessary on a regional scale going forward.

- Projects that come with significant potential benefits, such as greening transportation infrastructure, also come with significant potential challenges.

- The struggle between general practices in road engineering and the use of impervious pavers versus the new way of thinking about “green streets”

BELOW: A map prepared for the charrette that shows the 432,480 acres of protected open space in the region, 15.7% of the total land area.



that manage stormwater and reduce flooding of the combined sewer overflow (CSO) system.

– The impact traditional water infrastructure (i.e., CSOs) has on natural resources is significant.

- An inherent conflict exists in “local” sustainability standards like LEED, which focus on detailed elements of construction: It is still possible to build an environmentally friendly building in a location that is environmentally unfriendly in terms of its placement in larger “global” natural systems. The criteria for sustainable development should include provisions for a development’s context and the larger systems that support it.

#### *Proposals*

- When devising a plan to strengthen the region’s natural features, **start with rivers and tributaries, highlands and major headwaters.** Thinking of the region as a set of watersheds would encourage counties to think of how they can collaborate with one another.

- **Establish a plan for the region’s natural systems,** which should include supporting existing agriculture, greening communities through increasing tree canopy, and launching a new regional institution charged with supporting a vital regional network of open spaces. Important components for such a plan include:

- DVRPC’s open space plan (with more detailed guidelines in specific areas).

- The watershed plans (i.e., Delaware Direct) and long-term plan for the CSO system.

- Preserve the highlands for open space and water quality.

- Preservation of the Pinelands in New Jersey for open space and water quality.

- Completion of the regional trail system for

utilitarian and recreation use.

- Greening initiatives that strategically link parks and trails to existing assets in communities such as employment centers.

- Mapping economic change in the region to identify greening opportunities.

- Encouraging urban agriculture.

- Prioritizing existing transportation corridors for multiple greening projects on a regional scale (such as SEPTA and Amtrak right-of-way, much of which aligns with existing natural features).

- Bundling necessary public investments (i.e., water, sewers and transportation) with green space and other work to protect natural resources.

- Prioritizing areas already connected to the region’s core via transit and roadway.

BELOW: The Schuylkill River at sunset, captured during a boat ride as part of the charrette. Greater Philadelphia’s rivers and tributaries served as the basis for the Natural Systems group’s regional open space vision.



– Encouraging public-private partnerships that include both private development and open space investment.

- **Create new open space that is equitably accessible** with a focus on where it is needed in the region.

- **Create the Department of Green (DOG), a regional natural lands governance and funding organization.**

Creating a cooperative partnership to advance a regional open space agenda would be beneficial to the area.

– DOG would be a tristate entity created by the legislatures of Pennsylvania, New Jersey and Delaware.

– DOG would have an “opt-in” structure in which any municipalities that are “members” would voluntarily choose to assume a small incremental tax (.25 percent, for example), which would be used to

finance DOG projects.

– This could be a small dedication of sales tax revenue (the group imagined if the City of Philadelphia kept its current increase in sales tax for this purpose), as well as an “impervious surface fee” for restoring watershed function.

– DOG functions could include:

– Setting “green” standards for municipalities to meet that would determine whether DOG funds projects in and provide services for those municipalities.

– DOG would set standards for trails (rights-of-way, signage, connections, etc.) as well as policies such as stormwater management and watershed retrofitting.

– DOG could also have fee authority and penalty association if a municipality does not meet the standards.

– Similar bistate agencies exist in St. Louis as well as other metropolitan regions.

- **Create a policy research and development institute that seeks innovative solutions to persistent problems.**

– For example, entities would trade off development rights in upper headwater areas for increased density in lower watershed areas (a transfer of development rights, of sorts).

– The institute would develop a regional growth management strategy that’s enforceable.

– The institute would develop a scorecard for each municipality for open space to both deliver results and compel local governments to act.

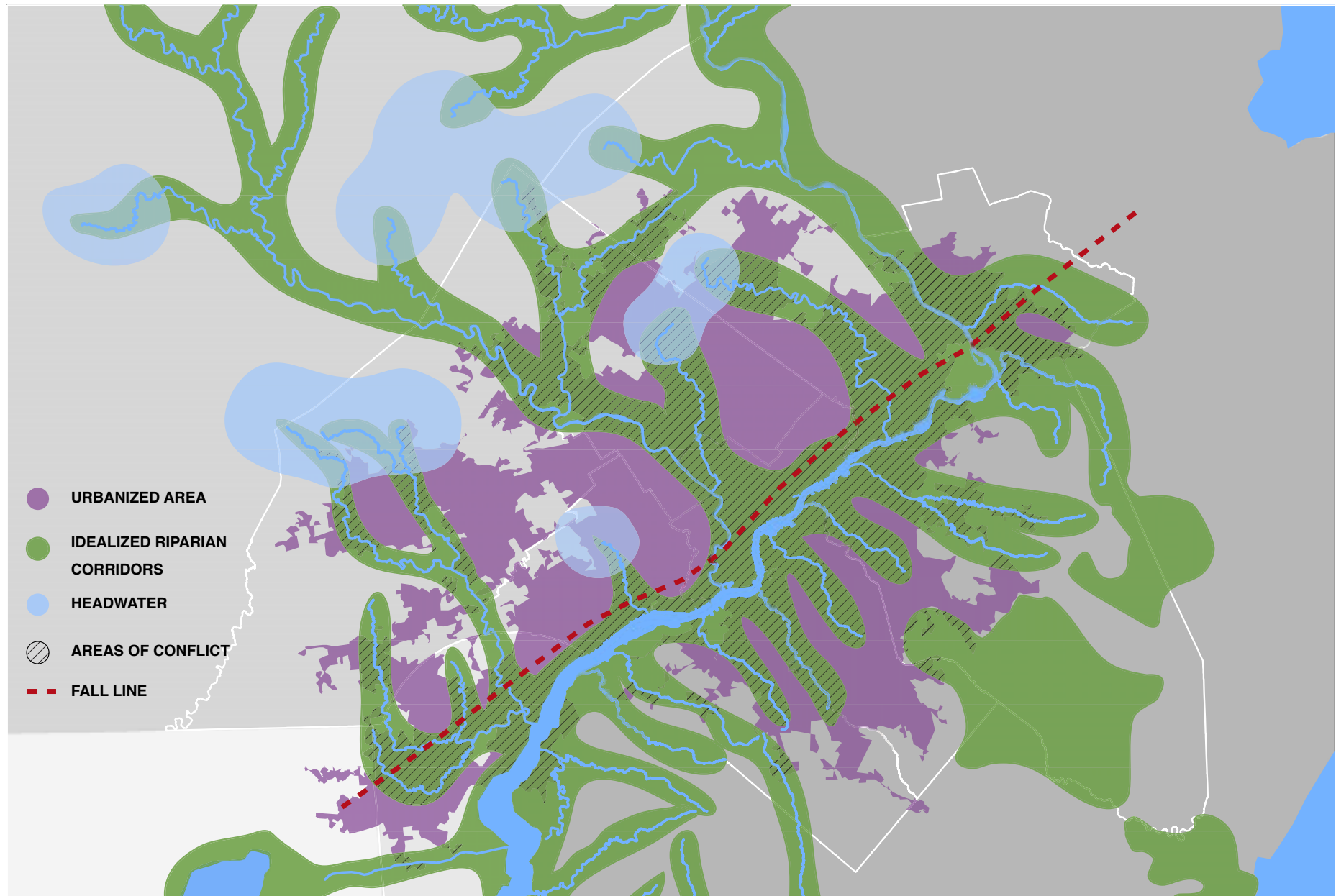
– The institute could also determine carbon offsets at a regional scale.

- **Establish acceptable minimum maintenance**

BELOW: A sketch drawn by Mami Hara of WRT and David Schaaf of the Philadelphia City Planning Commission outlining the region’s riparian corridors and headwaters.







ABOVE: This map is a digitized version of the Regional Natural Systems group's vision of a natural features and open space network that is guided by the flow and location of the rivers and tributaries, highlands and major headwaters. The map also shows how the region has developed so far (in purple) and the areas of conflict that exist between our current development pattern and our natural systems goals. Other proposals made by the group, such as establishing a Department of Green, would help address this by formalizing natural systems as something that must be coordinated and funded regionally, similar to transportation systems.

**standards for everything from a ball field to the Wissahickon Creek.** In general, the group said it was important to be cognizant of what spaces municipalities and counties can and cannot maintain.

- Begin by identifying possible partners for maintenance initiatives through the land’s users and uses. This would be a system to create new forms of land stewardship.
- Do not build a new green space if there is no maintenance plan or funding in place. .
- Establish a regional standard for publicly accessible open space per capita (which includes trails).

BELOW: A diagram of the “River Ring” initiative of the Great Rivers Greenway District, a regional initiative similar to the proposed Department of Green, in which representatives from three counties collaborate on open space projects.



Responses to HUD-DOT-EPA Principles

By reimagining the region’s natural systems networks, the group brainstormed ideas that address a number of the HUD-DOT-EPA Principles, even though the connections are not as directly visible as in the Regional Transportation group. The ideas provide more transportation choices (through enhanced trail and water taxi networks), coordinate policies (mandates for sustainability and energy efficiency at both the state and federal levels), support existing communities (by making interventions that improve residents’ physical health and quality of life), enhance economic competitiveness (the economic benefits of trails, open spaces and waterfront property are well-documented), and value communities and neighborhoods (by supporting public spaces across the region). Well-planned and successful natural feature improvements can be essential to promoting economic prosperity and public health, and strengthening existing communities.

Conclusion

This group’s findings highlight the ongoing struggle to maintain and strengthen open space and natural systems networks in a region that is constantly growing and developing. Similar to transportation networks, natural features do not adhere to political boundaries, and decisions that affect their health and maintenance can often hinge on a regional agenda. The time has come for Greater Philadelphia to think comprehensively about the importance of its natural systems network and the network’s impact on stormwater management, water quality, recreation, community building and public health.

Using the watersheds and major tributaries as the basis for creating a regional plan is an important concept that should be developed further. Moreover, the establishment of a regional natural systems governance, policymaking and oversight organization (such as the Department of Green that the group proposed) along with a complementary research and policy institute could bind municipalities across the region together as they leverage interlocking benefits from a progressive natural systems policy. A focus on how to incorporate vacant land in a regional natural systems strategy could be the first project undertaken on a regional scale by the new Department of Green.

## PHILADELPHIA INTERNATIONAL AIRPORT

*Marilyn Jordan Taylor, PennDesign, and Derek Moore, Skidmore Owings & Merrill LLP, team leaders*

### Existing Conditions

Philadelphia International Airport (PHL), owned and operated by the City of Philadelphia, has seen dramatic increases in activity in recent years despite its physical constraints. In 2007, PHL handled approximately 499,683 aircraft operations and 32 million passengers—it was the 10th busiest airport in the U.S. in terms of operations, yet it has the smallest land area of any major U.S. international airport. The Federal Aviation Administration has identified PHL as contributing to delays throughout the National Airspace System due to insufficient primary runway

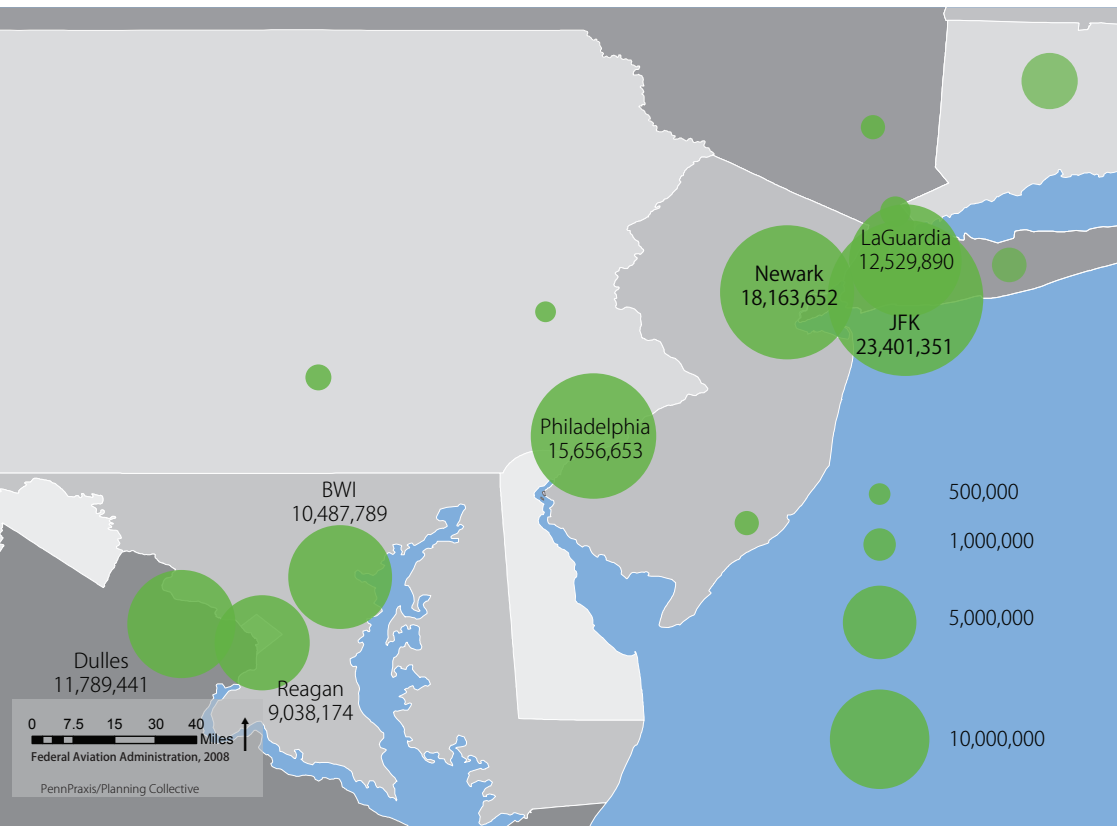
separation and secondary runway length. The airport is working on an expansion plan to build an additional runway to accommodate increased traffic and reduce delays. The plan has become controversial, as Delaware County and Tincum Township officials sued Philadelphia in May 2009 over its plans to acquire land in Tincum Township without permission. The lawsuit says the city believes it can acquire land without permission, though others say that Philadelphia is required by state law to negotiate with its neighbors over airport expansion plans.

### Charge

Philadelphia International Airport is the region’s gateway to the world, yet its potential to enhance our regional economic geography is not fully realized. The goal of this session was to:

- Establish a mission statement for how PHL can best serve the Philadelphia region.
- Devise increased transportation connections from the airport to our region’s economic centers (Wilmington, Trenton, University City, Center City, Temple, the Route 202 life science corridor, etc.).
- Imagine a transit system in which the airport is a central hub, linking people to our regional assets in a more efficient fashion than it currently does.
- Establish target drive-times and transit speed and frequency, and determine how best to meet these goals.
- Discuss the different approaches to airport growth around the world (i.e., planning for high-density commercial and residential development around the airport, creating “mini-cities” of sorts) and determine if such a concept fits with Philadelphia’s

BELOW: This diagram of passenger boardings shows the importance of Philadelphia International Airport as an air travel hub in the Northeast U.S.



regional development goals and the HUD-DOT-EPA Principles to establish sustainable communities.

Suggested Questions to Answer

- What is the mission statement for how PHL can best serve the Philadelphia region going forward?
- Which elements of the HUD-DOT-EPA Principles should the airport prioritize?
- What does the future transit system for the airport look like? How does it connect to our regional economic centers?
- What are the target drive-times and transit speed and frequency, and how can we meet these goals?
- What is the best approach to development surrounding the airport?

Discussion

- The group supported the airport’s current expansion plan.
  - The plan, which includes runway extensions and a new runway with slight encroachment into the Delaware River, is sorely needed to increase throughput and capacity, and so more of the fleet mix can be handled.
  - Delays in flight service cost airlines time and money as well as waste of fuel (circling and taxiing both burn fuel needlessly) and productivity.
  - Further, the FAA predicts an increase of 100 percent in commercial air traffic in the next 20 years.
  - When implemented, the expansion will use all existing land in the airport’s boundaries and extend airport development to adjacent areas. This precludes an “aerotropolis” (an aviation-oriented business cluster) for any uses that are not aeronautical.

• The airport already has assets that distinguish it from comparable airports around the country. These assets include:

- It is approximately six miles from Center City—Philadelphia’s thriving downtown.
- It is already connected by rail—the SEPTA R1 line, which connects Philadelphians to the airport via a 22-minute train ride from Center City every 30 minutes.
- Though some connections already exist, we must increase access opportunities to and from the airport. We are not currently maximizing possible connections. There are two components here:
  - Increasing access to the airport itself for employees and passengers.
  - There is currently a 93 percent/7 percent

BELOW: The runway expansion plan discussed during the charrette, as shown in PHL’s Environmental Impact Statement.

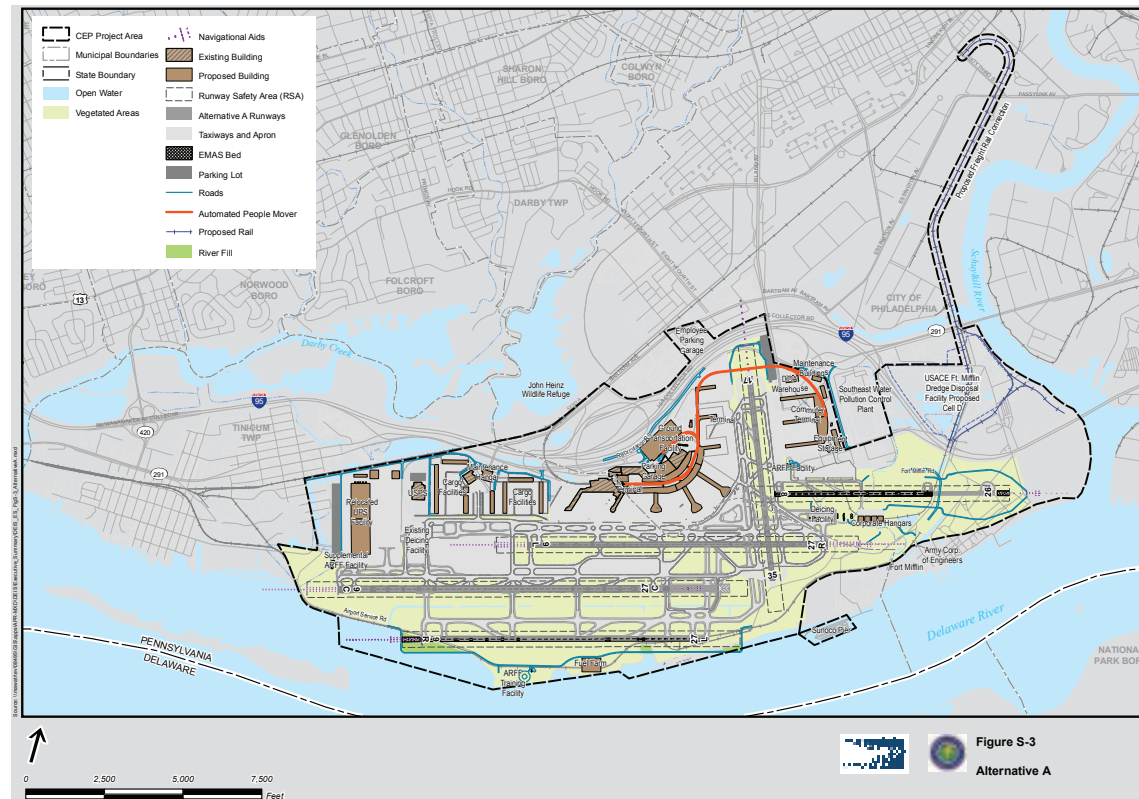


Figure S-3  
Alternative A

Source: VHB, Edwards and Kelcey, CR 8

modal split between car (low-occupancy vehicle) and transit access to the airport, one of the smallest among domestic hub airports.

- Increasing access to Center City and the region's other centers for incoming travelers or those with long layovers.

- Though the group's main charge was connectivity, addressing this issue has numerous additional benefits: increasing economic competitiveness (for nearby development as well as the region as a whole), social benefits (by creating jobs and enhancing employee access), reducing the amount of low occupancy car trips, etc.

Proposals

- **Regional Access:** launch a series of scheduled higher-occupancy "rubber tire" collector points going

to the airport from employment centers around the region (King of Prussia, Cherry Hill, Media, etc.). The size of the vehicle would vary depending on demand. Scheduled bus services from a dedicated facility would collect passengers from the region and provide regular, reliable airport service.

- Bus facilities could do "double-duty," i.e. be located at existing SEPTA, PATCO or New Jersey Transit stations.

- A more detailed study should be conducted to determine the best applications for such a service.

- As a corollary to this idea, the group discussed the possibility of implementing HOV lanes on nearby expressways and interstates for employee van pools and express shuttle service.

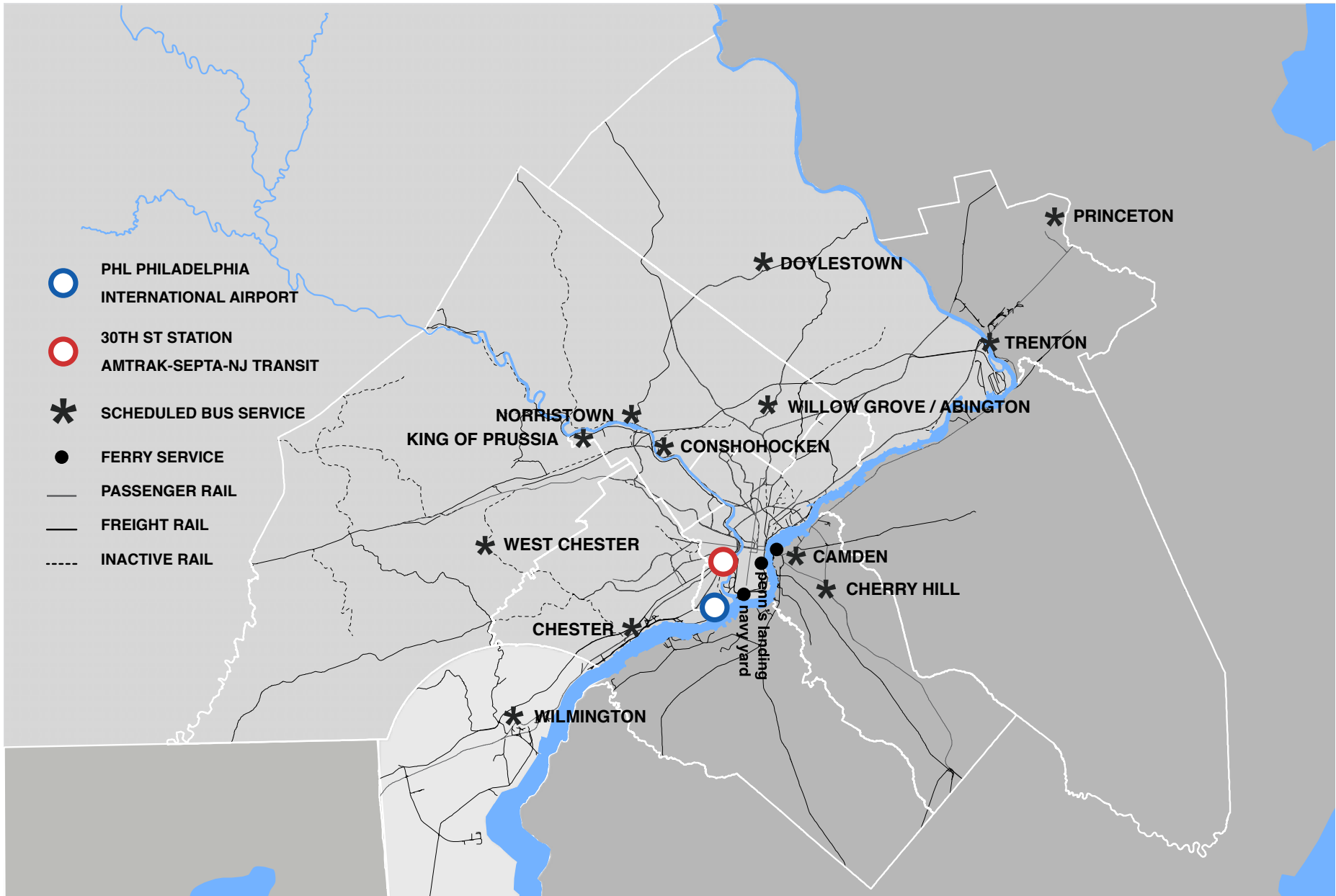
- The group also suggested adding a stop along the Amtrak Northeast Corridor line as close to the airport as currently possible, where a visible and branded "people-mover" would be constructed to transport passengers from the Amtrak line to the airport. However, after lengthy consideration, the group concluded that this intervention was too expensive, and efforts should be focused on enhancing the connection at 30th Street Station instead.

- **City Access:** Numerous transit interventions were proposed (with no increase to roadway capacity). They include:

- Make 30th Street Station the primary intermodal connection to the airport by enhancing accessibility at the station between lines like Amtrak, SEPTA Regional Rail, SEPTA's subway lines and New Jersey Transit. The visibility and ease of the 30th Street connection must be improved through such measures as upgraded equipment and wayfinding,

BELOW: A sketch drawn by the Airport group outlining sites for regular bus service to the airport.





ABOVE: This map is a digitized version of the Airport group's vision of improved access from regional centers across Greater Philadelphia to Philadelphia International Airport via scheduled, high-occupancy bus "rubber tire" connections. This group also noted the importance of enhancing the connection at 30th Street Station, making it a "one-ticket ride" with increased visibility and accessibility.

better signalization and track capacity, and the ability to run an R1 express that has a branded identity as the Airport Connector. The transit connection must be just as convenient (if not more so) than any other travel mode to the airport. The group said that the ideal rail frequency between Amtrak's 30th Street Station and PHL was every 15 to 20 minutes.

- There are operational issues associated with increased frequency and running an express line (e.g., costly track upgrades), but the group concluded that it was an important enough idea that it must be explored. Installing more visible time indicators showing how much time is remaining until the next train departs would be helpful as well.

- This would not achieve the desired goal of a “one-seat ride” to the airport for everyone, but it could

become a “one-ticket ride:” a passenger could buy a ticket to the airport on a different transit line and make a seamless transfer at 30th Street Station.

- If another track can be acquired after the high-speed rail corridor is determined, reliable local and express service could be coordinated.

- Extending PATCO service to 30th Street, which would help increase airport access for New Jersey residents, would dovetail with this effort.

- Extend the Broad Street Line (BSL) from its terminus at Pattison Avenue south to the Navy Yard.

- Add a light rail connection from the BSL at Oregon Avenue that connects diagonally to the airport via Moyamensing and Penrose Avenues and the Platt Bridge.

- The light rail could also extend east of Broad along Oregon Avenue, connecting to a future riverfront line along the Delaware.

- These two additions could take business to the Navy Yard and Center City, and take employees to the airport. Expansion would connect thousands of low-skilled jobs to the airport.

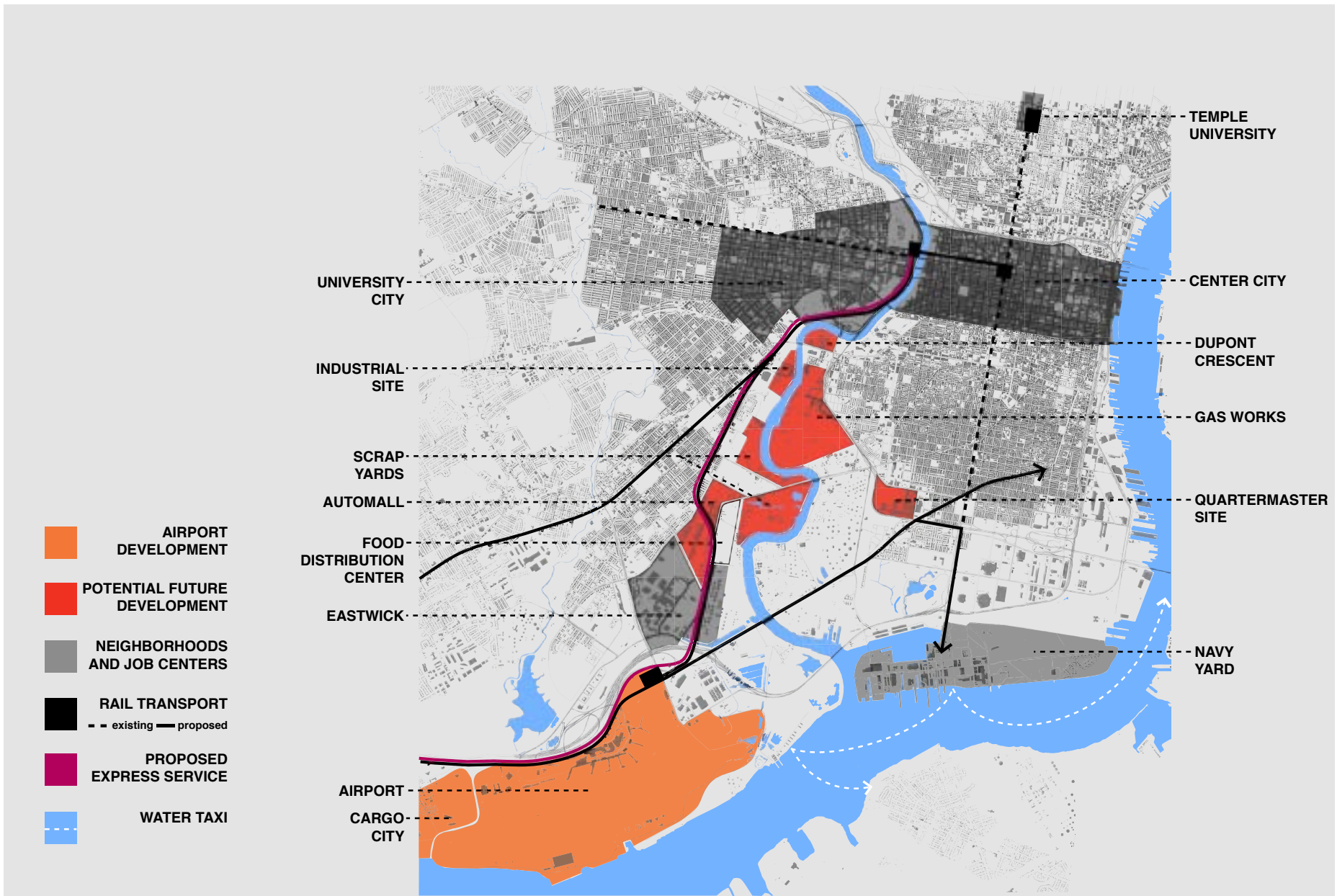
- **Other Access:** The group also explored ferryboat connections between the airport and various centers on the Philadelphia and New Jersey sides of the Delaware River, which could help spur multimodal, transit-oriented riverfront development.

- **Airport-Related Development:** For non-aeronautical uses, establish a coordinated development approach that uses the “aerotropolis” idea to populate targeted development sites such as the Navy Yard and fallow industrial land along the Lower Schuylkill to bridge the connections between the airport and economic centers such as University

RIGHT: A sketch drawn by Scott Page of Interface Studio that identifies local economic centers and nearby underutilized parcels that could, together, become Philadelphia's version of an “aerotropolis.”







ABOVE: This map is a digitized version of the Airport group's vision of enhancing transportation connections to the airport via an express SEPTA R1 service, a local rail extension from Oregon Avenue in South Philadelphia, and water taxis from various nodes on both sides of the Delaware River. The map also identifies vacant or underutilized sites in Grays Ferry and Southwest Philadelphia that could accommodate airport-related development, though the group emphasized the importance of improving the connections to existing job centers that make Philadelphia an "aerotropolis" in itself.

City and Center City. This is similar to the “aerotropolis” concept but, importantly, it acknowledges the proximity of the Navy Yard and Center City as well as potential development sites along the Schuylkill River corridor, providing linkages in the form of transit and development so that development does not occur in an uncoordinated fashion.

- This reasserts the conclusion that Philadelphia itself (specifically Center City) is the “aerotropolis,” so separate business-cluster development is not required.

- This focused approach will help justify increased transportation linkages to areas like the Navy Yard, University City and Center City.

- Potential Lower Schuylkill development sites

include the DuPont Crescent, the Gas Works site, the auto mall corridor (Essington Avenue from about 63rd to 70th streets) and selected portions of the Eastwick neighborhood.

- **Create an Airport Experience Through Design:** The group concluded that the corridor between the airport and Center City Philadelphia is not a successful gateway, so this “front-door experience” must be improved through such suggested measures as greening the rail corridor, installing public art along the rail corridor and at the airport entrance, or enhancing the industrial vista of crossing the bridge into the city as part of Philadelphia’s image.

- The issue of how terminal buildings can become gateways was raised, but not discussed in detail.

BELOW: The Airport group begins to brainstorm how to better connect regional population and employment centers to Philadelphia International Airport.



#### *Responses to HUD-DOT-EPA Principles*

##### *Provide more transportation choices.*

The group discussed strategies for increasing transportation choices across the city and region in depth. Concepts discussed included the “one-ticket ride” that enables seamless access to the airport via any existing rail line (through an enhanced connection at 30th Street Station) and increased bus connections across the region. The next step would be for the airport to analyze the market for ground transportation, and look toward making the new Ground Transportation Center proposed in the current Airport Expansion Plan an enhanced focal point of the airport experience.

##### *Promote equitable, affordable housing.*

While not directly providing affordable housing, the growth of the airport and enhanced transit connections will enable the growth of decent low-skilled jobs,

which will allow workers to afford housing closer to Center City and the airport. The proposals also provide more and better access to the airport for employees from city neighborhoods.

*Enhance economic competitiveness.*

Improving the airport and its connections is of great economic importance in the near term for the Philadelphia region to connect businesses, origin and destination passengers, employees and residents.

*Support existing communities.*

Enhancing transportation connections can support existing communities in close proximity to the airport, such as Eastwick. Further, the focused plan to channel development to formerly industrial areas between the airport and Center City will help keep nonresidential development out of existing residential neighborhoods. Also, the improved transportation connections will decrease overall cost of living for nearby residents, as cost of transit will become cheaper.

*Coordinate policies and leverage investment.*

The group's proposals involve close coordination between airport and railroads, and between transit agencies. Federal initiatives such as the High-Speed Rail Act could encourage interagency partnerships (i.e. SEPTA-Amtrak) with the incentive of federal money and increased ridership. The group's proposals also support the airport as an environmental steward by requiring that new airport buildings meet LEED criteria, and creating new green buffers that leverage the presence of the Heinz Wildlife Refuge.

*Value communities and neighborhoods—enhance unique characteristics.*

The group's ideas regarding improving the image and vistas as people enter the city via the airport focus on enhancing Philadelphia's unique characteristics.

Crossing the Platt Bridge simultaneously provides views of the downtown skyline and the Sunoco tank farm area. A marketing and rebranding effort could be very valuable here.

Conclusion

This was a rich first day of brainstorming for the Airport group, which finalized many of its design ideas the following day. Improving transportation choices, enhancing economic competitiveness and supporting existing communities remained the focus of the group's work going forward. The Ground Transportation Center proposed as part of the Airport Expansion Plan is a very important piece of these efforts. Ease of rail access was a specific goal for the Airport group that was not formalized until the following day's session.

BELOW: The Airport group listens to Roger Moog of DVRPC give an overview of the runway expansion plan.

