REDEVELOPMENT PLAYBOOK

Robena Coal Refuse Disposal Area (CRDA) located near the Waynesburg Township in Greene County, Pennsylvania

JANUARY 2021
DCED PURCHASE ORDER NO 4300649645
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Executive Summary
1.0 Executive Summary

The Robena Coal Refuse Disposal Area (CRDA) (the “Site”) is a lush, large, and single-owned property along the Monongahela River in Greene County, Pennsylvania, with exceptional railway, waterway, and roadway access. Once a mining operation for Pennsylvania’s steel industry, the Site has devolved from hosting the largest mechanized mine in the U.S. to more moderate surface mining operations to the current underutilized property. The Site provides an excellent opportunity for redevelopment, particularly since similar sizable acreage that can accommodate commercial and industrial growth is often difficult to find in the Southwest Pennsylvania region. It can be said that the Robena Site is a sizable diamond in the rough for the community that is ready for some growth and economic diversification.

The following document is a redevelopment “Playbook” that offers a selection of redevelopment “Plays” at the Robena Site. This Playbook is complete with various optional and recommended reuse strategies. Comprised of useful Site data and detailed market information, this document can aid industrial site selectors and the economic development community in better understanding the redevelopment options at the Robena Site. This Playbook is intended to facilitate future due diligence efforts by investors and interested parties regardless of their priorities and goals. Ultimately, this Playbook serves as a single, organized source of information about the Robena Site to stimulate discussion, creative thought, and future considerations for site redevelopment.

1.1 The History of the Robena Site

The Robena CRDA in Greene County, Pennsylvania, has had a long history of industrial operation providing a staple of jobs and income to the surrounding areas. The Site, which is located along the Monongahela River, met early mining success during the Second World War supporting U.S. steel production, but fell victim to disaster, public scrutiny, and closure. Today, the Robena CRDA remains an underutilized parcel that holds incredible reuse and redevelopment potential, while providing an advantageous proximity to the 130-mile-long waterway connector: the Monongahela River.

The former Robena Coal Mine began operations in 1944 under H.C. Frick Coke Company to provide coal and coke to the U.S. steel manufacturing industry in Pittsburgh and the surrounding areas. The mine sat on the large, untapped coal deposits in Greene County, and soon became a significant resource for the war, along with numerous jobs and economic benefits for the surrounding communities. Increased mechanization bolstered the mine’s output. In fact, the increased mechanization made it possible to mine the more remote portions of the coal vein through extensive underground systems connected to large portals along

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2 H.C. Frick Coke Company was in partnership with Andrew Carnegie’s Carnegie Steel. Later J. P. Morgan and Elbert H. Gary purchased Carnegie Steel and merged the company with their holdings in the Federal Steel Company. The result of this merger was the United States Steel Corporation. The Robena Deep mine ceased operation in 1953.
the Monongahela River\textsuperscript{3}. The river connected several large riverfront mining complexes, including the Emerald Mine, Warwick Mine, Cumberland Mine, and Robena Mine.

Meeting wide success, the Robena Mine soon earned the title as the largest “mechanized” coal mine in the U.S. However, on December 6, 1962, the mine suffered tragedy. Thirty-seven miners working in the Robena’s Frosty Run shaft lost their lives in an underground explosion of methane gas mixed with coal dust. The explosion and subsequent fire occurred about 680 feet underground and between three (3) and four (4) miles from the mouth of the shaft. The Frosty Run shaft was just one of a vast network of shafts comprising 69,000 acres in Greene and Fayette counties. This event proved to be a defining moment for the mine and has had lasting impacts to the surrounding communities to this day.

By 1983, coal (deep) mining operations at Robena ceased, while the preparation plant operations continued until 2007. At that time, the majority of site equipment and buildings were removed from the property. However, the conveyor belt, coal storage silo, one rectangular building, and the loadout equipment remained on site until 2017 due to ongoing surface mining operations. Today, the Robena CRDA remains an underutilized parcel that holds incredible reuse and redevelopment potential.

1.2 A New Beginning for the Robena Site

Greene County and the State of Pennsylvania recognize that the Robena CRDA has enormous potential for reuse and redevelopment that will not only revitalize the area but will also introduce exciting new use for the land parcel. Inherent to these opportunities for transformational redevelopment of the Site are a number of the parcel’s main attributes and assets, which are highlighted in the graphic below.

\textbf{KEY HIGHLIGHTS}
\textit{Site Attributes and Assets}

- Large site under single ownership:
  - \textasciitilde{}1,369-Acre tract with river access
  - \textasciitilde{}382-Acre tract
- Road access (state highway)
- River access
- Waterfront: \textasciitilde{}3,100 feet of waterfront shoreline
- Existing barge loading and unloading area/facilities
- Rail access (short line)
- Public water and electricity

\textsuperscript{3} Robena Mine: A Chronological History by Lonnie Miller (1997) Greene County, PA.
Key Highlights, Site Attributes and Assets
The Site is located approximately 17-miles east of Waynesburg in Monongahela Township, Greene County, Pennsylvania. The Robena CRDA is comprised of more than 1,500 acres, all of which are located within the boundaries of Monongahela Township. Of the 1,500 acres, 750 acres were permitted as the Robena Surface Mine and former Robena Coal (Deep) Mine.

The subject property is located in a rural setting along the eastern and western sides of Pennsylvania Route 88 (PA-88). The Site is bordered to the east by the Monongahela River, to which it has direct access. To the north, the property is bordered by mining operations and wooded land. To the south and west is mainly undeveloped land, with scattered residential and local/neighborhood commercial uses, such as auto repair shops, towing services, and houses of worship.

Considering input from numerous stakeholders and relying upon data collected for this playbook, the TRC team has identified three (3) leading areas for reclamation and reuse for the Former Robena Coal Refuse Area:

1. Industrial/Manufacturing
2. Commercial/Distribution
3. Renewable Energy Generation

Section 1.5 highlights the three (3) leading reuse areas in greater detail. Figure 1 further illustrates the Site attributes and assets, such as the proximity to the Monongahela River, rail access within the Site, and access to PA-88, all of which help to provide advantageous pathways for revitalization of the Robena CRDA and surrounding communities.
Figure 1. Site Details Map

- **WEST TRACT: 382 ACRES**
- **EAST TRACT: 1,369 ACRES**
- **3,100 FEET RIVER FRONTAGE**
- **MOORING CELLS**

Map showing the site details with various marked areas and distances.
1.3 Pennsylvania’s Pathway to Reclamation and Reuse

The Pennsylvania Department of Community and Economic Development (DCED) received Partnerships for Opportunity and Workforce and Economic Revitalization (POWER) funding through the U.S. Economic Development Administration. The primary focus of this funding is to assist communities and regions affected by the downturn in Pennsylvania’s coal economy. Using these funds, DCED has established a framework for collaborating with property owners and local communities to ready coal-fired power plants and related assets and to establish baseline information to highlight reuse potential for prospective buyers and investors.

DCED worked with Greene County to select the Robena CRDA to be addressed under the POWER program. One of a number of CRDAs across the commonwealth, successful redevelopment of the Robena Site can serve as a model for other sites going forward.

TRC Environmental Corporation (TRC) has been retained by DCED to prepare this Redevelopment Playbook. In collaboration with DCED and the current Site owner, CONSOL Mining Company, LLC (CONSOL), TRC has conducted a comprehensive process of redevelopment planning for the Site, including a Phase I Environmental Site Assessment, market analysis, redevelopment strategy options, cost estimating for “Pad-Ready” site preparation, and recommendations for actions to move the process forward.
There are currently two (2) active permits on the property that are related to CONSOL’s operations, one (1) covering the former Preparation Plant Area, and one (1) covering the CRDA. These permits remain active while CONSOL pursues reclamation of the property. [A third active permit, known as the Border Energy Permitted Area, is described in Section 2.1.]

The CRDA includes coarse refuse piles (see photo above), two (2) fine coal refuse disposal areas (referred to as Slurry Ponds 4 and 6), five (5) sedimentation ponds, and two (2) wastewater treatment systems. Slurry Pond 6 is currently being leased to mine and process coal fines, as well as to complete reclamation of Pond 6. The mining activity was completed in 2013, and the lease will remain active until 2021, with annual extensions until the required reclamation is complete. To the west of PA-88, from Colvin Road, there is a smaller reclaimed and revegetated CRDA and the Colvin Acid Mine Drainage (AMD) Wastewater Treatment Facility, which is related to the underground Robena mine. The treatment plant consists of two (2) lime silos, a thickener (now used for blending), a pre-aeration pond, a settling pond, and a cleansing/finishing pond.

Regarding water treatment, the Colvin AMD Wastewater Treatment Facility is currently expected to operate intermittently in perpetuity. The Robena Surface Treatment System will be dismantled and removed during reclamation. CONSOL has established a treatment trust fund with the Clean Streams Foundation to guarantee its long-term water treatment obligation. Funding of the $12.4 million trust will be completed in mid-2021.

The Clean Streams Foundation would ensure that the trust funds be used to operate and maintain the treatment facility in the event of operator forfeiture.
1.4 Market Analysis Summary and Stakeholder Input

The Site’s isolated location relative to the region’s commerce and population growth will likely inhibit residential, retail, and office park-related end uses. Conversely, the Site’s relatively rural location presents a variety of redevelopment opportunities from a market demand perspective. These include industrial, multimodal transportation center, logistics/distribution, and renewable energy generation.

Greene County is one of the leading natural gas production areas in Pennsylvania, indicating that natural gas and natural gas liquids supply chain-related industrial uses may be a logical fit for the Site. The Shell Pennsylvania Chemicals plant, currently under construction in Beaver County, as well as other possible ethane cracker facilities developed in the region, will offer a steady supply of polyethylene, a key input to manufacturers in a number of industries, particularly plastics. Pennsylvania currently ranks 6th nationally in plastics manufacturing.

Additionally, the Site’s expansive acreage and access to river, rail and roads make an inland port transportation hub and/or industrial facility strong candidates for future site use.

The former Hatfield’s Ferry Power Station, which was decommissioned in 2013, is located approximately 2.7-miles north of the Site on the same side of the Monongahela River. The already-established utilities infrastructure that likely remain in place on Hatfield's Ferry could make renewable energy generation a viable option for the Site (Figure 2).

There are several key takeaways gleaned from interviews with various local/regional stakeholders. There is a concern regarding the deteriorating tax base in Greene County due to limited commercial and industrial activity. The coal mining industry was historically a workforce staple to the county and a major driver of economic development. The Emerald Mine closed in 2016, and 500-700 mining jobs were lost. A similar impact was felt within the local community with the closure of the Dana Mining Operations. With these losses, supporting industries such as transportation, fabricating, machine repair, hospitality, and retail have also been negatively impacted.

There is a desire for an increase in higher paying local jobs to be created. This would help reduce the number of residents that must commute outside of the county for work. Industries centered around transportation and/or industrial end uses, specifically plastics manufacturing, would likely have strong community support and provide jobs. Farming and (natural) gas storage were also discussed; however, given the limited availability of nutrient-rich soils for farming and absence of an appropriate geologic formation underneath the Site for gas storage, these options are likely unfeasible. The concept of an outdoor educational facility was discussed; this concept is viable as a supplemental use, depending on the nature of the development that occurs. For example, a Site developer may set aside wetlands or other natural area and work cooperatively with an academic partner to establish an ecological study area.
Figure 2. Plant and Pipeline Radius Map
1.5 Reuse Strategy Alternatives Summary

Three (3) generalized strategic opportunities for reuse of the Site have been prepared, which take into consideration the physical site attributes and market drivers identified in this document. Each reuse strategy was further evaluated to develop reasonable options that respond to market forces in a different way, thus providing a menu of “plays” designed to appeal to a range of differing investor/developer goals. These options are further described in Section 4, including a discussion of the strategy, relevant examples of similar development in Pennsylvania, advantages and disadvantages, and specific actions that may be necessary to pursue an option.

### Reuse Strategy A
**Future Industrial/Manufacturing Facility**

The Site is located within a region of Appalachia that is seeing new investments in natural gas extraction and associated processing and manufacturing activities. The Site’s proximity to natural gas and natural gas liquids make it well-positioned to attract a range of manufacturing opportunities; this could mean either a single-entity manufacturing complex or a large-scale industrial park.

### Reuse Strategy B
**Future Commercial/Distribution**

The Site’s location on the Monongahela River, access to good highway and rail systems, and proximity to the northeast and Midwest consumers makes this site an ideal location for a regional distribution center and/or multi-modal transfer facility; access to the Gulf of Mexico through the Mississippi River basin allows global import/export connectivity.

### Reuse Strategy C
**Future Renewable Generation Complex**

Post-reclamation site improvements will offer suitable acreage for installation of utility-scale solar development. Supplemental battery energy storage will add reliability to the overall renewable energy production. Alternatively, a peak production natural gas-fired generation plant would improve grid reliability.
1.6 Recommended Actions and Schedule Summary

TRC concluded from the information obtained throughout this report that the Site is best suited for reuse as one of the following: an industrial site that is tied to the natural gas and petrochemical-related sectors, a large commercial/distribution facility, or a renewable energy complex. This conclusion is based on projections of future petrochemical market growth, the Site’s river access with barge loading/unloading capabilities, available work force, and feedback from key stakeholders. All three of these options can be activated in parallel to explore site redevelopment.

The first two options (industrial and commercial development) capitalize on the ability to transport large volumes of goods to and from the Site and present an opportunity to create a large, well-compensated workforce. All three options would provide a sustainable tax base and likely be a catalyst for complimentary industry in the area.

The Site has several pad-ready building sites ranging from approximately 20 acres to 150 acres where individual developments could occur. The Site could also accommodate facilities requiring up to 600 acres within one contiguous area or nearly 900 acres over two parcels separated by PA-88, with potentially more useable area available.

In order to successfully position the Site for redevelopment, a two-phase “pre-redevelopment” strategy is recommended.

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<th>PHASE 1: Permit Termination and Land Use Transition</th>
<th>PHASE 2: Redevelopment Conceptual Plan</th>
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<td>Administratively terminate and transition the land use from coal refuse disposal area to an industrial end use.</td>
<td>Align planned reclamation activities with Site redevelopment to expedite schedule and reduce project lifecycle costs.</td>
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This two-phase approach expedites redevelopment by administratively and physically preparing the Site for future redevelopment, while simultaneously creating a partnership with the commonwealth, Greene County, CONSOL, and an invested and informed end user.
2.0 Site Attributes, Assets, and Constraints

2.1 Site Attributes

The Site consists of two (2) separate parcels, one consisting of approximately 1,369 acres (East Tract) and the second approximately 382 acres (West Tract), located in a rural setting in Monongahela Township, Greene County, Pennsylvania. The Site is bordered to the east by the Monongahela River, which is navigable by barge and readily accessed from the Site. To the north, the property is bordered by mining operations – which are inactive and currently undergoing reclamation – and wooded land. To the south and west is mainly undeveloped land with some various residential and local/neighborhood commercial uses, such as auto repair shops, towing services, and houses of worship. PA-88 bifurcates the near center of the Site, offering multiple access points to both Site parcels.

Land Area

Parcel land acreages as depicted previously on Figure 1 are:

- East (of PA-88) Tract: 1,369 Acres
- West Tract: 382 Acres

The majority of the Site, with the exception of the area denoted as “Border Energy Permit No 30100101” (see Figure 3), is currently available for redevelopment, including the reclaimed Robena Prep Plant area. The CRDA permit area will be available for redevelopment upon release of the mining permit or transition out of mining jurisdiction.
Large Site Under Single Ownership

Existing Barge Infrastructure

Navigable River Access

Highway Frontage

Potential Rail Access

Nearby Grid Interconnect Potential
Border Energy Permitted Area
The Border Energy permitted area was the site of surface mine coal operations from the Waynesburg Coal Seam located beneath the Site. Mining operations ceased circa 2013.

The “Border Energy Permit No. 30100101” area depicted in the East Tract may also be available for future development sooner than expected. According to Pennsylvania Department of Environmental Protection (PA DEP), this permit was most recently reissued in March 2019. Typical permit term limits are established for a period of five (5) years, indicating the permit would expire in March 2024. Reportedly, Border Energy’s reclamation was officially complete in 2018, except for active chemical treatment at a small pond on site located behind CONSOL Pond 6. Border Energy’s pond and portion of the permit will likely remain in place for the duration of this permit term (through 2024). It is possible that Border Energy could seek release or reduction of its permit beginning in 2021, as long as reestablished vegetation meets the applicable success requirements (i.e., minimum two [2] consecutive growth seasons).

Figure 3. Border Energy Permitted Area

Streets, Access, Frontage, & Visibility
The Site is accessible from several entrance drives along PA-88, Alicia Road, or Colvin Road. Frontage is extensive, and visibility of the property from the roadways is considered good.
The Site has a highly irregular shape and is bisected by PA-88, with the majority of the Site situated to the east of the roadway. Accessibility is considered suitable for many development opportunities.

**Electricity**
Public electricity is available to the Site and provided by First Energy Corp. The former Hatfield’s Ferry Power Station is located approximately 2.7 miles north of the Site. The station stopped producing power in 2013, but the station’s critical infrastructure remains intact, which could present a power grid interconnection opportunity. Permitting was completed in 2018 by APV Renaissance Partners to construct a 1,000-megawatt natural gas power plant at that location. The current status of the project is unknown.

**Water**
One water line, the Contura Waterline, is an active non-potable water line owned by Iron Senergy Holding, LLC that traverses the Site. There is also potable water available to the Site via a newly constructed waterline above Pond 6 and from a separate line south of the Site in the unincorporated residential community of Alicia.

**Broadband**
There are essentially two primary options for internet access in the area of the Site: cable (XFINITY from Comcast) and DSL (providers like Verizon High Speed Internet). Further development of broadband delivery may be required for some development opportunities.

**Drainage**
Drainage issues were not observed during a preliminary site visit, and it is assumed none exist. In general, the Site drainage flows from higher ground in the west toward the lower lying lands along the Monongahela River.

**Easements, Encroachments, & Restrictions**
A title search was not part of this Playbook. Our valuation assumes no adverse impacts from easements, encroachments, or restrictions, and further assumes that the Site has clear and marketable title. CONSOL has stated it has a mortgage on the property that can be released upon sale of the property. There are several parcels of land traversing the Site on the southeastern side, which are owned by Cumberland Resources, LLP. This land area is a railroad corridor, which remains active.

### 2.2 Site Assets

**River**
The Site offers approximately 3,100 feet of waterfront access to the Monongahela River. The riverbanks in the area are steep, and the access road is approximately 30 feet above the river level. The Site is located just north of the Grays Landing Locks and is approximately 82 miles by river from the Point in Pittsburgh. As depicted in Figure 4, below, the Monongahela River is part of the U.S. Inland Waterways System, which provides access not only to the central eastern portion of the United States, but ultimately to the Great Lakes and Gulf of Mexico.
Currently there are six (6) mooring cells (large structures for mooring barges) located in the northern portion of the Site along the Monongahela River. These mooring cells could accommodate loading and unloading activities. Structural inspection of these facilities is recommended prior to use.

Road
The Site is accessible via multiple roadways that facilitate vehicular traffic. For example, PA-88, a two-lane local collector roadway with graded shoulders, is an approximate 68-mile north-south state highway roughly paralleling the Monongahela River. PA-88 intersects with Pennsylvania Route 21 (PA-21), an approximate 51-mile two-lane, 55-MPH principal arterial route traversing east and west through Greene and Fayette counties. PA-21 is approximately two (2) miles north of the Site and provides direct access to Interstate 79 in Waynesburg, Pennsylvania, approximately 12-miles west of the Site. PA-21 also provides direct access to Route 43, approximately 12-miles east of the project Site. Route 43, also known as the Mon-Fayette Expressway (part of the Pennsylvania Turnpike Commission system), is a north-south tolled limited-access highway, connecting Interstate 68 in West Virginia with U.S. Route 40 to the north in Uniontown, Pennsylvania. Interstate 79 is an approximately 343-mile limited-access highway...
providing access to the entire western half of Pennsylvania and portions of West Virginia. Interstate 79 terminates in Charleston, West Virginia.

**Rail**

The Cumberland Short Line Rail is a privately owned, isolated 17-mile short rail line operated by the Cumberland Mine Company (acquired by Iron Senergy Holding, LLC in December 2020) (See Figure 5). The rail emanates at the Cumberland Mine near Waynesburg, Pennsylvania—approximately 12-miles west of the Site—and terminates adjacent to the Site's south at Alicia Harbor. Neither end of the short line railroad connects to a mainline rail line. The railroad was purchased by Contura Energy in 2018 (subsequently acquired by Iron Senergy Holding, LLC) and transports coal to a barge dock on the Monongahela River. Two (2) EMD SD38-2 locomotives and one (1) EMD SD40-2 locomotive are used to move box cars carrying primarily coal. Most trips are 37-39 coal cars with one (1) or two (2) locomotives.

Although the rail is isolated, it could potentially be used to move cargo between the Site and Alicia Harbor, given the appropriate access agreements with the track owner. This could offer immediate barge loading/unloading capabilities without significant upfront investment for “relevant” infrastructure (i.e., cranes, container lifts, etc.) on the Site.

In addition, the Norfolk Southern Monongahela Line, or Mon-Line, is located opposite the Site across the Monongahela River. The closest Mon-Line river crossing is approximately 3.5-miles south of the property. The Mon-Line begins near the Fort Wayne Line, north of Pittsburgh. It then crosses the Ohio River on the Ohio Connecting Railroad Bridge and proceeds along the southern side of the Ohio and Monongahela Rivers. The line ends near Waynesburg, Pennsylvania. In 2016, the Mon-Line was upgraded to accommodate double stack rail cars.
Air
The Green County Municipal Airport is located near Waynesburg, Pennsylvania, off PA-21. It has a single 3,500-foot runway suitable for small aircraft. The nearest major airport is Pittsburgh International, approximately 50 miles north of the project Site.

Figure 5. Site Railway Map

2.3 Site Constraints

Inherent to the redevelopment of any CRDA site are potential site constraints that must be assessed before moving forward with potential alternative uses. The constraints that exist at the Robena Site are presented below. Recommendations to resolve each constraint are also included as a means for users of this Playbook to understand some of the creative yet actionable ways in which these issues could be addressed.

Site Topography
Mining activities at the Site have created steep hills, ponds, and depressions. The Site has an elevation greater than 1,000 feet above mean sea level (AMSL) to less than 700 feet AMSL.
Elevation contours are highly variable throughout the Site. This variability and the below mentioned slope stability and soils constraints will make grading large areas of the Site costly. **Recommendation:** Consider multiple options for site redevelopment based on the conceptual “pad” locations as presented in **Section 5.0** of this Playbook. These “pad” options allow prospective developers to understand how the Site could be prepared to allow for various development opportunities ranging from large industrial to an assemblage of small-medium sized commercial and/or industrial uses. Conceptual plans for developing these strategic “pad” locations are also presented in **Section 5.0**.

**Geotechnical/Soils**
Coal refuse is typically composed of rock fragments derived from the interseam shale or siltstone partings and waste rock materials from above or below the coal seam. The rock fragments tend to be coarse in nature with intermixed fines, which are typically stored in stockpiles or slurry ponds close to the sites where they are mined. The moisture-holding properties of coal refuse are directly related to its particle size distribution and are usually coarse in texture with a very low water-holding capacity. As the average refuse particle size increases, the material’s moisture retention capacity is reduced. This reduced moisture retention capacity and wide variability in particle size may present difficulties during compaction. **Recommendation:** Soil amendments, including blending with available refuse fine particles, may be warranted to facilitate compaction of site soils for future site development.

**Slope Stability**
The relatively low pH and low water-holding capacity reduce the ability to vegetate most refuse piles. Lack of vegetation could lead to potential slope stability issues associated with runoff water. Pyrite and sulfur, which are abundant on most refuse piles, play a dominant role in the chemical influence to lower pH. **Recommendation:** Conduct a field assessment prior to redevelopment to identify potential low pH areas. This limitation can be eliminated or minimized during reclamation or redevelopment, when best management practices that promote slope stability and successful revegetation, such as the inclusion of alkaline soil amendments or selection of specific cover crops, are deployed on site.

**Vegetation**
Plant-available phosphorus (P) and nitrogen (N) are also typically low in refuse areas. Future development options for agricultural and/or farming would be difficult at the Site without proper and annual treatment. **Recommendation:** Proper fertilization to increase plant available P and N are critical early on to facilitate vegetation. Legumes and/or biosolid amendments may be used to supplement plant available P and N concentrations and ultimately promote long-term vegetation.

**Acid Mine Drainage**
Acid Mine Drainage (AMD) is the result of sulfur-containing rock, typically pyrite (FeS2), oxidized to sulfuric acid in the presence of water and oxygen (i.e., pyrite oxidation), creating drainage of sub-optimal pH with elevated concentrations of metals or anions. This drainage may require pH adjustment or metals removal using conventional water treatment technologies prior to discharge to surface waters. Upon completing reclamation and revegetation of the site, the incidence of impacted drainage is typically reduced or eliminated altogether, and therefore, chemical treatment is no longer required. Drainage associated with the eastern side of the property is conveyed to the “Robena Surface Treatment System,” and facilitates neutralization of runoff and seepage from
the reclaimed refuse areas on an as-needed basis. The Robena Surface Treatment System will be dismantled and removed during facility reclamation.

The Colvin AMD Wastewater Treatment Facility, situated on the property to the west of PA-88, operates intermittently as required to prevent an uncontrolled discharge from the underground Robena Mine. Operations at Colvin are completely independent of the operations at the Robena Surface Facility. Discharges from the facilities are authorized by and currently operated in compliance with the Site's NPDES permit (PA0215830).

**Recommendation:** In conjunction with CONSOL, discuss options for long-term water handling, treatment operations, and financial assurance mechanisms associated with operations at the Colvin AMD Treatment Facility.

### Environmental Issues

A Phase I Environmental Site Assessment was conducted for the Site in June 2020. The assessment identified a Recognized Environmental Condition (REC) associated with underground storage tanks (USTs) that were utilized at the facility during the 1950s. Internal records reportedly exist that document the closure; however, the Environmental Professional was unable to obtain either the internal records or formal PADEP documentation verifying completion of closure.

**Recommendation:** To address this REC, (1) conduct a review of CONSOL's documentation related to the closure of USTs in February 1990 to identify the location (likely in the former Preparation Plant Area) and status of the USTs, (2) pursue a further review of PADEP records to locate formal approval of the closure process, (3) if documents are inadequate, then consider completion of a geophysical survey to confirm the tanks' absence. If absent, submit the required documentation to administratively close the USTs. If present, conduct a limited Phase II Environmental Site Assessment, and remove the USTs from the Site.

A copy of the Phase I Environmental Site Assessment Report is included in **Appendix A**.

### Flood Zone

The majority of the subject property is located within Zone X (area of minimal flood hazard), as indicated on the Community Map Panel Numbers 42059C0354D, 42059C0355D, and 42059C0358D. Portions of the Site along the Monongahela River are demarked as “Special Flood Hazard Areas Subject to Inundation by the 1% Annual Chance Flood (i.e., 100-year Flood)”. FEMA Flood Plan Map is provided in **Appendix B**.

**Recommendation:** Assess flood hazard areas of the Site prior to redevelopment. Conceptual grading plans (see Section 5.0) accommodate for these areas by raising appropriate site elevation. Permitting may be required in certain areas prior to in-filling.

### Sanitary Sewer

Sanitary sewer is not provided to the Site.

**Recommendation:** Sanitary sewer agreements would likely be provided by the Greensboro Monongahela Township Joint Sewer Authority. For smaller development concepts, on-site septic systems or a common treatment works may also be appropriate.
Market Analysis
3.0 Market Analysis

KEY HIGHLIGHTS

The following are key highlights from the data:

- Population in Greene County declined between 2012 and 2018, while the population in Pennsylvania and the Morgantown Metro Area increased during the same time period.
- Greene County has a relatively young population (41.1% under the age of 35), with only 2.8% of those over age 16 unemployed. However, 49.6% are not currently in the labor force.
- Almost 70% of adults over the age of 25 in Greene County (69.2%) have high school graduate, some college with no degree, or an Associate's degree as their highest educational attainment.
- The mining, quarrying, and oil and gas extraction industry employs the greatest number of individuals in Greene County.
- Geological and Petroleum Technicians and Extraction Workers are among the highest growing opportunity occupations (accessible to someone without a bachelor’s degree while providing at least the national annual mean wage).
- Greene County has a high concentration of natural resource mining (formerly coal, now primarily shale gas) based on a high location quotient and that industry's contribution to Gross Regional Product (GRP). The strong presence of this industry is a unique feature that increases the attractiveness of the Site for certain types of resource development and manufacturing entities who are primary consumers of these resources.

The following are key highlights from the stakeholder interviews:

- The county is rich in natural gas, and stakeholders recognize the opportunity to capitalize on that at the Robena site. There are several NGL-based industries and petrochemical industries that could benefit from this resource.
- The site is located with easy access to a robust transportation network by land, water, and rail, making it prime for distribution, as well as ease to move product in and out.
- The site sits on a river, which provides access to a large fresh water source ideal for certain industries.
- Stakeholders note that the county is not afraid to move dirt and train a workforce to meet the needs of future development at the Site.
- There is a strong interest to have family sustaining jobs created that will offer viable employment within the county for generations to come.
- California University of Pennsylvania is extremely interested in the use of the site for education. They have a model in mind and already attempted a similar concept in Belle Vernon. They view the site to have huge educational advantages that would be a win for the community, the university, and higher education as a whole.

Market analysis summary:

- The market analysis data shows that Greene County has a workforce well suited for resource development and related manufacturing, with a good balance of ages and education/skill levels.
- Stakeholders note that the community is pro-growth and eager for development of the Site. They also highlight the Site's unique access by rail, road, and water, and its location within the Marcellus and Utica shale regions which produce an abundance of natural gas and natural gas liquids.
- The market analysis suggests that the highest and best uses of the site would include natural gas and NGL-related uses, related downstream manufacturing (e.g., plastics and petrochemical industries), commercial or distribution facilities that could take advantage of the nexus of roads, rail, and water transport (e.g., a regional distribution facility), and opportunities to generate power on the Site using renewable energy resources (e.g., a solar farm).
3.1 Methodology

Market Data compiled in this Playbook was obtained through the following sources:

- U.S. Census Bureau (obtained through Environics Analytics and IBM Market Expert, a demographic subscription service that provides population estimates in between the decennial census reports)
- Center for Workforce Information and Analysis
- U.S. Bureau of Labor Statistics
- Pittsburgh Regional Alliance
- Individual Stakeholder Interviews

Data included in this report is based on the most recent available data and was compiled for the most relevant geography data. This includes:

- Greensboro, PA (the borough where the Robena Site is located)
- Monongahela Township, PA (borders Greensboro)
- Nicholson Township, PA (borders Greensboro)
- Greene County, PA (county where the Robena Site is located)
- Morgantown, WV Metro Area (medium-sized metro area 45 minutes south of the Site along the Monongahela River; see map inset)
- Southwest Corner PA Workforce Development Area (which includes Washington, Greene, and Beaver counties)
- The Commonwealth of Pennsylvania
3.2 Overview

The Robena CRDA is located in Greene County, Pennsylvania. The county seat is Waynesburg, which is the largest municipality in Greene County by population. The county consists of 575.9 square miles and has 26 municipalities. Details regarding market indicators and observations are provided further in this section.

3.3 Data Analysis

The Site is located in Greensboro, Pennsylvania. Greensboro is a borough located in southeastern Greene County. It is situated on the west bank of the Monongahela River, opposite New Geneva and the mouth of George’s Creek. It is bordered by Monongahela Township in Greene County to the north and west, and by Nicholson Township in Fayette County to the south and east, across the Monongahela. The county and township border follow the center of the river.

The population in and around the Site has been growing and is projected to continue to grow. This demonstrates stability in the current workforce. The median age is expected to decline, which indicates there will be fewer individuals at retirement age and more individuals entering the labor force as they reach working age. Median household income is lower in Greensboro compared to the surrounding areas, thus entry-level or medium-wage occupations would likely align with the current workforce. Positions offering a higher wage could appeal to the workforce in a broader geographic range – either by attracting commuters to the Site from outside Greene County or by enticing relocation to be closer to the Site. Current educational attainment is mixed, with a majority of individuals in the area holding lower levels of educational attainment that would be looking for entry-level or median-wage positions. There is also a smaller group of highly educated individuals who would align with higher skill or management level positions.

Market Analysis Highlights

- Both the population and number of households in Greensboro, Monongahela Township, and Nicholson Township have increased over the past several years, despite Greene County as a whole experiencing a decline in population and the number of households.
- The median household incomes of Greensboro are lower than those of the neighboring municipalities, Greene County, and the state, although the mean household income is higher.
- The mean and median household income for Greene County is lower compared to the state.
- Greensboro, Monongahela Township, and Nicholson Township have lower rates of educational attainment compared to the county and state. Approximately half of adults over the age of 25 have a high school education while about one in five residents hold an Associate’s degree or higher.
### 3.3.1 Population

The following tables show the historical changes in population with data highlights for Greensboro, Monongahela Township, Nicholson Township, Greene County, Morgantown Metro Area, and Pennsylvania.

The population in and around the Robena Site is experiencing a period of growth, which demonstrates a stable workforce. Households and families are also growing, which indicates that there will be a growing workforce as younger individuals enter the workforce. For example, Greene County has a relatively young population (41.1% under the age of 35), with only 2.8% of those over age 16 unemployed. Out of that relatively young (under 35) population, 50.4% are currently in the workforce, with the remaining 49.6% either too young to work or simply not currently in the labor force.

The population composition in and around the Robena site includes a significant portion of the workforce that is already skilled and able to fulfill a wide range of employment opportunities, as well as a younger workforce seeking entry-level and on-the-job training opportunities. The combination of a local population having at least 50% with a high school education and 20% with advanced degrees would support a variety of employment opportunities at multiple levels.

<table>
<thead>
<tr>
<th>Table 1: Population</th>
</tr>
</thead>
<tbody>
<tr>
<td>Greensboro Zip Code 15338</td>
</tr>
<tr>
<td>Monongahela Township Greene County</td>
</tr>
<tr>
<td>Nicholson Township Fayette County</td>
</tr>
<tr>
<td>Greene County</td>
</tr>
<tr>
<td>Morgantown WV Metro Area</td>
</tr>
<tr>
<td>Pennsylvania</td>
</tr>
</tbody>
</table>

Source: U.S. Census Bureau American Community Survey 5-Year Estimates

**Findings:**

- The population in Greensboro declined between 2012 and 2015 and then increased between 2015 and 2018. Overall Greensboro experienced an increase between 2012 and 2018 (+74).
- Monongahela Township has had a steady increase in its population since 2012 (+250).
- Nicholson Township had a decline in its population between 2012 and 2015, followed by an increase between 2015 and 2018. Overall, there has been a population increase between 2012 and 2018 (+54).
- Greene County has had a steady decline in population since 2012 (-1,470).
The Morgantown Metro Area (+9,201) and Pennsylvania (+91,592) have both experienced a steady increase in population, although the increase between 2015 and 2018 was smaller than it had been between 2012 and 2015.

As detailed in Table 2, the median age in Greene County in 2020 is 42.6. The median age for the county is projected to decrease to 41.1 in 2024. In 2020, just under half (46.9%) of the population was between the ages of 18 and 54.

<table>
<thead>
<tr>
<th>Population By Age</th>
<th>Greene County</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Ages 0-14</td>
<td>5,664</td>
<td>15.7%</td>
</tr>
<tr>
<td>Ages 15-17</td>
<td>1,226</td>
<td>3.4%</td>
</tr>
<tr>
<td>Ages 18-34</td>
<td>7,941</td>
<td>22.0%</td>
</tr>
<tr>
<td>Ages 35-54</td>
<td>8,985</td>
<td>24.9%</td>
</tr>
<tr>
<td>Ages 55-64</td>
<td>5,249</td>
<td>14.6%</td>
</tr>
<tr>
<td>Ages 65 and Older</td>
<td>6,986</td>
<td>19.4%</td>
</tr>
</tbody>
</table>

**Median Age**: 42.59

*Source: Claritas - Pop-Facts Premier 2020, Environics Analytics*

**Findings:**

- The population in Greene County under the age of 18 in 2020 was 19.1%, with an additional 61.5% within the working age of 18 to 64.
- The population under the age of 34 was 41.1%.
- Approximately 19.4% in Greene County were 64 or older.
### Table 3: Households

<table>
<thead>
<tr>
<th></th>
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<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Greensboro Zip Code 15338</td>
<td>656</td>
<td>642</td>
<td>657</td>
<td>-2.13%</td>
<td>2.34%</td>
</tr>
<tr>
<td>Monongahela Township Greene County</td>
<td>629</td>
<td>658</td>
<td>668</td>
<td>4.61%</td>
<td>1.52%</td>
</tr>
<tr>
<td>Nicholson Township Fayette County</td>
<td>586</td>
<td>612</td>
<td>668</td>
<td>4.44%</td>
<td>9.15%</td>
</tr>
<tr>
<td>Greene County</td>
<td>14,119</td>
<td>14,394</td>
<td>14,211</td>
<td>1.95%</td>
<td>-1.27%</td>
</tr>
<tr>
<td>Morgantown WV Metro Area</td>
<td>48,557</td>
<td>49,507</td>
<td>51,239</td>
<td>1.96%</td>
<td>3.50%</td>
</tr>
<tr>
<td>Pennsylvania</td>
<td>4,959,633</td>
<td>4,958,859</td>
<td>5,025,132</td>
<td>-0.02%</td>
<td>1.34%</td>
</tr>
</tbody>
</table>

Source: U.S. Census Bureau American Community Survey 5-Year Estimates

**Findings:**

- The number of households in Greensboro decreased between 2012 and 2015 (-14) and then increased in 2018 (+15). Although there was an increase in recent years, the number of households between 2012 and 2018 was essentially the same (+1).
- The number of households in Monongahela Township (+39) and Nicholson Township (+82) has steadily increased since 2012.
- Greene County has experienced an overall increase between 2012 and 2018 (+92) despite a decrease between 2015 and 2018 (-183).
- The number of households in the Morgantown Metro Area has steadily been increasing since 2012 (+2,682).
- Pennsylvania had a slight decrease in households between 2012 and 2015, with an overall increase between 2012 and 2018 (+65,499).

### Table 4: Families

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Greensboro Zip Code 15338</td>
<td>460</td>
<td>470</td>
<td>511</td>
<td>2.17%</td>
<td>8.72%</td>
</tr>
<tr>
<td>Monongahela Township Greene County</td>
<td>442</td>
<td>513</td>
<td>521</td>
<td>16.06%</td>
<td>1.56%</td>
</tr>
<tr>
<td>Nicholson Township Fayette County</td>
<td>439</td>
<td>418</td>
<td>494</td>
<td>-4.78%</td>
<td>18.18%</td>
</tr>
<tr>
<td>Greene County</td>
<td>9,505</td>
<td>9,616</td>
<td>9,453</td>
<td>1.17%</td>
<td>-1.70%</td>
</tr>
</tbody>
</table>
### Table 4: Families

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Morgantown WV Metro Area</td>
<td>27,407</td>
<td>28,075</td>
<td>29,122</td>
<td>2.44%</td>
<td>3.73%</td>
</tr>
<tr>
<td>Pennsylvania</td>
<td>3,227,194</td>
<td>3,202,874</td>
<td>3,232,070</td>
<td>-0.75%</td>
<td>0.91%</td>
</tr>
</tbody>
</table>

*Source: U.S. Census Bureau American Community Survey 5-Year Estimates*

**Findings:**

- The number of families in Greensboro has steadily increased since 2012 (+51).
- The number of families in Monongahela Township has steadily increased since 2012 (+79).
- Nicholson Township experienced a decrease in the number of families between 2012 and 2015 followed by an increase in 2018. Overall, the number of households increased between 2012 and 2018 (+55).
- Although the number of families in Greene County increased between 2012 and 2015, overall, the number has decreased between 2012 and 2018 (-52).
- The number of families in the Morgantown Metro Area has steadily increased since 2012 (+1,715).
- The number of families in Pennsylvania decreased between 2012 and 2015 but has had an overall increase between 2012 and 2018 (+4,876).

#### 3.3.2 Household Income

The following tables detail the historical changes in household income for Monongahela Township, Nicholson Township, Greene County, Morgantown Metro Area, and Pennsylvania. Historical data was not available for Greensboro.

In 2018, the median household income in Greensboro ($50,977) was lower than the median household income for Monongahela Township ($55,714), Nicholson Township ($54,875), Greene County ($54,121), and Pennsylvania ($59,445), although higher than the Morgantown Metro Area ($49,471).

In 2018, the mean household income in Greensboro ($82,971) was higher than in Nicholson Township ($66,163), Greene County ($69,275), Pennsylvania ($81,549), and the Morgantown Metro Area ($72,303). Median household income in Greensboro was lower compared to Monongahela Township ($85,250).

Both the median and mean household incomes have steadily increased in Monongahela Township, Greene County, Pennsylvania, and the Morgantown Metro Area between 2012 and 2018. Nicholson Township experienced a lower median and mean household income in 2015 than in 2012 or 2018. The highest percentage of the population in Greensboro, Monongahela Township, Nicholson Township, Greene County, Pennsylvania, and the Morgantown Metro Area have household incomes between $50,000 to $74,999.
### Table 5-1: Household Income

<table>
<thead>
<tr>
<th></th>
<th>Greensboro Zip Code 15338</th>
<th>Monongahela Township, Greene County</th>
<th>Nicholson Township, Fayette County</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less than $10,000</td>
<td>6.5%</td>
<td>7.3%</td>
<td>4.1%</td>
</tr>
<tr>
<td>$10,000 to $14,999</td>
<td>5.6%</td>
<td>4.6%</td>
<td>3.5%</td>
</tr>
<tr>
<td>$15,000 to $24,999</td>
<td>9.1%</td>
<td>14.1%</td>
<td>15.2%</td>
</tr>
<tr>
<td>$25,000 to $34,999</td>
<td>10.4%</td>
<td>16.9%</td>
<td>9.7%</td>
</tr>
<tr>
<td>$35,000 to $49,999</td>
<td>16.4%</td>
<td>13.8%</td>
<td>15.0%</td>
</tr>
<tr>
<td>$50,000 to $74,999</td>
<td>21.2%</td>
<td>12.4%</td>
<td>14.3%</td>
</tr>
<tr>
<td>$75,000 to $99,999</td>
<td>10.4%</td>
<td>12.4%</td>
<td>13.2%</td>
</tr>
<tr>
<td>$100,000 to $149,999</td>
<td>12.5%</td>
<td>15.3%</td>
<td>19.5%</td>
</tr>
<tr>
<td>$150,000 to $199,999</td>
<td>4.1%</td>
<td>1.9%</td>
<td>4.9%</td>
</tr>
<tr>
<td>$200,000 or more</td>
<td>3.8%</td>
<td>1.3%</td>
<td>0.6%</td>
</tr>
<tr>
<td>Median income (dollars)</td>
<td>$50,977</td>
<td>$43,427</td>
<td>$54,265</td>
</tr>
<tr>
<td>Mean income (dollars)</td>
<td>$82,971</td>
<td>$58,058</td>
<td>$67,269</td>
</tr>
</tbody>
</table>

Source: U.S. Census Bureau American Community Survey 5-Year Estimates

---

### Table 5-2: Household Income

<table>
<thead>
<tr>
<th></th>
<th>Greene County</th>
<th>Pennsylvania</th>
<th>Morgantown, WV Metro Area</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less than $10,000</td>
<td>7.7%</td>
<td>6.5%</td>
<td>6.5%</td>
</tr>
<tr>
<td>$10,000 to $14,999</td>
<td>6.8%</td>
<td>5.6%</td>
<td>4.9%</td>
</tr>
<tr>
<td>$15,000 to $24,999</td>
<td>13.6%</td>
<td>13.2%</td>
<td>10.8%</td>
</tr>
<tr>
<td>$25,000 to $34,999</td>
<td>14.2%</td>
<td>12.6%</td>
<td>11.1%</td>
</tr>
<tr>
<td>$35,000 to $49,999</td>
<td>14.4%</td>
<td>14.3%</td>
<td>13.2%</td>
</tr>
<tr>
<td>$50,000 to $74,999</td>
<td>17.3%</td>
<td>18.2%</td>
<td>18.7%</td>
</tr>
<tr>
<td>$75,000 to $99,999</td>
<td>11.8%</td>
<td>12.2%</td>
<td>13.6%</td>
</tr>
<tr>
<td>$100,000 to $149,999</td>
<td>10.4%</td>
<td>12.3%</td>
<td>14.1%</td>
</tr>
<tr>
<td>$150,000 to $199,999</td>
<td>2.7%</td>
<td>3.5%</td>
<td>3.9%</td>
</tr>
<tr>
<td>$200,000 or more</td>
<td>1.2%</td>
<td>1.6%</td>
<td>3.1%</td>
</tr>
<tr>
<td>Median income (dollars)</td>
<td>$42,837</td>
<td>$46,661</td>
<td>$54,121</td>
</tr>
<tr>
<td>Mean income (dollars)</td>
<td>$56,250</td>
<td>$61,549</td>
<td>$69,275</td>
</tr>
</tbody>
</table>

Source: U.S. Census Bureau American Community Survey 5-Year Estimates
### 3.3.3 Education Attainment

The following tables showcase the educational attainment for adults over the age of 25 in Greensboro, Monongahela Township, Nicholson Township, Greene County, Pennsylvania, and the Morgantown Metro Area in 2018. Greensboro, Monongahela Township, and Nicholson Township have lower rates of educational attainment compared to the county, state, and Morgantown Metro Area. Adults in the Morgantown Metro Area have the highest educational attainment with 34.2% holding a Bachelor’s degree or higher.

#### Table 6-1: Educational Attainment for Population 25 Years and Older (2018 ACS 5-Year Estimate)

<table>
<thead>
<tr>
<th>Education Level</th>
<th>Greensboro Zip Code 15338</th>
<th>Monongahela Township Greene County</th>
<th>Nicholson Township Fayette County</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less than 9th grade</td>
<td>80</td>
<td>73</td>
<td>41</td>
</tr>
<tr>
<td>9th to 12th grade No diploma</td>
<td>90</td>
<td>89</td>
<td>144</td>
</tr>
<tr>
<td>High school graduate (includes equivalency)</td>
<td>629</td>
<td>665</td>
<td>746</td>
</tr>
<tr>
<td>Some college No degree</td>
<td>161</td>
<td>126</td>
<td>102</td>
</tr>
<tr>
<td>Associate's degree</td>
<td>98</td>
<td>93</td>
<td>106</td>
</tr>
<tr>
<td>Bachelor's degree</td>
<td>125</td>
<td>122</td>
<td>137</td>
</tr>
<tr>
<td>Graduate or professional degree</td>
<td>37</td>
<td>40</td>
<td>38</td>
</tr>
</tbody>
</table>

*Source: U.S. Census Bureau American Community Survey 5-Year Estimates*

#### Table 6-2: Educational Attainment for Population 25 Years and Older (2018 ACS 5-Year Estimate)

<table>
<thead>
<tr>
<th>Education Level</th>
<th>Greene County</th>
<th>Pennsylvania</th>
<th>Morgantown WV Metro Area</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less than 9th grade</td>
<td>870</td>
<td>291,164</td>
<td>2,381</td>
</tr>
<tr>
<td>9th to 12th grade No diploma</td>
<td>2,447</td>
<td>582,854</td>
<td>6,011</td>
</tr>
<tr>
<td>High school graduate (includes equivalency)</td>
<td>12,222</td>
<td>3,133,655</td>
<td>30,815</td>
</tr>
<tr>
<td>Some college No degree</td>
<td>3,956</td>
<td>1,426,783</td>
<td>14,827</td>
</tr>
<tr>
<td>Associate's degree</td>
<td>2,058</td>
<td>741,590</td>
<td>5,081</td>
</tr>
<tr>
<td>Bachelor's degree</td>
<td>3,198</td>
<td>1,661,705</td>
<td>15,886</td>
</tr>
<tr>
<td>Graduate or professional degree</td>
<td>1,612</td>
<td>1,083,612</td>
<td>14,778</td>
</tr>
</tbody>
</table>

*Source: U.S. Census Bureau American Community Survey 5-Year Estimates*
3.3.4 Labor Market Information

Table 7 shows the industries with the highest number of employees in Greene County for the third quarter 2019. The industries with the highest employment included mining, quarrying, and oil and gas extraction. It is worth noting that although this industry employs the highest number of employees, there are only 31 establishments in the county, therefore, each establishment is employing a large number of individuals. Other sectors employing over 1,000 employees included public administration, construction, health care and social assistance, and retail trade.

When looking at existing industry sectors, there already exists a labor force highly skilled in occupations related to mining, quarrying, oil and gas extraction, and manufacturing. There also exists a large population skilled in public administration, construction, health care and social assistance, and retail trade. This level of local expertise provides an opportunity to utilize the existing local labor force, as opposed to having to rely on training an entire workforce or recruiting from outside the area.

<table>
<thead>
<tr>
<th>Rank</th>
<th>Industry Sector</th>
<th>Number of Establishments</th>
<th>Number of Employees</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Mining, Quarrying, and Oil Gas Extraction</td>
<td>31</td>
<td>2,269</td>
</tr>
<tr>
<td>2</td>
<td>Public Administration</td>
<td>41</td>
<td>1,454</td>
</tr>
<tr>
<td>3</td>
<td>Construction</td>
<td>63</td>
<td>1,440</td>
</tr>
<tr>
<td>4</td>
<td>Health Care and Social Assistance</td>
<td>145</td>
<td>1,431</td>
</tr>
<tr>
<td>5</td>
<td>Retail Trade</td>
<td>112</td>
<td>1,347</td>
</tr>
<tr>
<td>6</td>
<td>Accommodation and Food Services</td>
<td>62</td>
<td>784</td>
</tr>
<tr>
<td>7</td>
<td>Transportation and Warehousing</td>
<td>63</td>
<td>634</td>
</tr>
<tr>
<td>8</td>
<td>Manufacturing</td>
<td>25</td>
<td>386</td>
</tr>
<tr>
<td>9</td>
<td>Wholesale Trade</td>
<td>21</td>
<td>344</td>
</tr>
<tr>
<td>10</td>
<td>Other Services, Ex. Public Admin</td>
<td>64</td>
<td>334</td>
</tr>
</tbody>
</table>

Source: PA Department of Labor and Industry – Greene County, PA

3.3.5 Opportunity Occupations

“Opportunity Occupations” are defined as employment opportunities that are generally considered accessible to someone without a bachelor’s degree and that pays at least the national annual median wage, adjusted for differences in local consumption prices. The top growth opportunity occupation is Geological and Petroleum Technicians and Extraction Workers, who are projected to lead in growth with 29% positive change between 2016 and 2021. Some of the listed occupations may not be directly employed by entities occupying the Site after development; however, nearly all are likely to be required in supporting businesses around a fully developed site. These occupations align with the skills and interests of the current local population and would be likely to attract emigration of similarly skilled workers from the greater region to nearby communities.
Location Quotient

Location Quotient (LQ) is a way of quantifying how concentrated an industry, cluster, occupation, or demographic group is in a region as compared to the nation. LQ can reveal what makes a particular region “unique” in comparison to the national average.

An LQ greater than 1.0 indicates a high concentration of an industry in an area, which is a possible advantage for recruiting additional industry and support entities (e.g., trucking, parts suppliers, construction trades, etc.). The uniqueness of an area may result from exploitable natural resources, such as timber, oil, or natural gas, from unique geography such as being at an intersection of major transportation routes between large cities, or from proximity to key institutions, such as a research university. In many cases, that uniqueness results in development and career opportunities that pay wages above the median for comparable locations that lack a similar uniqueness.

Greene County has a high concentration of natural resources and mining (LQ 14.64), with a total wage LQ of 23.24. There is also an increased concentration of goods production (LQ 2.04) in this region. Refer to Table 8 for a summary of the Greene County LQ data.
### Table 8: Location Quotient Summary

<table>
<thead>
<tr>
<th>Industry</th>
<th>Business Count</th>
<th>January Employment</th>
<th>February Employment</th>
<th>March Employment</th>
<th>Total Quarterly Wages</th>
<th>Average Weekly Wage</th>
<th>Employment Location Quotient Relative to U.S.</th>
<th>Total Wage Location Quotient Relative to U.S.</th>
</tr>
</thead>
<tbody>
<tr>
<td>101 Goods-producing</td>
<td>118</td>
<td>3,920</td>
<td>3,884</td>
<td>3,882</td>
<td>84,748,589</td>
<td>1,674</td>
<td>2.04</td>
<td>2.52</td>
</tr>
<tr>
<td>1011 Natural resources and mining</td>
<td>35</td>
<td>2,359</td>
<td>2,328</td>
<td>2,328</td>
<td>64,794,232</td>
<td>2,132</td>
<td>14.64</td>
<td>23.24</td>
</tr>
<tr>
<td>1012 Construction</td>
<td>59</td>
<td>1,174</td>
<td>1,161</td>
<td>1,166</td>
<td>15,827,764</td>
<td>1,043</td>
<td>1.86</td>
<td>1.61</td>
</tr>
<tr>
<td>1013 Manufacturing</td>
<td>24</td>
<td>387</td>
<td>395</td>
<td>388</td>
<td>4,126,593</td>
<td>814</td>
<td>0.35</td>
<td>0.20</td>
</tr>
<tr>
<td>102 Service-providing</td>
<td>588</td>
<td>6,359</td>
<td>6,349</td>
<td>6,434</td>
<td>83,228,651</td>
<td>1,003</td>
<td>0.71</td>
<td>0.60</td>
</tr>
<tr>
<td>1021 Trade, transportation, and utilities</td>
<td>177</td>
<td>2,419</td>
<td>2,399</td>
<td>2,458</td>
<td>43,779,157</td>
<td>1,389</td>
<td>1.03</td>
<td>1.42</td>
</tr>
<tr>
<td>1022 Information</td>
<td>8</td>
<td>51</td>
<td>51</td>
<td>54</td>
<td>501,949</td>
<td>743</td>
<td>0.22</td>
<td>0.06</td>
</tr>
<tr>
<td>1023 Financial activities</td>
<td>49</td>
<td>438</td>
<td>429</td>
<td>433</td>
<td>6,457,148</td>
<td>1,146</td>
<td>0.60</td>
<td>0.28</td>
</tr>
<tr>
<td>1024 Professional and business services</td>
<td>70</td>
<td>524</td>
<td>525</td>
<td>532</td>
<td>9,840,995</td>
<td>1,436</td>
<td>0.29</td>
<td>0.26</td>
</tr>
<tr>
<td>1025 Education and health services</td>
<td>150</td>
<td>1,786</td>
<td>1,785</td>
<td>1,798</td>
<td>17,590,060</td>
<td>756</td>
<td>0.89</td>
<td>0.68</td>
</tr>
<tr>
<td>1026 Leisure and hospitality</td>
<td>70</td>
<td>805</td>
<td>828</td>
<td>829</td>
<td>2,782,290</td>
<td>261</td>
<td>0.59</td>
<td>0.33</td>
</tr>
<tr>
<td>1027 Other services</td>
<td>64</td>
<td>336</td>
<td>332</td>
<td>330</td>
<td>2,277,052</td>
<td>527</td>
<td>0.84</td>
<td>0.58</td>
</tr>
</tbody>
</table>

Gross Regional Product (GRP)

GRP is a measure of the market value of the goods and services produced in a region, which indicates the relative size of a region’s economy. By looking at the individual contributions to a region’s economy, an evaluation can be made of the region’s apparent strengths. **Table 9** summarizes the Gross Regional Product data for the southwest corner area, whereas **Table 10** provides the data on the Gross Regional Product in greater detail for this same area. Pennsylvania’s southwest corner GRP shows that the largest defined sources of goods and services by dollar amount are manufacturing and resource extraction (mining, quarrying, and oil and gas extraction).

**Mining, quarrying, and oil and gas extraction** as well as **manufacturing** account for the highest percent of the gross regional product in the Southwest Corner Workforce Development Area (comprised of Beaver, Washington, and Greene Counties). This highly skilled workforce would transition easily to new development related to mining, quarrying, oil and gas extraction, as well as manufacturing. There are likely individuals working in these industries in neighboring counties that are ideal candidates for employment in these industries, if the work were available locally. There may also be those working in entry level positions who would be interested in the advancement opportunities expected for the likely reuse scenarios for the Site.

### Table 9: Gross Regional Product (GRP) Summary

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>$11.2B</td>
<td>$7.2B</td>
<td>$1.6B</td>
<td>$20.0B</td>
</tr>
</tbody>
</table>

*Source: EMSI 2017 [Southwest Corner Workforce Development Area]*
Manufacturing accounts for the highest dollar value of exports in the Southwest Corner in 2017 (the latest available data), followed closely by Mining, Quarrying, and Oil and Gas Extraction. Table 11 highlights the regional exports in detail.

### Table 10: Gross Regional Product (GRP) Detail

<table>
<thead>
<tr>
<th>NAICS</th>
<th>Industry</th>
<th>GRP (2016)</th>
<th>% of Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>11</td>
<td>Crop and Animal Production</td>
<td>$148,400,000</td>
<td>1%</td>
</tr>
<tr>
<td>21</td>
<td>Mining, Quarrying, and Oil and Gas Extraction</td>
<td>$1,945,000,000</td>
<td>10%</td>
</tr>
<tr>
<td>22</td>
<td>Utilities</td>
<td>$1,135,000,000</td>
<td>6%</td>
</tr>
<tr>
<td>23</td>
<td>Construction</td>
<td>$1,277,000,000</td>
<td>6%</td>
</tr>
<tr>
<td>31</td>
<td>Manufacturing</td>
<td>$2,080,000,000</td>
<td>10%</td>
</tr>
<tr>
<td>42</td>
<td>Wholesale Trade</td>
<td>$1,054,000,000</td>
<td>5%</td>
</tr>
<tr>
<td>44</td>
<td>Retail Trade</td>
<td>$1,011,000,000</td>
<td>5%</td>
</tr>
<tr>
<td>48</td>
<td>Transportation and Warehousing</td>
<td>$621,000,000</td>
<td>3%</td>
</tr>
<tr>
<td>51</td>
<td>Information</td>
<td>$383,000,000</td>
<td>2%</td>
</tr>
<tr>
<td>52</td>
<td>Finance and Insurance</td>
<td>$715,000,000</td>
<td>4%</td>
</tr>
<tr>
<td>53</td>
<td>Real Estate and Rental and Leasing</td>
<td>$1,218,000,000</td>
<td>6%</td>
</tr>
<tr>
<td>54</td>
<td>Professional, Scientific, and Technical Services</td>
<td>$815,000,000</td>
<td>4%</td>
</tr>
<tr>
<td>55</td>
<td>Management of Companies and Enterprises</td>
<td>$653,000,000</td>
<td>3%</td>
</tr>
<tr>
<td>56</td>
<td>Administrative and Support and Waste Management and Remediation Services</td>
<td>$364,000,000</td>
<td>2%</td>
</tr>
<tr>
<td>61</td>
<td>Educational Services</td>
<td>$162,000,000</td>
<td>1%</td>
</tr>
<tr>
<td>62</td>
<td>Health Care and Social Assistance</td>
<td>$1,519,000,000</td>
<td>8%</td>
</tr>
<tr>
<td>71</td>
<td>Arts, Entertainment, and Recreation</td>
<td>$294,000,000</td>
<td>1%</td>
</tr>
<tr>
<td>72</td>
<td>Accommodation and Food Services</td>
<td>$343,000,000</td>
<td>2%</td>
</tr>
<tr>
<td>81</td>
<td>Other Services (except Public Administration)</td>
<td>$309,000,000</td>
<td>2%</td>
</tr>
<tr>
<td>90</td>
<td>Government</td>
<td>$1,587,000,000</td>
<td>8%</td>
</tr>
<tr>
<td><strong>Other Non-Industries</strong></td>
<td><strong>$2,362,000,000</strong></td>
<td><strong>12%</strong></td>
<td></td>
</tr>
</tbody>
</table>

Source: EMSI 2017 [Southwest Corner Workforce Development Area]
### Table 11: Region Exports Summary w/Detail

**Exports (2016)**

<table>
<thead>
<tr>
<th>NAICS</th>
<th>Industry</th>
<th>Exports (2016)</th>
</tr>
</thead>
<tbody>
<tr>
<td>11</td>
<td>Crop and Animal Production</td>
<td>$394,000,000</td>
</tr>
<tr>
<td>21</td>
<td>Mining, Quarrying, and Oil and Gas Extraction</td>
<td>$3,053,000,000</td>
</tr>
<tr>
<td>22</td>
<td>Utilities</td>
<td>$1,391,000,000</td>
</tr>
<tr>
<td>23</td>
<td>Construction</td>
<td>$1,637,000,000</td>
</tr>
<tr>
<td>31</td>
<td>Manufacturing</td>
<td>$5,055,000,000</td>
</tr>
<tr>
<td>42</td>
<td>Wholesale Trade</td>
<td>$1,122,000,000</td>
</tr>
<tr>
<td>44</td>
<td>Retail Trade</td>
<td>$801,000,000</td>
</tr>
<tr>
<td>48</td>
<td>Transportation and Warehousing</td>
<td>$1,001,000,000</td>
</tr>
<tr>
<td>51</td>
<td>Information</td>
<td>$490,000,000</td>
</tr>
<tr>
<td>52</td>
<td>Finance and Insurance</td>
<td>$898,000,000</td>
</tr>
<tr>
<td>53</td>
<td>Real Estate and Rental and Leasing</td>
<td>$1,643,000,000</td>
</tr>
<tr>
<td>54</td>
<td>Professional, Scientific, and Technical Services</td>
<td>$844,000,000</td>
</tr>
<tr>
<td>55</td>
<td>Management of Companies and Enterprises</td>
<td>$905,000,000</td>
</tr>
<tr>
<td>56</td>
<td>Administrative and Support and Waste Management and Remediation Services</td>
<td>$372,000,000</td>
</tr>
<tr>
<td>61</td>
<td>Educational Services</td>
<td>$172,000,000</td>
</tr>
<tr>
<td>62</td>
<td>Health Care and Social Assistance</td>
<td>$1,352,000,000</td>
</tr>
<tr>
<td>71</td>
<td>Arts, Entertainment, and Recreation</td>
<td>$425,000,000</td>
</tr>
<tr>
<td>72</td>
<td>Accommodation and Food Services</td>
<td>$252,000,000</td>
</tr>
<tr>
<td>81</td>
<td>Other Services (except Public Administration)</td>
<td>$278,000,000</td>
</tr>
<tr>
<td>90</td>
<td>Government</td>
<td>$2,847,000,000</td>
</tr>
</tbody>
</table>

Source: EMSI 2017 [Southwest Corner Workforce Development Area]

### 3.3.6 Takeaways from the Data Analysis

Greene County possesses unique strengths in manufacturing and natural resource extraction. This is reflected in a local workforce comprised of skilled workers and managers that is well-positioned to capitalize on a wide variety of new opportunities throughout these industries. Further, the data on households and families show that there will be a growing labor market as a relatively younger population prepares to enter the workforce in the coming years. There is also a significant proportion of younger workers seeking entry-level and on-the-job training opportunities with a county-wide educational attainment level (50% with at least a high school education and 20% with post-secondary degrees) that reinforces that the local workforce can fulfill a variety of employment opportunities at multiple levels.
The Robena Site presents an extraordinary development opportunity for Greene County – an opportunity to attract a transformative investment in the county, to bring new jobs that leverage an already robust workforce base, and help to generate greater economic diversity.

3.4 Stakeholder Interviews

The following stakeholders provided input:

- **Stacey Brodak**, Vice President, Institutional Advancement & University Relations, Waynesburg University
- **Crystal Simmons**, Community Development Director, Greene County Economic Development
- **Rich Cleveland**, Executive Director, Greene County Economic Development
- **Jeremy Kelly**, Planning and Business Development Director, Greene County Economic Development
- **Mike Belding**, Greene County Commissioner
- **Patty Horvatinh**, Vice President, Business Investment, Pittsburgh Regional Alliance
- **Donald Chappel**, Executive Director, Greene County Industrial Developments, Inc.
- **Bob Whyte, Matthew Price, Kyle Frederick, & Dave Argent**, Faculty, California University of Pennsylvania

Reoccurring Stakeholder Themes

**TRANSPORTATION - ROAD**

The location of the Robena Coal Refuse Disposal Site offers tremendous opportunities in terms of transportation. The Site is within a 10-hour drive of 50% of the population of the United States.

**EDUCATION & THE COMMUNITY**

The county and the local university share synergy, and the university remains focused on civic engagement. The education community has done a good job adapting to local workforce needs to get people into family sustaining jobs and retain them in the community.

**TRANSPORTATION - RIVER**

The river presents numerous opportunities that are currently not being realized. Accessing it would be a huge advantage for an industry that requires a lot of water or needs to move product in or out via the river.

**LOCAL WORKFORCE**

The county offers a great quality of life but needs more jobs. Many residents of the county commute into neighboring counties for work. There is a strong, dedicated workforce that exists in the community; however, the jobs are just not there. There are also many unemployed coal workers for whom any opportunity involving heavy industrial work would likely utilize transferrable skills that will put this population to work.
DETERIORATING TAX BASE

There is concern about the decline of the county and local government tax base. Development of the Site presents an opportunity to increase property and sales tax revenue from both Site activities and potentially from increased commercial, retail, and residential development.

DISTRIBUTION CENTER

Given the Site’s advantageous proximity to multiple modes of transportation, the site would be attractive as a regional warehousing, distribution, and/or fulfillment center (e.g., for Walmart, Amazon, or UPS). The location would easily allow goods to be brought in from within and outside of the country. Likewise, the nexus of three modes of shipping (barge, rail, and highway) would make this site attractive as a multimodal transfer facility for connecting regional suppliers with larger, even global, markets.

EDUCATIONAL RESEARCH FACILITY

One stakeholder is extremely interested in the use of the Site as an education research facility. The location near the river, as well as the 1,500 feet of river frontage, makes it a viable site to study stream healthy, hydrology, and conduct habitat ecosystem research. The location would allow for long-term monitoring of the land and water for use in student and faculty research. The use of the Site for education could tie to the business community and provide opportunities for an interpretive center and walking trails that would benefit the community.

ENERGY INDUSTRY

Given the history of industrial activity on the Site, it makes sense to revitalize the Site for new industrial use as opposed to trying to mitigate the land for another use. The county is one of the largest suppliers of natural gas and natural gas liquids (NGL) in the state, which drives much of its industrial activity. Target industries include natural gas and NGL processing facilities (e.g. fractionation), petrochemical manufacturing, and the industries that use such inputs to make industrial, commercial, and retail products that could range from hydrogen to plastic goods.

RECREATION

Recreation opportunities in the county could be increased. The only nearby state or national park is Ryerson Station State Park, located on the far western edge of the county.
### 3.4.1 Potential Uses

Based on the market analysis and key/recurring themes identified in interviews with industry leaders and a preliminary evaluation of site selection factors for the Site, the pool of potential uses was narrowed. The isolated location of the Site relative to the region’s commerce and population centers, combined with limited population growth and spending power in the vicinity of the Site, makes most residential and commercial uses infeasible from a market demand perspective. Conversely, the Site’s location and physical attributes make it a much more likely candidate for industrial or commercial development. The Potential End Use Feasibility chart below summarizes these findings.

<table>
<thead>
<tr>
<th>Potential End Use</th>
<th>Limited Feasibility</th>
<th>Potential Feasibility</th>
</tr>
</thead>
<tbody>
<tr>
<td>Single-Family Residential</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Multi-Family Residential</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Retail &amp; Restaurant</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Residential &amp; Commercial Mixed-Use</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hotel</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Office</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Medical Office</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Executive Office/Headquarters</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Agricultural</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Natural Gas Storage</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Natural Gas/NGL Processing</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Renewable Power Generation/Distribution</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Warehouse/Distribution/Fulfillment</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Multimodal Transfer</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Industrial/Manufacturing</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Energy-Enabled Manufacturing</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Plastics Manufacturing</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Educational</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Recreational</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The potential feasibility options listed above were “scored” in relation to location/market, site features, transportation, available utilities, and potential jobs created. Findings from this assessment are presented in Table 12.
### Table 12: Potential End Use Assessment

<table>
<thead>
<tr>
<th>Potential End Use</th>
<th>Evaluation Criteria</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Location/Market</td>
</tr>
<tr>
<td><strong>Low Potential</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Moderate Potential</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Strong Potential</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Industrial/Manufacturing</strong></td>
<td></td>
</tr>
<tr>
<td>Natural Gas/NGL Processing</td>
<td>3</td>
</tr>
<tr>
<td>Energy-Enabled Manufacturing</td>
<td>3</td>
</tr>
<tr>
<td>Large Industrial Park</td>
<td>2</td>
</tr>
<tr>
<td><strong>Commercial/Distribution</strong></td>
<td></td>
</tr>
<tr>
<td>Multimodal Transfer Facility</td>
<td>3</td>
</tr>
<tr>
<td>Warehousing/Distribution/ Fulfillment Center</td>
<td>2</td>
</tr>
<tr>
<td><strong>Renewable Energy Generation</strong></td>
<td></td>
</tr>
<tr>
<td>Solar Farm (with battery storage system)</td>
<td>2</td>
</tr>
</tbody>
</table>
4.0 Reuse Strategy Alternatives

The selected reuse strategy alternatives presented are the product of detailed market analysis and, more specifically, a Highest and Best Use Analysis. The purpose of the Highest and Best Use Analysis is to determine a suite of reasonable, probable, and financially feasible redevelopment option(s) for a site. For this Site, availability to trimodal access, vast acreage available for future development, access to waterfront, and use of existing improvements warrant future development considerations in three (3) primary areas:

- Industrial/Manufacturing
- Commercial/Distribution
- Renewable Energy Generation

As an example of the Highest and Best Use Analysis conducted for this playbook, TRC considered how to position the Site to leverage the types of downstream opportunities resulting from the Shell Pennsylvania Chemicals complex (described below) and the future steady supply of polyethylene in the region.

Royal Dutch Shell

Royal Dutch Shell is constructing an ethane cracker plant in Potter Township, Beaver County, approximately 80 miles north-northwest of the Site. The planned Shell Pennsylvania Chemicals facility is expected to make 1.6 million metric tons of plastic polyethylene pellets annually, which can then be used by other manufacturers to make bags, bottles, food packaging, films, and many other products. The facility will receive ethane by pipeline from natural gas facilities located throughout the Marcellus and Utica shale regions. Royal Dutch Shell’s planned polyethylene plant is within 700 miles of the majority of North American polyethylene buyers. Similar plants typically attract nearby relocation/siting of other manufacturers who utilize the petrochemical facility’s product to make commercial and consumer products.
A high-level summary for these primary areas follows. Detailed discussion for each viable option is presented further in this section.

**Industrial/Manufacturing Options**

The Site has many attractive advantages for locating an industrial production facility: human capital, good infrastructure, low energy costs, proximity to key markets, and supportive government institutions. The availability of polyethylene and proximity to the Shell Pennsylvania Chemicals facility and other petrochemical plants in the region could make plastics production a viable option for the Site.

**Commercial/Distribution Options**

The Site’s trimodal access provides a unique opportunity to receive, ship, or hold manufactured goods for transport on a global scale. With the advent of world-scale petrochemical plants, fractionation plants, pharmaceutical facilities, and other large installations, the movement of goods and equipment is at an all-time premium. This makes the Site suitable for inland port operations, multimodal facilities, or large, big-box distribution centers.

**Energy Generation Options**

Large areas of level or gently sloping south-facing sections of the property will exist following drainage and restoration of the various impoundment ponds throughout the Site. Development of a renewable energy solar farm within these areas is possible with minimal site grading and tree clearing. Inclusion of a battery energy storage system (BESS) will provide further advantage by improving reliability of the utility-scale solar power generating station.

<table>
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<th>INDUSTRIAL/MANUFACTURING</th>
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<th>ENERGY GENERATION</th>
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<td>Option 6: Solar Farm (with battery storage system)</td>
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The Site is located within the Marcellus and Utica shale region and is surrounded by thousands of natural gas wells. Many of the natural gas wells in this region are capable of producing both natural gas and associated natural gas liquids (NGL); namely ethane, propane, and butane. For these individual commodities to be economically useful, they must first be separated from the natural gas stream and then broken down into their individual components via the process of NGL fractionation, which is a series of processes that essentially remove liquid hydrocarbon elements based on their individual boiling points. The Site may be well-suited to host natural gas processing or NGL fractionation, which requires complex industrial operations and infrastructure development. Examples of both can be found in Pennsylvania.

It should also be noted that the Site’s size and location afford potential developers numerous additional opportunities associated with the abundance of natural gas and energy resources in the region surrounding the Site. These include propane dehydrogenation, the manufacture of hydrogen, methanol, ammonia fertilizer, and synthetic waxes. These industrial processes have a range of potential end uses and typically require natural gas as a feedstock.

**STRATEGY**

- Capitalize on existing regional and county pipeline infrastructure and river access for processing, manufacturing and/or distribution.
- Rely upon the size of the Site to host a major processing or manufacturing facility and still allow for supporting functions and industries.
Use readied local workforce to facilitate required staffing needs (150-500 full-time employees).

EXAMPLES
- Case Study: Energy Transfer’s Marcus Hook Industrial Complex: http://marinerpipelinefacts.com/about/marcus-hook/
- $5 billion in investment.
- Receives about 200,000 barrels of gas liquids a day

ADVANTAGES
- Plant would provide well-compensated jobs for trades and professional services.
- River provides significant opportunity to receive materials and distribute goods.
- Plant may be an incubator for other related businesses.
- Local work force is well suited for industrial occupations, and the local community would likely be supportive.

DISADVANTAGES
- Some infrastructure required for successful plant operations needs to be developed.
- If major rail is needed, additional investments will be required

ACTIONS FOR SPECIFIC ALTERNATE STRATEGY
- Evaluate the timing of the Shell Pennsylvania Chemicals and other potential future petrochemical facilities to better understand the polyethylene production schedule in the area.
- Identify required environmental permitting requirements for air and permitted storm water and industrial discharges.
- Meet with county and stakeholders to determine “appetite” for manufacturing plant development on the Site.
- Complete site development plans.
Royal Dutch Shell’s investment in Beaver County, Pennsylvania will help to ensure a future steady supply of polyethylene within the region and makes plastics manufacturing facility a viable option for numerous locations in the region, including the Site. The Site’s river access and access to the U.S. Inland Waterway System allows raw materials and finished goods to be shipped to and from the Site. Products manufactured from the Site can ultimately reach domestic and international receiving ports.

STRATEGY

- Capitalize on river access for material receipt and distributed goods.
- Use only a portion of the Site, allowing for future site development for related business and vendors.
- Use local workforce to facilitate required staffing needs (150-500 full-time employees).
EXAMPLES

- $35 million annual revenue.
- 26-acre plant footprint.
- 75 full-time employees.

ADVANTAGES

- Plant would provide well-compensated jobs for trades and professional services.
- River provides significant opportunity to receive materials and distribute goods.
- Plant may be an incubator for other related businesses.
- Local work force is well suited for industrial occupations, and the local community would be highly supportive.

DISADVANTAGES

- Infrastructure required for successful plant operations.

ACTIONS FOR SPECIFIC ALTERNATE STRATEGY

- Evaluate the timing of the Shell Pennsylvania Chemicals facility and other proposed NGL processing facilities to better understand the polyethylene production schedule in the area.
- Identify environmental permitting requirements for air and permitted storm water and industrial discharges.
- Meet with county and stakeholders to determine “appetite” for manufacturing plant placement on the Site.
- Complete site development plans.
Large industrial parks host both industrial and large commercial operations that are dependent on good road and rail access and located in reasonable proximity to current and prospective clients. By concentrating dedicated infrastructure (roadways, railroad sidings, ports, electric power supply, gas pipelines, sewer treatment works, high-end communications cables, and potable water supply) in a delimited area, the cost of building and operating a medium to large manufacturing or assembly facility can be reduced. Industrial parks tend to attract more skilled labor, which in turn attracts more manufacturers looking for sites where skilled labor is abundant.

STRATEGY

- Capitalize on the Site’s trimodal shipping capabilities.
- Envision and market separate building pads (20 to 100 acres).
- To the extent practical, concentrate on similar industrial facilities, such as assembly plants for agricultural and automotive parts suppliers to allow focus on commonly needed infrastructure and workforce training.
- Use local workforce to facilitate required staffing needs (150-500 full-time employees).

ADVANTAGES

- Multiple plants would provide a greater variety of well-compensated jobs for trades and professional services.
- Infrastructure build-out can be phased as the park fills out.
- River provides significant opportunity to receive materials and distribute goods.
- Local work force is well suited for industrial occupations, and the local community would be highly supportive.

**DISADVANTAGES**
- Infrastructure buildout required for successful plant operations.
- Up-front infrastructure costs are still significant with a longer timeline for putting the full property into use.

**ACTIONS FOR SPECIFIC ALTERNATE STRATEGY**
- Identify environmental permitting requirements for air and permitted storm water and industrial discharges.
- Meet with county and stakeholders to determine “appetite” for manufacturing plant placement on the Site.
- Complete site development plans.
This Site offers potential developers with unique trimodal access (highway, rail, and barge), a prerequisite for multimodal transfer operations (i.e., an inland port). Site suitability to support trimodal operations is immediately facilitated by two (2) large concrete loading and off-loading facilities utilized by former mining operations in concert with six (6) mooring cells for barge mooring.

Access to rail is available on site, and the Class I Mon-Line operated by Norfolk Southern is located across the river from the Site. Access to the Mon-Line is currently only available via boat/barge river crossing. Information obtained from the 2016 Southwestern Pennsylvania Regional Freight Plan indicates barge freight traffic along the Monongahela River is estimated to be 10-20 million tons annually, with an increasing trend year over year.

Currently, only three (3) primary inland ports operate in Pennsylvania. These ports are located in Erie, Philadelphia, and Pittsburgh. According to the Southwestern Pennsylvania Commission, the Port of Pittsburgh, which is located approximately 50 miles from the Site via river, receives 30-40 million tons of freight annually. A moderate percentage of this freight passes the Site along the Monongahela River. The Monongahela River also offers access to “megaregions” of the Northeast United States.

From the Port of Pittsburgh, the closest inland port operating in the region is the Port of Huntington-Tri-State located in Huntington, West Virginia, approximately 230 miles via river to the southwest.
STRATEGY

- Use existing Site infrastructure and riverfront access to capitalize on existing freight traffic.
- Expand operations across river to utilize the Class I Mon-Line, which provides access to Class I Rail throughout the United States.
- Improve Site access points to facilitate freight traffic via roadway.

EXAMPLES

- Case Study: Port of Pittsburgh, PA: https://www.portpitt.com/
- 20th Largest Port in U.S. by total trade.
- 30-40 million tons freight transported annually.
- 2,600 full-time employees.

ADVANTAGES

- Inland port operations would provide well-compensated jobs for trades and professional services.
- Promotes trade and attracts new tenants seeking distribution and/or storage of goods.
- Barge and rail are lower Transportation Equivalency Units (TEUs) than conventional road traffic, which increases volumes of goods distributed while reducing transportation costs.
- Could serve as a multimodal transfer and warehousing yard for future petrochemical plants in the region.

DISADVANTAGES

- Infrastructure required for successful multimodal transfer operations will require significant capital investments.

ACTIONS FOR SPECIFIC ALTERNATE STRATEGY

- Evaluate regional market with major distributors and large equipment manufacturers requiring barge transportation.
- Complete feasibility study to include estimate on capital investment required.
- Seek potential funding opportunities and guidance from port-related programs such as the U.S. Department of Transportation’s (DOT’s) Maritime Administration Port Infrastructure Development Program.
- Discuss impact to community with local officials and shareholders, including Port of Pittsburgh Commission.
Similar to Option 4: Multimodal Transfer Facility, the Site’s trimodal access and location are also suitable to support big-box warehousing and distribution center(s). As retail shopping in traditional “brick and mortar” business decline, the country has seen a surge in large distribution centers to support new consumer buying trends. In Central and Southwest Pennsylvania, the following Fortune 500 companies have established warehousing, distribution, and/or fulfillment centers:

- Amazon
- FedEx
- Coca-Cola
- Pepsi
- Giant
- Ross
- NAPA Auto Parts
- Chewy
- Home Depot
- Supervalu
- Overstock.com
- Whirlpool
- Pfizer
- Bath & Body Works
- Cabela’s

STRATEGY

- Capitalize on Site’s trimodal access capabilities.
- Leverage competitive “cost of living” in Greene County to Fortune 500 companies and potential developers.
- Use local workforce to facilitate required staffing needs (150-500 full-time employees).
EXAMPLES
- 441-acre business park in Bethlehem, PA.
- Multiple buildings between 350,000 – 1.95 million square feet.
- Currently hosts distribution centers for Crayola, Wal-Mart, and McKesson.
- Property has history of industrial use as it formerly belonged to Bethlehem Steel Co.
- Intermodal transportation access.

ADVANTAGES
- Distribution center would provide well-compensated jobs for trades and professional services.
- Barge and potential rail access likely to attract larger wholesale distributors.
- Successful distribution centers spawn regional distribution hubs, facilitating additional job growth and increasing tax base.

DISADVANTAGES
- Infrastructure required for distribution center will require significant capital investment.
- Site may be located too far from a major interstate for some distributors.

ACTIONS FOR SPECIFIC ALTERNATE STRATEGY
- Market Site’s trimodal access, low energy costs, and competitive “Cost of Living” in Greene County to Fortune 500 companies and potential developers.
- Complete Site development plans to identify “Pad-Ready” areas for future Site locations.
- Discuss impact to community with local officials and shareholders.
In recent years, solar energy has been ramping up to contribute to a more diverse power grid. Demand by electric utilities and corporate energy consumers for renewable energy is being met by solar site development. The Site has unique characteristics that fit well with providing large, utility-scale solar operations. The northern section of the property, in the areas of existing Ponds 4, 5, and 6, offers approximately 140 acres of reclaimable land once the ponds are drained and regraded. This area alone could support about 30 MW of photovoltaic (PV) generated electricity on fixed-tilt arrays without expanding into existing forested areas or onto the strip mine area immediately to the north. The lower developable area along the Monongahela River would offer about 60 acres of buildable area that could yield another 15 MW of electricity. If solar is developed into the 125-acre strip mine area (i.e., Border Energy Permitted Area), an additional 25 MW of output could be added. The preliminary total available output on all sections sums up to 70 MW.

Solar array pile foundations will most likely be suitable if corrosion and settlement design warrant, potentially requiring less soil amendment to achieve compaction goals for Site development. Ballasted systems would also work, given the relative flat terrain of these areas following pond reclamation/regrading. Visual line of sight from PA-88 and Alicia Road will not reveal solar panels in these areas.

As previously noted, the Hatfield’s Ferry substation is located about 2.7 miles away, along Rt. 88 and Rt. 21 at the former Hatfield’s Ferry Power Station. The Hatfield’s Ferry substation could be a logical grid interconnection point for nearby energy development.
Battery storage is a technology that enables power system operators and utilities to store energy for later use. A battery energy storage system (BESS) is an electrochemical device that charges (or collects energy) from a power plant and then discharges that energy at a later time to provide electricity when needed. Combining a BESS with a utility-scale solar farm at the Robena Site will enable the Site to generate and deliver renewable energy when it is most valuable, improving the reliability and sustainability of the area’s power grid.

Additionally, distributed on-site energy generation could also be provided for future Site tenants. This concept may be particularly attractive to technology or software companies and data centers desiring to power a portion of their site operations with a commercial-grade solar farm. This concept could also lead to the advent of a “technology incubator,” where like firms who have made commitments for green power to be utilized in the generation portfolio reside in a central area or hub. A list of these firms is provided in the Examples subsection below.

**STRATEGY**

- Determine solar photovoltaic viability.
- Work with prospective solar developers to better understand their interest and feasibility of solar + battery storage option.
- Create educational partnerships to use facility for construction, operations, and maintenance training.
- Create a hybrid reuse option to include solar development on the Site to support commercial/industrial development on another section of the Site.
- Develop innovative “technology incubator” or hub concept.

**EXAMPLES**

- Solar development on Coal Ash Ponds (similar to CRDA impoundment ponds):
  - [https://www.co.greene.pa.us/news-greene-county-commissioners-announce-70-megawatt-solar-facility](https://www.co.greene.pa.us/news-greene-county-commissioners-announce-70-megawatt-solar-facility) (Solar Farm approval by Greene County BCC)
- Case Study: [https://www.epa.gov/greenpower/green-power-partnership-national-top-100](https://www.epa.gov/greenpower/green-power-partnership-national-top-100)

**ADVANTAGES**

- An existing grid connection point is relatively close by (2.7 miles to the north).
- Promotes growth of renewable energy in the area.
- Solar arrays/panels have very low environmental impact.
- PV system site development costs are lower than most other reuse options and often are incentivized with tax credits.
- Creates an incubator for a regional technology hub.
- Increased potential for future workforce in software development, management, and related jobs.
- Some firms may be able to finance the solar farm.
DISADVANTAGES

- Few permanent jobs created relative to other options (unless incorporated into a regional technology hub).
- Land development and interconnection costs may be relatively high.
- The available buildable area for solar development without substantial grading and deforestation is limited to only 10% of the entire Site.
- Land development and interconnection costs may be relatively high for a 70-MW facility.

ACTIONS FOR SPECIFIC ALTERNATE STRATEGY

- Establish specific design characteristics for assessment of PV array foundation types.
- Assess combination of solar development with other primary reuse options.
- Determine availability of additional on-site land to include in buildable area footprint.
- Explore options for a Purchase Power Agreement (PPA) with potentially interested entities.
- Identify candidate firms from the U.S. Environmental Protection Agency’s (EPA’s) Green Power Partnership (EPA-GPP). These firms (>1,300) have made a commitment to power via renewable energy and make similar investments moving forward.
- Create and deploy a marketing campaign to target the top 25 firms within the EPA-GPP.
Cost Estimates for Future Site Use
5.0  Cost Estimates for Future Site Use

KEY HIGHLIGHTS

- Three Primary “Pad” Areas developed to maximize redevelopment options
- Material onsite utilized, where possible, to minimize associated costs
- Rough Order of Magnitude Estimates provided with scope overview and estimated project duration

In order to prepare the Site for end use, three (3) viable pad areas have been identified. Costs and relevant scope of work associated with preparing these discrete areas for “Pad-Ready” use is presented in the proceeding subsections for Pads A and B. Since the owner has continuing obligations for a portion of Pad C, no development estimate has been prepared for that area. The following is a brief description of these pad areas.

**Pad Area A:**
Approximate 611-acre tract located east of PA-88, to support larger site operations.

**Pad Area B:**
Four (4) smaller strategically located pads (Pad B1 to Pad B4) are located within or adjacent to the Pad Area A and are collectively referred to as the Pad Area B. Pads B1 to B4 range from approximately 20 to 100 acres. The initial pads are designed to be “incubators,” to support multiple operations or a single operation at multiple areas. The pads can be constructed simultaneously or in phases.

**Pad Area C:**
Approximate 50-acre tract located west of PA-88. This pad could be used for separate site operations or as a transitional/lay down area for Pad Area A or B construction activities. Note, the remainder of the tract west of PA-88 is currently used to house the Colvin AMD wastewater treatment plant. As a result, the balance of this tract was not evaluated for further development at this time.

Pad areas are depicted on Figure 6. Information regarding pad geometry, cut/fill volumes, scope, estimated costs, and schedule are provided below. High-level cost estimates are provided in Appendix C.

These pad areas are conceptual. Additional areas may be viable, as future development moves forward. The conceptual elevations of Pads A, B, and C are believed to be above the 1% Annual Chance Flood (i.e., 100-year Flood) elevation; further evaluation of the potential for flooding of building sites and roadways/rail should be included in development of a Reclamation/ Redevelopment Conceptual Plan for the Site. This evaluation will likely require evaluation of the most current flood elevation data for the site and topographic detail of the site (most likely available through the USGS or other sources).
Figure 6. Conceptual Pad Layout
Pad Area A

Pad Geometry and Volumes

Area: ~357 Acres (developable area)
Cut Volume: 28,880,512 CY
Fill Volume: 28,632,904 CY
Final Grade: EL 905.0

CY – Cubic Yards
EL – Elevation AMSL

Scope

1. Decant Free Water
2. Excavate North Pond Area
3. Fill South Pond Area
4. Grade and Compact

Estimated Cost and Schedule*

Costs: $95.4M
Schedule (Days): 610

*Detailed Cost information provided as Appendix C.
Pad B Area: Pad B1 Details

Pad Geometry and Volumes

Area: ~151 Acres
Cut Volume: 1,075,754 CY
Fill Volume: 1,023,119 CY
Final Grade: EL 902.5

CY – Cubic Yards
EL – Elevation AMSL

Scope

1. Decant Free Water
2. Excavate North Pond Area
3. Fill South Pond Area
4. Grade and Compact

Estimated Cost and Schedule*

Cost: $5.4M
Schedule (Days): 270

*Detailed cost information provided as Appendix C.
**Pad B Area: Pad B2 Details**

**Figure 6-5. Pad B2 Conceptual Cut-Fill Map**

**Pad Geometry and Volumes**
- Area: ~76 Acres
- Cut Volume: 867,570 CY
- Fill Volume: 40,005 CY
- Final Grade: EL 790.0

**Scope**
1. Excavate and Stockpile
2. Fill Northeast Area
3. Grade and Compact

**Estimated Cost and Schedule**
- Cost: $3.7M
- Schedule (Days): 234

*Detailed cost information provided as Appendix C.*
Pad B Area: Pad B3 Details

Pad Geometry and Volumes

Area: ~21 Acres  
Cut Volume: 122,538 CY  
Fill Volume: 949,847 CY  
Final Grade: EL 1,007

CY – Cubic Yards  
El. – Elevation AMSL

Scope

1. Excavate Southern Area  
2. Partial Fill North Area  
3. Complete North Area Fill with Pad A1  
  Stockpile Fill  
4. Grade and Compact

Estimated Cost and Schedule*

Cost: $2M  
Schedule (Days): 225

* Detailed cost information provided as Appendix C.
Pad B Area: Pad B4 Details

Pad Geometry and Volumes

Area: ~27 Acres
Cut Volume: 27,170 CY
Fill Volume: 60,909 CY
Final Grade: EL 1,007

CY – Cubic Yards
El. – Elevation AMSL

Scope

1. Excavate Southern Area
2. Fill North Area
3. Grade and Compact

Estimated Cost and Schedule*

Cost: $2M
Schedule (Days): 175

*Detailed cost information provided as Appendix C.

Figure 6-9. Pad B4 Conceptual Cut-Fill Map

Figure 6-10. Pad B4 Conceptual Cross Section A-A'
Recommended Actions & Schedule
6.0 Recommended Actions & Schedule

6.1 Recommended Actions & Schedule

The purpose of this section is to recommend a market-responsive path forward as a means for moving the Site toward successful redevelopment as a viable business enterprise in the near term.

Considering input from numerous stakeholders and relying upon data collected for this playbook, the TRC team has identified three (3) leading areas for reclamation and reuse for the Former Robena Coal Refuse Area:

1. Industrial/Manufacturing
2. Commercial/Distribution
3. Renewable Energy Generation

From the information provided here, the Site is best suited for reuse either as an industrial site serving the natural gas and petrochemical-related sectors or as a multimodal transfer facility (either as a new inland port or as a feature of a large regional distribution center). This conclusion is based on future petrochemical market growth, the proximity of the site to both Northeast and Midwest U.S. markets for goods, the Site's river access with barge loading/unloading capabilities, available work force, and feedback from key stakeholders. Though fewer job opportunities might result, the Site is also well suited for use as a renewable energy generation site due to the available acreage and proximity to a potentially suitable grid connection point at the nearby former Hatfield's Ferry Power Station.

The industrial/manufacturing and commercial/distribution options capitalize on the ability to transport large volumes of goods and/or large equipment to and from the Site. All three options present an opportunity to create a well-compensated, large workforce, sustainable tax base, and a catalyst for complimentary industry in the area.

In order to successfully position the Site for redevelopment, a two-phase “pre-redevelopment” strategy is recommended, as is further detailed below.

6.1.1 Phase I: Permit Termination and Land Use Transition

Before a prospective user could develop the Site, CONSOL’s Coal Refuse Disposal Activity (CRDA) Permit would need to be terminated. Details for this procedure, per 25 PA Code Chapter 90, relevant to the transitioning of the land use, is provided below. Appendix D contains a copy of the Consent Order, and Appendix E includes a copy of 25 PA Code Chapter 90.

Pennsylvania and federal mining laws and regulations require mine operators to restore sites to either the pre-mining land use or a “higher and better” post-mining use. The Robena property was used for decades for coal cleaning, shipping, and coal refuse disposal operations. While many closure activities have been completed, notably the demolition and removal of the coal preparation plant and various transloading facilities, not all reclamation activities have been completed. The mining permits remain in force. CONSOL remains liable to complete surface...
reclamation activities, seal boreholes, and demolish structures. The state continues to hold over $7 million in bonds posted by CONSOL to ensure this reclamation is completed.

The state-approved, post-mining land use for the property is “Pastureland/Land Cut Occasionally for Hay”. However, Pennsylvania’s mining laws allow for changes in post-mining land uses. Once plans for industrial development of the Site are in place, an application can be made to the state to revise the permitted Reclamation Plan. If, following a public comment period and review, the application is approved, then the remaining reclamation bonds can be released, and the permits would be terminated.

The criteria for approval of an alternate, post-disposal land use are:

- A written statement from the authorities with statutory responsibilities for land use policies and plans that the industrial or commercial use is compatible with adjacent land use and applicable land use policies, plans, and programs and federal, state, and local law. Any required approval, including any necessary zoning changes, needs to have been obtained before submitting a request for an alternate land use.

- Specific and feasible plans must be submitted that show financing, attainment, and maintenance of the industrial use is probable.

- The proposed industrial use must not present an actual or potential threat to public health or safety or of water diminution, interruption, contamination, or pollution.

- The use must not involve unreasonable delays in reclamation.

- The appropriate state and federal fish and wildlife management agencies must have been provided the opportunity to review measures to prevent or mitigate adverse effects on fish, wildlife, and related environmental values and threatened or endangered plants.

### 6.1.2 Phase II: Develop Reclamation/Redevelopment Conceptual Plan

Site reclamation activities will commence after approval of the Site Reclamation Plan. Currently, this plan is designed to guide “typical” CRDA closure activities and does not account for immediate redevelopment. Streamlined reclamation and redevelopment would allow planned reclamation activities to occur in a manner that facilitates site redevelopment. This process would require a modification to the CRDA closure approval. Upon approval, the aforementioned “pad” areas could be developed as part of reclamation, which would expedite redevelopment.

Also, critical to be completed during this phase is the confirmation of the approved closure of the USTs (refer to Section 2.3).

Accomplishing this two-stage approach expedites redevelopment by administratively and physically preparing the Site for future redevelopment, while simultaneously creating a partnership with the commonwealth, Greene County, CONSOL, and an invested and informed end user.
6.2 DCED & Local Community Economic Development Action Items

The process presented above will accelerate the favorable positioning and preparation of this Site. Potential developers and/or industrial site selectors will be more likely to proceed and invest in an opportunity that is supported by the community, well positioned with regulatory agencies for approval of the proposed reuse and prepared for action.

The following five (5) actions are designed to achieve a “Ready-to-Go” posture for effective presentation of the Site to the marketplace:

1. **Continue to Prioritize the Robena Site for Redevelopment**

   DCED should work with CONSOL, local economic development organizations, and state and federal agencies to advocate priority consideration for redevelopment of this site. This can also include prioritization of state and federal funding opportunities.

2. **Begin Marketing the Playbook to Highlight Redevelopment Opportunities**

   Soft marketing, such as word-of-mouth, can begin as soon as the Robena Playbook is published. A more formal marketing campaign will be most effective if coordinated among state and regional economic development entities. The report should be made widely available among the real estate and development community, published on DCED’s website, and further promoted as a unique approach that the commonwealth is taking to prioritize brownfield redevelopment in coal-impacted communities. Eventually, prospective end user(s) with the financial means and necessary resources to complete redevelopment should be identified.

3. **Consider the Creation of a “Project Steering Committee (PSC)”**

   Formation of a PSC will provide a forum for discussion and cohesive decision making and will enable the redevelopment initiative to speak with one voice in the marketplace. The PSC could be as formal as needed for it to be productive for the participants. A key goal of the PSC is the ability to present a unified face to the marketplace. A PSC Redevelopment Plan clearly defining roles, responsibilities, and expectations for each party involved may be useful to draft during this phase.

4. **PSC Develops Streamlined Permitting & Entitlements Process for Subject Site Include Permit Transfer (CRDA to Industrial)**

   A key selling point to the redevelopment strategy will be a transparent, cohesive process for regulatory approvals and entitlements. A key function of the PSC should be to work collaboratively with federal, state, and local regulators to create a process that is efficient, visible, and readily accessible to the due diligence efforts of industrial site selectors and developers. Discussions with regulatory agencies regarding the permit termination and transfer process could be initiated during this phase.

5. **Support Engineering and Design Studies to Determine Cost and Feasibility of Site Improvements**

   The Robena Site will require detailed engineering and design studies to determine the amount of transportation access and site development work required to get the Site to a “pad-ready” stage of development. Elements of this step include identifying eligibility prerequisites for securing state/federal funding and identification of the steps, cost, and schedule needed to prepare suitable and pre-selected areas of the Site for future development.
Once a potential developer is identified and ready to proceed, the PSC and developer would draft and agree to a Reclamation-Redevelopment Conceptual Plan, which is a mutual understanding of expectations. This Plan will include a shared scope of services, schedule, and any cost-sharing agreed to by all parties involved. The permit transfer and termination process initiated earlier should be completed and approved during this phase and before execution of a binding agreement.

Subsequently, a Purchase Agreement should be drafted and executed. Site infrastructure and facility design would then occur on a variety of timelines, ranging from a fast-track process with separate design/construction packages, to a single design/construction package. Depending on project complexity and assuming a streamlined regulatory process, a design/construction time period could range from 12 to 24 months.

6.3 Funding Options

There exists potential for available federal and state grant funding for the Robena CRDA site through many diverse funding sources from the Appalachian Regional Commission and other federal agencies to the Commonwealth of Pennsylvania and additional local funding sources. The following grant and loan programs are examples of the different funding sources, but do not comprise a comprehensive listing. Certain programs, such as the ARC’s Area Redevelopment Program, are complementary and applicable to all the reuse strategies described in this playbook (namely, a Future Industrial/Manufacturing Facility; a Future Commercial/Distribution Facility; and a Future Renewable Generation Complex). Other programs, such as the USDA Rural Development’s REAP Program, are better aligned to individual reuse options.

The following potential grant and loan funding programs match the objectives found in Reuse Strategies A, B, and C to present-day available funding. Developers should plan to work with the following administering agencies to determine funding availability and capitalize on federal, state, and local funding opportunities.

**Rural Energy for America Program (REAP) Energy Audit & Renewable Energy Development Assistance Grants**

**Federal Grant**

**Administering Agency:** U.S. Department of Agriculture (USDA) Rural Development

**Eligible Applicants:** State and local governments; Federally-recognized tribes; A land-grant college or university or other institutions of higher education; Rural electric cooperatives; Public power entities; An instrumentality of a state, tribal or local government; and a Resource Conservation & Development Council (as defined in 16 USC §3451).

**Uses:** Energy audits; Renewable energy technical assistance; and Renewable energy site assessments.

**Grant Amount:** The maximum aggregate amount of an energy audit and REAP grant in a Federal fiscal year is $100,000.

**Notes**

This program strengthens American energy independence by increasing the private sector supply of renewable energy and decreasing the demand for energy through energy efficiency improvements. Over time, these investments can also help lower energy costs for small businesses and agricultural producers.
**ARC Area Development Program**

**Federal Grant**

**Administering Agency:** Appalachian Regional Commission (ARC)

**Eligible Applicants:** State and local agencies and governmental entities, local governing boards, and nonprofit organizations. Indian tribes and higher education institutions are also eligible. ARC does not award grants to individuals or for-profit entities.

**Uses:** Economic Opportunities; Ready Workforce; Critical infrastructure; Natural and Cultural Assets; and Leadership/Community Capacity.

**Amount:** 30%-70% of project cost, depending on the county. Greene County is considered “Transitional” (50% of project costs).

**Notes**

The priorities for investment of ARC resources are established to accomplish five long-term, strategic goals for Pennsylvania’s economy:

- **GOAL 1:** Economic Opportunities. Invest in entrepreneurial and business development strategies that strengthen Appalachia’s economy.
- **GOAL 2:** Ready Workforce. Increase the education, knowledge, skills, and health of residents to work and succeed in Appalachia.
- **GOAL 3:** Critical Infrastructure. Invest in critical infrastructure—especially broadband; transportation, including the Appalachian Development Highway System; and water/wastewater systems.
- **GOAL 4:** Natural and Cultural Assets. Strengthen Appalachia’s community and economic development potential by leveraging the region’s natural and cultural heritage assets.
- **GOAL 5:** Leadership and Community Capacity. Build the capacity and skills of current and next-generation leaders and organizations to innovate, collaborate, and advance community and economic development.

**Partnerships for Opportunity and Workforce and Economic Revitalization (POWER) Grant**

**Federal Grant**

**Administering Agency:** Appalachian Regional Commission (ARC)

**Eligible Applicants:** Local development districts, states, counties, cities, and other units of government, institutions of higher education, public/private nonprofit organizations, and associations.

**Uses:** ARC’s POWER initiative focuses on investments that are regional, strategic, transformational, and that maximize economic revitalization in Appalachia’s coal-impacted communities.

**Amount:** Grants range from $400,000 to $1.5 million.

**Notes**

POWER investment priorities include: (A.) Building a competitive workforce; (B.) Enhancing access to and use of broadband services; (C.) Fostering entrepreneurial activities; (D.) Developing industry clusters in communities; (E.) Strengthening substance abuse response.

**Community Connect Grant Program**

**Federal Grant**

**Administering Agency:** U.S. Department of Agriculture (USDA) Rural Development

**Eligible Applicants:** State and local governments, federally recognized Tribes, nonprofits, for-profit corporations, and limited liability companies.

**Uses:** Broadband Internet Connectivity for areas without sufficient service or coverage

**Grant Amount:** Grants range from $100,000 to $3,000,000, per project.

**Notes**
The Community Connect Grant Program provides financial assistance to eligible applicants that will provide service at or above the Broadband Grant Speed to all premises in rural, economically challenged communities where broadband service does not exist. The deployment of broadband services on a “community-oriented connectivity” basis stimulates economic development and provides enhanced educational and health care opportunities in rural areas.

Key grant focus areas include:

- Achieving e-Connectivity for Rural America
- Developing the Rural Economy
- Harnessing Technological Innovation
- Supporting a Rural Workforce
- Improving Quality of Life

**Better Utilizing Investments to Leverage Development (BUILD), Transportation Grants Program (formerly TIGER)**

**Federal Grant**

**Administering Agency:** U.S. Department of Transportation (USDOT); Federal Transit Administration (FTA)

**Eligible Applicants:** State, local and tribal governments, transit agencies, port authorities, metropolitan planning organizations (MPOs), and other political subdivisions of State or local governments.

**Uses:** The grant funds investments in transportation infrastructure, funding transportation-focused, economic-generating projects in communities across the country.

**Grant Amount:** For the 2020 BUILD Transportation grants, the maximum grant award was $25 million, and no more than $100 million was awarded to a single State.

**Notes**

U.S. DOT’s Better Utilizing Investments to Leverage Development (BUILD) Transportation Discretionary Grants program funds investments in transportation infrastructure, including transit. BUILD Transportation grants replace the Transportation Investment Generating Economic Recovery (TIGER) grant program. Funding for 2021 and subsequent years has not been announced yet and the 2020 application period has now closed.

**Port Infrastructure Development Program (PIDP) Grant**

**Federal Grant**

**Administering Agency:** U.S. Department of Transportation (USDOT); Maritime Administration

**Eligible Applicants:** Port authorities, state, local and tribal governments, metropolitan planning organizations (MPOs), a special purpose district with a transportation function, and other political subdivisions of State or local governments.

**Uses:** PIDP grants focus on the establishment of port and intermodal improvement programs to improve the safety, efficiency or reliability of the movement of goods through ports and intermodal connections to ports. USDOT provides grants for port and intermodal infrastructure-related projects. Discretionary grants are provided to improve the safety, efficiency, or reliability of the movement of goods into, out of, around, or within coastal seaports, inland river ports, or Great Lakes ports.

**Amount:** For the 2020 PIDP grants, USDOT allotted up to $225 million to projects that improve facilities within or connecting to coastal seaports, inland river ports, and Great Lakes ports. The minimum PIDP grant award size was $1 million with no maximum award size (limited only by availability of funds).
Notes
USDOT imposed some restrictions on PIDP awards in 2020: 1) No more than 25 percent (25%) of the available funds ($56.25 million) was awarded to a single State; (2) At least $200 million was reserved for coastal seaport projects or Great Lakes port projects; (3) $56.25 million was reserved for projects requesting exactly $10 million in PIDP funds; and (4) No more than $22.5 million was awarded for development phase activities that do not result in construction. Funding for 2021 and subsequent years has not been announced yet and the 2020 application period has now closed.

Industrial Site Reuse Program (ISRP)
State Grant & Loan
Administering Agency: Pennsylvania DCED; Pennsylvania Department of Environmental Protection (PA DEP)
Eligible Applicants: Municipalities, counties, municipal authorities, redevelopment authorities, economic development agencies, private companies, and investors/developers.
Uses: Funds may be used to conduct Phase 1 Environmental Site Assessments, Phase II, and III Environmental Site Assessments for the removal and remediation of hazardous substances and contaminants, and for the remediation of nonhazardous waste and debris.
Amount: The maximum amount for any assessment project will not exceed 75% of the total cost of the assessment, or $200,000 (whichever is less), in a single fiscal year. The maximum amount for any remediation project will not exceed 75% of the total cost of remediation, or $1 million, for grant recipients, whichever is less, in a single fiscal year.
Grant Terms: The interest rate on all Industrial Sites Reuse Loans will be 2%. Loans used for assessments shall not exceed 5 (five) years. The term for loans for remediation will depend on the nature and duration of remediation measures but will not exceed 15 (fifteen) years.
Notes
The ISRP program provides grants and low-interest loans for environmental assessments and remediation. The program is designed to foster the cleanup of environmental contamination at industrial sites; thereby bringing blighted land into productive reuse.

Business in our Sites Grants and Loans (BIOS)
State Grant & Loan
Administering Agency: Pennsylvania DCED
Eligible Applicants: Municipalities, municipal authorities, redevelopment authorities, industrial development agencies, and private developers.
Uses: All site development activities required to make a site shovel-ready. This program is for speculative projects only. Funds cannot be used for projects that are primarily residential or recreational. Sites must be previously used property or undeveloped property that is planned and zoned for development.
Amount: BOS Loans have no minimum or maximum amount. BOS grants may not exceed $4,000,000 or 40% of the total combined grant and loan award.
Notes
Loans will be repaid over a period not to exceed 20 (twenty) years. The interest rate for the loan will be 2% or 3%, depending on the unemployment rate of the county where the project is located when the Commonwealth Financing Authority (CFA) is in a first lien position. If the CFA is in a subordinate lien position, the interest rate will be 8% or 9%, based on the unemployment rate of the county where the project is located.
Redevelopment Assistance Capital Program (RACP)

**State Grant**

**Administering Agency:** Pennsylvania Governor's Office of the Budget  
**Eligible Applicants:** Local units of government, public authorities, local development districts, and industrial development agencies  
**Uses:** For the acquisition and construction of regional economic, cultural, civic, recreational, and historical improvement projects  
**Amount:** Grants are available for projects of at least $1,000,000  

**Notes**
RACP projects are authorized in the Redevelopment Assistance section of a Capital Budget Itemization Act, have a regional or multi-jurisdictional impact, and generate substantial increases or maintain current levels of employment, tax revenues, or other economic activity. RACP projects are state-funded and cannot obtain primary funding under other state programs.

PA DCED/CFA Multimodal Transportation Fund Program

**State Grant**

**Administering Agency:** Pennsylvania DCED; Pennsylvania Commonwealth Financing Authority (CFA)  
**Eligible Applicants:** Municipalities, councils of governments, businesses, economic development organizations, public transportation agencies, and rail/freight ports  
**Uses:** Funds may be used for the development, rehabilitation, and enhancement of transportation assets in existing communities, streetscape, lighting, sidewalk enhancement, pedestrian safety, connectivity of transportation assets, and transit-oriented development.  
**Amount:** Grants are available for projects with a total cost of $100,000 or more. Grants will not exceed $3,000,000 for any project.  

**Notes**
The Multimodal Transportation Fund provides grants to encourage economic development and ensure that a safe and reliable system of transportation is available to the residents of the commonwealth. Specifically, the program is intended to provide financial assistance to improve transportation assets that enhance communities, pedestrian safety and transit revitalization. The program will be administered by the DCED under the direction of the CFA.

PennDOT Multimodal Transportation Fund Program

**State Grant**

**Administering Agency:** Pennsylvania Department of Transportation (PennDOT)  
**Eligible Applicants:** Municipalities, councils of governments, businesses, non-profits, economic development organizations, public transportation agencies, Transportation Management Associations, ports and rail freight entities.  
**Uses:** Funds may be used for the development, rehabilitation, and enhancement of transportation assets in existing communities, streetscape, lighting, sidewalk enhancement, pedestrian safety, connectivity of transportation assets, and transit-oriented development.  
**Amount:** Grants are available for projects with a total cost of $100,000 or more. Grants will not normally exceed $3,000,000 for any project. Consideration will be given to projects with costs over $3,000,000 should they significantly impact PennDOT's goal of creating jobs and leveraging private investment.  

**Notes**
Only four types of projects are eligible for the grant funds: (1) projects which coordinate local land use with transportation assets to enhance existing communities; (2) projects related to...
streetscapes, lighting, sidewalk enhancement and pedestrian safety; (3) projects improving connectivity or utilization of existing transportation assets; and (4) projects related to transit-oriented development. Although only one application can be submitted per project, applicants can submit any number of projects for consideration. Additionally, local funding in an amount not less than 30% of the amount awarded is required.

**Business & Industry Loan Guarantees**

**Federal Loan Guarantee**

**Administering Agency:** USDA Rural Development

**Eligible Applicants:** Federal or state-chartered banks, savings & loan companies, farm credit banks, and credit unions. Qualified Businesses: For-profit or nonprofit businesses, cooperatives, federally recognized Tribes, public bodies, and individuals.

**Uses:** Business conversion, enlargement, repair, modernization, or development; purchase of land, buildings, and facilities; purchase of equipment, leasehold improvements, machinery, supplies, or inventory; debt refinancing when refinancing improves cash flow and creates or saves jobs; business and industrial acquisitions when the loan will create or save jobs.

**Amount:** Loans: 80% for loans of $5 million and less; 70% for loans between $5 and $10 million; 60% for loans exceeding $10 million, up to $25 million maximum.

**Notes**

Loan terms vary by use. The maximum term on real estate is 30 (thirty) years, while the maximum term on machinery or equipment is its useful life, or 15 (fifteen) years, whichever is less. The maximum term on working capital is not to exceed 7 (seven) years. Loans must be fully amortized; balloon payments are not permitted. Interest-only payments may be scheduled in the first 3 (three) years.

**Electric Infrastructure Loan & Loan Guarantee Program**

**Federal Loan & Loan Guarantee**

**Administering Agency:** USDA Rural Utilities Service

**Eligible Applicants:** State and local government entities, federally recognized Tribes, nonprofits including cooperatives and limited dividend or mutual associations, and for-profit businesses (must be a corporation or LLC).

**Uses:** Maintenance, upgrades, expansion, replacement of distribution, sub-transmission and headquarters (service or warehouse) facilities, energy efficiency, and renewable energy systems.

**Amount:** Loan guarantees of up to 100% allow the Federal Financing Bank to extend credit to qualified borrowers in rural areas. All of the construction work can be financed. Hardship loans may also be used, at the discretion of the RUS, to assist applicants in rural areas that are either economically distressed or recovering from an unavoidable event, such as a natural disaster.

**Notes**

Loan Guarantees and Treasury Rate Loans are fixed at the time of each advance based on rates established daily by the United States Treasury, plus 1/8th of 1%. Hardship Loan interest rates are fixed at 5% for up to 35 years. All facilities receiving federal financing must be used for a public purpose. Partnerships with other federal, state, local, private, and non-profit entities are encouraged.
7.0 Playbook Guide

Site Attributes, Assets, and Constraints Summary
- Large tracts (2) consisting of the former Robena Coal and Robena Surface Mine.
- Excellent river and road access with potential for rail.
- Power plant, Class I rail, and interstate access located within a 20-mile radius.
- Mine reclamation activities currently planned for the Site, pending regulatory approval.

Market Analysis Summary
- Greene County has a relatively young population with 41.1% of the population under the age of 35.
- The mining, quarrying, and oil and gas extraction industry employs the greatest number of individuals in Greene County.
- Greene County is a pro-growth community with a strong interest in family-sustaining jobs being created from redevelopment of the Site.

Reuse Strategy Alternatives Summary
- Six vetted and viable options for redevelopment:
  - Industrial/ Manufacturing Use
  - Commercial/Distribution Use
  - Energy Generation Use

Cost Estimates for Future Site Summary
- Three (3) “Pad Ready” areas.
- Conceptual scope.
- Estimated costs.
- Approximate schedule.

Recommended Actions and Schedule Summary
- Work with regional development entities to prioritize this Site for redevelopment.
- Continue coordination and collaboration with developers.
- Roll-out and market the Playbook and energy-intensive development opportunities.
- Support engineering and design studies to determine the cost and feasibility of improved vehicular access to the Site.
- Develop a multi-phased and multi-layered funding strategy to improve transportation access and foster redevelopment.
- Coordinate with various state and federal agencies on permit approvals required for redevelopment.
Appendix

BUDGETARY COST ESTIMATE
Appendix

POST-MINING DISCHARGE TREATMENT TRUST CONSENT ORDER & AGREEMENT