

## DAY 2: TESTING REGIONAL SYSTEMS IN PHILADELPHIA

### CITYWIDE SYSTEMS: TRANSPORTATION AND NATURAL SYSTEMS

*Alex Krieger, Harvard Graduate School of Design, and Trent Lethco, Arup, Inc., team leaders*

#### Existing Conditions

Citywide transportation and open space systems are existing economic development assets, but also leave much room for improvement. Most Philadelphians rely on their cars because frequent public transit is limited to central areas of the city, and buses are often slow and unreliable. Meanwhile, rail infrastructure remains underutilized and could connect many of

Philadelphia's struggling neighborhoods. Open space is concentrated in some areas of the city, leaving many neighborhoods without sufficient space for recreation.

#### Charge

The goal for today's session was to:

- Apply the regional principles on a city scale, with Philadelphia as a case study area.
- Identify job centers, population centers and transit nodes, and where they overlap in the city.
- Identify gaps and decide either to devise a system to fill these gaps, or to prioritize funds on strengthening existing infrastructure to improve current levels of service.
- When looking at public transportation, pay special attention to connectivity between rail lines as well as across systems (PATCO, New Jersey Transit, etc.).
- Identify overlap of neighborhoods underserved by open space and those struggling with environmental impacts: basements flooding, drainage overflows, etc.
- Determine the best strategy to improve the overall system while maximizing benefit for all residents.
- Think about how Philadelphia is the transit and open space fulcrum for the region. What do we need to do to strengthen these relationships to solidify the future economic, social and ecological health of the city and region?

#### Suggested Questions to Answer

- What areas need improved transit infrastructure the most? Is it more important to devise a system that fills in gaps or to strengthen existing infrastructure to

BELOW: The Citywide Systems group begins the morning with a discussion of the existing infrastructure in Philadelphia.



improve current levels of service?

- How can transit agencies in the region become more integrated, thereby improving connectivity across the 10 counties?
- What are the top design intervention priorities to improve the open space system?
- What are the top design intervention priorities to minimize environmental impacts on Philadelphia's residents?

### Discussion

The citywide systems group conducted a multistep process to arrive at a series of design priorities and investment strategies for the City of Philadelphia. First, thinking of both transportation and ecological systems as one collective "circulation system," the group discussed the current state of this system and listed the following strengths and weaknesses:

- General unreliability of service and connections
- Existing river trails, but need for trail connections
- No great trails inland, away from Schuylkill River
- Safe, frequent trail access regionally
- Problem with the "last mile" connection from transit stations
- Many potential small fixes to issues that impede connectivity (e.g., bike racks)
- Problems with bus stacking
- Poor attitude toward bikers and pedestrians
- Increase in number of clean buses, but need for more

The group then listed the following series of goals/metrics of how to build the performance of

transportation and ecological systems as base standards that target projects must meet:

- Build upon existing transit and natural systems assets and proximity to those assets
- Projects/sites that incorporate all performance elements
- Leverage existing development/align with market
- Increase access and choices
- Enhance ecological function
- Increase equity

The group also discussed the following site selection criteria, which derived from the HUD-DOT-EPA Principles of supporting existing communities and ideas of building from economic strength conceived on the first day of the workshop:

BELOW: A map of existing protected open space in Philadelphia, including the Fairmount Park system as well as small neighborhood parks.



- Access and mobility
  - This could be defined as proximity to a transit station, or placement along a transit corridor or future transit line.
- Sites with multimodal transportation access
- Roadways with excess capacity/right-of-way that could be used for other transportation modes.
- Connections to ecological systems
- Ability to connect areas together and have regional importance beyond political boundaries
- Previously developed areas
- Proximity to existing open space and parkland
- Pedestrian-oriented street character/walkability

From here, the group engaged in a “gap analysis,” looking at the existing structure of Philadelphia’s

BELOW: The “gap analysis” drafted by the group, which offers a potential framework for future investment decisions.

Transit	Trails	Parks	Ped	Water	Roads
Central Delaware (lacking transit line)	Delaware River/ East Coast Greenway	Frankford Creek	Linking Center City and University City	Water taxi system	Delaware Avenue extended north and south, and connections to neighborhoods
Northeast Phila (lacks dedicated transit along Roosevelt Blvd)	Complete Schuylkill River trail	FDR Park	South Street corridor: Front Street to the Schuylkill	Public access	I-95 crossings
Fairmount Park (poor transit access)	Frankford Creek (across entire city)			Recreation access	
Inner-city rail stations (shut down over the years)	City-wide —bike network —complete streets				
Navy Yard extension of Broad Street Line					
Address overcrowding					

transportation and ecological systems and identifying missing links, building off the approach of both the Transportation and Natural Systems groups from the first day of the workshop to focus investments around linking existing assets together. Note that the lists below are not comprehensive, but offer a methodology for analyzing gaps in the current systems and a framework for future investment decisions.

Proposals

**Part I: Improving the Transportation System**

In addition to suggesting priority projects, the group developed general ideas important to future regional growth:

- Identify tools for directing growth/development.
  - Land assembly for TOD projects
  - Support for strategic investments in low- to moderate-income neighborhoods, beyond housing
- Identify strategic gaps/overcome boundaries.
  - Underutilization of assets due to lack of access to transportation options
- TOD—conceptualize as creating options.
  - Not just in areas where the market readily indicates

*Question: What does Philadelphia need to do?*

*Answer: Create value centers and corridors*

- “Triple-bottom line”: Build upon existing economic assets, mitigate environmental impacts, and increase equity/access to those not currently served by existing systems
  - TOD
  - Corridors
    - Improve existing networks, but fill gaps where

most benefit is created

Based on the site selection criteria in the section above, the group identified a series of “value” or “triple-bottom line” centers and corridors: places where investments should be directed in order to derive maximum economic, ecological and equity benefits for the city and region. The map included in this section represents a first attempt at this holistic analysis to distinguish these sites from other sites that the city is focusing on, as well as sites that may be viable according only to traditional transit ridership or cost-per-mile models. These centers and corridors would add significant value to Philadelphia’s transportation connectivity and overall quality of life for the region if given the proper attention, planning and investment. They include:

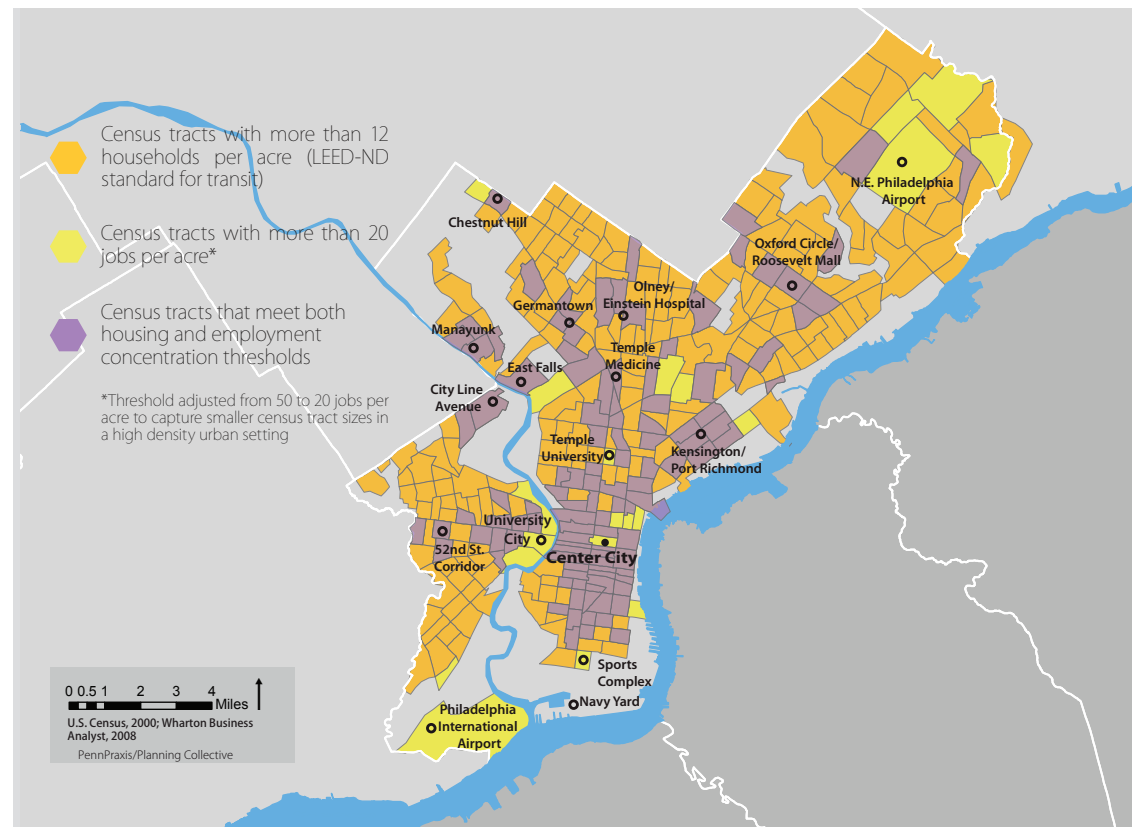
*Centers*

- Frankford Transportation Center
  - Existing investment as transit hub
  - Reasonable market without much transit access
  - Supporting street network—high accessibility
  - Hub for Northeast Philadelphia
- Wissahickon Transfer Center
  - Connection between regional rail and bus
  - Connection to Schuylkill River and bike trail
  - High level of nearby development opportunity
  - Potential linkage of neighborhoods
- North Broad Street Amtrak Station
  - Regional connection
  - Available land for development
  - Potential pedestrian access
  - Significant visual gateway
  - Potential connection to Lehigh Viaduct (park

opportunity)

- Wayne Junction
  - Multimodal access
  - Convenient urban/suburban access
  - Potential use of underutilized land and buildings
  - Proximity to park land
  - Existing investment agreements
  - Already an interagency focus area for City of Philadelphia
- Centennial District
  - Connects neighbors to park and city to park
  - Leverage public investment in area
  - Tourism/regional destination (Mann Center for the Performing Arts, Please Touch Museum, Fairmount Park)

BELOW: This map, which shows areas of population and employment density in Philadelphia, helped the group identify its priority centers and corridors.



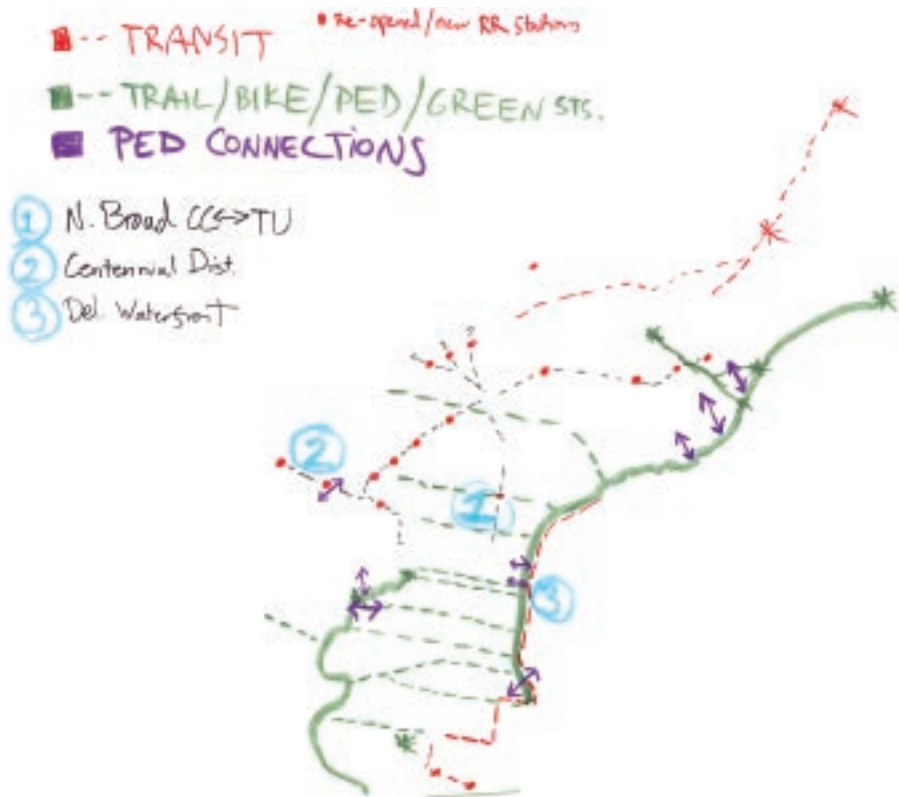
- Architectural/historical significance (Memorial Hall)
- Neighborhood benefit
- Transit connections: R5, R6, 52nd Street, Philadelphia Zoo, Ben Franklin Parkway, Philadelphia Museum of Art
- Already an interagency focus area for City of Philadelphia
- Navy Yard

*Corridors*

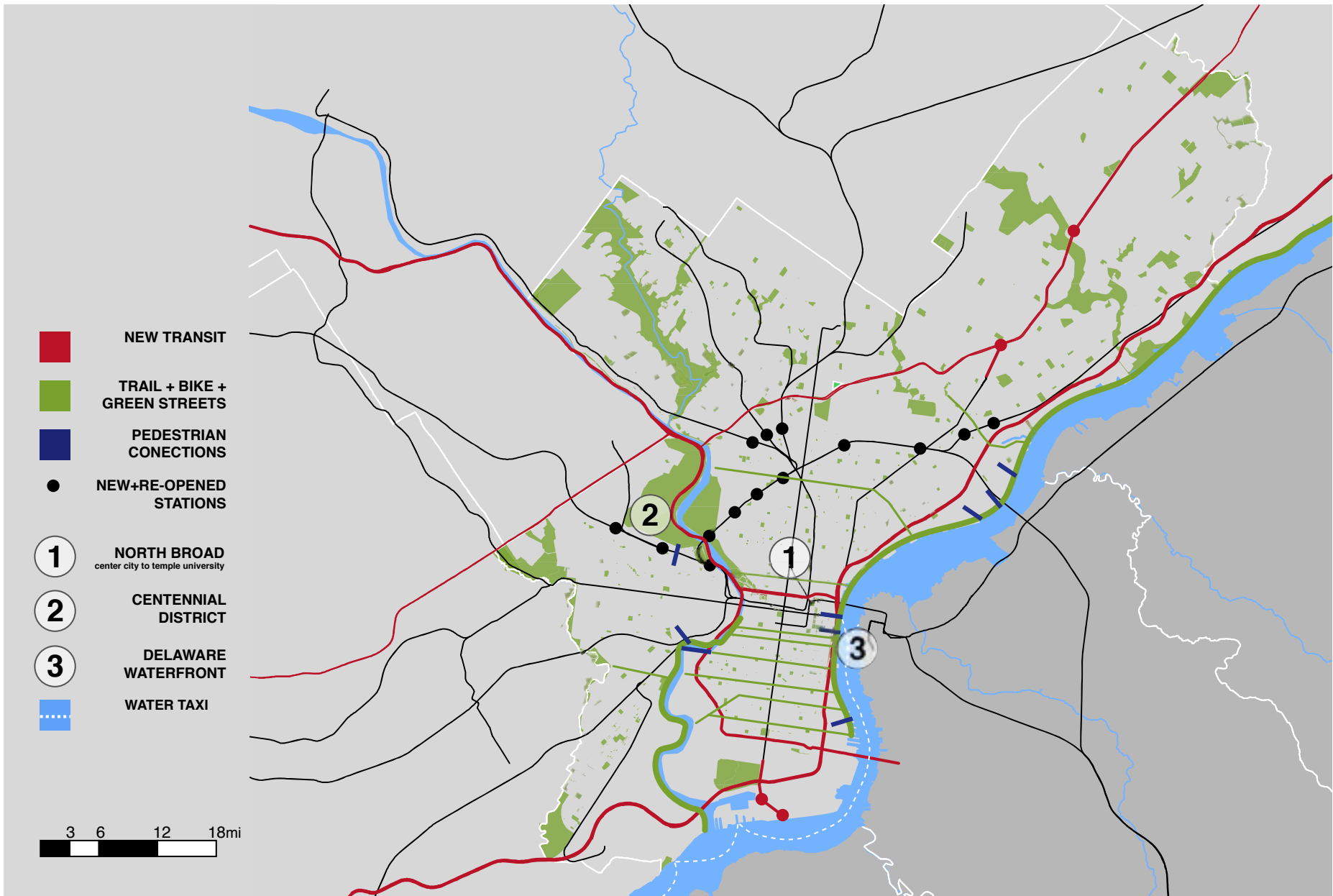
- Delaware Avenue—Central Delaware Riverfront
- Extending street grid to the river
  - Girard Avenue trolley as east-west citywide connection, link to proposed PATCO light rail line along the river

- Penn Treaty Park: existing open space
- Lehigh Avenue viaduct and East Coast Greenway: future open space and trails
- North Broad Street from Center City to Temple Hospital
  - Relatively inactive corridor between two economic nodes (Center City and Temple)
  - Existing transit (Broad Street Line)
  - Opportunity to leverage current investment: Temple University activity and American Recovery and Reinvestment Act (ARRA) stimulus dollars to revitalize Spring Garden and Girard stops on the Broad Street Line
  - Proximity to employment centers
  - Potential use of underused land and buildings
  - Historic assets
  - Reading Viaduct and green boulevard opportunity along Broad Street
  - Center City market pressure
  - Already a priority area for City of Philadelphia through transit-oriented development studies
  - Roosevelt Boulevard
    - Leverage proposed investment
    - Existing right-of-way availability for transit
    - Need for central focus, increased non-auto access and connections
    - Consider transit proposal for Roosevelt Boulevard to alleviate traffic on I-95
  - South Broad Street from City Hall to Sports Complex

BELOW: A sketch by the Citywide Systems group showing the “gaps” identified in various Philadelphia transportation systems.



The group then created a matrix to test the above centers and corridors against the metrics for investment they established earlier in the day. From this analysis of the different areas, three main priority



ABOVE: This map is a digitized version of the Citywide Systems group's "gap analysis," which identified priority areas for enhancements to transit systems, trails, green streets and pedestrian connections. It marks potential new stations as well as three areas of the city that the group thought could unlock major development potential if given targeted investment: North Broad Street, the Centennial District and the Central Delaware Waterfront.

projects were identified:

- *Project No. 1:* North Broad Street Corridor, from Center City to Temple University or Temple University Hospital
  - Relatively inactive corridor between two economic nodes (Center City and Temple)
  - Transit infrastructure exists already
  - ARRA stimulus dollars already improving Broad Street Line stations along North Broad
  - Streetscape activity from transportation office
  - Proximity to employment centers
  - Center City and Temple University are the closest ones, but Broad Street can also be a link for others such as Willow Grove and the Navy Yard
  - Create a transit-oriented development at the

Temple Regional Rail station at 10th and Berks streets.

- Vision of a green boulevard/grand boulevard (“Champs Élysées”)
- Bike access through Center City
- Include Reading Viaduct (park opportunity)
- Development pressure from both Temple and Center City can lead to synergies

- *Project No. 2:* Delaware Avenue—Central Delaware Riverfront
  - Leverage condo development activity near and along the riverfront
  - Connect Center City residents and visitors to recreation along the river
  - Catalyze Penn Treaty Park
  - Help extend and expedite the East Coast Greenway project
  - Leverage future transportation investments, including the rebuilding of I-95, and PATCO’s proposal for a light rail extension along the riverfront

- *Project No. 3:* Centennial District—Fairmount Park
  - Great open space and tourism resources, but minimal transit access
  - Inaccessible for most tourists and Center City residents
  - Extend 52nd Street connector through Fairmount Park, connect with Philadelphia Zoo, museum, under the Art Museum and out Callowhill Street to the Convention Center
  - Boost tourism
  - Increase connectivity and value to historically

RIGHT: The Citywide Systems group begins to identify its high-priority transportation investments.



significant properties

Despite the huge potential upside of creating such value centers, the group acknowledged that such investments were “heavy lifts” because they required new transit infrastructure or significant improvements of distressed communities. For this reason, the group concluded that it is important to strengthen existing infrastructure first before filling in the gaps. However, simply adopting a new methodology that focuses planning around such “value centers” will help guide the strategies for where to improve service and eventually fill in the system gaps.

### Part II: Improving the Ecological System

The group also discussed ideas for improvements to Philadelphia’s open space system, with citywide as well as site-specific interventions:

- Citywide
  - Green streets
  - Green schools
  - Need green space: potential for consolidation or joint use of fields?
  - East Coast Greenway
  - Increased tree cover
  - Reuse vacant land in neighborhoods
  - Riparian corridors
  - Rails to trails
  - Clean/green rail corridors
  - Complete Schuylkill trail
- Site-Specific
  - Frankford Creek: complete linear park across the city
  - FDR Park: connect better to the city-at-large

- Conrail elevated rail viaduct at Lehigh Avenue and Delaware River
- Connect University City with Fairmount Park
- Fairmount Park: open up areas reserved for private use activities to the public
- Trails
  - Schuylkill River Trail
  - Extend south of Locust Street
  - Complete East Coast Greenway
  - Need for “complete streets” network
  - Delaware River trail
  - Frankford Creek trail
  - Frankford Creek parkland
  - Citywide bike plan
- Use for Vacant Land in Neighborhoods
  - Community gardens

BELOW: Mike Boyer of DVRPC presents the methodology the Citywide Systems group used to determine priority investment areas.





- Urban agriculture
- Tree nursery/orchards
- Side yards/side lots
- Alternative energy sources
- Solar, wind power
- Recreation facilities in areas based on neighborhood level analysis
  - City regulatory obstacles currently exist, so need better public property management
    - Potential environmental impacts
      - Improved air quality
      - Improved water quality
      - Improved access to resources
      - Remediated brownfields, more efficient use of urban land

BELOW: A photo of an abandoned rail bridge along the Schuylkill River taken during the evening boat trip on July 28. Extending riverfront trails and reuse of formerly industrial land were two important issues that the Citywide Systems group discussed.



The group also identified the Philadelphia Community Transportation Initiative and PennDOT as potential funding sources for design interventions that define the overall “circulation system” of the city and region.

### Conclusion

The Citywide Systems group was tasked with an important challenge: to think about transportation and natural systems as integrated and interdependent, and to discuss mutually beneficial projects that would aid the city and region. Through this discussion, it became clear that in order to identify projects, one needs criteria at both the city and regional level for prioritizing infrastructure investments, because transit and natural systems transcend traditional political boundaries. The list of “value centers” and “value corridors” begins to apply this sort of strategic thinking on a local level by making decisions using factors beyond ridership models and population trends to include potential economic development spin-offs, equity considerations, environmental impact and the bundling of public services (i.e., how a street can serve both auto traffic and stormwater management, and if designed well, can create a framework for private investment). This reinforced the concept of “triple-bottom-line investing” to support economic, ecological and equity goals.

Philadelphia can leverage its existing assets. This does not mean “quick-fix” solutions or the selection of only one or two big projects. Small and incremental investments can have important impacts, as long as they are strategically identified and planned in the context of larger systems and goals.

Strategic investments can be made to fill gaps in

our existing transportation and open space systems, and if tied to land use policy, can improve the value and efficiency of our citywide systems. As one group member said, "Philadelphia cannot continue the pattern of 'filling gaps like potholes.'" It must be done in a meaningful and integrated way." As was established in Tuesday's discussion, "trend is not destiny," so the region has an opportunity to plan its growth in a focused and strategic manner. Especially when connected to land use, the group's examination of corridors in addition to stand-alone centers is important. Further exploration of the potential of corridors would require comprehensive development strategies and investment financing, but it is important to consider for Philadelphia as well as the entire region. In order for such projects to succeed, consideration of affordable housing, geographic and social equity, and pedestrian activity is needed.

## PHILADELPHIA INTERNATIONAL AIRPORT: URBAN DESIGN

*Derek Moore, Skidmore Owings & Merrill, team leader*

### 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 Philadelphia is required by state law to negotiate with its neighbors over expansion plans.

### Charge

The goal of this session was to:

- Think beyond runway expansion.
- Draft ideas for how Philadelphia International Airport as well as nearby areas such as the Navy Yard can be designed and integrated to strengthen both the airport and the surrounding area.
- Revisit the idea of development strategies around the airport based on the previous day's discussions from the Airport and Transportation groups.
- Determine whether the airport should become a portal for the region or the center of a “mini-city” developed immediately around it; whatever the answer, sketch out design alternatives.
- Identify necessary linkages between the airport and areas within Philadelphia itself.

### Suggested Questions to Answer

- What are our base principles/standards established by the work of the Airport and Transportation groups from the day before?

BELOW: The Airport group hears from Allan A'Hara of AECOM, PHL's planning consultant.



- Should the airport become a portal for the region or the center of a “mini-city” developed immediately around it?
- What are the necessary linkages or service standards to ensure efficient connectivity between the airport and important nodes within Philadelphia is established?
- Can the airport connect with the Navy Yard to strengthen this area of the city?

### Discussion

Building upon the previous day’s discussion and proposals, and with the addition of two representatives from Philadelphia International Airport to the group, the team arrived at the following principles that served as the basis for their proposals:

- Keep in mind the airport’s long-term redevelopment plans.
  - The airport representatives indicated that, in the long term, after this current Expansion Plan, the airport could consider extending a runway and creating a new terminal complex with people movers. Therefore, the current focal point of the airport could shift, and this should be kept in perspective in this exercise.
- Maximize assets to make the airport a regional center.
  - Strengthen existing transit access
  - Add new transit access (light rail, trolley and city bus, scheduled bus/HOV) to neighborhoods and throughout the region.
  - Enhance efficiency and appearance of connections to Center City
- Use connections to the airport to catalyze development.

- Primarily, the airport should be the gateway to the city and the region.
- Given the proximity of the airport to Center City and University City, substantial new collateral development at the airport would siphon energy from the city itself.
- Existing development in the vicinity of the airport, such as the Navy Yard, should be supported by strengthened connections to the airport—these can be “ready-made” airport city districts.
- Despite the priority on strengthening Center City, the airport should have some close-in non-aeronautical support facilities, such as hotels and other passenger-specific development.
- Create an airport experience (and start with the Ground Transportation Center).
  - Promote a robust and flexible interface between the airport and groundside access in order to enhance the passenger experience—and to set the stage for a world-class new terminal.
  - A Ground Transportation Center (GTC) at the airport should be promoted. A GTC is included in the current Airport Expansion Plan, but the charrette group proposed expanding on this idea to accommodate all expected access modes, including modes favored by airport employees. It should form the basis of a new, world-class entrance to the airport, the city and the region.

### Proposals

- **Regional Access:** The main ideas suggested by this charrette group the day before (i.e., launching a series of scheduled higher-occupancy “rubber tire” collector points going to the airport from employment centers around the region) were reiterated today. The

size and type of 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” for more local transit needs. For example, they could 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 considered 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, the group ultimately concluded that this intervention was too expensive, and efforts should be dedicated to enhancing the connection at 30th Street Station instead.

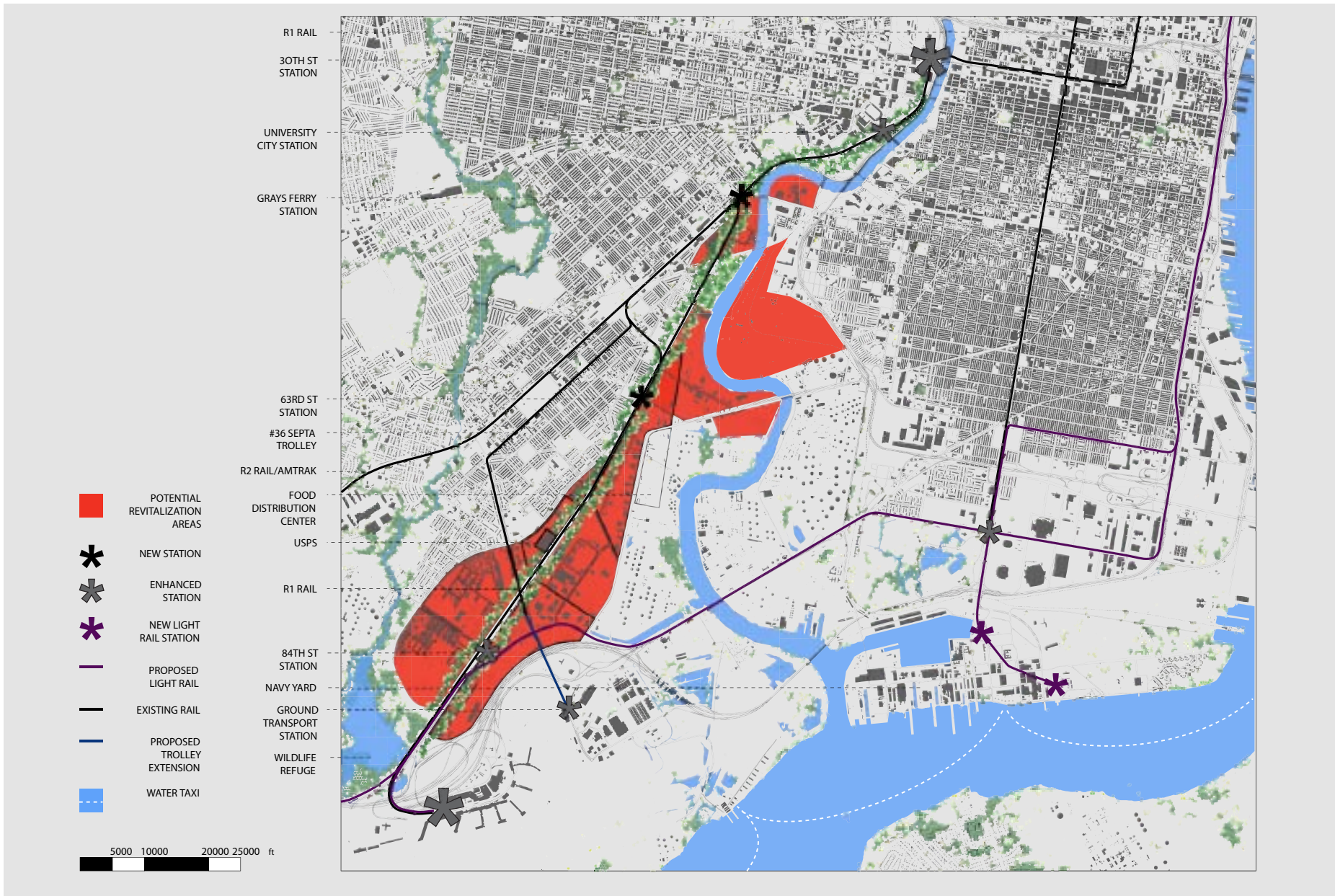
- **City Access:** Transit interventions that were discussed the day before were further honed and crafted during this day’s session. They include:

- 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 subway and New Jersey Transit. Since extending high-speed rail from 30th Street to the airport does not seem likely, the visibility and ease of the 30th Street connection as the airport gateway must be improved through such measures as upgraded equipment and wayfinding, 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 made just as convenient (if not more so) than any other travel mode to the airport. The group said that the ideal rail frequency was once every 15 to 20 minutes (compared with the Heathrow Express in London, which has a 20-minute frequency).

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

BELOW: A sketch drawn by the Airport group showing its ideas of a greened R1 corridor and an enhanced Ground Transportation Center that serves as a “gateway” to the region.





ABOVE: This map is a digitized version of the Airport group's final vision for transportation improvements and development opportunities around the airport. Proposals include a new branding of 30th Street Station as the Airport Connection for a "one-ticket ride," a grand new Ground Transportation Center as the multimodal gateway into Philadelphia, a new light rail line from Broad Street and Pattison Avenue to connect to the Sports Complex, an extension of the No. 36 SEPTA trolley, and a repopulating of stops along a newly greened R1 SEPTA line to enhance development opportunities in Grays Ferry and Southwest Philadelphia. The combination of all these transportation improvements makes Philadelphia itself the "aerotropolis."

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 seamless transfer point between rail lines with minimal level changes so you do not even know you are transferring.

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

- Check-in and baggage claim could also be handled at 30th Street or at other stops along the R1 line to ease the airport experience once the passenger arrives.

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

- Assuming an R1 express to the airport can be achieved, new stations should be added to the R1 local that would help catalyze development and increase access to parts of West and Southwest Philadelphia. Proposed stops along the existing line include Grays Ferry, Bartram’s Garden and 61st Street.

- The Eastwick station, the final R1 stop before the airport, could then be revamped to become part of the new Ground Transportation Center (described in more detail below) as a new airport gateway for local passengers.

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

- Add a light rail connection from BSL that extends westward from Broad Street to the airport across the Platt Bridge. Though the group suggested Oregon Avenue as the connection point on Tuesday, they concluded on Wednesday that Pattison Avenue would be the more natural connection to link the

airport to the Sports Complex.

- The light rail could also extend west of the airport into Delaware County, and east of Broad Street to connect to the future PATCO 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.

- Extend the No. 36 SEPTA trolley from its terminus in Southwest Philadelphia across I-95 to connect to the airport terminals.

- **Ground Transportation Center at Airport:** The group proposed to fuse this concept with the airport’s own GTC concept as the nucleus of a future improved airport terminal, either in this round of redevelopment or in the next round. This new GTC would be either in the position outlined in the current Airport Expansion Plan, or further expanded if the existing terminal layout is repurposed in future airport redevelopment plans. This facility must accommodate all possible airport access modes, as well as rental car.

- It could also have some terminal passenger processing functions (e.g., check-in, baggage handling).

- It should be located to support the near-term and long-term redevelopment of the airport.

- The Eastwick station on the SEPTA R1 line was discussed as a possible site for this new GTC.

- It would serve as a world-class entrance to the airport and the city.

- **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:** The idea of a focused development strategy around the airport was discussed in more detail during this session, and the group suggested the following multitier setup:

- Reserve zone adjacent to the airport for high-value, close-in collateral development.
- Reserve secondary area for airport collateral development.
- Designate tertiary area to the north for logistics and industrial development, possibly airport-related, at some of the underutilized industrial sites just north of the airport.
- Connect to other development sites between the airport and 30th Street, including the DuPont Crescent.

• **Create an Airport Experience Through Design:** The group concluded that the trip to the airport by rail or road does not serve Philadelphia well as a gateway, so this “front-door experience” must be improved through such suggested measures as greening the rail corridor, installing public art or enhancing the industrial vista of crossing the bridge into the city as part of Philadelphia’s image.

- The issue of how terminal buildings could serve as gateways was raised, but not discussed in detail.

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

##### *Provide more transportation choices*

The ideas provide a diversity of transportation

choices that help the region, the city, targeted neighborhoods and airport employees. These include the branding of 30th Street Station as the airport gateway (via the R1 connection), the multiple new local connections via light rail and trolley access, and the enhanced Ground Transportation Center.

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

While not directly providing affordable housing, the growth of the airport will create many low-skilled jobs, which will allow workers to afford housing closer to Center City. The proposals provide more and better access to the airport for employees from city neighborhoods, which will improve overall affordability (when considering housing and transportation costs together).

BELOW: This bird’s-eye view of the main airport entrance shows the tangle of highway and rail infrastructure that limits northern expansion (source: City Planning Commission).





*Enhance economic competitiveness*

Better airport connections for businesses are essential as part of the Philadelphia region's interest in marketing itself as a future employment center. Better airport connections for employees and residents keep costs low.

*Support existing communities*

A focused development strategy that channels development to former industrial areas between the airport and Center City will support existing communities by easing nonresidential development pressure in existing residential neighborhoods, which is inevitable as the airport expands. Suggestions for increased local access to transit, such as adding stops on the R1 line, extending the No. 36 trolley and adding a light rail line, will support existing communities in South, West and Southwest Philadelphia.

*Coordinate policies and leverage investment*

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

*Value communities and neighborhoods—enhance unique characteristics*

See above, No. 2 and No. 4. Also, the group's ideas

regarding improving the “gateway” imaging and arrival experience by greening the R1 corridor and enhancing the Platt Bridge vistas focus on showcasing Philadelphia's unique characteristics.

*Conclusion*

Philadelphia International Airport can make a virtue of its constrained site and its proximity to Center City. Redevelopment of the airport on the locked site with the right runway and terminal configuration is the most efficient use of resources for the near to mid-term in terms of cost and energy efficiency, and the group's proposals do not preclude the long-term concept of a midfield concourse configuration. Multiple enhanced transportation connections between the airport and all areas of the city and region make Philadelphia itself the “aerotropolis,” with new growth areas at the Navy Yard and on the Lower Schuylkill River activated by this increased access and a new master plan for redeveloping these evolving sites (as discussed in greater detail in the Central Schuylkill group).

The signature element of this group's work was the enhanced connection between the airport and 30th Street Station (and thence to its rail network) with the combination of (1) a new multimodal Ground Transportation Center at the airport, (2) enhanced intermodal connections at 30th Street and (3) a rapid and dedicated SEPTA R1 service running within a “greened” corridor with rail cars that contain luggage holders and other equipment geared toward air travelers. While the group did not look at on-airport planning as closely as connections to and development around the airport, it became clear that the interface gateway—the Ground Transportation Center—could be a major catalyst not only for improving the access

experience, but to provide a more satisfactory terminal and airside experience.

This underscores the importance of a more detailed and focused process to determine the best access routes to the airport and the future of high-speed rail through the Philadelphia region. Federal funding for high-speed rail corridors appears likely, so it is important that corridor alignment and stops fit with a vision for the future growth and economic geography of the Philadelphia region. After consideration of alternatives, the group determined that a high-speed rail stop at 30th Street Station is preferable, with an enhanced connection to the airport on an upgraded R1 alignment as described above.

The Central Schuylkill charrette group explored rerouting the Amtrak Northeast Corridor to enhance connections to the airport, but the airport group did not. The group concluded that it is highly unlikely that high-speed rail would sanction another stop so close to 30th Street Station. The existing Northeast Corridor alignment is about 1.5 miles from the airport—to move the airport to it, or vice versa, would be extremely expensive and of marginal benefit. A new station and link (e.g., as at Newark Liberty International Airport) is an alternative that was discussed in the group on Tuesday, but this alternative would require yet another rail system, or an additional transfer for passengers who already had to transfer at 30th Street.

Also, the interest in making the airport a regional center begs the question of whether the airport should continue to be owned and operated by the City of Philadelphia, or if a regional authority should be created to better further this goal. Each alternative has positives and negatives, but it is an idea that should

be explored further. Successes can be seen in examples such as the Port Authority of New York and New Jersey, which manages bridges, tunnels, airports and transit in New York and Northern New Jersey.

## CENTRAL SCHUYLKILL URBAN DESIGN

*Marilyn Jordan Taylor, dean, PennDesign and Cindy Sanders, Olin Partnership, team leaders*

### Existing Conditions

The “Central Schuylkill” is the stretch of land along the east side of the Schuylkill River from the north side of the South Street Bridge to the south side of the Grays Ferry Bridge. Current buildings and uses are either low-density (i.e., strip commercial and light industrial), vacant or underutilized (the former School District building), or soon to be marketed for sale (Marshall Labs site on the DuPont Crescent). However, the Central Schuylkill is surrounded by opportunity—it is within walking distance of Center City and University City, adjacent to some stable residential

BELOW: PennDesign Dean Marilyn Jordan Taylor opens the discussion by outlining the economic development opportunities of the DuPont Crescent site.



neighborhoods, easily accessible from Philadelphia International Airport and 30th Street Station, and will soon be the newest addition to the Schuylkill Banks riverfront trail. There is ample land along the Central Schuylkill for future redevelopment, so the group focused on how to unlock its potential. The goal of this group was not to assert the Central Schuylkill as a competing economic center with Center City and University City, but rather to brainstorm potential complementary uses given its proximity to existing centers and large vacant parcels.

### Charge

The goal of Wednesday’s session was to:

- Reimagine the Central Schuylkill as a modern employment center for the Philadelphia region.
- Identify which assets are most important to the area’s success and focus the design around maximizing those assets (there can be alternative designs if there are multiple answers within the group).
- Design the Central Schuylkill as a linkage area, with transportation connections running through to connect economic centers such as University City, Center City and the airport.
- Identify new connections or strategies for improving existing connections that will increase the economic viability of the area.
- Detail alternatives for specific sites along the Central Schuylkill—the Marshall Labs site and former School District building being two possible examples.

### Suggested Questions to Answer

- What is the Central Schuylkill’s identity as the

next modern employment center in the Philadelphia region?

- Which nearby assets are the keys to unlocking the area's potential, and how does this affect the site design?
- What are potential linkages and transportation linkages across the Central Schuylkill that can improve the viability of adjacent economic centers as well as the Central Schuylkill's own viability as a development site?
- What would two emblematic site designs look like on the Central Schuylkill?

### Discussion

The group included representatives from numerous nearby stakeholders, including Center City District, University City District, Schuylkill River Development Corporation, Penn Facilities and Real Estate Services, Drexel University, University of the Sciences, University City Science Center and Children's Hospital. These stakeholders provided valuable information about the history and present-day condition of the area, and helped identify the following opportunities along the "Central Schuylkill" corridor:

- The Schuylkill River as a two-sided opportunity for growth, and a significant resource for Center City, University City and adjacent neighborhoods.
  - The University Avenue Bridge was immediately identified as a connection opportunity, since it puts the DuPont Crescent within walking distance of University City.
  - The river is also an opportunity for recreation, as Schuylkill Banks has extended its bike and jogging trail to Locust Street and has plans for connections to South Street and westward to Bartram's Garden. In

fact, the Schuylkill River Development Corporation has already reached an agreement to acquire the riverside land along the DuPont Crescent for a trail and park extension more than 250 feet in width.

- There is a growing future need for additional medical facilities (expanding from the Penn Health System and Children's Hospital of Philadelphia), research facilities and commercialization.
- The University of Pennsylvania's Penn Connects plan highlights the importance of improved linkages between Center City and University City, and the Central Schuylkill corridor presents an opportunity for such improvement. Penn's redevelopment of the former Postal Service property on the west side of the Schuylkill River is already underway.
- From the neighborhoods of West Shore in West

BELOW: This bird's-eye view shows the DuPont Crescent looking south, with I-76, Grays Ferry Avenue and the University Avenue Bridge flanking the site (source: City Planning Commission).



Philadelphia to Filter Square in Center City, increased connectivity to the river is needed.

- Lands such as the DuPont Crescent represent opportunities as large, contiguous areas available for residential and mixed-use development that could provide connectivity to Center City as well as views of the skyline and of historic Woodland Cemetery.

- Grays Ferry Avenue is an important east-west connection for unlocking the potential of the Central Schuylkill area as a population or employment center.

- Also crucial is the link to the airport, which is currently possible at the Central Schuylkill via I-76 and the R1 Regional Rail line. Questions were raised about SEPTA's connectivity and if existing freight rail rights-of-way could be shared.

- The abundance of north-south transportation

RIGHT: A sketch drawn by Michael Larice of PennDesign and Nando Micale of WRT showing proposed transportation improvements across the Central and Lower Schuylkill site to improve regional connectivity and transit access for underserved neighborhoods.



infrastructure was identified as an opportunity for future plans. Along this corridor, there is freight rail, passenger rail and roads of various capacities, so the group decided to consider whether the current configuration of infrastructure was most efficient.

Based on these factors, the group believed the area could be attractive to research and development companies that might otherwise choose to locate in suburban office parks. Unlike many suburban sites, locations within the study area offer both proximity to major health and science campuses and easy access to the airport. The location between Center City and University City also suggests that there could be some potential for a live-work community.

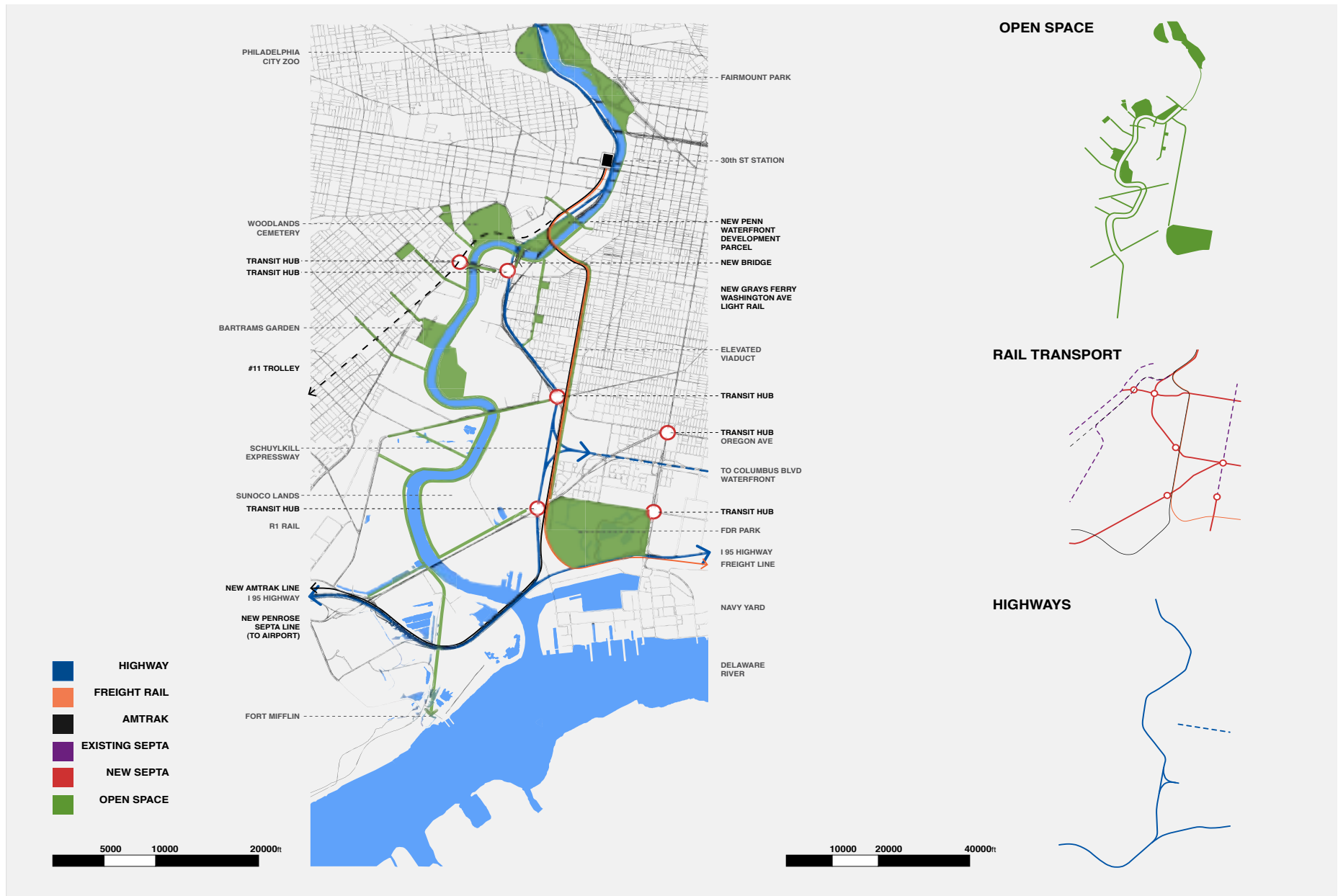
The following guidelines helped inform how the group thought about the project area:

- Any site design must give priority to the river as an asset. This does not necessarily conflict with a possible industrial use in the future—many different mixes of uses could appropriately honor the river.

- It is important to “think big” and look past the short-term concerns of some of the local stakeholders in order to produce a design concept for the Central Schuylkill. The area has its immediate constraints, but they must be suspended in order to consider future development opportunities.

- Any alternatives, whether urban design or transportation, should focus on connecting the assets we already have, namely Center City and University City.

- While a significant amount of land will likely become available for development in the next 30 to 50 years along the Schuylkill River (from Penn south



ABOVE: This map is a digitized version of the Central Schuylkill group's vision of large-scale transportation improvement proposals, including decoupling Amtrak and SEPTA so that a new high-speed Amtrak line connects 30th Street to the airport via an existing freight rail viaduct, rerouting Interstate 76 and making it an at-grade "boulevard" through Grays Ferry, and adding light-rail lines to increase SEPTA connections to underserved neighborhoods.

to the airport), the group must focus on logically available sites in the short term. The area from the South Street Bridge to the Grays Ferry Bridge was identified for this reason.

The group then decided on two focus areas for the design exercise:

- Potential transportation linkages across the Central Schuylkill that enhanced the development potential of the DuPont Crescent while also incorporating the HUD-DOT-EPA principles of improving transportation choices and supporting existing communities and economic centers. The group would study five transportation systems: freight rail, high-speed rail, SEPTA rail, vehicular, and trails and waterfronts.

- The development potential of the DuPont

BELOW: A photo of part of the DuPont Crescent site that will soon be up for sale. Philadelphia would like DuPont to donate it so the city can market it as a future employment center.



Crescent, specifically studying existing assets on both sides of the Schuylkill.

### Proposals

The group that looked at transportation linkages across the Central Schuylkill began by examining the numerous systems of regional transportation infrastructure that run through or are adjacent to the project area, and considered design alternatives that have local as well as regional benefits. The group identified two main problems to address first: (1) the sharing of the Amtrak Northeast Corridor and SEPTA R1 Airport line, which slowed service for both and could have implications for high-speed rail considerations, and (2) the tangle of infrastructure, primarily I-76, on the west side of the Schuylkill that limited development opportunities for Penn and connectivity to land such as the DuPont Crescent.

The group proposed the following ideas for future transportation linkages:

- Connecting High-Speed Rail to the Airport
  - One option is to build a people-mover from a stop along the existing Amtrak line to the airport. The group saw this as an expensive solution that did not address larger infrastructure constraints along the corridor.
  - An alternative is to use the elevated rail viaduct that runs north-south on 25th Street (currently used for freight rail) as a way to decouple SEPTA and Amtrak. The R1 line would continue to run along its current track, while Amtrak would run south on the existing 25th Street viaduct until I-95, where a new rail line would be constructed parallel to I-95. The rail line would stop at the airport before linking up to

where Amtrak currently runs along I-95 (a few miles south of Philadelphia). Scheduling would be discussed so that Amtrak could use the viaduct for high-speed rail while not interfering with freight access—since high-speed rail is not likely to run 24 hours a day, rail sharing would not seem to be impossible. Freight rail service would continue on this important corridor, which moves east to the Navy Yard and the Port of Philadelphia.

– Questions remain about whether the designers of the high-speed line would designate a stop at the airport given its close proximity to 30th Street Station (the airport charrette group concluded that they would not), as well as the extent to which the turn across the Schuylkill River would force the high-speed trains to slow down as they approach 30th Street.

– However, group members believed that high-speed trains would be moving slowly as they enter and exit city centers anyway, so this would not likely be an issue.

– This intervention would connect high-speed rail using existing rights-of-way, and increase R1 speeds by decoupling Amtrak from the SEPTA rail corridor.

- Moving I-76 and Bringing It to Grade

– Along the eastern edge of Penn’s campus, I-76 is shifted inland toward the University before it cuts across the Schuylkill near the University Avenue Bridge, where it is reconfigured as a true at-grade boulevard. This boulevard would consist of “fast lanes” as well as frontage roads that are human-scaled, which opens up the opportunity to add transit and bring people to this underutilized area, making it attractive for redevelopment. I-76 would become an

elevated expressway again running eastward above Packer Avenue to connect to the Walt Whitman Bridge and New Jersey (its current configuration), and the boulevard would continue south along the current 26th Street alignment to connect to I-95 and the airport.

– This creates the potential on Penn’s campus along the river for a large development parcel, which is currently inaccessible due to the expressway alignment, and also allows for new trail extension opportunities not currently possible. This parcel becomes Penn’s new “front door” to the city, something it currently lacks.

– This would require a different bridge across the river than the current I-76 bridge due to its new alignment, but would allow for a newly pedestrian-

BELOW: This bird’s-eye view shows the various rail and highway systems the Central Schuylkill group wrestled with in order to enhance access to and through the DuPont Crescent area (source: City Planning Commission).





friendly University Avenue Bridge connection.

- This intervention not only addresses the tangle of infrastructure at the Central Schuylkill, but also provides more logical auto access to the airport via I-76.

- Increasing SEPTA Connections to Underserved Areas

- As previously mentioned, the decoupling of Amtrak and SEPTA allows the R1 line to connect more efficiently to the airport.

- A new light rail line would run down the center of "I-76 or Schuylkill Boulevard," with transit hubs at Grays Ferry Avenue, Passyunk Avenue and Penrose Avenue.

- The connection at Grays Ferry becomes the

key activation point for the DuPont Crescent.

- The Penrose Avenue stop would be a connection to another new light rail line, which begins at Broad and Oregon (an existing stop on the Broad Street Line) and extends diagonally along Moyamensing Avenue and Penrose Avenue before crossing the Platt Bridge and into the airport, providing easy local airport access for residents not currently served by transit.

- While the airport group settled on Pattison Avenue as the BSL connection of their airport light rail line in order to serve the Sports Complex, this group settled on Oregon Avenue because it served more dense residential neighborhoods and had the greatest potential to affect the highest number of residents and airport employees.

- The Oregon Avenue line would run eastward along Oregon to link up to the proposed PATCO line along the Delaware riverfront.

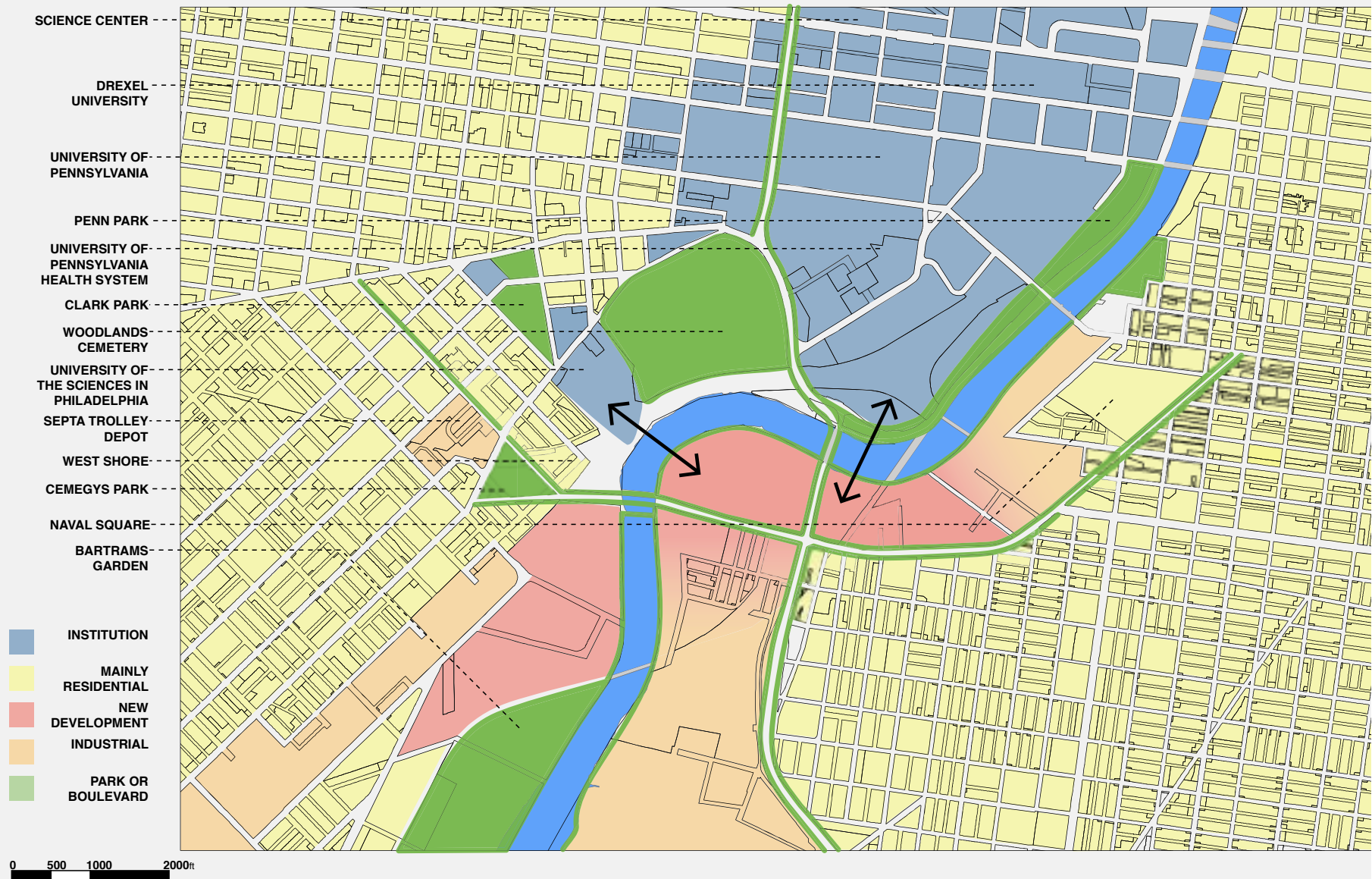
- The Broad Street Line would be extended from Pattison Avenue to the Navy Yard, expediting the Yard's redevelopment.

- Finally, a light rail line would be constructed to run along Washington Avenue starting at Columbus Boulevard, then running along Grays Ferry Avenue (with a stop at the DuPont Crescent) and over the bridge to connect to the SEPTA No. 11 trolley, which runs on Woodland Avenue. This provides much-needed transit access in South Philadelphia, as well as a seamless link from South Philadelphia to West Philadelphia.

All of the above interventions bring new people to the Central Schuylkill, link residents and employees

BELOW: A sketch drawn by the Central Schuylkill group showing the various development pressures and opportunities surrounding the DuPont Crescent site.





ABOVE: This map is a digitized version of the Central Schuylkill's analysis of nearby neighborhoods, institutions and economic centers that could contribute to the future development of the DuPont Crescent area. The map also identifies the importance of two-sided connections across the Schuylkill River, specifically via the Grays Ferry and University Avenue bridges and the conversion of roads such as Grays Ferry Avenue and 34th Street into more multimodal thoroughfares.

across the city and region, and raise the stakes for currently underutilized sites in the Lower Schuylkill to be redeveloped.

Though a trail system was not examined in depth, the infrastructure moves addressed here open up potential for creating a new “green” system along the Schuylkill River, with new access opportunities and land availability. Most of the opportunities for green connections identified in this area in the Schuylkill River Master Plan are enhanced because of these interventions.

The DuPont Crescent group did not propose a specific site plan and development program, but it did outline the following vision for future growth:

- A mixed-use, mid-rise, live-work community,

including housing accommodating a range of income levels.

- Research and development organizations and companies desiring proximity to University City institutions and easy regional and airport access—particularly those that might otherwise choose a suburban location.

- Nurturing the existing residential communities on both sides of the river, while encouraging both new workplaces and residents on the DuPont Crescent side of the river.

- As development occurs, a range of retail to serve the weekday population and residents.

- Integrated infrastructure that encourages walking, bicycling and transit use within the neighborhood and to (and between) University City and Center City neighborhoods.

- An especially important component of this connectivity is the University Avenue Bridge. Views of the river and the Philadelphia skyline from the bridge (in addition to the beauty of the structure itself) present opportunity, but neither landing is particularly welcoming or helpful in orienting; the bridge itself is not currently very comfortable for pedestrians or bicyclists.

- A reimagined and redesigned Grays Ferry Avenue as a “boulevard” that integrates transit, automobile and bicycle users in a pedestrian-friendly environment. This would connect to 47th Street in West Philadelphia, thereby serving as the central spine of a revitalized Central Schuylkill neighborhood and creating a gateway on either side of the Grays Ferry Bridge.

- Grays Ferry Avenue is a key transportation component that links across the Schuylkill River and

BELOW: A view from the University Avenue Bridge shows the DuPont Crescent's proximity to University City, an important economic center.



ties into Washington Avenue, another important arterial that extends to the Delaware River.

- The Schuylkill River will be the centerpiece of the development, with the Schuylkill River Development Corporation's plan for this site fully realized and potentially expanded.

- Realigning I-76 further inland on the west side and the at-grade nature on the east side increases the opportunity for smoother trail connections that do not currently exist because of the expressway structure.

- In general, street improvements that focus on the pedestrian and bicycle condition are necessary on Grays Ferry Avenue, 34th Street and other nearby access points.

- Access to river recreation, particularly for neighborhood residents.

- Celebrating the historic resources along Grays Ferry—from the Naval Home (the country's first Naval Academy) near its eastern end, and the place where crowds gathered to greet George Washington as he and his party crossed the Schuylkill on the path to New York for his inauguration at the western end. Also, some of the iconic industrial buildings could be adapted and integrated with new development.

- The group's ideas of desirable development specifically excluded big-box stores and other automobile-scaled activities. These were viewed as weakening, rather than strengthening, the connections to and between University City and Center City.

- The group also noted that transportation access from this site to the airport and other regional centers must be addressed. Specifically, the northern approach to the west side of the Schuylkill across the University Avenue Bridge should be cleaned up and clarified.

### Responses to HUD-DOT-EPA Principles

#### *Provide more transportation choices*

The proposed design interventions include many new transportation alternatives, improving local connectivity for neighborhood residents, citywide connectivity for residents and employees, and regional connectivity with improvements made to I-76 and the R1 Airport line.

#### *Promote equitable, affordable housing*

Though affordable housing was not directly addressed in this charrette group, the proposed transit interventions would increase accessibility for neighborhood residents and therefore reduce their overall cost of living (when factoring in the cost of transportation as well as housing).

BELOW: PennDesign professor John Landis comments on the proposals made by the Central Schuylkill charrette group.



*Enhance economic competitiveness*

If implemented, the development guidelines for the DuPont Crescent would enhance the economic competitiveness of the area—transforming it from a disparate, auto-centric area to a human-scaled and multimodal city neighborhood with greater density and job growth. Further, the proposed transportation improvements provide high-speed rail connection and improved local rail connection to the airport, and address the I-76 entrance to West Philadelphia in a way that stimulates development along both sides of the Schuylkill River.

*Support existing communities*

The development proposal for the DuPont Crescent supports adjacent existing communities by providing economic development and residential and employment choice to the area. Further, the transportation interventions help existing communities such as University City, West Shore, Grays Ferry, Girard Estate, and other parts of West and South Philadelphia.

*Coordinate policies and leverage investment*

Although the DuPont Crescent project would be privately developed, with the right program, it could leverage nearby development pressures/catalysts such as Penn, University of the Sciences, Penn Health and Children’s Hospital. The transportation improvements would benefit from the High-Speed Rail Act, the reauthorization of the surface transportation bill and energy efficiency block grants. All of the above could be coordinated around this project, which has local and regional implications. However, a question remains about whether high-speed rail planners would

be interested in a proposal that shifts the existing Amtrak alignment.

*Value communities and neighborhoods—enhance unique characteristics*

The group’s focus on the Schuylkill River as the centerpiece of future development in this area ensures that any future development will build off the area’s unique characteristics by celebrating the river instead of turning away from it (as is the current development pattern in this area). The focus of the Central Schuylkill development guidelines on public space for pedestrians and bicyclists shows a return to valuing the human-scale elements that make Philadelphia neighborhoods so livable. Further, increased transit connectivity enhances the unique characteristics of Center City and West Philadelphia as two of the most transit-friendly areas in Philadelphia.

Conclusion

The Central Schuylkill charrette group dreamt big, which was important for reimagining an area with a mix of opportunities and constraints. The group noted that design interventions do not have to be done all at once; they can be incremental as part of a longer-term vision to revitalize a stretch of the Schuylkill River that has become dormant over time.

Beyond the development opportunity of the DuPont Crescent, the results produced by this group raised many potential questions for next steps that the City of Philadelphia could undertake:

- First and most logical would be a master plan for the Central/Lower Schuylkill. Given the surrounding development opportunities and large stretches of underutilized land, a master plan is needed to outline

priorities and establish a revitalization strategy for the area. The Philadelphia Industrial Development Corporation has already commissioned Interface Studio, a local planning firm working on an inventory and marketing plan of Philadelphia's industrial land, to do detailed site planning exercises on this site, among others.

- Second, a closer look at the city and region's vacant land is an important step toward a vision for the future. There are large stretches of land owned by Sunoco in the Lower Schuylkill that are currently vacant, but there are also vacant commercial corridors throughout our city and suburbs. There are numerous organizations with different approaches to filling in vacant land—PIDC will release its industrial land study in the fall, which will address this—and all such approaches must be considered when thinking about vacant land at a regional scale.