# allegheny riverfront vision plan

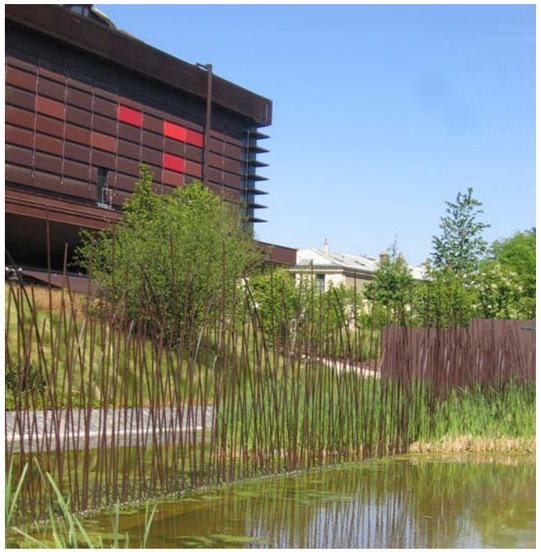
## IMAGINE an Allegheny Riverfront Where:

- Young families move because of the healthy, green environment and the affordable houses
- There is a wide variety of incomes and family types alongside new industries
- Residents can walk to restaurants, shops, and entertainment activities—which also draw people from all over the city
- Sense of community is strengthened by improved street linkages and new forms of public transit, which also connect Lawrenceville to Downtown and Oakland
- Pedestrians and cyclists are encouraged, and are separated from heavy vehicular traffic
- Public open spaces invite kids to ride their bicycles to the river and friends to take long walks, or sit and watch the boats pass by
- There is more river activity, from people taking their kayaks to work to water taxis, boating, and fishing
- There is a return of flora and fauna and a normal hydrological cycle, which no longer contributes to sewage overflow and pollution of the river or drinking water

Imagine an Allegheny Riverfront that is a model for Pittsburgh riverfront communities.

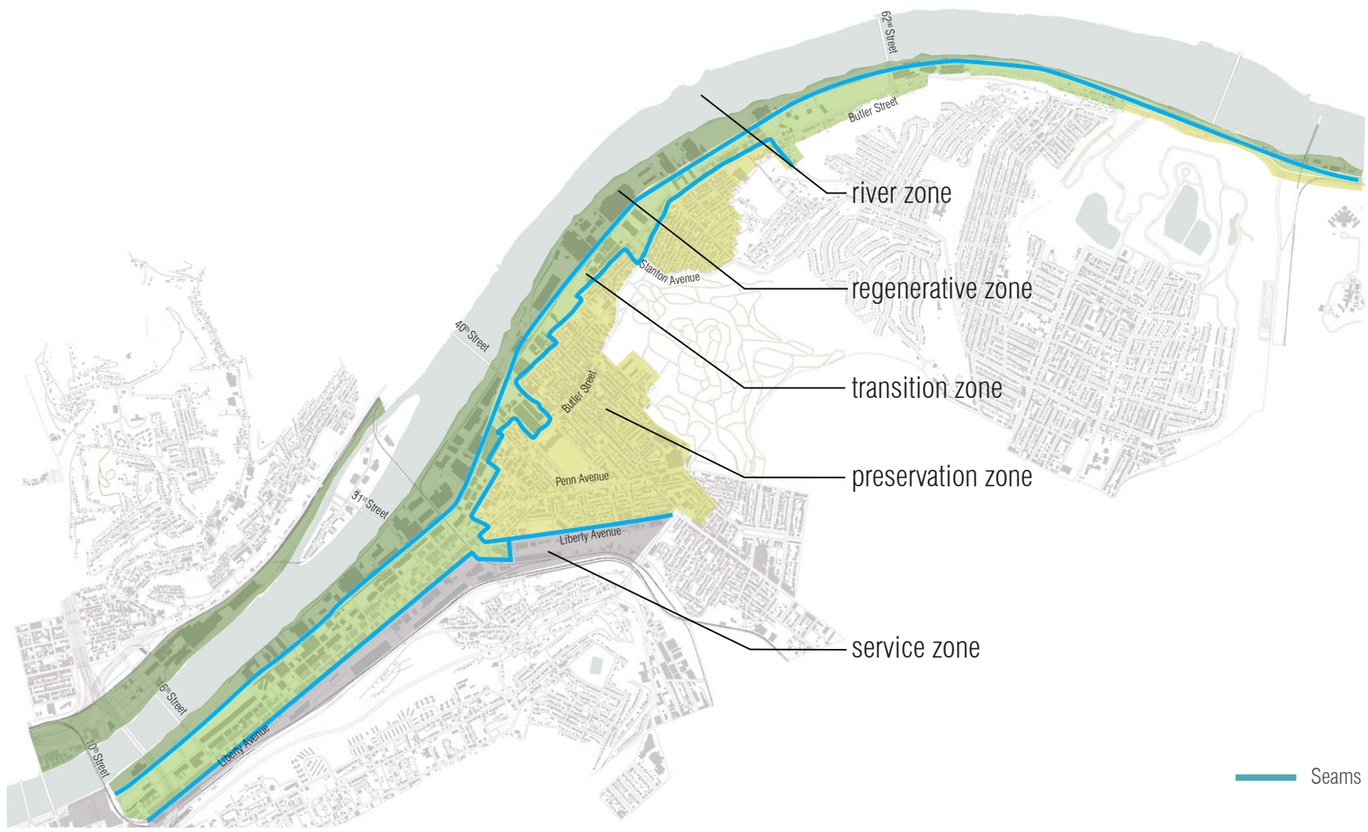
*"For decades, Pittsburgh's riverfronts were used as transportation corridors for industrial production, and the land surrounding them did not connect to our communities. Today we recognize the riverfronts as our most treasured assets that have tremendous potential to improve our quality of life. We now have the opportunity to reconnect our neighborhoods, reclaim these waterways as amenities, and provide new venues for recreation."*

*~Mayor Luke Ravenstahl*



Urban living is enhanced by walkable and green amenities

# linear zones of the allegheny riverfront



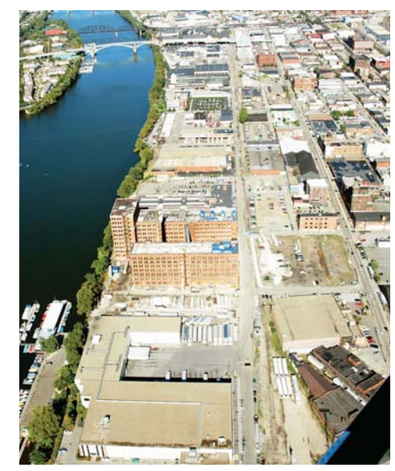

Linear zones define character

# Principles of the Vision Plan

Our approach was to analyze five dimensions of the Vision Area to understand it in greater depth. Overlaying them on each other, we find resonances and alignments that give rise to the overall vision. Spatial, Ecology, Connections, Market, and Urban Form frameworks form the foundation of the ideas and concepts of the Vision Plan. Each framework provides the basis for the recommendations that follow.

# Spatial Principles

Industrial technology and the 19th century grid established an order of land uses and infrastructure that supported the area for well over 100 years. Today's ideas of urban living have changed, including new attitudes towards city living and the role of the river. The spatial framework recognizes that the Allegheny Riverfront is comprised of linear zones that parallel the river and separated by linear seams, such as major east-west arterials, which are divided into neighborhood sections by perpendicular seams, such as bridges. Urban fabric may be seen as a grid, or rather a series of grids, but it is also important to perceive it as a network of distinct zones that offer both order and flexibility. Streets that parallel the river mark distinct changes in density, scale, and stability. The new order, aligned with natural processes, is not a strictly defined hierarchy, but rather a dynamic balance. What seems like a lack of order is often a deeper and more resilient order.



The elongated east-west blocks and large-scale riverfront buildings accentuate the linear nature of the riverfront.

Bridges and other perpenidcular seams divide the linear grid into neighborhood sections.

Five distinct linear zones—river, regenerative, transition, preservation, and service—provide a place-making structure. The "river" zone is the Allegheny River, the city's recreational river and source of its drinking water. The "regenerative" zone describes a new Pittsburgh riverfront, with an emphasis on mixed uses that are residentially compatible and includes amenities that appeal to workers and residents alike, built upon values intended to revitalize and enhance the riverfront. The "transition" zone, between the railroad and the major Allegheny Riverfront Area's arterials, recognizes the strong mixed use and authentic nature of this zone and its existing building stock—an asset of both the Strip District and Lawrenceville. The "preservation" zone is the residential areas of Lawrenceville. The "service" zone, the area south of Liberty Avenue, contains uses similar to the transition zone, yet is out of the mainstream and is a good location for city services and other out-of-the-way service resources.

## 1. Differentiate development strategies by zone

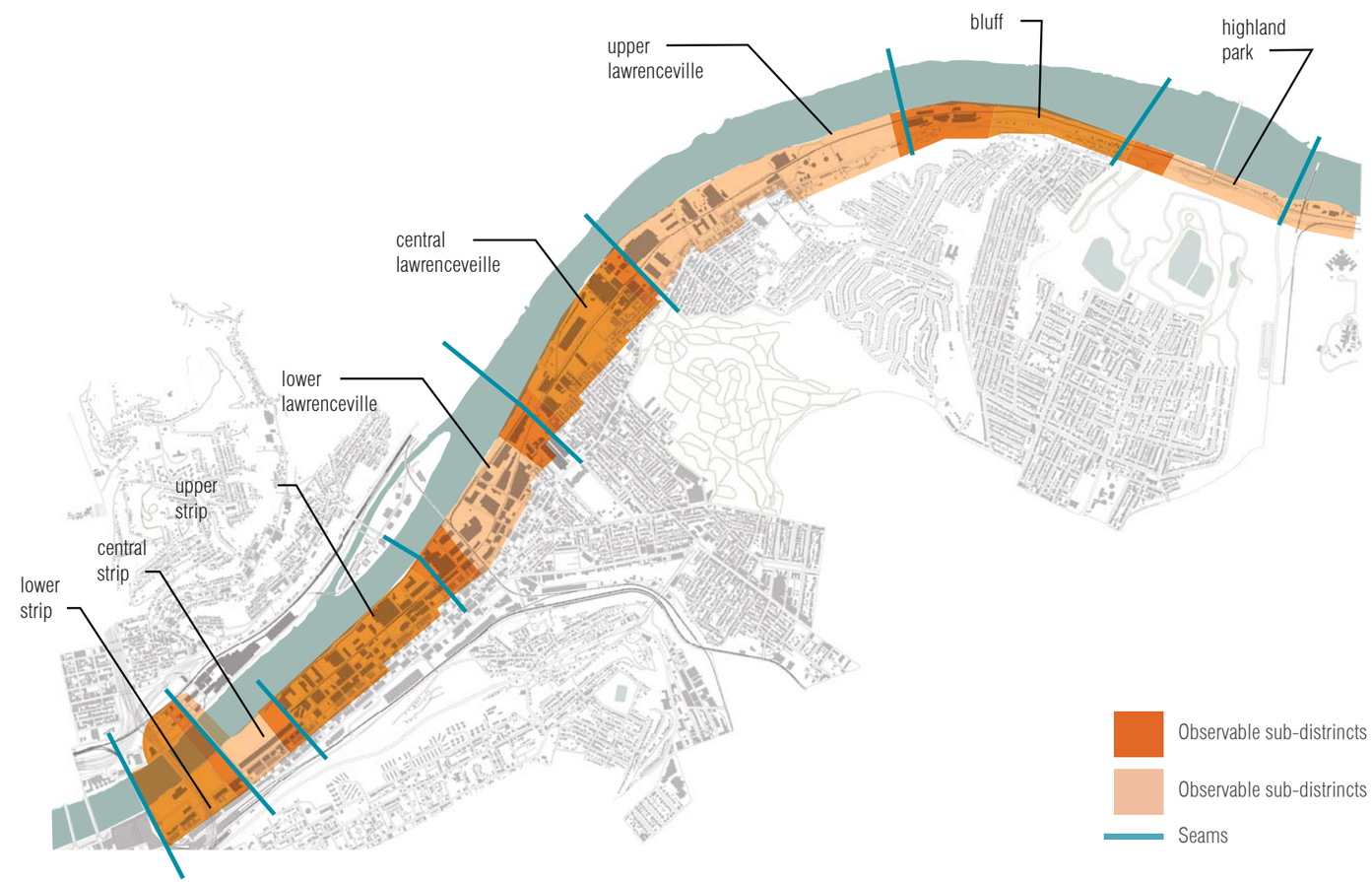
The five distinct zones—river, regenerative, transitional, preservation, and service—provide a place-making structure. Different development policies and strategies are called for in each zone.

- The "river" zone is a regional resource in need of public access, ecological restitution, and protection.
- The "regenerative" zone calls for the construction of a new fabric of buildings, infrastructure, and natural spaces. Conceived as a public amenity and model for future riverfronts, the intention of this zone is to remove the past's heavy industrial connotation and replace it with the certainty of multiple land uses, infrastructure, and the zoning needed to encourage future investment.
- The "transition" zone requires more infill and adaptive reuse.
- In the stable "preservation" zone, the emphasis needs to be on preservation and affordability.
- The "service" zone can become a resource center for the city.

## 2. Reinforce linkages

- The AVRR right-of-way extends almost the full length of the Allegheny Riverfront and has the potential to become the front door to riverfront development, a transit corridor, and a public and environmental amenity.
- Butler Street and Penn Avenue can be enhanced as the centers of community life and regional draw.
- Former streams and public open spaces should be acknowledged as extensions of the green hillsides linking the valley edges to the river.

# lateral zones of the allegheny riverfront




Lateral zones define neighborhoods

Ecological infrastructure can increase value and attractiveness

# Ecological Principles

The natural system of land and water that forms the waterfront ecology is bound together by these three elements: rain, soil which holds the rain, and the vegetation that returns the rain to the atmosphere. Without any one component, the system fails to sustain life as we know it. Recognizing that a healthy ecological system is essential not only to our own health, but also to our prosperity and cultural development, it is an essential goal for developing the Vision Area.

## 1. Restore the hydrologic cycle by capturing stormwater

CSO sewage dumped into the Allegheny River with almost every rainfall ultimately harms those communities who draw their water from the river system. This CSO overflow/water quality issue is the single greatest environmental issue facing the Pittsburgh region. In the city only 2" of the annual rainfall is returned to the atmosphere—the remainder 36" enters the sewer system. The Vision Plan seeks to begin a process of change that could serve as a model for the Pittsburgh community: restore the hydrologic cycle and keep the rain out of the sewer system. This can be achieved when we capture and hold every 1" and less storm on-site with every new and redevelopment opportunity.

## 2. Rebuild a healthy and functional tree canopy

Trees are powerful "machines" we need to put to work—the Vision Plan seeks to create a habitat that humans will live and work in during the next century that is healthy, safe, and sustainable – a Green City. The 40% canopy goal is based on the best science available required to restore air quality, reduce $CO_2$, sustain the hydrologic balance, and provide a long list of amenities for humans that are difficult to quantify but are obvious to most of us. Given the existing impervious footprint, the major opportunity for this new/old tree canopy is along the river's edge.

## 3. Create a riverfront riparian buffer along the Allegheny River

Creating a riverfront riparian buffer is directly interrelated with the canopy goal, because it is the portion of the Allegheny Riverfront that offers the greatest opportunity to re-establish tree cover in significant and continuous areas. No matter how much of the Allegheny Riverfront Area is available to rebuild over the next century, the existing residential communities will most likely remain intact, and while we may build street tree corridors and rain gardens in selected locations, the bulk of available undeveloped land is along the riverfront. A 200' wide buffer is required to reintroduce the habitat necessary to support the return of such valuable ecology and wildlife.

## 4. Transform the AVRR right-of-way into a green corridor

The existing AVRR right-of-way has the opportunity to become a green space. The form and dimensions of this corridor will vary, however the basic design elements should be consistent with the larger pattern of new vegetation throughout the riverfront.

## 5. Create a network of green streets and alleys

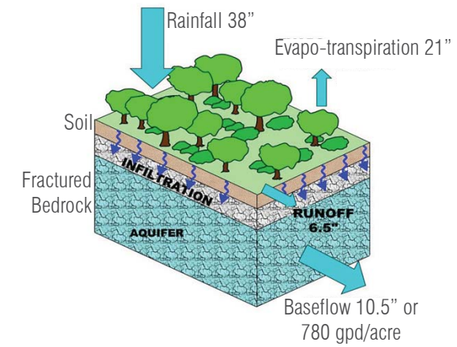
Seek to reduce overall imperviousness and encourage streets to be no wider than necessary to move traffic effectively. Construct driveways and parking spaces with pervious systems, revamp local street specifications to allow context-sensitive street design with narrower travel lanes without curb and gutter systems. Green infrastructure retrofit standards for streets and alleyways need to be adopted as public policies that require green infrastructure elements as standard roadway construction and retrofits.

## 6. Provide requirements and incentives for green infrastructure for stormwater management

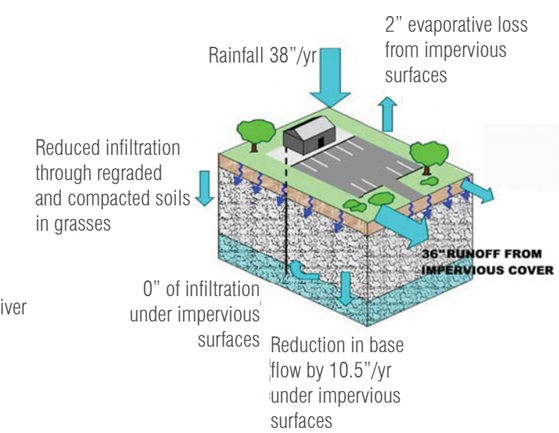
Green infrastructure practices should be credited towards required controls for stormwater runoff. Legalize all types of green infrastructure, particularly for the use of water harvesting devices and downspout disconnection, including allowing clean roof drainage to enter the river directly. Where not possible, establish a payment-in-lieu fee for off-site stormwater management facilities.

# ecological green street network

A network of green streets, alleys, open space extensions between the river and large open spaces and river valley bluffs, in addition to the railroad right-of-way green corridor and the riparian buffer, along with a heavier tree canopy will provide the green infrastructure to restore the hydrologic cycle and greatly reduce CSO outflows.




Annual hydrologic cycle for an undisturbed acre in the Allegheny Plateau. Data Source: Cahill and Associates, based on historic rainfall records (NOAA, 2007)




Annual hydrologic cycle for a developed acre in the Allegheny Riverfront. Data Source: Cahill and Associates, based on historic rainfall records (NOAA, 2007)

Provide new transit options and encourage walking and cycling

# Movement Principles

The Allegheny Riverfront Area's connections reflect the lineal nature of the physical environment with good connections in the east-west direction, particularly between the Strip District and Downtown, but poor connections between local residential areas, access to the riverfront, and between the Allegheny Riverfront and Oakland. The Connections Framework identifies a series of structural changes to overcome the grid's obstacles with new transit and pedestrian possibilities, classifying streets by preferred movement types, and introduces parking strategies to enhance business needs. It also suggests short- and long-term strategies to help resolve truck conflicts.

## 1. Introduce new commuter line and trolley services as alternatives to the automobile

A new multi-modal transit system will increase the Allegheny Riverfront Area's business and connections opportunities. Adding a light rail commuter line to the AVRR green corridor and a new urban circulator trolley to the Vision Area's street system will have a profound transportation and economic impact, particularly in the Strip District. These connections to Downtown, with later extensions to Oakland, will position the Allegheny Riverfront as a major resource center and significant intermodal center of the region.

## 2. Prioritize the street system to facilitate either movement of goods or movement of people

Creating a movement hierarchy that clearly identifies those streets intended as connecting arterials will begin to sort truck traffic from everyday use of the local street system. The hierarchy identifies streets that prioritize pedestrian use and others that prioritize heavy vehicle use to coordinate intersection and other improvements that improve safety and walkability. Combined with the recommended framework of green streets, the Allegheny Riverfront Area will benefit from better traffic flow and a more attractive public realm.

## 3. Design bicycle and pedestrian paths integral with trails and rights-of-way

Anticipating the long-term implementation of a continuous trail system along the riverfront, a proposed trail network utilizes completed sections of the riverfront trail, the AVRR green corridor, and perpendicular green streets that link them. The result would be a loop network system that provides users with short-term excursions or a day trip that covers all of the Allegheny Riverfront Area. Integrating bicycle and pedestrian paths into the Allegheny Riverfront Area's street system connects users and visitors to centers of these riverfront communities.

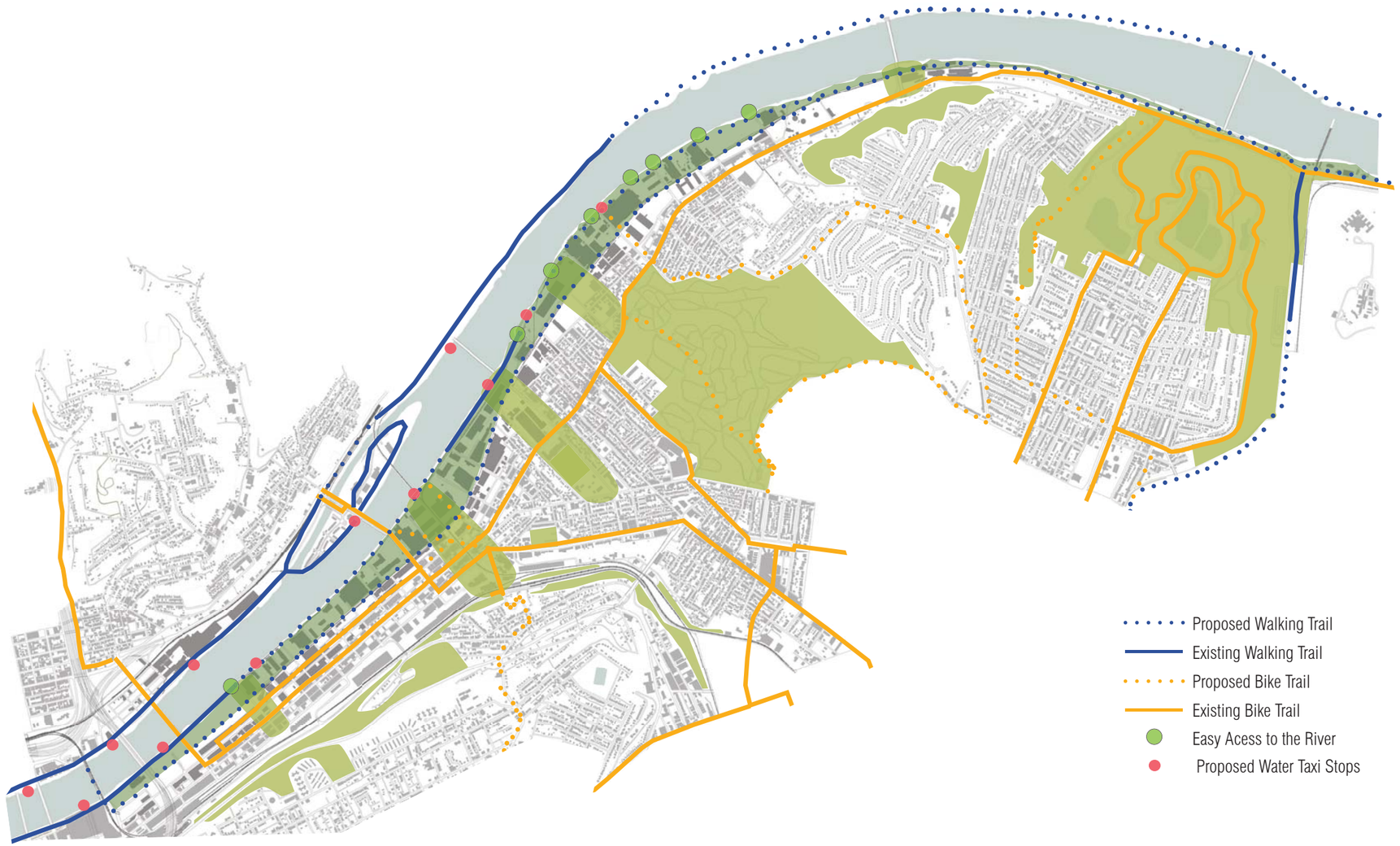
## 4. Create shared parking facilities to support retailing and development

As an efficient use of land and resources, the proposed parking strategy recommends placing large parking facilities at development edges so that people will walk to destinations, rather than encourage parking within individual structures. The goal is to pool resources for mutual benefit. Shared residential parking on the fringes of residential neighborhoods and smaller shared community lots within residential blocks will help lessen the impact of increased residential density as well as more families with multiple cars. On-site residential parking below occupied structures is recommended, while waiving on-site parking requirements is suggested for most high density commercial development. Shared facilities are preferred over on-site parking for all uses.

## 5. Limit trucking-oriented land uses and eventually regulate truck size in neighborhoods

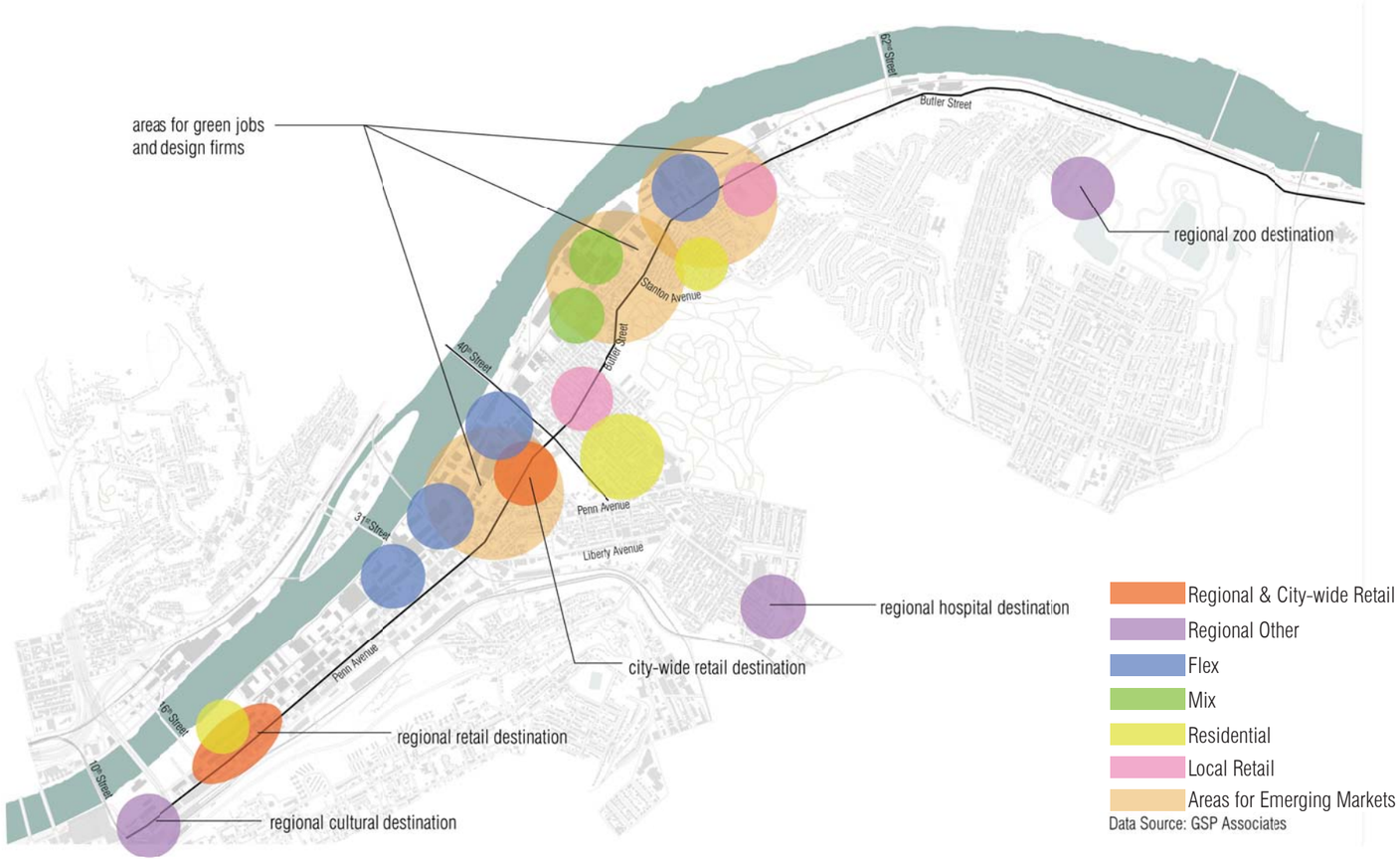
The proposed street system movement hierarchy will begin to sort vehicles and increase flows over the near term, but at some point regulating large truck traffic (semi-trucks) in dense urban settings will be needed. As other cities have already found, two-axle delivery vehicles are more appropriate. Likewise, City zoning regulations should consider limiting trucking-oriented land uses in locations where new and higher density job-producing and residential development is contemplated.

# bicycle and walking trails




Walking and bike trails are integrated with the green street network

## regional and emerging market areas




Emerging markets concentrate in the Upper Strip/Lower Lawrenceville and east of 48th Street | Data Source: GSP Associates

# Market Principles

Market conditions in the Allegheny Riverfront Area reflect the city as a whole, yet there are new uses emerging that suggest potential new markets and development opportunities. Retailing in the Allegheny Riverfront Area has become more dependent on traffic from outside the local area and this has continued to grow despite the lack of a strong residential base to support local service needs. The Market Framework suggests increasing the residential base as a necessary component to the Allegheny Riverfront Area's sustainable future.

### 1. Increase the local residential population

Increasing the residential population is one of the most direct ways to support a more varied infrastructure of services and support and one of the most successful in building strong neighborhoods. In the long run, a stronger residential base in both the Strip District and Lawrenceville will benefit the Allegheny Riverfront Area with increased transit, development, and investment.

### 2. Encourage emerging innovation markets

With new opportunities emerging in the green and design fields, the Strip District and Lawrenceville are well-suited to capture and nurture a large share of these emerging industries. The building stock and mixed use nature of the Upper Strip and Lawrenceville, along with an industry infrastructure, are already in place for this happen. Partnering with the innovation-based economic development organizations in a concerted effort is a good near-term strategy while in the long term increasing the connectivity between Downtown and Oakland will help sustain and grow these emerging markets.

### 3. Create opportunities to support and expand existing markets

The retail and commercial market is growing slowly because of its reliance on outside visitors and abundance of adjacent Downtown space. However, the area's ability to continue to attract shoppers has reinforced its function as a retail destination that provides local benefits and enhances the Allegheny Riverfront Area's city and regional presence. Expanding the residential market will further support existing retail and commercial markets.

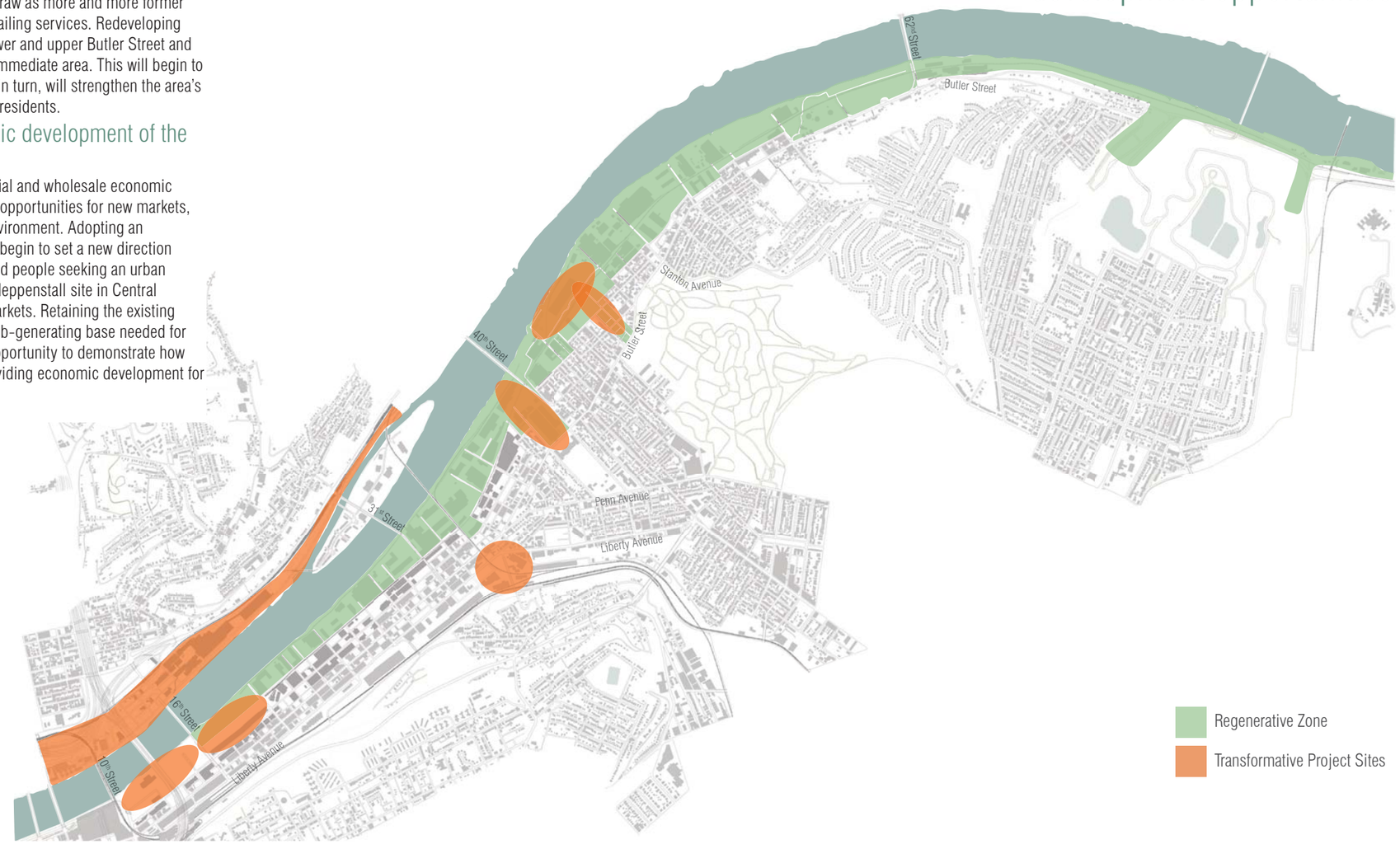
# development opportunities

## 4. Increase the Allegheny Riverfront's regional draw

The Strip District is becoming more of a regional and tourist draw as more and more former wholesale businesses convert to hybrid firms also offering retailing services. Redeveloping the center of Lawrenceville by linking the retail activities of lower and upper Butler Street and installing a circulator trolley to 40th Street will transform the immediate area. This will begin to repurpose Lawrenceville's retail and commercial market that, in turn, will strengthen the area's draw as a good place to locate new industry, businesses, and residents.

## 5. Encourage land uses that strengthen economic development of the Allegheny Riverfront

As the Allegheny Riverfront Area evolves from a heavy industrial and wholesale economic base, the vacant and underutilized land and buildings provide opportunities for new markets, increased density, a higher quality of life, and an improved environment. Adopting an ecological agenda will reinforce the riverfront's attraction and begin to set a new direction for infrastructure and create a stronger draw for businesses and people seeking an urban lifestyle. The Buncher properties in the Strip District and the Heppenstall site in Central Lawrenceville are two opportunities to catalytically change markets. Retaining the existing stock of buildings with flex uses will continue to provide the job-generating base needed for the future. The Allegheny Riverfront Area presents a unique opportunity to demonstrate how urban redevelopment can restore ecological quality while providing economic development for long-term sustainability.




Regenerative zone and transformative project sites show the most promise for new development

Accentuate and create memorable places

# Urban Form Principles

The Urban Form principles aim to achieve a stronger sense of place, local identity, and physical improvements that will increase livability. In transforming the 19th century fabric into a 21st century city, the Allegheny Riverfront Vision will bring mixed-use developments, urban density, walkable communities, and natural amenities.

## 1. Develop key places to link neighborhoods to the river

There are a number of large vacant sites in the Allegheny Riverfront Area, such as the Buncher properties in the Strip, the Heppenstall site, and the Tippins International site, which can achieve transformative results and play significant and strategic roles along the riverfront. Other key locations link development and green open space extensions to the riverfront. 33rd Street from the Iron City Brewery to the riverfront could be reconceived as a green extension of a former creek bed. 40th Street has the potential to link Penn Avenue and green spaces to the river. When Heth's Run is completed, it will extend the green watershed of Highland Park to the river. Converting the Public Works property at the foot of Washington Boulevard into a public park will encourage public use of the riverfront.

## 2. Accentuate and reinforce memorable places

Accentuating and creating memorable places will enhance the area's urban character and increase its livability. Identified key places range from quaint neighborhood gems to regional-quality assets. Place-making should be high on the agenda when developing the public realm and new development should be encouraged to "stretch" its design and place-making qualities to enrich these riverfront communities.

## 3. Maintain an authentic character

The Strip District and Lawrenceville share an authentic character that is becoming a much-cherished asset. It is what draws Pittsburghers and visitors alike and is a critical factor for Allegheny Riverfront Area residents. Fortunately, the Allegheny Riverfront Area now contains an abundant building stock of industrial, mixed use, and residential structures, but the retention by reuse of quality structures will need to be strongly encouraged rather than new construction if that character is to survive. Blending the new with the old will continually need to be a deliberate community agenda.

## 4. Increase density, but limit it

Higher densities for in-city redevelopment have provided the basis for expanded services and amenities in many cities and urban neighborhoods. Attracting today's businesses and workers is no longer a matter of available space, but a combination of factors that also include good transportation, a variety of restaurant and retail choices, and a physical environment that can only be achieved by increasing density.

## 5. Design for residential compatibility

The City has the opportunity to establish higher quality design and development standards for the Allegheny Riverfront Area that will set the tone for future riverfront development in Pittsburgh. High quality standards create value, which translates into a strong real estate market and long-term sustainability because of the desirability and demand it creates. At the core of higher standards is a very simple concept: design for residential compatibility. Adopting this policy will assure that mixed uses will proliferate throughout the Allegheny Riverfront Area and there will no longer be the worry of low-investment development driving down property values in amenity-rich neighborhoods.

## 6. Develop green communities

Green standards result in life-cycle returns much higher than traditional financial returns, longer-lasting and sustainable structures, and lower carbon footprints that benefit residents and businesses alike. The Regenerative Zone along the riverfront is intended as an all-green zone with the expectation that other areas in the Allegheny Riverfront will seek similar green benefits. Greening the Strip District and Lawrenceville will increase the livability in these communities for all who work, reside, and visit. A dual public and private effort will be needed to build the green infrastructure that will support green development, and the adoption of green development standards will assist the development and real estate industries to carry through with green buildings and site improvements.

## 7. Rebuild everyday utility infrastructure

Changing how new infrastructure can provide long-term benefits opens up possibilities of using renewable energy for public purposes. For example, a geothermal grid under public or public-private ownership could provide low-cost energy for heating and cooling throughout the Allegheny Riverfront Area and reinvest profits back into creating and maintaining green infrastructure to offset the CSO problem. Providing underground utilities will help to further beautify the riverfront and, hopefully, begin a conversation about improving the quality of Pittsburgh's physical environment.

# link to the river

28th Street as a green street that leads to the river and the riverfront trail

Existing 28th Street

"We are creating the Petri dish for growth.
As the public sector we need to create infrastructure, connections, and other support that need to exist in order for markets to function properly."
*Rob Stephany, Urban Redevelopment Authority*

# A Comprehensive Vision

The Vision Plan links the city back to the river. Moreover, it envisions that new relationships act as an impetus to creating the 21st century city. It introduces a sustainability agenda adapted to the character and challenges of the Riverfront Area. It is about an evolutionary change that will slowly, yet deliberately, build stronger, more livable, and more productive riverfront communities.

At the core of the Vision is the idea that riverfront communities encompass all of the land, every property and right-of-way. It all contributes to a livable environment. "Communities" in the 21st century city are more than 19th century neighborhoods. Traditional neighborhoods are the "livable" areas of the city, but today we are seeing greater urban vitality as people move into downtowns, warehouse districts, and the "fringes" between neighborhoods. Just as in nature, there are no residual or wasted areas, so the future city will encompass all aspects of life—residence, commerce, manufacture, and recreation—within livable communities. The segregation of "noxious uses" from congenial uses, characteristic of 19th century cities, cannot exist in a sustainable city going forward.

The Vision Plan supports the eventual re-establishment of the natural ecology, particularly hydrological cycles in the city. The new fabric of the Riverfront Vision Area integrates urban buildings with generous green infrastructure. By keeping almost all of the annual rainwater out of the sewer system and achieving greater tree canopy coverage, the natural environment can clean and refresh itself without massive and costly engineering interventions. Not only will this bring a green landscape into the Allegheny Riverfront's urban areas but will also significantly contribute to making the Allegheny Riverfront an increasingly livable and more beautiful community.

The Regenerative Zone is where the most change will occur. As former industrial sites are developed, the space between the river's edge and the railroad will take on its former wooded character, trail segments will begin to connect and loop back into the neighborhood, new green and energy-efficient sites will absorb and reuse stormwater, and pathways to the river will be abundant and easily accessible. The riverfront will begin to come alive with a mixture of uses that encourage living and working nearby, along with walking, recreation, and river activities. The riverfront parcels will have a new "front door" along Railroad Street and the railroad right-of-way's new multi-functional Allegheny Riverfront Green Boulevard, which will offer sidewalks, a walking and bicycle trail, a commuter train, and a roadway for cars and trucks to serve the riverfront properties and provide an alternate east-west route for vehicles.

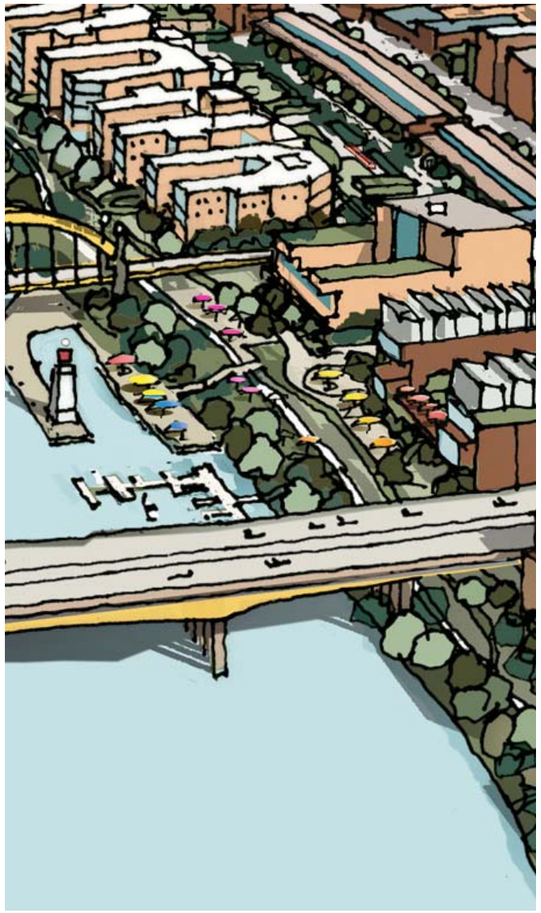
Development of the large vacant parcels will bring opportunities for linking the riverfront to its adjacent neighborhoods by introducing open space along green streets. These developments will also begin to link neighborhoods together by extending and introducing new streets and pedestrian pathways. These large sites will have transformative qualities that will stimulate the real estate market to further spillover development and eventually sustainable growth throughout the Allegheny Riverfront.

Pittsburgh has the opportunity to create a riverfront that offers new places to live, new places for businesses, and communities that offer an authentic urban lifestyle. The Strip District and Lawrenceville have the inherent assets to make this happen and a community that shares a spirit for a more amenity-based quality of life. The better Pittsburgh can create the infrastructure for that to happen, the more successful will these riverfront communities become. A better infrastructure—a regenerative environment—holds the key to economic sustainability and the lifestyle these communities want. As other cities have demonstrated, the better the infrastructure, the stronger the private investment.

River's edge would begin to take on its former wooded character

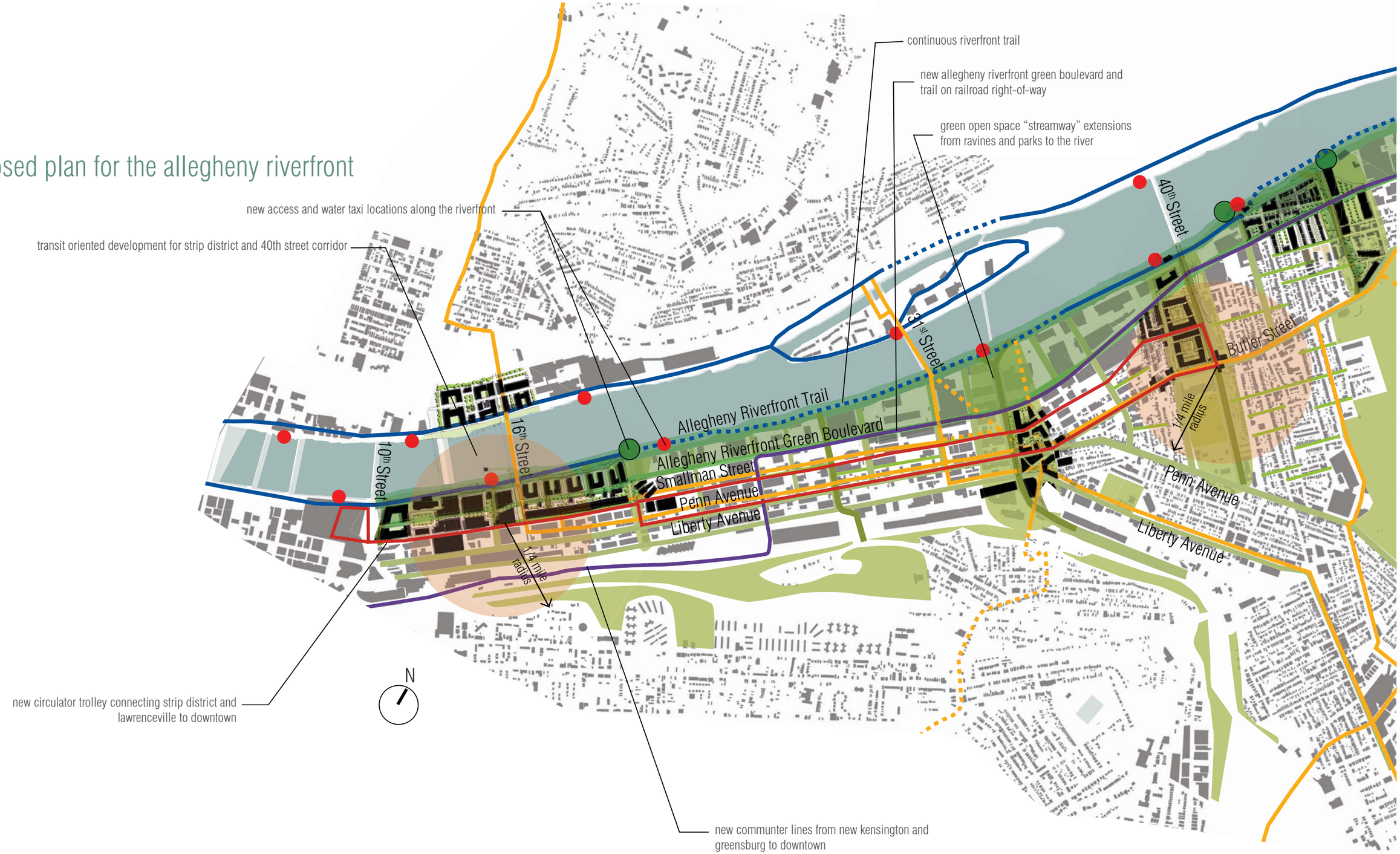
# envisioning the new riverfront

A new mixed-use urban center for the Strip District between the Veterans and 16th Street Bridges

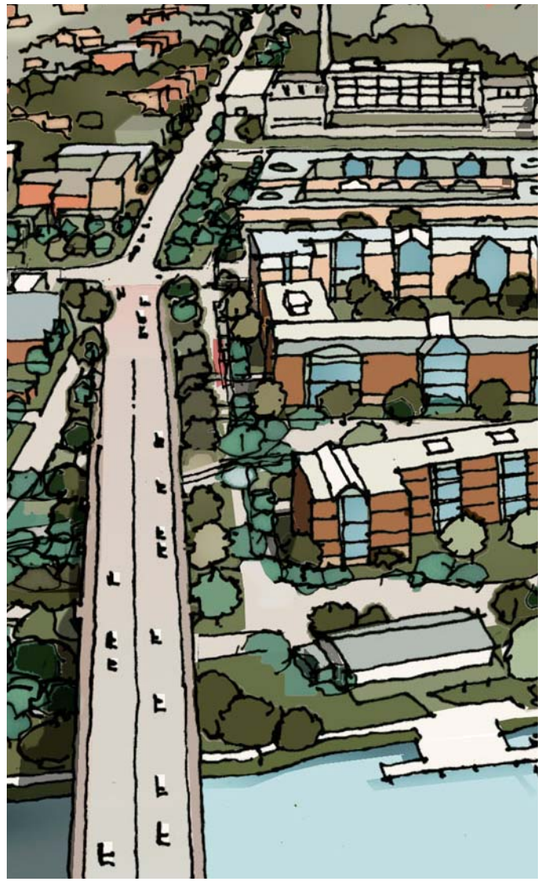


Entertainment venues at the river's edge

# proposed plan for the allegheny riverfront



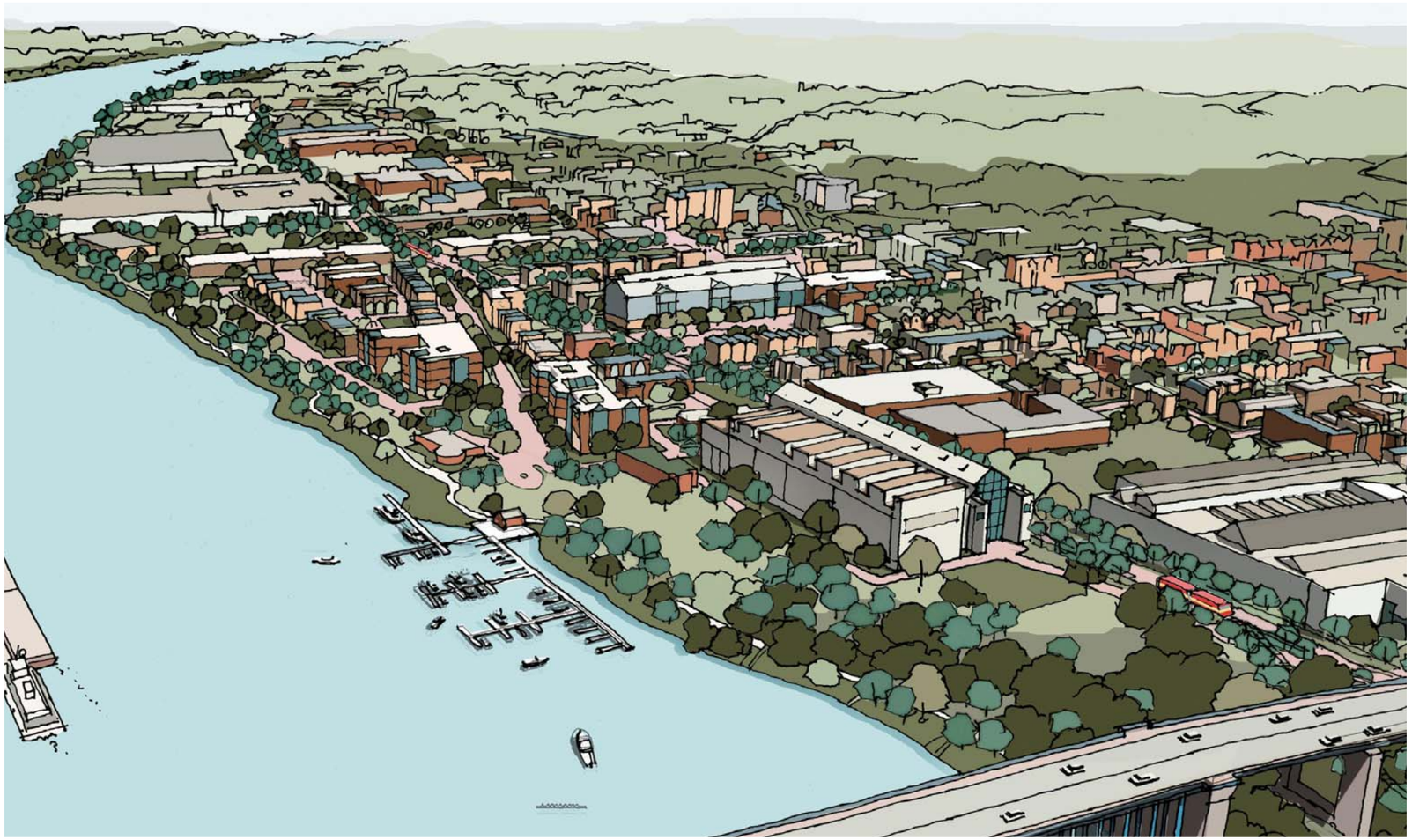
A new vision for the riverfront integrating development opportunities, new transit, an ecological network of green open spaces and streets, and trail system



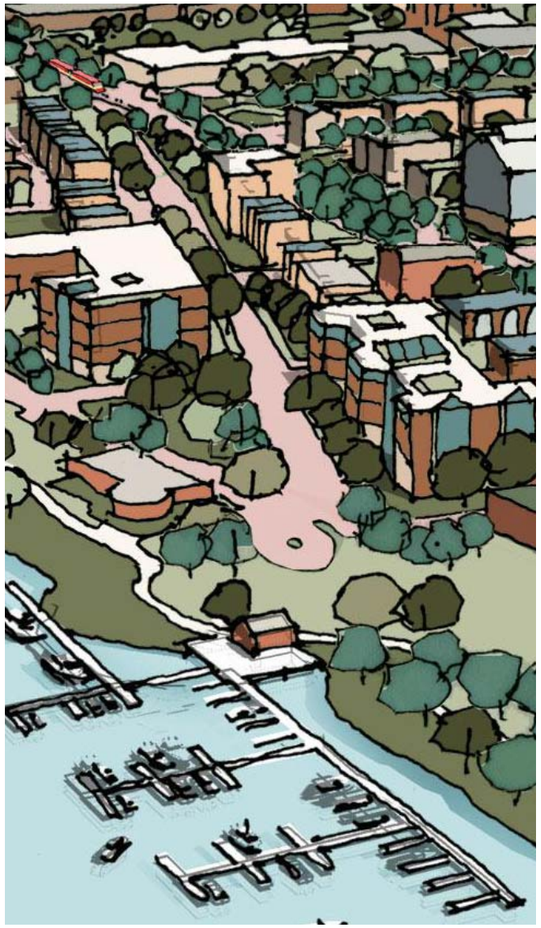
A new civic center for Lawrenceville

40th Street Corridor looking south

# envisioning the new riverfront



Central Lawrenceville along the riverfront



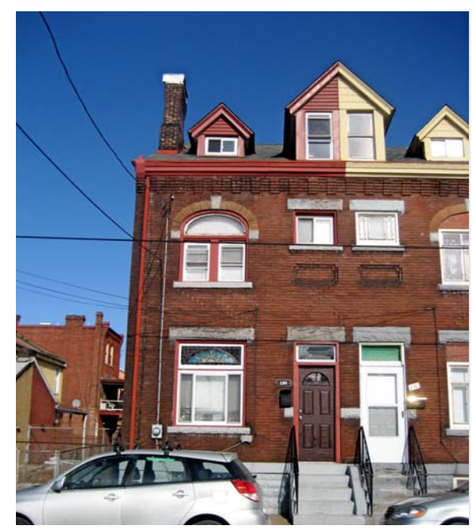
Residential uses extend to the riverfront with a new marina shown at the end of 43rd Street

## a framework of five development zones

River Zone

Regenerative Zone

Transition Zone



Preservation Zone

Service Zone

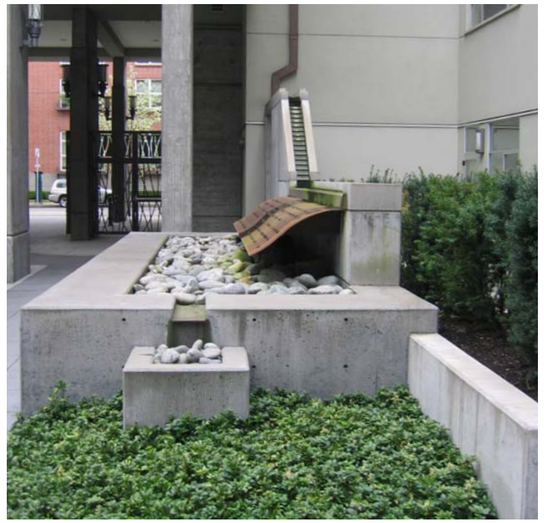
# major features of the vision plan

## Framework for Revitalization

The Spatial Principles describe a layered network of linear zones defining the different characteristics of built form from the river's edge to the upland slopes of the Vision Area. Each zone has its own identity, use types, and development potential. Likewise, the Ecological Principles describe linear areas defining appropriate green infrastructure types along with overlapping tree canopy coverage zones, while the Connections and Market Principles also make reference to the progressive layering in from the river's edge. Out of the analysis, there is a convergence in the structure of zones. The Vision Plan recognizes a framework of zones that integrates these concepts into a single set of five development zones.

- ### River Zone: The Edge of the Allegheny River
  The current river edge has been neglected, is overgrown, and is as much a barrier to the Riverfront Vision Area as the current industrial zone. The public, open space at the river's edge should be made more inviting, accessible, and habitable by including such amenities as landings, marinas, bulwarks, picnic sites, overlooks, rope swings, etc. In addition, properties that front the river have an obligation to maintain the highest levels of pollution and stormwater control so that only clean water enters the river.
- ### Regenerative Zone: A New Riverfront Zone
  The Regenerative Zone includes the riverfront and the properties along its edge from the riverbank back to, and including, the railroad right-of-way. The zone extends past the railroad in a few instances where large industrial properties extend further into the neighborhoods. The Regenerative Zone offers the greatest opportunity for change, because its large tracts of underutilized industrial land make this the most effective location to implement a full regenerative agenda, and the most effective location to achieve ecological restoration. New, rehabilitated, and renovation development is proposed to be ecologically sustainable, multi-use, built to green standards, and with access to the riverfront along its length. It is prime land for high-density residential and compatible industry that value riverfront amenities.
- ### Transition Zone: Mixed Building Zone
  The Transition Zone extends from the AVRR green corridor to the edge of the residential fabric. The zone contains a variety of building types and uses, including industrial buildings in the Strip recently converted to apartments. Building footprints are not as large as those along the riverfront, but are larger than in the adjacent residential neighborhoods. This zone is the source of the Allegheny Riverfront Area's authentic and gritty character. Mixed use is the dominant use type and should be further encouraged as well as mixed-occupancy structures. Higher densities than presently exist are recommended to increase job-generation and residential capacity. Green buildings and site development are desired for all new, rehabilitated, and renovation development. Green streets, which provide multiple ecological benefits, will provide linkages to the riverfront. As this zone contains a number of historic structures, restoring these buildings should have high priority.
- ### Preservation Zone: Established Neighborhoods
  The Preservation Zone is the residential fabric of Lawrenceville. Parcels and building footprints are the smallest in the Riverfront Vision Area and change occurs very slowly, making this zone the most stable of the five, but also the most difficult to infuse with new ecological and open space improvements. As new residences are developed and renovation and rehabilitation of older residential stock takes place, the residential neighborhoods will become more desirable and strengthen. Green strategies include green streets and alleyways, vacant lots used for gardens, and residential rain gardens.
- ### Service Zone: The City's Backyard
  The Service Zone is the strip of land along the "slopes" of Liberty Avenue and the East Busway. Comprised of flex buildings and surface parking lots, this is an area that is sparsely populated and generally unseen where buildings and parcels of many sizes and configurations have been shaped into unexpected angles by the stream bed that used to drain the East End to the river. Storage and distribution activities are good uses for this zone. The City and County should consider relocation of Allegheny Riverfront service activities to the Service Zone to free desirable sites closer to the river for the private market. The large surface lots provide greening opportunities, ranging from trees to pervious paving systems, and the large flat-roofed buildings are good candidates for vegetative roofs.

Re-conceiving the Allegheny Riverfront Area as a series of layers of different characteristics and functions sets up a framework for revitalization. The river is a regional amenity and a public resource, yet it is fragile and requires protection. The River Zone, the open space at the river's edge, should be more inviting and habitable, with amenities for public use. The Regenerative Zone proscribes a new riverfront and development that recognizes the importance of the river as a public amenity. The Transition Zone is about building a mixed community that embraces variety, diversity, and choice as a transition between established neighborhoods and a repurposed riverfront. It is also about maintaining and enhancing the Allegheny Riverfront's authenticity. The Preservation Zone encompasses the residential neighborhoods that anchor the Allegheny Riverfront and are instrumental in achieving a higher quality of community life. The Service Zone is conceived as the area's support and services zone, the new back yard for the Allegheny Riverfront. Each zone is descriptive of a future that embodies the desires of the Allegheny Riverfront communities.



Stormwater management can be artistic and functional

# A New Ecological Infrastructure

As most of the natural landscape is missing from the Allegheny Riverfront Area, the ecological planning is approached as restoration ecology: restore the hydrologic cycle by capturing the rain and increasing vegetative cover. The pattern of underground sewer pipes and the roadway network that sets the surface pattern of land use can also become a network of natural spaces that will perform for us the work of cleaning air and water and enriching the soil. By allowing the rainfall to follow the natural pathways into the soil mantle that has been paved over for the past century, the Riverfront Vision Area will have regenerative neighborhoods that provide clean water and healthy air while reducing carbon footprint.

Stormwater infrastructure includes a variety of elements, from backyards to green streets to vegetative roofs. Though their design depends on the distance from the river's edge, in all locations, new pavements, including surface parking lots, sidewalks, patios, and some driveways, should be constructed of permeable materials underlain by a storage/infiltration bed.

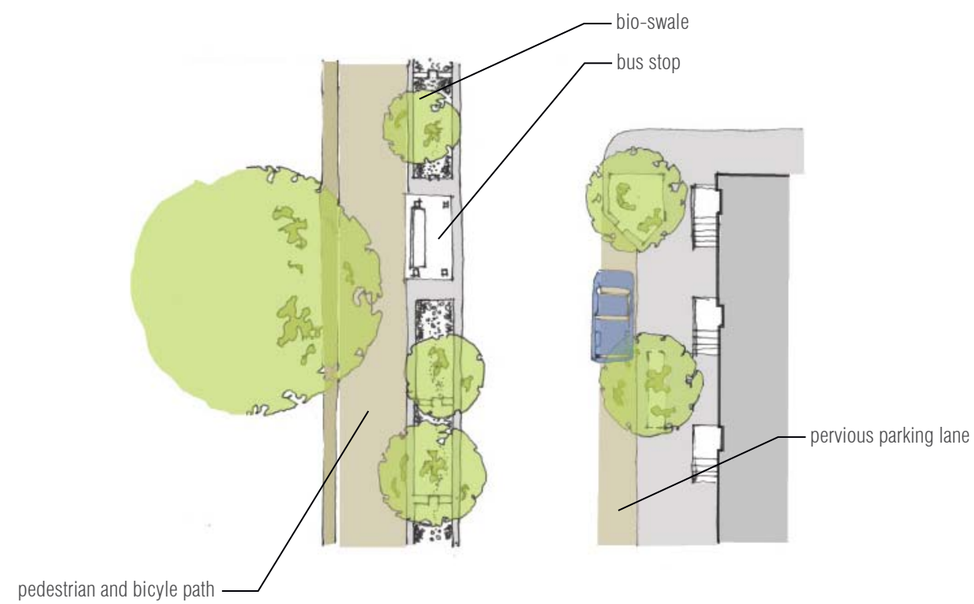
- In the Regenerative Zone the clean rooftop runoff can be directly discharged to the river or to the green corridor of the riparian buffer. The railroad right-of-way provides another green corridor opportunity for landscape and permeable surfaces.
- The Transition Zone does not include as much open space, so creating a network of green streets assumes a higher priority, utilizing vegetated curb extensions, medians, and intersection bump-outs that capture the rainwater of the public realm. Vegetative roofs are the preferred green infrastructure on private property.
- In the residential neighborhoods of the Preservation Zone, infrastructure strategies include green alleyways, urban gardens, and residential rain gardens. While not always possible, vegetative roofs are encouraged when appropriate.
- The Service Zone is similar to the Transition Zone though it lacks a street network, but applying green street infrastructure strategies to the Service Zone's large surface parking lots the same results can be achieved. The large flat roofs of this zone's flex buildings are prime candidates for vegetative roofs.

Tree canopy coverage varies by linear zone:

- The target is 80% tree canopy coverage for the first 100' of the riparian buffer and all of the AVRR green corridor, and 60% elsewhere in the Regenerative Zone.
- The Transition Zone target is 40%, the Preservation Zone 25%, and Service Zone 40%.
- With good soil volume, this tree coverage will provide the large scale evapo-transpiration functions of the original forested ecosystems.

Tree canopy coverage works hand-in-hand with the stormwater infrastructure and open space opportunities. Trees play a significant role in the hydrologic cycle by dispersing captured stormwater through transpiration as does the soil through permeation. The target for tree canopy coverage throughout the Allegheny Riverfront is an average of 40%, similar to the tree canopy coverage of the Squirrel Hill neighborhood. To accomplish this goal, the application of tree planting varies with the distance from the river's edge increases.

## typical green street




Stormwater infrastructure and street trees increase walkability

# Riparian Buffer

Other than the green steep slopes and bluffs, the riparian buffer will be the largest open space in the Riverfront Vision Area. It is an essential component of the natural stormwater management system.

The proposed buffer is a 200' wide green open space along the riverbank throughout the Regenerative Zone. The use of native meadow and woodland plantings, combined with forest restoration and invasive species removal, will relieve the need (and cost) of reconstructing the old engineered systems, which, as it turns outs, are a poor substitute for the more effective and sustainable natural systems. Preferred uses of the buffer would include river access, passive recreation, water features, and a riverfront trail, with limited concessions and limited public facilities such as amphitheaters and performance spaces.

A river buffer is necessary to ensure establishment of plants and roots needed to prevent unnatural erosion, ensure the ability of plants and soils to filter pollutants, maintain healthy habitats, and contribute to flood protection. The width of the buffer is necessary to remediate an affected, urban waterway with industrial adjacencies. A 200' buffer is critical to reaching the 40% urban tree canopy goal and will be instrumental to increasing air quality, reducing CO2, and a key component in the restoration of the hydrologic balance. A 200' buffer is also required to reintroduce the habitat necessary to support the return of valuable wildlife and self-sustaining ecosystems. In addition, it will provide waterfront recreational opportunities currently lacking throughout the city and help to sustain a healthy drinking water supply.

Major mid-sized cities such as Kansas City and Portland have, or are in the process of developing, buffer set-back ordinances. Pittsburgh is in the unique position to become a leader in urban stream renewal as it is poised to lead the country in buffer establishment.

An ecologically sound riverfront

## 200' riparian buffer at the river's edge

Restoring the river's edge is a critical component of an ecological infrastructure

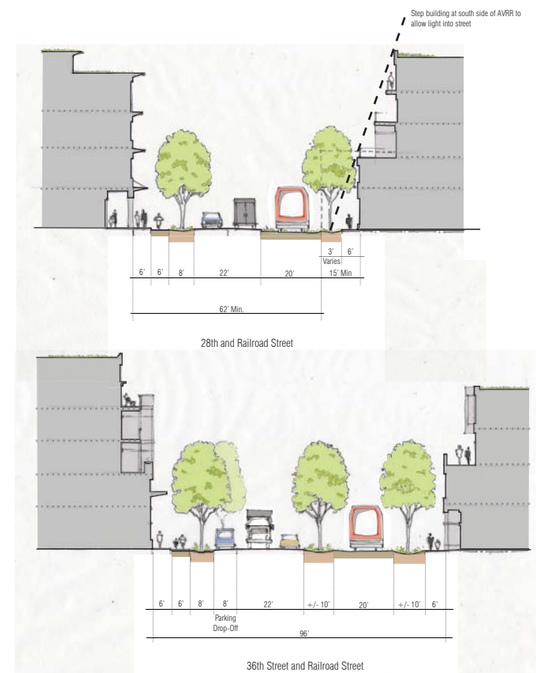
## allegheny riverfront green boulevard looking east from 40th street

The railroad right-of-way envisioned as a multi-model and green corridor

# Allegheny Riverfront Green Boulevard

Assuming the AVRR right-of-way ownership will be transferred to a new 501(C)(4) Public Benefits Corporation or its equivalent to protect a permanent freight easement, the 62' to 100' wide right-of-way can be repurposed as a complete boulevard and public space for its full length through the Riverfront Vision Area. The term "complete" means that it contains multi-modal functions, ecological infrastructure, and elements that serve both public and private interests, including commuter rail transit, freight transit, vehicles, bicycles, pedestrians, utilities, and buildings on either side of the right-of-way.

A repurposed AVRR corridor would provide a second edge to the riverfront and a "front door" for the Regenerative Zone. It would serve as a secondary riverfront trail where the riverfront trail is not possible or blocked by existing obstructions. It would also be an alternative to automobile and truck traffic on Butler and Smallman Streets for local area businesses to help relieve truck conflicts, particularly east of 40th Street. The corridor can serve as a conduit for district-wide renewable energy distribution systems and for underground distribution of everyday utilities. By providing heavy tree canopy cover, pervious and landscape features for capture of stormwater, and needed public open space the Allegheny Riverfront Green Boulevard will significantly contribute to the Vision's green agenda.




Design of Allegheny Riverfront Green Boulevard should vary with right-of-way width

# Commuter Rail and Urban Circulator

Two new transit opportunities will significantly strengthen the Allegheny Riverfront. They serve different purposes and passengers, however both are mutually supportive and connect the Allegheny Riverfront to the city and region.

# Commuter Rail

The implementation of a light-rail commuter line connecting New Kensington and Greensburg in Westmoreland County through Oakmont to downtown Pittsburgh on the AVRR right-of-way would provide the foundation of a regional rail system with Lawrenceville becoming a major transfer center and multi-modal hub.

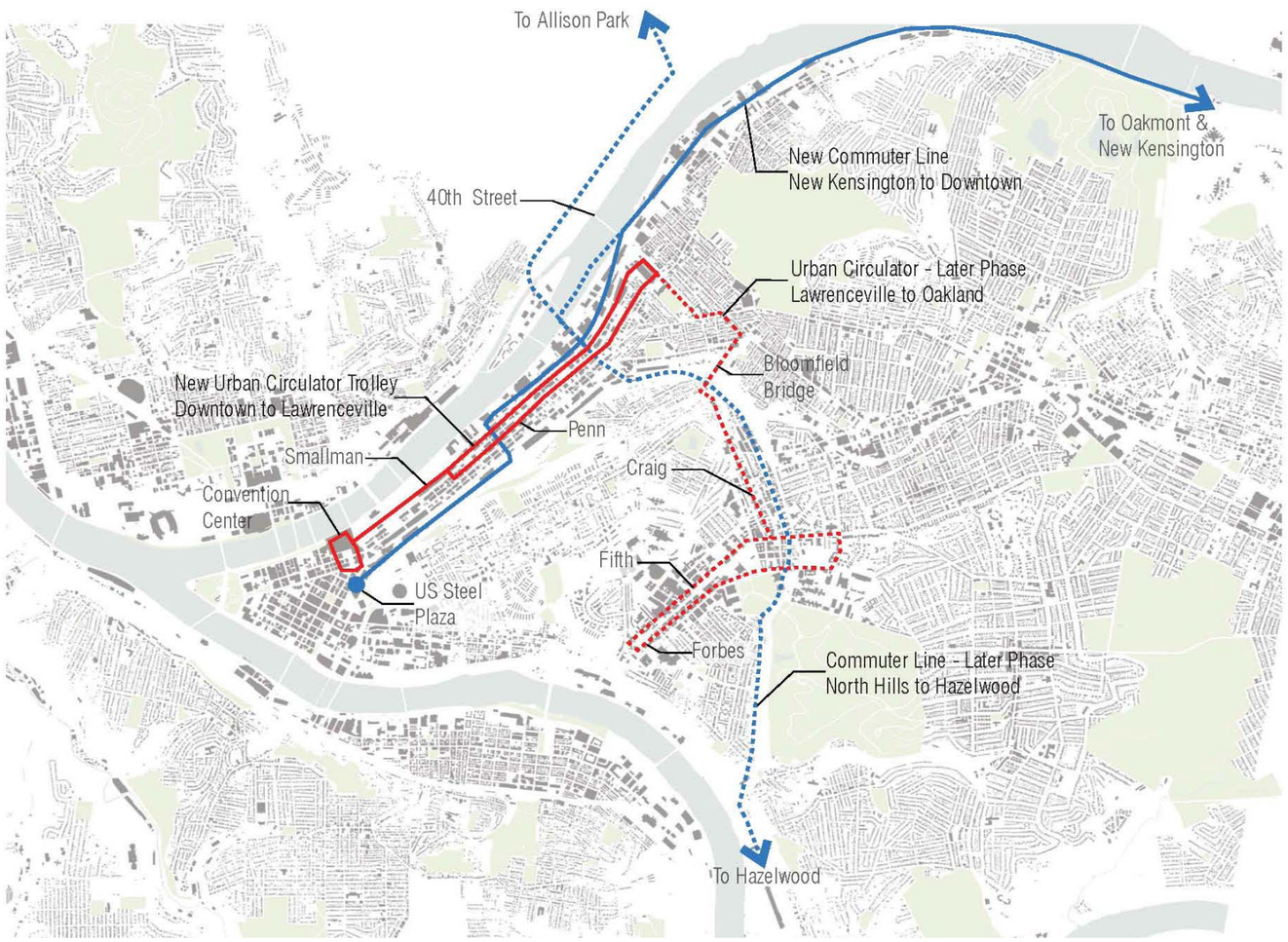
The proposed east-west route uses the Allegheny Riverfront Green Corridor to 26th Street where it would run as a streetcar on 26th Street to the East Busway, then along the Busway to Penn Station and the US Steel building to interface with the "T" system. Proposed stops in Lawrenceville include the 40th Street Corridor, 33rd Street where it could interface with rail service to Oakland and Hazelwood, 26th Street at the Busway, and the Downtown stops. A self-propelled, light diesel-powered car, built for freight-gauge track, is contemplated that could be ganged in 2- or 4-car "trains."

The Allegheny Valley Railroad also leases a north-south line that runs up the Route 8 corridor north to New Castle and south across Lawrenceville on the 33rd Street trestle to Oakland, Hazelwood, and farther south to Uniontown. If that line could also be used for passenger transit, Lawrenceville would become the center of the rail system as both the east-west and north-south lines cross at 33rd Street and the Allegheny Riverfront Green Boulevard. Combined with the urban circulator with its stops on Smallman at 33rd and in Doughboy Square, suggests a major intermodal transfer hub in the middle of the Allegheny Riverfront.

## allegheny riverfront green boulevard looking west from 33rd street

The new boulevard creates new "front doors" to the riverfront

# integrated transit for the allegheny riverfront




New transit connects to Downtown and in later stages to Oakland

## Urban Circulator

The most significant transit recommendation is to establish a unique urban circulator system using fixed-rail trolley cars through the Strip District to Lawrenceville. The objective is to lessen reliance on automobile use while encouraging localized mass transit. Experience in other cities suggests that a circulator trolley should work well in the Strip District, an area that is heavily pedestrian-oriented and exhibits a demand for high frequency service, short trips, and frequent stops.

The circulator trolley would incorporate frequent stops depending on the condition of the potential stop area. Stops should be at-grade with sidewalks and roadways except for along Smallman Street where stops would be incorporated into pedestrian islands. Major stops, station-like locations where the circulator can interface with other modes of transportation, could also be implemented at the eastern and western ends of the route, i.e. Downtown on 10th Street and at 40th Street in Lawrenceville. Stops at other key locations like 21st Street in the Strip District could include more intense infrastructure improvements like circulator pull-off areas, street furniture, and other rider amenities.

The cost, estimated about $25 million a mile, is considerably less than a light rail commuter system running on a dedicated right-of-way. (The circulator from Downtown to 40th Street is about 5 miles round trip.) There are several vehicle types that could be utilized, from modern to vintage cars, and technology exists for electric power to be provided by “docking stations” along the route rather than continuous overhead power lines.

Later phases of the urban circulator could include extending the line farther into the Lawrenceville community and extending the line to Oakland. The path to Oakland would use 40th Street, Penn Avenue, Main Street, the Bloomfield Bridge, and Craig Street to reach the Oakland corridor. Once into Oakland it could loop the corridor on Fifth and Forbes Avenues then back to Craig Street. A similar system could link Oakland to Downtown. If successful, the urban circulator could become the preferred transit of the New Golden Triangle.

# Open Space Linkages to the River

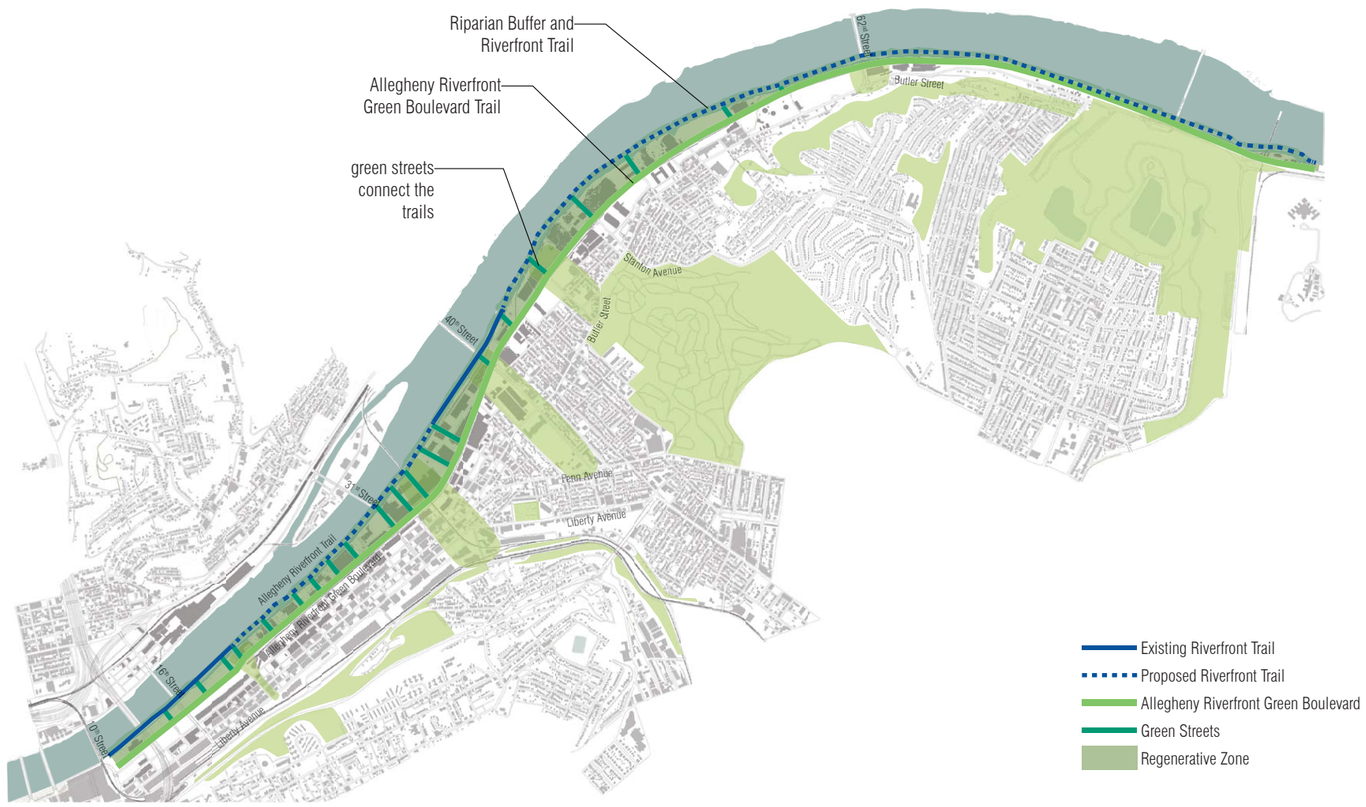
Open space connections, green streets extending to the riverfront, and a trail network that ties the riverfront to the neighborhoods are the primary physical linkages to the river.

- "Streamways"
  The former stream, creek, and drainage paths from the higher plateaus and hills of Pittsburgh's East End flowed through the Allegheny Riverfront Area. Now buried, they should be reconstituted as natural spaces for stormwater capture. They can also provide much needed public open space for active and passive recreation for residents, employees, and visitors. Primary locations are 33rd Street to 35th Street from the Busway ravine to the river; 46th to 48th Streets from Allegheny Cemetery to the river; Heth's Run; and Washington Boulevard and valley to the river.
- Bluffs
  The bluffs and the steep slopes are important forested open spaces that contribute significantly to the ecological restoration and stabilization of the Allegheny Riverfront. They should remain undeveloped. These steep slopes include the Morningside Bluffs from around 62nd Street to the zoo entrance at Baker Street and the Highland Park Bluffs from the zoo around to Washington Boulevard.
- Green Streets
  Green streets, public rights-of-way that serve both ecological and urban functions, are also open space extensions from the neighborhoods to the river. Along some streets, the landscape can extend beyond the street onto public-owned and private property to create wider swaths of open space. Prime locations are 15th Street where a center median could signal the entrance into a new mixed use center for the Strip District; along the east side of the 33rd Street railroad trestle; and along the west side of 40th Street from Penn Avenue to the river. The wider swaths are excellent locations for landscaping, dense street trees, landscaping, water features, and passive recreation activities.
- Trail and Bike Systems
  The trail and bicycle paths are the primary linkages of the open space system. They connect the parks, the cemetery, the bluffs, the green streets, the riverfront riparian buffer, the railroad Green Boulevard, and the major arterials into a network of open space throughout the Allegheny Riverfront. Instead of a single riverfront trail, the pedestrian and bicycle paths are intended to be more like a network offering many choices of paths and bringing the river space into the neighborhoods, the neighborhoods to the river, and knitting the neighborhoods together.

restore link from allegheny cemetery to the river

Connect large open spaces and river valley hillsides to the river

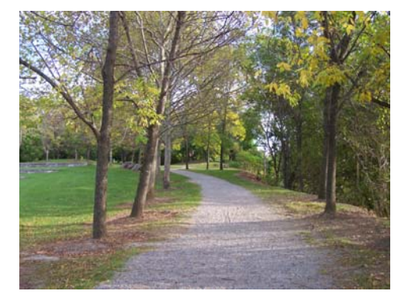
# allegheny riverfront trail system




Trail system is a loop network that provides a continuous trail at all times

# Riverfront Trail System

A robust public trail system is strongly recommended throughout the Allegheny Riverfront Area. The long-term objective is a continuous trail along the riverfront from Downtown to the city line and beyond along both sides of the river. While now fragmented, the riverfront trail in the Riverfront Vision Area can be supplemented with a continuous inboard trail system that utilizes public streets to make the connections. Eventually the trail will be part of the riparian buffer and linked with the railroad Green Boulevard and a system of green streets throughout the riverfront communities. Similarly, the existing riverfront trail on the opposite bank will be further improved as riverfront development occurs.

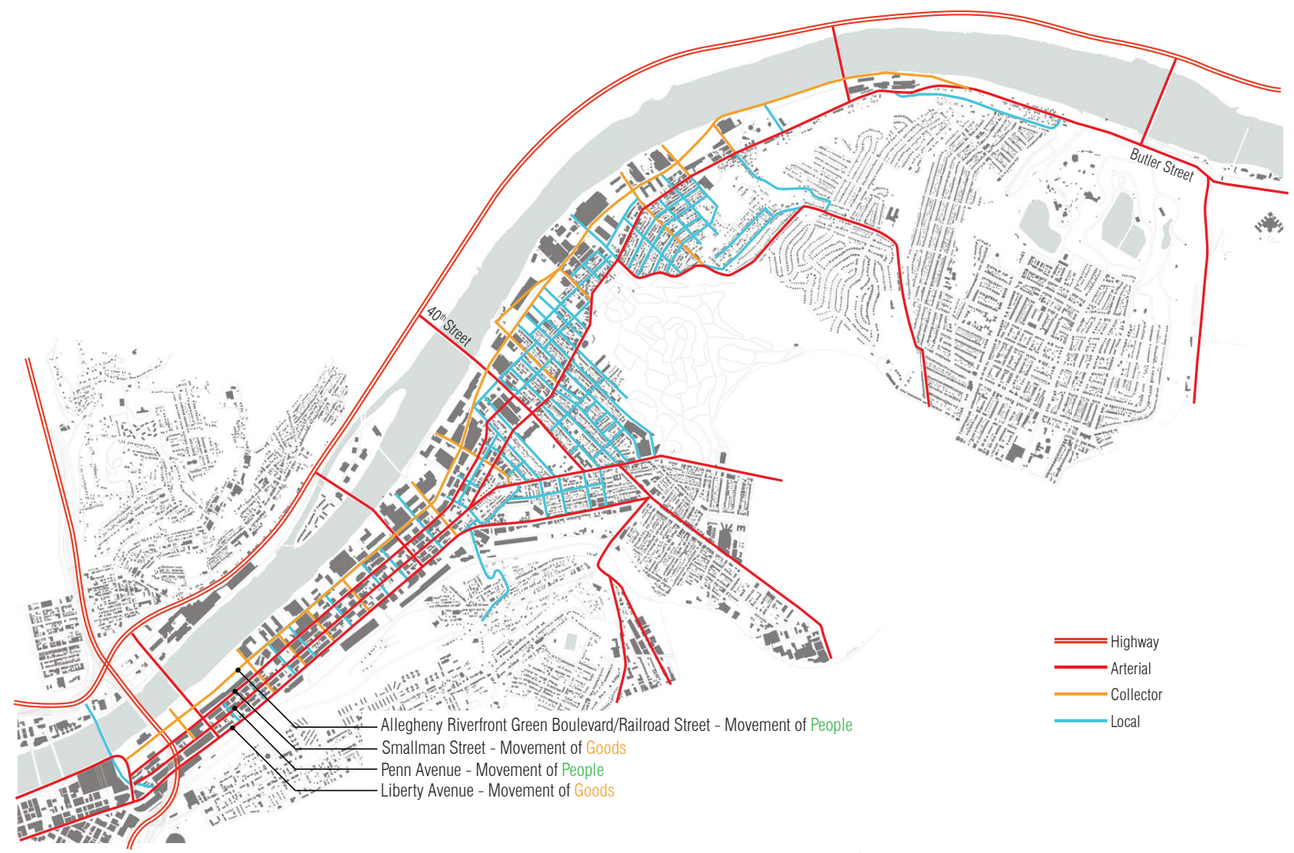


# Managing the Movement System

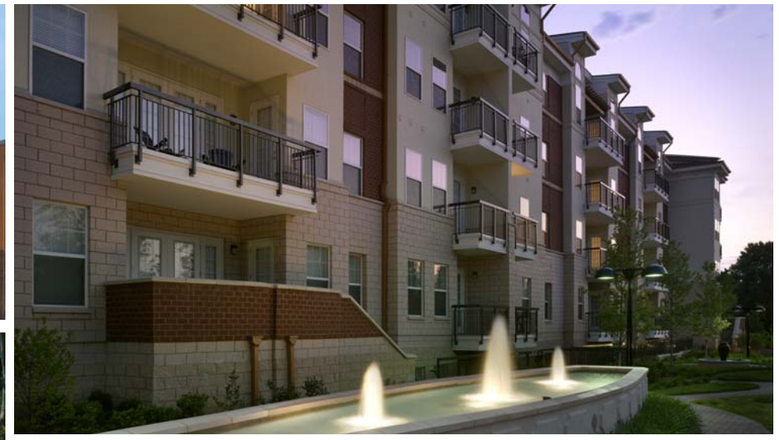
A classified roadway hierarchy is strongly recommended for streets within the Allegheny Riverfront in order to lessen the conflict between neighborhood movement and truck traffic. The current movement system breaks down into three basic categories of roadways: arterials that move large volumes of traffic through the area; collectors which gather traffic from local roads within the area; and local roadways. Current arterial roadways include Liberty Avenue, Penn Avenue, Butler Street, Route 28, and numerous bridges across the Allegheny River.

The proposed hierarchy alternates east-west street types intended for the movement of goods from the movement of people. Arterials recommended for the movement of goods are Liberty Avenue and Smallman Street. Arterials for the movement of people are Butler Street/Penn Avenue and the Railroad Street/railroad Green Boulevard. People-oriented streets favor pedestrians and bicycles, although other means of transportation are allowed while trucks are discouraged. The alternating street type pattern interrelates with the parking strategy so that parking facilities are located just off the auto and truck routes for access, but far enough from people-oriented streets so that pedestrians will pass by stores and businesses on the way to their destination.

## proposed street hierarchy




Separating movement types will increase pedestrian and cyclist safety



Variety of residential building types will appeal to a broad market

# Residential Development: Highest Priority

Successful sustainable development in U.S. cities involves a wide mix of uses in a variety of settings, but what they have in common is that they are supported by residential growth. Without attracting people to live in the area, the impact of the development tends to be short-lived or even detrimental to property in the neighborhood. The development program for the Riverfront Vision Area should be predominantly housing, ranging from upscale condos to affordable rentals with specialized and innovative housing types for emerging markets. Existing neighborhood housing is an irreplaceable resource and needs to be preserved. Transformative development sites show a potential for over 3,000 new units; and that market could be significantly increased, drawing especially from outside the region.

# New Urban Centers for the Strip and Lawrenceville

Two new centers are recommended for the Riverfront Vision Area that will have transformative landmark and market qualities. The vacant 50+ acres owned by The Buncher Company in the Strip District on both sides of the river would constitute one of the largest center city riverfront developments in the country. The underutilized properties between 39th and 40th Streets from Butler Street to the river could become a new "civic center" for Lawrenceville.

## Strip District

The Strip District site, between 11th and 21st Streets, will create a new riverfront destination and residential neighborhood to complement the historic Penn Avenue marketplace and the repurposed Produce Terminal, and link to the residential neighborhood forming around the Cork Factory. Because the site is so large, it is easier to understand it in sections: three sections on the south riverfront are divided by the Veterans Bridge and the16th Street Bridge and the fourth section is the land on the north side, which lies between the two bridges. Both sides of the river would be developed with the riparian buffer and riverfront trail system. Each of the four sections of the proposed concept plan would have different characteristics.

- 11th Street to the Veterans Bridge
  Office, commercial, and some supportive retail uses as an extension of Downtown activities, but at a smaller scale.
- Between the Veterans Bridge and the 16th Street Bridge
  24-hour mixed-use entertainment zone, with riverfront restaurants, retail storefronts, and a publicly-accessible riverfront and water taxi stop. Mixed uses, such as offices and commercial activities and perhaps a hotel and residential uses, would complement the entertainment venues. This would be the highly-public portion of the development.
- 16th Street Bridge to 21st Street
  A five-block long residential neighborhood along the riverfront, with some office and neighborhood service retail inboard of the river. Residential development is key here, since the Penn Avenue regional destination would be diluted if the retail shopping experience were expanded to the riverfront. The Produce Terminal, as part of the development, would be repurposed as a public marketplace, retail, showroom, and professional office location fronting onto a Smallman Street public space.
- North Side from the Veterans Bridge to the H.J. Heinz plant
  Primarily a residential development, with minor supportive neighborhood service retail and professional offices, this site could also be the location for a new marina and water taxi stop.

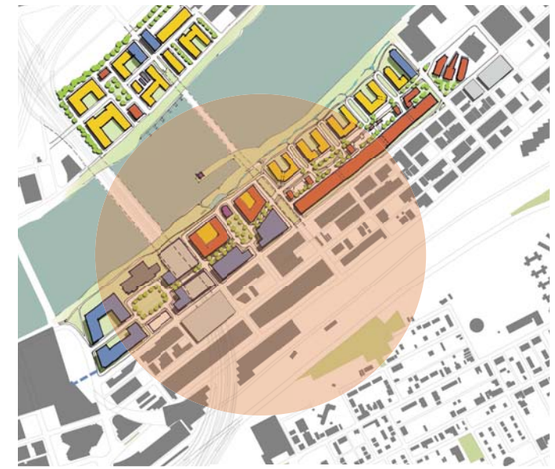
The concept plan recognizes the value of the Penn Avenue historic marketplace. Its present character should be preserved, while its functioning is improved. Proposed locations for parking garages are intended to encourage and reinforce public access to Penn Avenue as well as to the new development. The repurposed Produce Terminal is also intended to reinforce Penn Avenue by offering a distinctly different kind of marketplace and by creating a strong boundary for a new Smallman Street piazza.

## Lawrenceville

The proposed 40th Street Corridor design concept recognizes this location as the symbolic center of the Lawrenceville community, connects Penn Avenue to the river along 40th Street, and opens up cross traffic connections between Lower and Central Lawrenceville.

Smallman Street is aligned with Foster Street and connected to 40th Street at the foot of the bridge, and Willow Street is connected below the bridge. The circulator trolley continues up Smallman to 40th Street then circles back along Butler Street and Penn Avenue. The green, park-like grounds of the Allegheny County offices at Penn and 40th are expanded along 40th Street to the river, connecting Arsenal Park, the Arsenal School grounds, the trolley right-of-way, a proposed railroad Green Boulevard commuter rail stop, and the riverfront riparian buffer and public trail. A boat house is shown at the river's edge for river-oriented activities and a water taxi stop.

The 40th Street Corridor concept plan is more residentially-based than the Strip District center. Residential uses begin at Butler Street and continue down to the riverfront. Along Butler Street, neighborhood service retail uses are recommended for the ground floor, including a new grocery store, mixed-uses, and professional offices. The ground floor uses would fill the missing link of Butler Street's retail spine to link Upper and Central Lawrenceville. The site would also include a trolley station, public open space, and a larger park at the riverfront.



Strip District and North Shore
(Orange circle shows 1/4-mile walking distance)

Strip District and North Shore

40th Street Corridor in Lawrenceville

40th Street Corridor in Lawrenceville

# transit oriented development zones

Strip District and 40th Street Corridor qualify for TOD funding

## Transit Oriented Development

The proposed new development in the Strip District, led by the concept plan proposed for the Buncher properties, and the proposed new civic center development in Lawrenceville, led by the concept plan for the 40th Street Corridor, qualify these locations for Transit Oriented Development (TOD) funding. This Federal funding encourages the use of public transit by providing monetary incentives to construct multi-modal transit and adjacent development that relies heavily on its use.

A study conducted for the Southwestern Pennsylvania Commission identified certain factors based on density that are critical to developing a successful TOD: connectivity, population, housing, employment, and zoning. Both transformative areas rely on a combination of new development, built to higher density standards than presently exist, and spillover development of the surrounding neighborhoods, including infill and repurposing of existing buildings, to meet the TOD metrics. The Strip District benefits because of its close proximity to Downtown, however it needs new housing to qualify. Lawrenceville benefits because of its high walkability and bus service, but it too requires new housing as well as new employment opportunities to qualify.

The Allegheny Riverfront's TOD factors and densities are included in the table below relative to the urban baseline metrics:

| TOD SUCCESS METRICS | URBAN BASELINE | 40TH STREET | STRIP |
|---|---|---|---|
| Population Density Per Acre (1/4 mile) | 16.7 | 20 | 21 |
| Housing Density Per Acre (1/4 mile) | 11 | 12.6 | 13 |
| Travel Time to Pittsburgh | 13 min | 7 min | 3 min |
| Transit Time to Pittsburgh | 10 min | 15 min | 7 min |
| Employment Density (1 mile) | 15,000 | 15,598 | 110,000+ |
| Zoning (# of districts/applied districts) | 11/15 | | |
| Walkable Score | 89 | 94 | 82 |
| Transit Availability | YES | YES | YES |
| Cross Route Connections | YES | NO | YES |
| Dedicated Fixed Guideway | YES | NO | YES |
| Cross Route Service Density (weekday roundtrips/ridership) | 126/3,842 | 0/0 | 56/5,094 |
| To Downtown Service Density (weekday roundtrips/ridership) | 281/24,410 | 63/3,700 | 159/14,450 |

# Memorable Places

Where the Riverfront Vision Area can excel in further distinguishing its neighborhoods and character of place is in deliberately creating new public spaces and destinations. Memorable places are specific locations that acquire meaning beyond their spatial configuration as places of social, historical, or even aesthetic values that are generally acknowledged and respected. These locations have the potential to become new memorable places:

- Riverfront: Creation of the riverfront riparian buffer will clearly distinguish this place as a water-related regional asset. Within the buffer some locations have further public potential: acknowledge the shipbuilding and manufacturing history between 11th Street and the Veterans Bridge in conjunction with the History Center; develop the river's edge with a land extension for public access and water taxi landing between the Veterans Bridge and the 16th Street Bridge; and create a new regional park at the foot of Washington Boulevard on the Public Works property.
- Allegheny Riverfront Green Boulevard as a Complete Street and Public Space: The spatial qualities of this 62' to 100' wide space cutting through the fabric of the Strip and Lawrenceville are not matched anywhere in the city.
- Extension of Railroad Street from 21st Street to 11th Street: Public places could include a public plaza at 21st Street and a park between the Veterans Bridge and 11th Street that connects the History Center to the riverfront.
- Smallman Street "Piazza" between 16th and 21st Streets: By improving the Produce Terminal's 50' wide "front yard" as a public amenity and transit corridor and creating a pedestrian-friendly sidewalk along it south face, this 90' wide space can become a public piazza and destination for Strip District patrons and visitors.
- 33rd Street Railroad Trestle: This dramatic steel structure and Allegheny Riverfront landmark could be given a new life by new paint or repurposing it as a canvas for an artistic installation, such as a "living wall."
- Intersection at 40th and Butler Streets: This portal into Central Lawrenceville could be enhanced by strengthening its spatial qualities by new buildings that build to the property line, judicious street tree plantings, and reconceiving the privately-owned property between 39th and 40th Streets as a new center for Lawrenceville. The space this forms could become a very public place and a landmark of the Lawrenceville community.
- Bluff Scenic Byway: Consideration should be given to designating Butler Street and Allegheny River Boulevard as a "scenic byway" from 62nd Street to Washington Boulevard. This will also create a scenic entrance to the Pittsburgh Zoo from the west.
- River Overlook on Baker Street: Not available to the public until the buildings were demolished atop the Morningside Bluffs on Baker Street, this location should be improved as a scenic overlook with wonderful views of the river valley. Its importance to the Morningside neighborhood as a public asset should be enhanced and protected.
- Zoo Entrance: The intersection of Butler and Baker Streets has potential as an open space and portal entrance for the zoo.
- Highland Riverfront Park: Converting the Public Works space at the end of Washington Boulevard into a public riverfront park and improving the intersection at Washington Boulevard and Allegheny River Boulevard as a portal entrance to the riverfront and park will create a new Pittsburgh asset.

## smallman street "piazza"

Green space created in front of the Produce Terminal on Smallman Street with street right-of-way relocated to south side of the new piazza

The strong basis for growth already exists in the neighborhoods of the Allegheny Riverfront

## Areas Left Alone

The business and residential communities were quite outspoken that the best strategy is to leave alone what is already working. Although it may seem the Vision Plan has improvement recommendations for almost every place in the Allegheny Riverfront, the great majority of properties and places are not cited for direct improvement or intervention. Many areas have development plans already in place, and except where the Vision Plan modifies them, they should continue with implementation.

The Transition, Preservation, and Service Zones which form the core of the Allegheny Riverfront are encouraged to grow in an evolutionary manner. Their growth would be boosted by green infrastructure improvements and smaller-scale investments. It is in the Regenerative Zone and very specific locations in the Transition Zone where the Vision Plan proposes large development interventions that are market changers.

The base for economic growth and sustainability in the established neighborhoods of the Allegheny Riverfront Area already exists. The market recommendations are all based on encouraging evolutionary growth. They recognize that the present building stock and mixed use nature of the Riverfront Vision Area is the infrastructure needed to make this happen. Other than along the riverfront, residential growth is encouraged to strengthen the neighborhoods by building on vacant and infill sites. Incremental growth of the historic market place on Penn Avenue and the Butler Street retail district is likely to have positive spillover effects that will help sustain the uses around them. The Transition Zone will support emerging industries and the growth of existing industry for some time to come.