



FOSTORIA GLASS COMPANY REMEDIATION PROJECT

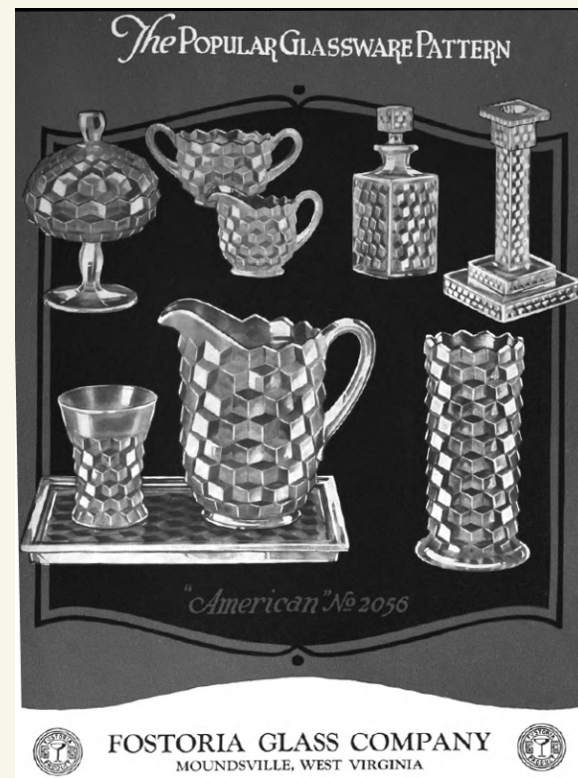
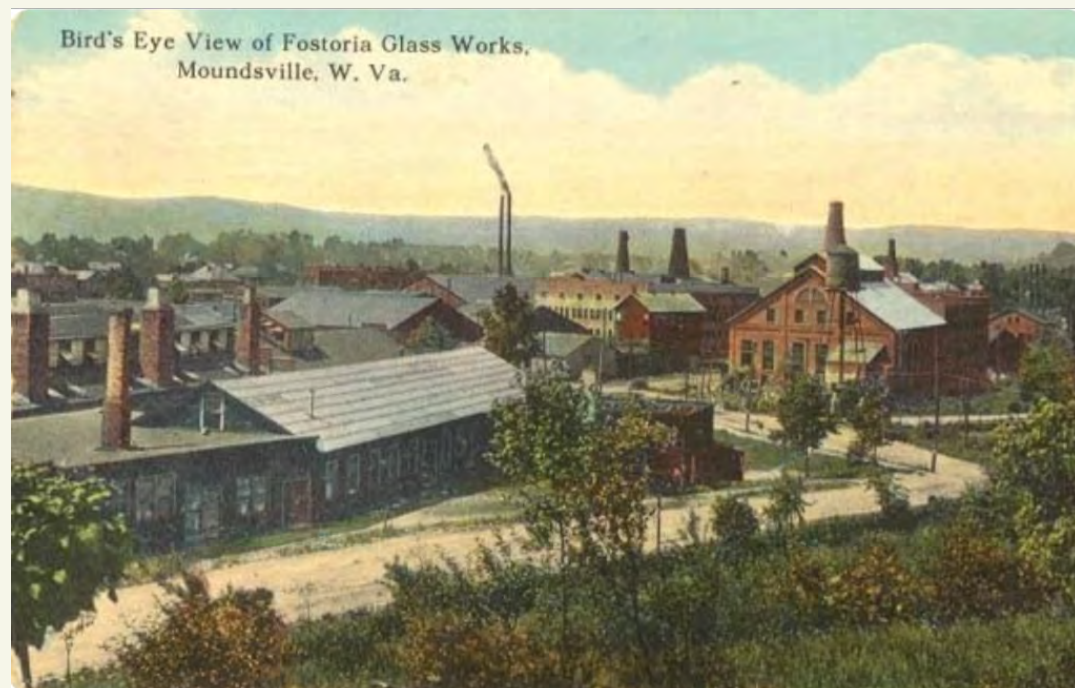


FOSTORIA GLASS COMPANY HISTORY

Fostoria Glass Company began operations in Fostoria, Ohio on December 15, 1887. Due to a depletion in the natural gas supply, the company moved to Moundsville, WV in 1891.

By 1960, Fostoria was the largest maker of handmade glassware in the United States and the company employed 1000 people. Every president from Eisenhower through Reagan ordered glassware from Fostoria.

Due to competition and automation, the company was in decline by 1980 and the plant shut down in 1986. The City of Moundsville acquired the property in 2003 and, through a combination of private and public partnerships, remediated the site for commercial redevelopment.



REMEDIATION PROJECT

The City of Moundsville entered the Fostoria property into the Voluntary Remediation Program on April 25, 2011.

Site contaminants identified included Arsenic, Lead, PCBs, and PAHs.

Remedial Actions included residential use, excavation, and groundwater use restrictions as well as the placement of a soil cap over most of the site.

The property was issued a Certificate of Completion by the WVDEP on June 10, 2013.

SITE REMEDIATION AND CAP PLACEMENT JULY, 2014



STREET VIEW 1950



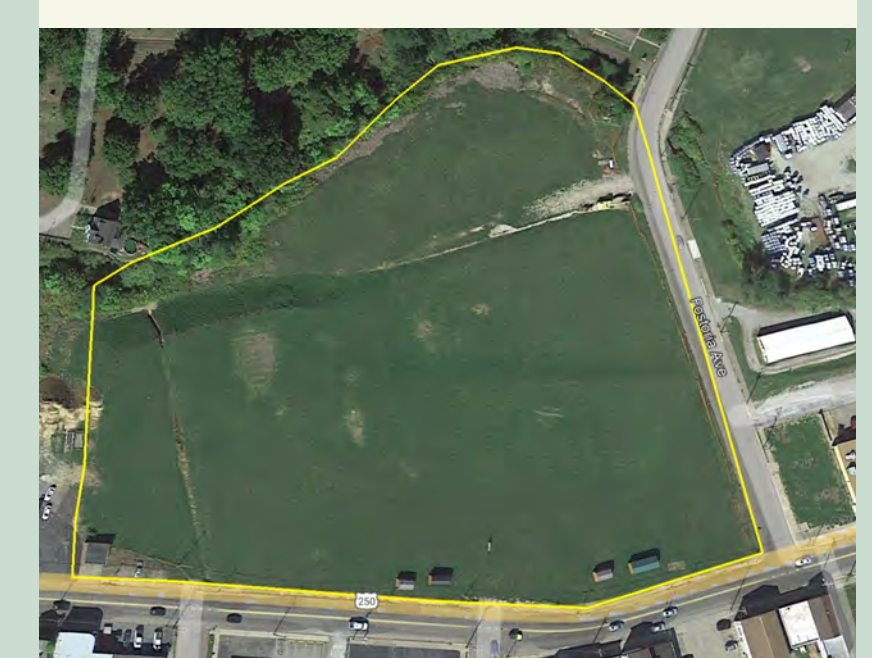
POST-REMEDIATION 2015



FOSTORIA FACTORY 2003



POST-REMEDIATION 2016



Fenton Art Glass Redevelopment Project



1905

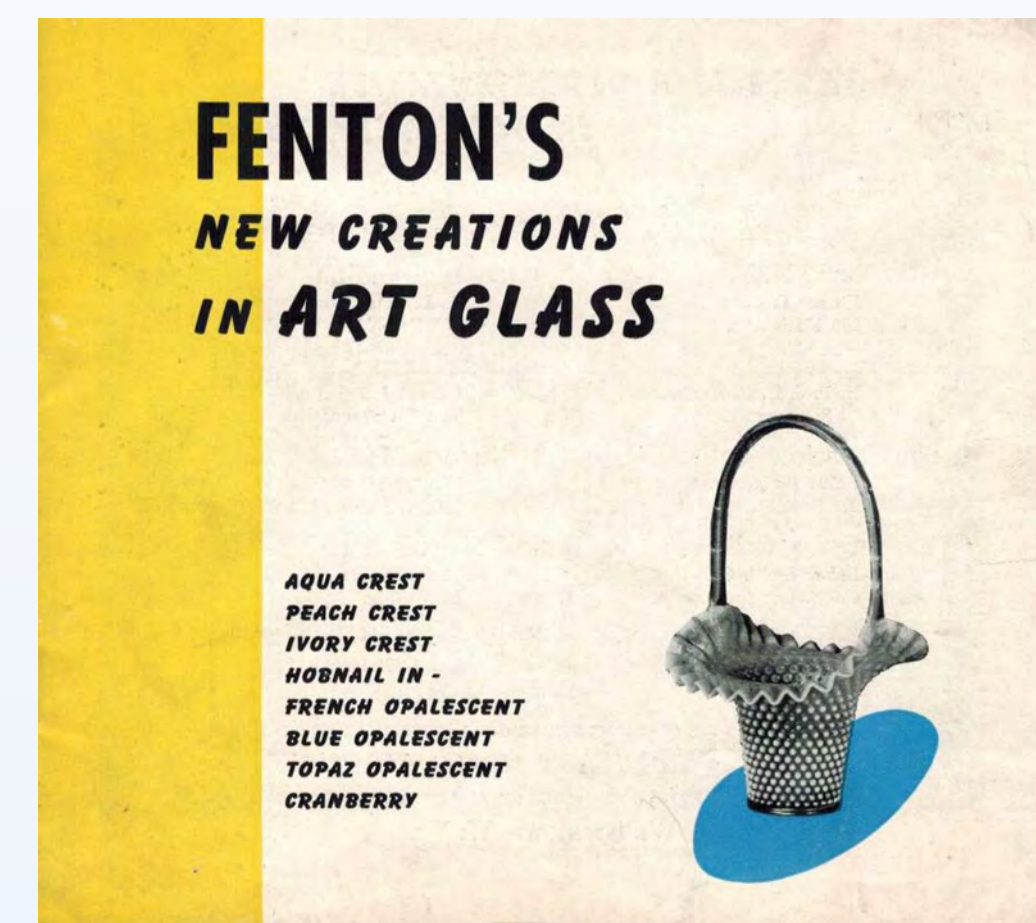
Fenton Art Glass Company was founded in 1905 by brothers Frank L. and John W. Fenton in Martins Ferry, OH.



Fenton Art Glass Factory, Williamstown, WV
Circa 1907

1907

Fenton Art Glass Factory was built in Williamstown, WV. Glass production started in 1907.



Fenton 1940 Product Catalog

2011

Fenton ceased traditional glassmaking at the Plant.



Original Fenton Giftshop before relocation and demolition

2014-2016

Phase I, Phase II, Lead Based Paint, Asbestos, and PCB Site Assessments were conducted on the property.

2017

Fenton Company sold the company property to Wood County Schools.



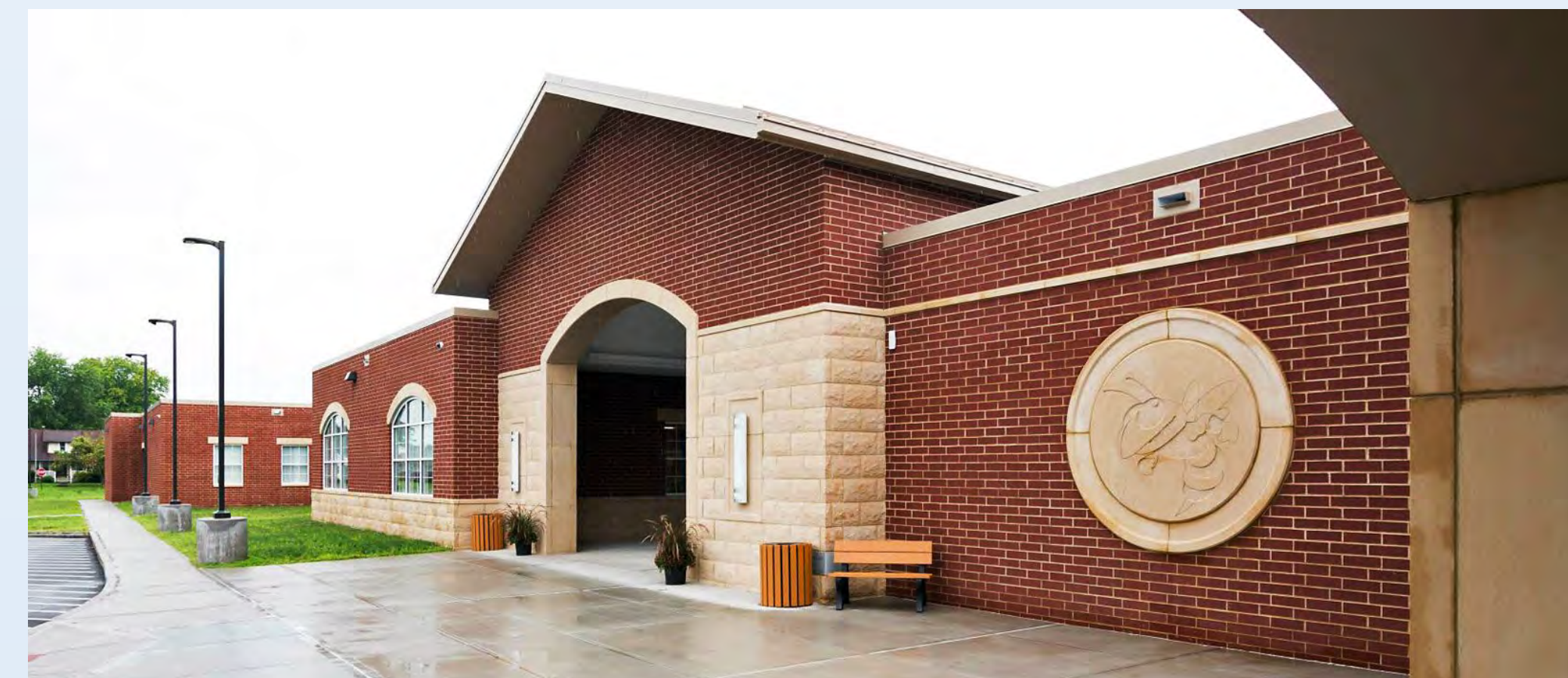
Fenton Art Glass Factory before demolition
September, 2015



Williamstown Elementary
March, 2021

2020

Williamstown Elementary School completed with a final project cost of \$14.6 million.



1910



Adamston Flat Glass under construction, ca. 1910

Adamston Flat Glass began operations in 1910, one of many glass factories in the greater Clarksburg area. The influx of skilled laborers, mostly French and Belgian immigrants, contributed to the transformation of a county town of around 4,000 into a city of over 30,000 people. The glass workers themselves were politically active, and did much to improve the amenities of their neighborhood of Adamston and of Clarksburg as a whole.

The Adamston factory continued operations for over 70 years, surviving the slow decline of glass manufacture in the state by a series of consolidations, increases to efficiency, and greater automation. It finally shuttered in 1983, leaving a vacant and contaminated parcel of land in Adamston.



Adamston Flat Glass employees
Date Unknown



Adamston Flat Glass, 1965

1983

Sources:

Glass Towns: Industry, Labor, and Political Economy in Appalachia, 1890- 1930s, Ken Fones-Wolf (Professor Emeritus, WVU)

WVU West Virginia & Regional History Center

Glass Factories of America, Richard Duez
<https://www.earlyusglassfactories.com/>



Site conditions prior to redevelopment

2007

In 2007, the City of Clarksburg received a \$200,000 EPA cleanup grant to remove the remaining structures in preparation for redevelopment.

In that same year, the property entered the WVDEP Voluntary Remediation Program (VRP). Contaminants of concern included PAHs, Arsenic, and Lead.

In 2010, a VRP Certificate of Completion was issued, under conditions of a Land Use Covenant including both institutional and engineering controls.

In 2013, the site was redeveloped as a 58,000 square foot shopping plaza, which remains its current use.



Before and After

2013



The property fully redeveloped, 2023

Adamston Flat Glass



Van Voorhis Trailhead

Following the completion of the Quality Glass remediation project, the property began the process of redevelopment into the Van Voorhis Trailhead and Park. The popular trailhead was completed in 2016 through a collaborative effort with the Town of Star City, Monongalia County Commission, Northern West Virginia Brownfields Assistance Center, and the Mon River Trails Conservancy. The trailhead is part of the greater North Central WV Rail Trails system totaling nearly 50 miles of trail in the region. The park offers parking for 30 cars, restroom facilities, a bike fix-it station, and kayak launch.



QUALITY GLASS REMEDIATION PROJECT, STAR CITY, WV

The Quality Glass Company was founded in the 1930's and operated until the late 1980s. The company produced opaque white light fixtures. Arsenic was used to give the glass its opaque coloring and lead was used to enhance the luster of the finished product.

The Monongalia County Commission enrolled the site in the Voluntary Remediation Program on November 15, 2011. Remedial Actions on the site included groundwater use and excavation restrictions as well as the placement of a 2 foot clay cap with 6-12 inches of topsoil.

The site was determined safe for recreational use and issued a Certificate of Completion on April 16, 2012.



Coalaboration: A Story of Community and Partnership



The Building Resilient Economies in Coal Communities (BRECC) Initiative

Beth Thompson, Community Development Partnerships Coordinator | b.thompson@wvhub.org
V Konopka, Community Coaching Associate | v.konopka@wvhub.org

Overview

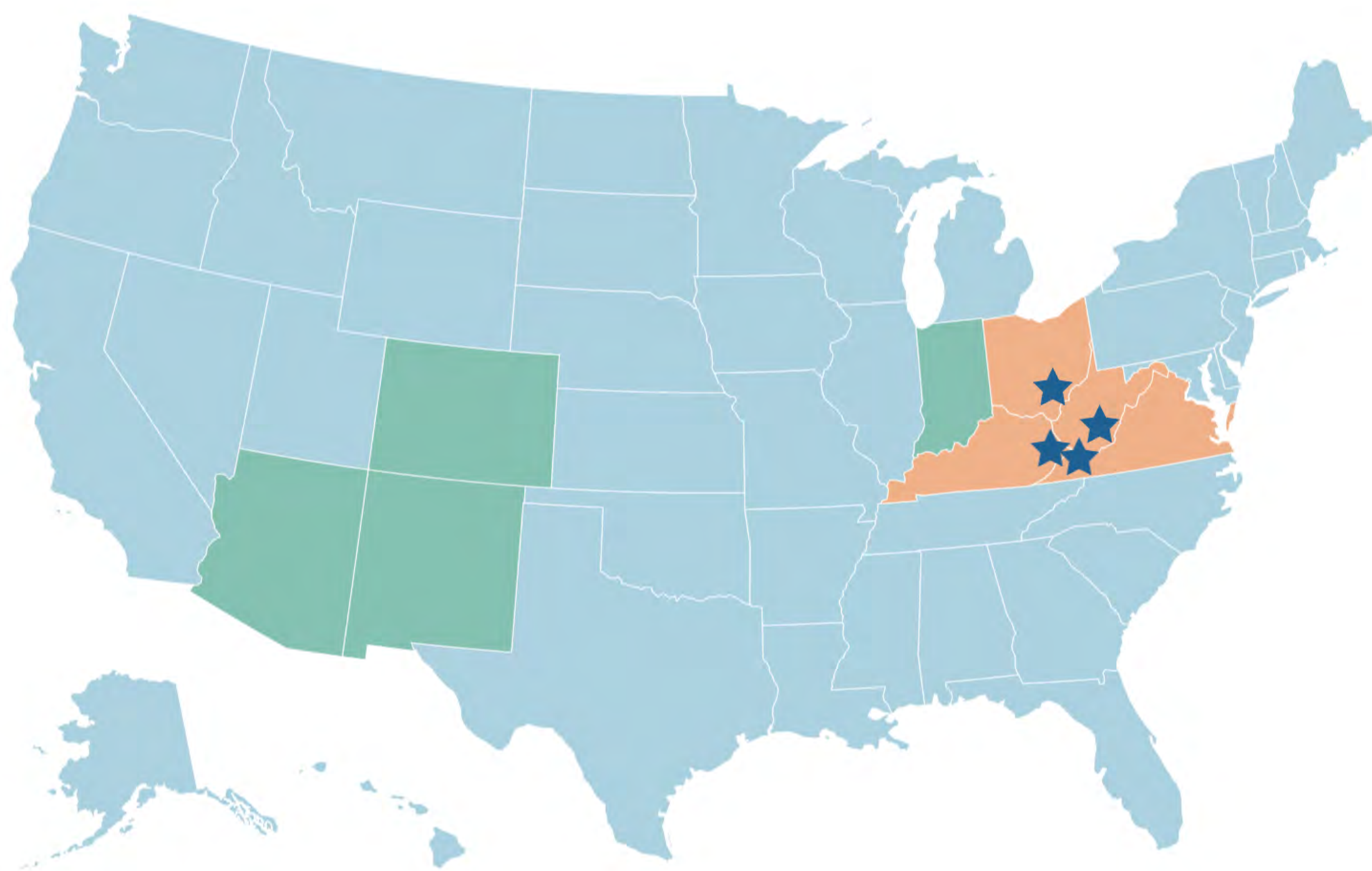
BRECC is an EDA community of practice centered on assisting coal-impacted communities with economic diversification and resilience. For The Hub, it is a pilot in coaching communities outside of WV and testing its accompaniment model. The project includes multi-level systems & network building and exploring innovative approaches for rural development practices.



Project Components + Outcomes

 <h3>National Network</h3> <p>BRECC-led learning series for coal-impacted communities to receive:</p> <ul style="list-style-type: none">Engagement with relevant webinars featuring funding and technical resourcesA digital space for communities to learn from each other	 <h3>Commitment Coalition</h3> <p>Two-year peer learning cohort for leaders from coal-impacted communities to:</p> <ul style="list-style-type: none">Identify strategies for supporting economic diversificationDiscover resources to support diversificationAttend site visits to learn from other leaders	 <h3>Action Challenge</h3> <p>Coaching project of two yearly cohorts for coal-impacted community teams across the country to:</p> <ul style="list-style-type: none">Build leadership skillsWrite economic diversification plansConnect with resourcesPresent their plans to federal funders	 <h3>Storytelling</h3> <p>Effort coordinated by BRECC partners to:</p> <ul style="list-style-type: none">Tell Challenge and Coalition stories via blog posts on NACo's websiteShare coal community experiences with a national audience
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Cohort 1 Challenge Teams: 2023 - 2024



Partner Teams

Hub Teams



Team Learning

- Peer-to-peer learning and resource sharing
- Building local, regional, and national partnerships
- Connecting to more federal resources
- Developing research and leadership skills
- Learning strategies to build community capacity
- Empowering local leadership through The Hub's accompaniment model
- Identifying and elevating emerging community leaders

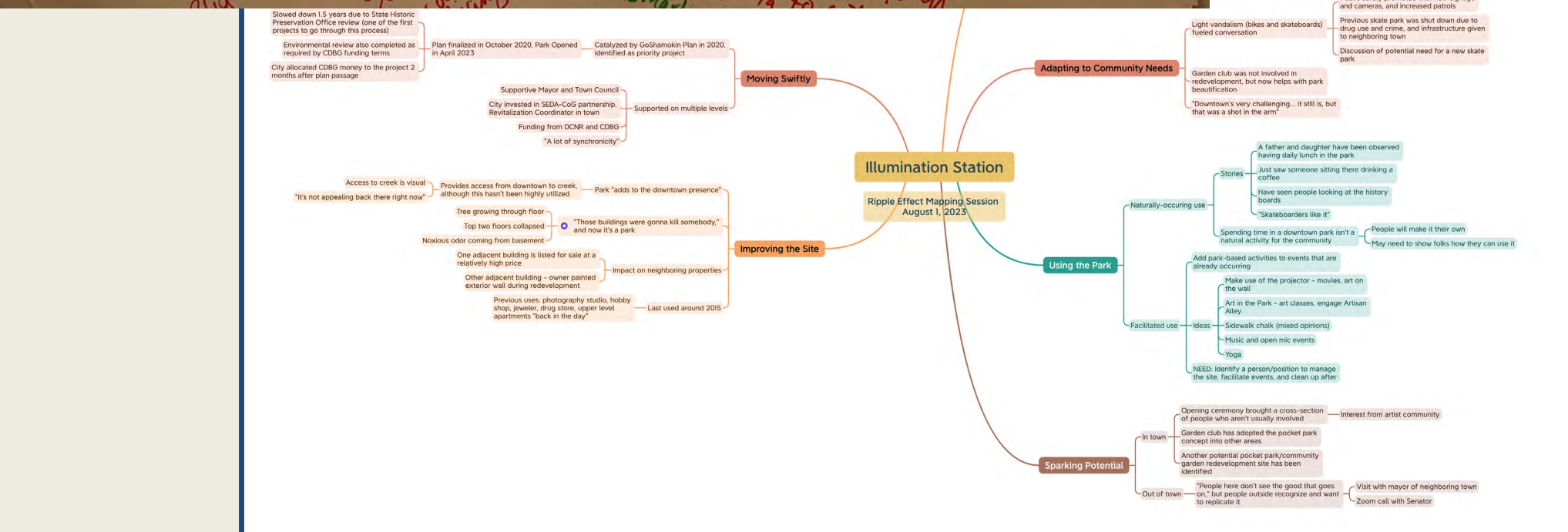
CREATE ECONOMIC DIVERSIFICATION PLANS



Site 1 Dilapidated Downtown Retail to Pocket Park



Handwritten notes on a sticky note:
 - Working to connect to creek
 - Gordon club building here? - re-build
 - Law office next door painted back of building
 - Other bldg next door new listed for \$200k
 - EDA - Parks & Rec Dept
 - Need a person to do all the events & clean up after
 - Artisans Gallery, Yoga, Taekwondo, Music - open air sidewalk check
 - Don't want to lose authenticity
 - Unprecedented
 - some is "of course" - there's vandalism by skaters, need to prepare state park, add cameras to police dept, "No skate" signs (safety) - No skate policy
 - New thinking for City - creative energy
 - + New types of folks starting to
 - Artists/Creative energy



Improving the Site

- Tree growing through floor
- Top two floors collapsed
- Noxious odor coming from basement
- One adjacent building is listed for sale at a relatively high price
- Other adjacent building - owner painted
- Impact on neighboring properties

Moving Swiftly

- Slowed down 1.5 years due to State Historic Preservation Office review (one of the first projects to go through this process)
- Environmental review also completed as required by CDBG funding terms
- City allocated CDBG money to the project 2 months after plan passage
- Plan finalized in October 2020. Park opened in April 2023
- Catalyzed by GoShamokin Plan in 2020 identified as priority project
- Supportive Mayor and Town Council
- City invested in SEDA-CoP partnership. Revitalization Coordinator in town
- Funding from DCNR and CDBG - "A lot of synchronicity"
- Supported on multiple levels

Exploring Identity

- Don't want to lose authenticity
- Community is in transition from coal to tourism economy
- Current tourism focused on ATVs, hopes for future rail trail
- Encountering resistance in transition
- Not yet seeing storefront change
- Preserving Heritage
- Installation of three interpretive signs: early history, historical cultural district, influence of energy industry
- Inclusion of a section of original building wall in park design

Background

The environments in which we live influence population health outcomes directly via exposure to hazardous substances and indirectly by promoting or discouraging healthy behaviors. The redevelopment of brownfields sites to health-promoting land uses, or Brownfield-to-Healthfields, may provide an array of benefits to individuals and communities. **In rural communities, however, these impacts can be particularly difficult to assess using traditional evaluation approaches.** Participatory evaluation approaches may provide an information-rich alternative.

Evaluation Approach

Ripple Effect Mapping (REM) is a facilitated participatory approach that guides participants through reflection, peer interviewing, interactive group discussion, and collaborative mind mapping. During 1-hour-long community workshops, adult participants reflected on the redevelopment site and the individual and community impacts that have resulted. In real-time, identified impacts were mapped into a shared mind map.

After the site visit, evaluators created a digital copy of the mind map and added content from the individual interviews. The findings shared here are preliminary. **Results will be confirmed with community representatives before they are finalized.**

The research protocol was acknowledged by the WVU Institutional Review Board.

Eligibility & Recruitment

- Ideal project candidates met the following criteria:
1. Located in EPA Region 3 and represented multiple states
 2. Located in rural communities
 3. Provided opportunity for physical activity
 4. Completed redevelopment no more than ten years prior
 5. Had established collaborative relationships with the regional Technical Assistance to Brownfields Communities Center

Community liaisons were vital to visit planning and execution, informing on best practices for engaging locals, leading participant recruitment, and assisting with venue and refreshment booking.

Workshop participant recruitment was primarily conducted via email and word-of-mouth.

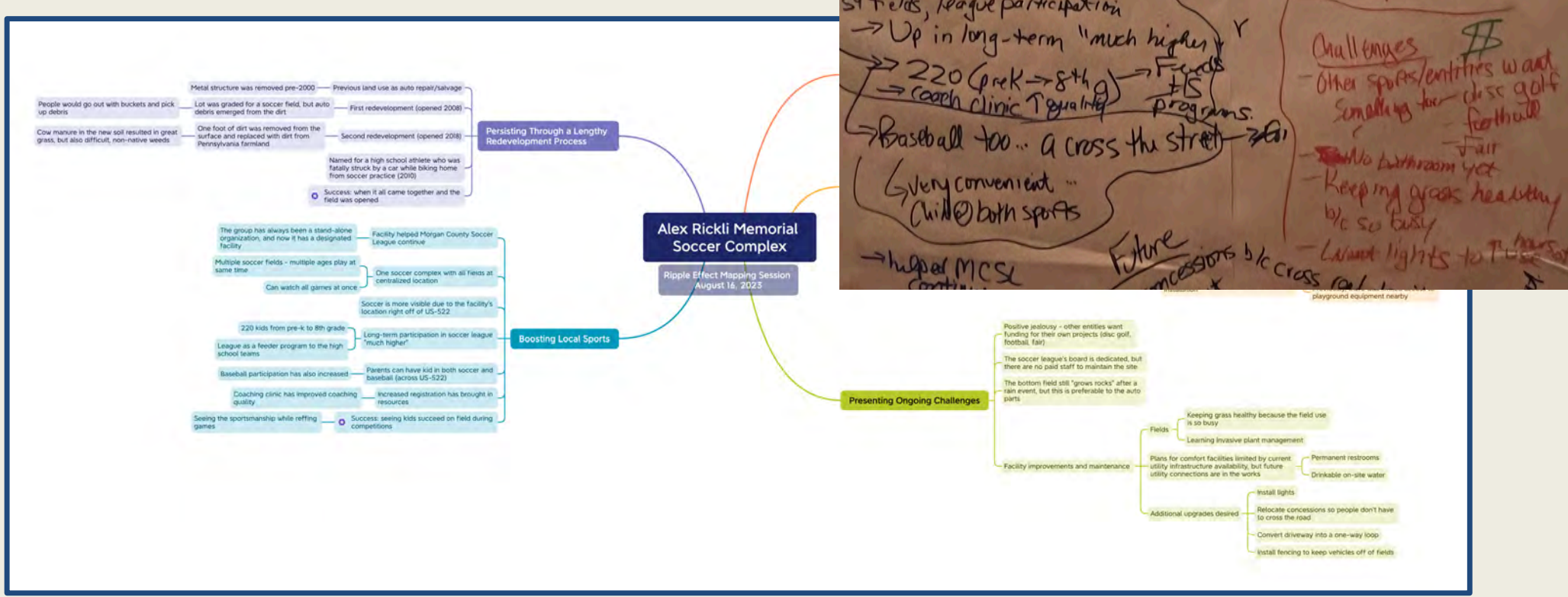
Next Steps

- Findings will be verified with local representatives and revised if needed.
- Mind map content was then matched to the Community Capitals Framework.
- Summary findings will be provided to the broader community.
- Evaluations have been completed in a total of 3 communities. Findings will be explored to identify common and unique impacts.

Site 2 Auto Salvage to Soccer Complex



Handwritten notes on a sticky note:
 - Skill has room coming up better than auto park
 - Used to do formal events (kids)
 - Pick-up games
 - Friends who play (not much goes to play game equipment)
 - Grant resulted from Soccer field
 - All fields at one area great for discussion
 - well so easier to paint be it's water-leased
 - Great for adults to see parents of players, other community members
 - Adult to playing soccer again pickup & family pickup Sundays
 - Challenges: other sports/leisure want something to do on club football
 - Future: more lights to attract more people
 - 220 kids from 8th - 11th → 220 (park → 8th → 11th) → 220 (park → 8th → 11th) → 220 (park → 8th → 11th)
 - Baseball too - across the street
 - Coaching clinic has improved coaching quality
 - Success: seeing kids succeed on field during competitions



Persisting Through a Lengthy Redevelopment Process

- One foot of dirt was removed from the surface and replaced with dirt from Pennsylvania farmland
- Second redevelopment (opened 2018)
- Named for a high school athlete who was fatally struck by a car while biking home from soccer practice (2010)
- Success: when it all came together and the field was opened

Providing Broader Community Benefits

- Redevelopment, maintenance, and use has engaged multiple governing entities, businesses, and individual volunteers
- Project resulted in growth and support of Parks and Recreation
- Setting facilitates interaction amongst parents, coaches, and other community members

Boosting Local Sports

- 220 kids from pre-k to 8th grade
- League as a feeder program to the high school teams
- Baseball participation has also increased
- Coaching clinic has improved coaching quality
- Seeing the sportsmanship while refereeing games
- Long-term participation in soccer league "much higher"
- Parents can have kid in both soccer and baseball (across US-522)
- Increased registration has brought in resources
- Success: seeing kids succeed on field during competitions



Uptown Upcycle: A Brownfield Regeneration Project conducted by West Virginia Students

A 2021 West Virginia University Landscape Architecture & Fairmont State University Architecture Student Collaboration

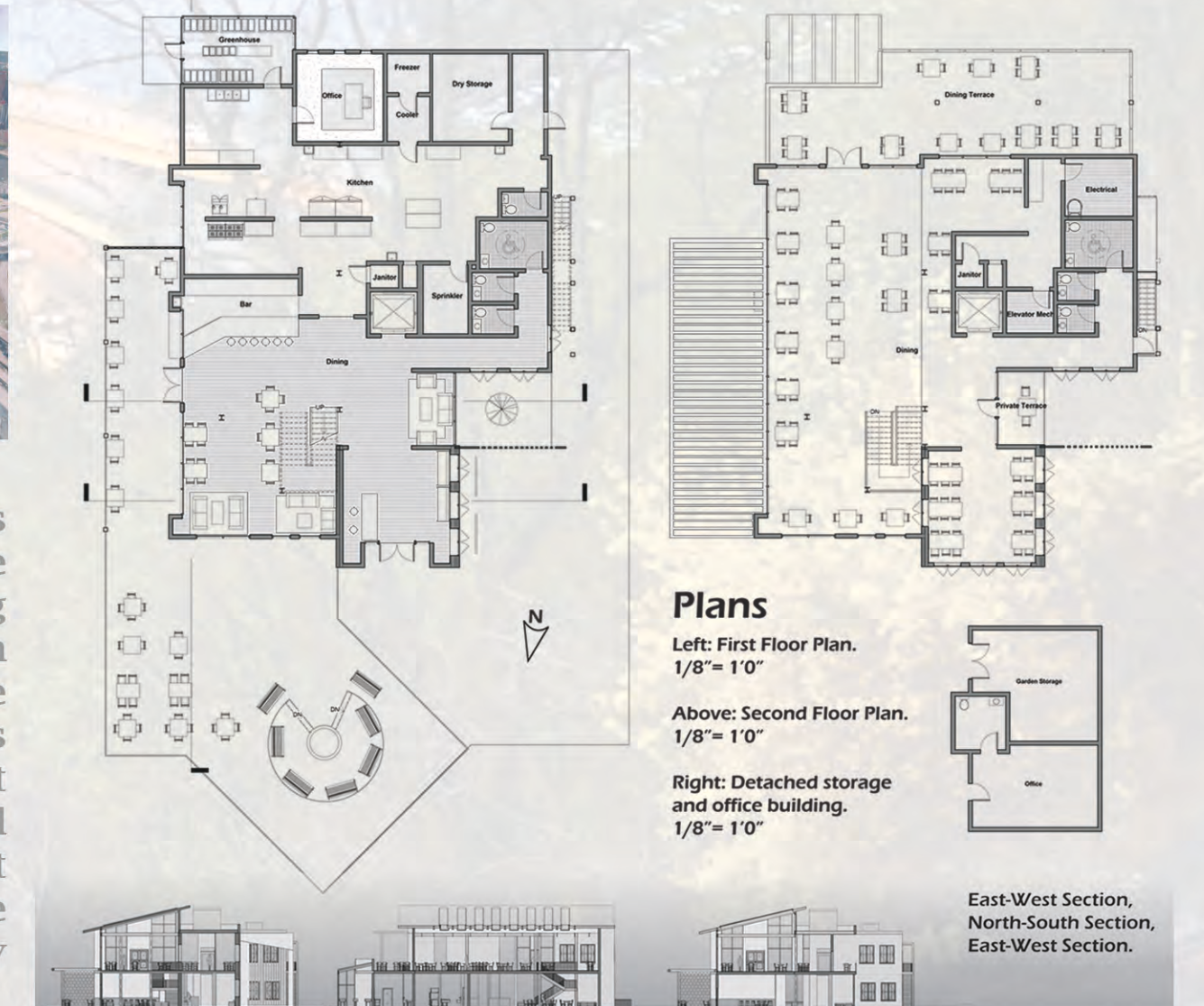
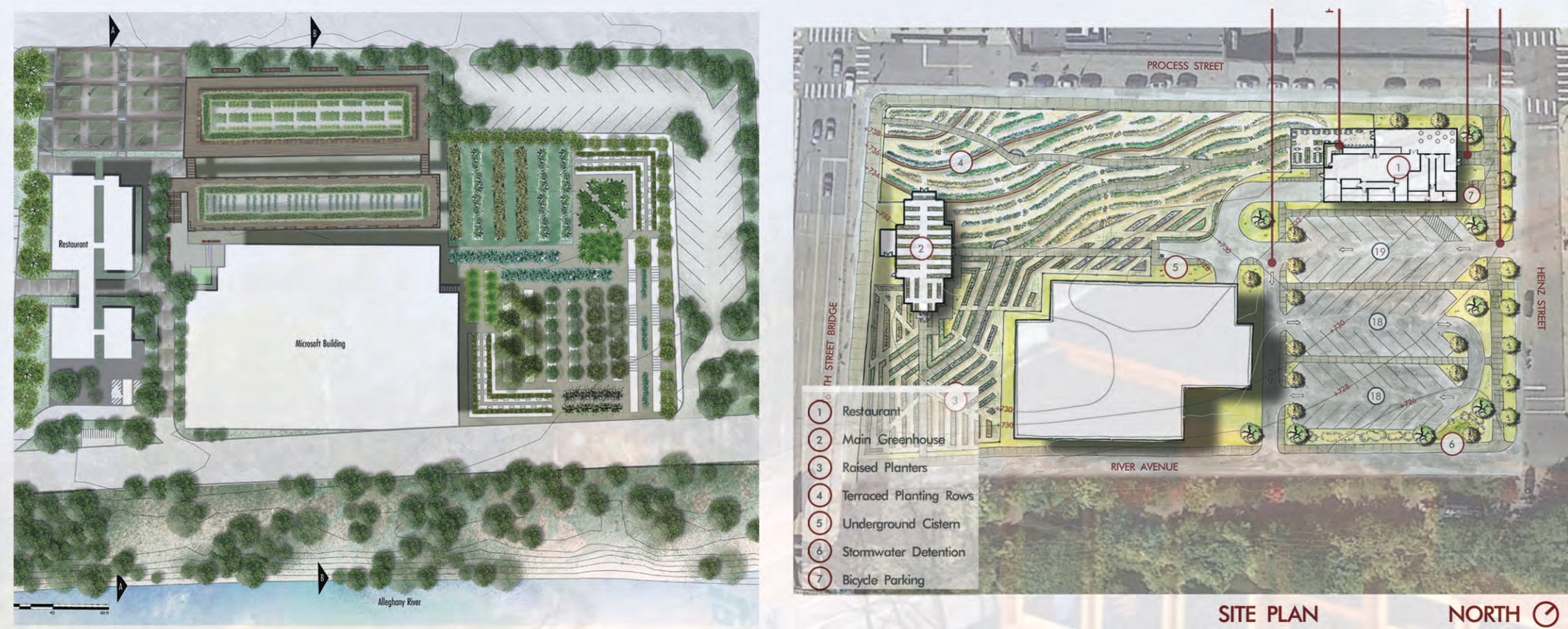
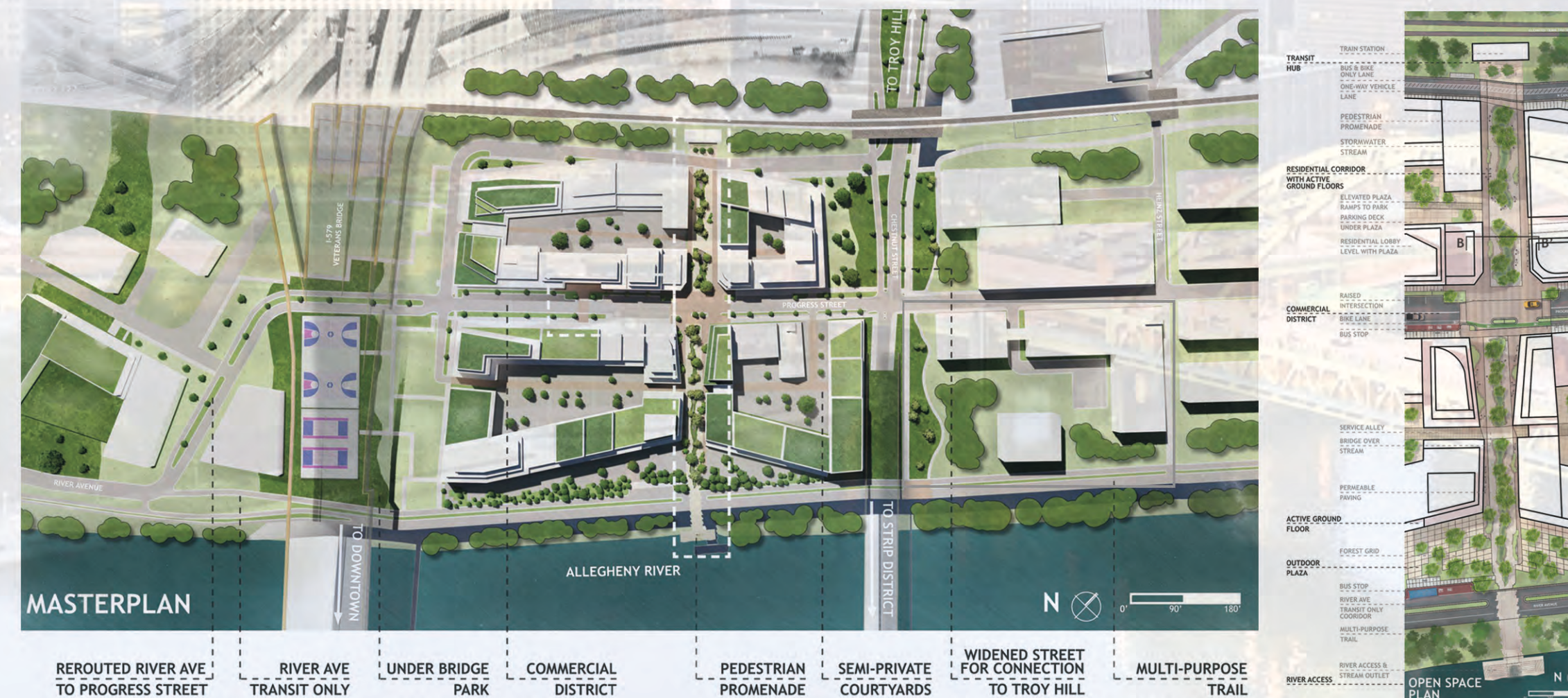
In 2021, WVU's Brownfields Assistance Center (BAC) was chosen by the EPA as the Technical Assistance to Brownfields (TAB) provider for Region 3. WVU's Davis College and School of Public Health partner with EPA TAB services for brownfield redevelopment. WVU TAB aims to achieve various goals, including project development and site design assistance. The WVU Community Engagement Lab, which engages the Landscape Architecture (LA) program, is a key partner in this goal, working with communities on student projects through instructional courses.

During fall 2021, WVU's LA program and Fairmont State University's Architecture Program collaborated with Riverlife, a Pittsburgh-based non-profit organization dedicated to revitalizing urban riverfronts, and the River Avenue Partnership, a local community group. Their objective was to create master plans and site designs for the River Avenue District, located on Pittsburgh's North Shore along the Allegheny River. The district was previously home to the old H. J. Heinz Company Factory, with some buildings repurposed as the Heinz Lofts. The WVU and FSU courses played a role in project development and site design, providing essential tools for community redevelopment, such as data, concept plans, master plans, site plans, and visioning exercises. Additionally, the students gained valuable knowledge in brownfields and redevelopment.

WVU students designed a mixed-use transit-oriented development spanning approximately 22 acres. They collaborated with FSU students on a specific task: designing a farm-to-table restaurant and gardens within an under-utilized parking lot. The final design solutions offered to the partners inspired those who attended final presentations to engage with one of the many issues facing brownfields in highly populated downtowns of the rust belt. The student outcomes offer valuable guidance for Appalachian cities and set a precedent for revitalizing abandoned sites.

Student Observations and Design Discussions:

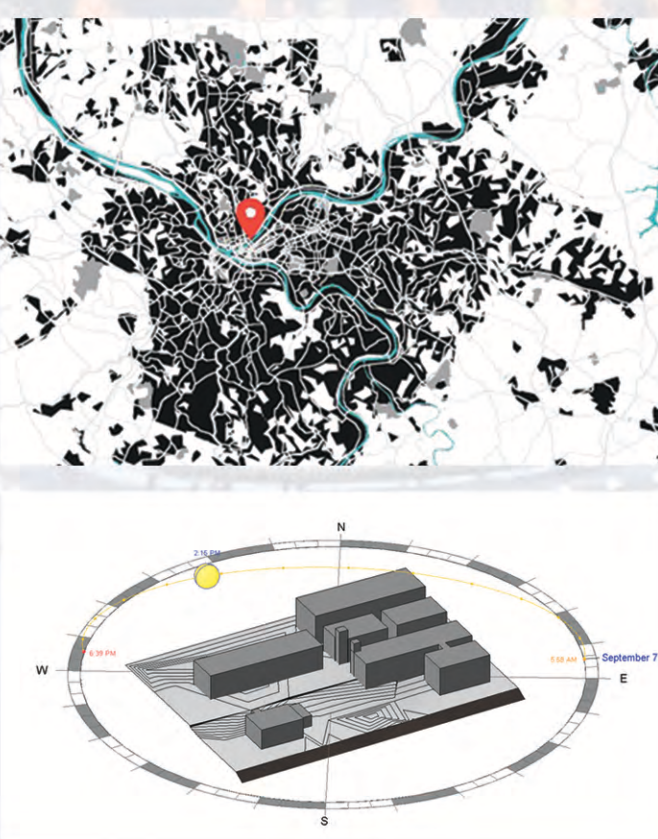
Pittsburgh, Pennsylvania is a large city at the intersection of the Allegheny River and the Monongahela River, which form the Ohio River. These rivers allowed for steel mills to flourish and 446 bridges to be built giving it the nicknames "the Steel City" and the "City of Bridges." In the past 10 years, the city of Pittsburgh has been dedicated to sustainability, and the city has been able to reinvent and revive itself. The site is in the North Shore and is surrounded by three other districts: East Allegheny, Troy Hill and the Strip District. All these areas are mainly filled with young working professionals. The site wraps around a Microsoft building, formerly a warehouse for the Heinz Company. Surrounding the site are the Heinz Lofts and the Heinz at 950 North Shore, apartment complexes in former buildings for the 1869 company.



In [re]Growth, historic urban form is examined and used to determine how we can revive the strong community roots that once grew in this urban site. Historically, the River Avenue District was connected to adjacent neighborhoods by an urban grid and a streetcar system. This concept uses linear parks to reconnect the urban grid that has been severed by highways for several decades.

The building design is influenced by the intersection of the modern farm to table restaurant concept with a historical and industrial site. This idea is interpreted literally and conveyed with a building that is designed with traditional and industrial elements on one side and modern elements on the other side. Both portions of the building are inspired by structures that occupied the site in the past.

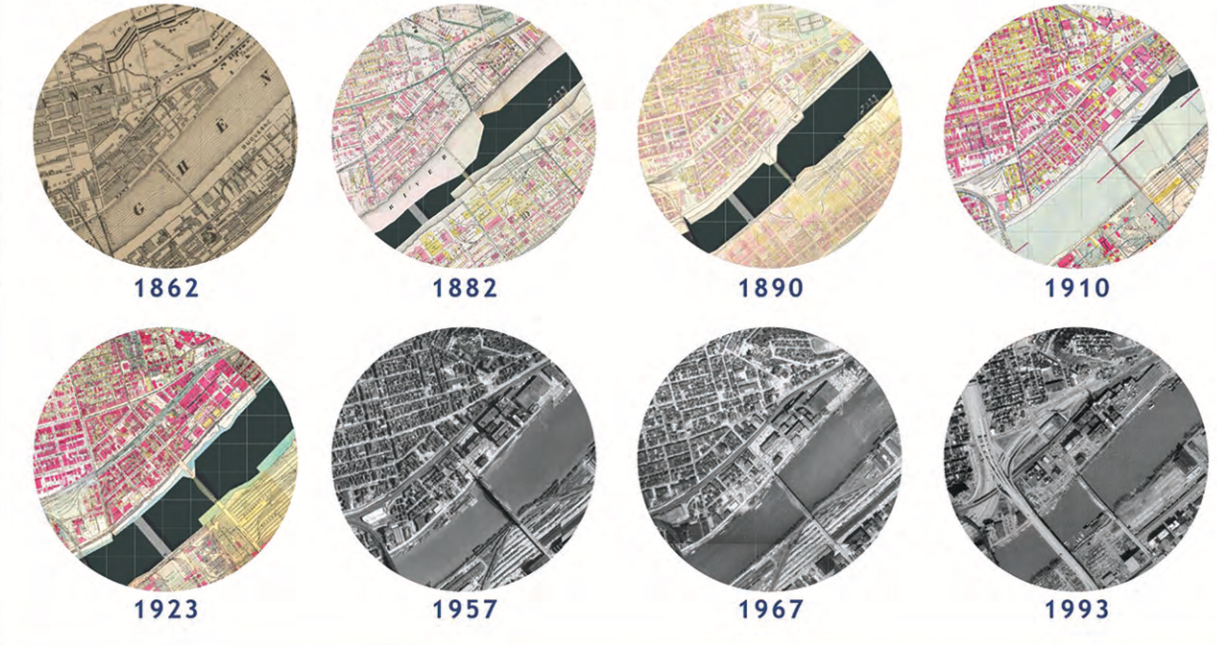
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HISTORIC URBAN FORM

The urban form of the riverfront changes drastically over time in density, building size, rail yards, reduction in density, & the scale of infrastructure, and building use.

Notable changes include industrial buildings, construction of I-379.



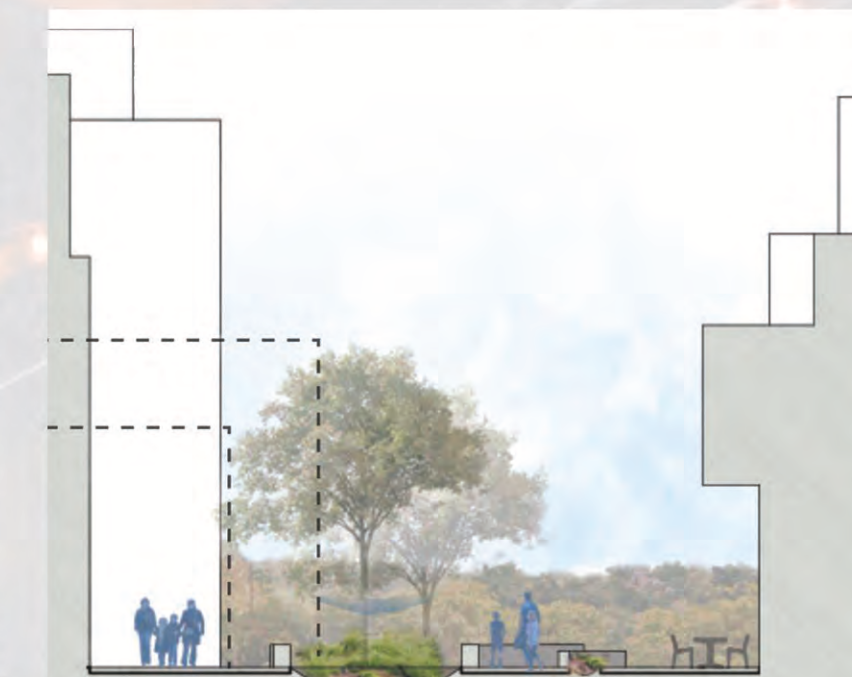
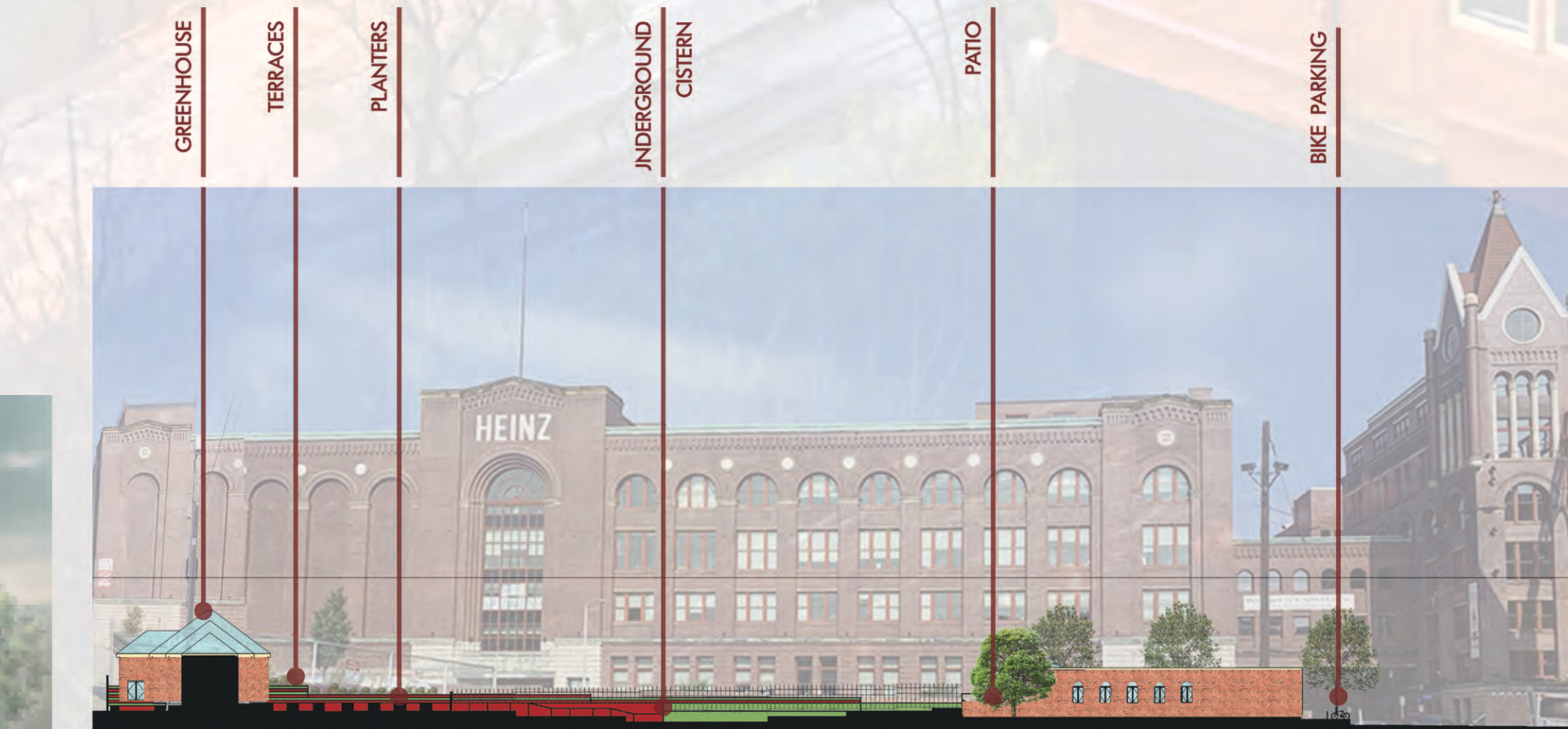
ANALYSIS



- ADVANTAGES**
- Historic Buildings
 - Riverfront
 - Adjacent to Major Destination Hubs
 - Recreation

- CHALLENGES**
- Physical & Visual Barriers
 - Blighted Parcels
 - Topographical Barriers
 - Cut of from Greenspaces
 - Limited Current Uses

- POTENTIAL**
- Improved Connection to Community
 - Develop Parcels to Diversify Usage
 - Access to the River
 - Historic Past
 - Recreation Trail Improvements



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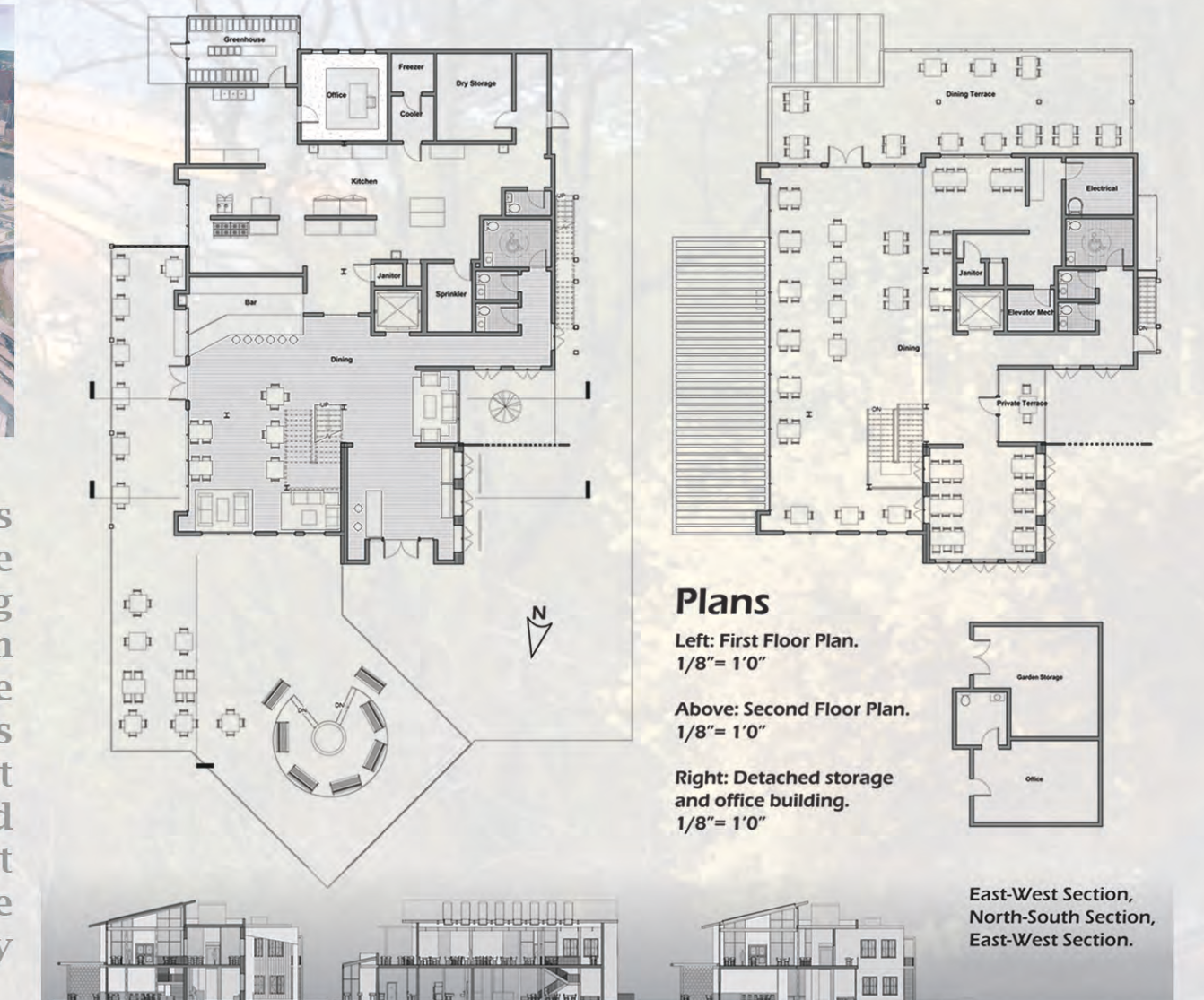
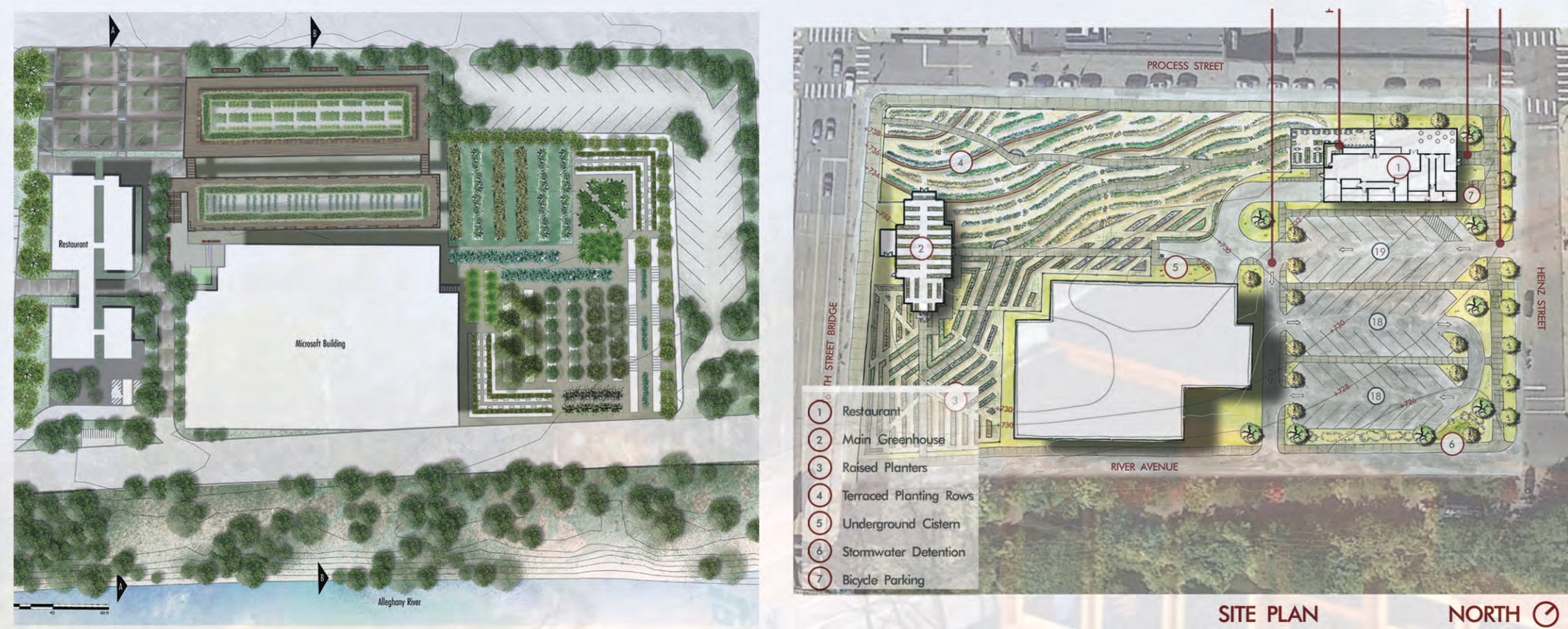
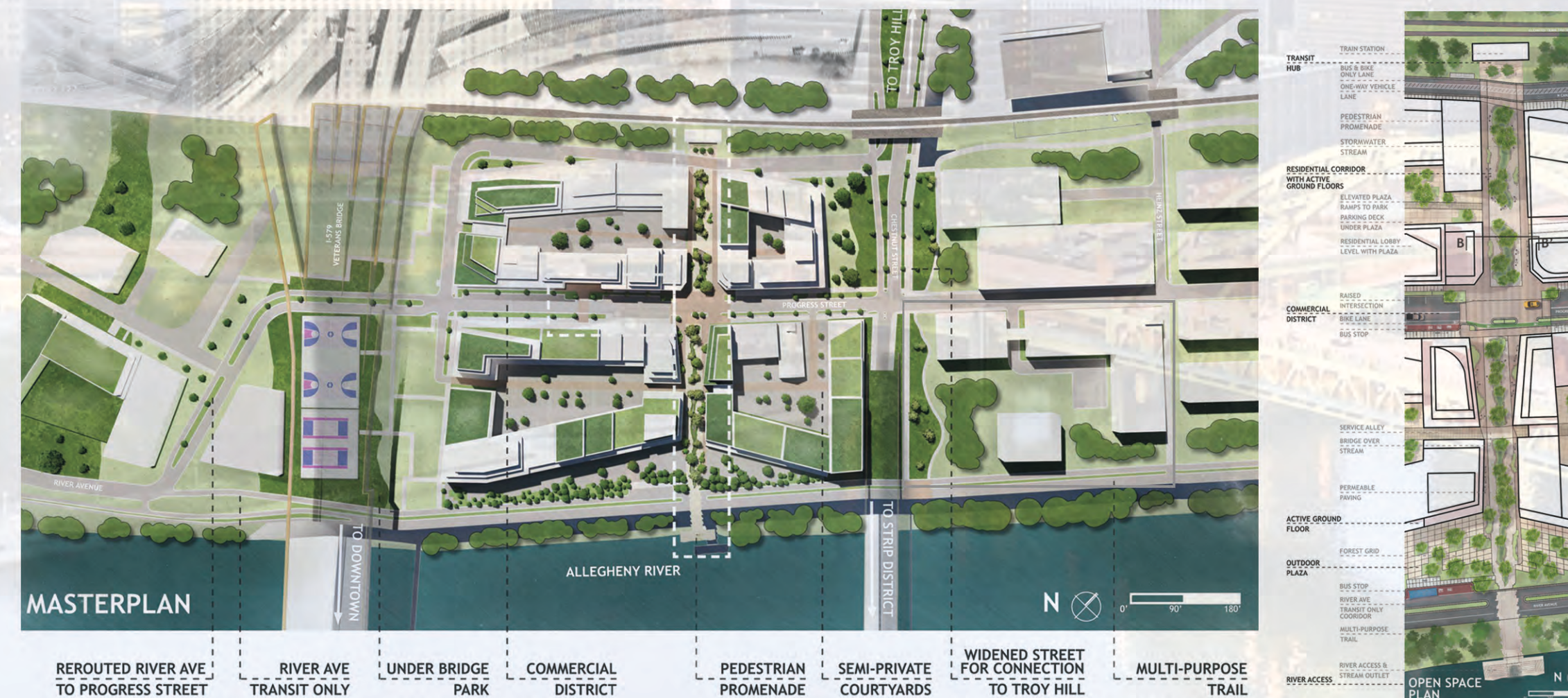
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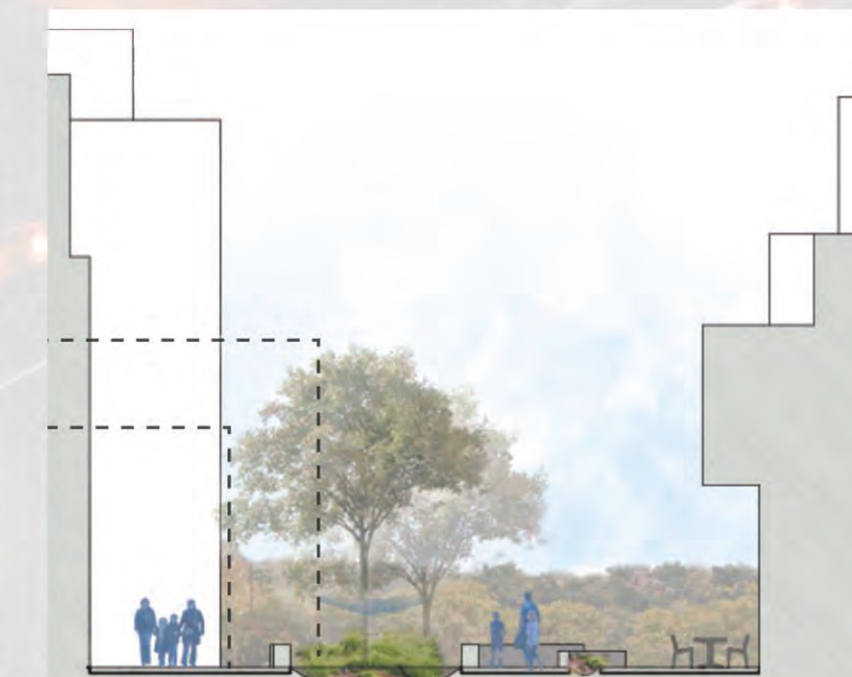
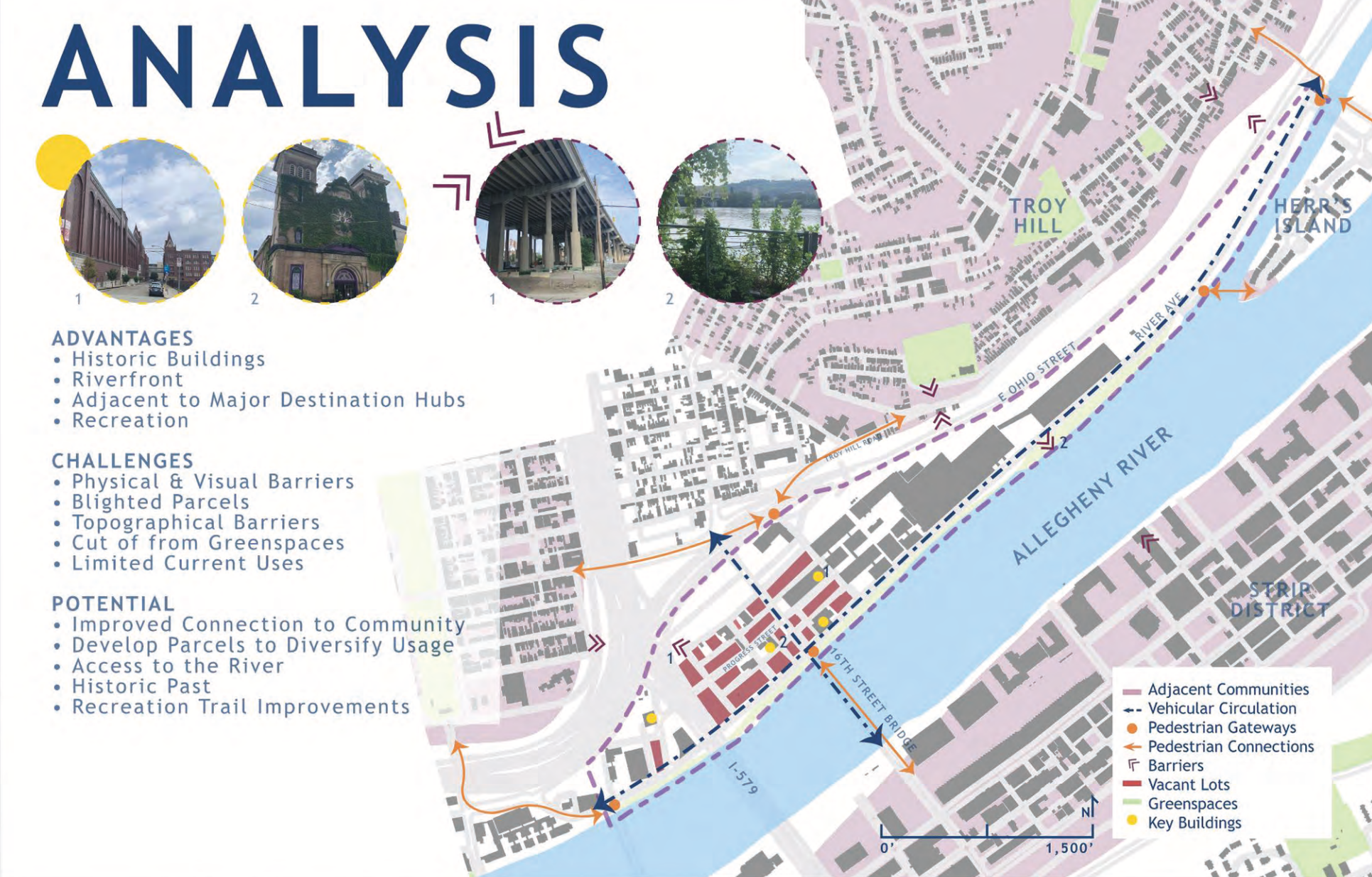
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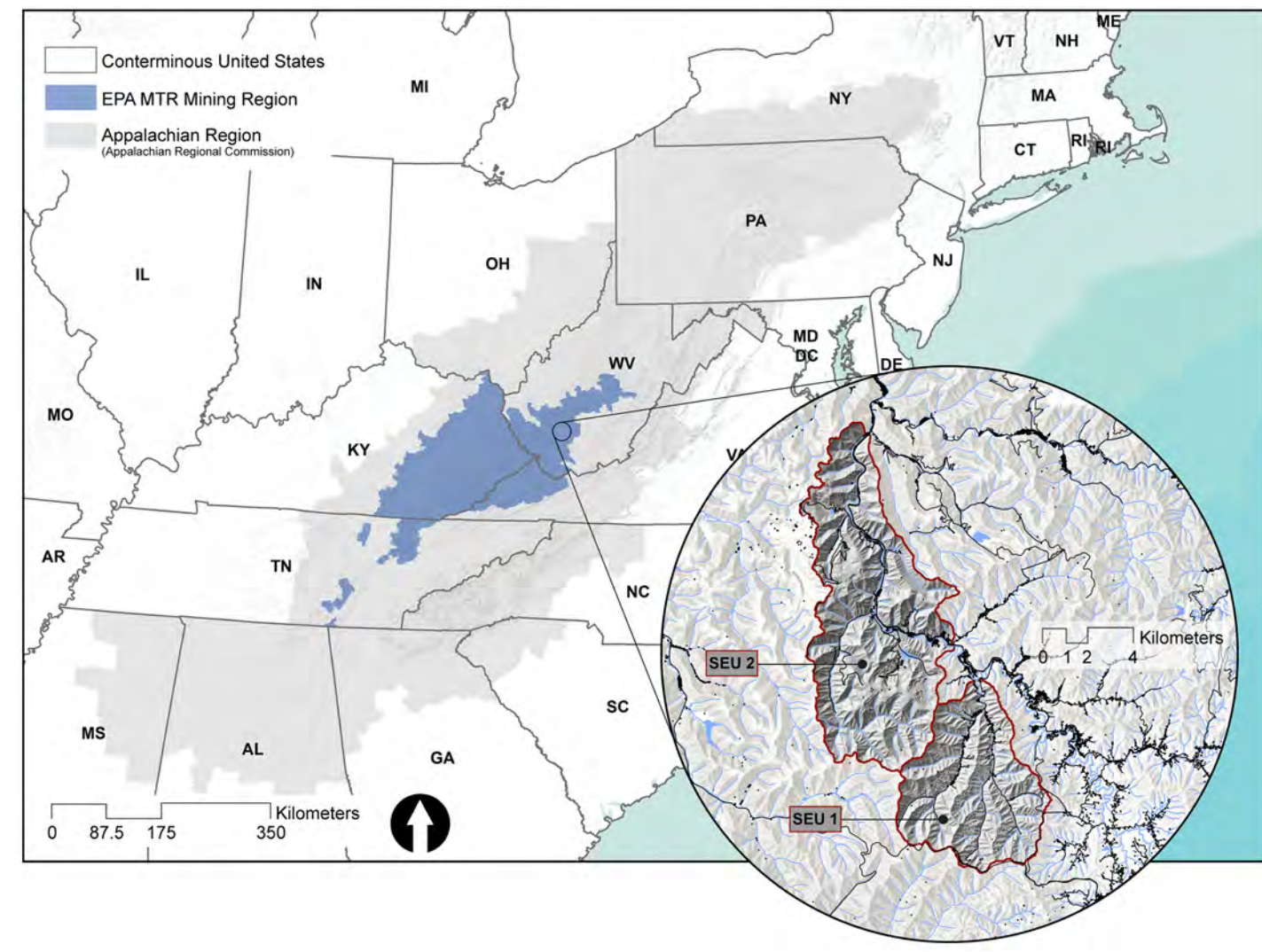
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Backcasting Future Scenarios and Ecosystem Services in Two Post-Mining Landscapes of Central Appalachians

The Study Area

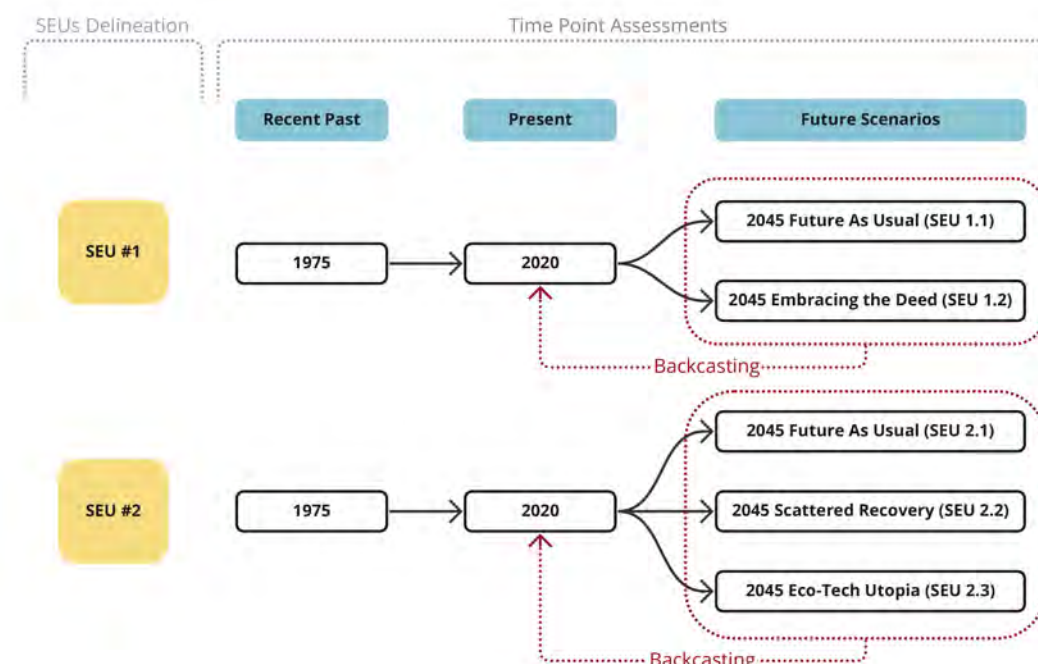


Abstract

The poster presents future scenarios within two social-ecological units (SEU), located in a rural coal-mining region of Central Appalachians, characterized by post-mining landscapes obtained from surface mining and reclamation processes at different stages. The two social-ecological units have been discussed as separate longitudinal case studies along with a time interval of seventy years that included distinct temporal dimensions, from the recent past to present and future scenarios, from 1976 to 2045. The construction of the scenarios was based on a mixed approach; the storylines based on a backcasting method were complemented by two ecosystem service (ES) models (Carbon Sequestration and Habitat Quality) obtained in InVEST using spatial data, and by the identification of changes in the functional relationships and informational feedback in the social-ecological units analyzed (schematic sections).

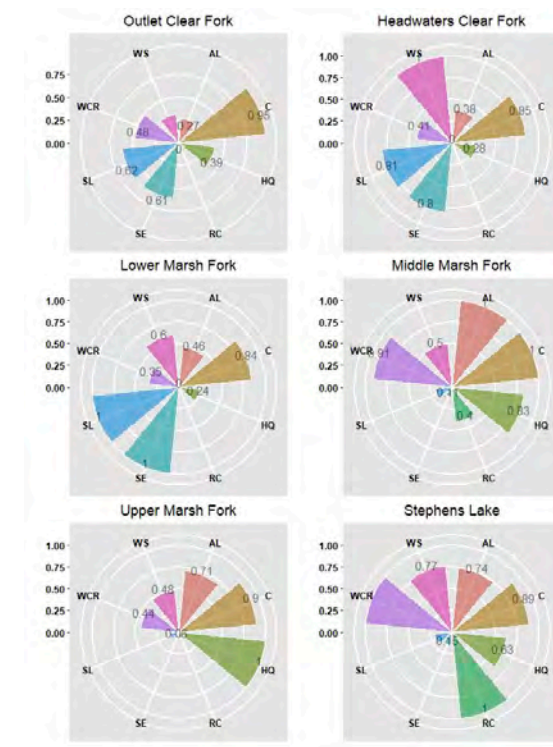
The comparison of the scenarios allowed the authors to identify changes in the historical flow of the ES analyzed and discuss relevant strategies that can be used to rehabilitate the two social-ecological units. The strategies can be potentially replicated across the post-mining landscapes of the region. Indeed, the results highlighted how the two spatial units subjected to different cycles of surface mining, before and after the Surface Mining Control and Reclamation Act of 1977, require different efforts and strategies to improve the systems of social-ecological interactions that characterize their transformation. Several of the methods identified (e.g., adaptive governance, collaborative planning, property-rights regimes) to foster plausible solutions are based on similar efforts that the stakeholders and the communities involved should implement and adopt to rehabilitate the social-ecological units and reach more sustainable targets in the future developments of the areas, in order to shift from a generally almost exhausted coal-based economy towards renewable sources and embrace a new energy transition phase.

Scenario Delineation for the Two Social-Ecological Units



Backcasting scenarios have often been proposed to tackle wicked problems or complex long-term issues related to sustainable development problems in industrial and post-industrial societies.

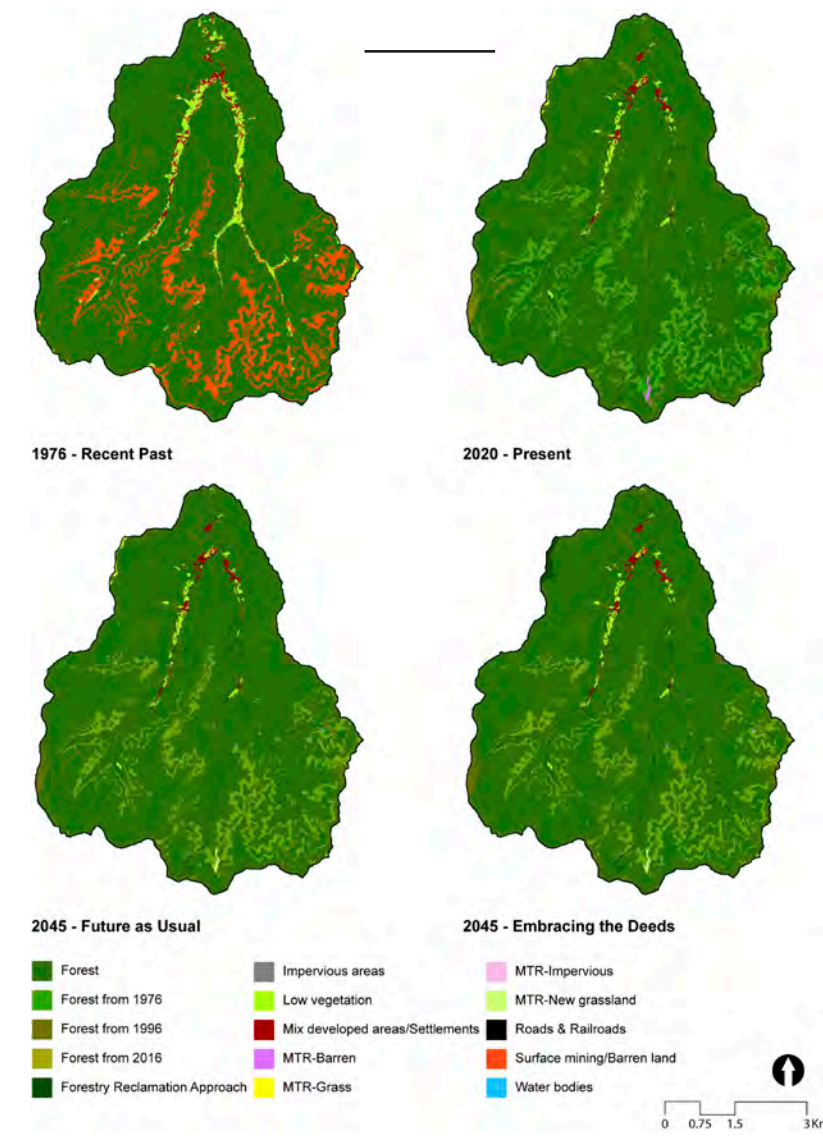
Ecosystem Services Trade-offs & Synergies



Ecosystem Services (ES) refer to the benefits humans receive from nature, such as clean water, food, and air purification. ES trade-offs involve a gain in one service at the expense of another. Conversely, ES synergies occur when an action enhances multiple services simultaneously without detrimental effects on others. The image presents ES trade-offs and synergies in the region (Cribari et al. 2022).

Post-Mining Landscapes obtained before the SMCRA (1977): Social-Ecological Unit 1 (SEU 1)

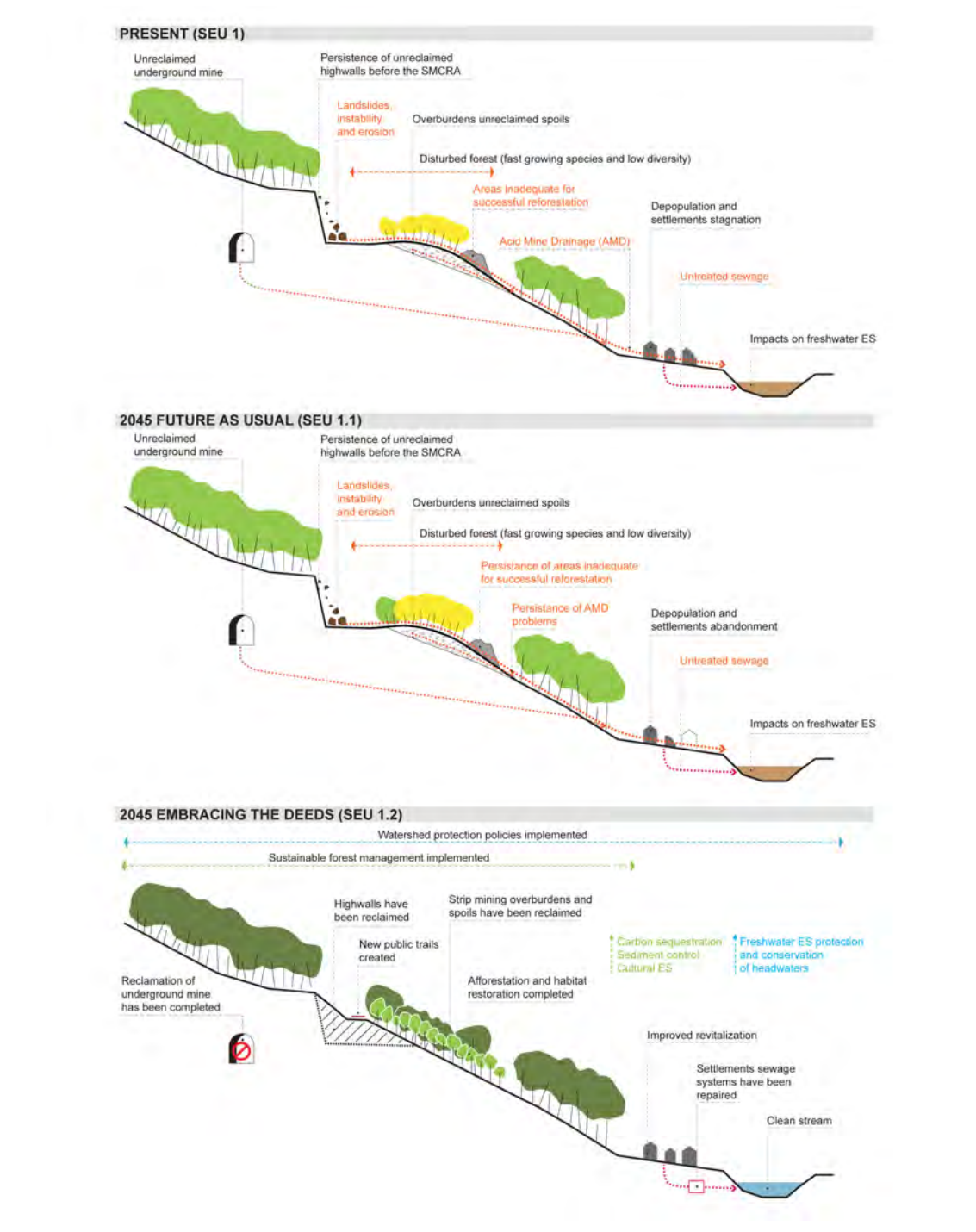
The unit offers a case to investigate landscape rehabilitation strategies in areas with impaired ecosystem services by completing the reclamation of former strip mining and AML produced before the SMCRA enactment (1977).



AML: Two different future scenarios are presented within this unit.

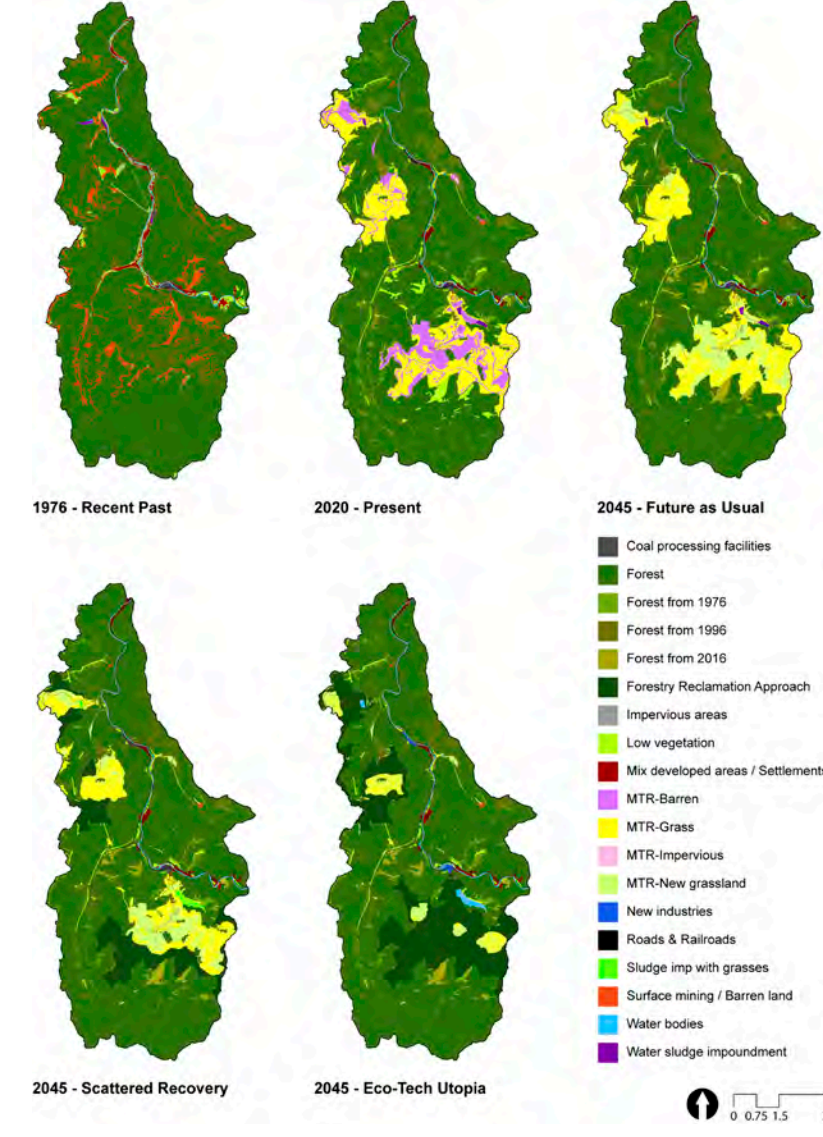
The first, "Future as Usual" (SEU 1.1), explores a baseline scenario in which the reclamation of former contour mining and highwalls, realized before the enactment of SMCRA. This represents typical abandoned mine land (AML) cases before 1977, with no land management programs. The result is degraded land affecting natural resources. There's no specific forest management, and areas might have unreclaimed soils (Sena et al. 2021). Freshwater is at risk from acid mine drainage.

The second, "Embracing the Deeds" (SEU 1.2), looks at the effects of completed reclamation. Spoil banks and contaminated overburdens are rehabilitated with trees and potential hiking trails. This scenario leverages funding from various trusts emphasizing resource conservation, especially in key water systems. Easement programs could offer public access, sustainable forest plans, and protection of freshwater ES in related areas.



Post-Mining Landscapes obtained before and after the SMCRA (1977): Social-Ecological Unit 2 (SEU 2)

The unit presents a case to investigate post-mining land use and management policies that can be utilized to improve traditional reclamation practices, sustainable land transformations, and the flow of ecosystem services to benefit the local communities.

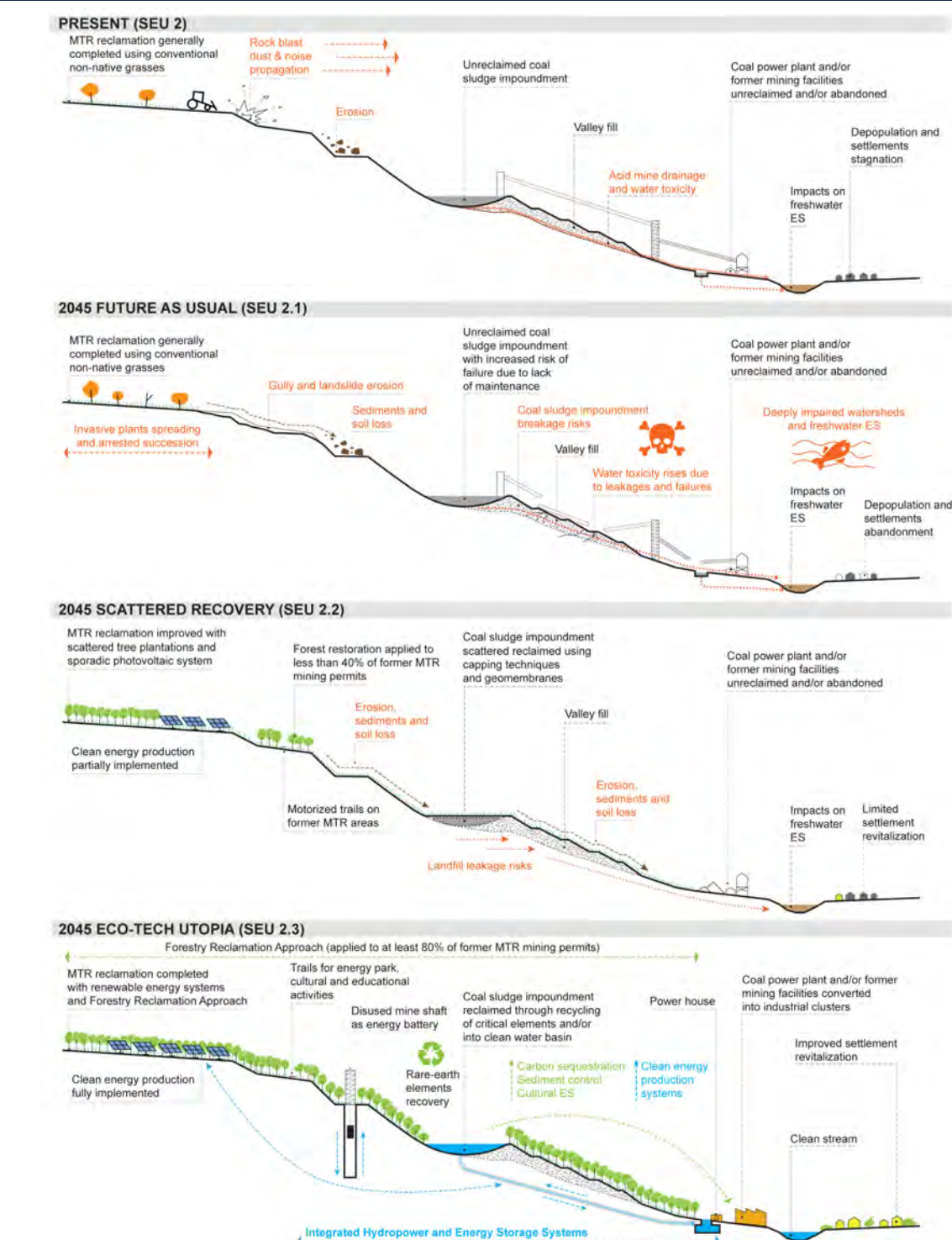


The Mountaintop Removal (MTRVF) case (SEU 2). Three different future scenarios are presented within this unit.

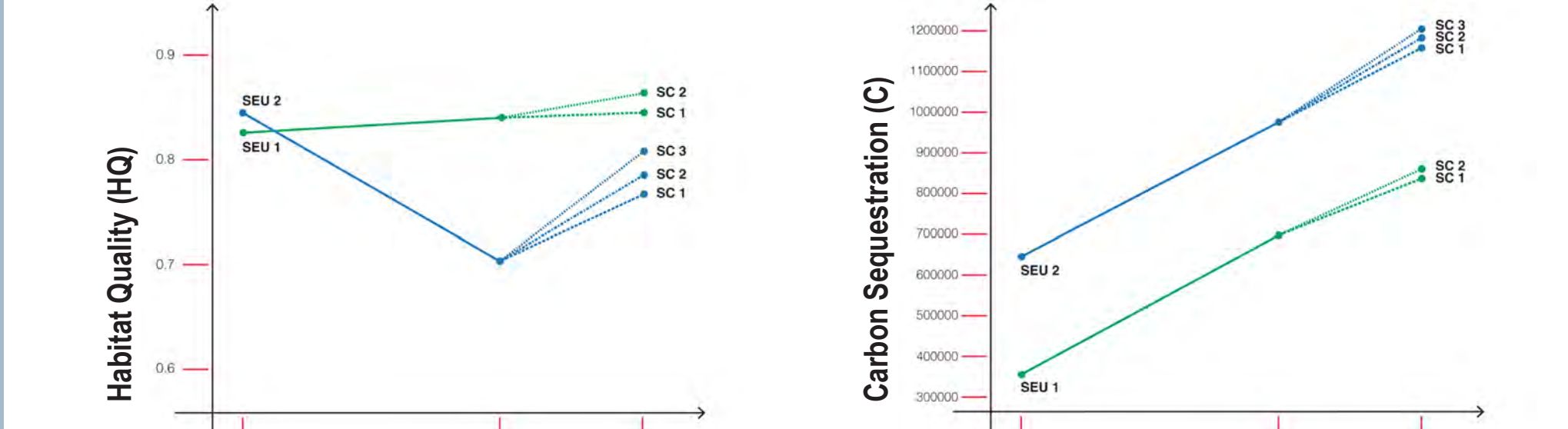
"Future as Usual" (SEU 2.1) explores MTRVF reclamation. Mainly, non-native plants have been used, and some areas even see growth of non native species. Yet, areas are unproductive due to unresolved pollutants like selenium.

"Scattered Recovery" (SEU 2.2) highlights inconsistent reclamation. There are policies, but they are partially integrated, causing community strain. Sustainable energy solutions appear here and there, but lack a unified direction. Pollution is only partially managed, and problems like faulty sewage systems persist. Trees cover less than 40% of MTR areas.

"Eco-Tech Utopia" (SEU 2.3) studies cohesive sustainable efforts. Over 80% of former mines see tree-planting using Forestry Reclamation Approach (FRA). Technological progress bolsters reclamation and green industry. Old brownfields become green hubs connected to solar and processing sites. Renewable storage integrates with diverse energy. The scenario depicts a social-ecological uplift via adaptive governance.

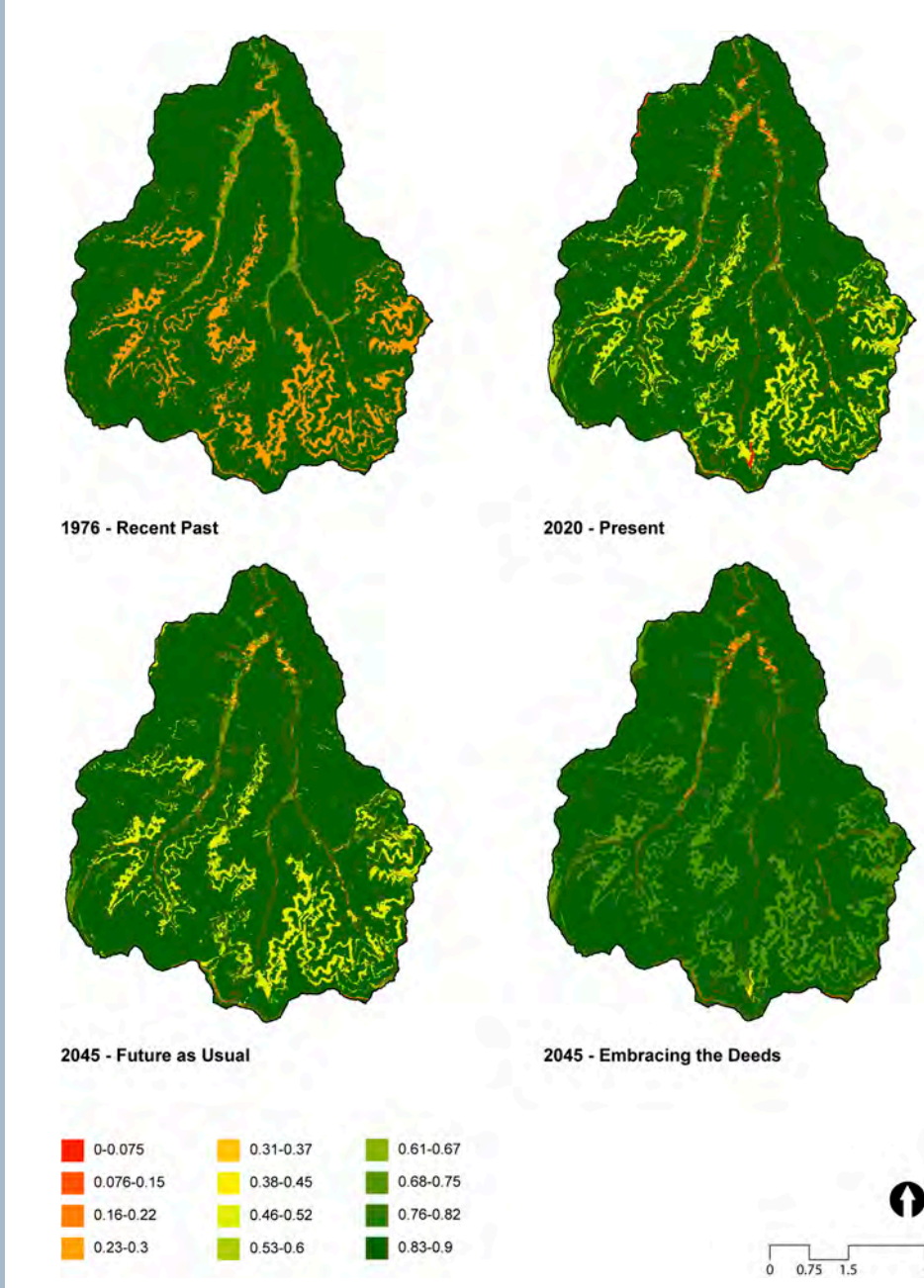


Results: Ecosystem Services Trajectories



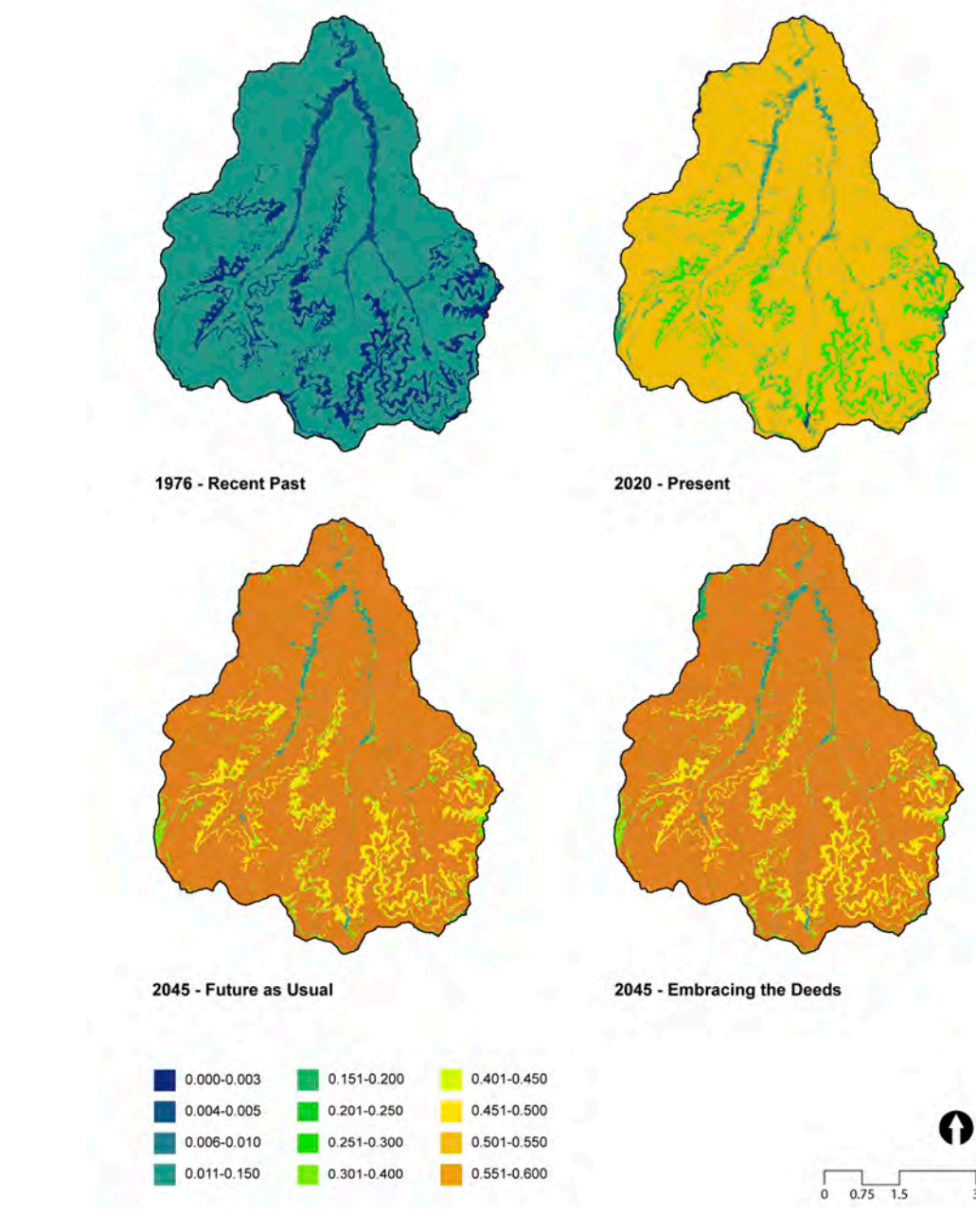
The synthesis graphs present the trends of the two ES analyzed considering the different time points and highlighting the trajectories of recovery or deterioration of the SEUs. C and HQ values were obtained at the SEU scale. C values were based on the total carbon (metric tons) stored in the SEUs, while HQ values were based on average estimates obtained from the two spatial units.

Habitat Quality (SEU 1)



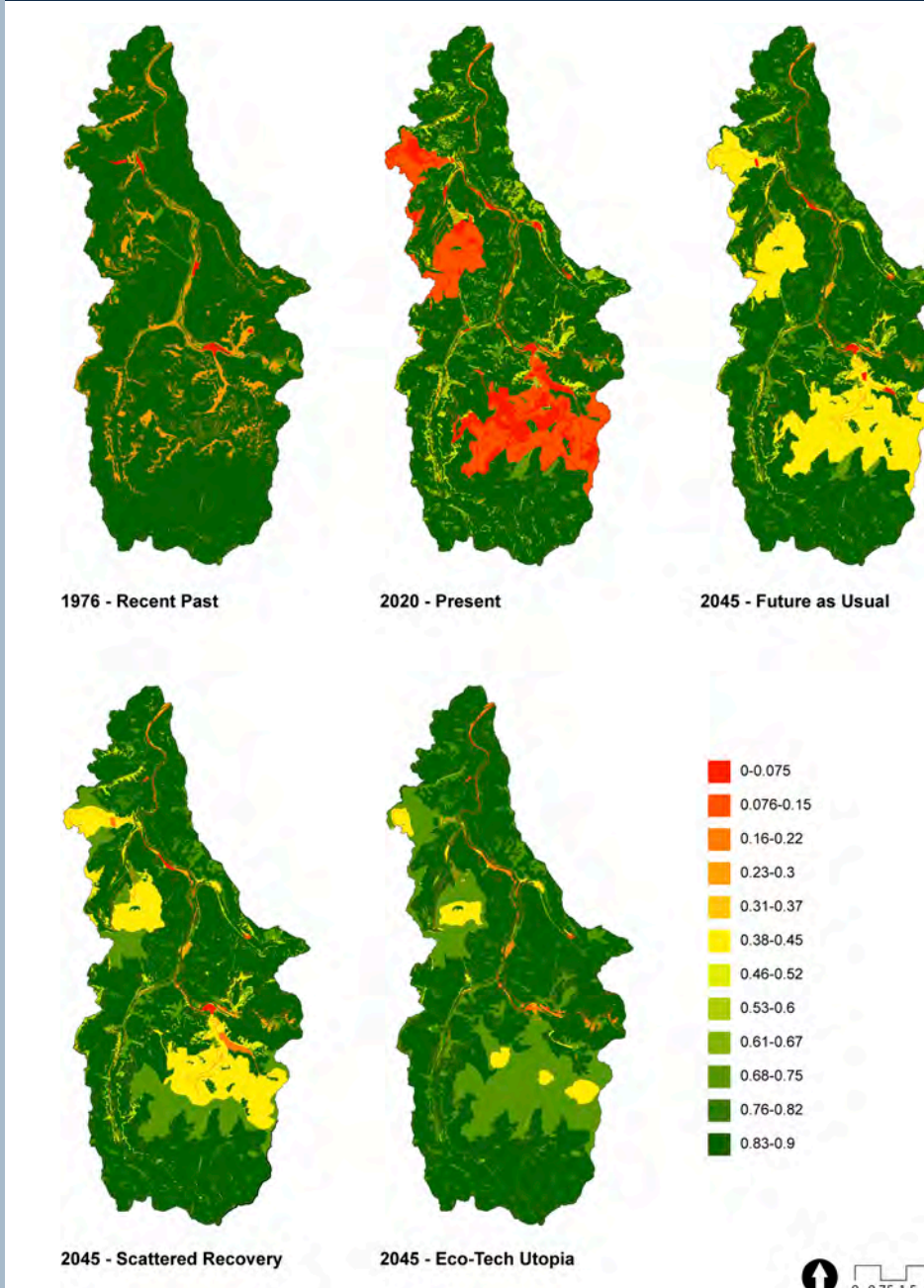
The overall HQ value shows a clear improvement, between 2020 and 2045, after the numerous landscape and ecological restoration initiatives anticipated by the "Embracing the Deeds" scenario are applied.

Carbon Sequestration (SEU 1)



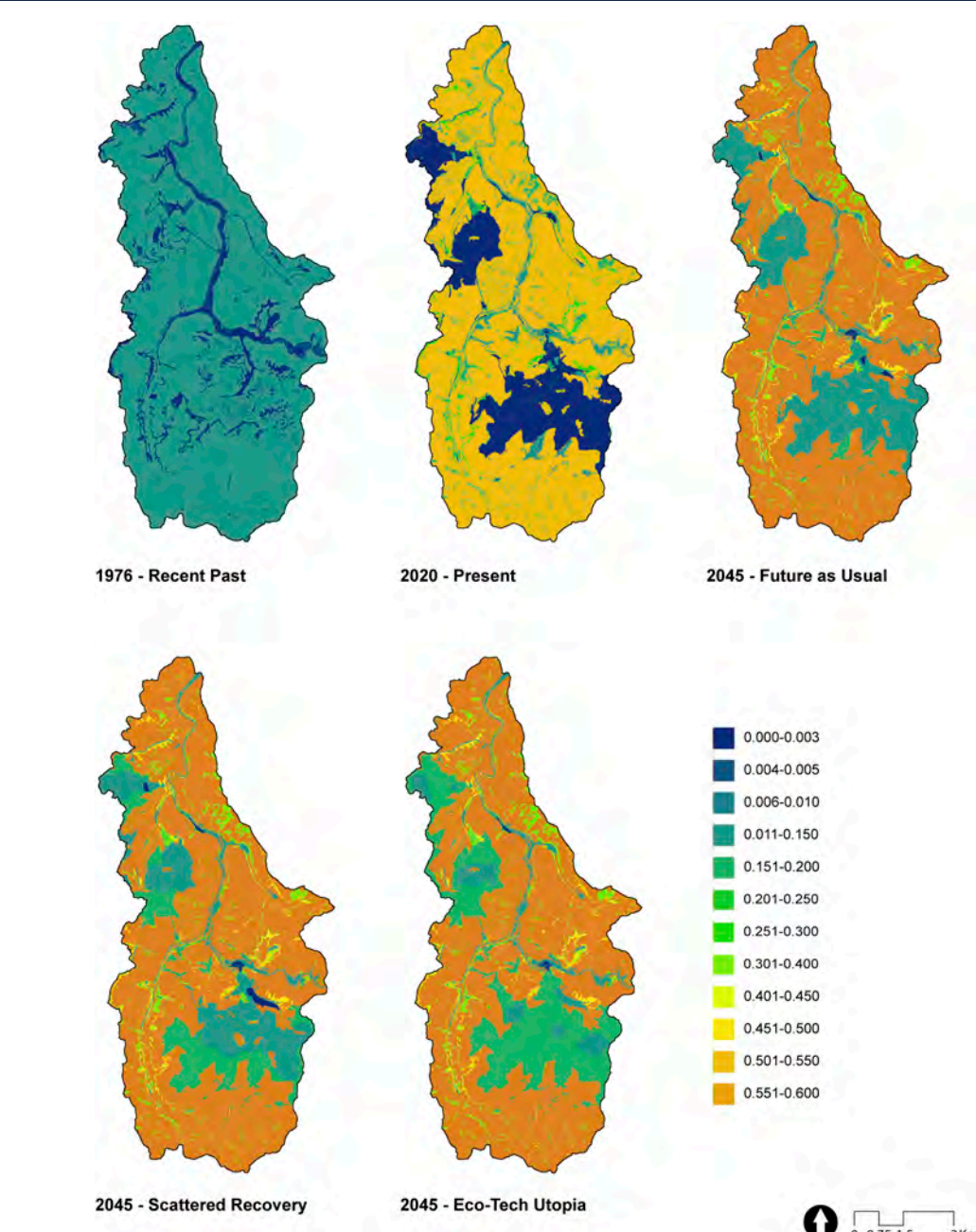
The presence of well-established forested areas is generally beneficial to multiple ES. Indeed, there is a well-recognized synergy between healthy forest ecosystems, their provisioning services such as timber production, and their regulating services.

Habitat Quality (SEU 2)



Even in the best-case scenario, the "Eco-Tech Utopia", it seems impossible to achieve HQ values analogous to the conditions of 1976; even though, at that time, these catchments were already heavily impacted by strip-mining

Carbon Sequestration (SEU 2)



The concentration of soil organic carbon (SOC) values is among the crucial variables that can be used for assessing the recovery trajectories of reclaimed soils in former surface mining areas.

BROWNFIELDS REDEVELOPMENT = COMMUNITY REDEVELOPMENT

Brownfields redevelopment has been immensely successful for community redevelopment. Grants and funds allocated to local government and communities have been distributed for specific properties in urban centers, along significant transportation corridors, and commercial centers in areas where environmental justice can be improved.

HOWEVER, ARE WE MISSING A SIGNIFICANT RESOURCE FOR URBAN AND RURAL REDEVELOPMENT?

Brownfield redevelopment often focuses on the site and is remiss about the transportation corridor that connects the multiple brownfield sites or the rail-to-trail, improving the community and spurring commercial redevelopment. HDR has recently consulted on three projects highlighting this example of where transportation and coordination with transportation agencies provided mutually beneficial outcomes for transportation redevelopment and brownfield redevelopment.

HDR projects include:

- **City of Houston Canal Rehabilitation, TX** — Targeted Brownfields Assessment for Canal Redevelopment through Texas Department of Transportation (TxDOT).
- **I-64 over the Kanawha River, Nitro, WV** — Environmental and institutional controls were used to cap soils impacted with dioxins.
- **Berkeley Trail Redevelopment, Town of Bath, WV** — West Virginia Department of Highways (WVDOH) provides initial funding for brownfields redevelopment.

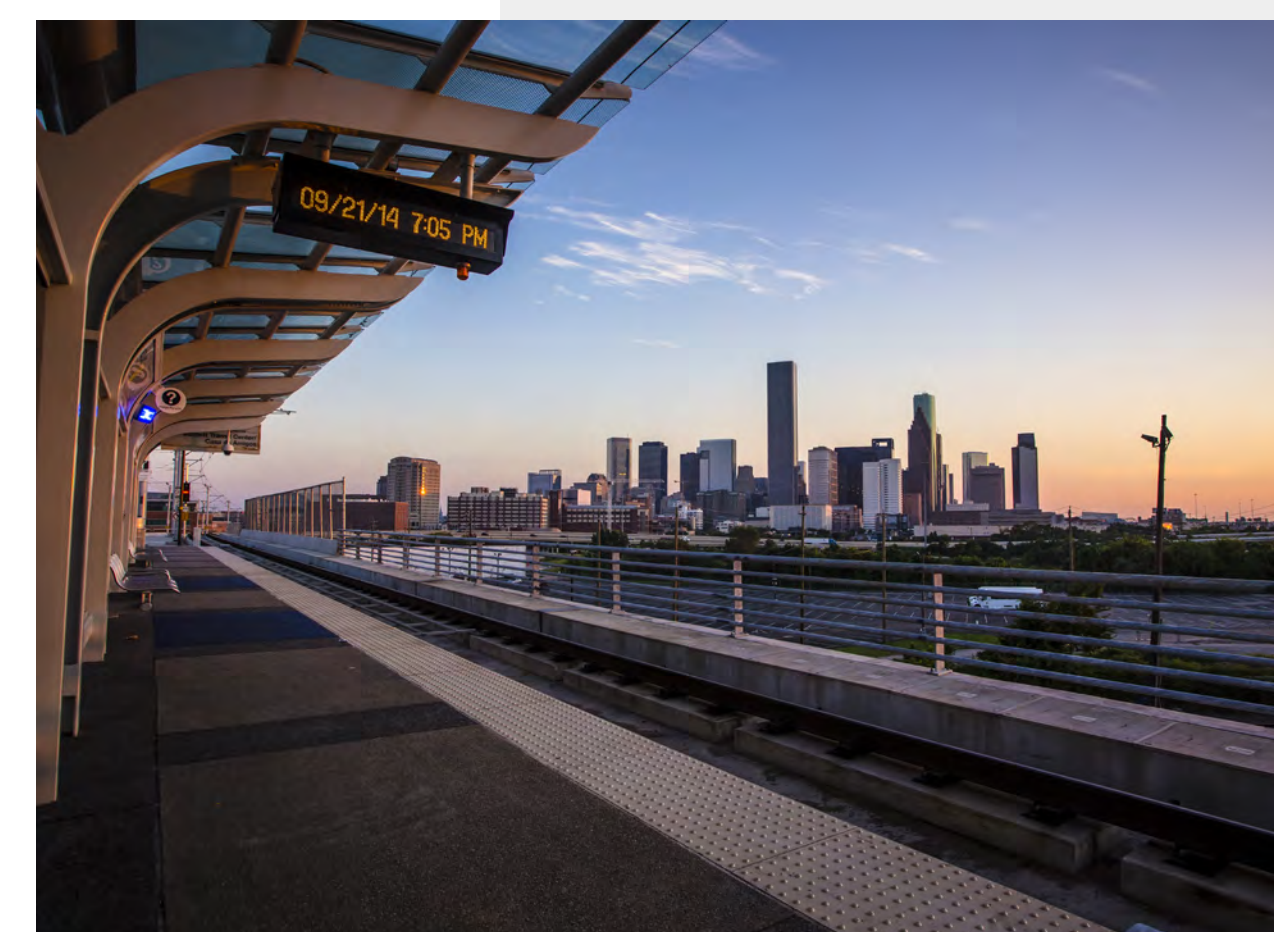
Matthew Blanchard
Senior Project Manager



Vincent Carbone, PG
Senior Brownfield Redevelopment Consultant



City of Houston Canal Rehabilitation



The City of Houston (City), in conjunction with the Texas Department of Transportation (TxDOT) and Harris County Flood Control District (HCFCD), sought Federal Emergency Management Agency (FEMA) Disaster Relief funding through the Hazard Mitigation Grant Program (HMGP) for this flood mitigation project. Targeted Brownfields Assessment Funding was used to characterize soils for property purchase by the City and Canal Assessment. The assessment was then used to support the TxDOT design for a new interchange alignment over the canal to support the project.

I-64 over the Kanawha River



The I-64 Widening and Improvement Project completed the six-lane typical section for I-64 between the US 35 Interchange to the west and the Nitro Interchange to the East. The project included the construction of a bridge parallel to the existing Donald M. Legg Memorial Bridge across the Kanawha River. Often, transportation projects require the management and export of environmentally impacted soils. However, for this project, dioxin-impacted soils were managed using engineering and institutional controls, with the design of the ramps, slopes, rip-rap, and geotextile delineating the barriers.

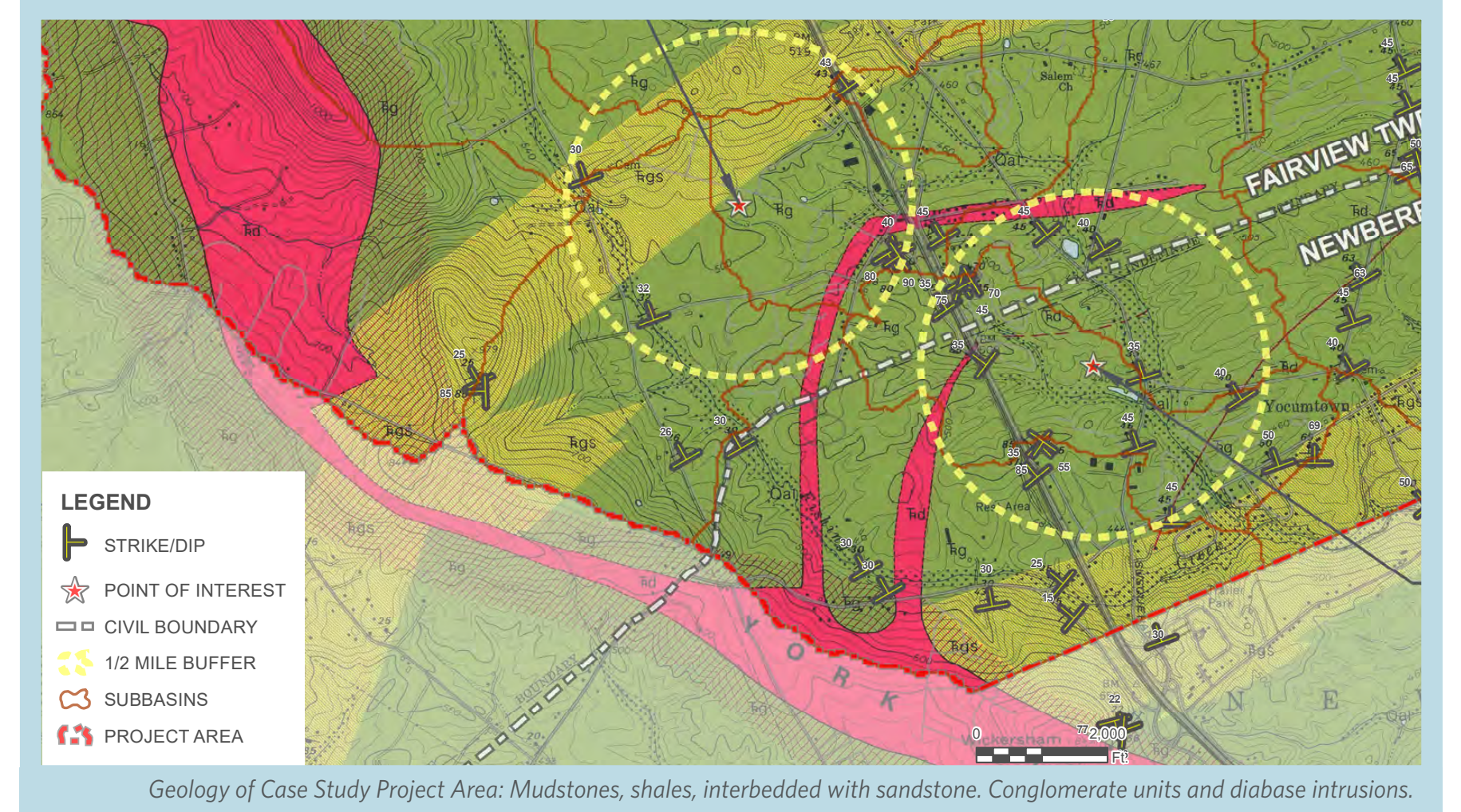
Town of Bath, WV Berkeley Rail-to-Trail



During the document review, WVDOH, working with local government and project stakeholders, identified the need to conduct a Phase I Environmental Site Assessment to support the design and for the United States Environmental Protection Agency (USEPA) Brownfields Cleanup Grant funding. Through the WVDOH Transportation Alternative Grant to Morgan County, HDR, in consultations with WVDOH and the project team, completed an ASTM Phase I ESA of several parcels on the rail-to-trail, including a former rail station. The Phase I ESA was supporting documentation for entry into the WVDEP Voluntary Cleanup Program and was used to obtain a USEPA Cleanup Grant of \$100,000 to provide engineering controls along the rail-to-trail.

CAN YOU FIND THE PFAS?

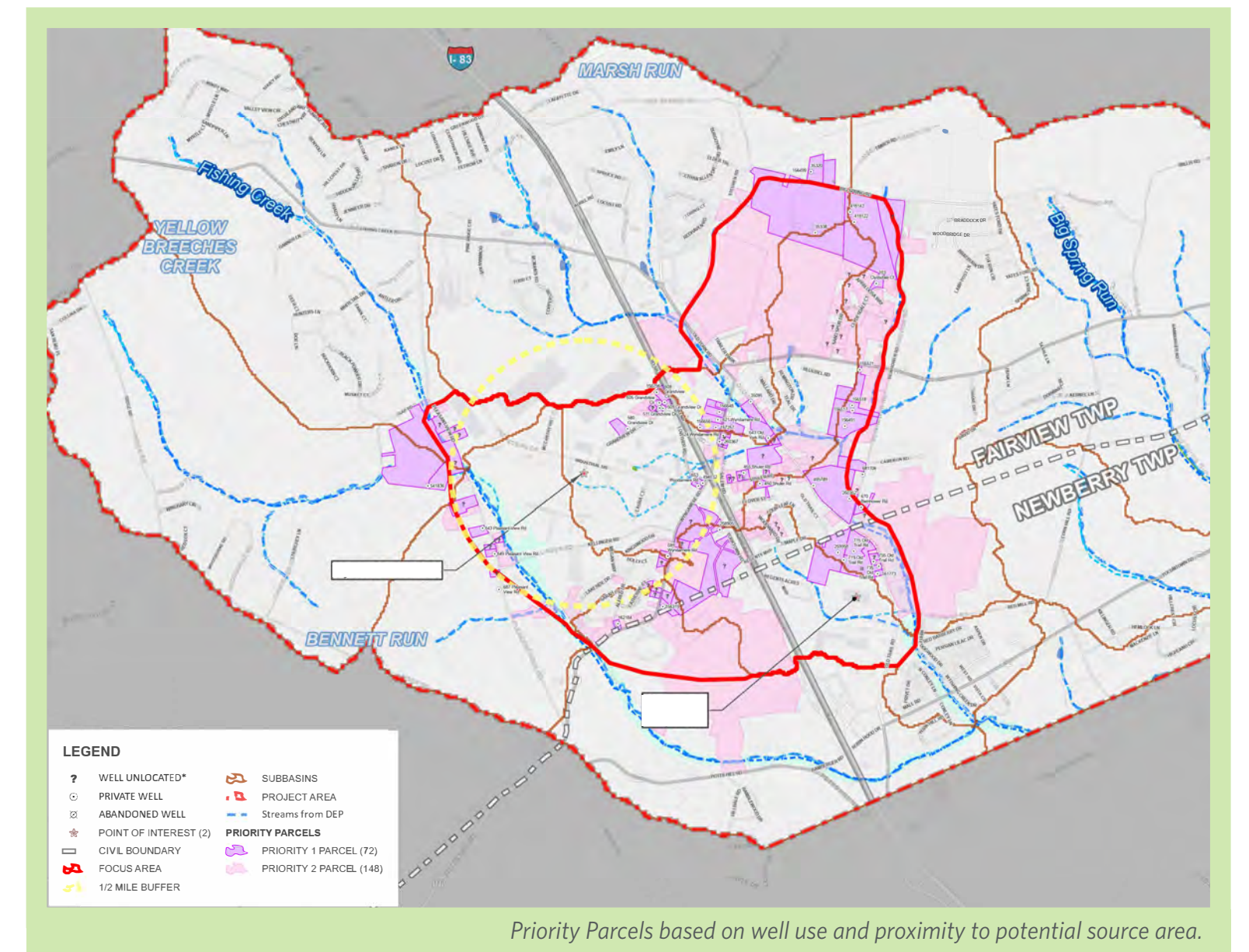
1 DUE DILIGENCE:



- Gather and Organize Data (20+ GIS layers: parcel maps, land use, flood zones)
- Review 100+ available local, state, and federal databases for: Fire fighting test facilities, known spills or other releases
- Review geology and hydrology (fracture trace, structural strike and dips, soil maps, watersheds)
- Know your Project area: 70 mi² project area, 3 water supplies, 3 wastewater treatment plants, septic tanks, private wells, 17 subwatersheds, 2 townships

2 NARROWING THINGS DOWN:

- Are databases a concern for PFAS? (AFFF, hazardous waste sites, waterproofing, clothing inks, Teflon manufacturing etc.)
- Rank properties based on PFAS relationship and severity of listings
 - o Low potential source: - 35 properties (schools, auto repair shops, pharmacies, etc)
 - o Moderate potential sources 12 properties (industrial, screen printing, drycleaners)
 - o High potential sources (known and suspected: 12 properties - hazardous waste recycling, industrial, landfill, biosolid)
- Set up the Conceptual Site Model (CSM)
 - o Set hydrogeologic boundaries, watersheds groundwater, topography, bedrock geology
 - o Identify Sources and identify potential routes of exposure: Connect the dots between surface drainage, infiltration, groundwater
 - o Define Receptors: Private wells, potential sources, streams downgradient of potential sources



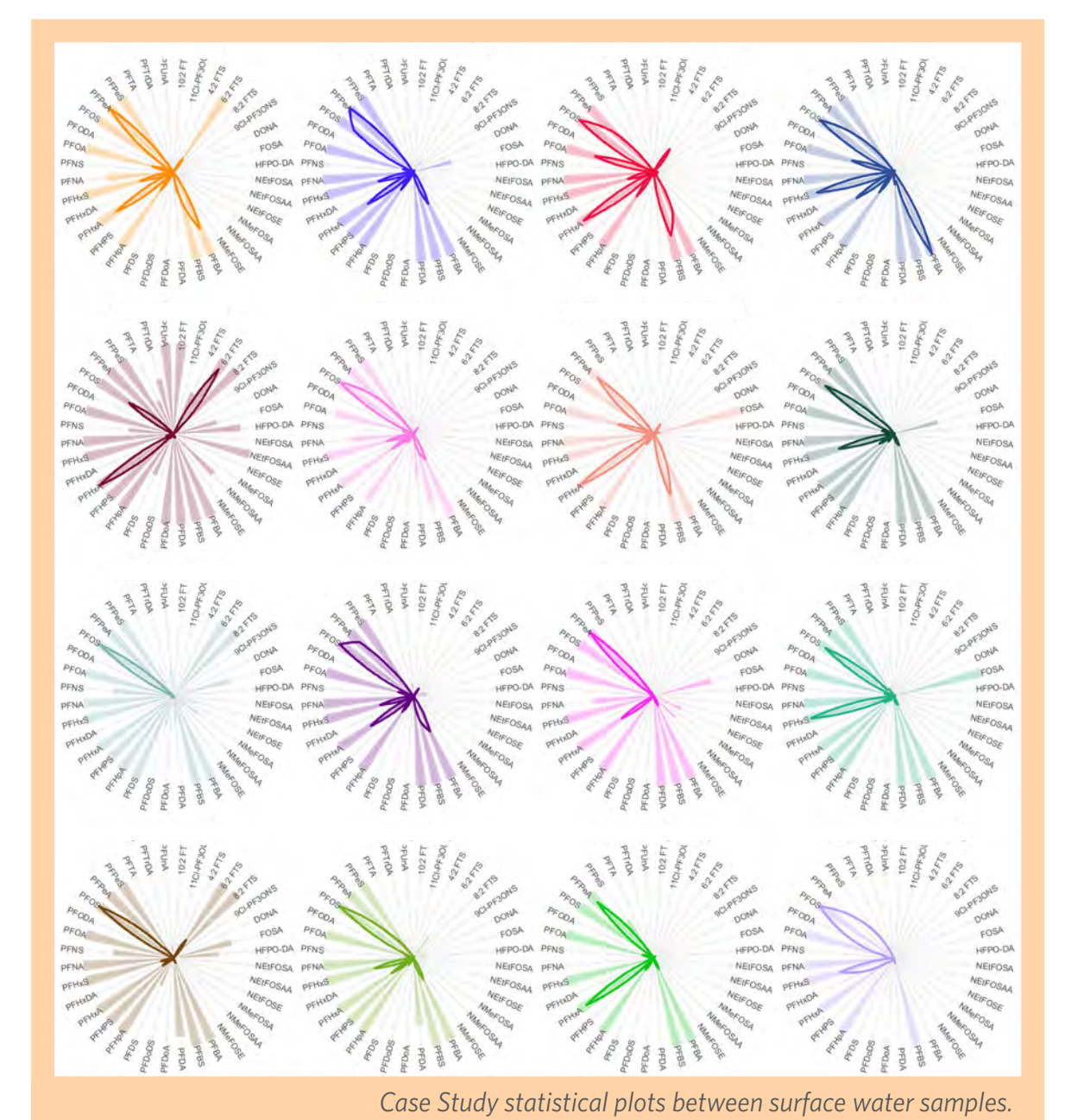
3 TO THE FIELD:

- Validate CSM with sampling and analytical results
- Install wells to identify sources, define vertical and horizontal extent
- Collect field parameters: General chemistry parameters
- Analyze for PFAS 537 and 1633, metals, VOCs, and organics to determine relationships

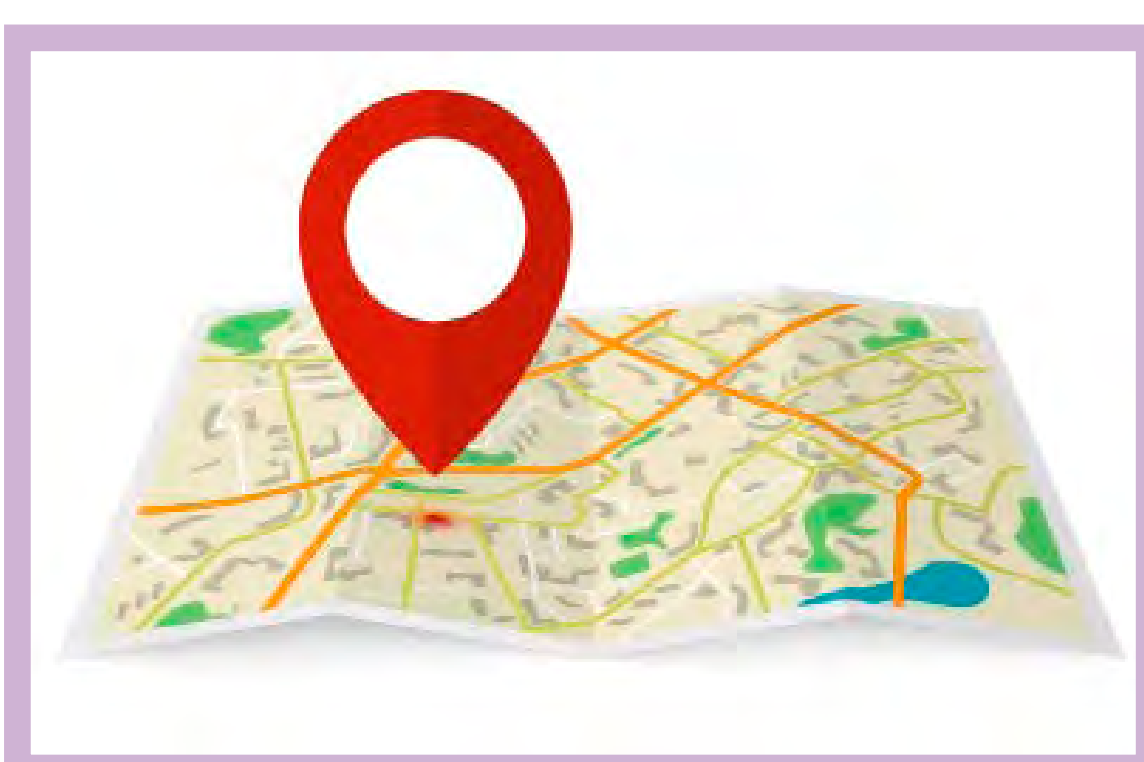


4 MANAGE THE DATA:

- Develop relational network between analytical data (EDDs), data storage (Equis), statistical programming systems (R-studio), and geospatial platforms (GIS)
- Create data tables, statistical plots/graphs, and maps
- Complete a comparison analysis based on general chemistry, PFAS concentrations, and geographic locations



5 FIND YOUR SOURCE:



- Who and How many contributors? (2+ source areas identified)
- Verify suspected source(s) through the CSM and multiple lines of evidence:
 - o Transportation mechanism (infiltration > groundwater > surface water)
 - o Analytical relationships
- Statistical and fracture trace analysis confirmation
- What's next?
 - o Develop remedial alternatives to remove PFAS from appropriate receptors
- Don't have all the pieces yet? Go back to step 2 or 3.

Survey of Rural CHALLENGES

What small town
people see as their
biggest challenges
and assets
in 2023

Community Challenges

Lack of housing, inactive downtowns and population losses ranked the highest.

Need for childcare also ranked in the top 5 community challenges.

Rural people ranked poverty, crime and drug abuse near the bottom.

Small Business Challenges

Rural businesses are challenged by **lack of workers, support services and usable buildings**, along with **online competition & marketing**.

Rural businesses said **usable buildings are harder to find than loans**.

Rural small business owners showed **little interest in business plan assistance or pitch competitions**.

Rural businesses **prefer help with marketing, starting a business, or receiving economic development incentives** like those offered to recruit out-of-town firms.

Rural Assets

Rural people were **twice as likely to say they were optimistic about their communities' future** as negative.

Natural resources, outdoor recreation and tourism were mentioned the most as assets.

Events, arts, education and culture also were frequently mentioned as assets.

Innovative ideas and up-to-date marketing were mentioned the most as business assets.

Available jobs or good jobs were mentioned as often as **lack of jobs or low paying jobs**.

Get the full report at
SurveyofRuralChallenges.com



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YOUR**
.town

**SMALL BIZ
SURVIVAL**
THE SMALL TOWN AND
RURAL BUSINESS
RESOURCE