

Shale Gas Industry's Role in Sustainable Community Development

Moderator: April A. Showers, AICP, JMT

Presenter: Michael T. Donovan, Seneca Resources

Presenter: James R. Daley, PMP, Greenhorne & O'Mara, Inc.

- Speaker Introductions
- Marcellus Shale Coalition & Industry Overview & History
- Recommended Practices for Site Planning, Development and Restoration for Production and Transmission Facilities
- Land Recycling & site Reuse/Redevelopment/Repurposing for Industry Support Operations & Businesses
- Status of the Industry
- Input from Planners – How can we enhance collaboration between Planning Community and Industry?

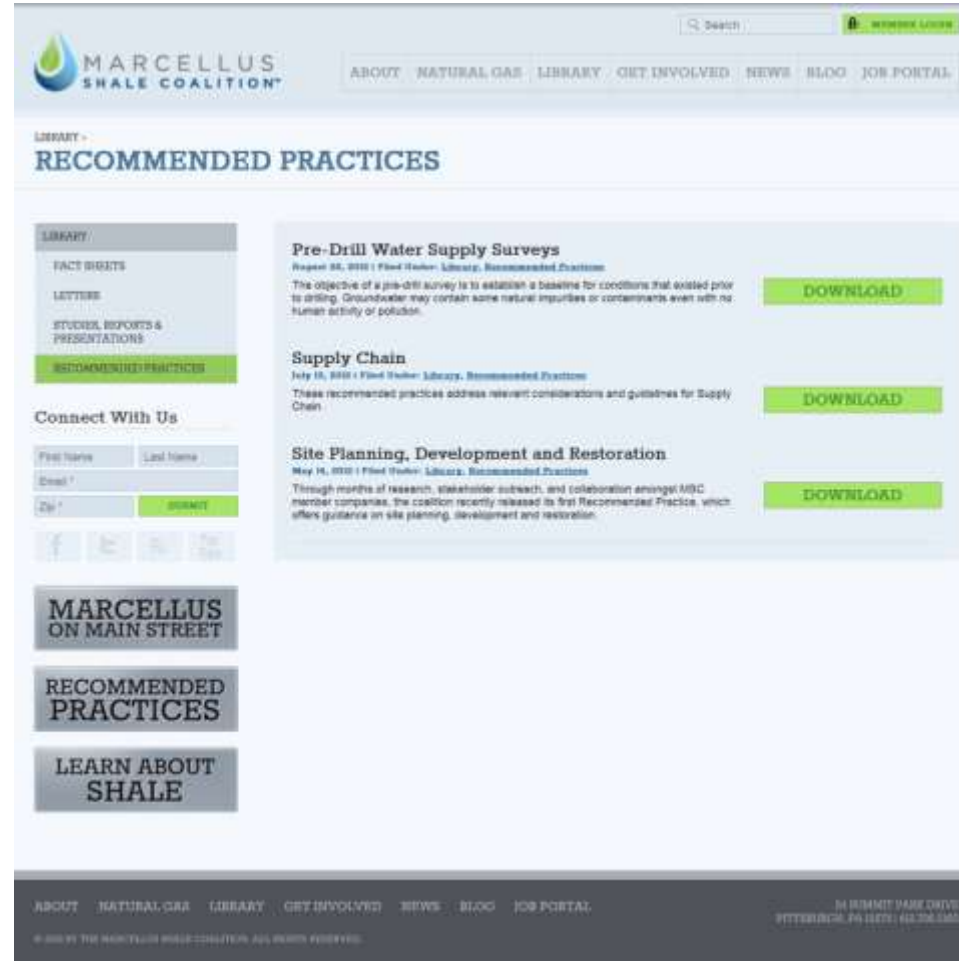
MSC Guiding Principles

- Provide the **safest possible workplace** for our employees, our contractors, and in the communities in which we operate;
- Implement **state-of-the-art environmental protection** across our operations;
- Continuously **improve our practices and seek transparency** in our operations;
- Strive to attract and retain a **talented and engaged local workforce**;
- Commitment to **being responsible members of the communities** in which we work;
- Encourage spirited **public dialogue and fact-based education** about responsible shale gas development;
- Conduct our business in a manner that will **provide sustainable and broad-based economic and energy security benefits** for all.

MSC & Industry Overview & History

MSC Land Affairs Committee

- Engages a variety of stakeholders regarding environmentally-responsible land use
- Committee members include exploration companies, pipeline companies and service providers
- Provides Outreach to the Outdoors and Agricultural Communities
- Dedicated to improving our valuable air, water, soil and wildlife resources
- Recommended practices include site planning, development and restoration
- Created the Sustainable Use Working Group



The screenshot displays the Marcellus Shale Coalition website's 'LIBRARY - RECOMMENDED PRACTICES' page. The page features a navigation menu with links for 'ABOUT', 'NATURAL GAS', 'LIBRARY', 'GET INVOLVED', 'NEWS', 'BLOG', and 'JOB PORTAL'. A search bar is located in the top right corner. The main content area lists three recommended practices, each with a brief description and a 'DOWNLOAD' button:

- Pre-Drill Water Supply Surveys** (August 26, 2010): A pre-drill survey aims to establish a baseline for conditions that existed prior to drilling. Groundwater may contain some natural impurities or contaminants even with no human activity or pollution.
- Supply Chain** (July 18, 2010): These recommended practices address relevant considerations and guidelines for Supply Chain.
- Site Planning, Development and Restoration** (May 14, 2010): Through months of research, stakeholder outreach, and collaboration amongst MSC member companies, the coalition recently released its first Recommended Practice, which offers guidance on site planning, development and restoration.

On the left side of the page, there is a 'LIBRARY' sidebar with categories: 'FACT SHEETS', 'LETTERS', 'STUDY REPORTS & PRESENTATIONS', and 'RECOMMENDED PRACTICES' (which is highlighted). Below this is a 'Connect With Us' section with a contact form for 'First Name', 'Last Name', 'Email', and 'Zip', along with a 'CONTACT' button and social media icons for Facebook, Twitter, LinkedIn, and YouTube. At the bottom, there are three buttons: 'MARCELLUS ON MAIN STREET', 'RECOMMENDED PRACTICES', and 'LEARN ABOUT SHALE'. The footer contains the same navigation menu and the address: '14 HUNNIT PARK DRIVE, WITTMERSBURG, PA 17257-6639, USA'.

***We implement state-of-the-art
environmental protection across our
operations.***

Environmental Protection



Highly regulated. Highly sophisticated.

- Transparency in permitting
- Staffing, permit fee increases
- Advances in water recycling and reuse
- Protective well casing standards
- Focus on best practices



Regulatory Framework

Site Construction



12 PA Regulations

Reclaimed/Completed Site



10 PA Regulations

Drilling Phase



18 PA Regulations



Hydraulic Fracturing

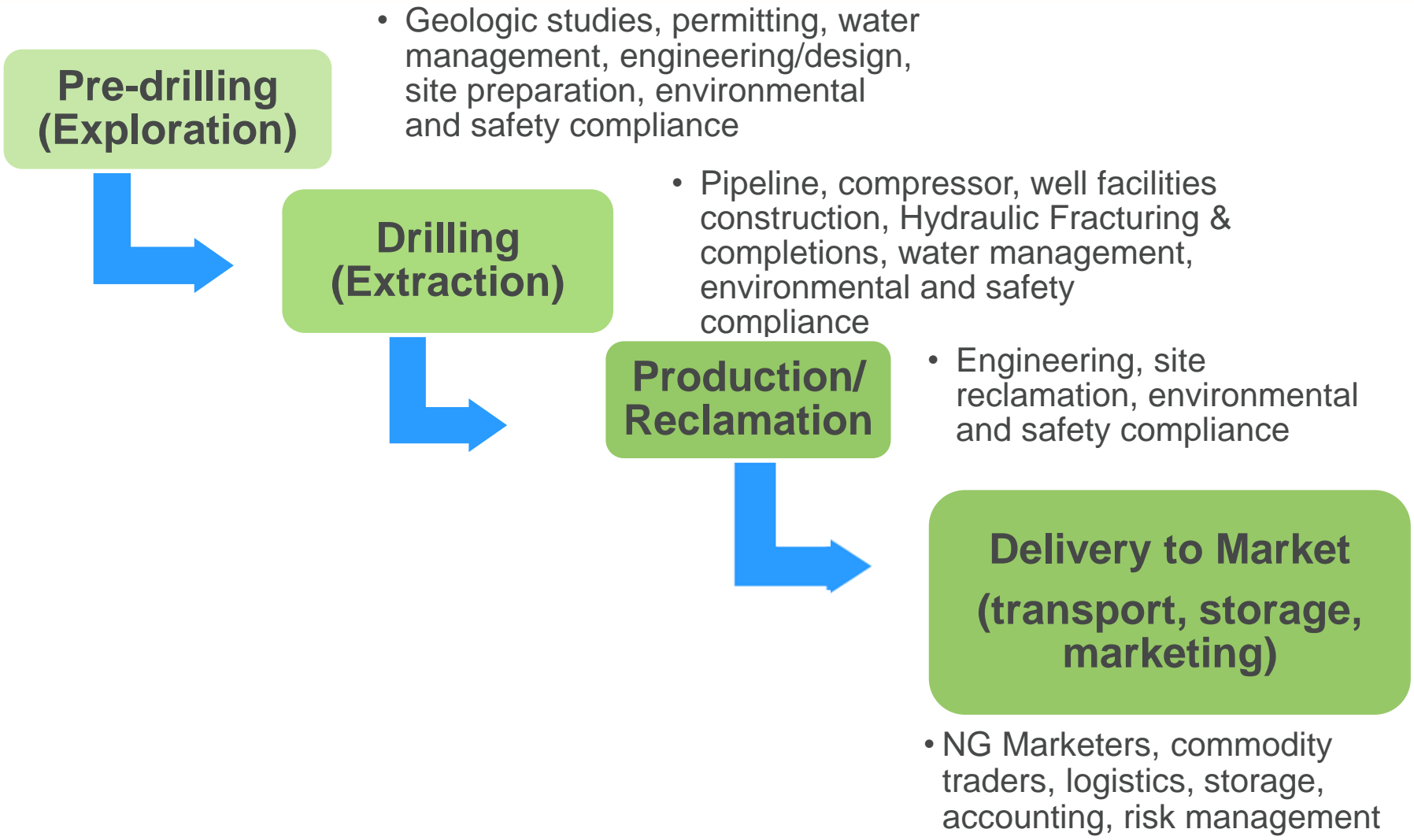


18 PA Regulations

Midstream



11 PA Regulations



Recommended Practices



RECOMMENDED PRACTICES:
Site Planning, Development and Restoration

Applies to Full Range of Production and
Midstream (Gathering) Facilities

MSC RP 2012-1
April 26, 2012

Recommended Practices



Why Recommended Practices?

- Implement state-of-the-art environmental protection across our operations;
- Continuously improve our practices;
- Ensure we are being responsible members of the communities in which we work; and
- Support sustainable and broad-based economic benefits for all.

Recommended Practices

Defining “Best (Recommended) Management Practices”



BLM almost got it. A few words missing from BLM's definition

What are Best (Recommended) Management Practices (BMPs)?

Best management practices (BMPs) are state-of-the-art **procedures and** mitigation measures applied to oil and natural gas drilling and production to help ensure that energy development is conducted in a **safe and** environmentally responsible manner. BMPs protect **people**, wildlife, air quality, and landscapes as we work to develop vitally needed domestic energy sources.

➔ **With additions in bold – good description of MSC's Recommended Practices**

Defining “Restoration”

Restoration means both interim restoration – following site construction and reflecting site conditions that will exist through the operational life of the well pad or pipeline and final restoration – at the end of the operational life, following site closure and removal of facilities.

Interim Restoration



Importance of Site Development and Restoration Recommended Practices

- Guide for infrastructure development vital to obtaining a valuable natural resource;
- Minimize impacts to environment and communities;
- Apply practices intended to mimic pre-disturbance conditions and improve the sites for desired end-users/uses.
- Protection of vital environmental resources for generations to come

Recommended Practices



Recommended Practices

RPCs directly reference other recommendations:



- **Federal and State Regulatory & Conservation Agencies**
- **Published Restoration Recommendations by Governmental Agencies and Universities**

Pipelines are Included in the RP



Pipelines are Included in the RP



Recommended Practices

Many of the RP's draw from successful implementation at the Gaw Farm

- Landowner involvement in planning
- Vision of what site will look like
- Retaining features that enhance future use
- Selection of plant species to meet restoration objectives
- Involving resource agencies and professionals
- Low compaction grading
- High degree of company/landowner cooperation

Recommended Practices

PA Game Commission & Phillips (XTO) hosted Well Site Reclamation Field Day on September 10, 2010



Recommended Practices

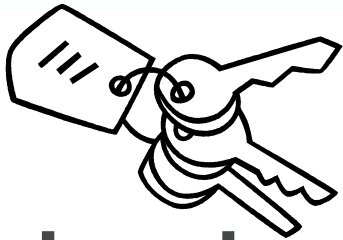
Well Pad Development Phase











- **Landowner vision, planning, involvement**
- **Getting advice from experts**
- **Having a plan before moving any earth**
- **Good practices – low compaction grading, good selection of species, retaining site materials and features, aligning vision and restoration practices**
- **Cooperative driller willing to innovate**

Land Recycling & Site Reuse/Redevelopment/Repurposing for Industry Support Operations and Businesses

Recycling/Reuse Objective:

- The members of the Marcellus Shale Coalition (MSC) recognize that new stimulus in regions that have been economically depressed affords opportunities for sustainable redevelopment, including the reuse of brownfields.

Sustainable Community Development

The purpose of the proposed Recommended Practice for Sustainable Community Development is to:

- Promote and encourage the re-use or re-purposing of underutilized properties, including brownfields, by the oil and gas industry;
- Encourage member companies to identify and consider using underutilized properties in the local communities in which they intend to do business; and
- Provide opportunity to communicate with stakeholders engaged in land planning and development.

Case Studies

- Lycoming County
- Clearfield County
- Susquehanna County
- Washington County



Note: MSC staff is coordinating with other Counties to obtain a master list of projects.

Lycoming County

Case Studies

- TARM (TerrAqua Resource Management)
- Kennedy King Site

County Contacts

- Vince Matteo, Williamsport/Lycoming Chamber of Commerce, www.williamsport.org
- Bill Kelly, Deputy Director, Planning & Community Development, www.lyco.org

Lycoming County

- Former Use/Status: Abandoned Industrial Complex
- Current Use: Mixed-Use Complex in Williamsport
- Impacts/Benefits:
 - C.A. Reed paper products site ~ 70 yrs. – left in '93
 - Centura Development acquired July '95
 - Buildings vacant ~ 6 years w/design & renovations
 - Larson Design part owner, original tenant, now largest tenant w/ 34,714 SF office & TARM @ 78,746 SF
 - Large warehouses constructed 40's thru 60's – remained vacant as other uses filled.
 - LDG's TerrAqua Resource Management now fully occupies warehouse bldgs. 10, 11, 12 (nearly 80,000 SF)
 - TARM has processed 180 M gallons of frac/generated water for reuse

Land Recycling & Site Reuse Examples

Using former C.A. Reed Site for
Office and Water Processing



TARM
TerraAqua Resource Management



LDG



WTS
Water Tower Square

Photo Circa 1940's

Sustainable Community Development



Credit - Google Earth Image

➤ Water Tower Square

- ✓ Mixed-use complex in Williamsport, PA (Lycoming Co.)
- ✓ Property was an abandoned industrial complex; eventually became Water Tower Square
 - ✓ Approx. 350,000 SF mixed use facility w/many local businesses
- ✓ TARM started operations in April 2010 and was the 1st enterprise in PA to recycle flowback/generated waters
- ✓ WTS was under-utilized pre-Marcellus (warehouses)
- ✓ PP&L sought low energy HVAC. Developer's idea (Keith Eck) to use treated municipal wastewater effluent (1.5 MMGPD) as heat source/sink, partially funded as demo project by Geothermal Heat Pump Consortium



Sustainable Community Development



Bldg	SF	Vacant
WTS Bldg	138,508	12,846
WTS 7 & 8	82,832	29,935
WTS 10, 11, 12	78,746	None (TARM)



Sustainable Community Development



Falls at Water Tower Square

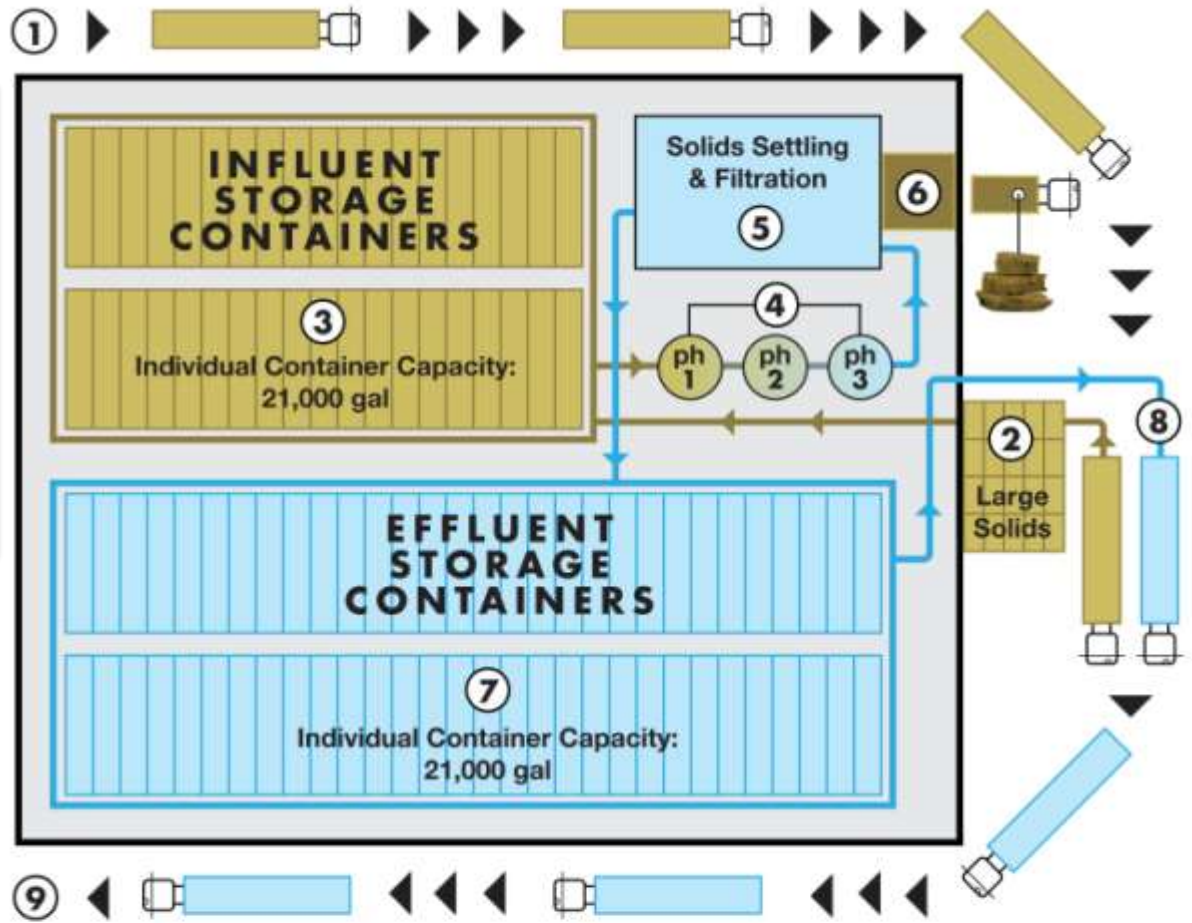




**TARM at Water
Tower Square**



TARM
Treatment
Process at
Water Tower
Square



- 1. Influent water
- 2. Large solids screening
- 3. Pre-equalization
- 4. React tanks
- 5. Solids settling & filtration
- 6. Waste solids management
- 7. Post-equalization
- 8. Processed water loaded onto same tanker truck
- 9. Processed water returned to staging area for next beneficial reuse

Lycoming County

- Former Use/Status: Kennedy King Site – Blighted/ Abandoned Public Housing Complex
- Current Use: MiSwaco Corporation manufacturing specialty drilling muds
- Impacts/Benefits:
 - Redevelopment of site – 50,000 sq.ft. facility and 27,500 sq.ft facility
 - Transport of chemicals by rail instead of truck
 - Local production of natural gas products
 - Employees 75-100 persons
- Partnerships: Williamsport Housing Authority, Lycoming County Housing Authority, City of Williamsport & Property Owner
- Investment: \$50M



**KENNEDY KING PUBLIC
HOUSING COMPLEX**

2929 King Court
City of Williamsport
TAX ID - 67-007-200



Clearfield County

Case Studies

- Fort Worth Pipe
- Carrizo Oil & Gas Office
- Forum Energy Technologies
- AES Drilling
- Calfrac Well Services

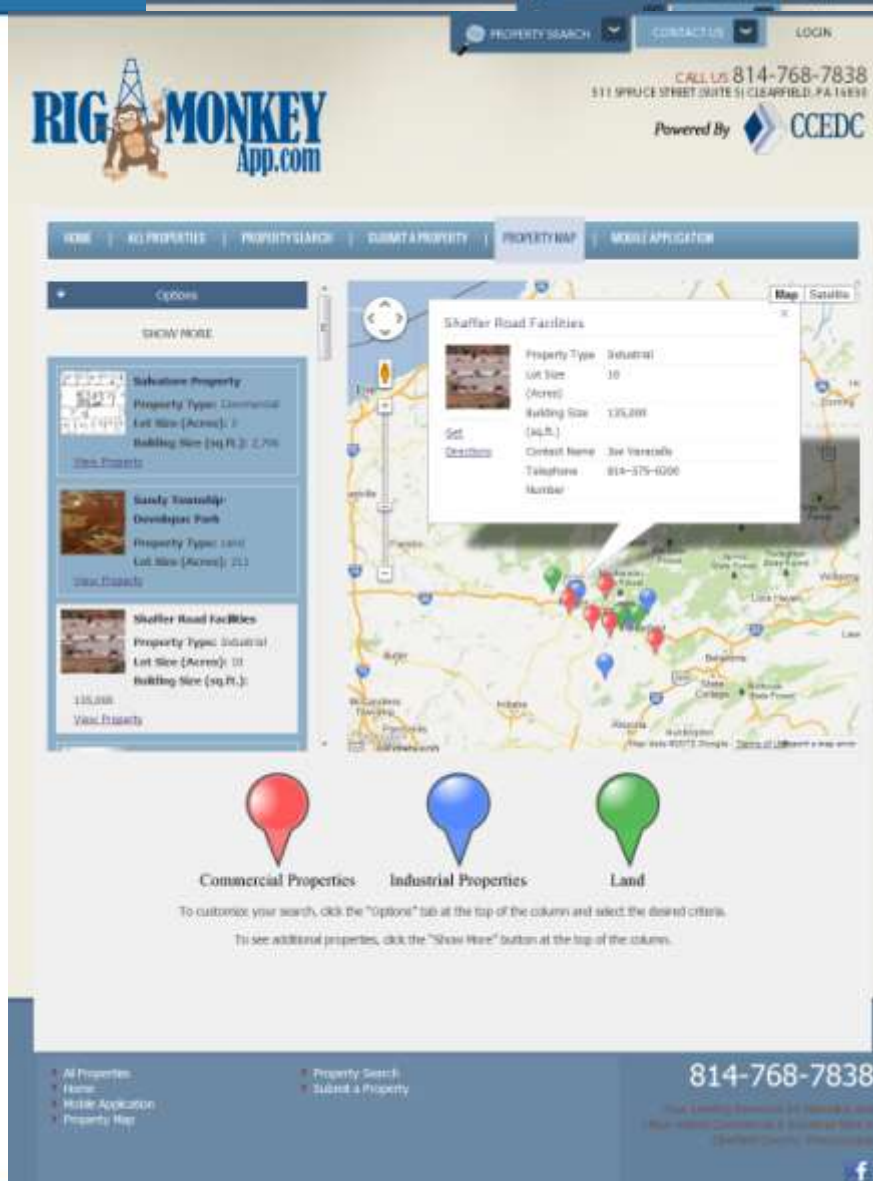
County Contacts

- Paul McCloskey, Clearfield County Economic Development Corporation (CCEDC) – www.clearlyahead.com
- Stanley LaFuria, Moshannon Valley Economic Development Partnership (MVEDP) – www.mvedp.org

Land Recycling & Site Reuse Examples

RigMonkeyApp.com

- 70+ commercial and industrial properties
- Search by type, building size and location.
- Contact information for seller.
- Interactive google map.
- iPhone and Android platforms



The screenshot displays the RigMonkeyApp.com website. At the top, there is a navigation bar with links for 'PROPERTY SEARCH', 'CONTACT US', and 'LOGIN'. A phone number 'CALL US 814-768-7838' and address '511 SPRUCE STREET SUITE 51 CLEARFIELD, PA 16819' are also visible. The main header features the 'RIG MONKEY App.com' logo and a 'Powered By CCEDC' badge. Below the header, a navigation menu includes 'HOME', 'ALL PROPERTIES', 'PROPERTY SEARCH', 'SUBMIT A PROPERTY', 'PROPERTY MAP', and 'MOBILE APPLICATION'. The main content area is divided into a left sidebar with 'Options' and 'SHOW MORE' buttons, and a central map area. The sidebar lists three property listings: 'Sullivan Property' (Commercial, 2 Acres, 2,776 sq ft), 'Sandy Township Development Park' (Land, 211 Acres), and 'Shaffer Road Facilities' (Industrial, 11 Acres, 135,000 sq ft). The map shows a geographic area with several colored pins (red, blue, green) indicating property locations. A pop-up window for 'Shaffer Road Facilities' provides detailed information: Property Type: Industrial, Lot Size: 10 Acres, Building Size: 135,000 (sq ft), Contact Name: Joe Vercade, Telephone: 814-379-0200, and Number. Below the map, three colored pins (red, blue, green) are labeled 'Commercial Properties', 'Industrial Properties', and 'Land'. A footer section contains navigation links, a phone number '814-768-7838', and a Facebook icon.

Susquehanna County

- Former Use/Status: Wooden Pallet Manufacturing Facility
- Current Use: GasSearch Drilling Services (GDS)/Cabot Oil & Gas
- Impacts/Benefits:
 - Adaptive Reuse of Site—Green Design
 - 120 employees (108 from Pennsylvania)
 - Install a system to recycle used engine oil as a fuel source
 - Truck wash—water recycling system
 - Skylights were installed in main garage area
- Partnerships:
- Investment: \$1.7 M Private Investment

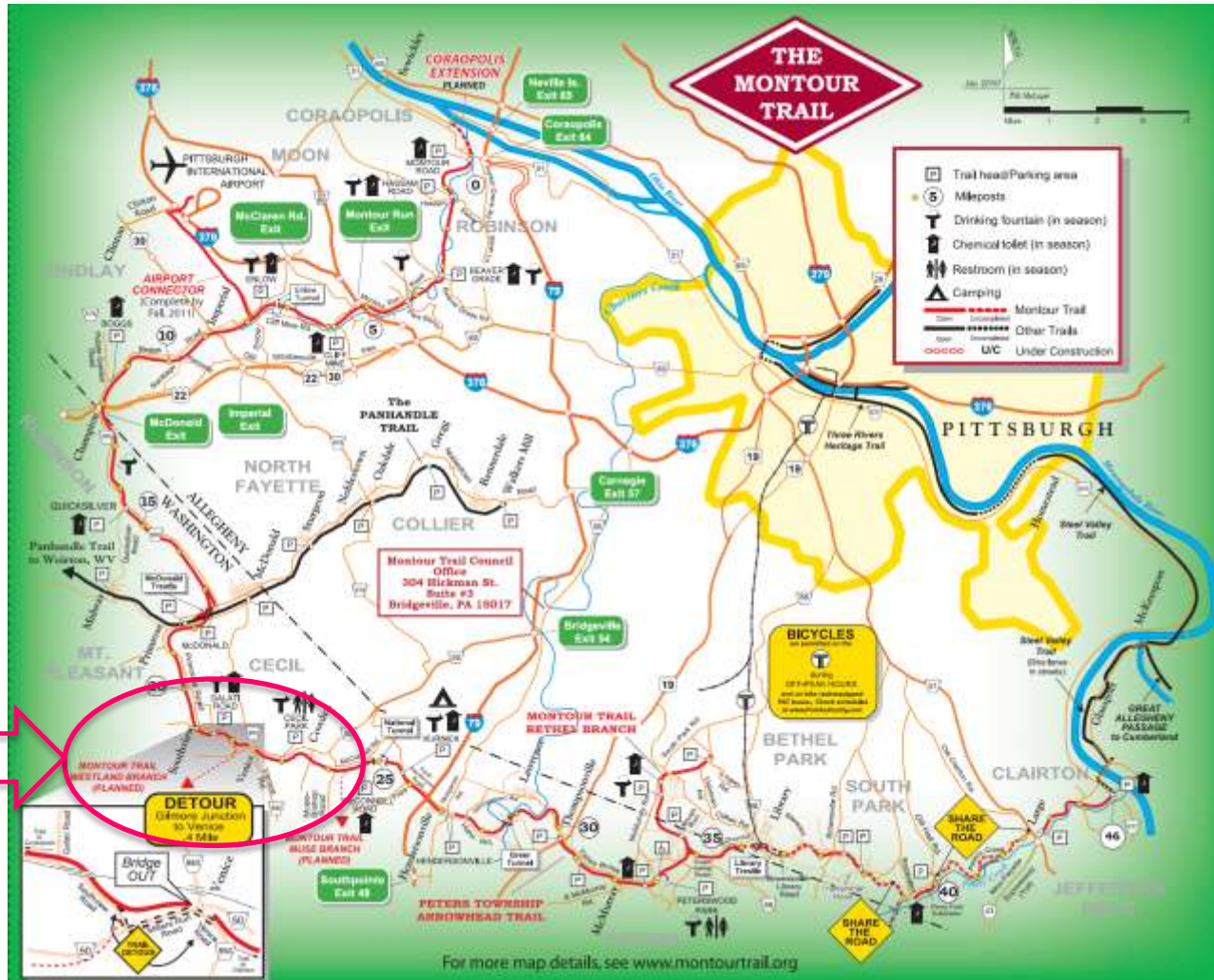
Susquehanna County



Washington County

- Former Use/Status: Abandoned Rail Right-of-Way
- Current Use: Trail with Rails/Westland Branch of Montour Trail
- Impacts/Benefits:
 - Lease and construction of 3+ miles of Westland Branch of Montour Trail by MarkWest Energy Partners – Annual lease payments
 - Railroad connecting Southview to Westland
 - Rail yard on site of the old Westland Mine for storage
 - Service to MarkWest Liberty's gas processing plant south of Westland
- Partnerships: MarkWest Energy Partners, Montour Trail Council, Host Communities, Cecil Township and Wheeling & Lake Erie Railroad

Washington County



Westland
Branch of
Montour
Trail

Washington County



How can the planning community collaborate with the industry to foster reuse/redevelopment/repurposing of abandoned, vacant and underutilized sites?