



# *SHENANGO REIMAGINED SITE VISIONING REPORT*

Prepared by Delta Institute on behalf of  
the Shenango Reimagined Advisory Council

February 28, 2020



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Township**

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## EXECUTIVE SUMMARY

### Introduction

The recommendations presented in this report were developed to assist property owner DTE Energy to focus its sales efforts for the former Shenango Coke Plant Site (Site) to both expedite the sales timeline for DTE and to result in a re-use of the Site that is for the betterment of Neville Township, neighboring boroughs and Allegheny County well into the future. This report may also be beneficial to Neville Township who has jurisdiction for the zoning of the property and to the local development community and future potential site users.

Local and regional communities in Allegheny County recognize that a redevelopment of the Site may have both potential positive and negative economic and environmental impacts for Neville Township, the surrounding boroughs of Avalon, Ben Avon, Bellevue and Emsworth and Allegheny County as a whole. Consequently, in the spirit of collaboration, concerned parties from these communities worked together as the Shenango Reimagined Advisory Council (Council) and through a site re-visioning process conducted in 2019 and 2020 the Council explored and articulated its chief concerns regarding how the redevelopment may impact the community. The top two concerns are that a sale and reuse of the Site:

- 1) Could add a new source of air pollution to an air shed that is already saturated by numerous air pollution sources when the community wishes to retain the improved air quality that it now experiences since the closure of the Shenango Plant; and
- 2) May not maximize economic benefit for Neville Township, Allegheny County and the region.

This report shares the chief findings, methodology and research from the Council's work.

### Summary of Key Findings

The re-visioning process identified seven Guiding Principles (pg. 7) important to the community for the redevelopment of the former Shenango Site. The process also identified 20 Site reuse ideas (pg. 9) that are in alignment with Guiding Principles and market forces. Together these elements form a conceptual regional model for industrial redevelopment expressed with Site renderings.

### Recommendations

The Council's recommendations shared in the Summary at the end of this report pertain to both the physical Site development and the desired behavior of the Site occupant. The Council as well as the broader community seek a long term good neighbor and an economic and environmental asset for Neville Township and the larger Allegheny County region. The community's recommendations envision reuses for the Site that:

- 1) Are feasible given local and regional market realities;
- 2) Have a positive economic benefit for Neville Township; and
- 3) Generate minimal/no negative environmental or health outcomes for local/regional residents.

## EXISTING CONDITIONS

### Former Shenango Site History and Status

The former Shenango Coke Plant, purchased by DTE Energy in 2008, operated at the east end of Neville Island in Neville Township from the years 1962 to 2016. In 2016 the plant was closed with DTE citing unfavorable market conditions and a reduction in customers for the Plant's coke product as reasons for the plant's closure. During the last eight years of the Plant's operation, Allegheny County residents located in the four boroughs to the north of Neville Township frequently expressed considerable concern over the plant's industrial air emissions elevating their exposure to poor air quality. This was evidenced by increased levels of dust and other pollutants from emission plumes released from Shenango's smoke stacks and captured by air monitoring equipment and by cameras.

When the plant closed, DTE applied for Emission Reduction Credits (ERCs) through the Allegheny County Health Department (ACHD) Air Quality Division. (When an emitting facility shuts down it is entitled to sell credits for the pollution it released to other existing and new facilities in the region.) ACHD approved ERCs for Shenango for volatile organic compounds, nitrogen oxides, sulfur dioxides and carbon monoxide to be sold until January 2026. As part of a settlement, DTE agreed to forfeit ERC credits for particulate matter. ACHD sent the recommendations to the Pennsylvania Department of Environmental Protection (DEP) which has not yet given final approval of the ERCs.



*Shenango Site Photo 2020 - Photo taken by Dan Lenz*

The former 49.3 square acre Shenango Coke Plant Site (Site) is irregularly shaped with a private access road currently still used by adjacent property owners. Site smokestacks and buildings were demolished in 2018. Portions of the site are in the 100-year and 500-year flood plain with stormwater draining to the center of the Site. The Site is currently zoned Industrial Special which allows a variety of uses as shown in the "Shenango Reimagined Market Study" in the Appendix to this report. This zoning also requires a minimum lot size of 22,000 square feet, maximum building coverage of 75 percent, maximum lot coverage of 90 percent and a building height restriction of 60 feet.

The Site is located in a Qualified Opportunity Zone which provides equity investors for Site redevelopment with significant income tax incentives related to capital gains.

DTE worked with DEP through Pennsylvania's Land Recycling Program Act 2 program to obtain approval and technical assistance for a site remediation plan, to clean up the property to non-residential standards and to prepare the property for sale. Adherence to these standards would preclude use of the property for residential use unless additional remediation were to occur in the future to further cleanup the site to residential standards.



## Communities Impacted by Redevelopment

The Site is located on Neville Island within Neville Township in Allegheny County and approximately ¼ mile south of the Avalon, Ben Avon, Bellevue and Emsworth boroughs.



Figure 1

Neville Township Commissioners shared with the Council in August 2019 that when the Shenango Coke Plant was in operation it had generated approximately:

- \$10,000 in local service tax and \$13,000 in annual property tax revenue to Neville Township;
- \$64,000 in annual taxes to the Cornell School District on Neville Island; and
- \$300,000 to \$400,000 in annual water and sewer fees to Neville Township.

The plant employed approximately 173 people who lived throughout local communities in the region, and generated more than \$17.8 million in annual wages and benefits.<sup>i</sup> Redevelopment of the Site has the potential to bring back jobs to Allegheny County and generate significant tax and fee revenues for Neville Township that were lost when the Shenango Plant closed. Given that the median income of Neville Township residents is approximately 24 percent lower than the median household income in Allegheny County and that 13.4 percent of the population lives at or below the national poverty limit<sup>ii</sup> re-use of the Site has the potential to strongly impact the local economy.

Beyond economic impacts, Site redevelopment can have significant environmental and community impacts. The Shenango Coke Plant experienced a decades-long history of air and water pollution violations for which it paid more than \$2 million in federal and county penalties.<sup>iii</sup> For many years, residents from the four boroughs to the north of the plant complained to EPA and the Allegheny County Public Health Department of negative health impacts from Shenango's industrial air

emissions of fine particulate matter and volatile organic carbons including benzene.<sup>iv</sup> Some accounts place complaints beginning in the 1950s. Significant improvements in air quality and health effects in the boroughs north of the Shenango plant since the closing of the plant were reported in 2018 based on retrospective air quality and health studies completed by the Allegheny County Health Department and Dr. Deborah Gentile. These findings prompted the northern communities to seek a cleaner redevelopment of the Site.

Depending on the type of user who purchases the Site, operations could be relatively benign to the environment or have the potential to generate negative environmental and health outcomes not in accordance with state and federal regulations and not acceptable to local and regional residents.

## *RE-VISIONING SITE REUSE*

Because of the potentially significant impact to the region that Site reuse can have, in 2019 a number of local and regional concerned parties formed the Shenango Reimagined Advisory Council (Council) to better understand the needs and wants of the community that a Site redevelopment could impact and to explore and re-envision reuses for the Site that:

- 1) Are feasible given local and regional market realities;
- 2) Have a positive economic benefit for Neville Township; and
- 3) Generate minimal/no negative environmental or health outcomes for local/regional residents.

## Process

Beginning in June 2019, the Council, facilitate by Midwest non-profit Delta Institute, led the Shenango Reimagined Initiative to think through reuse of the Former Shenango Site. Council members include Neville Township citizens, Allegheny Land Trust, Redevelopment Authority of Allegheny County, Allegheny County Economic Development, Bellevue, Ben Avon and Emsworth elected officials, Allegheny County Clean Air Now and the Breathe Project. The Shenango Re-Imagined initiative is also supported by State Representatives Adam Ravenstahl and Anita Kulik. (Names and contact information for Council representatives are provided in the Appendix.) DTE Energy was unable to participate in the Council. However, it was informed at least monthly of the Council's progress by Delta Institute, a Midwest based non-profit, who facilitated the work of the Council and was in regular communication with DTE's representative.

Between June 2019 and January 2020 the Council met in person eight times and met twice via conference call. Established goals of the meetings were threefold:

- Develop Draft Guiding Principles to inform Site redevelopment;
- Develop potential reuse ideas for the Site that are market based, environmentally acceptable and in alignment with Guiding Principles and expressed via Site conceptual designs.
- Obtain community input on Guiding Principles and Site reuse ideas.

## Guiding Principles

The Shenango Reimagined Advisory Council began work in July 2019 to develop a set of principles to reflect the wants and needs of the local and regional community related to the redevelopment of the former Shenango Site. The purpose of the Principles was to:

1. Partially guide the market research and high-level environmental impact assessment conducted in late 2019/early 2020 to explore highest and best Site reuse; and
2. To share with the current property owner DTE Energy and elected officials what is important and impactful to the community regarding Site redevelopment.

Work began with an assessment of existing conditions in Neville Township, the four boroughs of Avalon, Ben Avon, Bellevue and Emsworth and Allegheny County related to:

Existing Conditions Reviewed	
Communities impacted by Shenango's past/the Site's future	Compliance/enforcement of environmental regulations
Local and regional planning documents	Environmental impact of local industries
Employment, jobs, workforce	Outlook for local industrial growth
Income and wages	Local trends in sustainable growth
Property tax assessment/revenue generation	

Table 1

The Council discussed these existing conditions at length and identified and categorized wants and needs for the local communities and for Allegheny County that could be impacted by Site reuse. The categories were then discussed and developed into seven Draft Guiding Principles for Site reuse. The Draft Guiding Principles were shared with DTE Energy for comment and further discussed with two local industrial real estate developers. The developers provided robust input around reasonability of the draft Principles that was factored into their continued development.

To obtain input on the Draft Guiding Principles from local residents (both Neville Township and surrounding boroughs,) on the evening of February 19, 2020, the Shenango Reimagined Advisory Council hosted a two-hour community meeting at the Robert Morris University Island Sports Center. Sixty three residents and 18 organizations attended the meeting. Attendees reside in Neville Township, Kennedy Township, Avalon, Bellevue, Ben Avon, Emsworth, Coraopolis, Ohio Township, and Kilbuck Township. The meeting was also attended by State Representative Anita Kulik, State Representative Adam Ravenstahl, Allegheny County Council and Bellevue and Ben Avon Council Members. Organizations represented at the meeting included: Allegheny County Economic Development, Allegheny County Clean Air Now, Breathe Project, Clean Air Council, Coraopolis Community Development,



February 19, 2020 Public Meeting at Robert Morris University Island Sports Center on Neville Island – Photo taken by Advisory Council

CMU Create, DJS Ventures, Environmental Planning & Design, GASP, Gazette 2.0, Hold Erie Coke Accountable (HECA), Newmark Knight Frank, Pittsburgh Post Gazette, PublicSource, Robert Morris University, Total FUTSAL, and TribLive.

During this meeting the Council made a presentation to attendees (see meeting flyer, agenda and presentation in the Appendix,) about the Shenango Reimagined process and discussed each of the Draft Guiding Principles with local residents. Ample time was allowed for residents to ask questions about the Principles and residents discussed if there were any significant wants and needs not currently expressed by the Principles, how they felt about the Principles and if they could support the Principles. Comments and questions from attendees and answers to questions were recorded and are included in the Appendix.

Overall, attendees expressed an interest in the zoning of the property, how DTE Energy has participated in the Shenango Reimagined process and what DTE's plans are for the property. They expressed a strong desire for the reuse of the Site to benefit the surrounding community and for the community to have a collaborative relationship with the new Site owner. Strong support was received for the Guiding Principles as evidenced by audience applause and signatures supporting the Principles. Attendees also commented that the Councils of Government should be involved in this initiative, asked to receive a copy of the report and inquired as to which elected officials they should reach out to regarding report recommendations.

### Shenango Reimagined Guiding Principles

1. Reuse of the Site should maximize net revenue to the local and regional taxing bodies and authorities and not burden the public with expense to mitigate any negative impacts to the air and water quality, roads or public health.
2. Future user(s) of the Site are expected to:
  - a. Develop and maintain a positive relationship with local community stakeholders inclusive of Neville Township, neighboring businesses, and the Cornell School District, among others; and
  - b. Identify and mitigate negative environmental impacts of their development or operations and inform and collaborate with the four northern boroughs of Ben Avon, Bellevue, Emsworth and Avalon and other affected regional groups where possible.

This principle may be formalized via a memorandum of understanding or other form of written agreement with affected regional groups such as the Shenango Reimagined Advisory Council.

3. The Site should not be used for any industry or facility that requires a US EPA Clean Air Act Title V or major source air emissions permit. Further, with regard to air pollution:
  - a. Air pollution from any future use of the site shall be minimized to the greatest extent practicable; and
  - b. There shall not be any use that involves the handling and/or transfer of any type of materials that are not contained or are in bulk or loose form.

Other types of pollution, including water, ground, and noise pollution, from any future use, shall be minimized to the greatest extent practicable.



4. Remediation of the Site should be in accordance with Pennsylvania Department of Environmental Protection Act 2 Cleanup Standards to sufficiently protect public waterways, groundwater, users of the Site, users of adjacent sites and public health. Remediation should also be completed in such a way as to make the site attractive for desirable re-uses.
5. The Stakeholders object to re-use of the Site for any activities related to hydraulic fracturing or petrochemical industries or downstream activities related to a petrochemical facility.
6. Redevelopment of the Site should provide an opportunity to create family sustaining jobs for residents of Allegheny County and should consider the potential to:
  - a) Include opportunities to train workers and others in Allegheny County;
  - b) Connect community residents to existing training opportunities for manufacturing and other jobs; and
  - c) Have a multiplier effect to create indirect and induced jobs.
7. Redevelopment of the Site is encouraged to, where possible and feasible, include some sustainable characteristics denoted by the LEED Certification, Living Building Challenge or Energy Star certification. Such characteristics could include energy efficient design or elements, generation/use of renewable energy; green infrastructure for stormwater management; or use of sustainable construction materials and design.

## Potential Viable Site Uses and Use Types

In addition to developing Guiding Principles for Site reuse, another of the Council's goals was to explore and identify potential reuse ideas for the Site that were market based, economically feasible, environmentally acceptable, aligned with Guiding Principles and that received buy-in from the local community.

To accomplish this goal the Council used a three phased approach. The Council:

- Created a scope of work for a market research study to assess highest and best use of the Site based on market and economic factors and informed by the Guiding Principles. The Council contracted with local Pittsburgh real estate consultant Newmark Knight Frank to conduct the market research analysis which identified 27 potential Site reuses.
- Partnered with DJS Ventures, a local real estate consultancy firm with experience in brownfield redevelopment, and with Environmental Planning & Design to assess potential environmental impacts of market based re-use ideas generated by Newmark Knight Frank; select those 20 reuse ideas that were the strongest fit with the Guiding Principles; and develop conceptual designs for the Site based on reuse ideas.
- Presented the 20 strongest fit reuse ideas and concept designs to the local community at a public meeting held February 19, 2020 on Neville Township to obtain input on the concepts.

Newmark Knight Frank completed its eight-week market research analysis in December 2020. The "Shenango Reimagined Market Study" can be found in its entirety in the Appendix to this report.



Study parameters are also shared in the report and included Site characteristics and identification and analysis of local employment, demographics, characteristics of the local industrial market, typical local and regional industrial uses and environmental regulations which could influence Site redevelopment.

Newmark Knight Frank identified that industrial use was the strongest fit for the Site with three industrial use types likely to generate the highest demand. Light Manufacturing/Light Industrial uses were recommended to generate the highest level of demand followed by Heavy Manufacturing/Heavy Industrial and Specialty Manufacturing. In total, 27 specific uses were identified which generated demand regionally and on Neville Island and were deemed a potentially good fit for the Site. The table of 27 reuses can be found in the Executive Summary of the “Shenango Reimagined Market Study” in the Appendix.

The Advisory Council reviewed the list of 27 uses and recognized that *not all* may align with draft Guiding Principles three and five given that Newmark Knight Frank was tasked with only considering if potential users would require an EPA Title V Air Permit or not.

Consequently, to further vet the list of 27 against environmental Guiding Principles three and five, the Council contracted with DJS Ventures to conduct a high-level review of potential environmental impact or outcomes of the 27 uses. DJS conducted its review in January 2020. Results were presented in the form of a matrix “Potential Uses Identified for Neville Site by Newmark Study” with each of the 27 re-use ideas categorized as potentially having either a Heavy, Medium or Low environmental impact, and a table of environmental enforcement actions by industrial re-use types. Both the matrix and table are found in the Appendix to this report.

The Council, guided by this information, removed uses deemed to have a Heavy environmental impact and so determined that only 20 of the 27 uses also aligned with Guiding Principles three and five. The Advisory Council’s 20 recommended re-uses for the Site are:

Table 2

20 Recommended Site Reuses Based on Market Research, Guiding Principles & Potential Environmental Impact *		
Light Industrial	Heavy Industrial	Specialty Manufacturing
Commercial Bakery - <b>LOW</b>	Plastics - Heat Related Extrusion – <b>MEDIUM</b>	Additive Product Manufacturing (3-D printing) – <b>MEDIUM</b>
Electronics Assembly - <b>MEDIUM</b>	Plastics Assembly (i.e. specialty medical) - <b>LOW</b>	Aquaponics - <b>LOW</b>
Equipment Assembly – <b>MEDIUM</b>	Sheet Metal Fabrication - <b>MEDIUM</b>	Autonomous Technology – <b>LOW</b>
Metal Fabrication – <b>MEDIUM</b>		Brewery - <b>LOW</b>
Recycling (paper, plastics, electronics) - <b>LOW</b>		Commercial/Industrial Use Robotics Manufacturing - <b>LOW</b>

Truck Service – <b>MEDIUM</b> unless using a green fleet i.e. electric lifts/cranes/low emission diesel		Medical Marijuana – <b>LOW</b>
		Medical Technology Manufacturing Assembly- <b>LOW</b>
		Pharmaceutical Packaging - <b>LOW</b>
		Self-driving Vehicles - <b>MEDIUM</b>
		Specialty Powder Coating Manufacturing- <b>MEDIUM</b>
		Specialty Metal Products – <b>MEDIUM</b>

\* *Important Note:* For uses with a **MEDIUM** potential environmental impact, per Guiding Principle #3, only those uses which are low emitting (low air emissions) with minimal water, ground, and noise pollution are acceptable to the community.

These uses were shared with attendees at the February 19 meeting and comments from attendees were recorded. Full attendee comments and questions are included in the Appendix. During the public meeting, attendees expressed strong interest and support for the reuse ideas through their comments and through attendee applause. One attendee who identified themselves as being from Neville Island stated that residents do not want any uses that “stink and lead to poor air quality.”

A Ben Avon Council person stated that Ben Avon wants uses for the Site that are compatible with the local neighborhood. The Council Person also submitted a written comment to the Advisory Council: “I’m very supportive of the guiding principles and hope that the former Shenango Site will be redeveloped in a way that benefits the surrounding community and is compatible with our quality of life.”

## Conceptual Design Drawings for Site Reuse

To further illustrate the wants and needs expressed in the Guiding Principles and the 20 Recommended Site Reuses, the Council worked with Environmental Planning & Design and DJS Ventures to develop a conceptual design for the former Shenango Site. This conceptual design represents a potential regional model for future industrial redevelopment in Allegheny County and throughout the broader region. Conceptual elements \*\* for the former Shenango Site redevelopment include:

- Multiple Site users;
- Over 400,000 square feet of building space to maximize property tax generation and possibly job creation;
- Stormwater cisterns, blue roofs, permeable pavement and twenty percent open green way including absorptive plants to create “wet fields” for stormwater and flood management;
- Renewable energy generation via roof top solar panels;
- Transformation of the current access road into a greened, access boulevard;
- Shade Sails to reduce heat island affect; and

- Plants for limited phytoremediation to remove residual contamination from soils. (May require use of subsurface engineered barriers.)

**\*\*** Neville Township zoning changes that may be needed to accommodate these elements are located in the “Shenango Reimagined Concept Plan” found in the Appendix to this report.

*Representative concept drawings are presented below and full size renditions of the below concepts and additional renderings can be found in the “Shenango Reimagined Concept Plan” in the Appendix.*

#### Conceptual Site Plan:

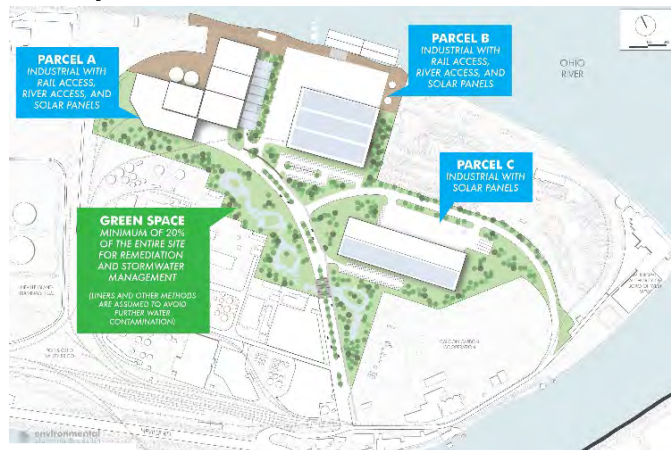


Figure 2

#### Conceptual Regional Model:

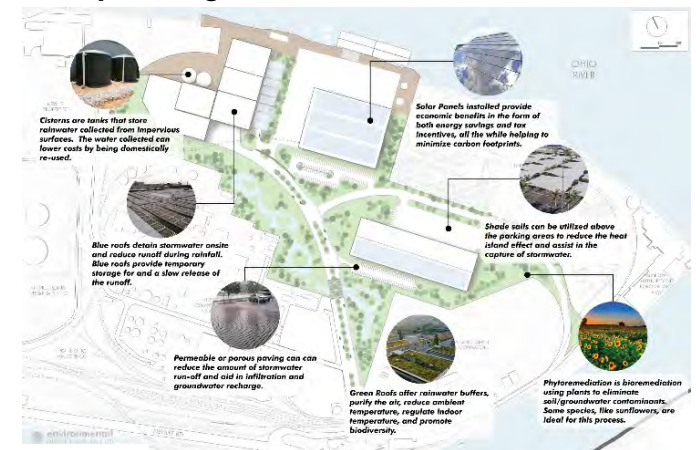


Figure 3

#### Artistic Site Renderings: (additional renderings in Appendix)



Figure 4



Figure 5

During the public meeting, attendees expressed strong interest and support for the concept designs through their comments (provided in the Appendix) and through attendee applause. One attendee indicated that they liked the concept designs presented, particularly the solar panels and bike lanes, and indicated that “this type of reuse needs to be our future to get away from pollution.” The attendee also expressed strong support for the Regional Model presented and expressed that it could be a model for the entire state of Pennsylvania.

## SUMMARY AND RECOMMENDATIONS

The redevelopment of the former Shenango Site has the potential to economically and or environmentally impact over 18,000 residents in Neville Township and the four northern boroughs combined and up to 70,000 Pennsylvania residents living within a three mile radius of the Site.

### Guiding Principles

The Shenango Imagined Advisory Council (Council) developed seven Guiding Principles as part of the deliverables of the Shenango Reimagined process. These Principles are based upon existing economic and environmental conditions in Neville Township and Allegheny County and the needs and wants of the community as they relate to the former Shenango Coke Plant Site. The Principles have been vetted for reasonability by respected, professional members of the local private industrial real estate development community and have received buy-in from the local community and elected officials.

- The Council strongly encourages DTE Energy (and or its developer) and new potential site owners to thoughtfully consider the Guiding Principles. It asks that DTE apply the Principles when vetting potential purchasers of the property to influence the sale of the property towards a reuse that aligns with the Principles.
- The Council also encourages and welcomes an ongoing friendly and collaborative relationship with DTE Energy according to the parameters outlined in Guiding Principle # two. Mr. Dan Lenz, Emsworth Council Member is the point person for the Council moving forward and can be reached at emsworthborough@comcast.net for discussion regarding collaboration with the community. Communication with Delta Institute can be directed to William Schleizer, CEO, at wschleizer@delta-institute.org

### Site Reuse and Regional Model-Site Concept

Through the Shenango Reimagined Re-visioning Process led by the Council and facilitated by Delta Institute, 20 Recommended Site Reuses (Table 2, page 9) for the Shenango Site were identified that are in alignment with local economics and market forces, in alignment with the seven Guiding Principles and received buy-in from the local community.

- The Council strongly encourages DTE Energy to market the Shenango Site to one of these use types if possible, and if not, to market and sell the property to a Site user whose operations align with the salient features of the 20 reuse types shared in this report and is in alignment with the Guiding Principles.
- The Council also recommends that DTE share this visioning report and the conceptual designs for the Site that were developed out of the re-use ideas and Guiding Principles with prospective purchasers of the Site.

## Community Resources

Community resources that may be at the disposal of and valuable to DTE Energy and or the new property owner or redeveloper of the Site include:

- The Advisory Council conducted initial investigation of the potential for solar power generation at the Site. An international solar developer's preliminary analysis indicates that site wide photovoltaic solar panels can generate as much as 10 MW of electricity from the Site. While an economic feasibility analysis has not yet been conducted for this type of reuse, DTE or a new owner of the site can obtain additional information about the potential for solar as a Site reuse/partial site reuse option, from Bryan Ritti Project Development Manager Trina Solar – NE Development 310 Raymond Street Pittsburgh, PA 15218 412-583-6033 [Bryan.Ritti@TrinaSolar.com](mailto:Bryan.Ritti@TrinaSolar.com). [www.trinasolar.com/us/project-development](http://www.trinasolar.com/us/project-development)
- The former Shenango Site is located in the Neville Township Opportunity Zone Tract ID 4610 whereby investments made by individuals through special funds in these zones are allowed to defer or eliminate federal taxes on capital gains. For more information see: Allegheny county Opportunity zones <http://www.alleghenyopportunityzones.com/> and <https://dced.pa.gov/programs-funding/federal-funding-opportunities/qualified-opportunity-zones/>
- The former Shenango Site is eligible for Local Economic Revitalization Tax Assistance (LERTA). LERTA allows for an exemption for the assessed valuation of new construction or improvements to certain industrial, commercial or other business property in deteriorated areas to facilitate new development. The LERTA exemption can be made available for a maximum of ten (10) years. [www.alleghenycounty.us/authorities/final-2015-lerta-report](http://www.alleghenycounty.us/authorities/final-2015-lerta-report)
- Allegheny County Economic Development (ACED) strives to help business start-ups, and business relocations and support growth in the county. ACED is dedicated to expanding and diversifying the region's economic base to improve the prosperity and quality of life for its citizens. It accomplishes this objective through business development services. For example, ACED provides Small Business and Target Industry Loans. As another example, it can support developers by coordinating property acquisition, site development and redevelopment, and infrastructure development for major development projects. These areas of expertise are especially critical for recycling of brownfields, an ACED emphasis. <https://www.alleghenycounty.us/economic-development/businesses/index.aspx>
- Allegheny County's workforce development agency Partner 4 Work can connect a new user of the site with experienced members of the local workforce seeking employment. <https://www.partner4work.org/>
- The Pittsburgh Regional Alliance (PRA), the economic development marketing affiliate of the Allegheny Conference on Community Development, offers a complete package of services to companies looking to locate or expand in any of the ten southwestern



Pennsylvania counties comprising the Pittsburgh region. Its website also includes helpful data, for example, on regional workforce wage rates and labor profiles and regional business presence <https://www.pittsburghregion.org/>

- The Western Pennsylvania Regional Data Center provides a shared technological and legal infrastructure to support research, analysis, decision making, and community engagement. The University Center has long served as a community information intermediary in Allegheny County to help people find and use information to improve their communities. <http://www.wprdc.org/>

## Appendix

- Advisory Council Participants and Contact Information
- Public Meeting - Community Engagement Summary
- Public Meeting – Handouts and Presentation Slides
- “Shenango Reimagined Market Study”
- “Site Reuse Environmental Impact Review”
- “Shenango Reimagined Concept Plan”

*The Shenango Reimagined initiative was funded by the Just Transition Fund and Heinz Endowments with additional financial support received from US EPA through a brownfields assessment grant.*

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<sup>i</sup> timesonline.com

<sup>ii</sup> American Community 5 year Survey 2012 to 2017

<sup>iii</sup> “Postgazette.com Shenango smokestacks, a prime polluter in Western Pa., imploded”

<sup>iv</sup> Their experiences are documented at <http://www.accan.org/stories.html>

# *APPENDIX*

## *SHENANGO REIMAGINED ADVISORY COUNCIL*

**Neville Township citizens**

**Borough of Bellevue**

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**Borough of Emsworth**

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*Shenango Reimagined Public Meeting 02-19-2020*  
*Robert Morris University Island Sports Center*  
*Meeting Summary*

**Meeting convened at 7PM with a pre-prepared presentation from the Shenango Reimagined Advisory Council (presentation power point slides included in the Appendix) and concluded at 9PM. Ample time was allowed in between presentation sections for attendee questions and discussion.**

**Number of Registered Attendees – 53**

**Number of Attendees Counted – 62**

**Elected Officials in Attendance:**

State Representative Anita Kulik  
State Representative Adam Ravenstahl  
Allegheny County Council – Bethany Hallam  
Bellevue Council Member - Jeff Stuncard  
Ben Avon Council Member - Kara Roggenkamp

**Organizations in Attendance:**

Allegheny County Economic Development  
Allegheny County Clean Air Now  
Breathe Project  
Clean Air Council  
Coraopolis Community Development  
CMU Create  
DJS Ventures  
Environmental Planning & Design  
GASP  
Gazette 2.0  
Hold Erie Coke Accountable (HECA)  
Newmark Knight Frank  
NKF  
Pittsburgh Post Gazette  
PublicSource  
Robert Morris University  
Total FUTSAL  
TribLive

**Residents in Attendance From:** Neville Township, Kennedy Township, Avalon, Bellevue, Ben Avon, Emsworth, Coraopolis, Ohio Township, Kilbuck Township

**Support for the Guiding Principles:**

Twelve attendees signed a document support the Guiding Principles

**Interest to Join the Shenango Reimagined Advisory Council:**

Four residents indicated an interest in joining the Shenango Reimagined Advisory Council

**Comments and Questions from Attendees:**

Comment: Attendee offered assistance to work with Council to create an on-line social media awareness campaign to garner additional support for Guiding Principles/Site reuse ideas.

Q: How was a rapport established with DTE Energy and what is DTE's interest in the area?

A: Council indicated that Delta Institute has had regular monthly communication with DTE Energy's representative via phone, e-mail and in person and that the Council is not knowledgeable about DTE's interest in the area other than that DTE is installing underground pipelines in various locations in Pennsylvania not related to the Shenango Site.

Q: Are any of the local Councils of Government (COGs) involved in this initiative and could they be?

A: Council indicated that COGs have not been involved so far, but they certainly could be.

Q: Will DTE Energy need a change in the zoning ordinance when it sells the Site?

A: Council indicated that a variety of uses are allowed by the current zoning.

Q: Were McKees Rocks and Stove Township invited to the public meeting?

A: Council indicated that they were.

Comment: Ben Avon Council person Karen Rogencamp stated that Ben Avon wants uses for the Site that are compatible with the local neighborhood. Ms. Rogencamp also submitted a written comment to the Council: "I'm very supportive of the guiding principles and hope that the former Shenango Site will be redeveloped in a way that benefits the surrounding community and is compatible with our quality of life."

Q: In regards to Guiding Principle #2, what does a collaborative relationship with a new Site owner look like and will any specific details be assigned to this Guiding Principle? i.e. monthly meetings with the community, green space, financial support for the community?

A: Delta indicated that it is premature to assign specifics to this Guiding Principle until the new Site owner and re-use of the Site is identified and the Council can meet with the new



Site owner. However, once an MOU is established between the Council and a new Site owner, specifics such as those mentioned may be appropriate.

Q: Are emissions from other Title V industrial uses located on Neville Island being looked at and do they affect the redevelopment of the Site?

A: Council indicated that there are local advocacy groups looking at these emissions.

Q: An attendee who identified themselves as being from Neville Island stated that residents do not want any uses that stink and lead to poor air quality. They also inquired if Neville Township Commissioners were invited to the public meeting and why they were not in attendance.

A: Council indicated that Neville Township Commissioners and Neville Township leadership were invited to the public meeting but did not respond to invitations.

Q: What will DTE Energy do if the property does not sell?

A: Delta Institute indicated that the Council does not have any knowledge of DTE's plans if the property doesn't sell.

Q: Has the Council reached out to any private philanthropic foundations active in the area to purchase the property?

A: Council indicated that purchase of the property was discussed with several foundations. However, they were not able to interest any foundations in getting involved in purchasing the site at this time.

Q: Is the parcel separation in the suggested uses something that would help it sell?

A: Environmental Planning & Design responded that visuals are just suggestions maximizing the useful space and taxable property.

Q: Why in the Site concept design were three separate uses created?

A: Environmental Planning & Design indicated that the design team was trying to get to 300,000 square feet of developable square footage and actually achieved 400,000 of developed square footage. This increased level of potential development could maximize square property tax revenue generation for Neville Township. Additionally, the unusual shape of the Site create a challenge the development of one large building. Dividing the site into three parcels creates flexibility for reuse and building development. Under this scenario, DTE Energy could redevelop the Site or sell to a master developer who could build out the Site, divide into parcels and or sell off individual parcels.

Q: What is the ball park cost to redevelop the Site in the way indicated in the concept designs?

A: Environmental Planning & Design indicated that the potential development idea was not costed out. However, the 130 acre South Side Works redevelopment costed out at approximately \$100 million for infrastructure costs. The per acre infrastructure cost would likely be more than what it could probably cost on the Shenango site.

Q: What is in it for DTE?

A: Delta responded that the Council feels that the market research report, Guiding Principles, and reuse ideas and concept drawings may help DTE to focus their search for a new site owner thereby expediting their sales process. If the reuse idea for the Site is also in align with what has been presented, community buy-in could help expedite the sales timeline – less time means less money.

Q: How has this [community engagement] model worked elsewhere?

A: Delta responded that the traditional community engagement model used in economic development is often to only engage the community after the reuse of a property is known. This timing of the traditional process can limit the ability of community wants and needs to influence the redevelopment of the Site. The model being applied for the Shenango Site is a newer model for community engagement that some traditional economic development professionals have not embraced yet. However, it allows community wants and needs to be known and openly discussed prior to property sale and redevelopment. This has potential to influence reuse of the Site (since reuse desirable to the community already has community buy-in) and has the most potential to influence site redevelopment in a cooperative, collaborative way.

Q: Could the zoning for the property be changed from Industrial Special to Light Commercial?

A: Environmental Planning & Design indicated that the amount of time that the Site remains dormant could factor in to whether this could be possible or not.

Comment: Attendee indicated that they liked the concept designs presented particularly the solar panels and bike lanes and indicated that this type of reuse needs to be our future to get away from pollution. Attendee expressed strong support for the Regional Model presented and expressed that it could be a model for the entire state of Pennsylvania. [Comment received applause from attendees.]

Comment: Attendee expressed hope in working with DTE Energy but also asked if eminent domain could be invoked by the community to further reduce the chance of the Site being used for fracking. The attendee shared a dislike of fracking to a response of applause from the room.

Q: Are there any state regulations that take into account what can be allowed on the Shenango Site given the existence of the new cracker plant?

A: Council responded that any company can apply for a Title V air permit and qualified that county and state regulations pertaining to air emissions are very complicated.

Comment: Attendee indicated that the work done by the Council (market research, reuse ideas and concept designs) seems like it should be an advantage for DTE.

Q: How can attendees receive a copy of the final visioning report?

A: Council will e-mail the final report to all attendees who provided an e-mail address on the registration sheet for the public meeting. Council also indicated the report will be shared with DTE representatives at the annual shareholders meeting later in the year.

Q: How incentivized is DTE Energy to sell the property?

A: Council indicated that it did not have any information from which to answer the question.

Q: Are any members of the Advisory Council part of the group that tried to shut down the Shenango Coke Plant?

A: Council indicated that ACCAN was but qualified that ACCAN's intent was not to shut down the plant but to reduce the air emissions from the plant. Council also indicated that other Council members were not part of the past communications with DTE Energy when the Shenango Coke Plant was in operation.

Q: Is there a list of elected officials with influence that the public/attendees could contact?

A: Council suggested attendees contact their local representatives, Neville Township and their State Representatives.

Q: Are there any outstanding fines for DTE and could they be cut or reduced in exchange for a Community Benefit Fund for Neville Township (to help green the Township, etc.)?

A: Council responded that arrangements similar to this have happened in Erie and at other sites.



# RE-ENVISION THE FORMER SHENANGO COKE PLANT SITE

*Community opportunity to **influence the redevelopment of the former Shenango coke plant site** for the betterment of Neville Township, neighboring boroughs, and Allegheny County.*

*Join elected officials and concerned citizens to hear about what has been done so far and add your input!*

## **WHEN:**

**Wednesday, February 19 - 7:00PM to 9:00PM**

*Sign in and refreshments from 6:30PM to 7:00PM*

## **WHERE:**

**Robert Morris Sports Center**

7600 Grand Ave, Pittsburgh, PA 15225

## **HOST:**

**Shenango Reimagined Advisory Council**

*WHAT HAPPENS AT THE SHENANGO SITE AFFECTS US ALL!  
CLEAN AIR IS IMPORTANT TO EVERYONE!*

**QUESTIONS?** Contact Margaret Renas at [mrenas@delta-institute.org](mailto:mrenas@delta-institute.org)

# REIMAGINING THE FORMER SHENANGO COKE PLANT SITE PUBLIC INPUT MEETING AGENDA

Robert Morris University Island Sports Center  
Wednesday, February 19, 2020 | 6:30 p.m. - 9:00 p.m.

6:30 - 7:00 p.m. **Sign-in and Refreshments**

7:00 - 7:05 p.m. **Welcome** Jim Cichra, Golf Director, RMU Island Sports Center

7:05 - 7:30 p.m. **Introductions and Purpose of Meeting** Linda Woshner, former Bellevue Council Member

- Why We Are Here
- Shenango Reimagined Advisory Council - Dan Lenz, Emsworth Council Member
- Attendee Input - Mayor Melanie Holcomb, Ben Avon
- Questions and Discussion - Margaret Renas, Delta Institute

7:30 - 8:30 p.m. **Guiding Principles and Site Reuse**

- Introduction of 7 Principles - Angelo Taranto, Karen Grzywinski, Thaddeus Popovich, ACCAN
- Site Reuse Ideas
- Questions and Discussion - Margaret Renas, Delta Institute

8:30 - 9:00 p.m. **Site Concept Designs**

- Site Concept Designs and Regional Model - Doug Skowron, DJS Ventures; and A.J. Schwartz, and Katie Kovalchik, Environmental Planning & Design
- Questions and Discussion - Margaret Renas, Delta Institute

9:00 p.m. **Adjourn**



**ALLEGHENY  
LAND TRUST**



**Borough of Bellevue**  
Incorporated 1867

**citizens of  
Neville Township**  

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**Borough of  
Ben Avon**

**BREATHE  
PROJECT**  
The Air We Share

delta institute 





## What is a Reuse Visioning Process?

The Shenango Reimagined Advisory Council is leading a community reuse visioning process, facilitated by Midwest non-profit Delta Institute ([www.delta-institute.org](http://www.delta-institute.org)), for the former Shenango Coke Plant Site. Through engaged conversations with concerned parties impacted by the site's redevelopment, the process identifies potential reuse opportunities that achieve the desired outcomes of all parties. The process develops Guiding Principles to express community wants and needs for the site's redevelopment, conducts market and environmental research to identify potential reuse options, and aligns these options with public input from the community.

## Goal of the Reuse Visioning Process

Since the former Shenango Coke Plant shut down in 2016, the surrounding community has seen an improvement in air quality. The reuse visioning process aims to ensure that the redevelopment of the former Shenango Coke Plant Site:

1. Brings in a future use that does not add a new source of air pollution to an airshed that is already saturated by numerous air pollution sources
2. Makes economic sense for Neville Township, property owner DTE Energy, Allegheny County and the region.

## Timeline

The visioning process began in April 2019 to explore reuses for the Shenango Site that align with environmental, economic and societal needs and wants for the region. The process will culminate with this public meeting and a report detailing outcomes and findings will be issued in late February.

## Members of the Shenango Reimagined Advisory Council:

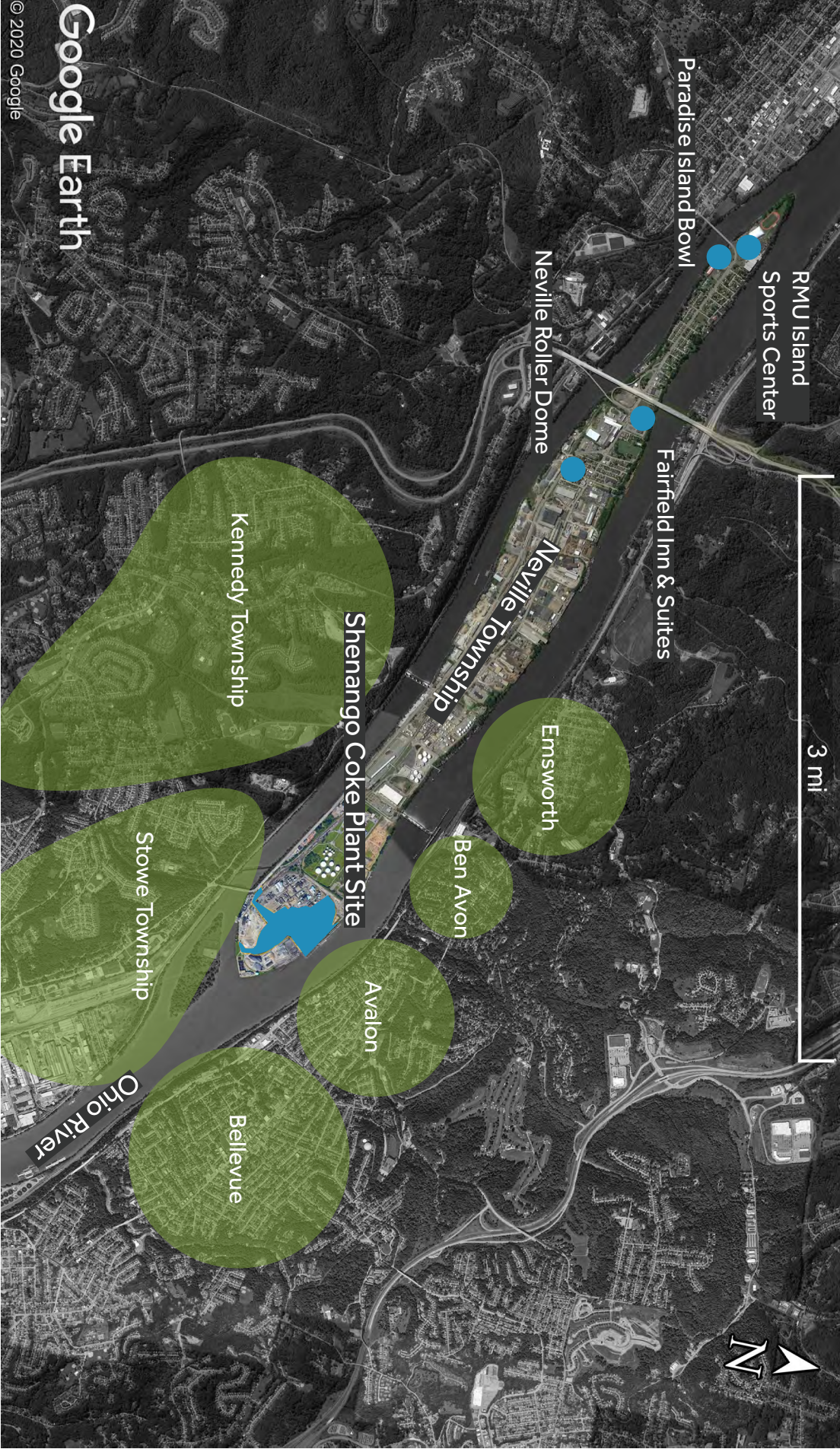
Neville Township citizens; Allegheny Land Trust; Redevelopment Authority of Allegheny County; Allegheny County Economic Development; elected officials from the boroughs of Avalon, Bellevue, Ben Avon and Emsworth; Allegheny County Clean Air Now; and the Breathe Project. The Shenango Re-Imagined initiative is also supported by State Representatives Adam Ravenstahl and Anita Kulik.

To receive information about this process, please contact Margaret Renas at [mrenas@delta-institute.org](mailto:mrenas@delta-institute.org).



# NEVILLE TOWNSHIP

\*Boroughs sizes as shown are based on geographic area.





FORMER SHENANGO COKE PLANT SITE



# *SHENANGO REIMAGINED DRAFT GUIDING PRINCIPLES*

## Maximize Economics:

Reuse of the Site should maximize net revenue to the local and regional taxing bodies and authorities and not burden the public with expense to mitigate any negative impacts to the air and water quality, roads or public health.

## Future Collaboration:

1. Develop and maintain a positive relationship with local community stakeholders inclusive of Neville Township, neighboring businesses, and the Cornell School District, among others; and
2. Identify and mitigate negative environmental impacts of their development or operations and inform and collaborate with the four northern boroughs of Ben Avon, Bellevue, Emsworth and Avalon and other affected regional groups where possible.

This principle may be formalized via a memorandum of understanding or other form of written agreement with the affected regional groups such as the Shenango Reimagined Advisory Council.

## Environmental Impact:

The Site should not be used for any industry or facility that requires a US EPA Clean Air Act Title V or major source air emissions permit. Further, with regard to air pollution:

1. Air pollution from any future use of the site shall be minimized to the greatest extent practicable; and
2. There shall not be any use that involves the handling and/or transfer of any type of materials that are not contained or are in bulk or loose form.

Other types of pollution, including water, ground, and noise pollution, from any future use, shall be minimized to the greatest extent practicable.

## Site Cleanup:

Remediation of the Site should be in accordance with Pennsylvania Department of Environmental Protection Act 2 Cleanup Standards to sufficiently protect public waterways, groundwater, users of the Site, users of adjacent sites and public health. Remediation should also be completed in such a way as to make the site attractive for desirable re-uses.

## No Fracking:

The Stakeholders object to re-use of the Site for any activities related to the hydraulic fracturing or petrochemical industries or downstream activities related to a petrochemical facility.

## Jobs:

Redevelopment of the Site should provide an opportunity to create family sustaining jobs for residents of Allegheny County and should consider the potential to:

1. Include opportunities to train workers and others in Allegheny County;
2. Connect community residents to existing training opportunities for manufacturing and other jobs; and
3. Have a multiplier effect to create indirect and induced jobs.

## Sustainable Green:

Redevelopment of the Site is encouraged to, where possible and feasible, include some sustainable characteristics denoted by the LEED Certification, Living Building Challenge or Energy Star certification. Such characteristics could include energy efficient design or elements, generation/use of renewable energy; green infrastructure for stormwater management; or use of sustainable construction materials and design.

## 20 RECOMMENDED SITE REUSE BASED ON MARKET RESEARCH, GUIDING PRINCIPLES & POTENTIAL ENVIRONMENTAL IMPACT\*

Light Industrial	Heavy Industrial	Specialty Industrial
Commercial Bakery - <b>LOW</b>	Plastics - Heat Related Extrusion - <b>MEDIUM</b>	Additive Product Manufacturing (3-D printing) - <b>MEDIUM</b>
Electronics Assembly - <b>MEDIUM</b>	Plastics Assembly - <b>LOW</b>	Aquaponics - <b>LOW</b>
Equipment Assembly - <b>MEDIUM</b>	Sheet Metal Fabrication - <b>MEDIUM</b>	Autonomous Technology - <b>LOW</b>
Metal Fabrication - <b>MEDIUM</b>		Brewery - <b>LOW</b>
Recycling (paper, plastics, electronics) - <b>LOW</b>		Commercial/Industrial Use Robotics Manufacturing - <b>LOW</b>
Truck Service - <b>MEDIUM</b> unless using a green fleet i.e. electric lifts/cranes/low emission diesel		Medical Marijuana - <b>LOW</b>
		Medical Technology Manufacturing Assembly - <b>LOW</b>
		Pharmaceutical Packaging - <b>LOW</b>
		Self-driving Vehicles - <b>MEDIUM</b>
		Specialty Powder Coating Manufacturing - <b>MEDIUM</b>
		Specialty Metal Products - <b>MEDIUM</b>

\* Note: For uses with a **MEDIUM** potential environmental impact, per Guiding Principle #3, only those uses which are low emitting (low air emissions) with minimal water, ground and noise pollution are acceptable to the community.



# SITE CONCEPTS

## Site Reuse

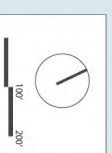
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**PARCEL A**  
INDUSTRIAL WITH  
RAIL ACCESS,  
RIVER ACCESS, AND  
SOLAR PANELS

**PARCEL B**  
INDUSTRIAL WITH  
RAIL ACCESS,  
RIVER ACCESS, AND  
SOLAR PANELS

**PARCEL C**  
INDUSTRIAL WITH  
SOLAR PANELS

**GREEN SPACE**  
MINIMUM OF 20%  
OF THE ENTIRE SITE  
FOR REMEDIATION  
AND STORMWATER  
MANAGEMENT  
(LINERS AND OTHER METHODS  
ARE ASSUMED TO AVOID  
FURTHER WATER  
CONTAMINATION)



OHIO  
RIVER

NEVILLE ISLAND  
TERMINALS II LLC

PGH & OHIO  
VALENTIN CO.

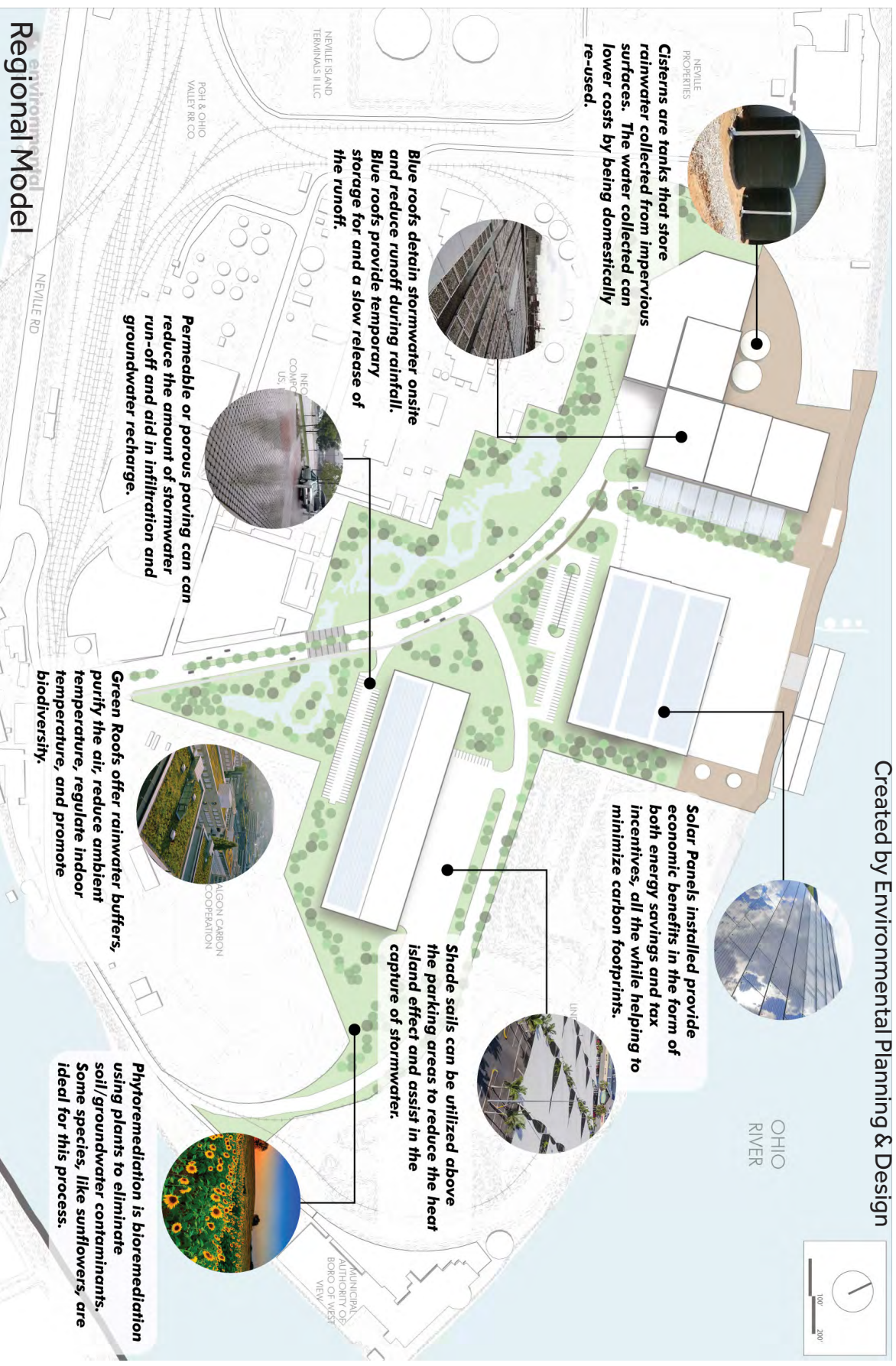
CAJON CARBON  
COOPERATION

MUNICIPAL  
AUTHORITY OF  
BORO OF WEST  
VIEW



# SITE CONCEPTS

Created by Environmental Planning & Design





# *SITE ARTISTIC RENDERINGS*



Created by Environmental Planning & Design



Created by Environmental Planning & Design



# *SITE ARTISTIC RENDERINGS*



Created by Environmental Planning & Design



Created by Environmental Planning & Design

# *RE-IMAGINING THE FORMER SHENANGO COKE PLANT SITE*

PUBLIC MEETING  
FEBRUARY 19, 2020



**Borough of Ben Avon**



**Borough of Bellevue**  
Incorporated 1887

**citizens of Neville Township**



**ALLEGHENY  
LAND TRUST**

**BREATHE  
PROJECT**  
THE AIR WE SHARE

DISRUPT CATALYZE TRANSFORM

delta institute 

*WELCOME!*



*Jim Cichra,  
Golf Director*

*RMU Island Sports Center*



# INTRODUCTIONS

- Linda Woshner, 2019 Bellevue Council Member

citizens of Neville Township



Borough of Ben Avon



**Borough of Bellevue**  
Incorporated 1887



**ALLEGHENY  
LAND TRUST**



**BREATHE  
PROJECT**

The Air We Share



delta institute





# *PURPOSE OF THE MEETING*

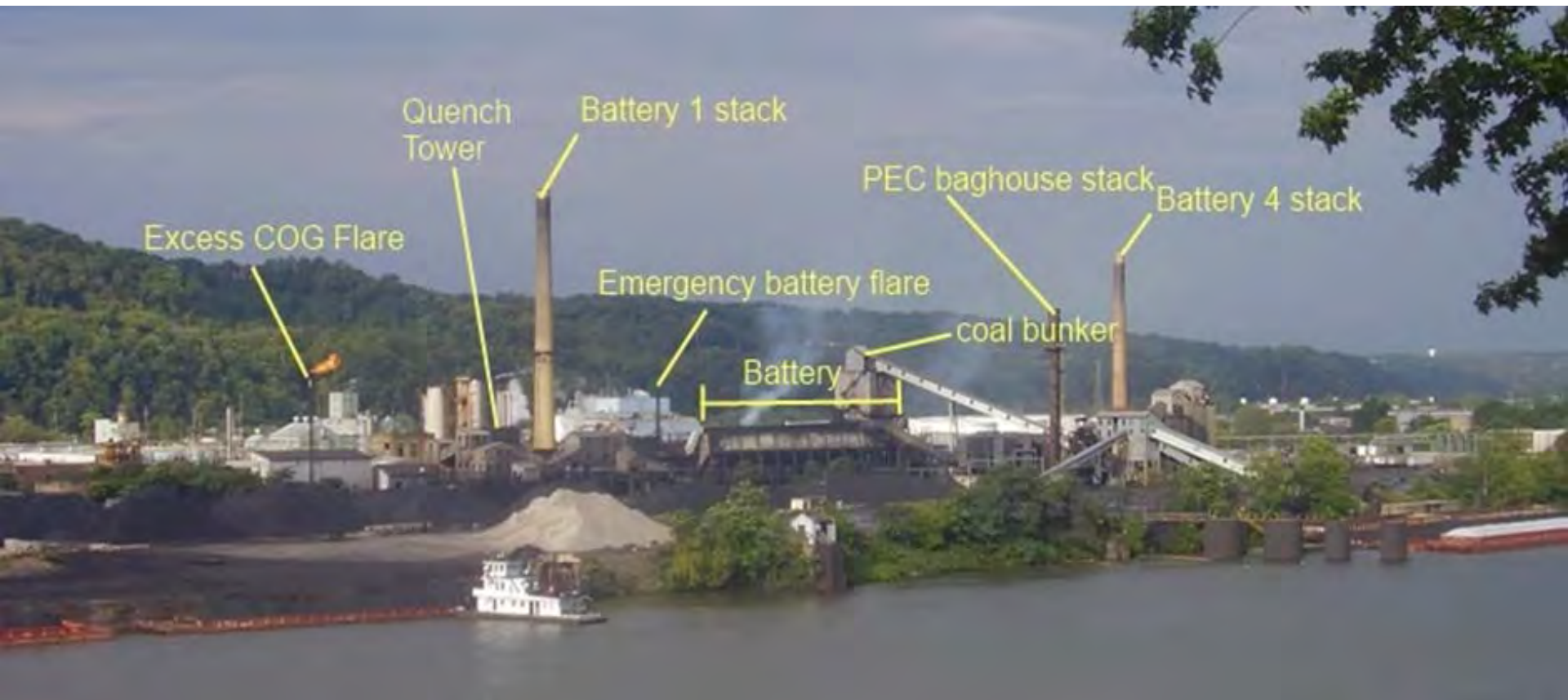
## *TODAY'S AGENDA*

- Context and Background
  - ☐ Why We are Here and Site History
  - ☐ What Has Been Done - Advisory Council
  - ☐ Why We Need *Your Help*.
- *Your Input* - Guiding Principles
- *Your Input* - Site Re-use Concepts

# *WHY WE ARE HERE AND SITE HISTORY*

*– Linda Woshner, 2019 Bellevue Council Member*

# *SHENANGO COKE PLANT SITE PRE 2016*



# *SHENANGO COKE PLANT SITE 2020*








# COMMUNITIES IMPACTED THEN & NOW



# IMPROVED ASTHMA OUTCOMES IN NORTHGATE STUDENTS AFTER SHENANGO CLOSURE

Two different groups of elementary school children enrolled in Northgate.

- First group of 146 studied before Shenango closure.
- Second group of 153 studied after Shenango closure.

	Before	After	Change
% with Asthma Diagnosed by a physician	25.3%	19.1%	 24.5%
% with Uncontrolled Asthma	64.9%	37.9%	 41.6%
% At risk of Asthma but not diagnosed by a physician	19.3%	7.9%	 58.8%

Expected % of asthma was 9-10%.

Expected % of uncontrolled asthma was 40%.

Gentile DA: International Nemaclin Asthma Conference, October 26, 2018.



# *SUMMARY OF ALLEGHENY COUNTY HEALTH DEPT. STATISTICS*

## Air Pollution/Health Changes After Shenango Closed:

- ❖ PM2.5 (fine dust) ↓ **12%**
- ❖ Highest daily PM2.5 (fine dust) spike ↓ **26%**
- ❖ Benzene levels ↓ **37%**
- ❖ ER Visits Cardiovascular Events ↓ **26%**
- ❖ ER Visits Respiratory Events ↓ **38%**

# *SUMMARY OF ECONOMIC IMPACTS TO NEVILLE TOWNSHIP/ALLEGHENY COUNTY*

## Shenango Closure Lost:

- ❖ 173 jobs for Allegheny County
- ❖ Property tax revenue for Neville Township and Cornell School District
- ❖ Local service taxes for Neville Township
- ❖ Water and Sewer fees for Neville Township

## Redevelopment Potential Gains:

Jobs, property and service tax revenue, fee revenue!

# *SHENANGO COKE PLANT SITE FUTURE?*

Community Opportunity to Influence Site  
Redevelopment for....

- ❖ Betterment of Neville Township
- ❖ Betterment of Neighboring Boroughs
- ❖ Betterment of Allegheny County

*WHAT HAS BEEN DONE  
SHENANGO RE-IMAGINED  
ADVISORY COUNCIL*

*– Dan Lenz Emsworth Council Member*

# *COUNCIL FORMATION & FACILITATION*



# COUNCIL WORK TO DATE

- Existing Conditions – Draft Guiding Principles
- Market Research
- Environmental Review
- Site Concept Designs
- Site Reuse Recommendations
- *Public Meeting – Today!*
- Final Visioning Report – February 28th



# *DTE'S PERSPECTIVE*

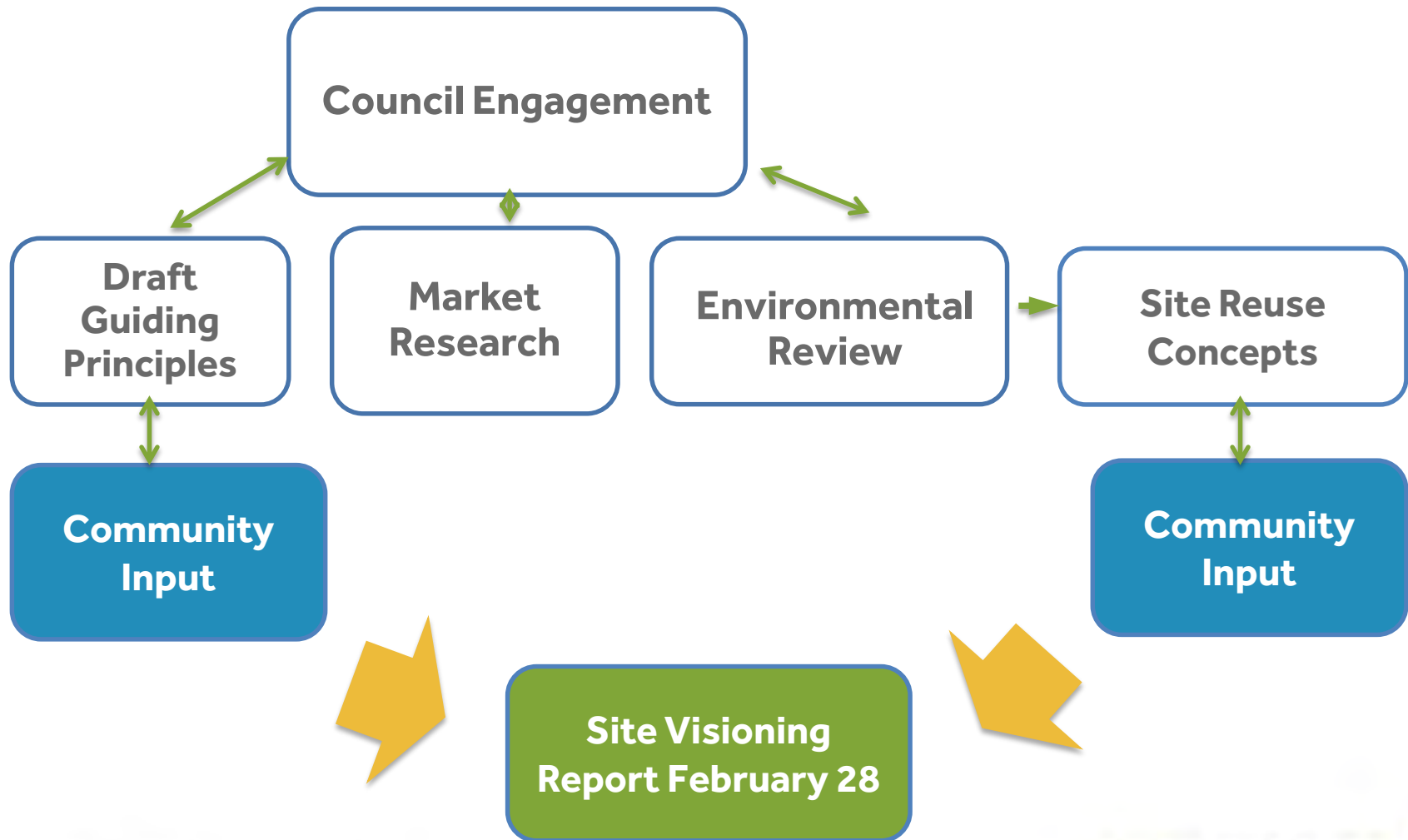
**DTE Energy®**



# *WHY WE NEED YOUR HELP ATTENDEE INPUT*

*– Mayor Melanie Holcomb, Ben Avon*

# HOW YOUR INPUT FITS IN THE PROCESS



# *ATTENDEE INPUT*

Guiding Principles & Site  
Concept Designs

Perspectives? Thoughts?  
Additions? Support?

# *QUESTIONS/DISCUSSION*



# *7 DRAFT GUIDING PRINCIPLES*

*– Angelo Taranto, Karen Grzywinsky, &  
Thaddeus Popovich, ACCAN*

*- Margaret Renas, Delta Institute*

# *PRINCIPLE #1 – MAXIMIZE ECONOMICS*

## Reuse of Site Should:

- Maximize net local and regional revenue
- Not burden public with negative environmental or health impacts

## *PRINCIPLE #2 – FUTURE COLLABORATION*

Future User(s) of Site Expected to:

- Maintain positive relationship with local community
- Identify and mitigate negative environmental impacts of development or operations (if any)
- Collaborate with four northern boroughs

Formalize via MOU or other written agreement with Shenango Reimagined Advisory Council.

## *PRINCIPLE #3 – ENVIRONMENTAL IMPACT*

No uses requiring US EPA Clean Air Act Title V or major source air emissions permit.

- Air pollution should be minimized
- No use that involves handling/transfer of materials not contained or in bulk or loose form.

Other types of pollution (water, ground, and noise pollution) should be minimized.

## *PRINCIPLE #4 – SITE CLEANUP*

### Remediation of Site:

- To follow PA Dept. of Environmental Protection Act 2 Cleanup Standards.
- To protect public waterways, groundwater, Site users, users of adjacent sites and public health.
- Completed to make site attractive for desirable re-uses.



## *PRINCIPLE #5 – NO FRACKING*

No re-use of the Site for activities related to:

- Hydraulic fracturing
- Petrochemical industries
- Downstream activities related to petrochemical facilities.

## *PRINCIPLE #6 - JOBS*

Reuse of Site to create family sustaining jobs and:

- Include opportunities to train workers and others in Allegheny County
- Connect community residents to existing training opportunities for manufacturing and other jobs
- Have a multiplier effect to create indirect jobs.

## *PRINCIPLE #7 – SUSTAINABLE/GREEN*

Redevelopment encouraged to include some sustainable characteristics denoted by i.e.:

- LEED Certification
- Living Building Challenge
- Energy Star Certification.

To include:

- Energy efficient design or elements
- Generation/use of renewable energy ( i.e. solar)
- Plant/soil systems for stormwater management;
- Sustainable construction materials and design.

# *SITE REUSE TYPES IN LINE WITH GUIDING PRINCIPLES, MARKET*

## Feasible Site Reuse Categories:

- ❖ Light Industrial
- ❖ Heavy Industrial
- ❖ Specialty Manufacturing



# 20 SITE RE-USE EXAMPLES

Light Industrial	Heavy Industrial	Specialty Manufacturing
Commercial Bakery - LOW	Plastics - Heat Related Extrusion – MEDIUM	Additive Product Manufacturing (3-D printing) – MEDIUM
Electronics Assembly - MEDIUM	Plastics Assembly (i.e specialty medical) - LOW	Aquaponics - LOW
Equipment Assembly – MEDIUM	Sheet Metal Fabrication - MEDIUM	Autonomous Technology –LOW
Metal Fabrication – MEDIUM		Brewery - LOW
Recycling (paper, plastics, electronics) - LOW		Commercial/Industrial Use Robotics Manufacturing - LOW
Truck Service – MEDIUM unless using a green fleet i.e. electric lifts/cranes/low emission diesel		Medical Marijuana – LOW
		Medical Technology Manufacturing Assembly- LOW
		Pharmaceutical Packaging - LOW
		Self-driving Vehicles MEDIUM
		Specialty Powder Coating Manufacturing- MEDIUM
		Specialty Metal Products – MEDIUM

\* MEDIUM uses must be low emitters with minimal water, ground, and noise pollution

# *QUESTIONS/DISCUSSION*

*SIGN TO SUPPORT  
THE GUIDING PRINCIPLES*

# *CONCEPT DESIGNS*

*- Doug Skowron, DJS Ventures*

*- AJ Schwartz, Environmental Planning & Design*

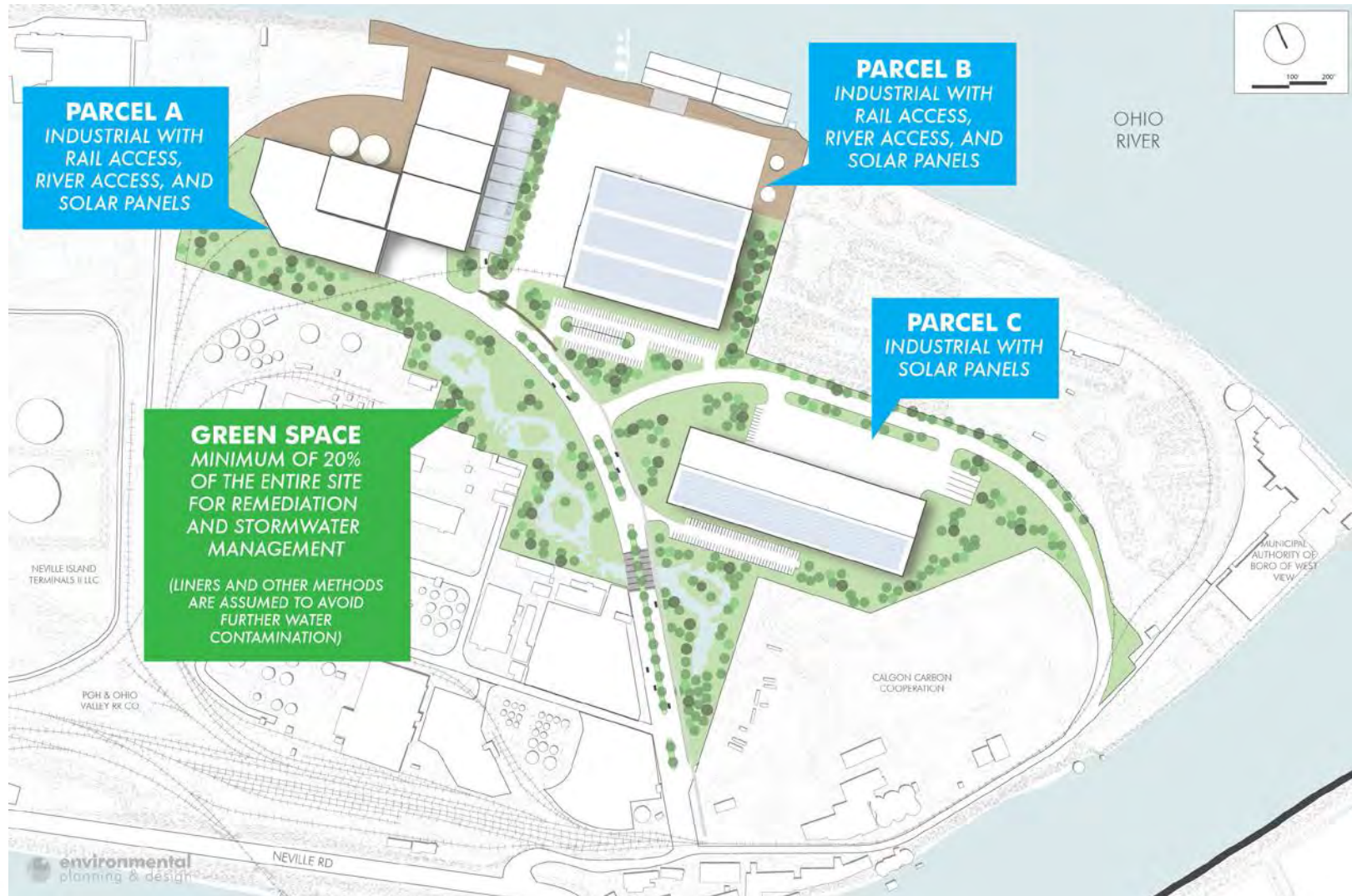


# *CONCEPT DESIGNS*

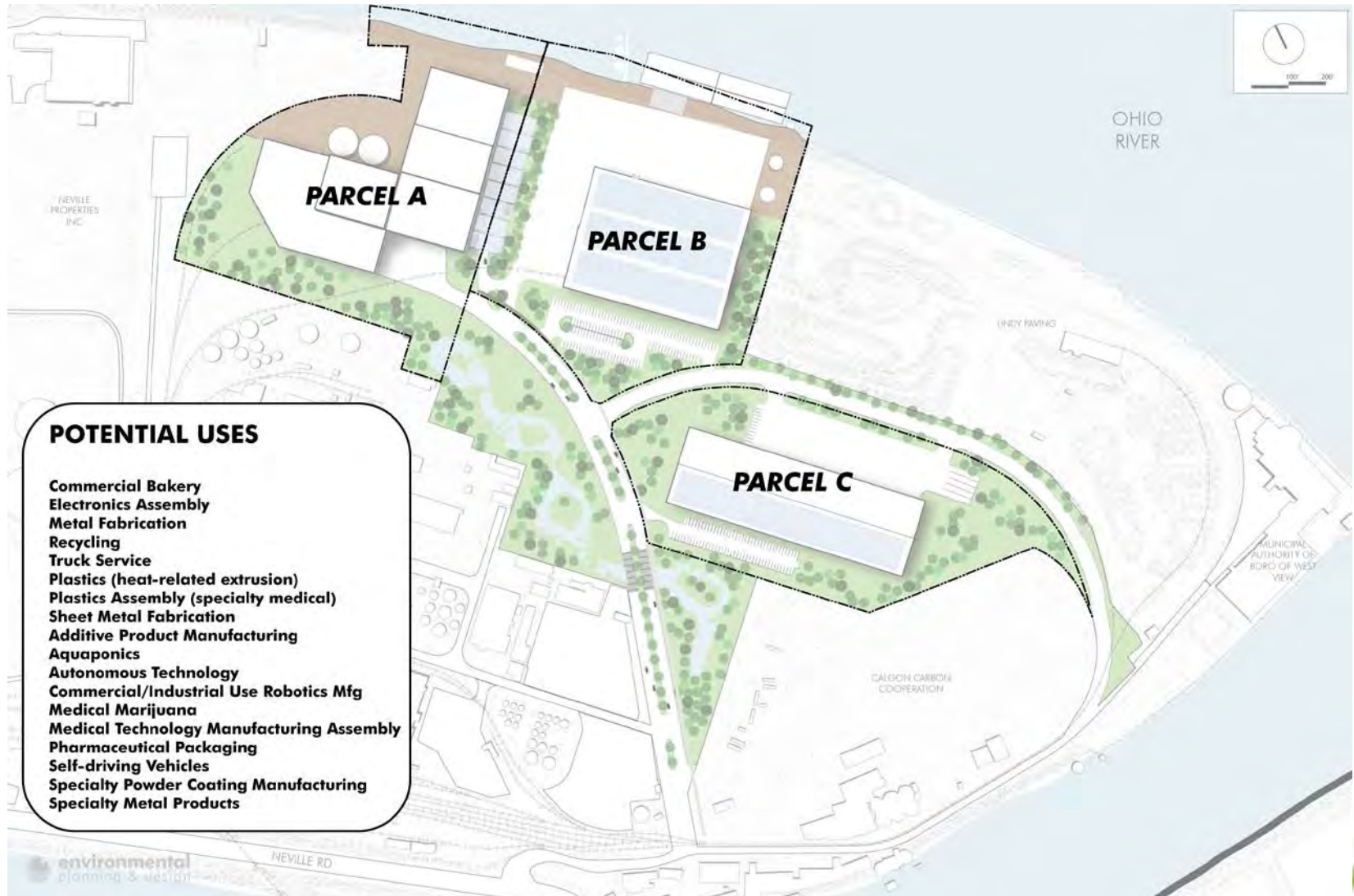
## Based on:

- Site Re-use Categories
- Guiding Principles (particularly #7)
- Zoning/Land Use Ordinances
- Site Characteristics

# CONCEPT DESIGNS – INDUSTRIAL RE-USE

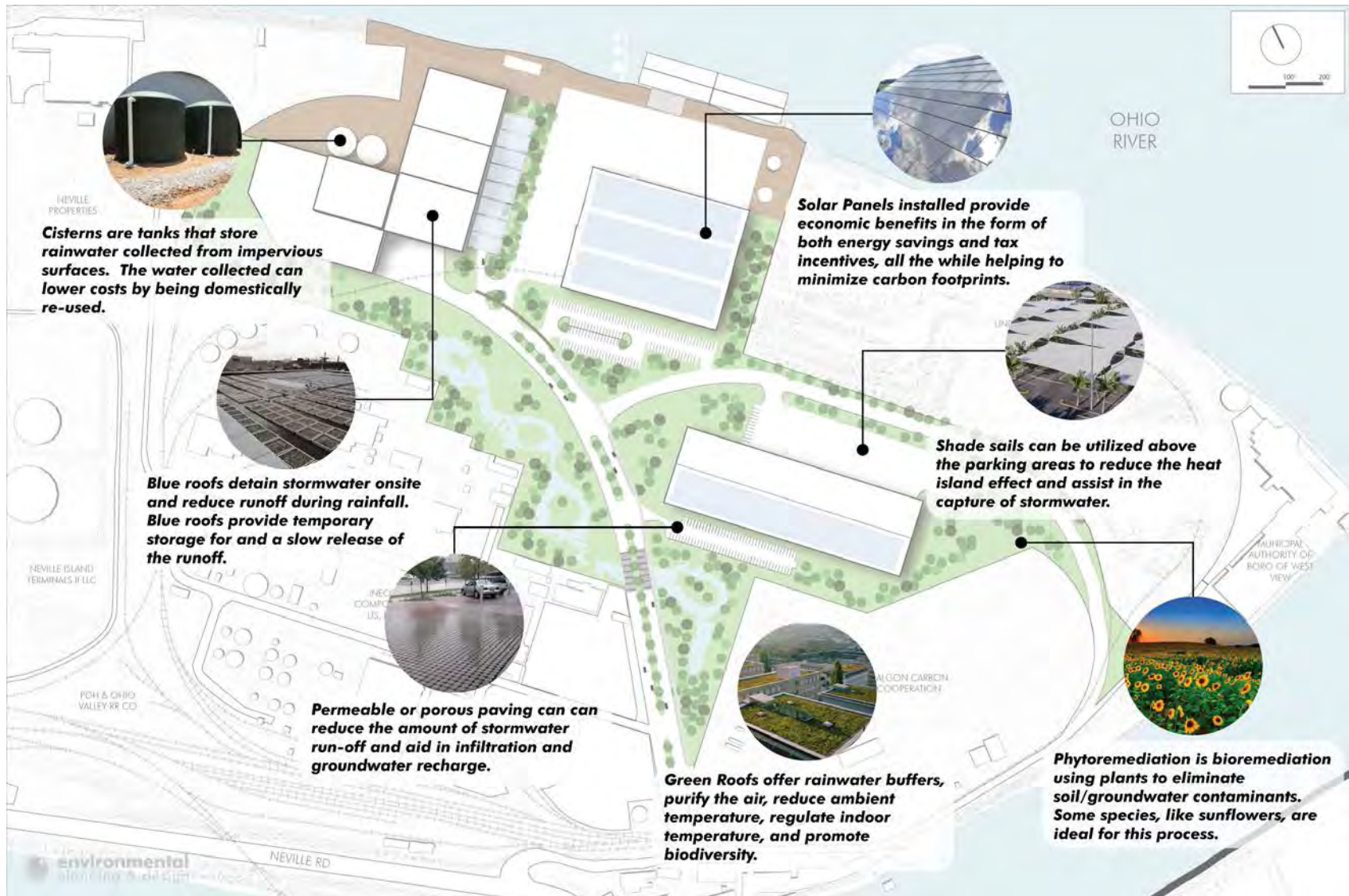


# CONCEPT DESIGNS – INDUSTRIAL RE-USE





# CONCEPT DESIGNS – REGIONAL MODEL





# CONCEPT DESIGNS – ARTISTIC RENDERINGS



# CONCEPT DESIGNS – ARTISTIC RENDERINGS





# CONCEPT DESIGNS – ARTISTIC RENDERINGS



# CONCEPT DESIGNS – ARTISTIC RENDERINGS





# *JOINING THE SHENANGO REIMAGINED ADVISORY COUNCIL*

*Contact Dan Lenz, Emsworth Council Member  
[emsworthborough@comcast.net](mailto:emsworthborough@comcast.net)*

*THANK YOU!*

## Shenango Reimagined Market Study

200 Neville Rd.  
Pittsburgh, Allegheny County, PA 15225

NKF Job No.: 19-0006971-1

### **Market Study Prepared For:**

Margaret Renas  
Lead, Community & Brownfield  
Revitalization  
Delta Institute  
35 East Wacker Drive  
Chicago, IL 60601

### **Prepared By:**

**Newmark Knight Frank**  
Valuation & Advisory, LLC  
2591 Wexford-Bayne Road, Suite 102  
Sewickley, PA 15143



# Executive Summary

The Shenango Reimagined Market Study was developed based on a scope of work that included a list of Guiding Principles developed by the Advisory Council. The scope of work also included developing the market study based on typical study parameters which include:

- ❖ Identify and analyze the property and site characteristics (both regulatory and physical).
- ❖ Identify and analyze the regional and local employment and demographic characteristics which could influence redevelopment.
- ❖ Define, identify, and analyze the characteristics of an industrial market including types of industrial uses, demand for, and supply of, these uses.
- ❖ Identify typical industrial uses in the area, including Neville Island for the purpose of identifying uses that would be a good fit for the subject site.
- ❖ Identify uses in the immediate area and larger regional area that would be a good fit for the subject site and match at least some of the Guiding Principles.

The study is divided into five areas of analysis; the location, the property, industrial use potential, the market, and conclusions. The study concludes that the Shenango site has the potential to be redeveloped with a variety of industrial uses that are consistent with the Guiding Principles, but notes that a number of uses, primarily heavy industrial in nature, would require an Act IV Clean Air permit or would support the fracking industry. The primary findings of the study are summarized as follows:

## The Location

The site is near the center of the Pittsburgh Metropolitan Statistical Area in Neville Township (Neville Island) on the Ohio River. Neville has historically been developed with industrial uses and blue-collar housing which supported the industrial development.

The island is the location of an interstate highway interchange which provides superior regional access, including efficient access to the Pittsburgh Central Business District, Pittsburgh International Airport, Interstate 376, and Interstate 79.

The Shenango site is located on the eastern half of the island which is intensely developed with a variety of industrial uses. These include heavy manufacturing, light manufacturing and in a limited form, warehouse uses. The uses in the immediate proximity of the Shenango site include an asphalt plant, reactivated carbon plant and a solvent production plant. These uses may be inconsistent with the Guiding Principles because they require Clean Air permits or are related to the petroleum industry.



## The Property

The site size is 49.3 acres. The site is very irregular in shape and access to the site is below average and shared with adjoining land users. Approximately 25 acres of the total land area are rectangular, have river frontage and considered to have the greatest development potential. The site is estimated to have a development potential of over 300,000 square feet. This could be in the form of a single plant/user with multiple buildings or an industrial park with multiple buildings and users.

Portions of the site are in the 100-year and 500-year flood plain; this designation could impact development costs.

The property is in the application portion of Act 2 through the Commonwealth of Pennsylvania. Approval of this application would set the stage for the property to be remediated to an industrial standard. While residential uses would be precluded, the site would meet industrial development criteria.

In addition to having a zoning classification Industrial Special, which includes a wide variety of uses, the site is in a Qualified Opportunity Zone, which provides equity investors significant income tax incentives related to capital gains. This qualification is a competitive advantage compared to properties which are otherwise similar.

## Industrial Use Potential

Based on the location and physical characteristics of the Shenango parcel, some form of industrial development represents the best use of the property. Industrial properties fall under five general categories: warehouse distribution, light manufacturing, heavy manufacturing, specialty manufacturing, and flex.

Our analysis of the physical, locational, and real estate market characteristics indicated that the following types of industrial uses would be the most viable development options for the subject property.

- ❖ Light Manufacturing– This industrial use generates the broadest range of demand across the region and on Neville Island. These uses do not typically require rail or river access, but the location in a qualified opportunity zone would be an attractive characteristic. Unlikely to generate demand, from a single user, instead multiple buildings/uses in an industrial park like setting has the highest probability of success. A very high percentage of these uses would conform to the Guiding Principles.
- ❖ Heavy Manufacturing – This use is consistent with other uses on the island and would generate the greatest demand for river and rail access. This use has the greatest potential for a single user to develop the entire parcel. Some uses that fall under this category may not conform to the Guiding Principles.

- ❖ **Specialty Manufacturing** – This type of use is generating the greatest level of new industrial demand in the Pittsburgh region. Similar to light manufacturing, these uses are not likely to require river or rail accessibility but would benefit from the Qualified Opportunity Zone designation. A single user is unlikely but multiple users and a park like development setting would be seen as an attractive characteristic. Some specialty manufacturing uses may require Clean Air Act permits or be related to the fracking industry, uses which would be inconsistent with the Guiding Principles.

### Conclusion – Potential Industrial Uses

Research was completed on industrial uses currently on Neville Island and of industrial companies that entered the Pittsburgh region in 2017 or expanded existing operations in the region in 2017, the most recent year available. This research is considered an excellent sampling of the potential uses that could be developed on Neville Island at the Shenango site. The uses are categorized by industry type and include heavy manufacturing, light manufacturing or specialty manufacturing.

Of the industrial property types studied, light manufacturing/light industrial uses are likely to generate the highest level of demand. This is followed by heavy manufacturing/heavy industrial and specialty manufacturing. Specific uses which have generated demand regionally and on Neville Island and are likely a good fit for the Shenango site include the following:

Potential Uses		
Heavy	Light	Specialty
Steel fabrication	Residential and commercial building component manufacturing	Medical Marijuana
Building material production	Plastic household commercial goods	Medical technology manufacturing
Plastic fabrication	Commercial bakery	Specialty powder coating manufacturing
Sheet metal fabrication	Industrial plant equipment manufacturer	Commercial/industrial use robotics manufacturing
Scrap metal recycling	Recycling	Self-driving vehicles
	Metal fabrication	Autonomous technology
	Electronics assembly	Brewery
	Building supply	Pharmaceutical packaging
	Equipment assembly	Additive product manufacturing (3-D printing)
	Paper products	Aquaponics
	Truck service	Specialty metal products

These and similar heavy, light, and specialty manufacturing uses are likely to generate demand for use at the Shenango site and be in compliance with the Guiding Principles.

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# The Property

## Land and Site Analysis

The Shenango property (The Property) is located at the eastern end of Neville Island, in an area that has been historically the location of heavy industrial and petroleum related uses.

The site was utilized for agriculture prior to 1900. In 1900, the site was purchased and operated as a steel-making operation which continued until the 1920's. From the 1920's to 2016, the site was used for coking operations, iron and coke production, chemical production, and cement and activated carbon production. In 2016, operations ceased at the site, residual raw materials and waste products were removed and vessels were cleaned in anticipation of demolition in 2018.





## Site Characteristics

The following are important site characteristics that impact the potential use and users of the property:

**Size:** The total site size is 49.3 acres; the northern portion of the site, which has river frontage is approximately 25 acres and rectangular in shape, the middle and southern portions of the site are approximately 23 acres and irregular in shape, approximately 1 acre makes up the access drive onto Grand Avenue near the bridge.

Typical land-to-building ratio for industrial property is 4:1 or 5:1. If only the rectangular portion of the site would be developed approximately 200,000 to 300,000 square feet could be constructed on a market-oriented basis. Considering the additional irregularly shaped portion of the site, it is reasonable to expect that a total of over 300,000 square feet can be constructed.

This type of development could be a single user, or the site could be developed with multiple buildings and multiple users in an industrial park like setting.

**Shape:** Very irregular

**Topography:** Mostly level

**River Frontage:** 1,300+/- feet

**River Access:** 1000 +/- feet of river wall; three barges end-to-end can be stored against the wall and up to nine barges can be stacked into the river

**Flood Plain:** Portions of the site are within the 100-year and 500-year flood plain (flood map located on next page)

**Rail Availability:** On-site spur connects to CSX and NS, both are accessible

### Public Utilities:

**Water:** Neville Township Public Works (From West View Water Authority)

**Sewer:** ALCOSAN

**Electricity:** Duquesne Light

**Natural Gas:** Columbia Gas








**Access:** Below Average; access to site is from Grand Avenue to a narrow driveway that is shared with Lindy Paving, West View Water Authority, Calgon, and Ashland.

### Easements, Encroachments and Restrictions

We have not reviewed a title report but we assume there are no easements in place that would impact redevelopment of the site. We are aware that easements are in place in favor of adjoiners; these easements are believed to be related to access and utilities. While these easements are unlikely to impact development, they could impact who uses the property; some uses may not be compatible for security or other reasons. According to the Remedial Investigation Report (RIR), Risk Assessment, Cleanup Plan and Final Report there will be a Uniform Environmental Covenant (UEC) placed on the site to eliminate potential future exposure pathways. These requirements will be fully defined in the Land Recycling Program (Act 2) section of this report.

### Flood Map



SPECIAL FLOOD HAZARD AREAS		Without Base Flood Elevation (BFE) Zone A, V, A99
		With BFE or Depth
		Regulatory Floodway Zone AE, AO, AH, VE, AR
OTHER AREAS OF FLOOD HAZARD		0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile Zone X
		Future Conditions 1% Annual Chance Flood Hazard Zone X
		Area with Reduced Flood Risk due to Levee. See Notes. Zone X
		Area with Flood Risk due to Levee Zone D



### Adjacent Land Uses

The following land uses are found in close proximity to the subject:

- ❖ Lindy Paving owns the adjacent parcel east of The Property and operates an asphalt plant and river terminal for aggregate material and bulk commodities.
- ❖ West View Water Authority owns the parcel east of The Property and operates a potable surface water withdrawal plant with the Ohio River, the water source.
- ❖ Calgon Carbon Corporation owns the parcel southeast of The Property; the on-site plant is used for the regeneration of activated carbon.
- ❖ Ashland Inc. owns the adjacent parcel to the west and uses it to process various solvents.
- ❖ CSX Railroad operates the railroad along the southern boundary of the Ashland site.



## Site Conclusions

### Strengths

- ❖ Large land area that can be developed with a variety of uses
- ❖ Extensive river frontage and river access
- ❖ Level site
- ❖ Rail access

### Weaknesses

- ❖ Shape is very unregular reducing the developable land area
- ❖ Access is shared and very irregular
- ❖ Although Act 2 remediation is assumed; the scope of the final remediation could impact how the property is utilized in the future
- ❖ Portions of the site are within the 100-year and 500-year flood plain; redevelopment cost could increase if site elevation needs to be increased



## Land Recycling Program (Act 2)

### Definition

Pennsylvania's Land Recycling Program (Voluntary Cleanup Program) was established by a series of legislation enacted in 1995. This package (Acts 2, 3 and 4 of 1995) serve as the basis for what is more familiarly known as the Land Recycling Program or simply 'Act 2.' The Land Recycling Program encourages the voluntary cleanup and reuse of contaminated commercial and industrial sites.

The Land Recycling Program is built on four cornerstones that break down redevelopment obstacles:

- ❖ Uniform cleanup standards: enables the remediator to clearly understand the extent and cost of site cleanup. The selection of standard(s) assures that a site is protective of its present and future use. A property used for industrial development need not be as clean as a residential site.
- ❖ Liability relief: addresses the concerns that previously inhibited site redevelopment and sale of properties, the liability protection extends to future owners.
- ❖ Standardized reviews and time limits: provide date certainty. Consistent reporting requirements and standardized review procedures provide a definite time frame for report review.
- ❖ Financial Assistance: provides grants and low-interest loans for assessment or remediation. These programs are available to people who did not cause or contribute to contamination at the site.

The goals of the Land Recycling Program are to encourage public sector cleanup of contaminated, vacant or otherwise underutilized properties and return them to productive use. Further development of brownfield properties stimulates economic growth, encourages local government partnerships with business, and maximizes the use of existing infrastructure, thereby preserving prime farmland, open space and natural areas.

### The Property

In September 2017, the Department of Environmental Protection (DEP) received a notice of intent to remediate. The site-specific cleanup standard was the chosen course of action for the subject site.

This notice explains that plans and reports will not be accepted until after the 30-day comment period following submission of the notice. The comment period allows the municipality the opportunity to request to be involved in the development of remediation and reuse plans for the property.

On April 24, 2019, the DEP received a Remedial Investigation Report (RIR), Risk Assessment, Cleanup Plan and Final Report for the subject site.

The report indicated that a Uniform Environmental Covenant (UEC) will be placed on the site to eliminate potential future exposure pathways.

A Uniform Environmental Covenant (UEC) is used to establish an Activity and Use Limitation (AUL) and may include engineering controls and institutional controls. Engineering controls include various forms of caps, building foundations, liners, and treatment methods to create pathway elimination for regulated substances to enter environmental media or effect human health. Institutional controls include administrative measures, such as groundwater use restrictions, construction restrictions, property use restrictions, and post remediation care requirements intended to prevent exposure to contaminants remaining on site. Deed restrictions are generally required as part of the institutional controls.

The Uniform Environmental Covenant for the Shenango site will prohibit groundwater usage for any and all purposes, land usage is restricted to non-residential use, construction of future buildings at the site will require an evaluation of the site and mitigation may be required. Additional steps will be needed before construction activities commence to protect workers as well as for future excavation activities. Cleanup cost is estimated to be \$8,000,000.

On July 15, 2019, the DEP issued a technical deficiency letter after reviewing the Remedial Investigation Report (RIR), Risk Assessment, Cleanup Plan and Final Report. The letter indicated, "Off-site groundwater contamination for ammonia was not correctly evaluated for soil vapor intrusion of occupied structures on the downgradient properties. The use of proximity distances for contaminants in the groundwater is limited petroleum hydrocarbons which exclude ammonia. The soil vapor exposure risk for ammonia should be evaluated to ensure no open exposure pathways exist off-site."

The DEP website has not been updated with any new material since the deficiency letter was uploaded. However, Tom Buchan of the DEP indicated in an interview on October 24, 2019 that although no official response has been made, the deficiency is in process of being corrected and they will not be required to restart the application process. In addition, he indicated that the site is in the final steps of the Act 2 approval process.

## Conclusion

As a part of the Land Recycling Program (Act 2) a Uniform Environmental Covenant will be placed on the subject site which disallows for residential use. It is an extraordinary assumption of this market study that the site will be approved for the Act 2 program. We conclude that all manner of industrial development will be allowed while residential uses will not.

## Qualified Opportunity Zone

The Property is located in a designated Qualified Opportunity Zone (QOZ). QOZ's are areas, as designated by the state, that are qualifying low-income community census tracts. The program is intended to attract equity to real estate investments in these areas. The investor's incentive is deferred capital gains tax, reduced capital gains tax for investments held at least five years, and the elimination of capital gains tax on investments held at least 10 years.

All of Neville Island is in a qualified zone, specifically zone 4610.

The advantage that Neville has compared to many other QOZ areas, is the very good regional access.

## Zoning

Redevelopment of the site will also be governed by local zoning restrictions. Neville Township has jurisdiction. The zoning ordinance that encumbers The Property is summarized below.

Zoning Summary	
Category	Description
Zoning Jurisdiction	Neville Township
Zoning Designation	Industrial Special
Legally Conforming?	Yes
Zoning Change Likely?	Unlikely
Permitted Uses	Automotive services, banks and financial institutions, bulk storage, building contractor's yard, offices, general retail businesses, heavy industries, junk yard, light industries, lumber supply yard, outdoor storage facilities, public parks, public utility buildings, railroad facilities, recycling facilities, specialty retail businesses, truck terminals, vehicle fueling operations, warehousing, and wholesale businesses. As well as uses permitted in Riverfront Planned Development including commercial recreation, apartments, fitness clubs, hospitals, medical labs, hotel/motel, marina, museum, nursing home, restaurant without drive-thru, and townhouses
Minimum Lot Area	22,000 square feet
Maximum Building Coverage	75%
Maximum Lot Coverage	90%
Front	25 feet
Side	15 feet
Rear	15 feet
Building Height Restrictions	60 feet
Other	None noted

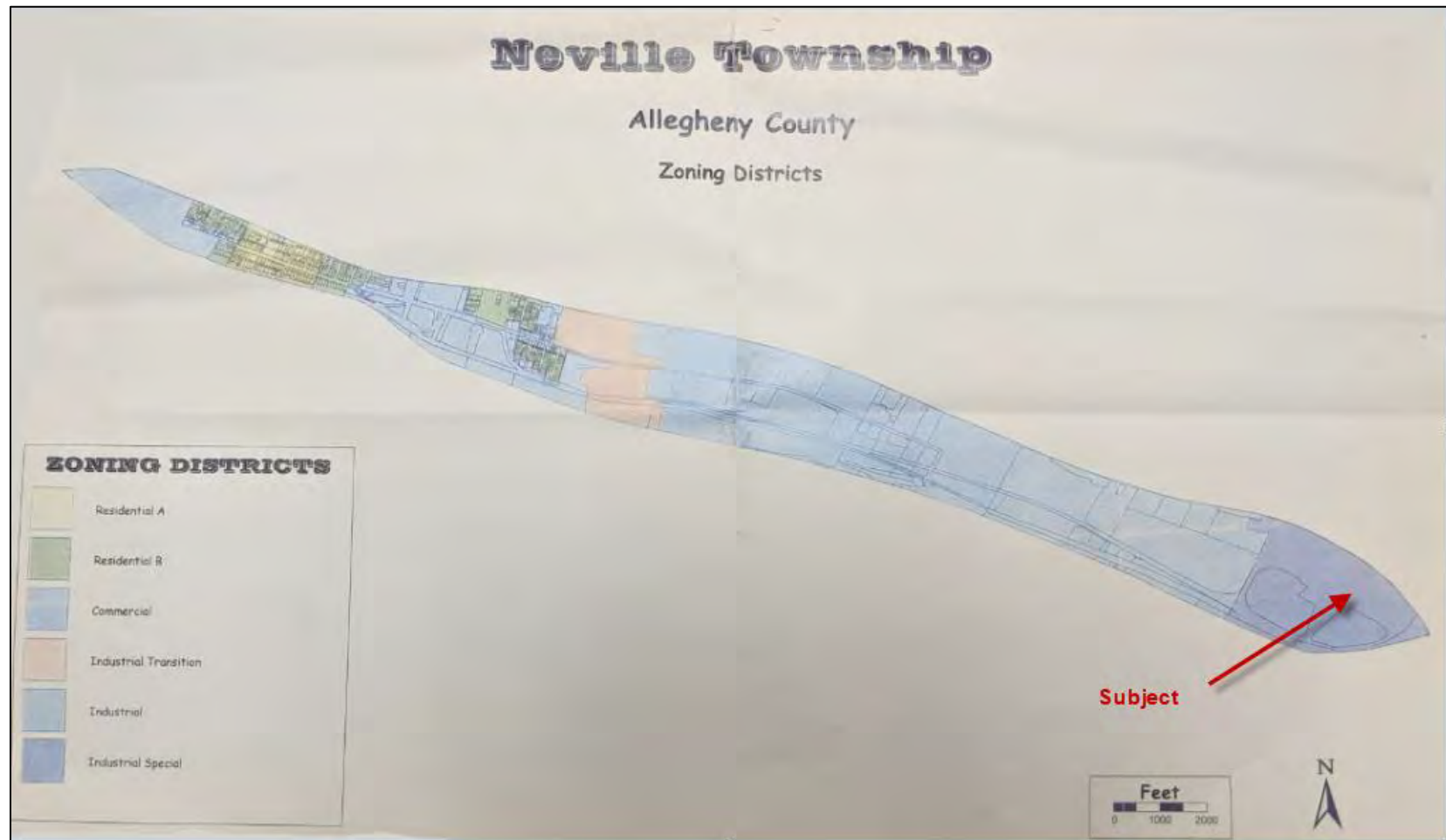
*Compiled by NKF*

We are not experts in the interpretation of zoning ordinances. A qualified land use/zoning expert should be engaged to determine what can be legally developed.

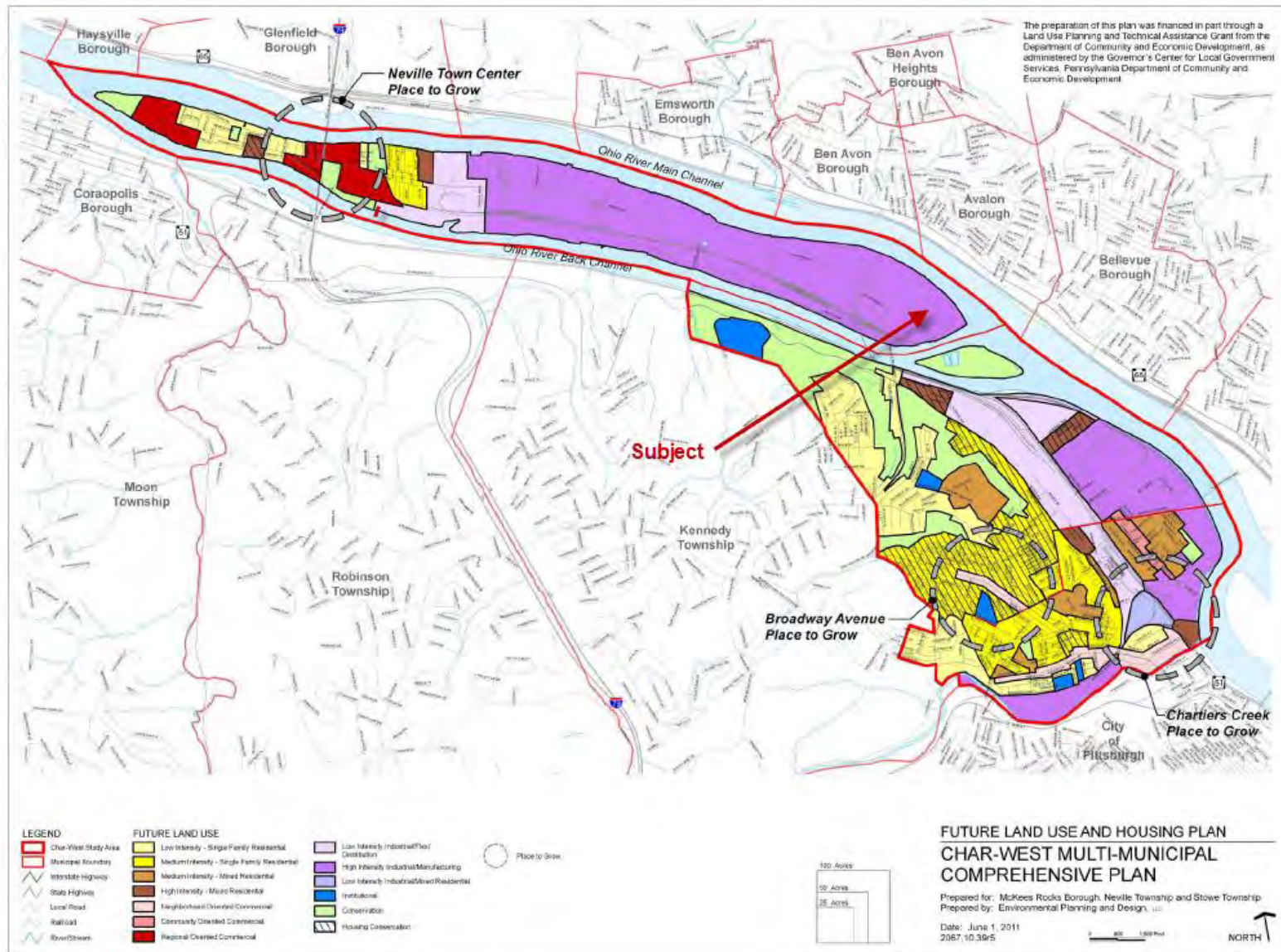
The following maps show the zoning and projected land uses as proposed in the 2009 Comprehensive Plan for the local sub-market identified as the Char – West Multi-Municipal Comprehensive Plan. As summarized, the Industrial Special classification allows a variety of uses such as heavy industrial uses, hotels, and townhouses. The comprehensive plan provides for the entire eastern one-half of Neville Island as High Intensity Industrial/Manufacturing.



## Zoning Map (2003)



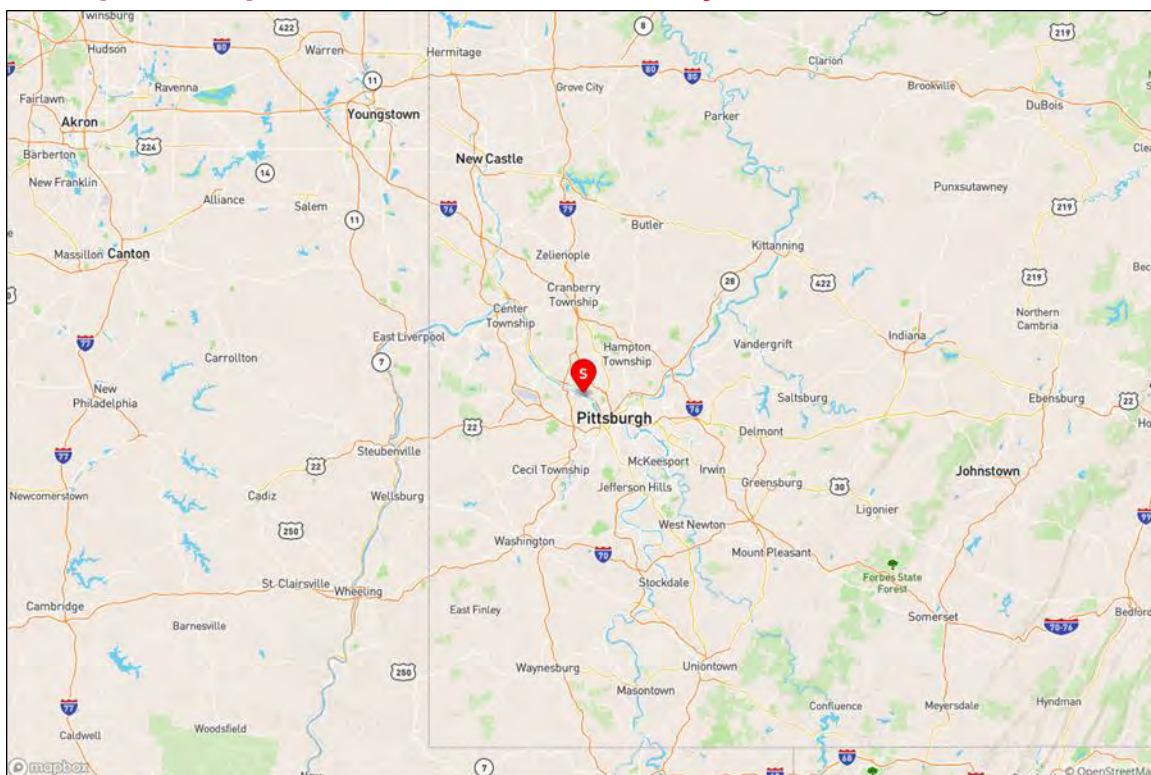
## Comprehensive Plan (Future Land Use) (2009)



## The Location

The level of demand and type of uses which create demand for real estate are indicated by the demographic and economic characteristics trends in a region. The following summarizes regional trends that impact the demand for real estate in general and in Neville Township.

### Pittsburgh Metropolitan Statistics Area Analysis



The subject is located in Neville Township and Allegheny County, Pennsylvania. It is part of the Pittsburgh Metropolitan Statistical Area (Pittsburgh MSA).

Moody's Analytics' Economy.com provides the following economic summary for the Pittsburgh MSA as of May, 2019.



2012	2013	2014	2015	2016	2017	INDICATORS	2018	2019	2020	2021	2022	2023
126.7	128.8	132.2	136.9	138.8	142.1	Gross metro product (C09\$ bil)	147.0	150.7	151.5	154.4	157.8	160.6
3.1	1.7	2.6	3.6	1.4	2.4	% change	3.5	2.5	0.6	1.9	2.2	1.8
1,157.2	1,157.5	1,159.6	1,161.7	1,162.8	1,175.3	Total employment (ths)	1,188.3	1,201.5	1,204.8	1,203.4	1,210.2	1,216.1
1.1	0.0	0.2	0.2	0.1	1.1	% change	1.1	1.1	0.3	-0.1	0.6	0.5
7.2	6.8	5.7	5.3	5.6	5.0	Unemployment rate (%)	4.4	3.9	4.2	4.8	5.0	4.9
3.7	0.7	4.0	3.9	0.7	3.9	Personal income growth (%)	4.5	4.6	3.6	3.5	4.3	4.1
50.2	51.4	52.6	54.1	56.2	58.5	Median household income (\$ ths)	61.1	63.7	66.1	68.5	71.0	73.6
2,360.3	2,360.0	2,356.7	2,349.1	2,341.5	2,333.4	Population (ths)	2,338.2	2,336.1	2,332.1	2,327.7	2,325.2	2,322.7
0.0	0.0	-0.1	-0.3	-0.3	-0.3	% change	0.2	-0.1	-0.2	-0.2	-0.1	-0.1
3.9	3.4	-0.3	-3.2	-4.2	-4.3	Net migration (ths)	8.8	1.5	-0.6	-0.9	1.1	1.4
2,918	3,258	3,089	3,293	3,015	2,988	Single-family permits (#)	3,656	4,328	4,890	5,879	6,473	6,520
548	1,312	1,110	1,971	1,388	1,340	Multifamily permits (#)	1,865	1,304	641	544	574	487
166	171	176	183	190	197	FHFA house price (1995Q1=100)	208	213	217	221	226	233

(ths) - thousands

Source: Moody's Analytics Précis® US Metro

Moody's summarizes the area's economic performance in recent months as follows:

### Recent Performance

Pittsburgh's economy is tapping the brakes. Industrial production has been declining since November 2018, and the labor market is losing steam. At 0.7%, year-ago growth in payroll employment is just shy of the Pennsylvania average but less than half of the U.S. average. However, job growth is still strong enough to absorb new entrants; despite a big jump in the number of job seekers, Pittsburgh's unemployment rate has sunk to 3.8%, the lowest on record. Construction, leisure/hospitality and education/healthcare are contributing the bulk of the net new jobs, countering weakness in retail and manufacturing. Average hourly earnings have slipped back below those nationwide, but growth over the last two years is among the best in the Northeast. The recent dip in earnings is the result of a weaker job mix, not smaller wage gains, as firms hike pay because of stiff competition for workers. The housing market has cooled. Residential permits remain elevated relative to earlier in the expansion, but the pace is slowing as the multifamily sector loses momentum. House price appreciation is rising in line with the U.S. average.

## Market Comparison

The following table illustrates key economic indicators and a comparison of the Pittsburgh MSA to the regional grouping as a whole. As indicated, Pittsburgh is projected to outperform the Northeast Region Metros in only one of eight performance categories shown over the next five years. This trend indicates Pittsburgh's relative weakness compared to other markets in the Northeast.

Comparison of Key Economic Indicators - Pittsburgh MSA Metro to Northeast Region										
Indicator	Pittsburgh MSA			Annual Growth		Northeast Region Metros			Annual Growth	
	2014	2019	2024	2014 - 2019	2019 - 2024	2014	2019	2024	2014 - 2019	2019 - 2024
Gross metro product (C12\$ bil)	140.9	155.8	169.3	2.0%	1.7%	3,950	4,343	4,745	1.9%	1.8%
Total employment (ths)	1,159.4	1,198.9	1,220.5	0.7%	0.4%	29,815	31,606	32,220	1.2%	0.4%
Unemployment rate (%)	5.7%	3.9%	4.9%			6.1%	3.9%	5.0%		
Personal income growth (%)	4.0%	4.1%	4.0%			4.4%	3.2%	3.8%		
Population (ths)	2,356.2	2,322.7	2,308.1	-0.3%	-0.1%	63,569	63,841	63,958	0.1%	0.0%
Single-family permits (#)	3,089	3,856	6,339	4.5%	10.5%	69,514	79,946	136,317	2.8%	11.3%
Multifamily permits (#)	1,110	1,182	426	1.3%	-18.5%	74,658	86,276	77,172	2.9%	-2.2%
FHFA house price (1995Q1=100)	176	217	252	4.3%	3.0%	488	593	718	4.0%	3.9%

Source: Moody's Analytics Précis® US Metro; Compiled by NKF

## Employment Sectors and Trends

Employment data by occupation and business/industry sectors provides an indication of the amount of diversification and stability in the local economy. Job sector composition also gives an indication of the predominant drivers of current and future demand for supporting commercial real estate sectors. The following tables display employment data by occupation sector and by business/industry sector for the area and region. White collar jobs, particularly those identified as Professional make up greater percentage of total employment in the MSA compared to the Commonwealth. The blue-collar categories of production and transportation lag the state percentage.



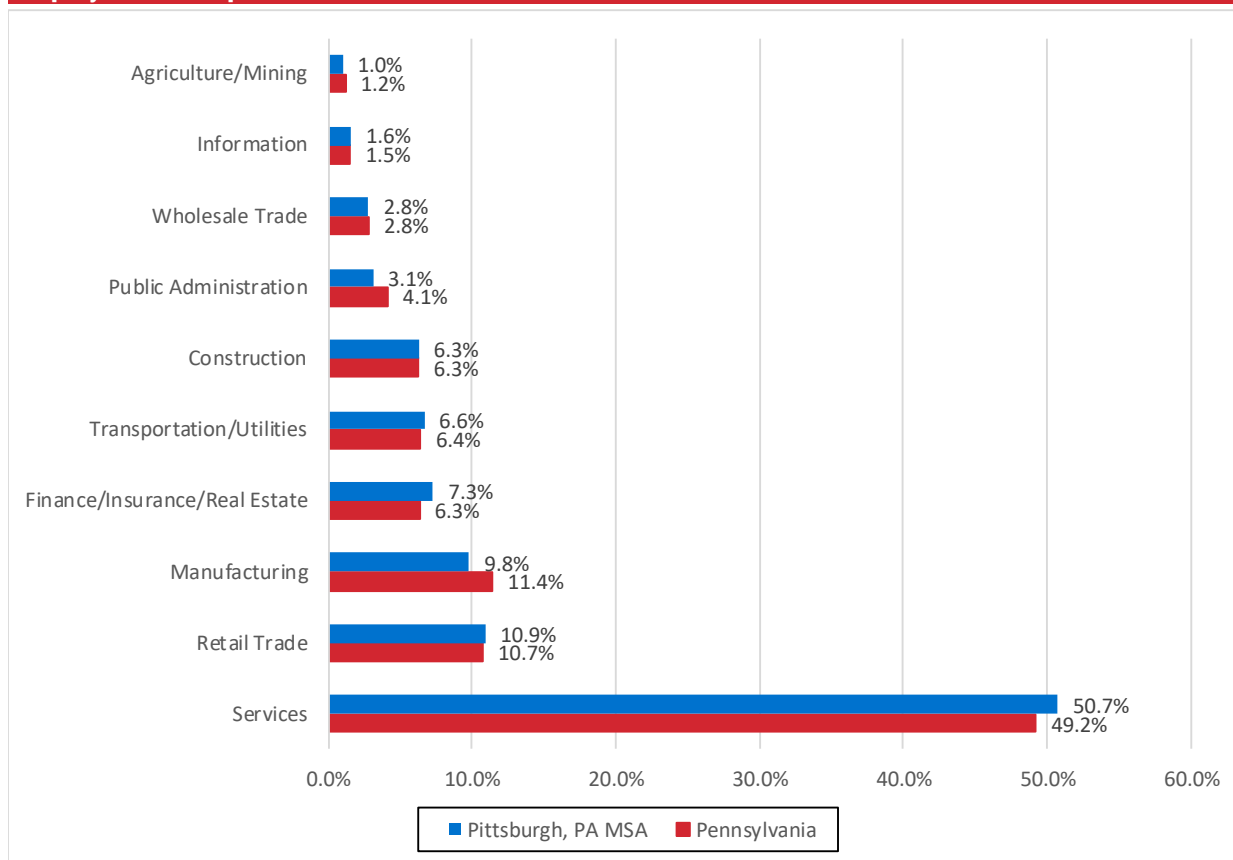
Current Employment by Occupation Sector				
Occupation Sector	Pittsburgh, PA MSA		Pennsylvania	
<b>White Collar</b>	<b>778,288</b>	<b>64.1%</b>	<b>3,937,696</b>	<b>61.1%</b>
Administrative Support	164,733	13.6%	878,390	13.6%
Management/Business/Financial	183,889	15.1%	907,136	14.1%
Professional	301,769	24.8%	1,496,686	23.2%
Sales and Sales Related	127,897	10.5%	655,484	10.2%
<b>Services</b>	<b>205,241</b>	<b>16.9%</b>	<b>1,120,382</b>	<b>17.4%</b>
<b>Blue Collar</b>	<b>231,317</b>	<b>19.0%</b>	<b>1,384,630</b>	<b>21.5%</b>
Construction/Extraction	54,276	4.5%	280,316	4.4%
Farming/Fishing/Forestry	2,067	0.2%	32,359	0.5%
Installation/Maintenance/Repair	41,397	3.4%	224,308	3.5%
Production	64,411	5.3%	409,616	6.4%
Transportation/Material Moving	69,166	5.7%	438,031	6.8%
<b>Total Employees (16+ Occupation Base)</b>	<b>1,214,846</b>	<b>100.0%</b>	<b>6,442,708</b>	<b>100.0%</b>

Source: ESRI; Compiled by NKF

Current Employment by Industry Sector				
Industry Sector	Pittsburgh, PA MSA		Pennsylvania	
Agriculture/Mining	11,887	1.0%	76,192	1.2%
Construction	76,288	6.3%	404,270	6.3%
Manufacturing	118,979	9.8%	735,001	11.4%
Wholesale Trade	33,862	2.8%	181,073	2.8%
Retail Trade	132,208	10.9%	691,647	10.7%
Transportation/Utilities	80,764	6.6%	413,819	6.4%
Information	18,942	1.6%	99,553	1.5%
Finance/Insurance/Real Estate	88,593	7.3%	407,947	6.3%
Services	615,705	50.7%	3,167,599	49.2%
Public Administration	37,618	3.1%	265,607	4.1%
<b>Total Employees (16+ Occupation Base)</b>	<b>1,214,846</b>	<b>100.0%</b>	<b>6,442,708</b>	<b>100.0%</b>

Source: ESRI; Compiled by NKF

The following graphic further illustrates this comparison.

**Employment Comparison**

Source: ESRI; Compiled by NKF

## Major Employers

The following table lists a number of major employers with the Pittsburgh MSA as reported by Moody's. While not all-encompassing, this list provides further indication of the types of economic sectors that are drivers for the area. Health care, higher education, and retailers dominate the major employers list with manufacturing in the second tier.

Selected Major Employers: Pittsburgh MSA		
Rank	Employer	Employees
1	UPMC Health System	46,500
2	Highmark Inc.	20,000
3	University of Pittsburgh	12,000
4	The PNC Financial Services Group Inc.	10,000
5	Wal-Mart Stores Inc.	9,000
6	Giant Eagle Inc.	8,150
7	BNY Mellon Corp.	6,800
8	Excelsior Health	5,000
9	Carnegie Mellon University	4,750
10	United States Steel Corp.	4,200
11	Eat 'n Park Hospitality Group Inc.	4,035
12	FedEx Corp.	4,000
13	Sears Holdings	4,000
14	Consolidated Energy Inc.	3,500
15	Westinghouse Electric Co.	3,400
16	Verizon Communications	3,300
17	Allegheny Technologies Inc.	3,000
18	Bechtel Group	3,000
19	Target Corp.	3,000
20	Home Depot	2,600

Source: Moody's Analytics Précis® US Metro

Further economic analysis from Moody's is detailed as follows:

## Manufacturing

The outlook for Pittsburgh's factories remains grim. Although far from the scale of the Great Recession, the recent decline in manufacturing payrolls has been the steepest since 2009, with 3,000 jobs lost since the fourth quarter of 2018. It is not yet clear what is driving the contraction, but U.S. tariffs are partly to blame. Anchored by U.S. Steel and Alcoa, primary metal manufacturers in Pittsburgh initially benefited from tariffs on steel and aluminum imports, but the gains proved short-lived as revived domestic competition cut into producer profits. Furthermore, these industries account for only one-tenth of Pittsburgh's manufacturing payrolls. Conversely, fabricated metals and industrial machinery, which employ one-quarter of factory workers, face rising non-labor input costs. Although job cuts will slow over the next few quarters, long-standing trends of productivity gains due to automation and globalization will chip away at manufacturing jobs.

### Office Services

Office industries will shift from a headwind to a tailwind, providing much-needed support for Pittsburgh's broader economy. Professional/business services, which in Pittsburgh are largely driven by higher-value-added professional, scientific and technical services and corporate headquarters, have contracted over the past two quarters after holding steady for three years. Similarly, financial activities, which are dominated by credit intermediation and insurers, are cutting back following two years of outsize gains. Job losses will prove temporary, given positive fundamentals, but the pace of additions will be modest relative to elsewhere. Nevertheless, even small gains in tech and corporate management will be a shot in the arm, as these are among Pittsburgh's best-paying jobs.

### Eds And Meds

Education and healthcare will lead the charge in Pittsburgh, but demographics will provide uneven support. On one hand, the rapidly aging population, coupled with the aggressive expansion of top healthcare employer UPMC, will be a boon for medical services. On the other hand, Pennsylvania's shrinking school-age cohort will weigh on Pittsburgh's higher education institutions, anchored by the University of Pittsburgh and Carnegie Mellon University. Fortunately, Pittsburgh's universities have been growing their numbers of international students, and this will help offset future declines in in-state enrollment.

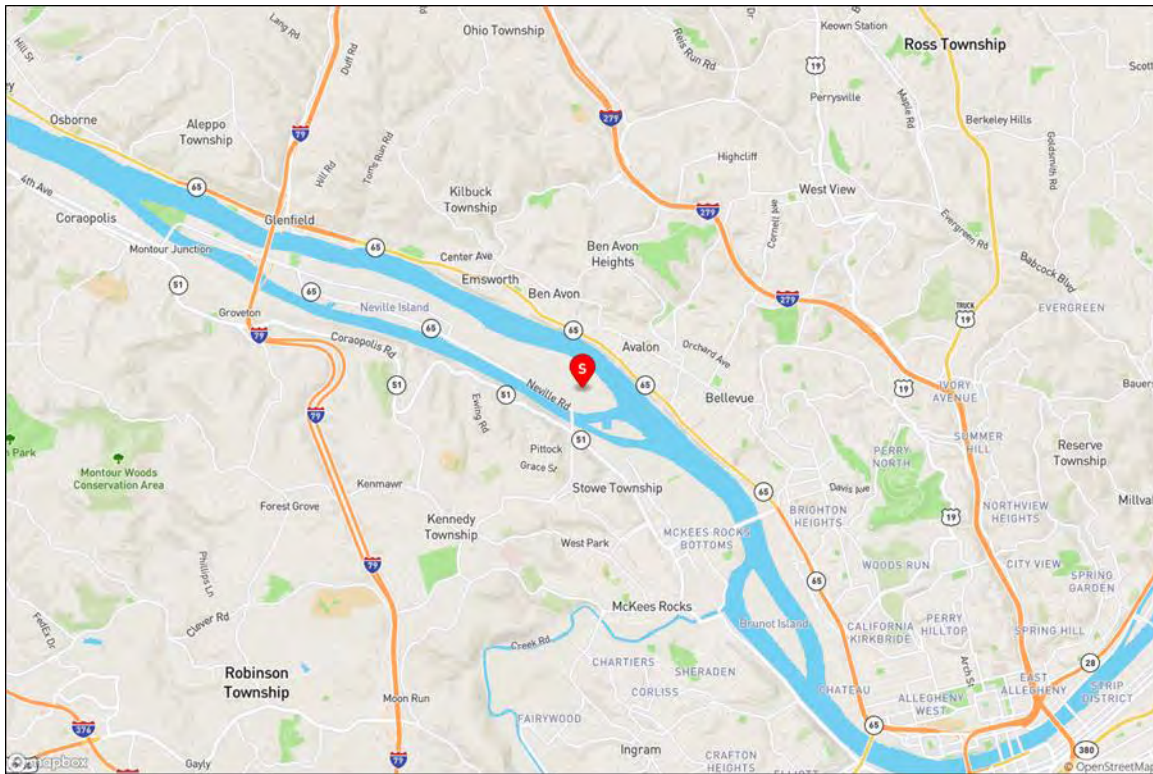
### Conclusion

Growth within the Pittsburgh MSA is highly segmented; areas such as the Pittsburgh CBD, Urban Fringe, Cranberry Township/North Hills, and the Parkway West are generating the most employment. Neville Township is approximately five miles northwest of the Pittsburgh Central Business District (CBD) and Urban Fringe where the majority of employment in professional services, education and health care is based. The largest concentrations of blue-collar jobs are found along the Ohio River, which has a significant level of industrial development along both shores. This includes Neville Township and areas down river toward Ohio.

Neville Township benefits from its proximity to the Pittsburgh CBD and the Pittsburgh International Airport, although sectors with the largest growth potential (education, medicine, and office development) have not expanded into Neville Township due to its large concentration of heavy industry. Regional growth will benefit Neville only to the extent expansion in other areas of the region continues to drive demand of goods and services produced on Neville Island.

## Surrounding Area

In addition to the regional influence on real estate, a number of characteristics and trends related to the immediate area also impact the property. The following discussion summarizes these trends.



## Boundaries

The subject is located in Neville Township, Allegheny County, Pennsylvania in the Pittsburgh MSA on an island in the Ohio River approximately five miles northwest of the Pittsburgh Central Business District (CBD). The focus of the defined local market is Neville Island and the areas in close proximity to the island.

## Description

Since the beginning of the 20th century, industrial uses, and particularly heavy industrial uses, have been a primary land use in the area. During World War I the US Government utilized 130 acres of the island as the site of an ammunitions plant. During World War II, shipbuilding dominated industry on the island and subsequent to the war, the steel industry was predominant. With the beginning of the decline in the steel industry in the 1980s, numerous heavy manufacturing facilities have closed. Currently, approximately 60% of the island is devoted to industrial uses, which are concentrated on the eastern end of the island. Other uses on the island are predominantly residential and commercial in nature. Approximately 90% of the island has been developed.



In recent years, Neville Island has begun to turn away from its heavy industrial past. However, redevelopment to non-industrial uses has been concentrated on the northwestern end of the island. Development includes the redevelopment of a brownfield site with the 32-acre multi-use recreational facility now owned and operated by Robert Morris University. Since 2007, commercial development has occurred with the addition of 110-room Fairfield hotel, restaurants, convenience store/fuel stations, and smaller multi-tenant retail centers. Much of this development is in close proximity to the I-79 interchange.

## Access

### Primary Access

Regional access from Neville Island to other areas in the Pittsburgh MSA is considered very good. Primary freeway access to Neville Township is provided by Interstate 79, which provides north/south access to western Pennsylvania, West Virginia and western New York. The interchange to I-79 is located on the western end of the island approximately 3¼ miles northwest of the subject. Along the north bank of the Ohio River, PA 65 (Ohio River Boulevard) allows access to the city of Pittsburgh approximately five miles to the southeast and Beaver County to the northeast. Neville Road and Grand Avenue provide primary southeast/northwest access on the island.

Via I-79 north, the subject has direct access to the Pennsylvania Turnpike, with an exit approximately 11 miles north in Cranberry Township. The Pennsylvania Turnpike provides interstate access through Ohio to the west and extends to Philadelphia in the east. It is one of the most heavily traveled roads in Pennsylvania.

I-79 south connects to I-376, a major east-west interstate which connects the Pittsburgh CBD to the east and Pittsburgh International Airport to the west.

Connections to other areas of region from the island are made via the Coraopolis Bridge at the west end of the island, and the Fleming Bridge at the east end, near the subject property. Both of these bridges connect the island to the southern bank of the Ohio River.

In a region like western Pennsylvania where the population and employment base are likely to grow at a slow pace, inter-regional access becomes a critical driver of industrial development. The Property is well positioned relative to the region's highway network with access to nearby I-79 considered very important.

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**Distance and Drive Times to Key Regional Locations**

- Pittsburgh CBD – 5 miles, 15 minutes
- I-376 -10 miles, 15 minutes
- I-76 - 15 miles, 20 minutes
- Pittsburgh International Airport - 18 miles, 25 minutes

The drive times and access to the interstate are considered above average.

**Land Use**

Neville Island is predominantly industrial in nature but has a mix of commercial and residential areas.

The land uses in the eastern end of the island are mostly “dirty” industrial sites such as aggregate sites, chemical processors, and petrochemical related uses. Toward the middle of the island, uses include warehouses, truck terminals, and research and development facilities. Riverfront parcels are often improved seawalls or barge mooring piers; these are favored by users moving energy products and aggregates. The western end of the island includes residential neighborhoods and commercial improvements such as hotels, convenience stores, and automotive leasing facilities. The Robert Morris University recreational facility is located at the western end of the island and includes ice arenas, indoor driving range, and other recreational uses available for university students, employees, and the public.

During the last decade, development has been predominantly of commercial uses, including a Fairfield Inn, a Speedway convenience store, Penske truck rental terminal, and small retail centers.

Land uses to the north and south of Neville Island across the Ohio River include extensive residential neighborhoods.

## Demographics

A demographic summary for the Shenango site is illustrated as follows:

Demographic Analysis						
	1-Miles Radius	3-Miles Radius	5-Miles Radius	Allegheny County	Pittsburgh, PA MSA	Pennsylvania
<b>Population</b>						
2010 Total Population	6,995	71,544	171,704	1,223,348	2,356,285	12,702,379
2018 Total Population	6,879	70,466	172,168	1,226,568	2,359,300	13,012,438
2023 Total Population	6,848	70,250	172,597	1,230,295	2,359,594	13,160,675
Projected Annual Growth %	-0.1%	-0.1%	0.0%	0.1%	0.0%	0.2%
<b>Households</b>						
2010 Total Households	3,382	31,393	76,813	533,960	1,001,627	5,018,904
2018 Total Households	3,363	31,202	77,626	539,953	1,011,144	5,142,419
2023 Total Households	3,360	31,200	78,016	543,283	1,014,004	5,199,728
Projected Annual Growth %	0.0%	0.0%	0.1%	0.1%	0.1%	0.2%
<b>Income</b>						
2018 Median Household Income	\$46,299	\$52,586	\$55,993	\$58,881	\$58,651	\$59,112
2018 Average Household Income	\$62,849	\$70,328	\$77,876	\$85,896	\$82,603	\$83,853
2018 Per Capita Income	\$30,729	\$31,223	\$35,276	\$38,034	\$35,557	\$33,293
<b>Housing</b>						
2018 Owner Occupied Housing Units	47.6%	51.6%	51.9%	55.8%	61.7%	60.3%
2018 Renter Occupied Housing Units	39.9%	36.6%	36.3%	34.3%	28.4%	29.4%
2018 Median Home Value	\$115,949	\$132,627	\$148,004	\$162,119	\$163,413	\$194,596
Median Year Structure Built	1951	1950	1953	1956	1958	1962
<b>Miscellaneous Data Items</b>						
2018 Bachelor's Degree	22.5%	21.7%	24.2%	24.5%	21.5%	19.3%
2018 Grad/Professional Degree	9.9%	11.1%	13.6%	17.8%	14.0%	12.9%
2018 College Graduate %	32.4%	32.8%	37.7%	42.3%	35.5%	32.1%
2018 Average Household Size	2.03	2.18	2.17	2.21	2.27	2.45
Median Age 2018	45.2	42.4	43.0	42.8	44.4	41.5

Source: ESRI; Compiled by NKF

The data indicates that the trend of no population or household growth will continue for the next five years. Median household income is \$46,299, lower than the Pittsburgh MSA and Pennsylvania. The median owner-occupied home value is \$115,949 lower than the 3- and 5-mile radius, the MSA and state average. The low home values on the island reflect the fact that the primary land use is industrial.

## Conclusion

Neville Island is a unique island location that has historically been a mix of residential and industrial uses. Currently industrial uses benefit from homogeneity of uses and very good regional access. Demographic trends indicated a stable population with below average housing and income levels.

# Industrial Uses

## What Are Industrial Uses?

The Property and Location analysis indicate that the most probable redevelopment of the site is with an industrial property type. In real estate, the industrial property type encompasses a wide range of specific uses. In order to understand which uses might be the best fit for The Property, a more detailed look at what makes up the industrial property type classification is necessary.

Generally, industrial uses fall into five categories: warehouse/distribution, light manufacturing, flex, heavy manufacturing, and specialty manufacturing.

- ❖ Warehouse/Distribution use includes general warehouse/distribution, shipyard, truck terminal, working waterfront, and refrigerated warehouse.
- ❖ Light manufacturing uses include repair and service uses, and product assembly uses, including electronics, household goods, and office and retail products.
- ❖ Flex use includes general flex space, which is typically varying percentages of office and light industrial or warehouse space, industrial showroom, tech, and incubator.
- ❖ Heavy Manufacturing use includes steel making, chemical processing, and energy/natural resource refining and processing. While heavy manufacturing uses typically take raw materials and convert them to some form of semi-finished or finished product. Heavy industrial buildings may also house segments of the heavy manufacturing process including metal fabrication, industrial robotics, and heavy product assembly.
- ❖ Specialty Manufacturing use includes food processing, hydroponic/agriculture, research & development, and laboratory.

There are a variety of sub-categories of the industrial property types. The following definitions further breakdown these uses and provide examples of each.

- ❖ **Shipyard** – also called dockyard, is a place where ships are built and repaired. These can include yachts, military vessels, cruise liners, or other cargo and passenger ships.
- ❖ **Truck Terminal** – this is a specialized distribution building for redistributing goods from one truck to another and serves as an intermediate transfer point. The facilities are primarily used for staging loads (rather than long-term storage) and possess very little, if any, storage area. (NAIOP)

- ❖ **Working Waterfront** – many definitions, basically any business that is water-dependent including tourism, commercial fishing, transportation. Facilities typically include wet and dry marinas, docks, wharfs, lifts, boat ramps, etc.
- ❖ **Refrigerated Warehouse** – storage/warehouse of any temperature-controlled substance that prevents that substance from decaying or not adhering to laws and regulations that apply to that item.
- ❖ **Flex** – an industrial building designed to allow its occupants flexibility of alternative uses of the space, usually in an industrial park setting. (NAIOP)
- ❖ **Industrial Showroom** – a type of flex facility characterized by a substantial showroom area, usually fronting a freeway or major road. (NAIOP)
- ❖ **Tech flex** – flex space that is geared toward use by industries highly dependent upon technology in the manufacturing process and as is relates to the products being produced. Advanced manufacturing which is often associated with 3D printer manufacturing is an example.
- ❖ **Incubator** – facility established for start-up firms to provide affordable space, shared offices and services, marketing support, and sometimes access to some form of financing.
- ❖ **Service Garage** – a service garage is any type of repair shop which may include the repair of a variety of equipment, automobiles, trucks, airplanes, and machinery.
- ❖ **Chemical Processing** – industrial process plant that manufactures or processes chemicals. The objective of a chemical plant is to create new material via the transformation or separation of materials. Examples include: pharmaceutical production, biochemical plants, water and wastewater treatment, etc.
- ❖ **Energy/Natural Resource Processing** – industrial process plant that manufactures or processes natural resources to convert to energy. Examples include: power plants, oil refineries, natural gas processing, etc.
- ❖ **Food Processing** – transformation of agricultural products into food or food into other forms.
- ❖ **Hydroponic/Agriculture** – process of growing plants in sand, gravel, or liquid with added nutrients but without soil.
- ❖ **Research & Development** – usually encompasses advanced manufacturing research, robotics, computer technologies, and autonomous systems. Advanced manufacturing can cover a variety of areas, but its core definition is to use technology to improve products and/or processes. Typically, this technology is cutting-edge.



- ❖ **Laboratory Building** - Uses include heavy industrial research related to basic metals and heavy manufacturing processes, to wet labs, which are designed to handle chemicals and hazardous substances.

With the exception of large manufacturing plants, which convert raw materials to finished products and require large land masses, at least some part of the manufacturing process can be developed on The Property. In addition, most of the remaining industrial uses can be developed as a stand-alone use.

## Industrial Selection Criteria

In order to determine the most likely uses of the subject site we have identified the site and locational characteristics that market participants use in the industrial site selection process.

### Location Characteristics

The important location site selection criteria for industrial uses include the following:

Proximity and Accessibility to -

- ❖ Interstate and regional highway system
- ❖ Population center of region
- ❖ Employment base
- ❖ Airport
- ❖ Mainline rail
- ❖ Short rail
- ❖ Navigable water
- ❖ Similar land uses
- ❖ Favorable tax and government structure

The proximity of these characteristics to the Shenango site is described as follows:

#### Interstate and Regional Highway System

- ❖ Neville Island interchange of I-79 is less than 5 minutes from Shenango entrance.
- ❖ Ohio River Boulevard is located on the northern bank of the Ohio River.
- ❖ I-376 and I-76 intersect I-79 after a drive of approximately 15 to 20 minutes to the south and north of Neville Island respectively.
- ❖ *Rating: Very good*

#### Population Center of Region/Employment Base

- ❖ Pittsburgh Central Business District is approximately 5 miles to the east; total daily employment is estimated at 120,000 and there are over 40 million square feet of office space.
- ❖ Allegheny County, the location of Pittsburgh and Neville Island, has a population of 1,226,568 people. Employment in the five-county MSA is about 1.1 million persons.
- ❖ *Rating: Good*

## Airport

- ❖ The Pittsburgh International Airport is approximately 18 miles from the subject site.
- ❖ *Rating: Average*

## Mainline Rail/Short Line

- ❖ Connection to a mainline is essential for some industrial uses. CSX provides service along the west bank of the Ohio River and Norfolk Southern supports the east bank. The Pittsburgh and Ohio Central is a short line rail that provides a direct connection with the CSX line.
- ❖ *Rating: Good*

## Navigable Water

- ❖ The Ohio River is a 981-mile long river that flows southwesterly from western Pennsylvania to its mouth on the Mississippi River at the southern tip of Illinois. It is the second largest river by discharge volume in the United State and the largest tributary by volume of the north-south following Mississippi River.  
  
Neville island is part of the Pittsburgh Pool which represents the navigable water around the city. There are three locks and dams located between the CBD and the cracker plant site in Beaver County. The locations of these locks and dams are illustrated in the aerial on the following page.
- ❖ Brokers indicate that the fewer locks that need to be navigated, the more desirable the site. This, of course, depends on the use of the site, the goods or service it provides, and the location of the end users. While locks are necessary to maintain navigable water levels and control flooding, their presence does slow river traffic.
- ❖ *Rating: Very good*



### Similar Land Uses

- ❖ Properties that are located in areas which there is a high level of homogeneity generally have higher property values and fewer use conflicts than areas with random property uses.
- ❖ *Rating:* Very good for heavy industrial; average for other industrial uses

### Government and Tax Structure

- ❖ The property is governed by Neville Township which appears to have a favorable view toward development and particularly industrial development. Real estate tax rates are above average compared to other areas in Allegheny County, but similar to older river oriented industrial towns which have been negatively impacted by the multi-decade decline in the regional industrial base. However, the Opportunity Zone designation provides a significant advantage to many alternative properties.

- ❖ *Rating:* Good

### Locational Characteristic Conclusion

Neville Island and The Property are considered to be good when compared to other sites. This means that when various site selection criteria are applied, The Property ranks above the typical site.

### Physical Characteristics

The important physical site selection criteria for industrial uses include the following:

- ❖ Size – Almost 50 acres - *Rating: Good*
- ❖ Shape – Irregular shape; the irregular shape of the property may limit uses or require a layout that could limit the functionality of the property - *Rating: Fair*
- ❖ Topography – Mostly level – *Rating: Very Good*
- ❖ Flood Plain – Located in the 100- and 500- year flood plain; increases site development costs - *Rating: Fair*
- ❖ Availability of Utilities – All public utilities available - *Rating: Good*

### Physical and Locational Analysis Conclusion

- ❖ Strong location with very good highway access and good rail and river access
- ❖ Surrounding land uses are oriented to heavy industrial; good for other heavy industrial users but average for other industrial uses
- ❖ Site size is adequate for most potential developments
- ❖ Site access and parcel shape are below average and coupled with surrounding land uses could limit potential users. The surrounding land uses include two users, Lindy Paving and Calgon whose processes create air particulate that could impact nearby uses that require outside activities.

Analysis indicates subject's site and location characteristics are best suited for the following:

- ❖ Heavy Manufacturing – Positive rankings for all characteristics; good fit, although some heavy industrial uses may not be consistent with the Guiding Principles relative to air pollution or fracking. This report assumes any heavy manufacturing uses that require a Title V Clean Air permit would not be a viable candidate to reuse the site.
- ❖ Specialty Manufacturing – Positive rankings for all characteristics, although cleaner uses may find surrounding land uses incompatible such as uses whose products and cultures are inconsistent with the surrounding land uses or that require the use of outdoor space that has ambient air – dust and flames from nearby users could impact air quality. Availability of water and rail may not be priority for many uses.
- ❖ Warehouse – Positive rankings for all characteristics, although cleaner uses may find surrounding land uses incompatible. Availability of water and rail may not be priority for many uses. Site access could be a negative. There is an abundance of existing sites in the market that have superior locations and represent intervening opportunities. Also warehouse uses are typically less labor intensive than other industrial uses.



- ❖ Light Manufacturing– Positive rankings for all characteristics, although some uses, which require use of outdoor space, may find surrounding land uses incompatible. Availability of water and rail may not be priority for many uses. Site access could be a negative.
- ❖ Flex – Alternative locations have superior access and more homogenous land uses.

Based on locational characteristics heavy manufacturing is the best fit, but other industrial types may be a good fit depending on compatibility with surrounding land uses. Specifically, Lindy Paving (asphalt plant and aggregate) and Calgon Carbon (reactivated carbon) store, move and combine, aggregate materials. The creation of particulate and fumes from exposed aggregate and asphalt production, could be unfavorable to some users. Users that require ambient air on-site may avoid this location. To be consistent with the Guiding Principles, all potential uses would not require a Title V permit.

Physically, the site has positive rankings for all characteristics, although shape and access may eliminate some users.

# The Market

The Market section of the report reviews the supply and demand for industrial real estate on a regional and submarket level to gauge the relative strength of the market and the potential for feasible redevelopment of the site.

The study also looks at specific users and uses in industrial parks in the submarket and on Neville Island to better understand who the users are and how industrial properties are being used.

Finally, the study looked at industrial uses and users who have been entering the Pittsburgh regional market.

Considering the data developed in each section of this analysis, in conjunction with the Property and Location analysis previously completed, we developed an opinion on the general demand for real estate at the Shenango site, the types of real estate and specific uses which would generate demand and be consistent with the Shenango Reimagined Guiding Principles as of September 23, 2019.

## Regional Industrial

Analysis of the Location and Physical characteristics of The Property indicates that a variety of industrial uses can be developed. Determining the industrial market trends involves examining the supply of, and demand for, industrial space in the region and market area. We examine regional and submarket trends to gauge demand. The data presented includes all types of industrial uses except flex space. The Property is located on the border of the three submarkets: Parkway West, North, and Beaver County. Each of these markets is studied and compared to the Pittsburgh MSA. The subject is located in the Parkway West submarket which includes the western portion of Allegheny County surrounding the Pittsburgh Airport to the Ohio River in the north. The North submarket begins across the Ohio River and encompasses the northern half of Allegheny County to the Allegheny River at the southern boundary. Beaver County begins west of the Pittsburgh Airport and is approximately 15 miles from the subject site.

## Parkway West

The vast majority of the space in both the Pittsburgh MSA and the Parkway West submarket is considered in the category of heavy industrial, primarily former mill type space; most of which is over 50 years old. However, reflecting current regional trends, a majority of the developments completed in the last two years are distribution warehouse space.

Industrial Market Trends								
	Pittsburgh MSA				Parkway West			
	Inventory (SF)	Completions (SF)	Vacancy %	Asking Rent / SF	Inventory (SF)	Completions (SF)	Vacancy %	Asking Rent / SF
Q3 2017	169,018,449	273,068	5.2%	\$5.41	20,822,328	265,568	7.2%	\$5.84
Q4 2017	169,075,599	57,150	5.5%	\$5.04	20,846,478	24,150	7.7%	\$5.86
Q1 2018	169,286,075	210,476	5.0%	\$5.12	20,929,422	82,944	7.0%	\$6.07
Q2 2018	169,411,975	125,900	5.3%	\$4.98	21,007,662	78,240	7.0%	\$6.15
Q3 2018	169,430,975	19,000	5.2%	\$5.02	21,026,662	19,000	5.7%	\$6.02
Q4 2018	169,680,748	249,773	5.0%	\$4.92	21,126,662	100,000	4.8%	\$5.93
Q1 2019	170,164,548	483,800	5.1%	\$4.99	21,126,662	0	5.0%	\$6.09
Q2 2019	170,299,661	104,813	5.4%	\$4.96	21,126,662	0	4.8%	\$6.05
Q3 2019	170,558,116	258,455	5.3%	\$5.00	21,344,009	217,347	3.5%	\$6.12

\* Forecast

Source: Costar; Compiled by NKF Valuation & Advisory

The inventory in the Pittsburgh MSA has increased by 1,539,667 and the inventory in the Parkway West has increased by 521,681 square feet in the last two years. The Parkway West represents 34% of the increase in inventory. The Pittsburgh MSA vacancy rate has remained stable for the last few years, while the vacancy rate in the Parkway West submarket has continued to decrease, indicating the relative strength of the market. The asking rent in the Parkway West has slowly increased over the last two years. The asking rent is higher than found in the Pittsburgh MSA, indicating the inventory is newer and may represent a higher quality of improvements or higher intensity of use.

New construction within the Parkway West submarket is typically found in the newest industrial parks such as Imperial Business Park, Clinton Commerce Park, McClaren Woods, RIDC Park West, Findlay Commerce Center, Chapman Westport, and Findlay Industrial Park. The new construction in these parks is primarily distribution warehouse, with lower levels of light manufacturing and specialty manufacturing also being constructed.

## North Pittsburgh

Industrial Market Trends								
	Pittsburgh MSA				North			
	Inventory (SF)	Completions (SF)	Vacancy %	Asking Rent / SF	Inventory (SF)	Completions (SF)	Vacancy %	Asking Rent / SF
Q3 2017	169,018,449	273,068	5.2%	\$5.41	16,143,257	0	2.5%	\$5.96
Q4 2017	169,075,599	57,150	5.5%	\$5.04	16,143,257	0	2.4%	\$5.96
Q1 2018	169,286,075	210,476	5.0%	\$5.12	16,143,257	0	2.0%	\$6.82
Q2 2018	169,411,975	125,900	5.3%	\$4.98	16,143,257	0	2.2%	\$6.89
Q3 2018	169,430,975	19,000	5.2%	\$5.02	16,143,257	0	1.7%	\$6.83
Q4 2018	169,680,748	249,773	5.0%	\$4.92	16,143,257	0	1.7%	\$6.89
Q1 2019	170,164,548	483,800	5.1%	\$4.99	16,160,057	16,800	1.9%	\$5.93
Q2 2019	170,299,661	104,813	5.4%	\$4.96	16,160,057	0	3.2%	\$5.97
Q3 2019	170,558,116	258,455	5.3%	\$5.00	16,189,157	29,100	3.3%	\$6.09

\* Forecast

Source: Costar; Compiled by NKF Valuation & Advisory

The inventory in the North Pittsburgh submarket has increased only 46,000 square feet in the last two years. The comparatively slow inventory growth reflects the fact that North submarket is not a strong industrial market. The vacancy rate has also increased from 2.5% in third quarter 2017 to 3.3% in third quarter of 2019. In the same time period rental rates have increased from \$5.96 to \$6.09.

There is limited new construction within the North submarket. Any new construction is primarily in Cranberry Township at RIDC Thorn Hill.

## Beaver County

Industrial Market Trends								
	Pittsburgh MSA				Beaver County			
	Inventory (SF)	Completions (SF)	Vacancy %	Asking Rent / SF	Inventory (SF)	Completions (SF)	Vacancy %	Asking Rent / SF
Q3 2017	169,018,449	273,068	5.2%	\$5.41	11,976,345	0	3.8%	\$5.55
Q4 2017	169,075,599	57,150	5.5%	\$5.04	11,976,345	0	6.7%	\$5.55
Q1 2018	169,286,075	210,476	5.0%	\$5.12	11,976,345	0	7.6%	\$4.51
Q2 2018	169,411,975	125,900	5.3%	\$4.98	11,979,545	3,200	7.6%	\$5.92
Q3 2018	169,430,975	19,000	5.2%	\$5.02	11,979,545	0	7.3%	\$5.63
Q4 2018	169,680,748	249,773	5.0%	\$4.92	11,979,545	0	7.6%	\$5.60
Q1 2019	170,164,548	483,800	5.1%	\$4.99	11,979,545	0	7.7%	\$3.78
Q2 2019	170,299,661	104,813	5.4%	\$4.96	11,979,545	0	7.7%	\$4.06
Q3 2019	170,558,116	258,455	5.3%	\$5.00	11,979,545	0	7.2%	\$4.06

\* Forecast

Source: Costar; Compiled by NKF Valuation & Advisory



The inventory in the Beaver County submarket has increased 3,200 square feet in the last two years. The comparatively slow inventory growth reflects the earlier comments that the Parkway West submarket is capturing a bulk of new demand because of the availability of developed land and superior access. It also indicates that construction of the Shell Cracker Plant has not yet spurred development of new construction. The vacancy rate has also increased from 3.8% in third quarter 2014 to 7.2% in third quarter of 2019. In the same time period rental rates have dropped from \$5.55 to \$4.06.

Industrial parks within the Beaver County submarket are Aliquippa Industrial Park, Bet-Tech International, Port Ambridge, WestGate Business, Midland Industrial Park, Leetsdale Industrial Park, Ambridge Regional, and Buncher Industrial Park which will be further analyzed in the next section. With the exception of part of Leetsdale and Buncher, which have buildings that are used for light industrial and warehousing, the remaining parks cater to heavy industrial users that generate demand for the older mill buildings.

### **Industrial Business Parks**

The greatest concentration of industrial space is in parks, therefore, an examination of the local parks and the users within the parks was completed. The following map shows the location of industrial parks in submarkets that impact the subject site.





The types of uses and a sample of the tenants of each industrial park are outlined in the following lists. Uses with an asterisk (\*) are not believed to have or require a Title V, Clean Air Act permit. Note that Title V permits were not researched on a property by property basis and some uses may have a permit that have an asterisk.

**Aliquippa Industrial Park – Heavy Industrial**

- ❖ United States Gypsum – dry wall manufacturing
- ❖ Andrew's Logistics – asset-based bulk liquid and hazardous material transporter
- ❖ Croniment Corporation – stainless steel recycling
- ❖ Phoenix Bronze Resources – manufacturer of memorial and architectural plaques
- ❖ Insurance Auto Auctions – salvage vehicle auctions\*
- ❖ Master Halco – wholesale distributor of fencing products\*
- ❖ Shasta – titanium, specialty metals and steel processing services
- ❖ Castle Builders Supply – concrete supplier
- ❖ VersaTex Trimboard – building material supplier\*
- ❖ Middleton Properties West – enclosed, high-cube ground storage for bulk goods and specialty handling operations\*
- ❖ US Electrofused Minerals – producer/distributor of brown and white fused aluminum oxide loose abrasives
- ❖ Baker Corp – temporary containment tanks, pump, filtration, and shoring equipment rental solutions,
- ❖ Ralich Truck Center – truck repair and supplies\*

**Bet-Tech – Heavy Industrial**

- ❖ Aliquippa Recycling – scrap metal recycling

**Port Ambridge – Heavy Industrial**

- ❖ Ryerson – metal supplier\*
- ❖ Sippel Steel Fab – steel fabricator\*
- ❖ Metals USA – metal processing
- ❖ Pittsburgh Intermodal Terminal – trucking company\*

**Midland Industrial Park** – Light Industrial & Heavy Industrial

- ❖ Whemco Steel Castings – producer of mill rolls and steel castings for steel making, metalworking, mining, material handling, and power generation
- ❖ Filter Fab – manufacture natural gas filters\*
- ❖ ATI Allegheny Ludlum – manufacturer of ATI nickel-based alloys and superalloys, titanium alloys, specialty alloys, stainless steels, and zirconium and other related alloys in many mill product forms. Also, are a leader in producing nickel-based alloy and titanium-based alloy powders for use in next-generation jet engine forgings and 3D-printed products.

**Leetsdale Industrial Park** – Heavy Industrial with some modern Light Industrial/Warehouse

- ❖ Elite Automotive & Towing\*
- ❖ Shaw Industries – flooring, Bunzl distribution\*
- ❖ Schroeder Industries
- ❖ Essroc, Great Lakes Power Products\*
- ❖ PODS Moving & Storage – moving and storage\*
- ❖ VSMPO-Tirus US – titanium manufacturer
- ❖ Impact Guard – manufacturing fiberglass materials
- ❖ American Eagle Steel Corporation – wholesale steel distributor\*
- ❖ Bri Chem Supply – chemical distribution\*
- ❖ Industrial Welding & Fabricating – steel fabricating\*
- ❖ Almatis – refractories, ceramics, polishing, and chemicals
- ❖ Millwood – wood product supplier\*
- ❖ AcelorMittal LaPlace – steel supplier and recycling
- ❖ Beemac Port Services
- ❖ National Oilwell Varco – oil and gas well supply and distribution\*
- ❖ JT Thorpe & Son – refractory, fireproofing, coating, and storage tanks

**Ambridge Regional Park** – Warehouse, Light Industrial, Heavy Industrial

**Buncher Industrial Park** – Warehouse & Light Industrial

- ❖ Abtrex Industries – Manufacture and installation of rubber lined tanks
- ❖ Xylem Dewatering Solutions – water products, treatments, pumps, supplies
- ❖ Pack Rat Moving and Storage – storage\*
- ❖ Bridgestone Hose Power - repair of industrial hoses\*
- ❖ Framesi USA – hair product manufacturing\*
- ❖ Abdi – warehousing\*
- ❖ Ashland Chemical – oil product distribution\*
- ❖ PrimeSource Building Products – building product distribution\*
- ❖ W.B Mason – warehousing\*

**79 North Industrial** – Distribution

- ❖ Culligan Water\*
- ❖ Safelite\*
- ❖ Chrysler\*
- ❖ Shawcor – oil field equipment supplier\*
- ❖ Lifegas – medical supply store\*

**Imperial Business Park** - Warehouse/Distribution

- ❖ Pilot Air Freight – freight forwarding services\*
- ❖ XPO Logistics – Package distribution services\*
- ❖ Cumi America – abrasive distribution center\*

**WestGate Business Park** – Warehouse/Distribution

- ❖ TMK Ipsco Koppel Tubulars – steel distributor\*
- ❖ PSC Metals
- ❖ Interline Brand – equipment rental agency\*

**Clinton Commerce Park** – Light Manufacturing & Warehouse

- ❖ Pittsburgh Post-Gazette - newspaper printing plant
- ❖ Knepper Press Corporation – printing plant
- ❖ Berlin Packaging – box manufacturing\*
- ❖ American Tire Distributors – tire distribution warehouse\*
- ❖ FedEx SmartPost – package distribution hub\*

**McClaren Woods** – Light Manufacturing & Warehouse

- ❖ Calgon Carbon – office and showroom for activated carbon products\*
- ❖ ERIKS North America – industrial solutions for refining industry and supplier
- ❖ Service King Collision\*
- ❖ AD Starr – sporting goods office and screen printing\*
- ❖ AmCom – office systems\*

**RIDC Park West** – Office and Light Manufacturing – primarily an office park with some light manufacturing and showroom distribution

**Findlay Industrial Park** – Specialty Manufacturing & Warehouse

- ❖ Niagara Bottling – water bottling and distribution\*
- ❖ Alro Steel – steel fabrication and distribution\*
- ❖ Okonite – distribution center for cable and wiring products

**Chapman Westport** – Distribution & Advanced Manufacturing

- ❖ GE Center for Additive Technology Advancement – 3-D printer manufacturing\*
- ❖ Thru Tubing Solutions, Siemens, Carpenter Tech, Thermo Fisher, Rubicon, (all small tenants in a flex type building) \*
- ❖ Amazon (2020) – regional distribution warehouse\*

**Neville Island Property Use Analysis**

The following aerials outline the land uses on Neville Island. The areas outlined in green are residential and local retail uses. The aerials began at the west end of the island and extend to the east.





## West

- Residential use, commercial uses near I-79 interchange (green shading)
- Specialty uses: Robert Morris University Island Sports Center, Fairfield Inn & Suites
- Industrial Use: Distribution, manufacturing



### Center

- Industrial Uses: Heavy manufacturing, light manufacturing, industrial distribution and service





### East

- Industrial Uses: Heavy manufacturing, distribution, fuel depot, chemical processing
- Location of subject (S)

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## Description of Uses

The following table lists the industrial companies that are located on Neville Island and lists the industrial category of each use and the specific use or process occurring on the property. Uses believed to have a Title V permit are noted with a "Y".

Neville Island Uses				
Company	Address	Industrial Category	Specific Use	Title V?
Point Spring Driveshaft	7309 Grand Avenue	Light Manufacturing	Truck repair	N
RI Lampus Neville Island Brick, Stone	6104 Grand Avenue	Heavy Manufacturing	Building materials supplier	N
Sunbelt Rentals	5600 Grand Avenue	Light Manufacturing	Equipment rental agency	N
Gottlieb	5603 Grand Avenue	Heavy Manufacturing	Steel fabricator	N
XPO Logistics	5300 Neville Road	Light Manufacturing	Trucking company	N
Penske Truck Rental	4890 Grand Avenue	Light Manufacturing	Trucking rentals	N
Samuel Frontier Steel	4990 Grand Avenue	Heavy Manufacturing	Steel distributor	N
Royal Oak Recycling	4830 Grand Avenue	Light Manufacturing	Recycling center	N
Synder of Hanover	4801 Grand Avenue	Warehouse	Food producer	N
American Steel Processing	4900 Grand Avenue	Light Manufacturing	Recycling center	N
Waste Management	4100 Grand Avenue	Light Manufacturing	Recycling center	N
Calgon Carbon	200 Neville Road	Specialty Manufacturing	Activated carbon manufacturer	Y
Allegheny Recycled Products	4201 Grand Avenue	Light Manufacturing	Woodworking/recycling	N
Lindy Paving	200 Neville Road	Heavy Manufacturing	Asphalt paving Contractor	Y
JA Oilfield Manufacturing	3800 Neville Road	Heavy Manufacturing	Drilling technology/services	Y
Oil Service	3498 Grand Avenue	Heavy Manufacturing	Manufacturing/distributing petroleum	Y
Triad Metals International	3480 Grand Avenue	Heavy Manufacturing	Steel distributor	N
Deufol North	3501 Grand Avenue	Light Manufacturing	Packaging	N
Lanxess	3499 Grand Avenue	Heavy Manufacturing	Plastic fabrication	N
Express Container Services	3505 Grand Avenue	Warehouse	Shipping and mailing	N
R&N Steel Building Manufacturing	3500 Neville Road	Heavy Manufacturing	Steel fabricator	Y
SSM Industries	3401 Grand Avenue	Heavy Manufacturing	Specialty sheet metal fabrication	N
Carneus Technical Center	3600 Neville Road	Research & Development	Cement products	N
Bryan Materials Group	3501 Neville Road	Heavy Manufacturing	Ready-mix concrete supplier	Y
ACME Metals	3000 Grand Avenue	Heavy Manufacturing	Sheet metal contractor	N
Metalico Pittsburgh	3100 Grand Avenue	Heavy Manufacturing	Scrap metal recycling	N
Tri-State Trailer Sales	3111 Grand Avenue	Light Manufacturing	Trailer sales	N
Leo Iron & Metals	2995 Grand Avenue	Heavy Manufacturing	Scrap metal recycling	N
Penstan Supply	2954 Neville Road	Light Manufacturing	Plumbing supplies	N
Neville Galvanizing	3005 Grand Avenue	Heavy Manufacturing	Metal fabrication	N
Stone Connection	2951 Grand Avenue	Light Manufacturing	Kitchen remodeling	N
Watson Standard	2895 Grand Avenue	Light Manufacturing	Paint	N
A&R Tire Service	2900 Neville Road	Light Manufacturing	Used tire sales	N
Neville Chemical Company	2800 Neville Road	Heavy Manufacturing	Chemical manufacturing	Y
Dist Tech	2895 Neville Road	Light Manufacturing	Trucking company	N
New Penn	2950 Grand Avenue	Light Manufacturing	Trucking company	N
Petroleum Products	2760 Neville Road	Light Manufacturing	Fuel supplier	N
FedEx Ground	2702 Neville Road	Light Manufacturing	Shipping	N
Fox & James Nationalease	400 Grand Avenue	Light Manufacturing	Truck rental	N
Pena-Plas	2710 Neville Road	Heavy Manufacturing	Plastic fabrication	N
Avi Food Systems	2700 Neville Road	Light Manufacturing	Vending machine supplier	N
Gulf Neville	2600 Neville Road	Light Manufacturing	Fuel supplier	N
American Made Liner Systems	2600 Neville Road	Light Manufacturing	Truck parts supplier	N
Source One Transportation	2620 Neville Road	Light Manufacturing	Shipping	N
INEOS Composites	2650 Neville Road	Heavy Manufacturing	Chemical manufacturing	Y
INEOS Neville Island Plant	200 Neville Road	Heavy Manufacturing	Chemical manufacturing	Y

Compiled by NKF





The specific uses that are on Neville Island and which have the potential to be part of the redevelopment of the Shenango site are found in the following table:

### Uses

Truck repair  
 Building materials supplier  
 Equipment rental  
 Steel fabrication  
 Steel distribution  
 Trucking depot  
 Recycling - scrap metal  
 Food warehousing  
 Woodworking/recycling  
 Paper packaging  
 Plastic fabrication  
 Shipping and mailing  
 Sheet metal fabrication  
 Plumbing supply wholesaler  
 Wholesale paint  
 Vending machine supplier  
 Truck parts supplier

*Compiled by NKF*

## Neville Island New Construction

The study also researched new construction on the island over the last 5 to 10 years. According to Rick Rutter of the Neville Township Board of Commissioners the following new construction has occurred.

### Industrial Uses:

- ❖ Triad Metals – 3507 Grand Avenue – steel fabrication and warehouse distribution\*
- ❖ Lindy Paving – 200 Neville Road – asphalt plant expansion
- ❖ JLS land – 4801 Grand Avenue – multi-tenant warehouse \*
- ❖ Kobie Realty – 5601 Grand Avenue – renovation of mill building for construction distribution\*
- ❖ LES Neville Trust – 3802 Neville Road – hydraulic hose service and supply\*

#### Commercial Uses:

- ❖ Speedway Convenience/Gas Station – 5701 Grand Avenue\*
- ❖ Penske Truck Leasing – 4890 Grand Avenue\*
- ❖ Neville Island Commons/Sunbelt Rentals – 5700 Grand Avenue\*

### Pittsburgh MSA Notable New and Proposed Developments

Research was also completed to identify new and expanding industrial uses in the region that would be a good fit for The Property taking into account the property characteristics, location characteristics, and Guiding Principles.

Outside of the city of Pittsburgh most of the uses, both existing and proposed, are traditional industrial uses. Traditional industrial uses include warehouse distribution, heavy industrial, and light industrial uses. Specialty manufacturing is a non-traditional use that is experiencing continued growth in the Pittsburgh region. Many of these uses align with the Guiding Principles and also would be a potential use for the Shenango site.

#### Specialty Manufacturing

##### **GE Center for Additive Technology Advancement – Findlay Township**

This 125,860 square foot advanced manufacturing facility opened in 2016. It is located in Findlay Township in the Chapman Westport Business Park, near the airport.

Additive manufacturing involves taking a digital design from computer aided design (CAD) software and melting and fusing together very fine metal powder layer-by-layer, using a laser or an electron beam as the energy source. Additive components are typically lighter and more durable than traditional forged parts because they require less welding and machining. Since additive parts are essentially “grown” from the ground up, they generate far less scrap material. Freed of traditional manufacturing restrictions, additive manufacturing dramatically expands the design possibilities for engineers.

GE invested nearly \$40 million in CATA, which employs over 50 workers. The facility has several direct metal laser melting (DMLM) machines, which can print parts in metal alloys. The plant has a \$2 million DMLM printer with four lasers that can print four different parts at the same time and a laser hot-wire machine that can quickly and precisely restore worn-out parts.

This type of facility and use falls under the category of Specialty Manufacturing and specifically advanced manufacturing. Advanced Manufacturing has become a focus for growing the Pittsburgh regional economy.

### **Pittsburgh Airport Innovation Campus – Moon Township**

The pursuit of this advanced manufacturing focus has recently increased with the announcement of the development of Neighborhood 91 on the Innovation Campus at the Pittsburgh International Airport. The airport authority has partnered with the University of Pittsburgh to develop the world's first additive manufacturing focused campus. The development is proposed to offer an end-to-end ecosystem for additive manufacturing such as:

- ❖ Powder, parts, post-production, testing and analysis
- ❖ Communal powder storage facilities
- ❖ Efficiencies in production/post-production and delivery
- ❖ Tenants' clients cost savings from on-demand printing
- ❖ Reduced transportation costs
- ❖ Airport access
- ❖ And perhaps the most important, argon, helium and other noble gases, which are essential elements of additive manufacturing, reaching up to 60 percent of additive manufacturing costs.

### **Robotics Row – City of Pittsburgh**

Carnegie Mellon University is a worldwide leader in academic research related to artificial intelligence and robotics. Within the last five years there has been a surge in private development in these two fields.

Robotics companies require specialty manufacturing buildings. Robotics companies require “a unique set of commercial real estate requirements, including flexible tinker (or maker) space along with top amenities to attract top high-tech talent,” according to NAIOP. The majority of the robotics space is found in Robotics Row in the city of Pittsburgh. The following properties are part of Robotics Row:

#### ❖ **Lawrenceville Technology Center – City of Pittsburgh**

- **Chocolate Factory** – This facility is a two-story manufacturing building. Tenants include Nano Griptech, Red Zone Robotics, and Uber.
- **Tech Forge** – The property has 64,500 square feet of both office and high-bay space. Aurora Innovation and Caterpillar currently occupy the building.
- **Former Heppenstall Steel Mill, Blue Building** – This facility houses Carnegie Robotics, which formed out of Carnegie Mellon University's robotics center. The property was designed to accommodate growing robotics companies looking for both a mix of office and high-bay space.

- ❖ **Tech Mill 41** – This facility is located in Lawrenceville and is expected to be completed in January 2019. The building is 73,500 square feet in a four-story building. Adjacent to the building is a 7,500 square-foot former machine shop that will be converted into office/lab space.
- ❖ **National Robotics Engineering Center (NREC)** – The facility is built out with two floors to house clean room assembly labs, research and development labs, office and conference spaces, warehouse and distribution areas, and space to manufacture large robotic apparatuses.
- ❖ Other robotics firms with space in Robotics Row include RE2, Edge Case Research, and Bosch Research and Technology Center.

### **Carrie Furnace Redevelopment – City of Pittsburgh**

The Carrie Furnace Redevelopment is a former 168-acre steel mill site located in Swissvale and Rankin approximately nine miles southeast of Downtown Pittsburgh. Allegheny County is in negotiations with developers for 75 developable acres. The site has seen \$30 million of site remediation and flood plain elevation alteration for the purpose of developing the site with a variety of uses. The focus of the development will be tech flex space.

Another significant part of the reuse plan is the development of the site with a 360,000 square foot building with sound stages, production support, and set construction (Pittsburgh Business Times, Julia Mericle, November 7, 2019).

### **Hydroponic Farming (Robotany) - Braddock**

Fifth Season is building an indoor vertical farm that will integrate high-tech elements such as artificial intelligence, data analysis, and robotics to seed, harvest, and package produce to local grocery stores and restaurants (Pittsburgh Post-Gazette, Stephanie Ritenbaugh, October 21, 2019). The facility is located in Braddock and is an approximately 60,000 square-foot high bay flex building with rooftop solar. The property is located next to the U.S. Steel's Mon Valley Works which is part of one of the only remaining integrated steel complexes in Western Pennsylvania.

Important to note, in October 2019, Fifth Season was the first completed federal Qualified Opportunity Zone project in Allegheny County (TRIB Live, Jamie Martines, October 10, 2019).

### **Medical Marijuana - Pure Penn – McKeesport**

Pure Penn is a licensed medical marijuana grower located in the RIDC park in McKeesport. The 21,000 square foot facility was built in 2017 on five acres (Pittsburgh Post-Gazette, David Templeton, March 20, 2017).

### **InCity Farms - Duquesne**

Plans to build a 180,000 square foot aquaponics facility in Duquesne.

## Regional Uses

### Pittsburgh Regional Alliance

Research also included discussions with the research department at the Pittsburgh Regional Alliance which acts as chief promoter and gatekeeper for business development in the region. The Pittsburgh Regional Alliance identified the largest expansions in 2018 and companies that entered the market since 2017.

The following chart outlines the largest deals in 2018:

2018 Completed Expansions			
Company Name	Jobs Created	Location	Expansion
IAM Robotics	61	Sewickley, PA	Headquarters Expansion
Lucas Systems	55	Wexford, PA	Headquarters Expansion
American Textile Company	75	McKeesport	98,000 SF Distribution Center
Ellwood Quality Steel	25	New Castle, PA	\$60 million expansion - 110,000 SF building housing equipment for re-melting steel that will be used in the aerospace and military fields
Bergad, Inc.	30	Armstrong County	\$2.2 Million expansions 50,000 FS addition for producer of specialty polyurethane foams
Kenson Plastics	15	Chippewa (Beaver County)	\$1.7 Million expansion - plastics for aerospace, mass transit and medical industries
Nine Energy Services	N/A	Washington, PA	\$4 Million expansion 38,000 SF regional headquarters (Oil & Gas Company)
Watt Fuel Cell	20	Mount Pleasant, PA	Expansions - doubling production of solid oxide fuel cell stacks and systems that run on propane and natural gas
Kenco/Shell Lubricants	200-215	Burgettstown, PA	Distribution building \$49 Million
Hickory Run Energy Station	N/A	North Beaver Township (Lawrence County)	\$863 Million Natural gas-fueled electrical generation plant

Compiled by NKf

While these expansions are important to the economy, they are generally not consistent with the Guiding Principles or are office uses.

The following table lists those industrial companies that entered the region or expanded in 2017 in the Pittsburgh Region (not including those in the city of Pittsburgh). The table lists the industrial category of each use and the specific use or process occurring on the property. Uses believed to have a Title V permit are not noted with a "Y".



New & Expanded Companies (Pittsburgh MSA)				
Company	Municipality	Industrial Category	Specific Use	Title V?
Acorx	Carnegie	Specialty Manufacturing	Pharmaceutical	N
AGRImed	Cumberland Township (Greene County)	Specialty Manufacturing	Medical Marijuana	N
Pennsylvania Steel Company	McKees Rocks	Warehouse	Steel distribution	N
PurePenn	McKeesport	Specialty Manufacturing	Medical Marijuana	N
Allegheny & Tsingshan Stainless	Midland (Beaver County)	Heavy Manufacturing	Stainless steel	Y
Champion Concrete	Midland (Beaver County)	Heavy Manufacturing	Ready-mix concrete	Y
Holistic Farms	New Castle (Lawrence County)	Specialty Manufacturing	Medical Marijuana	N
Blume Honey Water	O'Hara Township	Specialty Manufacturing	Specialty water bottling	N
Gordon Sinclair	White Township (Indiana County)	Light Manufacturing	Giftware printing	N
Hormann Flexon	Burgettstown (Washington County)	Light Manufacturing	Garage door supplier	N
Perryman Co.	California (Washington County)	Heavy Manufacturing	Titanium product manufacturer	Y
rose plastic	California (Washington County)	Specialty Manufacturing	Plastic packaging	N
Ardex Americas	Center Township (Beaver County)	Light Manufacturing	Specialty cement manufacturing	Y
Adams Manufacturing	Ellwood City (Lawrence County)	Light Manufacturing	Plastic household goods manufacturing	N
Bridgestone Tires	Findlay Township	Warehouse	Tire distribution warehouse	N
LPW Technology	Findlay Township	Specialty Manufacturing	Specialty powder coating manufacturing	N
Dura-Bond Industries	McKeesport	Heavy Manufacturing	Steel pipe coating	Y
Hennemuth Metal Fabricators Inc.	North Fayette	Light Manufacturing	HVAC ductwork fabrication	N
New York Blower	Shenango Township (Lawrence County)	Heavy Manufacturing	Metal fabrication	N
Boeing	Smithfield Township (Fayette County)	Light Manufacturing	Specialty airplane part manufacturing	N
Intervala	Turtle Creek	Specialty Manufacturing	Electronic manufacturing	N
Diamond Drug, Inc.	White Township (Indiana County)	Specialty Manufacturing	Pharmaceutical manufacturing	N
George DeLallo Company	Mt. Pleasant (Westmoreland County)	Warehouse	Food distribution warehouse	N
Coe Distributing	Smock (Fayette County)	Warehouse	Office furniture	N
Pitt Specialty Supply	Tarentum	Warehouse	Cleaning/Janitorial Supplies	N
CellHelmet	Wexford	Warehouse	Mobile accessories manufacturer	N
Premier Automation	Monroeville	Light Manufacturing	Electrical control panel manufacturing	N
TandemLife, Inc.	O'Hara Township	Specialty Manufacturing	Medical technology manufacturing	N
Mediterra Bakehouse	Findlay Township	Light Manufacturing	Commercial bakery	N
Prantl's Bakery	Greensburg (Westmoreland County)	Light Manufacturing	Commercial bakery	N
Commonwealth Computer Recycling	Hempfield Township (Westmoreland County)	Specialty Manufacturing	Computer recycling	N
Hitchhiker Brewing	Sharpsburg	Light Manufacturing	Brewery	N
Standard Envelope	South Greensburg (Westmoreland County)	Light Manufacturing	Paper products	N
Seegrid	Findlay Township	Specialty Manufacturing	Commercial use robotics manufacturing	N
Delphi (Aptiv)	O'Hara Township	Specialty Manufacturing	Auto parts (self-driving vehicles)	N
Aethon, Inc.	Robinson Township	Specialty Manufacturing	Autonomous mobile robots	N

Compiled by NKF

The specific uses that entered or expanded into the regional market in 2017 and which have the potential to be part of the redevelopment of the Shenango site are found in the following table:

### Uses

Pharmaceutical  
 Medical Marijuana  
 Water bottling  
 Printing  
 Garage door manufacturing  
 Plastic packaging  
 Plastic household goods manufacturing  
 Specialty powder coating manufacturing  
 HVAC duct work manufacturing  
 Metal fabrication  
 Airplane part manufacturing  
 Electronic manufacturing  
 Food distribution/warehousing  
 Office furniture production  
 Cleaning/Janitorial Supplies  
 Mobile accessories manufacturer  
 Electrical control panel manufacturing  
 Medical technology manufacturing  
 Commercial bakery  
 Computer recycling  
 Brewery  
 Paper manufacturer  
 Commercial use robotics manufacturing  
 Auto parts (self-driving vehicles)  
 Autonomous mobile robots

*Compiled by NKF*

The Pittsburgh Regional Alliance has indicated that since January 2018 there have been 32 requests for proposals (RFP) sent, however, none specifically indicate a federal opportunity zone.

Of the 32 requests for proposals there were 23 were for clients in Advanced Manufacturing, in those 23, 8 requested a specific zoning: 1 for heavy manufacturing, 2 for light manufacturing, 5 for “general” industrial.

Of the 32 request for proposals 3 requested water access specifically and 7 asked for rail access.

Typically requests for proposals do not indicate pollution standards or the preference between “clean” or “dirty” sites. However, contacts at the Pittsburgh Regional Alliance indicated that no more than 3 requested explicitly asked for “clean space”.

# Conclusion

The Shenango Reimagined Market Study was developed based on a scope of work that included a list of Guiding Principles developed by the Advisory Council. The scope of work also included developing the market study based on typical study parameters which include:

- ❖ Identify and analyze the property and site characteristics (both regulatory and physical).
- ❖ Identify and analyze the regional and local employment and demographic characteristics which could influence redevelopment.
- ❖ Define, identify, and analyze the characteristics of an industrial market including types of industrial uses, demand for, and supply of, these uses.
- ❖ Identify typical industrial uses in the area, including Neville Island for the purpose of identifying uses that would be a good fit for the subject site.
- ❖ Identify uses in the immediate area and larger regional area that would be a good fit for the subject site and match at least some of the Guiding Principles.

The conclusions of the study are summarized as follows:

## The Property

- ❖ The site size is 49.3 acres and is located at the eastern end of Neville Island, situated in the Ohio River, 5 miles downstream from the Pittsburgh Central Business District.
- ❖ The shape is very irregular which could impact development efficiency.
- ❖ There are portions of the site in the 100-year and 500-year flood plain.
- ❖ Direct river and rail access is available.
- ❖ The site is zoned special industrial with a wide variety of uses allowed.
- ❖ The adjacent land uses are oriented to heavy industry and considered “dirty”.
- ❖ The application for site remediation under Act 2 is pending. If approved, this would create an industrially clean site, but not one which can be used for residential development.
- ❖ The site is in a Qualified Opportunity Zone, which provides equity investors significant income tax incentives related to capital gains.
- ❖ The site is estimated to have a development potential of over 300,000 square feet. This could be in the form of a single plant/user with multiple buildings or an industrial park with multiple buildings and users.

## The Location

- ❖ The site is near the center of the Pittsburgh MSA which has experienced and is expected to continue to experience slow employment growth and a decreasing population.
- ❖ Neville Township (Neville Island) has historically been developed with industrial uses and supporting blue-collar housing.
- ❖ Neville Island has very good regional access due to the Interstate 79 (I-79) interchange in the western portion of the island. Inter-regional access is a critical driver of industrial development.
- ❖ The site has rail access to the CSX mainline and river access. A 1,000 lineal foot river wall provides barge access to the site. It is our understanding three barges can be stored along the river wall to a depth of two to three barges.
- ❖ The central location provides efficient access to the Pittsburgh Central Business District, Pittsburgh International Airport, Interstate 376, and Interstate 79.
- ❖ There are very homogenous industrial land uses on the eastern one-half of the island.

## Potential Industrial Uses

- ❖ Industrial properties fall under five general categories: warehouse distribution, light manufacturing, heavy manufacturing, specialty manufacturing, and flex.
- ❖ With the exception of large integrated plants, which would require very large areas, the land area of the subject site should be able to support a variety of industrial uses.
- ❖ The physical and locational characteristics of the subject site suggest the following relative to the viability of industrial uses:
  - Heavy Manufacturing – Positive rankings for all characteristics; good fit. However, the Guiding Principles would preclude development with any heavy industrial use that required a Title V, Clean Air Act permit.
  - Specialty Manufacturing – Positive rankings for all characteristics, although cleaner uses may find surrounding land uses incompatible. Some specialty uses tend to be located in areas with other similar uses or in industrial park settings. Availability of water and rail may not be priority for many uses.
  - Warehouse – Positive rankings for all characteristics, although cleaner uses may find surrounding land uses incompatible. Availability of water and rail may not be priority for many uses. Site access could be a negative. Warehouses uses are less likely to be developed on this site because of the lack of homogeneous uses on the island and numerous superior warehouse locations in the west and north submarkets, where intervening opportunities are located.

- Light Manufacturing– Positive rankings for all characteristics, although some uses which involve assembly or clean advanced manufacturing may find the surrounding land uses incompatible. Availability of water and rail may not be priority for many uses. Site access could be a negative.
- Flex – Alternative locations have superior access and more homogenous land uses.
- ❖ Based on locational characteristics heavy manufacturing is the best fit, but other industrial types may be a good fit depending on compatibility with surrounding land uses. Uses that require Title V permit are not consistent with the Guiding Principles.
- ❖ The physical characteristics of the site received positive rankings, but shape and access may be eliminating factors for some users.

### The Market

Examination of the regional industrial market and submarket, which could impact the redevelopment of the subject site, indicates the following:

- ❖ The regional industrial market is stable and growing slowly, mirroring the regional economy.
- ❖ The Parkway West industrial submarket (location of the subject) has fared the best in recent years, witnessing steady growth.
- ❖ Most new industrial development is related to distribution warehouse, similar to national trends.
- ❖ An examination of property uses in industrial parks in the Parkway West submarket was completed to determine the type and mix of industrial uses that are located in the market.
- ❖ 14 industrial parks reviewed; 75 properties were classified into heavy industrial, light industrial, warehouse, and specialty manufacturing. The percentage breakdown is as follows:
  - Heavy Industrial: 33%
  - Light Industrial: 43%
  - Warehouse: 21%
  - Specialty Manufacturing: 3%
- ❖ An examination of property uses on Neville Island was also completed to determine the type and mix of industrial properties on the island. A total of 48 properties were identified with the following breakdown:
  - Heavy Industrial: 56%



- Light Industrial: 36%
- Warehouse: 8%
- ❖ The data indicates that heavy industrial uses dominate the Neville Island market, but light industrial uses are more common throughout the submarket.
- ❖ Warehouse uses are not typically found on the island; other locations in the submarkets have superior site access and shapes which are more attractive to users.

Regional research was also completed to identify non-traditional industrial uses; particularly those that fall under the specialty manufacturing classification. These uses are often new to the Pittsburgh region but have the potential to have significant impact on the economy and could be a good fit for the subject site.

- ❖ Advanced Manufacturing
  - Additive Technology
  - Robotics
- ❖ Hydroponic Farming
  - Medical Marijuana
  - Vertical Farming
- ❖ The challenge of locating these uses at the subject site relates to the surrounding property uses which may not be compatible with these uses. In addition, the robotics field is closely tied to the city-based universities and may be reluctant to operate in a one-off location.

## Conclusion

The study indicates effective demand exists for heavy and light industrial uses at the Shenango site. While this includes a broad range of uses including many which do not align with the Guiding Principles, there remains a significant percentage that conform to the Guiding Principles. In addition, a number of non-traditional, new industries could be a good fit for the subject.

Of the industrial property types studied, light manufacturing/light industrial uses are likely to generate the highest level of demand. This is followed by heavy manufacturing/heavy industrial and specialty manufacturing. Specific uses which have generated demand regionally and on Neville Island and are likely a fit for the Shenango site include the following:

Potential Uses		
Heavy	Light	Specialty
Steel fabrication	Residential and commercial building component manufacturing	Medical Marijuana
Building material production	Plastic household commercial goods	Medical technology manufacturing
Plastic fabrication	Commercial bakery	Specialty powder coating manufacturing
Sheet metal fabrication	Industrial plant equipment manufacturer	Commercial/industrial use robotics manufacturing
Scrap metal recycling	Recycling	Self-driving vehicles
	Metal fabrication	Autonomous technology
	Electronics assembly	Brewery
	Building supply	Pharmaceutical packaging
	Equipment assembly	Additive product manufacturing (3-D printing)
	Paper products	Aquaponics
	Truck service	Specialty metal products

These and similar heavy, light, and specialty manufacturing uses are likely to generate demand for use at the Shenango site and be in compliance with the Guiding Principles.

# Addenda

## Certification

We certify that, to the best of our knowledge and belief:

1. The statements of fact contained in this report are true and correct.
2. The reported analyses, opinions, and conclusions are limited only by the reported assumptions and limiting conditions and are our personal, impartial and unbiased professional analyses, opinions, and conclusions.
3. We have no present or prospective interest in the property that is the subject of this report and no personal interest with respect to the parties involved.
4. We have no bias with respect to the property that is the subject of this report or to the parties involved with this assignment.
5. Our engagement in this assignment was not contingent upon developing or reporting predetermined results.
6. Our compensation for completing this assignment is not contingent upon the development or reporting of a predetermined value or direction in value that favors the cause of the client, the amount of the value opinion, the attainment of a stipulated result, or the occurrence of a subsequent event directly related to the intended use of this appraisal.
7. This assignment was not based upon a requested minimum valuation, a specific valuation, or the approval of a loan.
8. Our analyses, opinions, and conclusions were developed, and this report has been prepared, in conformity with the Uniform Standards of Professional Appraisal Practice, as well as the requirements of the State of Pennsylvania.
9. The reported analyses, opinions, and conclusions were developed, and this report has been prepared, in conformity with the Code of Professional Ethics and Standards of Professional Appraisal Practice of the Appraisal Institute.
10. The use of this report is subject to the requirements of the Appraisal Institute relating to review by its duly authorized representatives.
11. As of the date of this report, Paul D. Griffith, MAI, CRE, FRICS has completed the continuing education program for Designated Members of the Appraisal Institute.
12. As of the date of this report, Alexandra Larch has completed the Standards and Ethics Education Requirements for Practicing Affiliates of the Appraisal Institute.
13. Paul D. Griffith, MAI, CRE, FRICS made a personal inspection of the property that is the subject of this report. Alexandra Larch has not personally inspected the subject.
14. No one provided significant real property appraisal assistance to the person(s) signing this certification.
15. The Firm operates as an independent economic entity. Although employees of other service lines or affiliates of the Firm may be contacted as a part of our routine market research investigations, absolute client confidentiality and privacy were maintained at all times with regard to this assignment without conflict of interest.
16. Within this report, "Newmark Knight Frank", "NKF Valuation & Advisory", "NKF, Inc.", and similar forms of reference refer only to the appraiser(s) who have signed this certification and any persons noted above as having provided significant real property appraisal assistance to the persons signing this report.

17. Paul D. Griffith, MAI, CRE, FRICS has previously appraised the property that is the subject of this report for another client (Owner) within the three-year period immediately preceding acceptance of this assignment. Paul D. Griffith, MAI, CRE, FRICS has performed no other services, as an appraiser or in any other capacity, regarding the subject property during this time period. Alexandra Larch has not performed any services, as an appraiser or in any other capacity, regarding the property that is the subject of this report within the three-year period immediately preceding acceptance of this assignment.



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Certified General Real Estate Appraiser  
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Alexandra Larch  
Appraiser  
Certified General Real Estate Appraiser  
Pennsylvania # GA004456  
Telephone: 724-742-3354  
Email: Alexandra.Larch@ngkf.com

General Information

Ownership History

The current owner is Shenango Incorporated. The following summarizes a three-year history of ownership, the current listing status, and pending transactions for the subject property (as applicable).

Ownership History

To the best of our knowledge, no sale or transfer of ownership has taken place within the three-year period prior to the effective date of the appraisal.

Listing Status:	Not Listed For Sale
Current or Pending Contract:	None Reported

Compiled by NKF

To the best of our knowledge, no other sale or transfer of ownership has taken place within a three-year period prior to the effective date of the appraisal.

Extraordinary Assumptions

An extraordinary assumption is defined in USPAP as an assignment-specific assumption as of the effective date regarding uncertain information used in an analysis which, if found to be false, could alter the consultant’s opinions or conclusions. The value conclusions are subject to the following extraordinary assumptions that may affect the assignment results.

- 1. This market study assumes that the site is remediated in accordance to state laws.
- 2. It is an extraordinary assumption of this market study that the site will be approved for the Act 2 program.

The use of this extraordinary assumption might have affected assignment results.

Hypothetical Conditions

A hypothetical condition is defined in USPAP as a condition, directly related to a specific assignment, which is contrary to what is known by the consultant to exist on the effective date of the assignment results but is used for the purpose of analysis. The value conclusions are based on the following hypothetical conditions that may affect the assignment results.

- 1. None





### Intended Use and User

The intended use and user of our report are specifically identified in our report as agreed upon in our contract for services and/or reliance language found in the report. No other use or user of the report is permitted by any other party for any other purpose. Dissemination of this report by any party to non-client, non-intended users does not extend reliance to any other party and Newmark Knight Frank will not be responsible for unauthorized use of the report, its conclusions or contents used partially or in its entirety.

- ❖ The intended use of the appraisal is to provide market-based analysis and conclusions relative to the potential of an adaptive reuse of the Shenango site and no other use is permitted.
- ❖ The client is Delta Institute.
- ❖ The intended user is Delta Institute and the SRAC and no other user is permitted by any other party for any other purpose.

### Identification of Subject Property

Former Shenango Coke Works site on Neville Island. The parcel number is 159-N-135 and the total site area is 49.63 acres. The address is 200 Neville Road, Pittsburgh, PA 15225.

### Identification of Consulting Problem

The purpose of the analysis is to provide market-based analysis and conclusions relative to the potential of an adaptive reuse of the Shenango site as of the effective date. The marketability study is valid only as of the effective date. The effective date of the report is October 15, 2019.

### Identification of Consultant

Paul D. Griffith, MAI, CRE, FRICS has been engaged to provide a consulting service for the identified client. The marketability study has been developed with the assistance of Alexandra R. Larch. Reference to “consultant” in this report refers collectively to the individual consultants who developed this report.

### Competency Statement

The consultants have the knowledge and experience to complete the consulting assignment. We have developed marketability studies of mixed-use properties, we have performed the necessary analysis of the defined market area, and we have prepared reports similar to this report.

Our knowledge of the competitive market has been updated by a recent survey of the selected properties in the market area and research and analysis of relevant market data and trends.

We have reviewed the methodology that is both appropriate for and consistent with the scope of work required to complete the assignment.

### Definitions

*Market analysis* is:

The study of the supply and demand in a specific area for a specific type of property.

*A marketability analysis is:*

The study of how a specific property is expected to perform in a specific market. A marketability analysis expands on market analysis by addressing a specific property.

*Source: The Dictionary of Real Estate Appraisal, Sixth Edition; Appraisal Institute, Chicago, Illinois; 2015.*

### Extent to Which the Property is Inspected

NKF inspected the subject property from Grand Avenue on October 15, 2019 as per the defined scope of work. Paul D. Griffith, MAI, CRE, FRICS made a personal inspection of the property that is the subject of this report. Alexandra Larch has not personally inspected the subject.

### Type and Extent of the Data Researched

- ❖ Neighborhood and land use trends;
- ❖ Demographic trends;
- ❖ Market trends relative to the subject property type;
- ❖ Physical characteristics of the site and applicable improvements;
- ❖ Flood zone status;
- ❖ Zoning requirements and compliance;
- ❖ Reviewed Guiding Principles

## Scope of Work

- ❖ Review site plans, Guiding Principles related to the redevelopment of the Shenango site, legal uses as indicated by zoning and brownfield (Act 2) regulations in place from the Commonwealth to define the community and legal parameters that are likely to define development.
- ❖ Based on the conclusions developed in the initial review, research potential uses and users that are likely to generated demand for the site.
- ❖ Based on the conclusions reached in the use and users research, define the market, and research the demand for, and supply of, similar uses.
- ❖ Based on the defined market area and general demand and supply of similar uses, including specific reuse types as defined in the Guiding Principles, complete a focused analysis to identify the uses that best meet the criteria of the Guiding Principles, zoning Act 2, and market demand.
- ❖ Develop a report that explains the methodology and summarizes the research, analysis and conclusions reached in completing the scope of work. As described in the Commencement and Delivery Date section of this contract, delivery will include two draft reports and one final report. In addition, there will be an update call held approximately three weeks after commencement of the study NKF agrees to attend one Advisory Council meeting at a date to be determined.

## Assumptions and Limiting Conditions

The Market Study contained in this Report (herein “Report”) is subject to the following assumptions and limiting conditions:

1. Unless otherwise stated in this report, title to the property which is the subject of this report (herein “Property”) is assumed to be good and marketable and free and clear of all liens and encumbrances and that there are no recorded or unrecorded matters or exceptions to title that would adversely affect marketability or value. No responsibility is assumed for the legal description, zoning, condition of title or any matters which are legal in nature or otherwise require expertise other than that of a professional real estate consultant. This report shall not constitute a survey of the Property.
2. Unless otherwise stated in this report, this report did not take into consideration the existence of asbestos, PCB transformers or other toxic, hazardous, or contaminated substances or underground storage tanks, or the cost of encapsulation, removal or remediation thereof. Real estate consultants are not qualified to detect such substances. The presence of substances such as asbestos, urea formaldehyde foam insulation, contaminated groundwater or other potentially hazardous materials and substances may adversely affect the value of the Property. Unless otherwise stated in this report, the opinion in this study are predicated on the assumption that there is no such material or substances at, on or in the Property.
3. All statements of fact contained in this report as a basis of the analyses, opinions, and conclusions herein are true and correct to the best of the consultant's actual knowledge and belief. The consultant is entitled to and relies upon the accuracy of information and material furnished by the owner of the Property or owner's representatives and on information and data provided by sources upon which members of the appraisal profession typically rely and that are deemed to be reliable by such members. Such information and data obtained from third party sources are assumed to be reliable and have not been independently verified. No warranty is made as to the accuracy of any of such information and data. Any material error in any of the said information or data could have a substantial impact on the conclusions of this Report. The consultant reserves the right to amend conclusions reported if made aware of any such error.
4. The analyses contained in this report may necessarily incorporate numerous estimates and assumptions regarding Property performance, general and local business and economic conditions, the absence of material changes in the competitive environment and other matters. Some estimates or assumptions, however, inevitably will not materialize, and unanticipated events and circumstances may occur; therefore, actual results achieved during the period covered by the analysis will vary from estimates, and the variations may be material.
5. Neither all nor any part of the contents of this report (especially any conclusions as to value, the identity of the consultant, or any reference to the Appraisal Institute) shall be disseminated through advertising media, public relations media, news media or any other means of communication (including without limitation prospectuses, private offering memoranda and other offering material provided to prospective investors) without the prior written consent of the Firm. Possession of this report, or a copy hereof, does not carry with it the right of publication.
6. Unless otherwise stated in the agreement to prepare this report, the consultant shall not be required to participate in or prepare for or attend any judicial, arbitration, or administrative proceedings.

7. The Americans with Disabilities Act (ADA) became effective January 26, 1992. No survey or analysis of the Property has been made in connection with this report to determine whether the physical aspects of the improvements meet the ADA accessibility guidelines. No expertise in ADA issues is claimed, and the report renders no opinion regarding the Property's compliance with ADA regulations. Inasmuch as compliance matches each owner's financial ability with the cost to cure the non-conforming physical characteristics of a property, a specific study of both the owner's financial ability and the cost to cure any deficiencies would be needed for the Department of Justice to determine compliance.
8. Acceptance and/or use of this report constitutes full acceptance of these Assumptions and Limiting Conditions and any others contained in this report, including any Extraordinary Assumptions and Hypothetical Conditions, and is subject to the terms and conditions contained in the agreement to prepare this report and full acceptance of any limitation of liability or claims contained therein.



## **Précis Metro Report - Economy.Com, Inc.**



MOODY'S  
ANALYTICS

Oct 24, 2018

Pittsburgh, PA

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## Classifications



## Snapshot

Business Cycle Status	Expansion
Avg. Emp. Growth 2yr	1.0%
Avg. Emp. Growth 5yr	0.5%
Risk Exposure	332 out of 402
Moody's Rating	Aa3

## Strengths and Weaknesses

Oct 19, 2018

## Strengths

- Renowned education and research institutions.
- Strong intellectual capital base in healthcare and finance.
- Low cost of living relative to other large northeastern metro areas.

## Weaknesses

- Unfavorable age structure, weak and worsening migration trends.
- Aging infrastructure.
- Below average share of jobs in new companies.

## Forecast Risks

Short Term:  Long Term: 

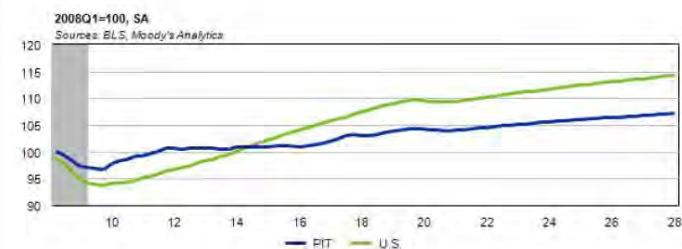
## Upsides

- The natural gas industry generates more downstream manufacturing investment.
- Productivity gains help burgeoning robotics hub become a more important driver.

## Downsides

- State fiscal problems are addressed with inefficient policy mix that hurts growth.
- Extraction taxes pass and dampen drilling more than expected.

## Relative Employment Outlook\*



## Analysis

Published on Oct 11, 2018 by Adam Ozimek of Moody's Analytics

**Recent Performance.** Pittsburgh's economy is improving in fits and starts. Although payrolls have stalled in 2018, job growth is still impressive for a metro area that is losing population. The dip in the labor force has been enough to push the unemployment rate down to 4.1%, just slightly above the historic low. Wage pressures are building, with growth in average hourly earnings exceeding 4%. High energy prices are helping to bolster payrolls in natural resources and mining. High tech is also adding workers, albeit at a slower pace that is consistent with a maturation of the U.S. tech boom. High-tech investment includes recently announced plans by Facebook, Google and Bosch to open artificial intelligence labs in PIT.

**Healthcare.** Healthcare remains one of the largest employers in PIT and will contribute a larger share of net payroll additions. Over the last year, healthcare was responsible for one-quarter of the net new jobs in the area. Like in much of western Pennsylvania, the population in PIT is aging faster than it is growing. As a result, over the next decade the over-65 cohort will expand by 25% while overall population will fall by 1%. This will create steady growth in demand for health services, and PIT's large, competitive healthcare systems will expand to meet demand. Already, Allegheny Health Network is undergoing a \$1 billion expansion, and competitor UPMC will spend \$2 billion. As a result of investment and robust demand, one-third of payroll gains next decade will be in healthcare.

**Manufacturing.** Manufacturing employment is climbing in PIT, but the gains are modest compared with the losses over the last decade, and the long-run outlook is pessimistic. Although factory payrolls have edged up recently, they are closer to their mid-2017 cycle low than their late-2012 cycle high. Compared with a decade ago, manufacturing payrolls are 13% lower, and over the past two decades the count has fallen by one-third.

Strong domestic demand and a rebound in natural resources and mining have helped boost factory employment in PIT over the last year. In contrast, tariffs have been little help, with growth in primary metal manufacturing preceding the imposition of steel and aluminum tariffs. And fabricated metals and industrial machinery, which together employ one-quarter of PIT's factory workers, rely most heavily on raw metals and face rising nonlabor input costs.

What is more, long-standing trends of automation and globalization mean that the recent job gains will prove short-lived. Structural headwinds will begin exerting pressure on manufacturing employment in the coming decade.

**Housing.** Demographic challenges will be a headwind for housing in the long run, but the release of pent-up demand will help counter the drag on sales from higher mortgage rates and deliver strong homebuilding over the next few years. Despite the mature expansion, the housing market has yet to fully heal. Multifamily permitting is in good shape, but homeownership has yet to significantly recover as households remain unwilling to invest in single-family housing. However, the outlook remains optimistic. With unemployment low and falling, tight labor markets and faster income growth that will halt the erosion in affordability will support housing demand.

In the long run, however, population in PIT will decline because of out-migration and because deaths outnumber births. This will hurt housing demand and keep homebuilding below prerecession levels.

**Led by healthcare and high tech, Pittsburgh will keep pace with Pennsylvania and gain ground on the U.S. in 2019. In the long run, PIT's weak demographics will keep it in the nation's shadow despite the presence of dynamic drivers that will help it perform well in state.**

## Current Employment Trends

% CHANGE YR AGO, 3-MO MA			
	Dec 17	Apr 18	Aug 18
Total	1.7	1.4	0.9
Construction	12.2	7.8	2.9
Manufacturing	0.4	1.0	2.1
Trade	0.3	-0.8	-1.5
Trans/Utilities	3.2	2.9	1.1
Information	0.2	0.8	-0.2
Financial Activities	0.6	-0.8	-2.1
Professional Services	0.1	1.0	0.7
Ed & Health Svcs.	3.0	2.1	1.6
Leisure & Hospitality	3.4	3.7	3.4
Other Services	0.5	1.4	0.9
Government	-0.9	-0.5	0.6

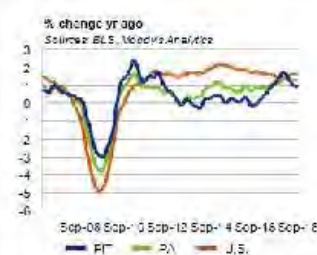
Sources: BLS, Moody's Analytics

## Comparative Employment and Income

Sector	% of Total Employment			Average Annual Earnings		
	PIT	PA	U.S.	PIT	PA	U.S.
Mining	0.8	0.4	0.4	\$71,422	\$45,691	\$69,009
Construction	4.9	4.2	4.7	\$72,341	\$69,967	\$65,977
Manufacturing	7.3	8.4	8.6	\$75,028	\$74,215	\$82,110
Durable	12.2	99.8	62.2	nd	\$75,680	\$85,275
Non-durable	27.8	40.2	37.8	nd	\$79,030	\$77,072
Transportation/Utilities	3.9	4.8	3.9	nd	\$73,672	\$69,603
Wholesale Trade	3.7	3.7	4.0	\$82,340	\$87,007	\$85,073
Retail Trade	10.6	10.5	10.8	\$32,271	\$31,596	\$34,563
Information	1.6	1.4	1.9	\$91,000	\$85,416	\$117,541
Financial Activities	6.2	5.4	5.8	\$52,964	\$49,548	\$56,491
Prof. and Bus. Services	15.5	13.5	14.0	\$76,905	\$73,952	\$68,074
Bus. and Health Services	21.2	21.0	15.8	\$66,609	\$66,305	\$69,606
Leisure and Hosp. Services	10.2	9.5	11.0	\$28,060	\$26,046	\$28,597
Other Services	4.4	4.4	3.9	\$41,425	\$38,969	\$37,603
Government	9.9	11.8	15.2	\$79,154	\$76,567	\$76,621

Sources: % of total employment-BLS, Moody's Analytics; 2017: Aug. annual earnings-BLS, Moody's Analytics; 2016:

## Payroll Employment



## Economic Health Check

	Mar 18	Apr 18	May 18	Jun 18	Jul 18	Aug 18
Employment change, %	0.4	-0.4	-0.0	0.0	-0.0	0.0
Average weekly hours, #	ND	ND	ND	ND	ND	ND
Unemployment rate, %	4.1	4.7	4.3	4.3	4.1	4.1
Average weekly hours, #	ND	ND	ND	ND	ND	ND
Labor force participation rate, %	62.1	62.5	62.1	62.0	61.9	61.8
Average weekly hours, #	ND	ND	ND	ND	ND	ND
Employment-to-population ratio, %	58.7	58.5	59.4	59.3	59.4	59.2
Average weekly hours, #	33.7	34.0	33.9	33.8	34.0	34.1
Industrial production, 2007=100	107.5	107.5	104.5	104.8	105.1	105.6
Average weekly hours, #	33.7	34.2	33.9	33.8	34.0	34.7
Residential permits, single-family, #	3,252	3,450	3,500	3,779	3,955	3,008
Average weekly hours, #	33.7	34.2	33.9	33.8	34.0	34.1
Residential permits, multi-family, #	819	678	1,791	1,215	3,257	1,363
Average weekly hours, #	33.7	34.0	33.9	33.8	34.0	34.1

## Sector Employment



## Leading Industries by Wage Tier

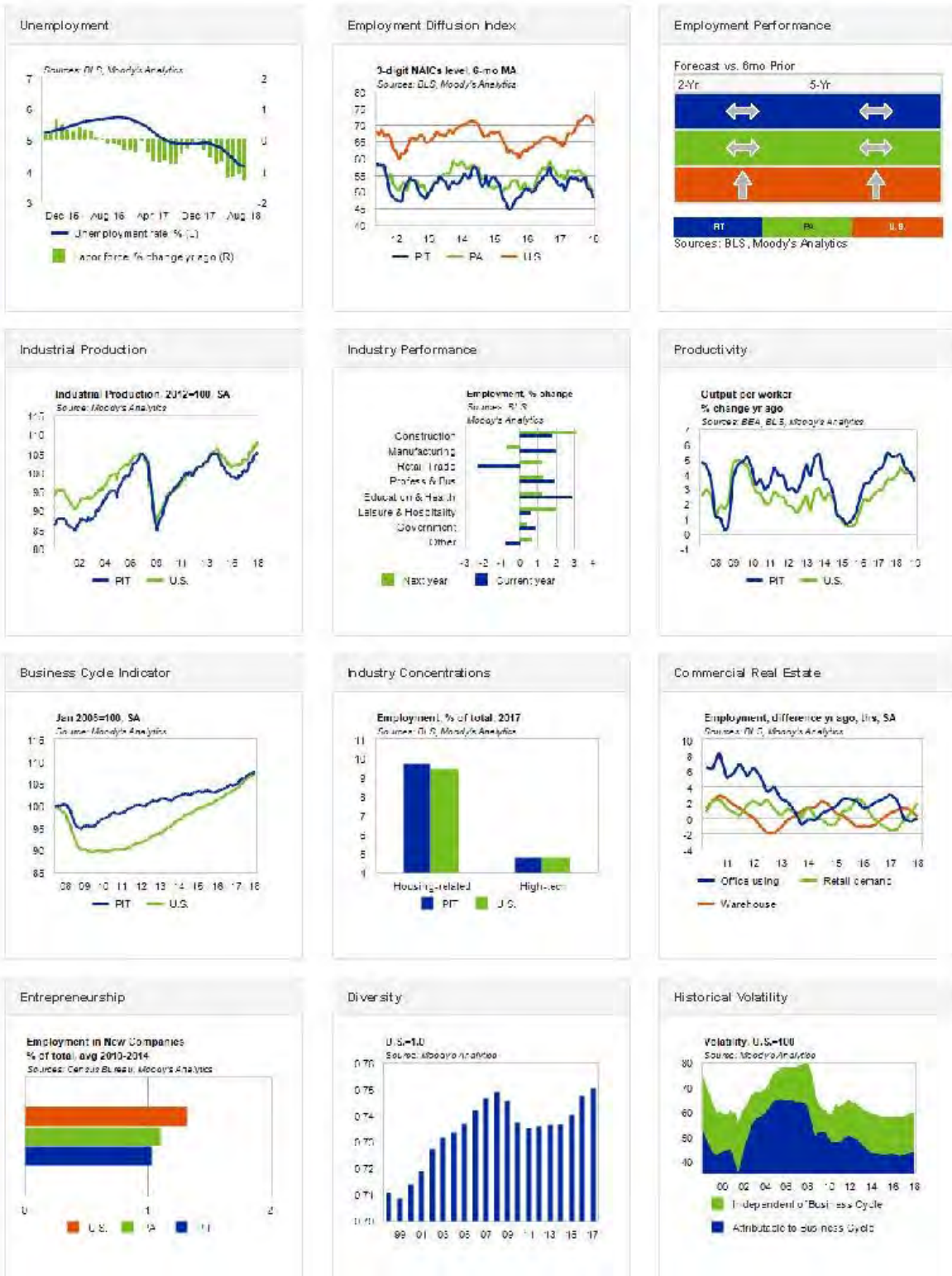
NAICS	Industry	Location Quotient	Employees (th)
5511	Management of companies and enterprises	2.2	40.0
8011	Offices of physicians	1.2	26.7
9101	Federal Government	0.8	18.1
5413	Architectural, engineering, and related services	1.5	17.1
9102	Local Government	0.7	84.2
6221	General medical and surgical hospitals	1.3	50.3
6113	Colleges, universities, and professional schools	2.7	39.5
5221	Depository credit intermediation	1.9	25.4
6241	Individual and family services	1.4	26.6
4451	Grocery stores	0.9	19.4
5613	Employment services	0.6	19.3
6231	Nursing care facilities	1.2	15.2
High		Mid	Low

Source: Moody's Analytics; 2017

## Key Indicators

Indicators	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Gross Metro Product, CBR	123.0	126.7	128.8	132.2	136.9	138.8	142.1	146.9	150.7	151.5	154.2	157.6	160.3
% Change	3.0	3.1	1.7	2.6	3.6	1.4	2.4	3.4	2.6	0.5	1.8	2.2	1.7
Total Employment (000)	1,144.7	1,157.2	1,157.5	1,159.6	1,161.7	1,162.8	1,175.3	1,186.1	1,196.7	1,198.2	1,197.0	1,203.7	1,209.6
% Change	1.7	1.1	0.0	0.2	0.2	0.1	1.1	0.9	0.8	0.2	-0.1	0.5	0.5
Unemployment Rate	7.4	7.2	6.8	5.7	5.3	5.6	5.0	4.3	3.9	4.3	5.0	5.2	5.2
Personal Income Growth	5.8	3.7	0.6	4.0	4.1	1.2	3.6	4.2	4.6	3.5	3.4	4.2	4.0
Population (000)	2,369.6	2,360.3	2,360.0	2,366.7	2,349.1	2,341.5	2,333.4	2,335.5	2,334.4	2,331.3	2,327.7	2,325.9	2,324.1
Net Migration (000)	6.4	3.9	3.4	-0.3	-3.2	-4.2	-4.3	6.1	3.0	1.1	0.7	2.7	2.9
Single-Family Permits	2,654.0	2,918.0	3,258.0	3,089.0	3,293.0	3,015.0	2,988.0	3,639.7	4,113.7	5,147.6	6,011.6	6,426.2	6,405.0
Multi-Family Permits	260.0	548.0	1,312.0	1,110.0	1,911.0	1,396.0	1,340.0	1,921.5	1,332.0	637.6	516.1	513.2	436.1
FHFA Home Price Index (1991=100)	187	192	200	208	215	226	236	248	262	266	261	266	276
Mortgage Originations (\$Bil)	7,394.2	9,518.6	8,701.2	6,094.9	7,208.4	8,147.7	6,896.5	7,072.1	7,442.4	7,455.5	7,509.3	7,325.4	7,791.2
Personal Bankruptcies	7,279	5,309	5,334	4,222	4,507	4,507	5,273	5,072	5,270	5,779	6,730	8,185	9,576





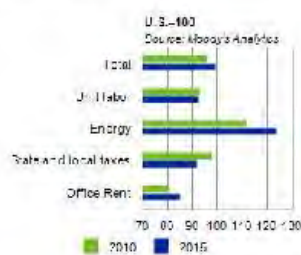


### Top Employers

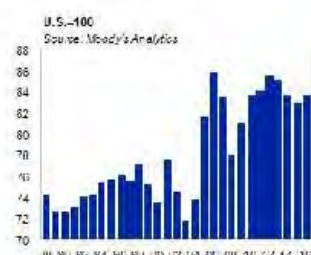
UPMC Health System	46,800
Highmark Inc.	20,000
University of Pittsburgh	12,000
The PNC Financial Services Group Inc.	10,000
Walmart Inc.	9,000
Geant Eagle Inc.	8,160
BNY Mellon Corp.	6,800
BioCr Health	5,000
Carnegie Mellon University	4,750
United States Steel Corp.	4,200
East's Park Hospitality Group Inc.	4,035
RedEx Corp.	4,000
Sears Holdings	4,000
Consolidated Energy Inc.	3,500
Westinghouse Electric Co.	3,400
Verizon Communications	3,300
Allegheny Technologies Inc.	3,000
Bechtel Group	3,000
Target Corp.	3,000
Home Depot	2,600

Source: Combined List

### Cost of Doing Business



### Vitality

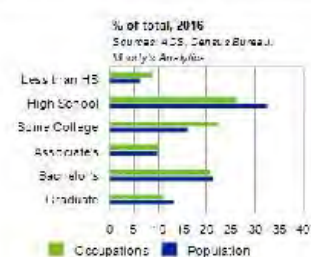


### Economic Disenfranchisement

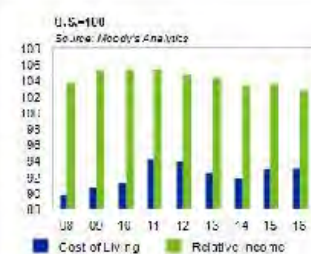
Index	Value	Rank <sup>a</sup>
GHI coefficient	0.47	110
Poverty rate	3.2	185
Poverty rate	11.0	305

<sup>a</sup> Most unequal=1, Most equal=101  
ACS, Moody's Analytics, 2017

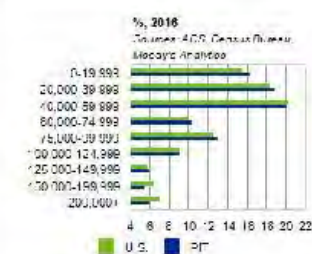
### Skills Mismatch



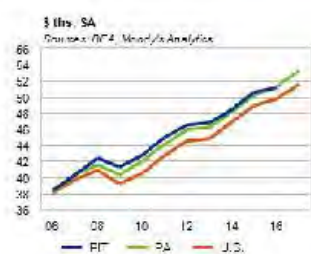
### Cost of Living



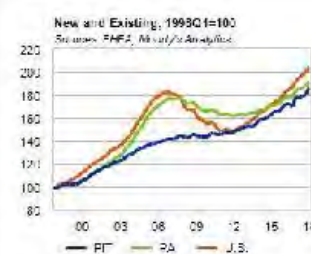
### Households by Income



### Per Capita Income



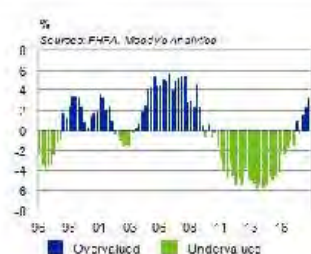
### House Prices



### House Affordability



### House Price Trends



### Commuter Flows

#### Top Five Outside Sources of Jobs

	Share
Pittsburgh PA	0.3
Youngstown OH	0.3
Morgantown WV	0.1
Wheeling WV	0.1
Warren OH	0.1
Johnstown PA	0.1

#### Top Five Outside Sources of Workers

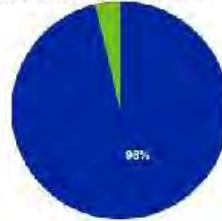
	Share
Pittsburgh PA	0.7
Warren OH	0.4
Youngstown OH	0.2
Wheeling WV	0.1
Johnstown PA	0.1
Morgantown WV	0.1

Sources: Census Bureau, Moody's Analytics, Aug 2009-2013

### Residents Who Work in CBSA

Avg 2009-2013

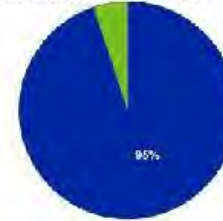
Sources: Census Bureau, Moody's Analytics



### Workers Who Live in CBSA

Avg 2009-2013

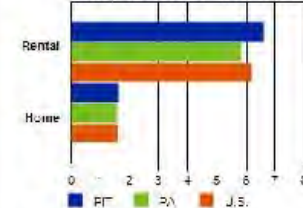
Sources: Census Bureau, Moody's Analytics



### Rental and Housing Vacancy

Vacancy Rate, %, 2016

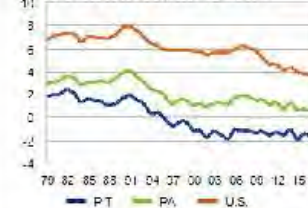
Sources: Census Bureau, Moody's Analytics



### Natural Population

Births - deaths # per 1,000 residents

Sources: Census Bureau, Moody's Analytics



### Migration Flows

Into PIT Number of Migrants

New York NY	1,018
Washington WA	781
Youngstown OH	715
Erie PA	648
Morgantown WV	510
Philadelphia PA	412
Chicago IL	405
Montgomery County PA	396
Baltimore MD	365
Wentzville OH	348
Total In-Migration	38,000

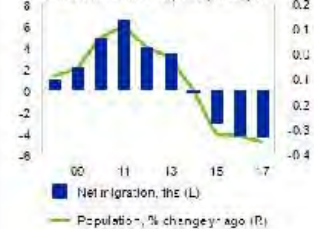
From PIT Number of Migrants

Youngstown OH	987
New York NY	910
Washington WA	770
Tampa FL	682
Houston TX	535
Philadelphia PA	520
Chicago IL	519
Atlanta GA	494
Cleveland OH	438
Phoenix AZ	457
Total Out-Migration	45,831
Net Migration	-7,831

Source: IRS, 2016

### Population

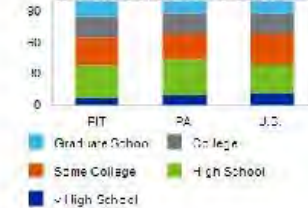
Source: Census Bureau, Moody's Analytics



### Educational Attainment

% of population 25 and older, 2016

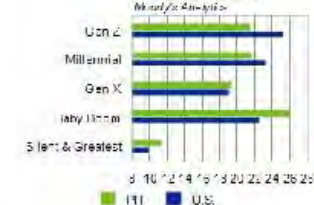
Sources: Census Bureau, Moody's Analytics



### Population by Generation

%, 2016

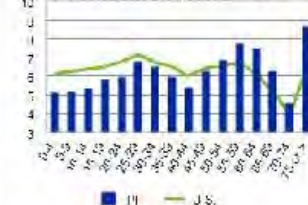
Sources: Census Bureau, Moody's Analytics



### Population by Age

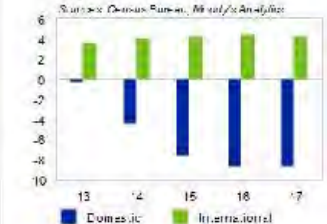
%, 2016

Sources: Census Bureau, Moody's Analytics

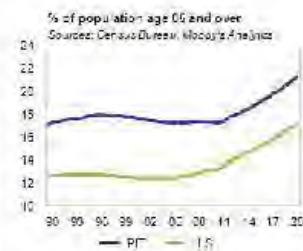


### Net Migration

Source: Census Bureau, Moody's Analytics



Senior Population



## Glossary & Notes

**Business Cycle Indicator:** The Moody's Analytics business cycle index is a measure meant to gauge the current trend of underlying economic activity. The indicator is designed to pick up distinct shifts in the economy through its four underlying components: employment, housing starts, industrial production, and house prices. These variables are chosen for their timeliness, frequency and availability. Employment is provided monthly by the Bureau of Labor Statistics and house prices are provided quarterly by the Federal Housing Finance Agency. Housing starts are estimated by applying several adjustment factors to the Census Bureau's monthly permits data and industrial production is created by combining detailed in-house employment estimates with the Federal Reserve's monthly U.S. industrial production data.

When constructing the index, employment, housing starts, and industrial production are smoothed using a three-month moving average in order to better grasp the underlying trends, while house prices are quarterly data that are converted into a monthly frequency and led by six months. Economic data—particularly at the metro area level—can often be volatile even when smoothed, and to control for sporadic movements in the data, the weights assigned to each component in the final index are inversely proportional to their volatility.

### Commercial Real Estate: Office-using Employment

Office using employment is the sum of employment in the following industries:

- 5112 Software Publishers
  - 512 Motion Picture and Sound Recording Industries
  - 515 Broadcasting (except Internet)
  - 5171 Wired Telecommunications Carriers
  - 5172 Wireless Telecommunications Carriers (except Satellite)
  - 5179 Other Telecommunications
  - 518 Internet Service Providers, Web Search Portals, and Data Processing Services
  - 5411 Legal Services
  - 5412 Accounting, Tax Preparation, Bookkeeping, and Payroll Services
  - 5413 Architectural, Engineering, and Related Services
  - 5415 Computer Systems Design and Related Services
  - 5416 Management, Scientific, and Technical Consulting Services
  - 5418 Advertising and Related Services
  - 55 Management of Companies and Enterprises
  - 5611 Office Administrative Services
  - 5613 Employment Services
  - 5614 Business Support Services
  - 5615 Travel Arrangement and Reservation Services
  - 6211 Offices of Physicians
  - 6212 Offices of Dentists
  - 6213 Offices of Other Health Practitioners
  - 8131 Religious Organizations
  - 8133 Social Advocacy Organizations
  - 8134 Civic and Social Organizations
  - 8139 Business, Professional, Labor, Political, and Similar Organizations
  - FI Financial Activities
  - GVF Federal Government
- Sources: BLS, Moody's Analytics

### Warehouse Employment

Warehouse employment is the sum of employment in the following industries:

- 4821 Rail Transportation
- 4882 Support Activities for Rail Transportation
- 4851 Urban Transit Systems
- 5621 Waste Collection
- 4841 General Freight Trucking



4842 Specialized Freight Trucking  
 4884 Support Activities for Road Transportation  
 4921 Couriers  
 4922 Local Messengers and Local Delivery  
 4931 Warehousing and Storage  
 4831 Deep Sea, Coastal, and Great Lakes Water Transportation  
 4832 Inland Water Transportation  
 4883 Support Activities for Water Transportation  
 42 Wholesale Trade  
 4541 Electronic Shopping and Mail-Order Houses  
 4542 Vending Machine Operators  
 Sources: BLS, Moody's Analytics

**Retail Employment:**  
 Retail employment is the sum of employment in the following industries:  
 RT Retail Trade  
 722 Food Services and Drinking Places  
 Sources: BLS, Moody's Analytics

**Commuter Flows:** Metro area commuter flows are derived from county-level figures reported in the 2009-2013 American Community Survey (ACS) Journey to Work data. The ACS creates estimates based on where surveyed individuals worked in a given week and matched that against their place of residence. Moody's Analytics aggregated these counties to metro areas and examined flows at this higher-level geography.

The data are split into two sections. The first represents the commuting patterns of residents of an area; the second shows the commuting patterns of workers in an area. While these are correlated, there can be noticeable differences; for example, a large urban metro area likely attracts a material share of workers from elsewhere, with a smaller share of its residents commuting outside of the area.

The pie charts reflect the share of residents or workers whose commute does not extend beyond a metro area's borders. Not surprisingly, each figure averages higher than 80%, as metro areas are defined in large part by commuting patterns to begin with. The rank indicates how self-sufficient an area is. The tables below each chart show where residents work and where workers reside. This provides a glimpse of which places are most closely linked economically to the area.

**Comparative Employment and Income:** Comparative employment provides the proportion of nonfarm payroll employment in every supersector, as defined in the NAICS classification of industries. The BLS does not report employment for every supersector for every metro area. Moody's Analytics estimates the supersector employment using a combination of state-level data, data from the Quarterly Census of Employment and Wages, and data from County Business Patterns.

Comparative income is the average annual earnings by supersector calculated as the ratio of sector income from the BEA divided by employment in the sector, also from the BEA.

**Cost of Living:** The cost of living index measures the relative cost to the average household in the nation to maintain its standard of living in each metropolitan area. The index is created by summing expenditures on various components of consumption in each metro area relative to average U.S. expenditures on the components. The components that vary across metro areas include housing, food and apparel, utilities, transportation and auto insurance.

**Current Employment Trends:** Employment is organized into three sectors: government, goods producing industries, and private service producing industries. Goods producing industries include natural resources and mining, construction and manufacturing. Private service producing industries include trade, transportation and utilities, information, financial activities, professional and business services, education and health services, leisure and hospitality and other services.

The year-over-year growth of payroll employment for the most recent month compared with six and 12 months prior enables the users to track how employment trends have changed over the preceding two years, and whether the pace of job creation has held steady, decelerated or accelerated. In addition to total payroll employment, data are available for all of the Bureau of Labor Statistics defined "super sectors" listed above. In some smaller metro areas, some of the super sector data are estimated by Moody's Analytics because they are not released by the BLS.

**Diversity:** Industrial diversity is defined as the extent to which a metro area's industrial structure approximates the U.S. industrial structure.

Diversity is derived using the following formula:

$$\text{Diversity} = 1/\sum((\text{EMP}_{ij}/\text{EMP}_{US})^2 \text{EMP}_{ij})$$

Where EMP = share of employment in four-digit NAICS industry j during the past three years; i = metro area; US = U.S. The Diversity measure is bounded between 0 and 1. 1 means the metro area has the same industrial structure as the U.S.; 0 means it has a totally different industrial structure than the U.S.

Formula derived from Hachman index, Bureau of Business and Economic Research, Univ. of Utah, December 1994.

**Economic Disenfranchisement:** Economic disenfranchisement indicators measure the degree to which income inequality plagues certain economies. To capture this, three measures are used. The Gini coefficient and poverty rates are published by the American Community Survey (ACS), produced by the Census Bureau. The Gini coefficient measures income concentration, with 0 representing perfect equality and 1 representing an economy in which all the

wealth is held by one individual.

The Palma ratio is a newer measure of income inequality that examines the total income held by earners in the top 10% of households and divides that by aggregate income held by the bottom 40%. This typically requires household-level financial information, but Moody's Analytics uses a broader distribution of income by household from ACS data to approximate both the numerator and denominator. A higher Palma ratio indicates that a larger share of wealth is concentrated in the wealthiest households in an economy. An advantage of this measure is that it is more sensitive to movements at the tails of the distribution, which typically better represent income inequality given that the middle 50% is typically more stable across history and geographies (for more information, refer to Jose Gabriel Palma's paper, "Why is inequality so unequal across the world?").

**Economic Health Check:** A heat map made up of high-frequency indicators provides insight into the factors that explain a state's recent performance. The indicators considered are all produced in monthly frequency. In order to smooth out month-to-month fluctuations, the three-month moving average is calculated and compared with the three-month moving average in the prior month. If the change is positive, the cell is shaded green; if no change took place, the cell is shaded yellow; and if the change is negative, the cell is shaded orange. The high-frequency indicators include the change in payroll employment; change in the unemployment rate, where a lower rate connotes improvement; initial unemployment insurance claims; the labor force participation rate, defined as the share of the working-age noninstitutional population older than 16 either looking for work or employed; merchandise exports in \$ billions; average weekly hours; industrial production; and residential permits. The state industrial production index is estimated using national-level industrial production and state-level industry employment.

**Educational Attainment:** The Census Bureau provides data on the educational attainment of residents older than 25 years of age of metro areas and their component counties, states, and the U.S. Educational attainment reflects the industrial composition of an area as well as the prospects that an area has in expanding its industries.

**Employment Diffusion Index:** A diffusion index measures the breadth of private sector job creation in an area. A low diffusion index indicates that an area relies on just a few industries for growth. A high diffusion index indicates more balanced growth. The diffusion index is constructed by summing the share of three-digit NAICS industries that have added to payrolls in a given month and half of the share of those industries that have neither added to nor subtracted from payrolls, where 50% indicates an equal balance between industries with increasing and decreasing employment. Because of volatility in month-to-month movements, a six-month moving average is used. Detailed industry employment data, for 274 industries as specified by the BLS, are used to compile the industry diffusion indexes for states and metro areas. The BLS does not publish payroll numbers for all three-digit industries for metro areas every month. Moody's Analytics estimates the data for any missing NAICS industries.

The following calculation is then used to compute the diffusion index, where the denominator is the total number industries in which employment data are available at the three-digit NAICS level.

$$((\text{positive}/\text{denominator}) + (.5 * (\text{unchanged}/\text{denominator}))) * 100$$

**Entrepreneurship:** The entrepreneurship index looks at the share of workers who were employed in firms that are less than 1 year old. This is based on annual data produced by the Census Bureau as part of the Business Dynamics Statistics (BDS). Because of underlying volatility in the data, especially during changes in the business cycle, a five-year rolling average is used. Areas with a large share of workers employed at relatively new firms are classified as having a favorable entrepreneurial environment.

It is worth noting that the data are available using only 2000 Core Based Statistical Area (CBSA) definitions.

Therefore, the county footprint associated with an area may not match the definition used for other metrics. Additionally, for CBSAs that were created in 2010 and for which there is not a clear corresponding discontinued metro area that can be mapped to, this box is left blank.

**Forecast Risks:** Risk exposure represents the extent to which a metro area economy's employment growth forecast will be vulnerable to upside or downside fluctuations in the upcoming five-year period. The ranking reflects the expected employment volatility associated with a specific metro area, with a higher ranking—and higher quintile—denoting greater risk. It is important to keep in mind that the ranking represents the relative potential for variation from the forecast; this can be to the upside or downside. A metro area in the first quintile, for example, faces a much wider range of potential outcomes than one in the fifth quintile, which is unlikely to deviate significantly from the forecast.

There are seven determinants of metro area risk exposure: (1) investment income dependence, (2) metro area size, (3) the prior year's change in population, (4) education and healthcare share of output, (5) government share of output, (6) finance share of output, and (7) house price volatility, based on the change in the ratio of median house price to per capita income.

Risk exposure should be considered in combination with a metro area's expected growth rate in order to ascertain the level of certainty associated with an employment growth forecast. Metro areas with high growth rates and low volatility rankings represent those that are the safest in terms of expected growth, while those with low growth rates and high volatility are most exposed to highly negative results.

See Regional Financial Review, "Measuring Regional Uncertainty: An Update of Risk-Adjusted Return," March 2013, for more details.

**Historical Volatility:** Employment volatility is defined as the standard deviation in a metro area's monthly year-over-year percentage nonagricultural employment growth relative to the standard deviation in U.S. year-over-year percentage nonagricultural employment growth over the past 10 years. Volatility of 100 means that employment volatility in a metro area is equal to employment volatility in the nation. Metro areas tend to be inherently more volatile than states.

**Volatility due to U.S. fluctuations** (also known as "systematic volatility") is defined as:



$$SYSVOL = (R2)^{1/2}$$

where SYSVOL = systematic volatility; R2 = is the proportion of total variance in metro area i's growth rate that is associated with contemporaneous fluctuations in national growth.

**Volatility not due to U.S. fluctuations** (also known as "nonsystematic volatility") is defined as:

$$NONSYS = 1 - (R2)^{1/2}$$

where NONSYS = nonsystematic volatility in metro area i; R2 is the proportion of total variance in metro area i's growth rate that is associated with contemporaneous fluctuations in national growth.

Formulas modified from "Assessing Regional Economic Stability: A Portfolio Approach," Economic Review (Federal Reserve Bank of San Francisco), Winter 1990.

**House Price Trends:** This chart compares the observed value of the FHFA purchase only index (for states) or FHFA all transactions index (for metro areas and divisions) with the value Moody's Analytics projects if supply and demand in the housing market were in long-run equilibrium. When the observed value of house price index is greater than the equilibrium value, the average house price is overvalued; when the observed value is less than the equilibrium value, the average house price is undervalued. The primary factors that determine equilibrium include per capita disposable income, a measure of long-run demand, and construction costs, a gauge of long-run supply. These measures are updated monthly.

**House Prices:** FHFA Conventional and Conforming Home Price Index. The Federal Housing Finance Agency (FHFA) estimates and publishes quarterly house price indexes for single-family detached properties using data on conventional conforming mortgage transactions obtained from the Federal Home Loan Mortgage Corp. (Freddie Mac) and the Federal National Mortgage Association (Fannie Mae). These indexes use a repeat-purchase method, which is not affected by the mix of homes sold. For example, using traditional house price measures, a rise in the number of low-priced homes sold relative to higher-priced homes will bias house prices downward even though relative prices may not have changed. Because repeat-purchase house price indexes keep track of successive selling prices for the same property, they avoid this bias. Freddie Mac and Fannie Mae are private corporations with federal charters whose mandate is to provide liquidity to the nation's residential mortgage market. The FHFA was created by the Housing and Economic Recovery Act of 2008. The FHFA is the regulator of Fannie Mae, Freddie Mac, and the Federal Home Loan Banks. This law combined the staffs of the Office of Federal Housing Enterprise Oversight (OFHEO), the Federal Housing Finance Board (FHFB), and the GSE mission office at the Department of Housing and Urban Development (HUD).

The House Price Index is based on transactions involving conforming, conventional mortgages purchased or securitized by Fannie Mae or Freddie Mac. Only mortgage transactions on single-family properties are included. A conforming mortgage is one that both meets the underwriting guidelines of Fannie Mae or Freddie Mac and that does not exceed the conforming loan limit. The conforming limit for single-family homes is \$417,000 as of January 2014, with higher limits for high-cost metro areas. Conventional means that the mortgages are neither insured nor guaranteed by the FHA, VA, or other federal government entity. Because of the conforming limit, the FHFA repeat-purchase index is less reliable in those states, such as California, Connecticut and New Jersey, where many homes are typically priced above the purchase limits.

**Industrial Production:** Industrial production is calculated using the Federal Reserve Board's detailed industrial production data and the Moody's Analytics detailed employment estimates. The Federal Reserve publishes industrial production at the 3-digit (and some 4-digit) level NAICS industry detail. Weights are calculated for each of the available industries for each metro area, where the weight equals a given industry's share of manufacturing employment. Weights are then applied to the detailed industrial production series and aggregated to create a metro-specific estimated industrial production series. The same process is also applied to the U.S. since IP series report by the Fed includes mining and electric and gas utilities whereas our estimated series do not.

## Industry Concentrations: High-Tech Employment

Moody's Analytics defines high-tech employment as the sum of employment in the following industries:

### NAICS Industry

3254 Pharm. & Medicine Manuf.  
3341 Computer and Peripheral Equip. Manuf.  
3342 Communications Equipment Manuf.  
3344 Semi. & Other Elec. Comp. Manuf.  
3345 Nav., Meas., Elec. and Control Instr. Manuf.  
3391 Medical Equip. and Supplies Manuf.  
5112 Software Publishers  
5171 Wired Telecommunications Carriers  
5172 Wireless Telecom. Carriers (except Sat.)  
5174 Satellite Telecommunications  
5179 Other Telecommunications  
5182 Data Proc., Hosting, & Related Services  
5191 Other Information Services  
5415 Computer Sys. Design & Related Services  
5417 Scientific Research and Dev. Services  
5419 Other Prof., Scientific and Tech. Services  
6215 Medical & Diagnostic Laboratories

### Housing-Related Employment

Moody's Analytics defines housing-related employment as the sum of employment in the following industries:



## NAICS Industry

2361 Residential Building Construction  
238 Specialty Trade Contractors  
444 Building Material and Garden Equipment and Supplies Dealers  
5617 Services to Buildings and Dwellings  
5413 Architectural, Engineering and Related Services  
522 Credit Intermediation and Related Activities  
5312 Offices of Real Estate Agents and Brokers  
4233 Lumber and Other Construction Materials Merchant Wholesalers  
5313 Activities Related to Real Estate

**Industry Performance:** Moody's Analytics payroll employment forecasts are based on establishment employment data from the Bureau of Labor Statistics' (BLS) 790 survey. Metro area models incorporate separate equations for the thirteen NAICS employment super sectors as defined by the BLS, with additional forecast detail in the manufacturing and government sectors. These separate forecasts are aggregated to arrive at the total employment forecast. The employment equations are specified differently depending on whether the sectors are export or locally-oriented activities.

**Export-Oriented Industries:** The export-oriented industries include those businesses that primarily sell goods and/or services outside the state. Those businesses considered to be export based are more closely linked to national or state level variables such as aggregate demand. All natural resource and manufacturing industries are considered export industries in our models. The income generated from these businesses provides an important source of demand for the state's locally-oriented sectors.

We forecast employment in six broad manufacturing categories using the relative importance of the industry in the national economy, and sum these up to obtain manufacturing employment. Natural resource employment is also closely linked to state and national industrial employment forecasts, and is broadly independent of local area economic conditions.

**Locally-Oriented Industries:** Most service and trade industries are considered locally-oriented industries. Locally-oriented industries include construction, wholesale and retail trade, business and financial activities, education and health services, leisure and hospitality industries, state and local government, and utilities. These are often times support services, providing the necessary infrastructure for the export-oriented sectors and the local population. These equations are modeled as a function of a demand proxy (typically personal income), and sometimes demographics and state-wide industry trends.

**Personal income** is the most commonly used proxy, either alone or in combination with population, for the level of demand for local goods and services. Personal income is one of the best measures of aggregate economic activity at the state level, reflecting wages and salaries, transfer payments, as well as non-wage income. Since employment in the local economy is an important determinant of wages and salaries in a region, this introduces an important source of feedback into the models. In other words, personal income is a function of employment, and certain employment categories such as personal services are a function of income. Where deemed necessary, variables besides personal income and population are also used in forecasting service industries. For instance, employment in the construction industry is linked to recent permit issuance, while retail trade employment is linked to recent retail sales.

Source: Moody's Analytics

**Key Indicators:** The forecasts of the key indicators are generated from the Moody's Analytics metro forecasting models. The historical series are pulled from a variety of sources:

Gross Metro Product (Chain-weighted dollars) BEA, Moody's Analytics –GMP is the sum of all income produced in a metro area, including corporate profits. Thus, it does not necessarily track employment growth. Total Employment (Ths) BLS Current Employment Statistics-Defined as sum of mining, construction, manufacturing, transportation/ utilities, trade, information, financial activities, professional and business, education and health, leisure and hospitality, and other services, and government. Unemployment Rate (%) –BLS Current Population Survey. Personal Income Growth (% change previous yr) Bureau Economic Analysis-Measures income received by households from employment (including self), investments and transfer payments. Median Household Income (\$ ths) Census Bureau Population (Ths) Census Bureau Net Migration (Ths) Census Bureau– Calculated as number of domestic and international people moving into a metro area minus those leaving. Single-Family Permits (Number of units) Census Bureau Multifamily Permits (Number of units) Census Bureau Existing-Home Price (1980Q1=100) FHFA– Index is not affected by mix of homes sold.

**Leading Industries by Wage Tier:** To determine the high-, middle- and low-wage industries for a given geography, the average U.S. wage is calculated first by dividing total salary disbursements by total employment. Average wages by industry are calculated using U.S. level wage and employment data for all four-digit NAICS codes. Next, the standard deviation of the average wages across industries is calculated. One standard deviation centered at the mean defines the upper and lower bounds separating the high, middle and low tiers. The average wage in the given geography for each four-digit NAICS industry is calculated next. The industry is categorized as high, middle or low wage by comparing it with the national high and low cutoffs. The industries are then ranked by size.

For each industry, the location quotient is calculated. Location quotients are used to indicate whether the industry serves a market larger than that of the metro area or is an "export" industry. A location quotient greater than 1 likely indicates an export industry. Location quotients are calculated according to the formula:

$$LQ_{im} = (E_{im}/E_m)/(E_{iUS}/E_{US})$$

where LQ = location quotient in metro area m for industry i;

E = employment in industry i for metro area m or the U.S.;

and i = total employment for metro area m or the U.S.

**Migration Flows: IRS data.** When a taxpayer notifies the IRS of a change in address, the IRS records the household's current county of residence, the county to which the household is moving, and the number of household members. Moody's Analytics aggregates these data by metro area into gross migration. The data are then sorted to show the 10 metro areas providing the largest number of new residents and the 10 metro areas to where the largest number of current residents moves. Subtracting the gross out-migration flows from the gross in-migration flows gives net out-migration. The IRS migration data cover only





households that file returns and thus do not provide a complete tally of domestic migration flows.

**Net Migration: Census data.** The Census measure of net migration attempts to capture all migration to and from counties. Unlike the IRS data, Census data cover all migrants, including international migrants. Moody's Analytics aggregates county net migration data to metro areas and to states. Domestic and international net migration were re-estimated for years 2001-2010, because the Census has no plans to do this. Pre-existing net migration estimates (derived from new census population estimates combined with constant birth and death rates) were used. The "weights" for domestic and international migration are the same as those that existed before.

**Per Capita Income:** Per capita income is defined as personal income divided by population. It is not adjusted for inflation.

**Population by Age:** The Census Bureau provides data on population by age for metro areas and their component counties, states, and the U.S. A distribution that differs significantly from the national distribution has implications for the labor, housing and consumer markets in an area. For example, a distribution skewed toward older cohorts implies higher than average demand for healthcare services and lower than average demand for single-family housing.

**Population by Generation:** The distribution of an area's population into generations employs definitions from the Pew Research Center. Generations are defined by the following birth years:

The Greatest Generation — 1901 to 1927  
 The Silent Generation — 1928 to 1945  
 The Baby Boom Generation — 1946 to 1964  
 Generation X — 1965 to 1980  
 The Millennial Generation — 1981 to 1998  
 Generation Z — 1999 to present

**Productivity:** Productivity is measured as real output per worker in a state. High productivity incorporates the efficient use of labor, machines, and technological improvements. Generally, more productive areas will also have higher wages. However, higher wages do not necessarily reduce an area's competitiveness because the higher productivity may more than offset the higher wages. High productivity may also reflect the industry composition in a state, as a concentration of more productive industries will boost overall productivity.

**Relative Employment Outlook\*:** In order to compare the performance of a metro area's labor market with that of the U.S. and state, an index is calculated in which the value of the Bureau of Labor Statistics payroll employment in the first quarter of 10 years prior to the current year is set at 100. Forecast data for the next five years are also provided. The shaded gray bar represents the period of the 2008-2009 national recession.

In addition, we track how the two- and five-year employment forecasts for the metro area, state and U.S. have changed compared with six months prior. A dash indicates no change, an upward arrow indicates a more optimistic outlook and a downward arrow indicates a more pessimistic outlook. For the two year forecast, a difference in average annual growth larger than 0.1 percentage point indicates a change. For the five-year forecast, a difference larger than 0.25 percentage point indicates a change.

**Rental and Housing Vacancy:** The homeowner vacancy rate is the proportion of the homeowner housing inventory that is vacant for sale. It is computed by dividing the number of vacant units for sale by the sum of owner-occupied units, vacant units that are sold but awaiting occupancy, and vacant units for sale and then multiplying by 100.

The rental vacancy rate is the proportion of the rental inventory that is vacant for rent. It is computed by dividing the number of vacant units for rent by the sum of renter-occupied units, vacant units that are rented but awaiting occupancy, and vacant units for rent and then multiplying by 100.

**Skills Mismatch:** Skills mismatch is determined based on two components: the distribution of educational attainment of a population and the educational characters associated with jobs in an area. The two are compared along six dimensions, with each showing how closely aligned the educational attainment of the general population is with the requirements of an area's jobs. Although educational attainment is not a perfect proxy for skills, it can be quantified in a way that specific skills, such as trade, cannot, making it a useful window into whether an economy faces struggles to find qualified workers or if skilled workers may struggle to find opportunities locally and be forced to migrate elsewhere. Educational attainment for residents is obtained directly from the American Community Survey. The skill requirements side is based on local occupational employment data from the BLS. This was used to construct a matrix of occupations by educational attainment in each place being examined; this is calculated by applying the national educational share for each occupation to the total number employed in each occupation in a specific economy. The total for each educational level across all occupations was then summed to determine educational requirements for an area.

## Snapshot: Recession Status

The recession status is used to determine where individual metro areas are in their respective business cycles. There are four categories of recession status for which each state and metro area can be placed. They are labeled either "In Recession", "At Risk", "Recovery", or "Expansion". The evaluation of recession status is based on a six month test of either contraction or expansion. The six month test compares the six-month moving average in the current period to the six-month moving average in the period six months ago.

For a metro area to be considered "In Recession", the six month test must show it to be in contraction. Furthermore, the coincident indicator cannot have yet reached a trough. If a trough has been reached, the economy has shifted from "In Recession" to "Recovery".

If the six month test shows the geography to be in expansion, then its status is either "Expansion" or "At Risk". The economy is only in "Expansion" when the coincident indicator has yet to reach a peak. If it appears that a local peak may have been reached and the coincident indicator is increasing but at a

decreasing rate, then the economy is placed "At Risk".

## Employment Growth

These numbers represent two-year and five-year average annual payroll employment growth. The forecasts are generated using Moody's Analytics metro modeling system. Moody's Analytics employment forecasts are based on establishment employment data from the Bureau of Labor Statistics' (BLS) 790 survey. Metro area models incorporate separate equations for the thirteen NAICS employment super sectors as defined by the BLS, with additional forecast detail in the manufacturing and government sectors. These separate forecasts are aggregated to arrive at the total employment forecast. The employment equations are specified differently depending on whether the sectors are export or locally-oriented activities.

**Export-Oriented Industries.** The export-oriented industries include those businesses that primarily sell goods and/or services outside the state. Those businesses considered to be export based are more closely linked to national or state level variables such as aggregate demand. All natural resource and manufacturing industries are considered export industries in our models. The income generated from these businesses provides an important source of demand for the state's locally-oriented sectors.

We forecast employment in six broad manufacturing categories using the relative importance of the industry in the national economy, and sum these up to obtain manufacturing employment. Natural resource employment is also closely linked to state and national industrial employment forecasts, and is broadly independent of local area economic conditions.

**Locally-Oriented Industries.** Most service and trade industries are considered locally-oriented industries. Locally-oriented industries include construction, wholesale and retail trade, business and financial activities, education and health services, leisure and hospitality industries, state and local government, and utilities. These are often times support services, providing the necessary infrastructure for the export-oriented sectors and the local population. These equations are modeled as a function of a demand proxy (typically personal income), and sometimes demographics and state-wide industry trends.

Personal income is the most commonly used proxy, either alone or in combination with population, for the level of demand for local goods and services. Personal income is one of the best measures of aggregate economic activity at the state level, reflecting wages and salaries, transfer payments, as well as non-wage income. Since employment in the local economy is an important determinant of wages and salaries in a region, this introduces an important source of feedback into the models. In other words, personal income is a function of employment, and certain employment categories such as personal services are a function of income. Where deemed necessary, variables besides personal income and population are also used in forecasting service industries. For instance, employment in the construction industry is linked to recent permit issuance, while retail trade employment is linked to recent retail sales.

Source: Moody's Analytics

## Life-Cycle Phase

A metro area's life cycle is calculated using a weighted index based on the factors that determine long-term economic performance. High-tech share of GDP (5% weight) is measured as the share of GDP contributed by high-technology industries. Educational attainment (21% weight) is the share of the population 25 and older that has earned a bachelor's degree or higher. Climate (3% weight) measures the absolute average temperature deviation from 65 degrees. Geographic factors (5% weight) measures location-specific factors such as mountains and coasts that are conducive to development. Export share of employment (8% weight) is the percentage of employment in export-oriented industries relative to the national average. Relative business costs (30% weight) are measured by the Moody's Analytics Cost of Doing Business Index. Migration contribution (15% weight) measures the annual ratio of net migration to population. Construction activity (12% weight) is the 10-year average share of employment in construction industries relative to total employment.

Source: Moody's Analytics

## Moody's Ratings

Bond ratings for general obligation bonds issued by cities and counties are available from Moody's. Not all governments issue GO bonds, and thus some areas will show "NA" here. The Moody's interpretation of its bond ratings is as follows:

Aaa Best quality; smallest degree of investment risk.

Aa High quality; margins of protection not as large as in Aaa.

A Upper medium grade obligations, adequately secured.

Baa Medium grade obligations, neither highly protected nor poorly secured.

Ba Speculative; future cannot be considered as well assured.

B Lacking characteristics of desired investment.

Modifiers 1, 2 and 3 correspond to the higher to lower ends of a generic category.

The bond rating applies to the core county or city that best represents the metropolitan area; the selection is noted next to the rating. As local governments are organized at the city and county level, not as metropolitan governments, Moody's bond ratings apply to cities and counties only. No summary metropolitan bond rating exists.

Source: Moody's Investor Services

## Risk Exposure

Risk exposure represents the extent to which a metro area economy's employment growth forecast will be vulnerable to upside or downside fluctuations in the upcoming five-year period. The ranking reflects the expected employment volatility associated with a specific metro area, with a higher ranking—and higher quintile—denoting greater risk. It is important to keep in mind that the ranking represents the relative potential for variation from the forecast; this can be to the upside or downside. A metro area in the first quintile, for example, faces a much wider range of potential outcomes than one in the fifth quintile, which is unlikely to deviate significantly from the forecast.

There are seven determinants of metro area risk exposure:

(1) investment income dependence

(2) metro area size

(3) the prior year's change in population

(4) education and healthcare share of output

(5) government share of output

(6) finance share of output

(7) house price volatility, based on the change in the ratio of median house price to per capita income.

Risk exposure should be considered in combination with a metro area's expected growth rate in order to ascertain the level of certainty associated with an employment growth forecast. Metro areas with high growth rates and low volatility rankings represent those that are the safest in terms of expected growth, while those with low growth rates and high volatility are most exposed to highly negative results.



See Regional Financial Review, "Measuring Regional Uncertainty: An Update of Risk-Adjusted Return," March 2013, for more details.

Source: Moody's Analytics.

**Top Employers:** Moody's Analytics compiles top employers lists for every region for the most recent year available. Public sector employment, which is generally proportional to a metro area's population, is provided separately. However, the lists do include public establishments that are not found in every metro area such as military bases or specific federal agencies.

**Vitality:** The Moody's Analytics vitality index can be used to assess a metropolitan area's long-term economic potential. The index abstracts from business cycle fluctuations and near-term economic events. Only persistent forces of economic strength or weakness are considered. To maintain a long-term focus, the vitality index was created with the purpose of predicting the average annual growth rate in an area's gross domestic product over the next 10 years. The following four factors make up the vitality index: (1) industrial structure, (2) excess labor supply, (3) labor force quality, and (4) labor force growth. An index was generated for each of these components. A value of 100 indicates that the component in the metro area's economy matches the component's value nationally; values above 100 indicate that the component in the metro area's economy is above average, and those below 100 indicate the component is below average. The index for industrial structure is called the industrial vitality index. The three labor inputs are reconciled into a single labor force vitality index in which values of 100 also correspond to the national average. The labor force vitality index is then combined with the industrial vitality index to produce the metro area's vitality index. Industrial vitality was assigned a 55% weight, and labor force vitality is assigned a 45% weight. These were assigned to achieve maximum correlation between predicted GDP growth and actual GDP growth as determined by regression analysis. A vitality index value of 100 is consistent with the nation. Values above 100 suggest there is potential for faster growth, and those below 100 suggest the possibility for slower growth. The rank of the 384 U.S. metropolitan areas and metro divisions is also provided.

See Regional Financial Review, "U.S. Regional Diversity, Volatility and Vitality," August 2009 for a detailed explanation.



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## Qualifications and Licenses



## PAUL GRIFFITH, MAI, CRE, FRICS

**Senior Managing Director / Market Leader – Western PA / WV**



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### Years of Experience

40 Years

### Areas of Specialization

- Special Purpose Properties
- Complex Valuation
- Eminent Domain
- Litigation
- Market Studies
- Feasibility Studies
- Corporate Assets

## Professional Background

Paul Griffith, MAI, CRE, FRICS, serves as a senior managing director in the Pittsburgh, Pennsylvania, office of Newmark Knight Frank Valuation and Advisory. Mr. Griffith leads an office of valuation and consulting professionals that have a combined experience of over 200 years in Western Pennsylvania and West Virginia. Actively engaged in real estate valuation and consulting since 1979, he has successfully completed assignments for acquisition and disposition analyses, market and feasibility studies, litigation, including eminent domain and assessment appeals and corporate asset valuation. In addition, Mr. Griffith has managed portfolios involving hundreds of properties across the United States.

Mr. Griffith joined Newmark Knight Frank in 2018, when the firm acquired several affiliate offices of Integra Realty Resources. At the time of the acquisition, he was serving as senior managing director in IRR's Pittsburgh office.

## Professional Affiliations

Mr. Griffith's professional affiliations include membership in the Counselors of Real Estate (CRE), NAIOP and Urban Land Institute (ULI). He has also earned the MAI designation of the Appraisal Institute and is a fellow of the Royal Institute of Chartered Surveyors (FRICS). Currently, Mr. Griffith is licensed as a general real estate appraiser in the Commonwealth of Pennsylvania and states of Maryland, New Jersey, Ohio and West Virginia.

Additionally, Mr. Griffith has qualified as an expert witness in United States District Court, United States Bankruptcy Court, over a dozen Pennsylvania Courts of Common Pleas and numerous county assessment appeal boards.

Mr. Griffith is recognized as an expert in valuation methodology and has been an instructor for the Appraisal Institute. Courses taught include Income Approach and Highest and Best Use. He was previously an adjunct professor at Duquesne University. He regularly provides commentary to local media on real estate topics.

## Education

Mr. Griffith earned a Bachelor of Science degree in business management from the Pennsylvania State University. He has also successfully completed numerous real estate-related courses and seminars sponsored by the Appraisal Institute and accredited universities.



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**Department of State**  
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**19 0747409**

**License Type**  
**Certified General Appraiser**

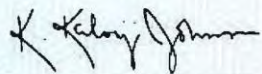
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**195 SUMMERLAWN DRIVE**  
**SEWICKLEY, PA 15143**

**License Status**  
**Active**

**Initial License Date**  
**08/15/1991**

**License Number**  
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**Expiration Date**  
**06/30/2021**

  
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## ALEXANDRA LARCH

### Appraiser



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### Years of Experience

2 Years

### Professional Background

Alexandra Larch is an Appraiser for the Pittsburgh office of Newmark Knight Frank's Valuation & Advisory practice, which covers the western half of Pennsylvania and the state of West Virginia. Ms. Larch specializes in appraisals and market feasibility studies and has expertise in the valuation of numerous types of commercial properties including but not limited to apartments, office buildings, retail facilities, industrial properties, and vacant commercial sites.

Ms. Larch began her career as a real estate agent and residential appraiser trainee in 2013 and gained further experience appraising residential properties while in college.

### Professional Achievements

- ♦ General appraiser, Commonwealth of Pennsylvania
- ♦ "The Effect of Dodd-Frank on Profitability of Community Banks: An Econometric Model," published in *Inquiries Journal*, Volume 9 No. 2, 2017

### Professional Affiliations

- ♦ Practicing affiliate, Appraisal Institute

### Personal Affiliations

- ♦ Volunteer, Big Brothers Big Sisters Mentor 2.0

### Education

Ms. Larch earned a Bachelor of Science degree in finance from the Indiana University of Pennsylvania.



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**PO BOX 2649 Harrisburg PA 17105-2649**

**19 0819682**

**License Type**  
**Certified General Appraiser**

**ALEXANDRA RAE LARCH**  
**1507 2ND AVENUE**  
**BEAVER, PA 15009**

**License Status**  
**Active**

**Initial License Date**  
**08/12/2019**

**License Number**  
**GA004456**

**Expiration Date**  
**06/30/2021**



  
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### **Appendix - Environmental Impact of Industrial Uses.**

It is difficult to generalize about the environmental impacts of various industrial processes. Impacts to land and groundwater are generally more limited in geographic area, and can be mitigated by restrictions on groundwater uses and land uses. However, the impacts of air pollution are dispersed to all who breathe in the surrounding environment. The U.S. Environmental Protection Agency has set standards for several common air pollutants.

- Ground level ozone – created when volatile organic compounds (“VOCs”) (i.e. carbon-based air-borne chemicals) in the air react with nitrogen oxide and sunlight/heat to create “smog”.
  - Sources of VOCs: chemical plants, refineries, industrial boilers, chemical processes.
- Nitrogen Dioxide (“NO<sub>x</sub>”) – indicator chemical for highly reactive gas known as oxides of nitrogen.
  - Sources: Burning of fuel – vehicles, power plants, off-road equipment.
- Particulate Matter – (“PM”) dirt/dust particles that range in size from the visible (PM 10 micrometers and larger) to the invisible (PM 2.5 micrometers).
  - Sources: complex reactions of VOCs in the air, and dirt/dust from operations such as mining/transporting sand and gravel, unpaved roads, and coke plants.
- Sulfur Dioxide (“SO<sub>x</sub>”) – indicator chemical for sulfur oxides and can contribute to PM, also to “acid rain”.
  - Sources: burning of fossil fuels by power plants, industrial facilities, locomotives, heavy equipment.
- Carbon Monoxide (“CO”) – colorless and odorless, but in high concentrations reduces the oxygen that goes to vital organs such as heart and brain.
  - Sources: burning of fuels – vehicles and machinery.

To the degree that industrial process burn fuels and industrial process release chemicals into the air, it generates more of these criteria pollutants and impacts air quality. Various studies such as the Working Paper produced by Resources for the Future – Looking Back at Fifty Years of the Clean Air Act have noted several industries as major emitters of ozone precursors (VOCs and NO<sub>x</sub>). These include: industrial organic chemicals, plastics, steel production and coatings, petroleum refining, and pulp and paper mills. In a series of Working Papers produced by the EPA in the 1990’s, it was noted that inorganic chemicals and petroleum refining had the highest rates of enforcement actions per inspection among 14 industry groupings. It follows that to the degree industrial processes go from heat intensive commodity production to more value-added production such as design and assembly, the environmental impact will be less. The cited studies and this general principle were then applied to the 27 industrial reuses recommended for the subject site by the Newmark market study. This resulted in the categorizing of those 27 uses into HEAVY, MEDIUM, and LOW environmental impact.

# Potential Uses identified for Neville Site by Newmark Study sorted by Environmental Impact

Environmental Impact	Heavy Industry	Light Industry	• Specialty Industry
<b>Heavy</b> <ul style="list-style-type: none"> <li>• PM</li> <li>• VOCs</li> <li>• NOX</li> <li>• SOX</li> </ul>	<ul style="list-style-type: none"> <li>• Commodity - building mat. - PM</li> <li>• Commodity – plastics – VOCs</li> <li>• Commodity transport – river/rail/truck – PM, NOX</li> <li>• Scrap metal – PM, VOCs</li> <li>• Steel fab/coatings – VOCs, SO</li> </ul>	<ul style="list-style-type: none"> <li>• Paper products - VOCs</li> <li>• Building supplies – VOCs, PM</li> <li>• Building component manufacturing - VOCs</li> </ul>	
<b>Medium</b>	Heat-related shaping: <ul style="list-style-type: none"> <li>• Sheet metal fab – Noise</li> <li>• Plastic extrusion – VOCs</li> </ul>	<ul style="list-style-type: none"> <li>• Warehouse/dist. – NOX</li> <li>• *green fleet: electric lifts/cranes/low emission diesel</li> <li>• Assembly – electronics equipment, vehicles - VOCs</li> </ul>	<ul style="list-style-type: none"> <li>• Powder coating –PM</li> <li>• Additive man. - PM</li> <li>• Specialty metals – VOCs</li> </ul>
<b>Low Impact</b>	Assembly: <ul style="list-style-type: none"> <li>• Plastics assembly – specialty medical</li> </ul>	<ul style="list-style-type: none"> <li>• Commercial bakery</li> </ul>	<ul style="list-style-type: none"> <li>• Aquaponics</li> <li>• Medical marijuana</li> <li>• Brewery</li> <li>• Assembly – robots, medical, autonomous</li> </ul>

**Five Year Inspection and Enforcement Summary**  
**EPA Sector Notebook Project Series**

<b>Industry</b>	<b># of Sites</b>	<b>Total Inspections</b>	<b>Enforcement Actions</b>	<b>% of Enforcements to Inspections</b>
Lumber and Wood	301	1,891	232	12%
Furniture	631	1,534	91	6%
Rubber and Plastic	739	3,386	391	12%
Stone, Clay, and Glass	268	2,475	301	12%
Nonferrous Metals	474	3,097	470	15%
Fabricated Metals	1,340	5,509	840	15%
Electronics/Computers	222	777	212	27%
Vehicle Assembly	390	2,216	240	11%
Pulp and Paper	265	3,766	502	13%
Printing	1,035	4,723	514	11%
Inorganic Chemicals	302	3,034	402	13%
Organic Chemicals	316	3,864	726	19%
Petroleum	145	3,237	797	25%
Iron and Steel	275	3,555	499	14%
<b>TOTALS</b>	<b>6,703</b>	<b>43,064</b>	<b>6,217</b>	<b>14%</b>



An aerial, isometric rendering of a proposed industrial and commercial development. The scene features several large, rectangular industrial buildings with corrugated metal roofs. To the left, a row of white semi-trailers is parked. In the center, there are large parking lots with many parking spaces, some of which are occupied by vehicles. A road with a median runs through the center of the site. To the right, there are more industrial buildings and a large area of trees. The entire image has a green tint.

# **SHENANGO REIMAGINED**

## *CONCEPT PLAN*



# AGENDA

- 1. Plan***
- 2. Statistics of Developable Area***
- 3. Recommended Uses***
- 4. Design as a "Regional Model"***
- 5. Feedback and Discussion***
- 6. Next Steps***

# CHALLENGES & ASPIRATIONS

## CHALLENGES

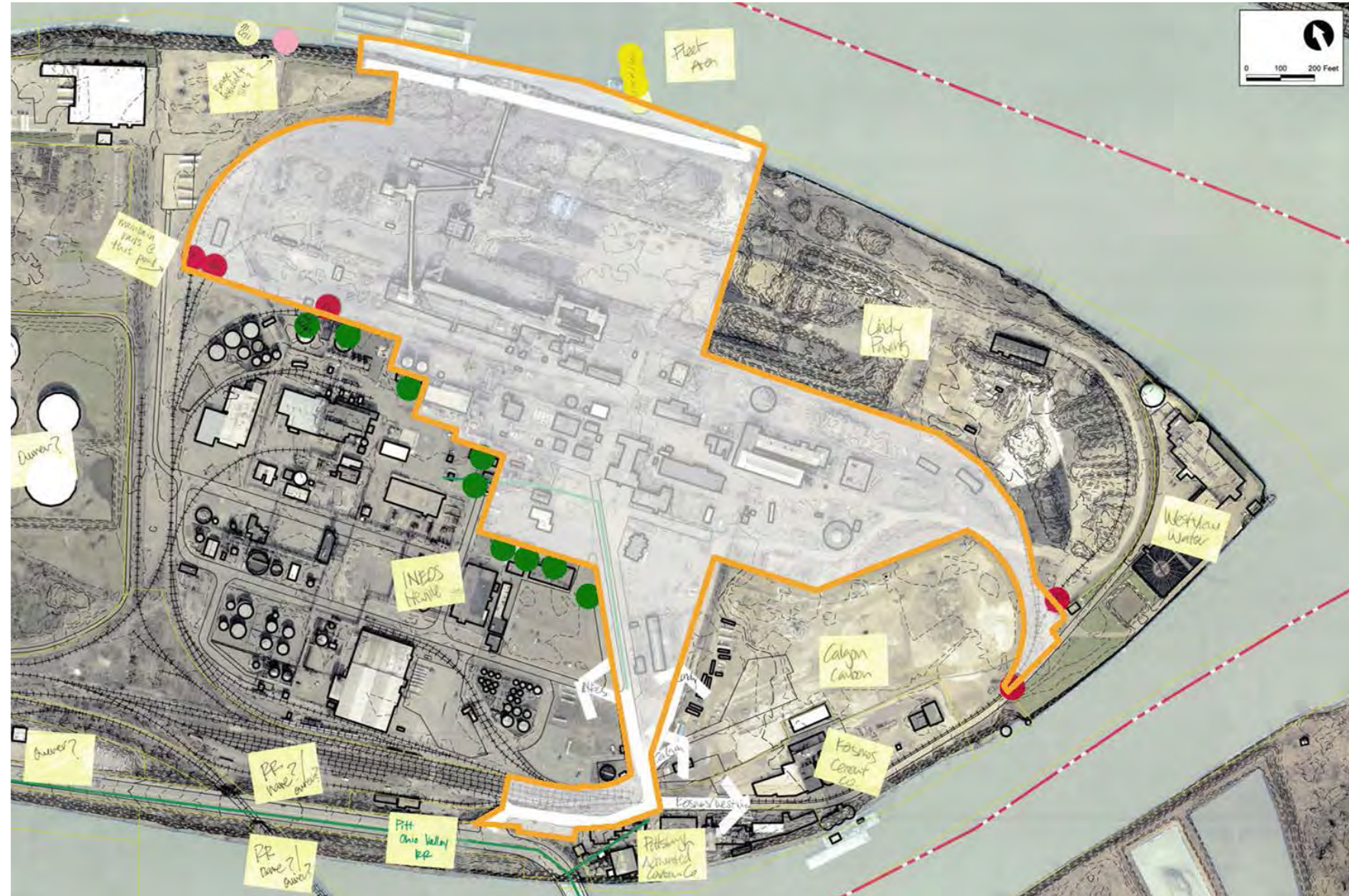
- ***Access to all property owners/tenants***
- *Existing industrial infrastructure increases real estate values; reuse related to river terminal and rail access*
- *Department of Environmental Protection (DEP) approach related to remediating the site*
- *Township zoning code*
- *Stormwater management*

## ASPIRATIONS

- ***Employment center***
- ***Economic development opportunities***
- ***Environmental clean-up of the past ills***
- ***Potential model for new age industrial development and how it can be sewn into an existing industrial site***



- *Rail lines*
- *Existing structures*
- *Adjacent property access*
- *River terminal attributes*
- *Zoning regulations*



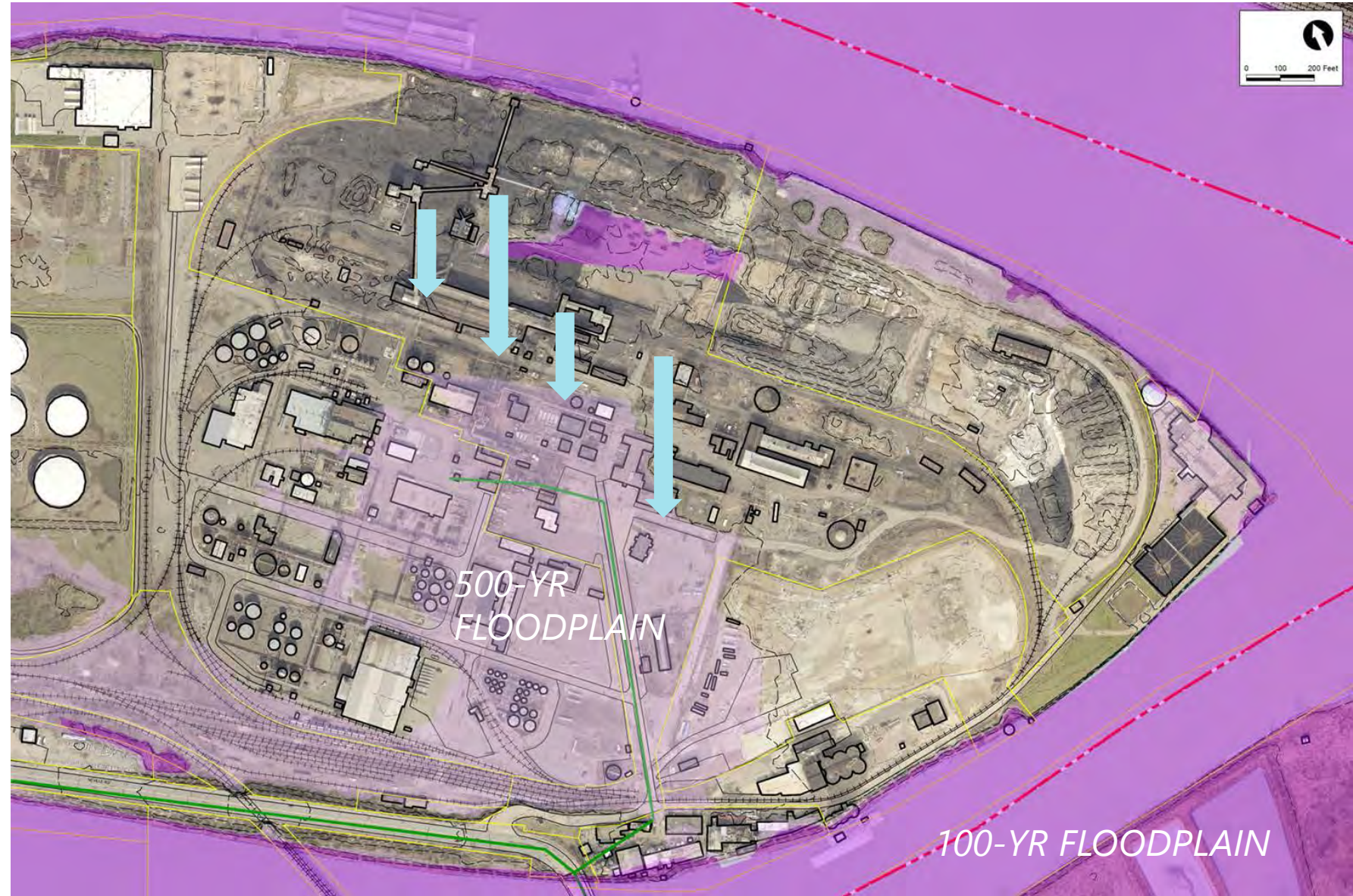


# SITE ANALYSIS – TOPOGRAPHY & FLOODPLAIN

Advisory Council Meeting  
01/28/20

*Identified:  
Floodplain extents*

*General drainage pattern  
of the site*





# PLAN

## Parcel A

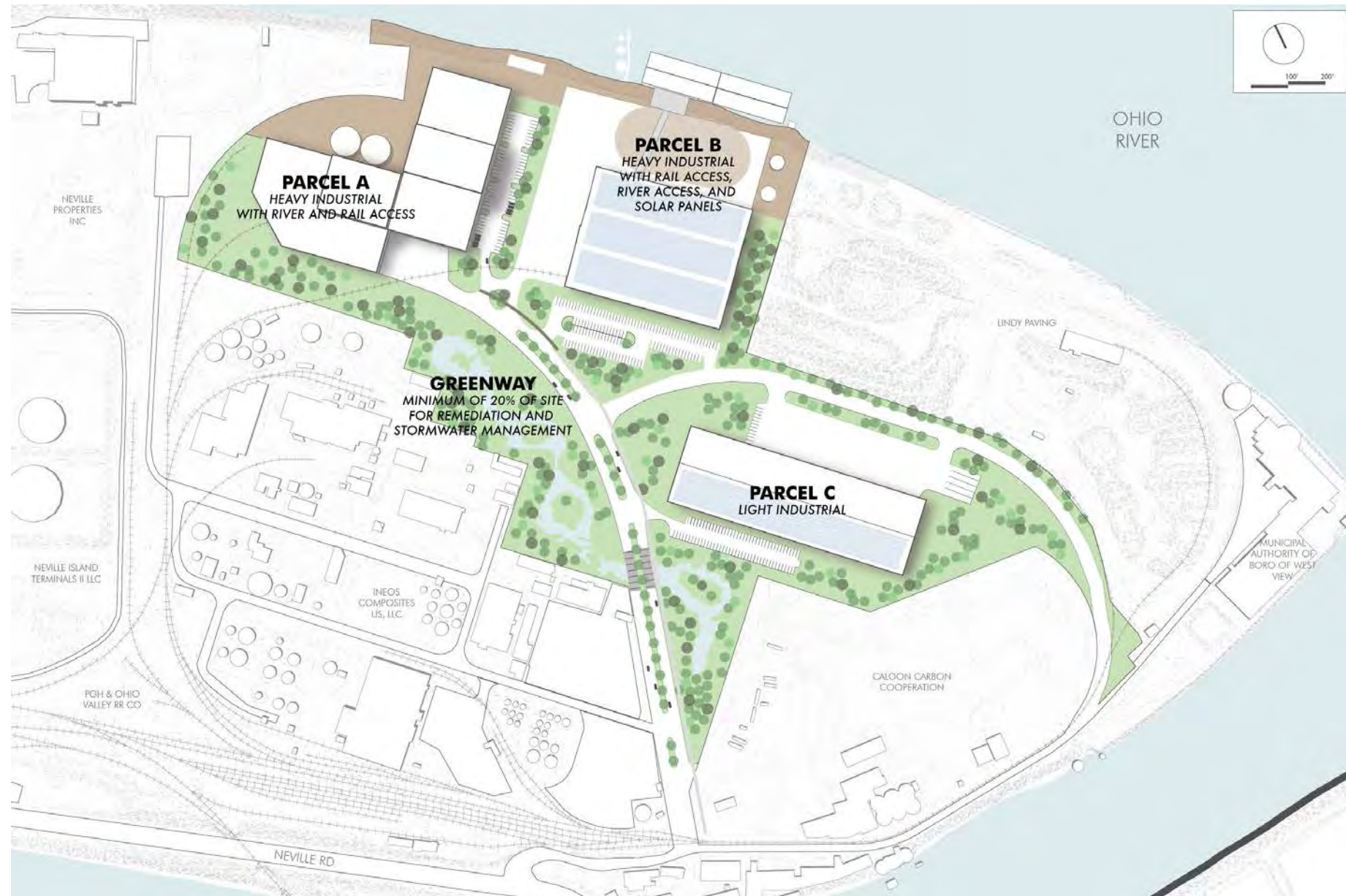
- Heavy industrial
- River access
- Rail access

## Parcel B

- Heavy industrial
- River access
- Rail access

## Parcel C

- Light industrial

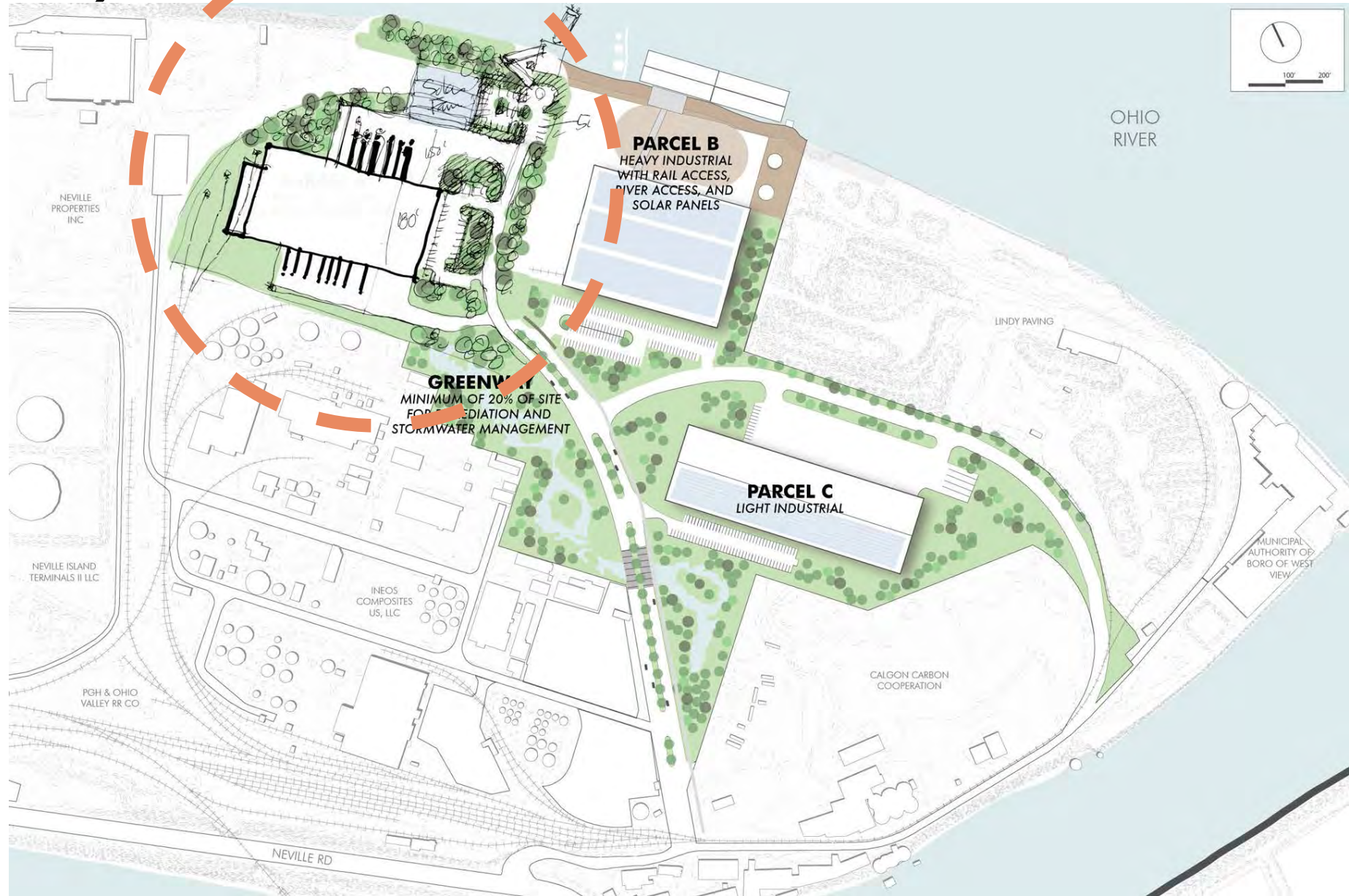




# PLAN (alternative)

Alternative:

*Parcel A*  
*Light Industrial with*  
*parking specified for*  
*water taxi and additional*  
*solar farm*





# ZONING SUMMARY

Advisory Council Meeting  
01/28/20

*Industrial Special*

*Minimum Lot Area:  
22,000 SF*

*Maximum Building  
Coverage: 75%*

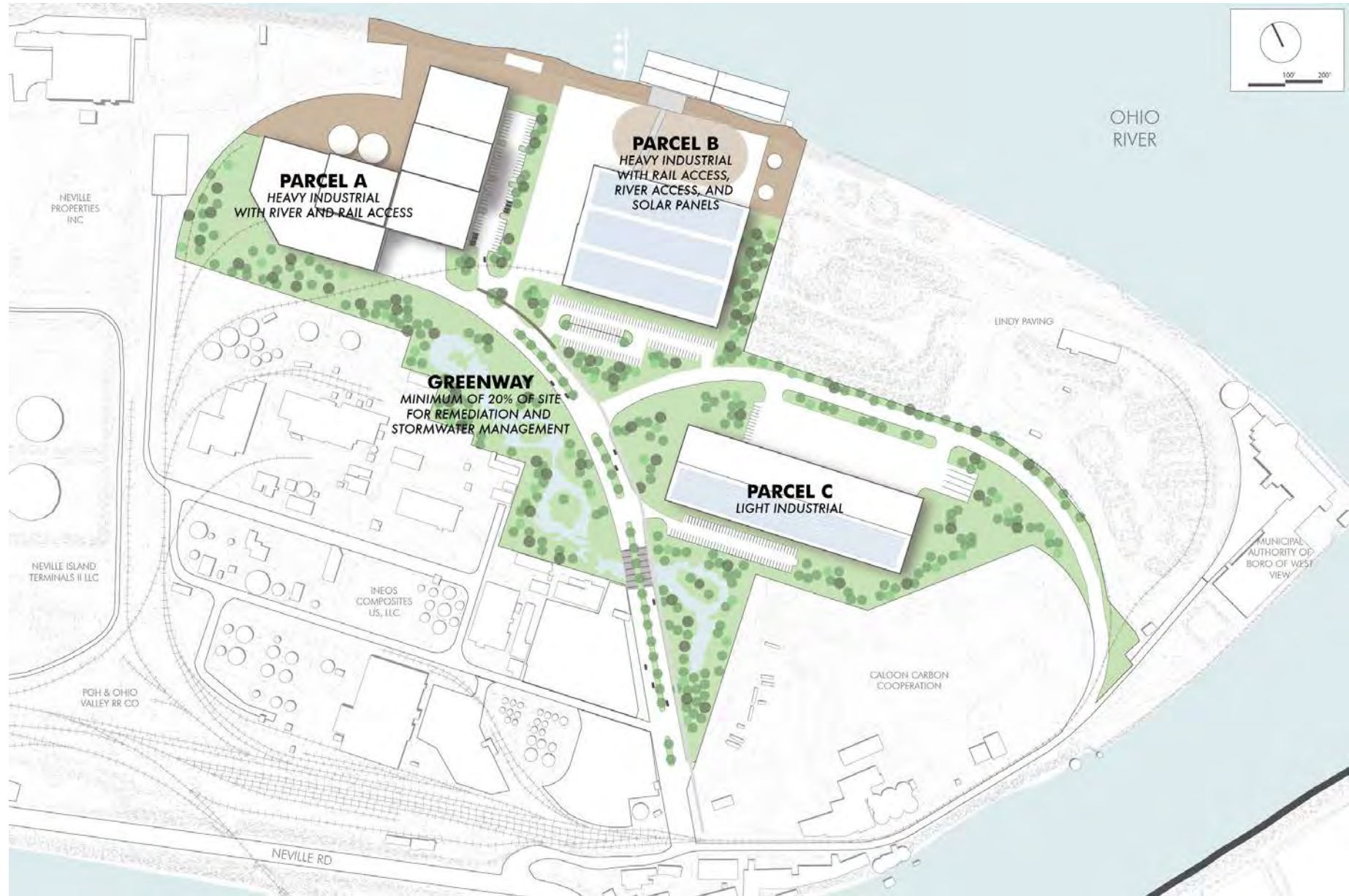
*Maximum Lot Coverage:  
90%*

*Front: 25 ft*

*Side: 15 ft*

*Rear: 15 ft*

*Building Height  
Restrictions: 60 ft*



# R.O.W AND SETBACKS

## Arterial Road

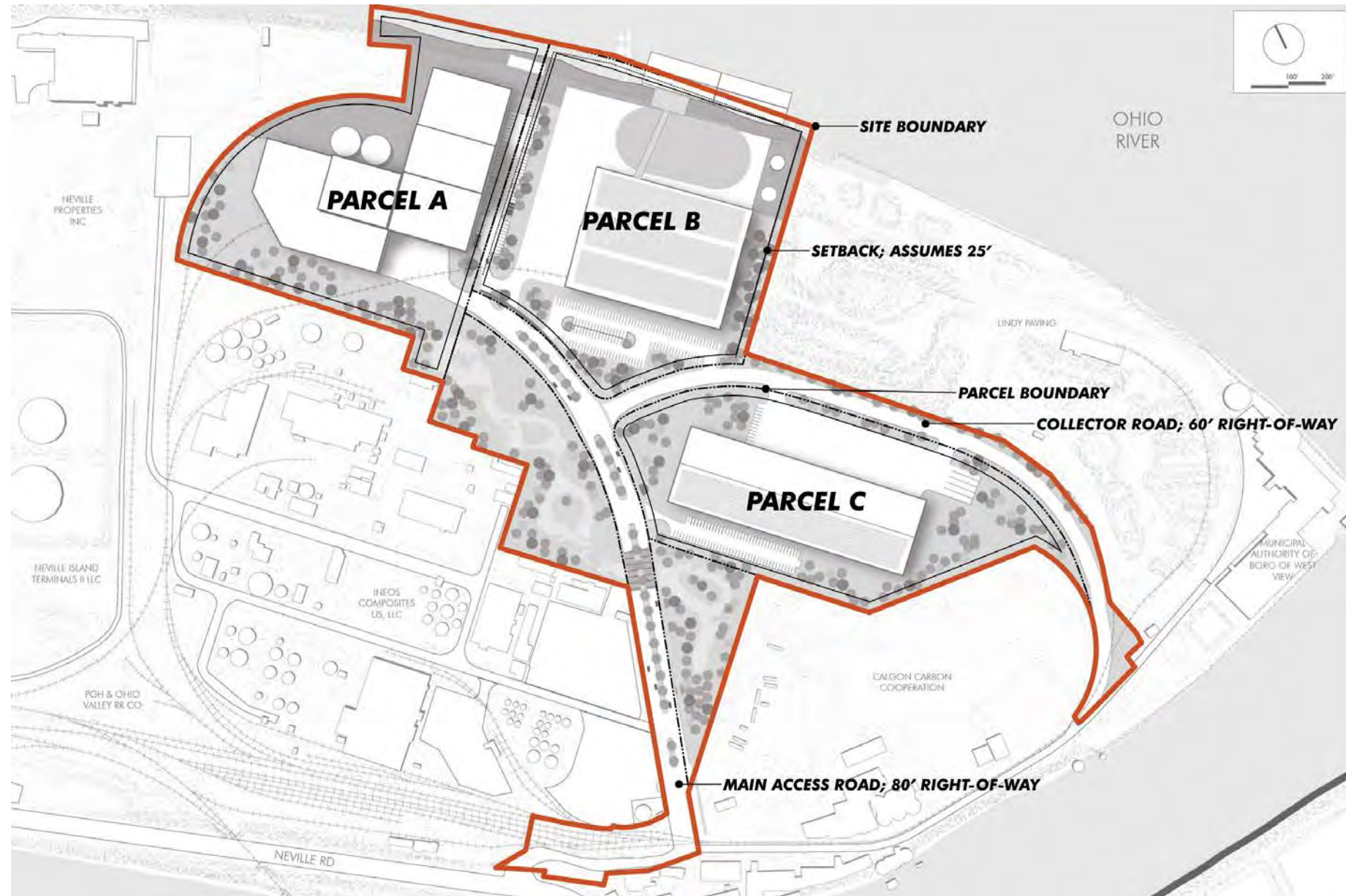
- 80' ROW

## Collector Road

- 60' ROW

## Setbacks

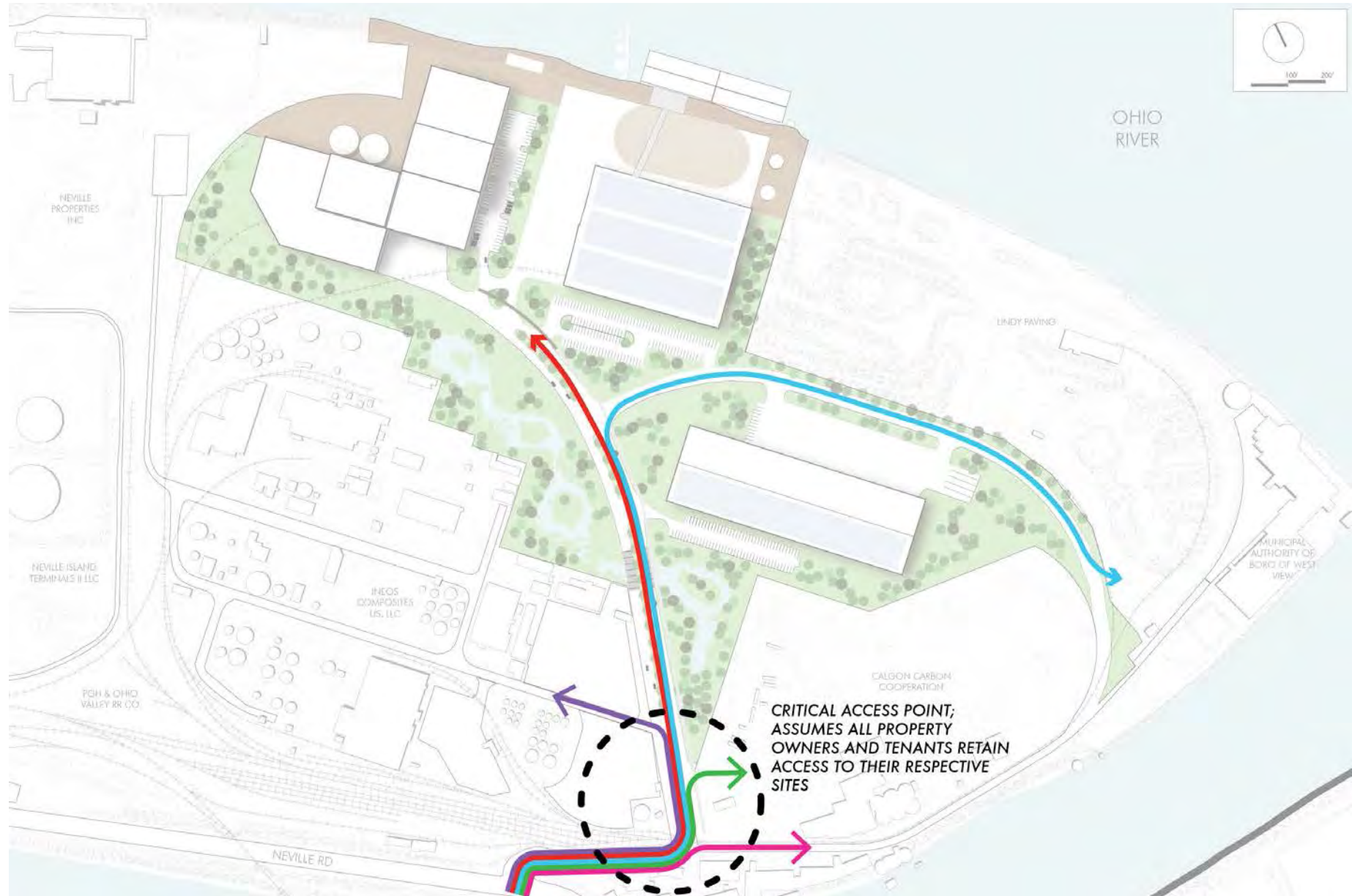
- Assumes 25' for front/side/rear





# ADJACENT SITE ACCESS

*No new development  
should obstruct the  
current access for adjacent  
property owners/tenants*



# OPEN SPACE SYSTEM

*A minimum of 20% of the site is dedicated to green space*

*3.25 AC FT required for the 49 acres*



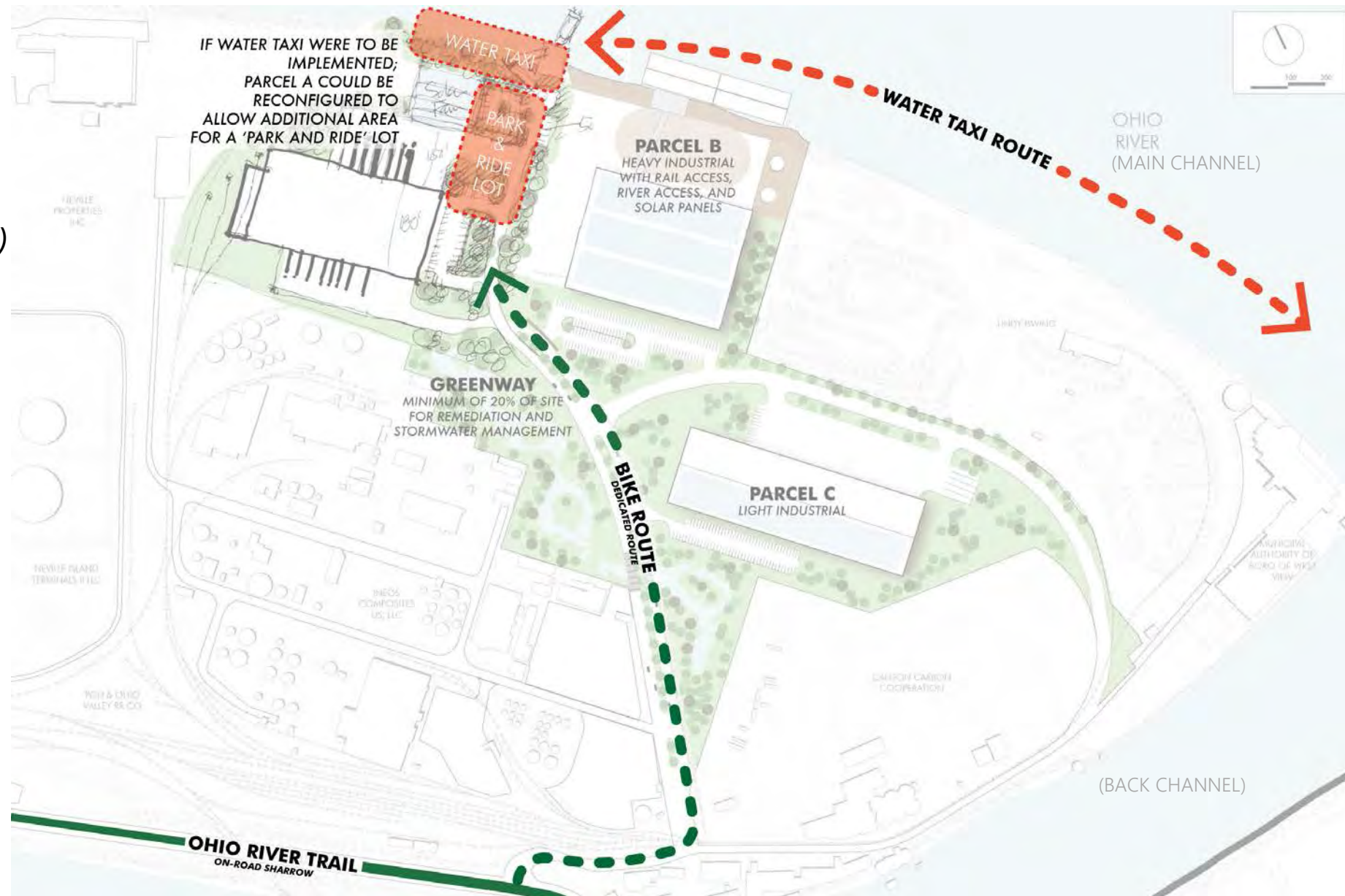


# MULTI-MODAL ACCESS

Connections:

Ohio River Trail (bikeway)

Water Taxi



# DEVELOPABLE AREA STATISTICS

## Parcel A

- Heavy industrial
- River access
- Rail access

## Parcel B

- Heavy industrial
- River access
- Rail access

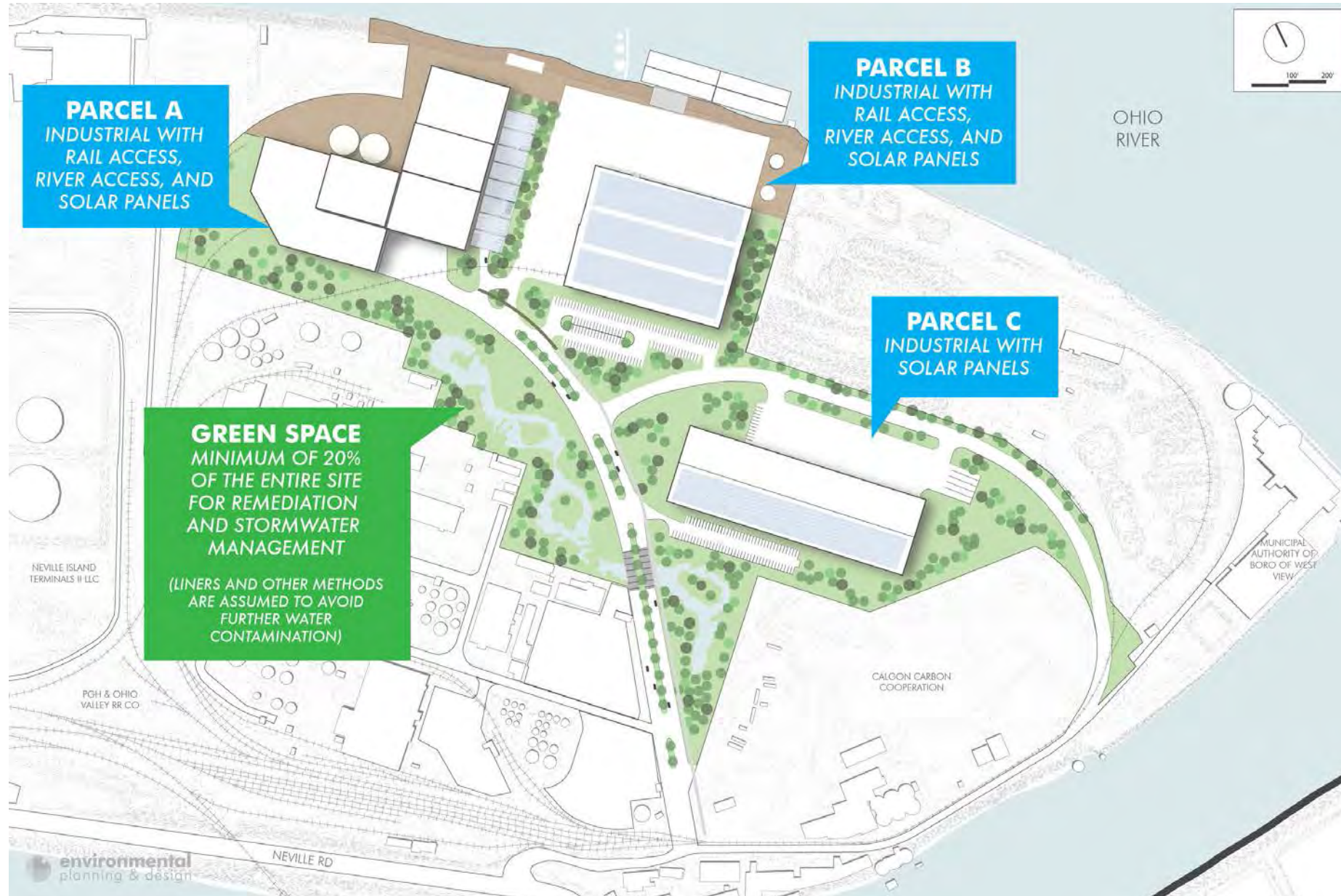
## Parcel C

- Light industrial

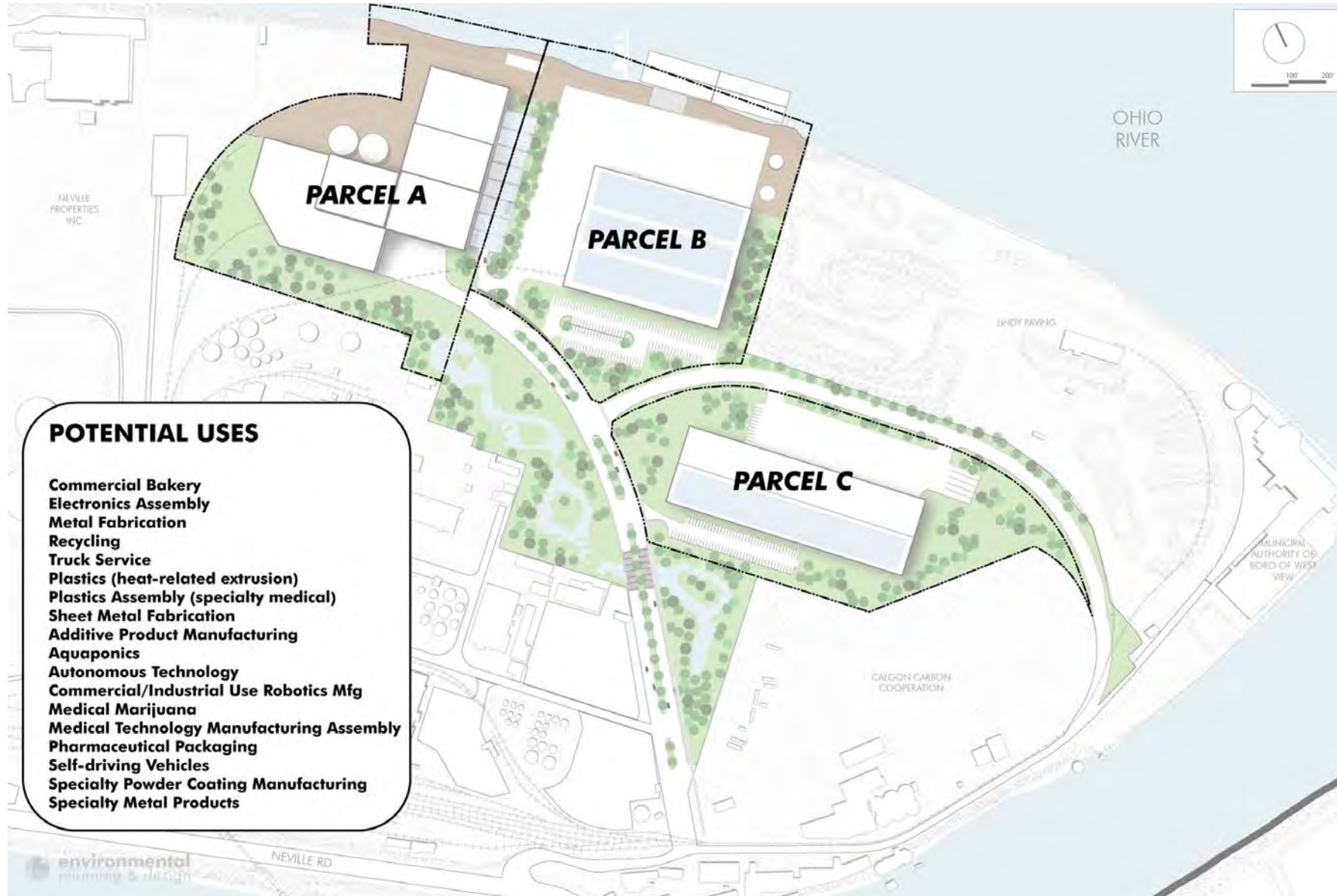




# RECOMMENDED USES



# RECOMMENDED USES





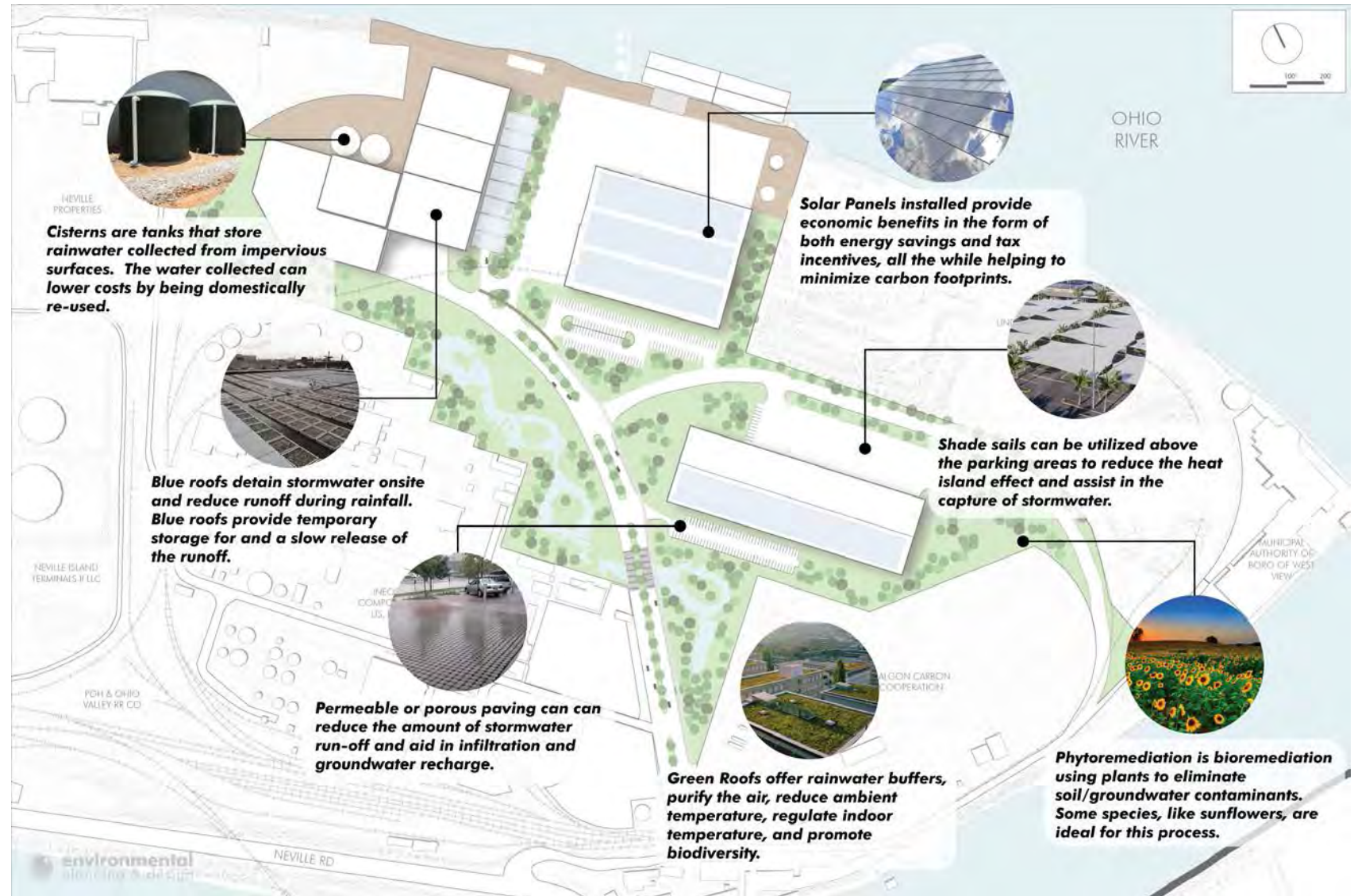
# DESIGN AS A "REGIONAL MODEL"

*Maintaining industry  
and jobs without  
contamination and/or  
environmental concerns*

*Remediating the land  
while simultaneously  
developing it*

*Solar arrays, porous  
paving, shade sails, etc.*

*Stormwater  
management*



# ZONING AMENDMENTS TO CONSIDER

ZONING	DETAILS
BUFFERYARDS	Related to the function of the bufferyards
LANDSCAPE/GREENWAY	Related to specific plant species and their remediation qualities, density of planting, etc.
STORMWATER	Related to the 5-year storm (polishing) and the 25-year storm (detention)
SETBACKS AND RIGHT-OF-WAYS	Encourage and regulate discernable ROW's
OUTDOOR STORAGE	Require the outdoor storage of materials to be sprayed, enclosed and/or under roof dependent upon the type of material and amount of particulates present
PERFORMANCE STANDARDS	Related to air, water and soil quality
CONNECTIVITY	Related to providing pedestrian networks and connecting to existing sidewalk/trail infrastructures on adjacent properties
RIVERFRONT PROVISION	Example: Within 100' of river frontage – require wind screens, vegetative filter strips, etc. to protect water and air quality
PERFORMANCE PRINCIPLES	Develop principles on desired performance related to uses (heavy water consumption), use characteristics (solar, phytoremediation, etc.) [referenced from Guiding Principles]



# PROPOSED CONCEPT (EXISTING VIEW)

Advisory Council Meeting  
01/28/20





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# **SHENANGO REIMAGINED**

*CONCEPT PLAN*

*FEEDBACK & DISCUSSION*