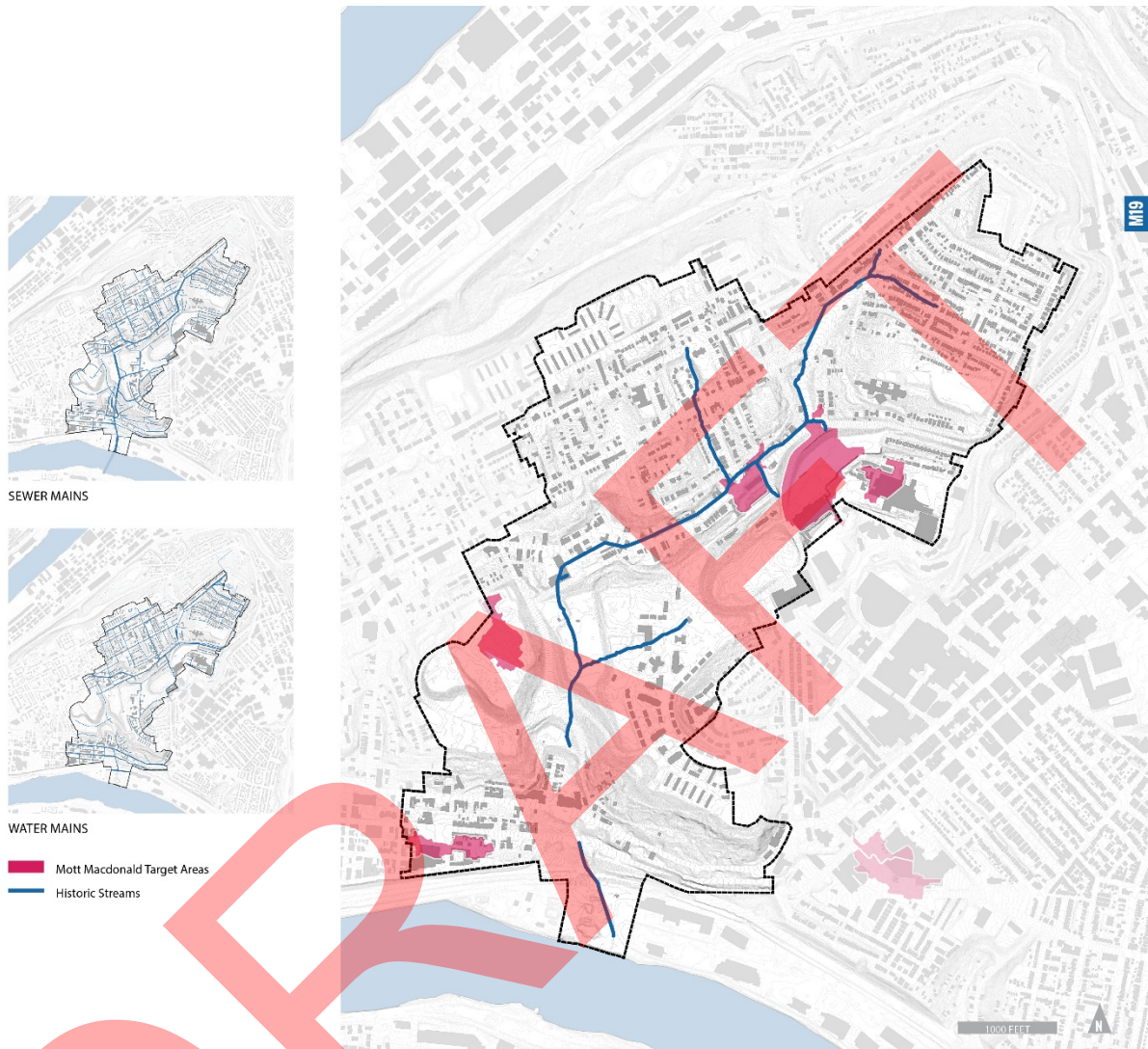


Maximizing the detention potential of this site could enable surface flows from the right of way to be managed on private property. This could be accomplished through a public-private partnership model called “pay-for-success” whereby the public stormwater management entity pays a private property owner for management of a certain volume of water.

## 6.6 M19 Soho Run

### 6.6.1 Existing Sewershed Conditions

The M19 Sewershed is nestled in the core of the East End between some of Pittsburgh’s largest economic centers. The M19 Sewershed is closely aligned with the watershed for the now underground Soho Run which was tributary to the Monongahela until the combined sewer network was constructed. Starting at the top of the Herron Hill, Soho Run flowed through the Upper Hill District, the Middle Hill District, Terrace Village, and Uptown (Bluff) before reaching the Monongahela River near today’s Birmingham Bridge. Once a vibrant community that was home to Pittsburgh’s Jazz scene, the Hill District today is marked by vacancy and blight. Surrounded on all sides by neighborhoods with rapid development, it is expected that M19 will soon see major land use changes. Ways to anticipate development in M19 and its impact on stormwater management were considered.



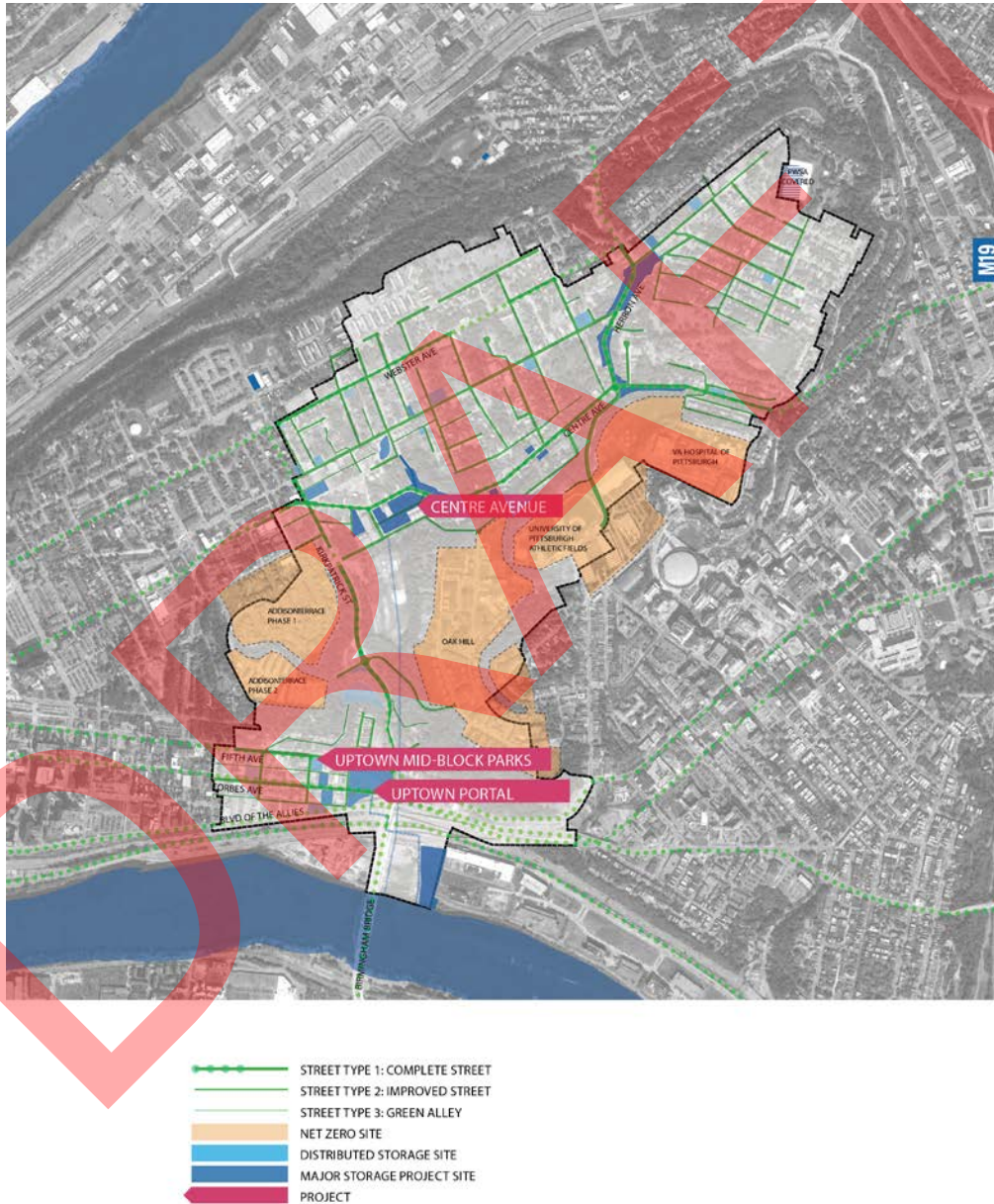
**Figure 6-63**

Stormwater from rainfall is the major driving force behind the geology of Pittsburgh. Recognizing where and how stormwater historically flowed can give us clues to where those flows want to occur today.

Today's sewer mains follow hydrologic flow lines very closely. What was Soho Run now flows more than 60 feet below the surface of today's Kennard Playground in a hand built brick sewer main. This approach to stormwater management lacks the riparian ecology needed to absorb, detain, and slow stormwater.

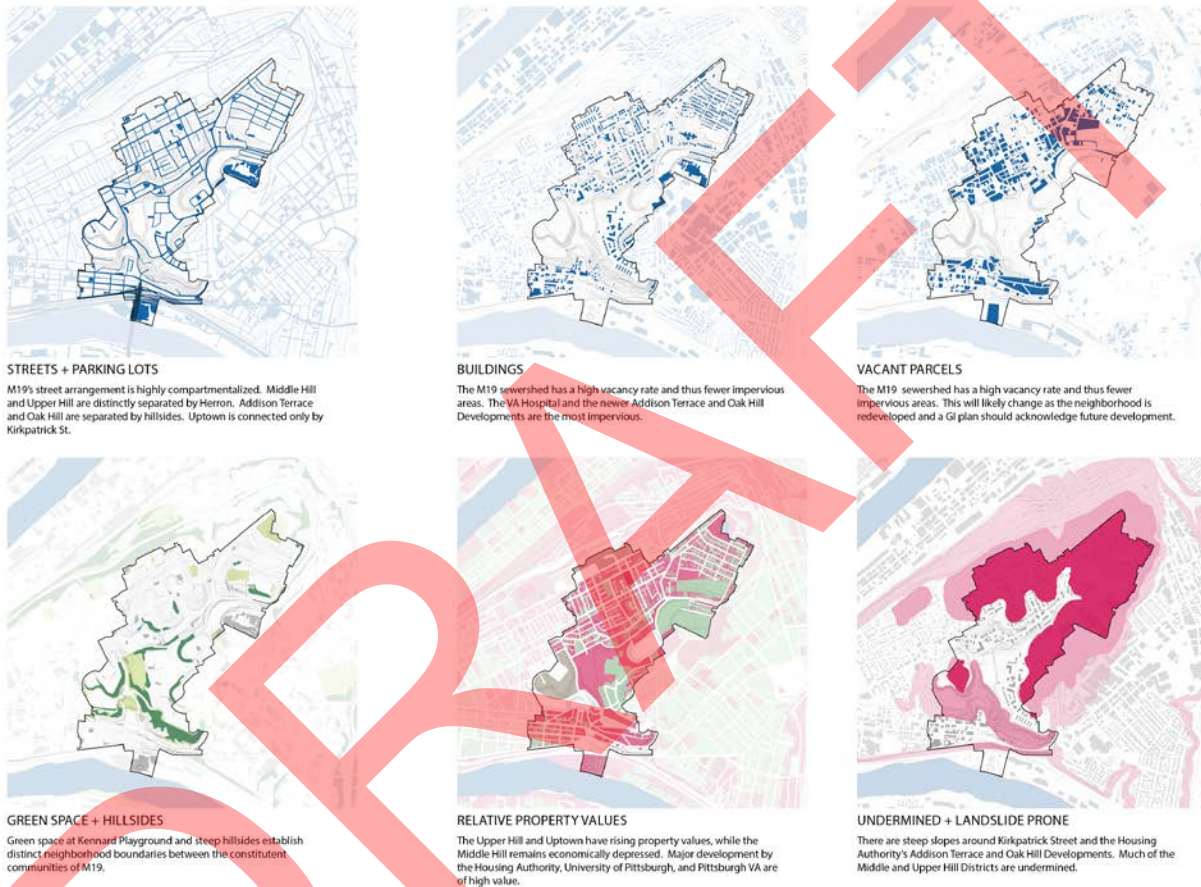
### 6.6.2 Urban Design Framework Plan

Located at the heart of Pittsburgh’s East End, M19 is surrounded on all sides by culturally and economically diverse neighborhoods. Downtown is to the west. Oakland with its hospitals and universities is to the east. Polish Hill, the Strip District, Lawrenceville, and Bloomfield are to the north. South Side is just over the Birmingham Bridge to the south.



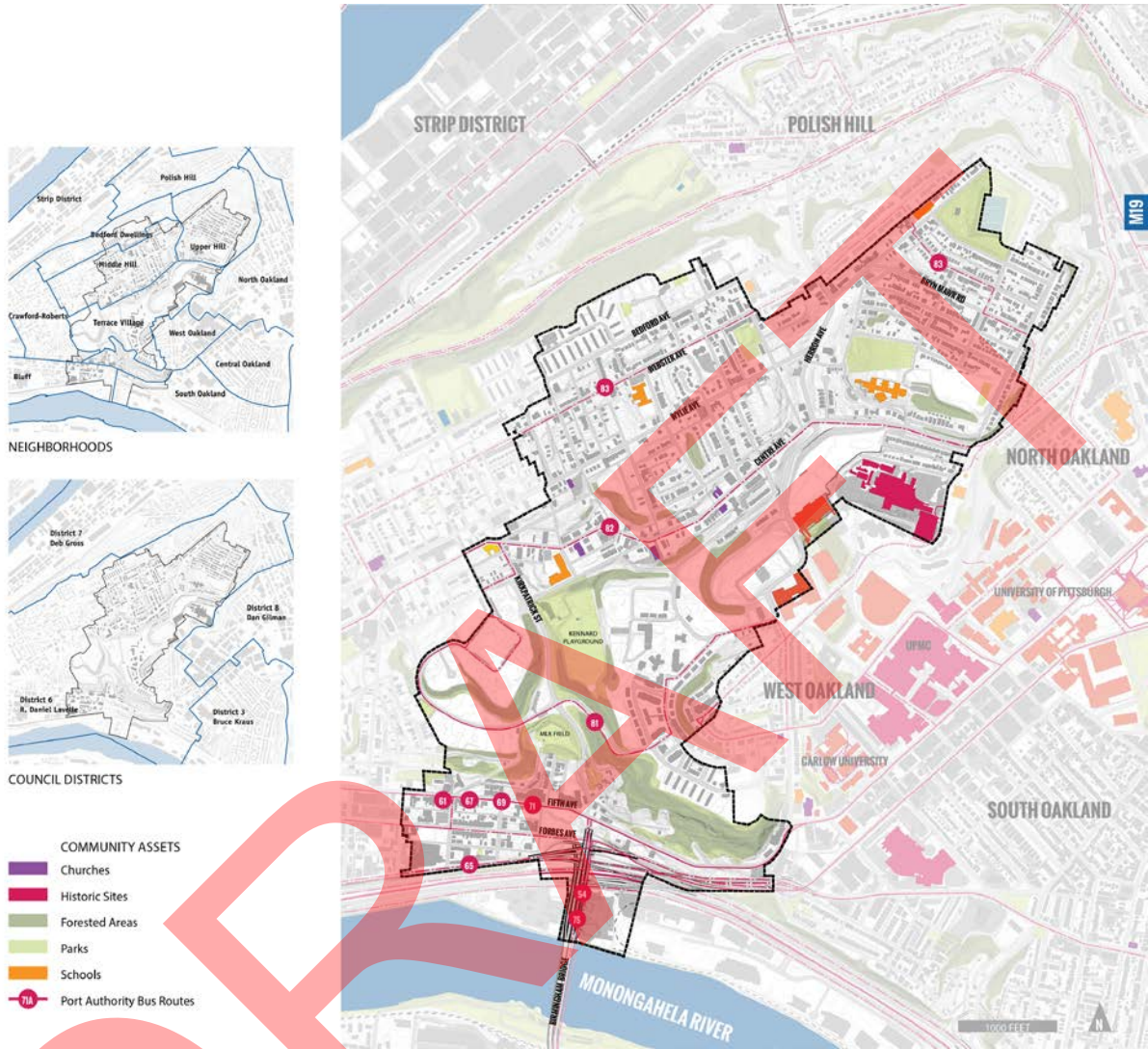
**Figure 6-64**

Centre Avenue forms the civic spine of the Hill District and even after decades of disinvestment it remains home to the churches, schools, and neighborhood businesses that are helping the community to rebuild. The Hill District is distinctly separated from Uptown by Housing Authority developments in Terrace Village. Uptown is home to the city's most highly traveled thoroughfares that connect the East End to Downtown and beyond.



**Figure 6-65**

Understanding the unique urban fabric of a sewershed allows PWSA to identify potential synergies between infrastructure and communities. Better streets, better parks, better green-spaces, better hillsides, better homes, and better developments can all have positive ripple effects for people, planet, place, and performance.



**Figure 6-66**



CARNEGIE LIBRARY @ HILL DISTRICT  
Source: Soracco Photography



CENTRE AVE + KIRKPATRICK STREET  
Source: Microsoft Here Maps

- COMMUNITY ASSETS
- Churches
  - Historic Sites
  - Forested Areas
  - Parks
  - Schools
  - Port Authority Bus Routes

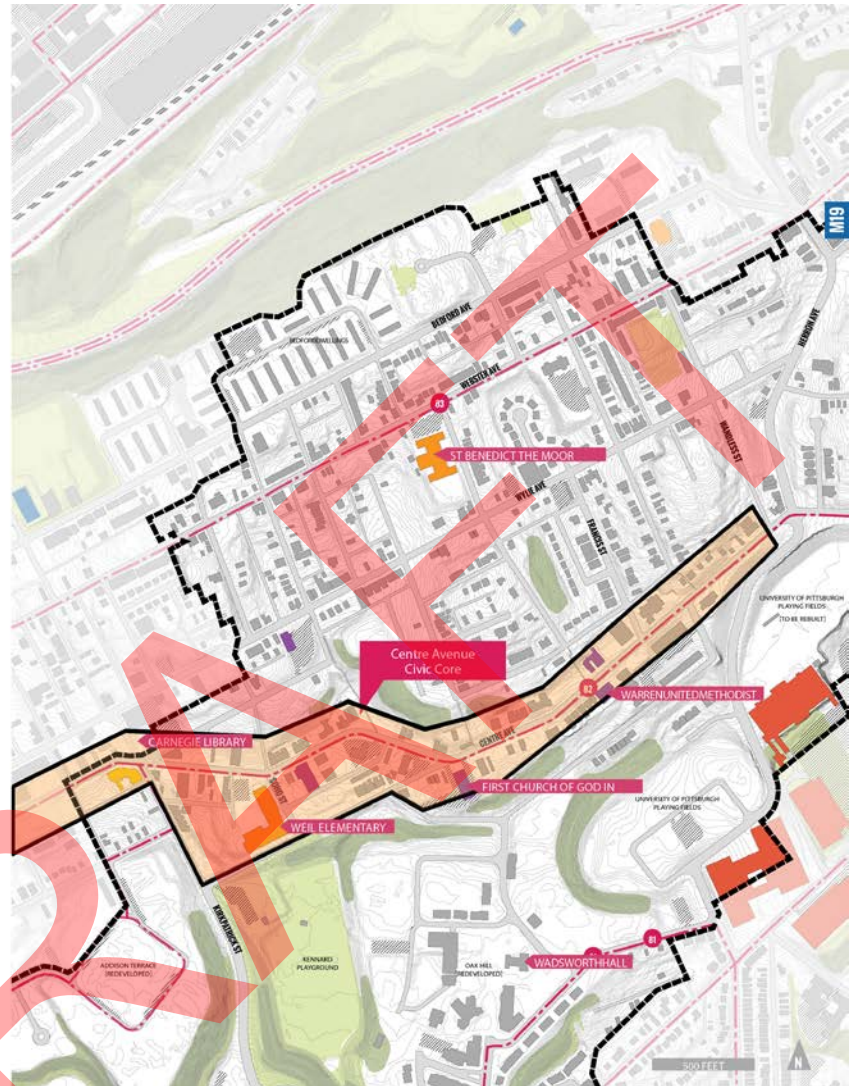


Figure 6-67

The Middle Hill has seen a steady decline following its effective disconnection from downtown by the construction of the Civic Arena in the early 1960s. This led to blight and the current high vacancy rates.

With leadership from local community groups, the neighborhood is rebuilding. While it is not currently identified as a stormwater target area, more impervious surfaces will soon be introduced by redevelopment. A green infrastructure network could be established now in anticipation of the community's future stormwater management needs.

Large scale redevelopment of former Housing Authority sites are built with separated sewer systems that feed back into the combined system, essentially losing the benefit of

a separated system. These systems should be examined to be taken offline where possible.



FORBES AVENUE ROWHOUSES  
Source: Joseph Wingfield



"WELCOME TO UPTOWN"  
Source: Simon Sculpture

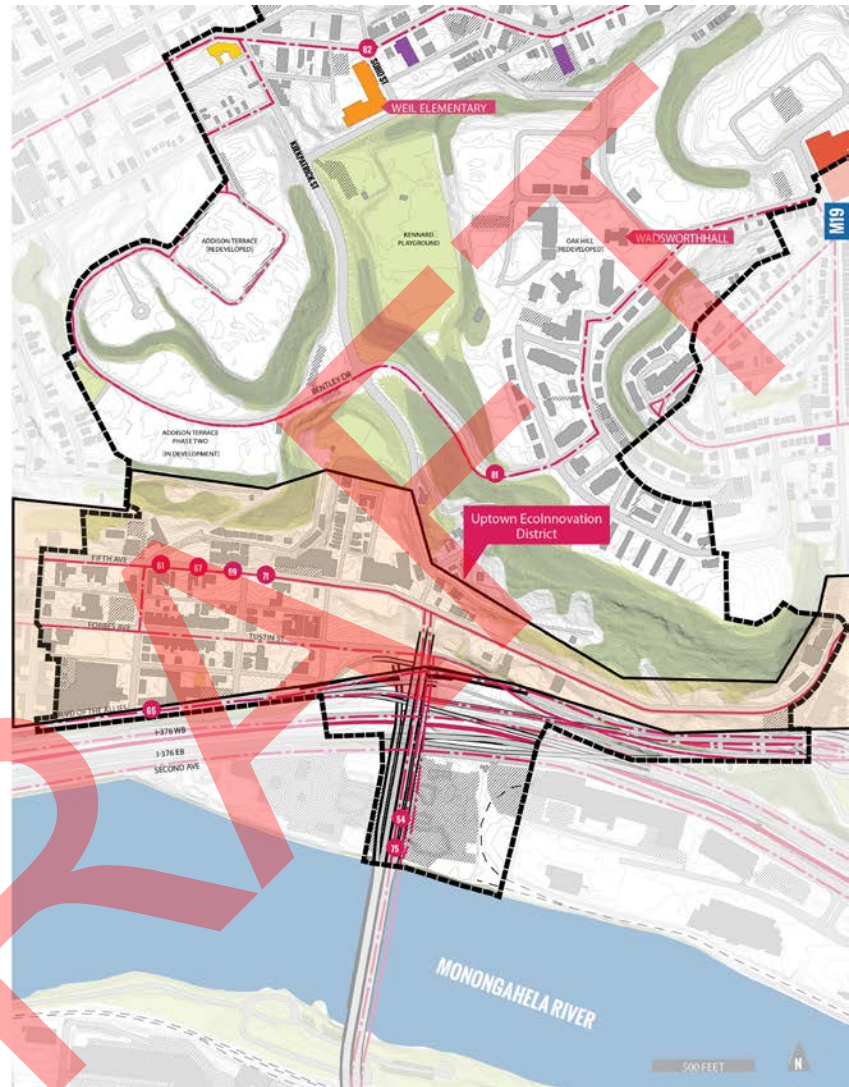
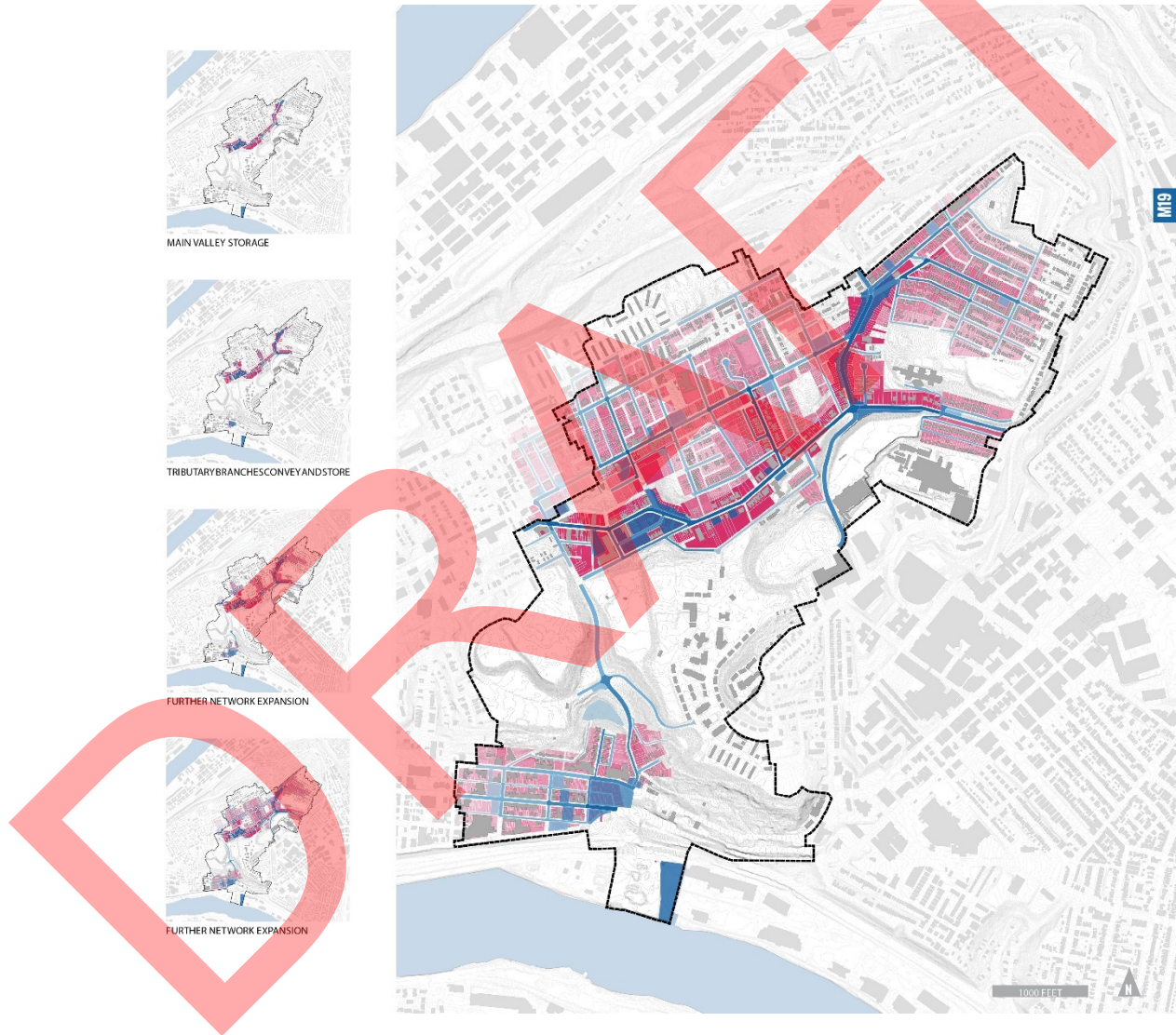


Figure 6-68

Uptown is home to the city's most highly traveled thoroughfares that connect the East End to Downtown and beyond. Fifth and Forbes Avenues carry heavy traffic through Uptown and for decades this traffic has discouraged residential growth. Today these corridors are valuable for the transit access they provide, an economic force that will be leveraged by the new Uptown Eco Innovation District. Vacant parcels are quickly being acquired by developers and the neighborhood is preparing itself for growth.

The Uptown Eco Innovation District establishes Uptown as a zone for targeted environmental improvements and environmentally sensitive redevelopment. Projects designed and built in this district could set a precedent for the rest of the city to follow.

While connections to Downtown and Oakland are good for automobiles and transit, they are very poor for pedestrians and cyclists. Improvements to the streetscape for green infrastructure could be leveraged to improve walkability and bikeability throughout Uptown and its neighboring communities.



**Figure 6-69**



Green infrastructure works by restoring, mimicking, and supercharging natural hydrologic processes. It needs to be deployed as a network and can reconcile historical flows with modern land use. We studied the historical development of the city of Pittsburgh, and the impact of development on the city's topography.

Hydrologic networks rely on a hierarchy of parts and differentiated functioning. Often there are critical pieces of green infrastructure that need to be installed and scaled to anticipate further expansion of the green infrastructure network.

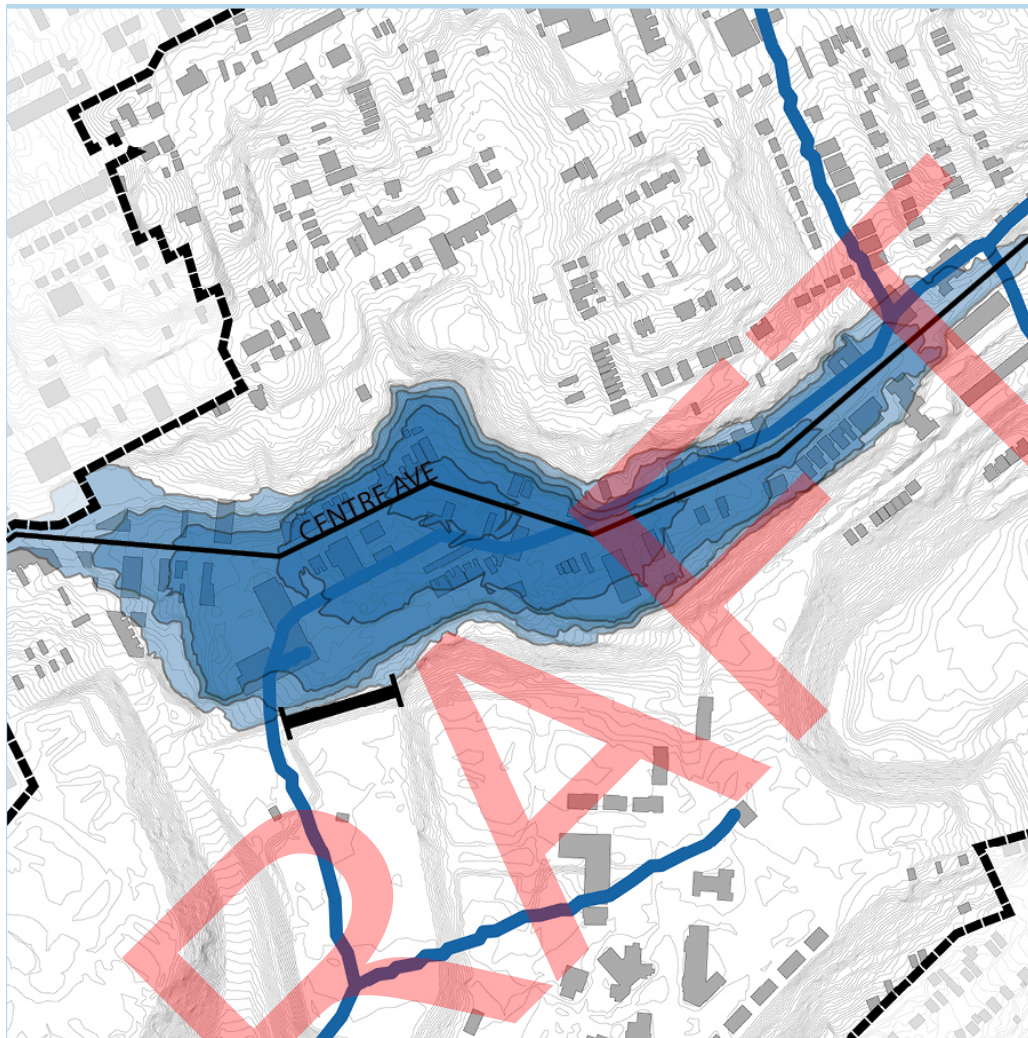
We identified "opportunity sites" throughout each priority sewershed that could both fulfill local stormwater infrastructure needs and support healthy communities and neighborhoods. The result is a hybridization between natural and man-made resource flows

In M19 Soho Run, the storage infrastructure at the Centre Ave low-point and at the Uptown Portal site could allow for street improvements throughout the shed. As street improvements and detention sites come online, the network can be further expanded to connect to remaining target parcels.

### 6.6.3 Soho Run Concept Plan

#### 6.6.3.1 Centre Avenue Basin

When affordable housing was planned for the last remaining undeveloped hilltops, the projects filled Soho Valley to create the Kennard Playground. This effectively created an earthen dam, trapping a 42 foot deep potential reservoir on Centre Avenue that is kept dry by the combined sewer pipe running south. Because of this obstacle, surface conveyance to the Monongahela is not an option for the majority of rainfall within the M19 sewershed. The brick sewer pipe is buried up to 60 feet deep, following the former Soho Street.



**Figure 6-70**

Treating this area as a high volume stormwater reservoir is not an option as there are local landmarks and highly trafficked roads. A gas station has occupied the lowest point of this virtual lake for several decades and the sewers that drain the tub are clearly visible. The case for maintaining our existing infrastructure is clear when you consider that if “Lake Soho” were to exist, it would be 28 acres in area, the largest body of water in Pittsburgh, and second largest body of water in Allegheny County.

This topographic feature has significant impact on stormwater management strategy. At present, there is only one way out for stormwater and sanitary sewage from the majority of the M19 Sewershed. Separation of these flows would require tunneling for a new sanitary main, tunneling for a new stormwater main, or insertion of a dedicated sanitary pipe inside the existing combined pipe. Until then, as much stormwater as possible needs to be captured, detained, and slow released.



**Figure 6-71**

The low-point of Centre Avenue, at the deepest part of the virtual “Lake Soho”, could become the major detention area serving much of M19. A gas station and surrounding vacant parcels could be networked together as a public stormwater green space at the heart of the Hill District, forming a new civic center that acts as an anchor to redevelopment further down Centre Avenue.

### 6.6.3.2 Soho Run Valley

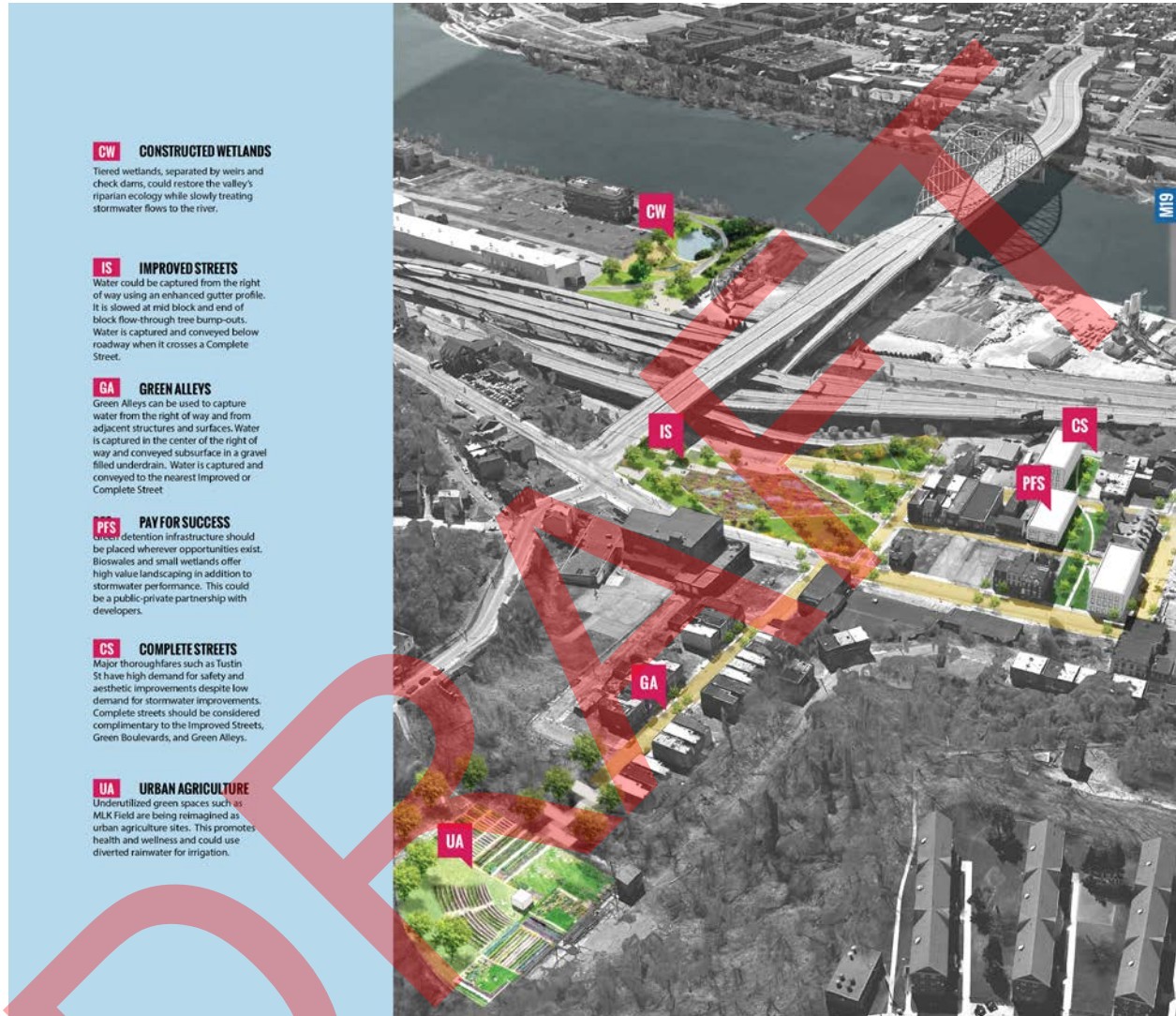


Figure 6-72

Today's Soho Run valley is very different from what was there 150 years ago. Rainwater has not flowed over the surface of the valley since diversion of the Run into the Soho Street sewer main in the early 1900s. Following hilltop leveling in the 1950s, the valley was filled and regraded, erasing all evidence of natural stormwater flows. A series of green infrastructure projects could reclaim some of the stormwater management potential inherent in today's man-made topography.

MLK Park, a former ball-field and now urban agriculture site, could detain stormwater from the slopes immediately surrounding it and the road right-of-way for mid-slope storage. Capacity should be modeled for slope stability.

Key to any and all Green Infrastructure improvements in the Soho Run Valley is the Uptown Portal Park. This site, between Fifth, Forbes, and the Birmingham Bridge aggregates stormwater flows from all sides and reconciles challenging changes in grade for both cyclists and pedestrians.

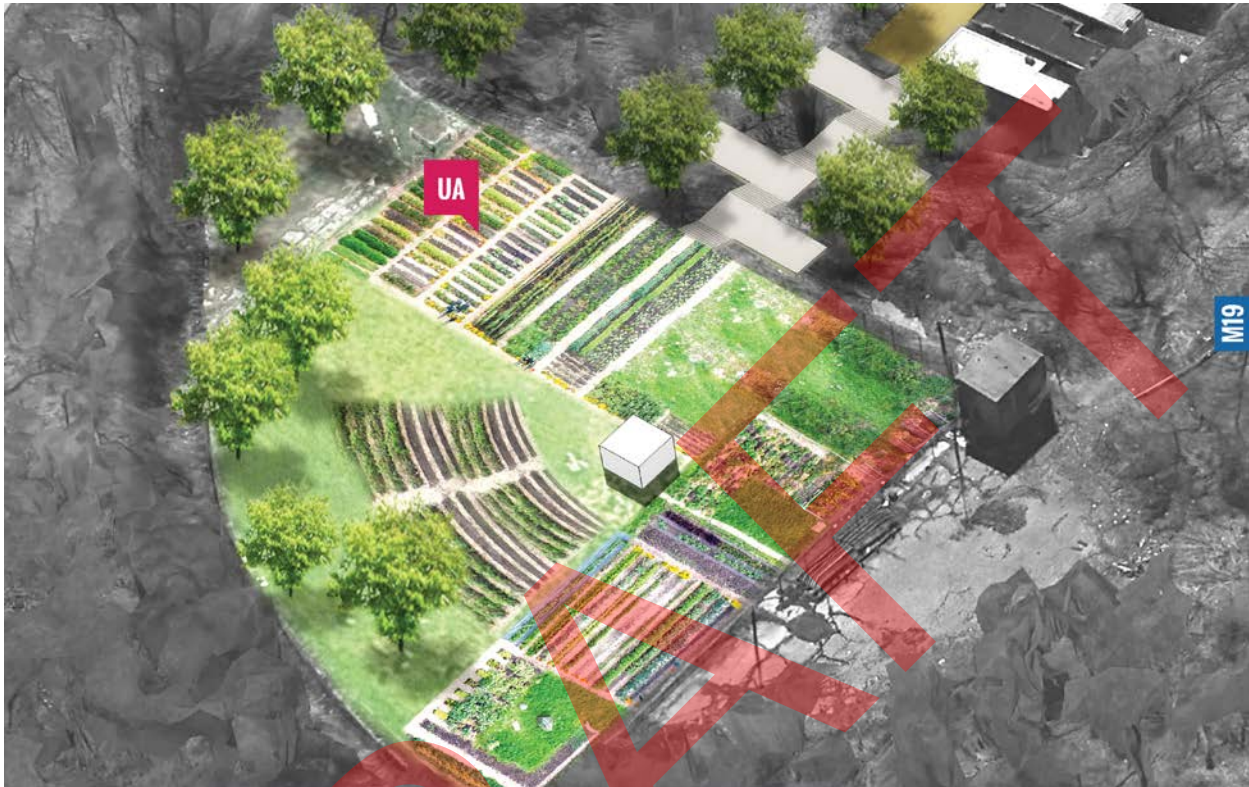
In Uptown, bands of mid-block green-spaces could provide tiered detention basins through the neighborhood while providing improved mid-block connectivity. In addition to acting as a distributed detention network for stormwater, distributed parklets make the neighborhood more walkable and offer a unique type of development for Uptown's Eco Innovation District.

Green alleys could provide stormwater conveyance to the stormwater detention parks and could serve as an off-street route for cyclists and pedestrians.

Conversion of Brady Street to a stormwater conveyance park could allow stormwater to slowly make its way down to the Monongahela River through a series of interconnected tree-pits and detention basins and solve pedestrian and bike connectivity issues. A project that connects people and water to the river would benefit both Uptown and the Hill. The solution needs to navigate under the nine bridges and on ramps carrying thirteen E-W lanes and six N-S lanes of traffic and will not be an easy solution, but could be a dramatic public space providing access to the E-W Jail Trail Bike-way, Pittsburgh Technology Center, Almono Hazelwood, and ultimately, Washington, DC.

Restoration of riparian ecology at the base of the Run could provide the final treatment for both water volume and water quality before a naturalized day-lit outflow to the Monongahela River.

### 6.6.3.3 MLK Park



**Figure 6-73**

MLK Park, a former ball-field and now urban agriculture site, could detain stormwater from the slopes immediately surrounding it while providing the potential for natural irrigation. Urban agriculture promotes health and wellness. Diverted rainwater could be used for irrigation.

### 6.6.3.4 Uptown Midblock Parklets



**Figure 6-74**

Bands of mid-block green-spaces could provide tiered detention basins through the neighborhood while providing improved mid-block connectivity. Using the pay-for-success model, PWSA could work with developers to incent creative solutions that manage stormwater and improve the public realm.

In addition to acting as a distributed detention network for stormwater, distributed parkland makes the neighborhood more walkable in support of higher density development in Uptown. Green alleys could provide stormwater conveyance to the stormwater detention parks. In addition, they could serve as an off-street route for cyclists and pedestrians.

### 6.6.3.5 Uptown Portal Park



**Figure 6-75**

Nestled between Fifth Avenue, Forbes Avenue, and the Birmingham Bridge are a series of parcels that could become the Uptown Portal Park. At this point, stormwater from Uptown, Kirkpatrick Street, MLK Park, and Fifth Avenue converge and could be detained. Cyclists and pedestrians lack an accessible route across the site and improving the site is key to establishing Uptown as a walkable, bikeable neighborhood. Visible from the most highly trafficked automobile and transit corridor in the city, the site is an opportunity to redefine a key portal between Uptown, the Hill District, Oakland, Downtown, South Side, Pittsburgh Technology Center, and the in-progress ALMONO development.



### 6.6.3.6 Soho Run at the Monongahela River



**Figure 6-76**

Restoration of riparian ecology at the base of the Run could provide the final treatment for both water volume and water quality before a naturalized day-lit outflow to the Monongahela. Reclamation of this underutilized site on the Mon could add value to current development of the Pittsburgh Technology Center and the future development of the ALMONO site. It could provide crucial riverfront access to the Uptown community and connects the Jail Trail Bike-way to a potential future trail along the riverfront.