

PA & NY Natural Gas Task Force Forum

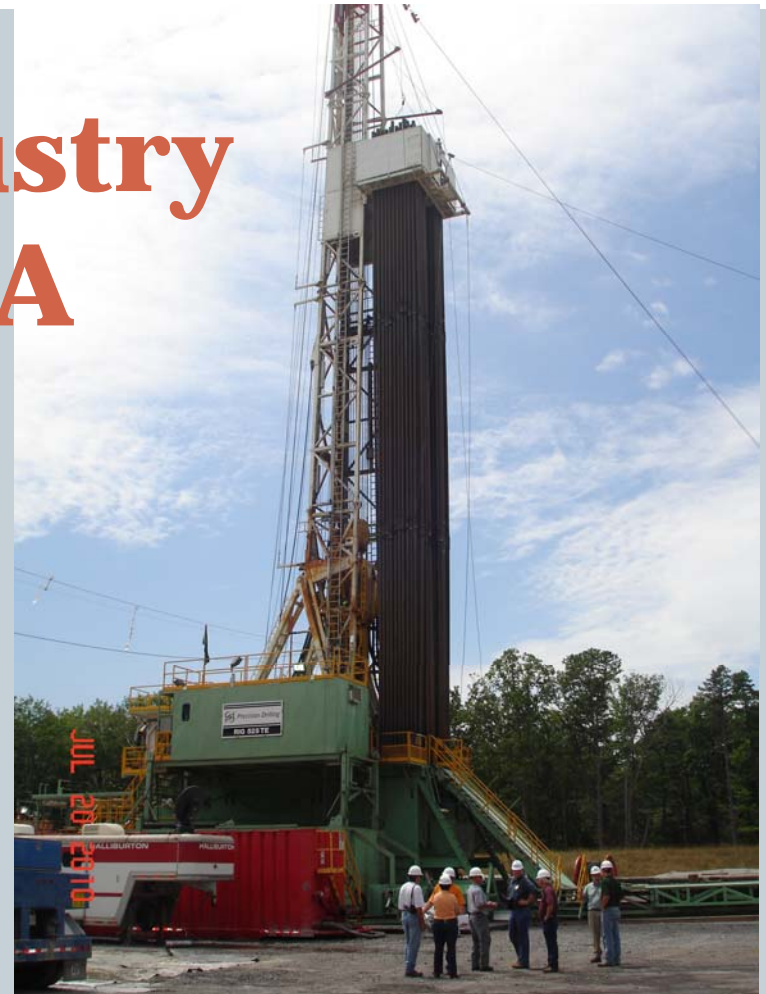


Natural Gas Industry Centre County, PA

March 2011

Prepared by:
Centre County Planning and
Community Development Office

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Centre County Quick Facts



- **Sixth largest PA county at 1112 square miles**
- **Heaviest Transportation Corridors**
 - **I-80 and I-99**
- **2010 Total Population = 153,990 (13.4% increase)**
- **Population in Marcellus Formation = 9,800**
- **Active Gas Companies: Anadarko, Carrizo, Enerplus, EXCO, Range Resources, Williams**
- **Pipeline Companies: Columbia, Texas Eastern Transmission (TETCO), Dominion, Superior, Anadarko, and Chief Gathering**

Marcellus Formation in Centre County



Centre County Natural Gas Wells and Marcellus Shale Activity

All Wells and Status

- SHALLOW
- MARCELLUS - DRILLED
- MARCELLUS - PERMITTED

Physical Statewide Provinces

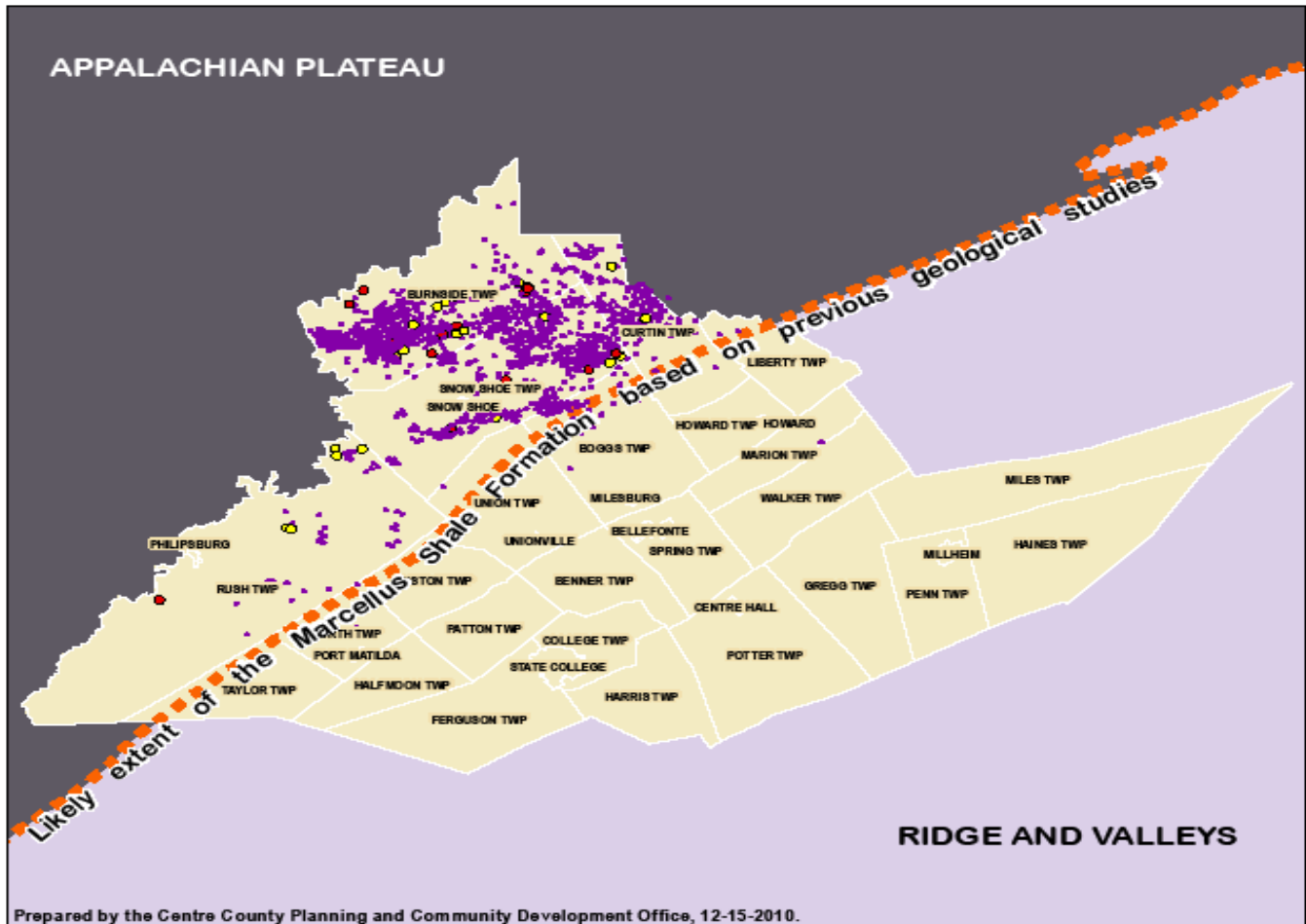
- APPALACHIAN PLATEAU
- RIDGE AND VALLEYS
- Physical Province Boundary

This boundary marks the likely extent of the Marcellus Shale Formation based on previous geological studies. Well data provided by the PA Dept. of Environmental Protection. Geological data provided by the U.S.G.S. Map prepared 12-15-2010.



10

10 Miles



Prepared by the Centre County Planning and Community Development Office, 12-15-2010.

Centre County Drilling Activity



Company	Wells Drilled Jan 10	Wells Drilled Dec 10	Wells Drilled Feb 11
Anadarko Petroleum	3	25	25
Carrizo	1	1	1
Enerplus Resources	0	0	0
EXCO- North Coast	5	23	23
Range Resources	0	2	2
Williams Appalachia	0	0	4
Total	9	51	55

Note: 73 additional wells are currently permitted.

Industry Outlook



- **Leased Acreage (Known to Date):**
 - Approximately **108,000 acres**
 - **78%** on land owned by the Commonwealth of PA
 - **15 %** of total county land area
 - **44%** of land area in Marcellus Formation
- **Future Projection**
 - Using today's known acreage, and based upon industry spacing: **1350 wells.**
- **Pipeline Construction**

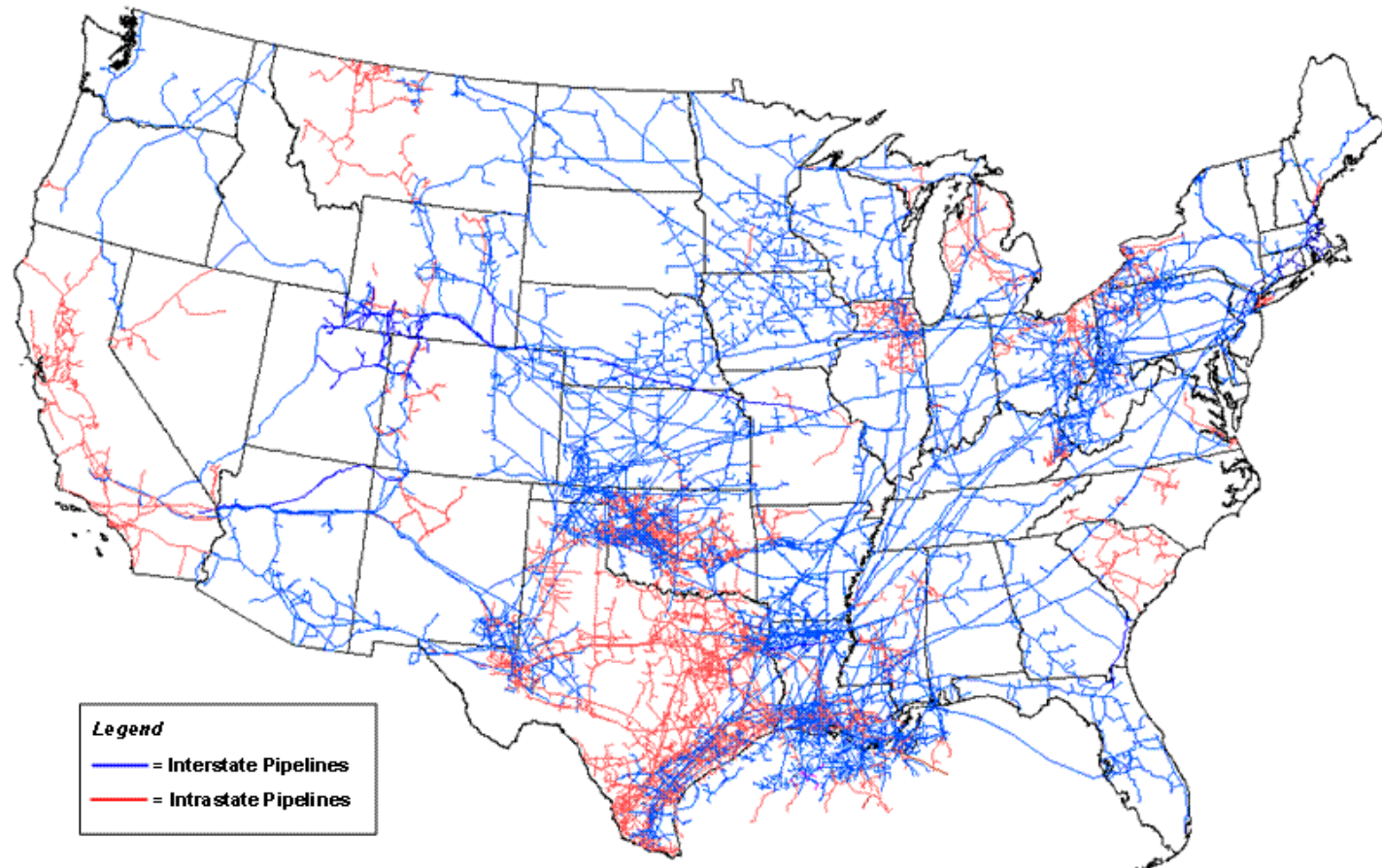
Development of Pipeline Infrastructure



Laying a natural gas gathering line.

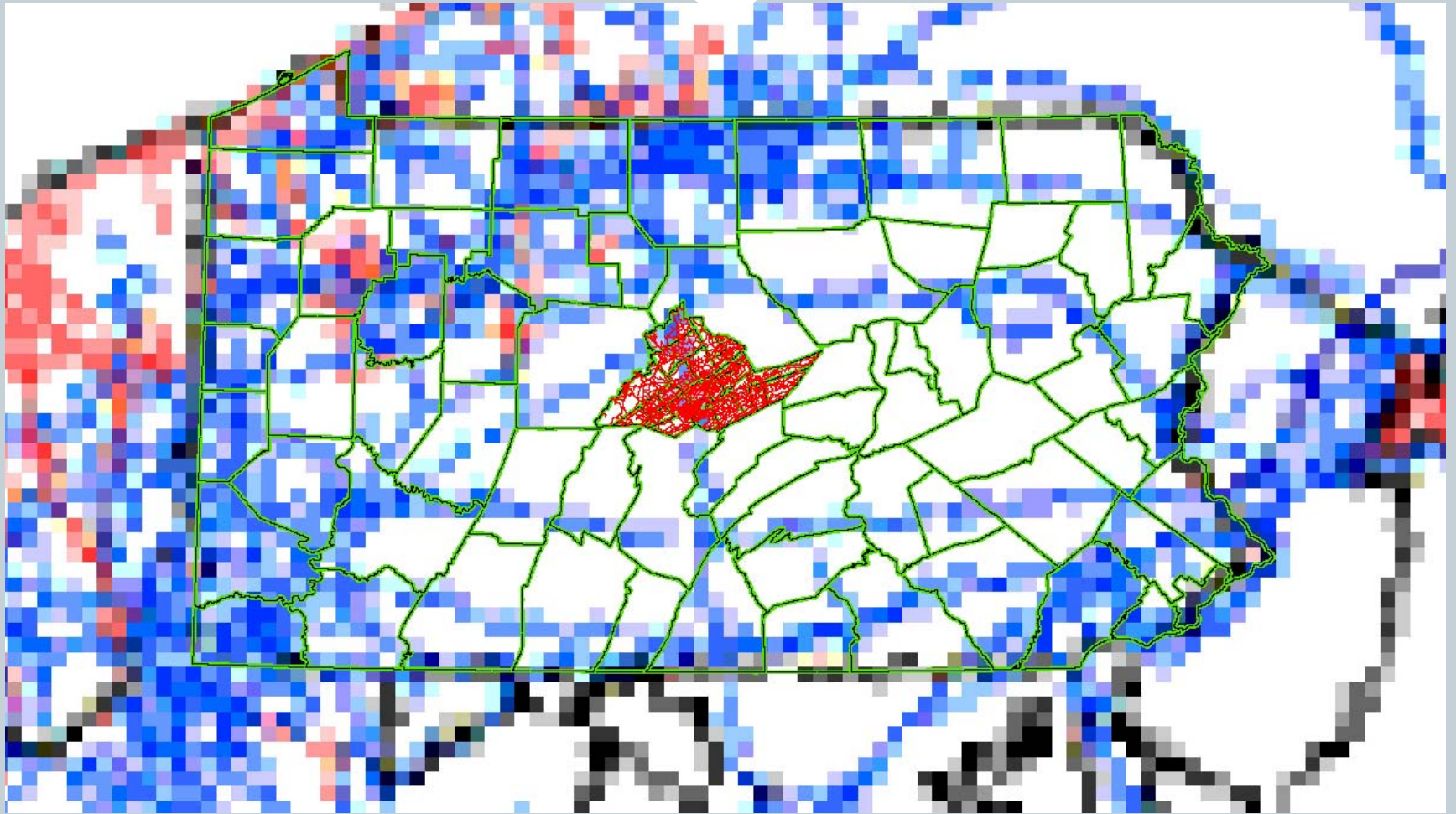
Photo taken looking west from PA Route 144, Burnside Township, Centre County.

Existing Pipeline Infrastructure



Source: Energy Information Administration, Office of Oil & Gas, Natural Gas Division, Gas Transportation Information System

Pennsylvania Pipeline Infrastructure



Source: Energy Information Administration and Centre County GIS

Centre County Natural Gas Task Force



**Formed by the Board of Commissioners in
January 2010 to:**

**Address public and private sector
impacts and opportunities
of natural gas drilling in Centre County.**



Centre County Natural Gas Task Force



- Comprised of **12 - 15 voting members** representing business and industry, education, local municipalities, and landowners.
- **Sub-committees** comprise 16+ additional individuals
- **Liaison members:**
 - PA Department of Environmental Protection
 - PA Department of Conservation and Natural Resources, Bureau of State Forests.
 - PA Game Commission
 - Susquehanna River Basin Commission
- **Ex-Officio Members:** All Local State Elected Officials

Centre County Natural Gas Task Force



Sub-Committee Structure:

- **Economic Development**
- **Education**
- **Environmental / Infrastructure**
- **Environmental / Well Development**
- **Planning / Public Policy and Legal**



To Be Added in 2011:

- **Community Service**

Centre County Natural Gas Task Force



Accomplishments:

- **Bylaws**
- **Position Statement on Taxation**
- **9-1-1 Addressing**
- **Road Use Maintenance Agreement -- prototype**
- **Vacant and Under-Utilized Sites Inventory for the Natural Gas Industry -- opportunities for new business development and location.**
- **Leasing Considerations**

Centre County Natural Gas Task Force



Current Projects:

- Emergency Responder Training Facility Development
- Roadway Safety Planning / Route Information Sheets
- Hydrologic Study to identify and secure potential drinking water well sites for future use
- Identification of zone of contribution for municipal water supply
- Development of natural gas for fleet vehicle power

Roadway Safety Planning



- Volume of Traffic
- Conflicts with Local Activities
- Dirt
- Road Maintenance
- Bridge Conditions
- Noise

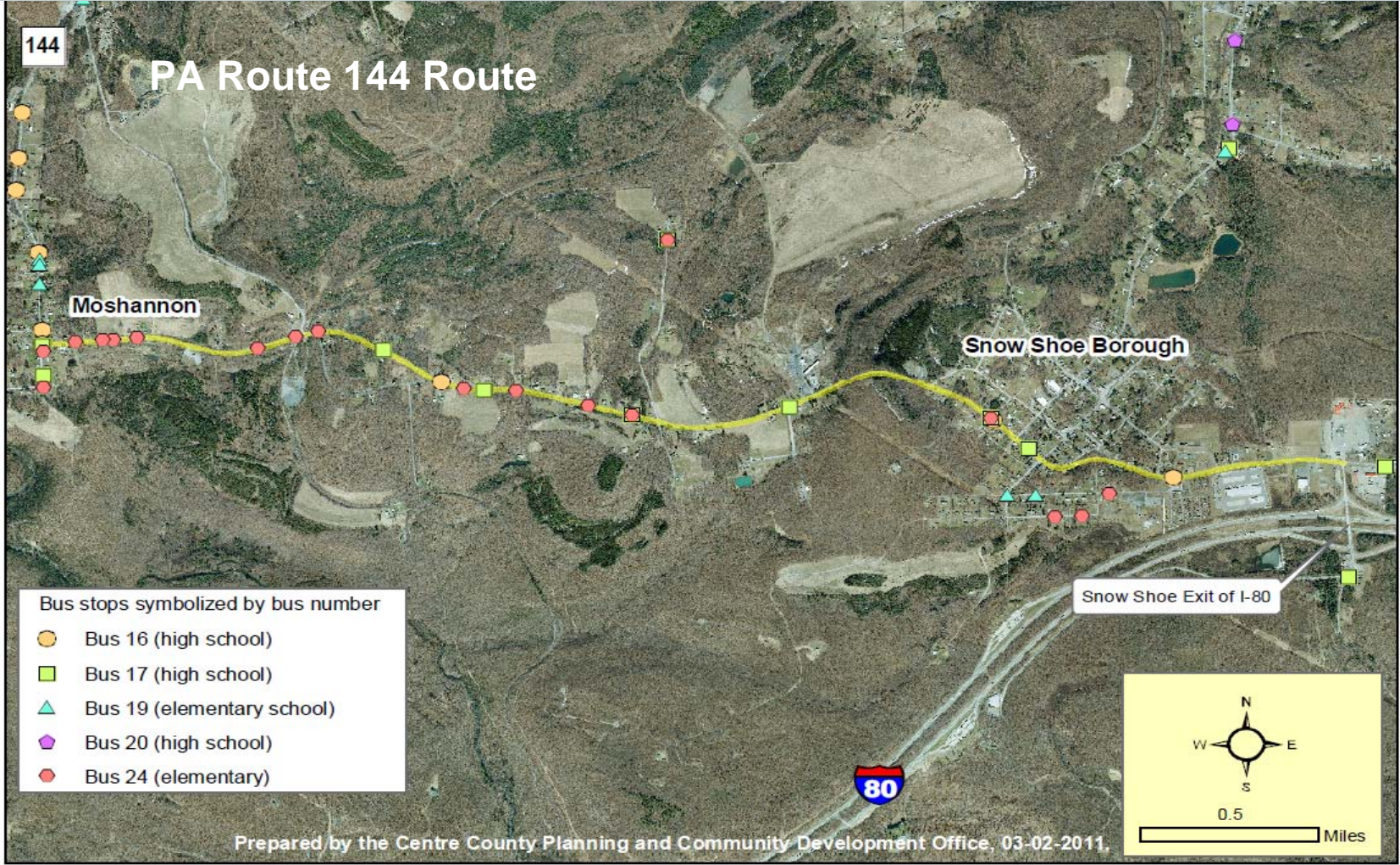


Note:

Approximately 1,500 truck-trips are required to develop a single Marcellus well. Of those 1,500 trips, nearly 1,000 are water tankers.

Source: Marcellus Shale Coalition 9.10.10

Route Information Sheet



General Route Information



- **Route Number:** SR 144 – West of Interstate 80 Interchange #147
- **Length:** approximately 3.75 miles
- **Start Point and End Point**
- **Average Daily Traffic:** 5290 (2006 data – new counts will be done in May 2011)
- **Average Daily Traffic (Trucks):** 328 or 6% of Total ADT (2006 data – new counts will be done in May 2011)
- **Speed Limit**
- **Lane Width:** 11 feet **Shoulder Width:** Varies from 3-10 feet with 1-7 feet paved sections.
- **International Roughness Index (ride quality):** Good (Segment 600 & 610) and Excellent (Segment 620-670)
- **Areas of Potential Stacking**
- **Five Year Crash Query (2005-2009):** 26 reportable crashes. 73% resulted in some level of injury, 69% were result of hitting a fixed object.

Description of Potential Hazards



- **Land Use:** Residential Character, Commercial/Retail Locations
- **Weather and Roadway Conditions**
- **Intersection Conditions:**
 - Stop sign locations especially on steep grades.
 - Traffic signals
 - Restricted turning radii
- **School Bus Traffic – Bus Stops / Time of Day**
- **ATV Traffic – road crossings and access points**
- **Roadway Description:**
 - Blind curves and hills.
 - Side street entrances and driveways

Contact Information



- **Municipality(s):**

- Snow Shoe Township – 814-387-6249, Snow Shoe Borough – 814-387-6833

- **PennDOT District:**

- 2-0 District Office - 814-765-0400, Centre County Maintenance - 814-933-1616

- **Traffic Enforcement:**

- PA State Police Rockview - 814-355-6020 or 911

- **Fire/EMS:** 911

- **Cellular Coverage:** Limited

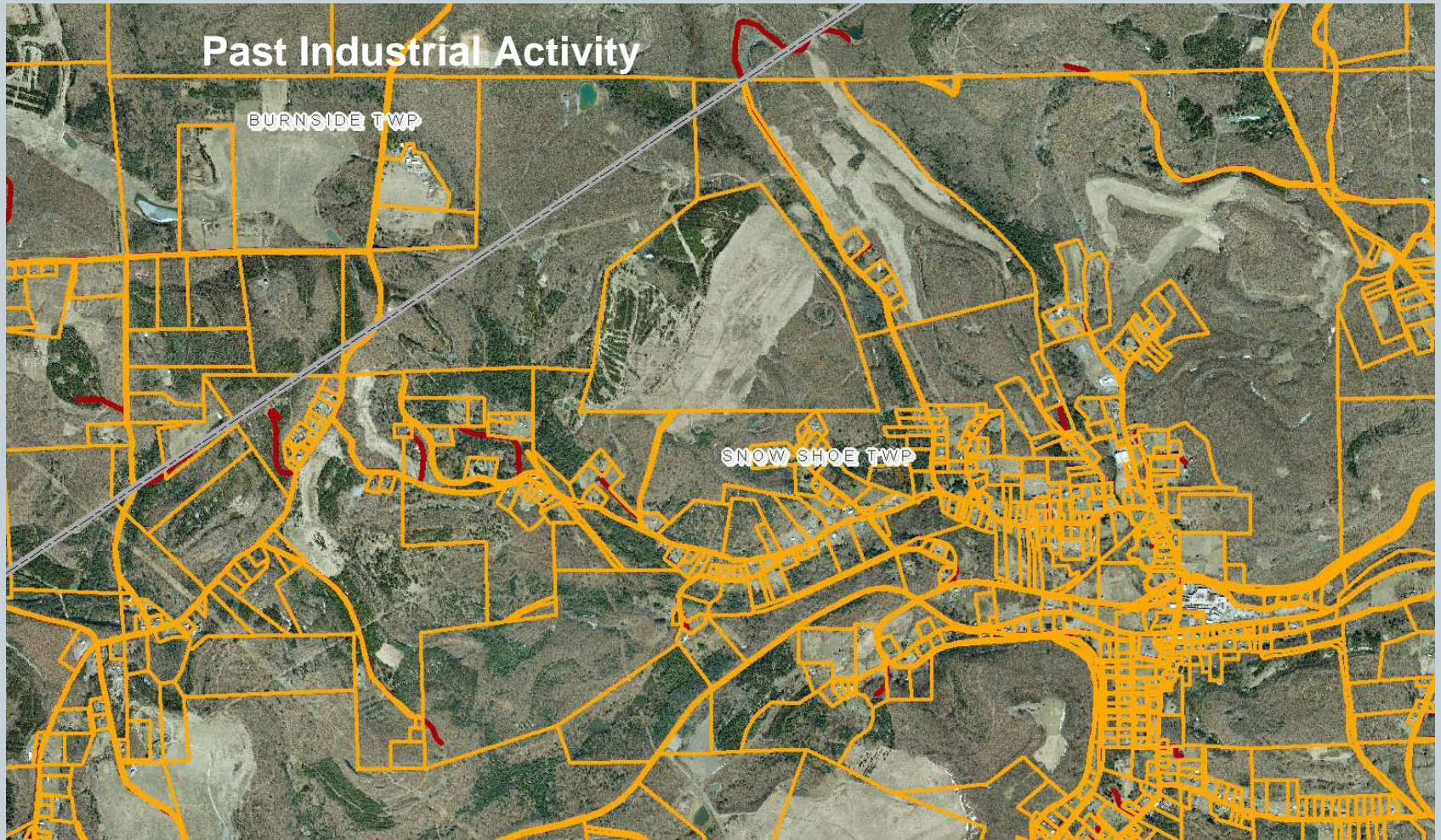
Segment Images



To view on PennDOT Videolog:

[http://www.dot7.state.pa.us/VideoLog/
Open.aspx](http://www.dot7.state.pa.us/VideoLog/Open.aspx)

Hydrologic Study



Under-Utilized Site Inventory



Purpose:

To identify and compile data on vacant land and under-utilized buildings into a single document for easy distribution.

Detailed site data collected:

- address and/or tax parcel number,
- owner's name and contact information,
- building and/or land specifications,
- available utilities,
- current and past uses, zoning, and
- adjacent land uses.



Questions and Comments



Snow Shoe Township Well Pad Activity One Day Prior to Hydraulic Fracturing

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http://www.co.centre.pa.us/planning/natural_gas_task_force.asp

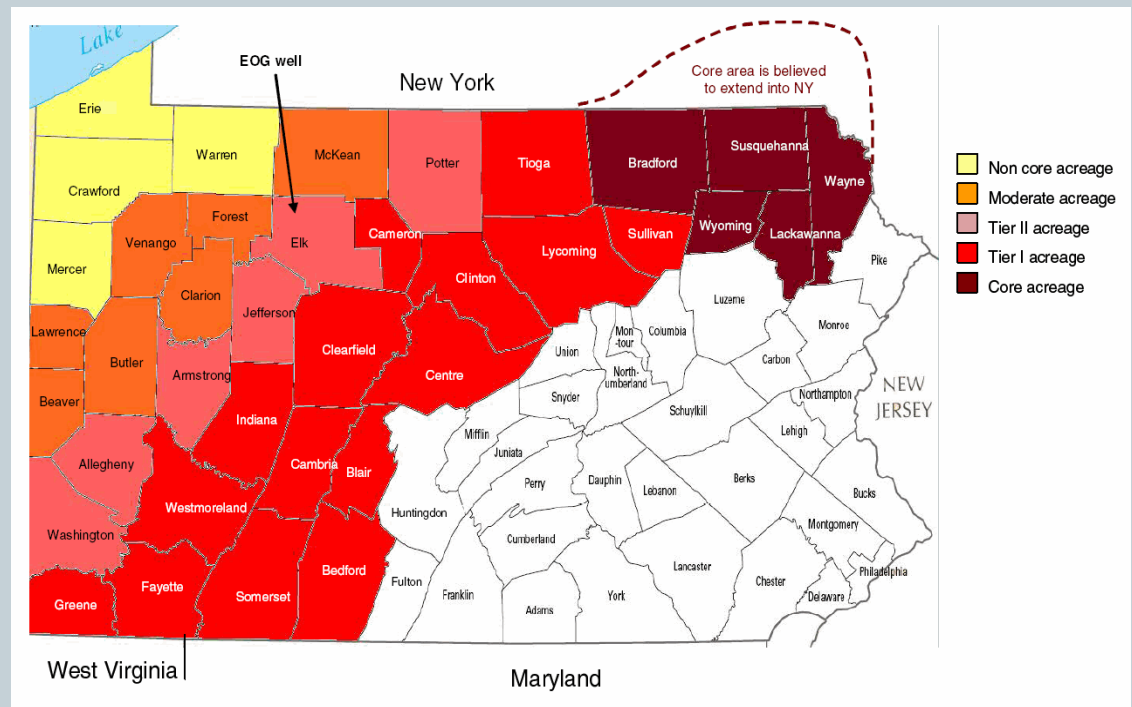
Why Centre County?

Estimated Rankings of PA Counties Located in the Marcellus Shale Play

Based upon:

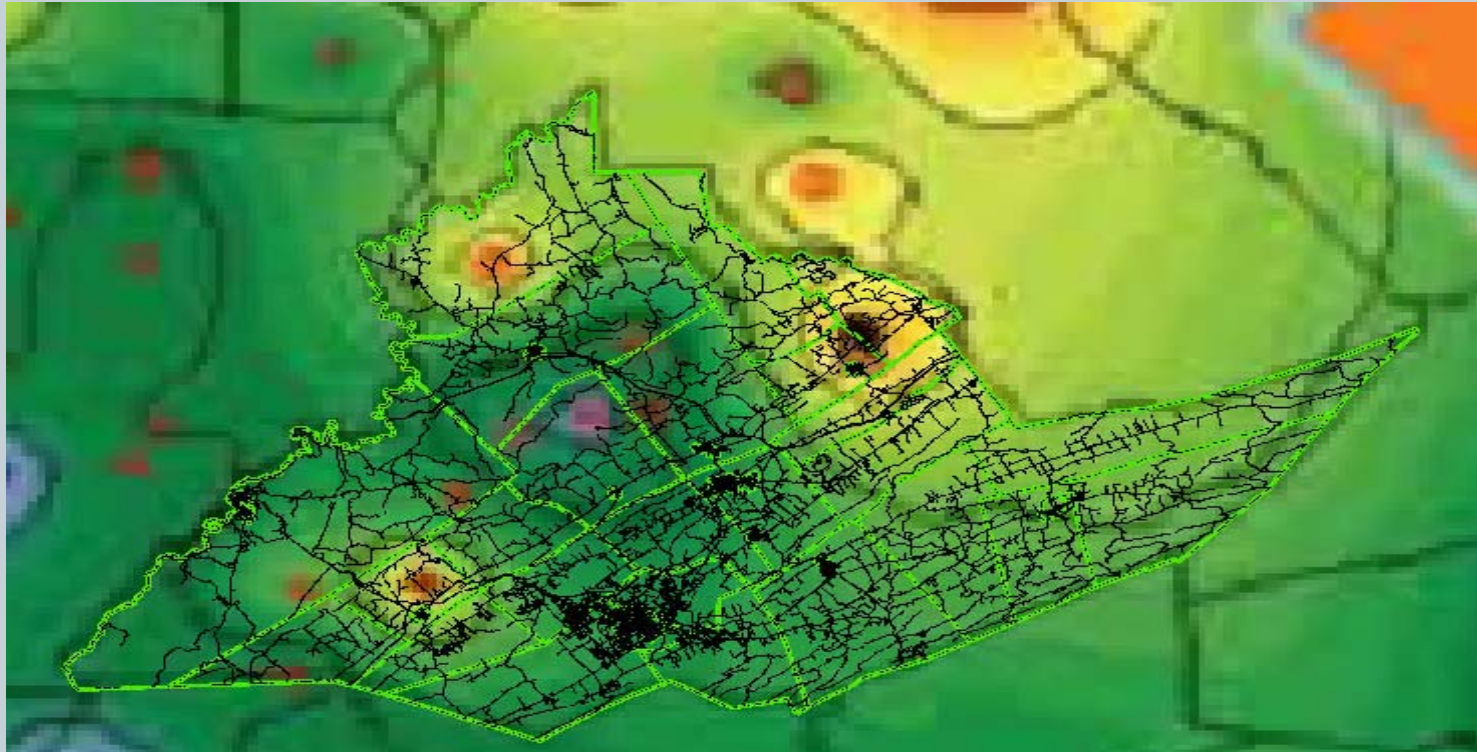
- Depth to Marcellus
- Thickness of Marcellus
- Thermal Maturity

Financial reports from the industry are showing higher than projected production and excellent quality in the “higher-pressured Centre County area”.



Source: Bernstein Estimates. Spring 2010.

Maximum Gamma Ray Values for Centre County and Nearby



Shale gives off more gamma rays than most rocks as it decays. It shows up as a high API count. Red = 700 API; Blue = 200 API
Higher counts = higher production rates.

Source: Marcellus Center for Outreach and Research, PSU and Centre County GIS

Maximum Gamma Ray Values for Marcellus Shale in Pennsylvania

