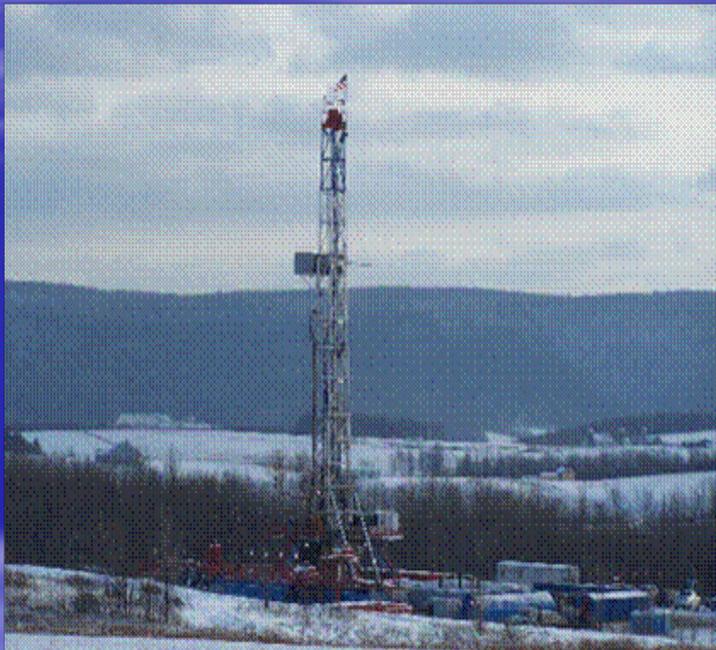
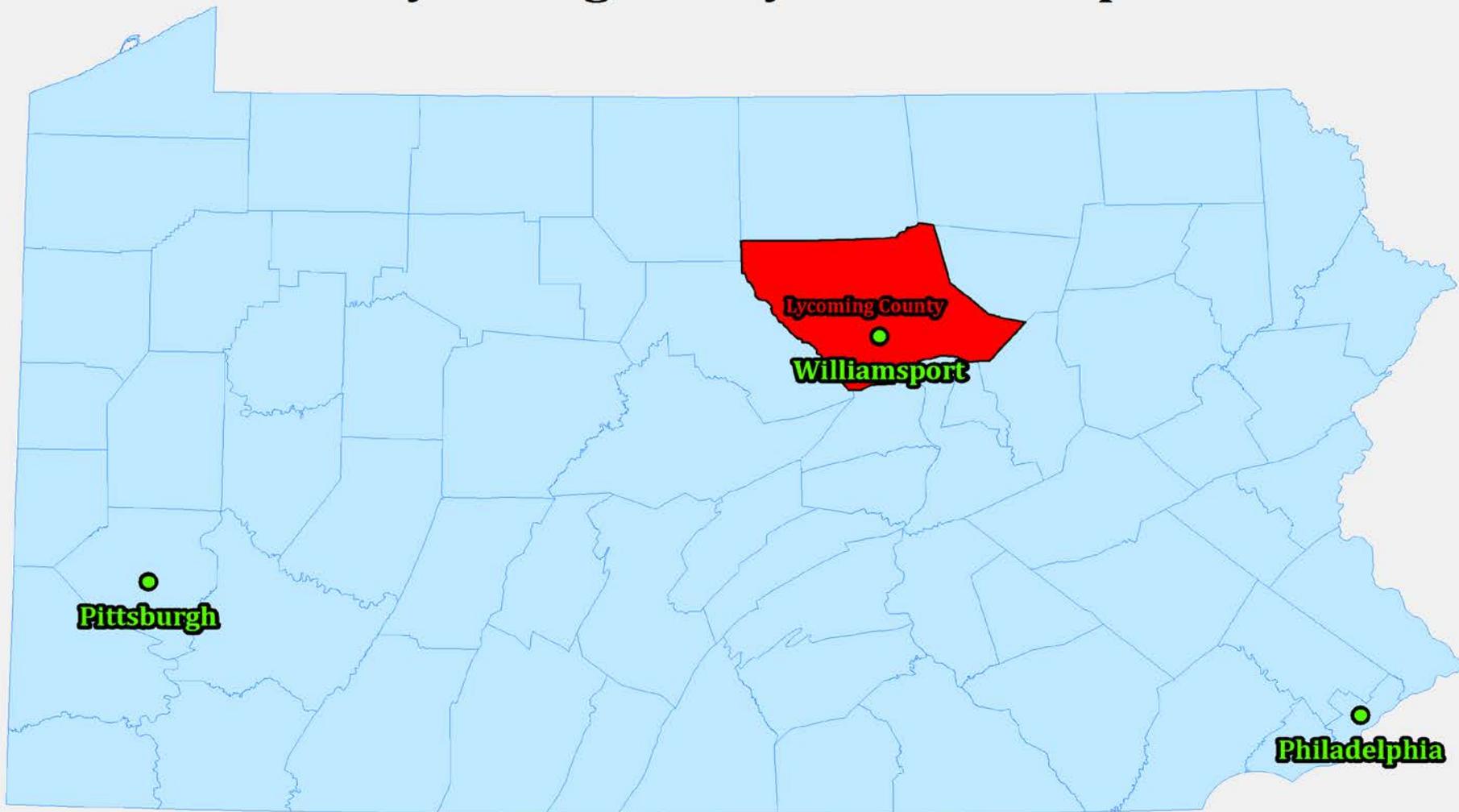


TRANSPORTATION PATTERNS AND IMPACTS FROM MARCELLUS DEVELOPMENT



Presented by:
Mark Murawski
Lycoming County Transportation Planner
September 18, 2013

Lycoming County Location Map



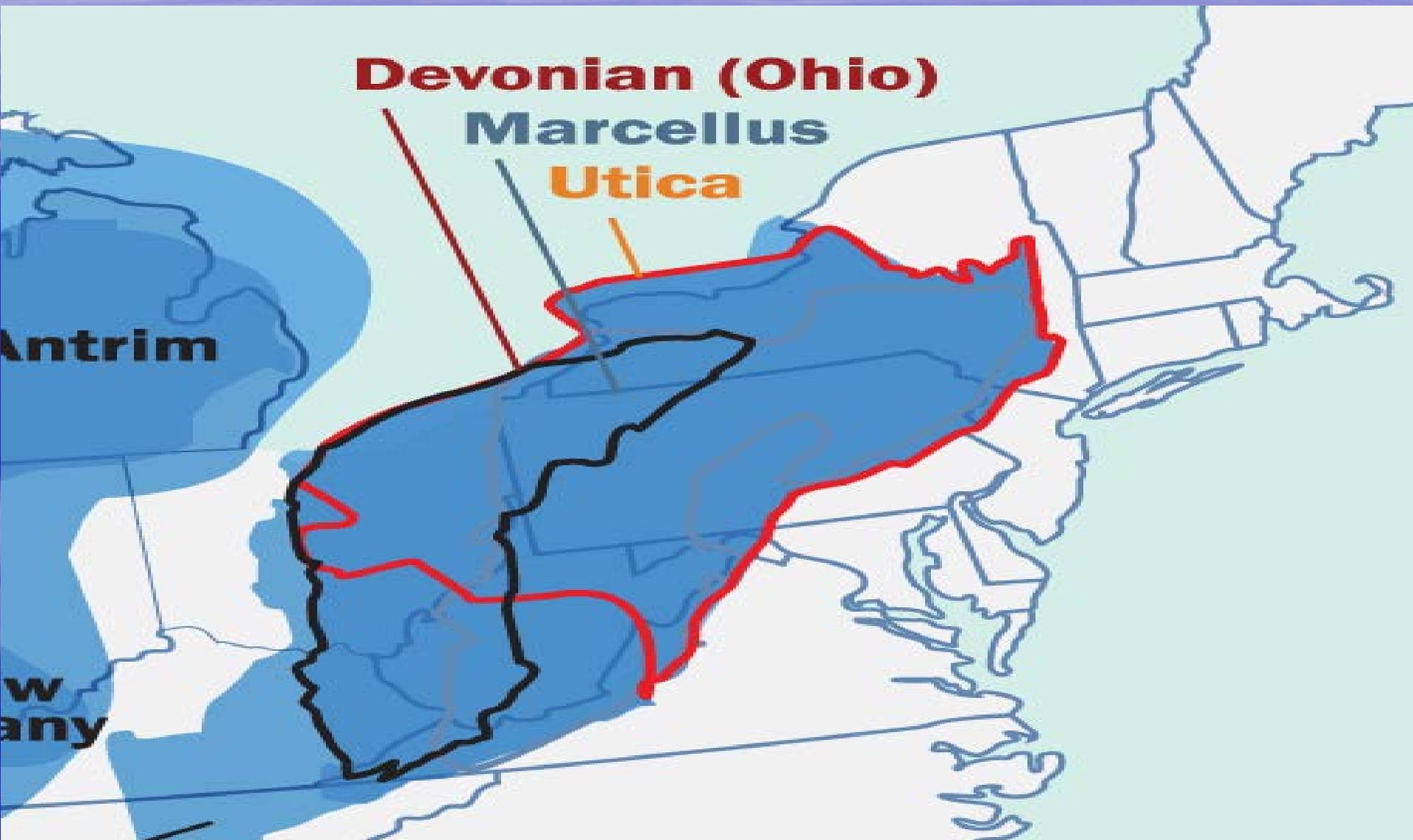
THE DISCOVERY

- Lycoming County officials first became aware of Marcellus potential in Spring 2008.
- Sudden influx of customers appearing at our Register and Records Office recording deeds.
- Started making inquiries about what was going on.

LACK OF PLANNING

- The Lycoming County Comprehensive Plan and MPO Long Range Transportation Plan was last updated in 2007.
- No mention of Marcellus so impacts not taken into account.
- Now updating these plans to address impacts through County Long Range Transportation Plan, Energy Plan, Marcellus Impact Plan development.

The Marcellus Play



THE BOOM BEGINS

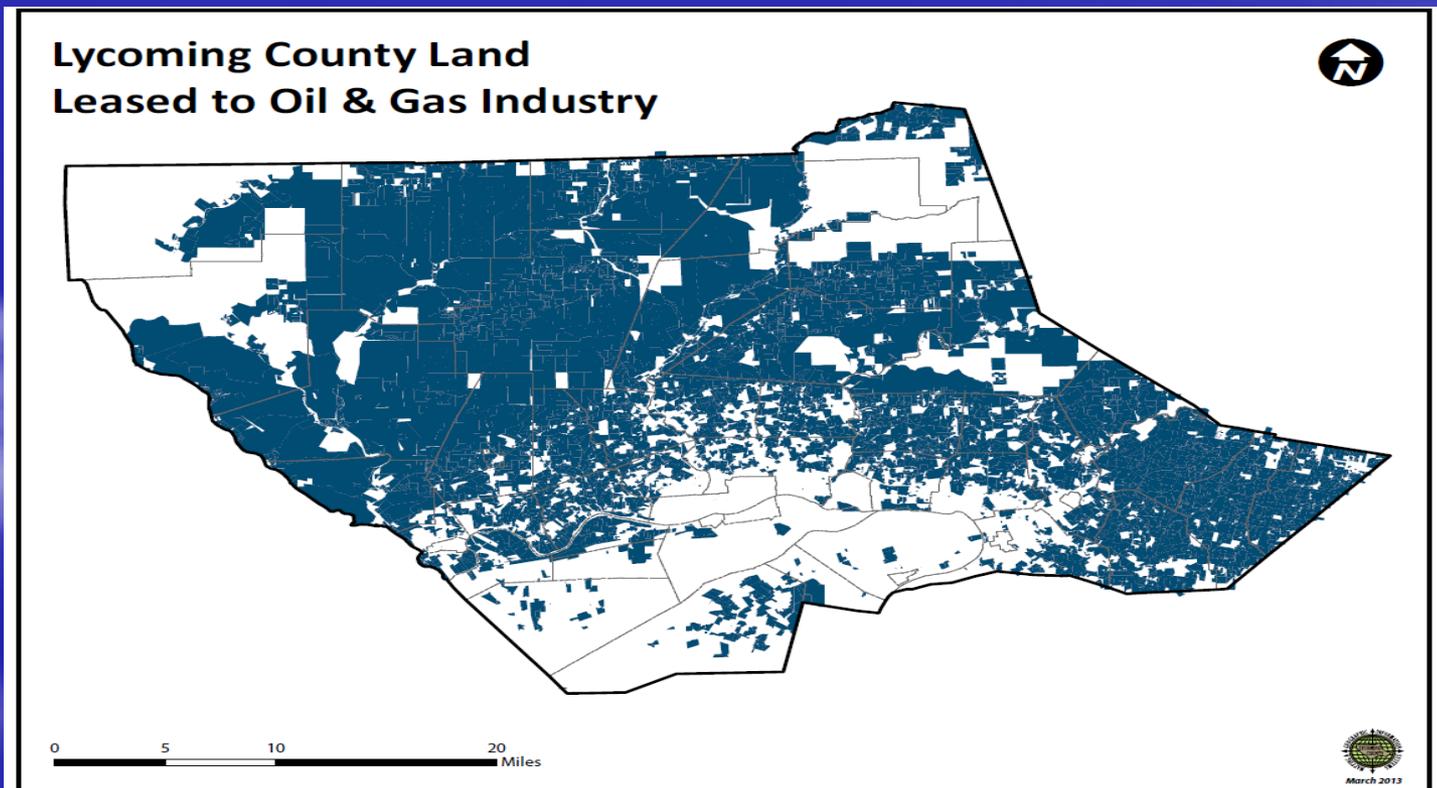


**One of the First Gas Drilling
Rigs in Lycoming County—
October 2007**

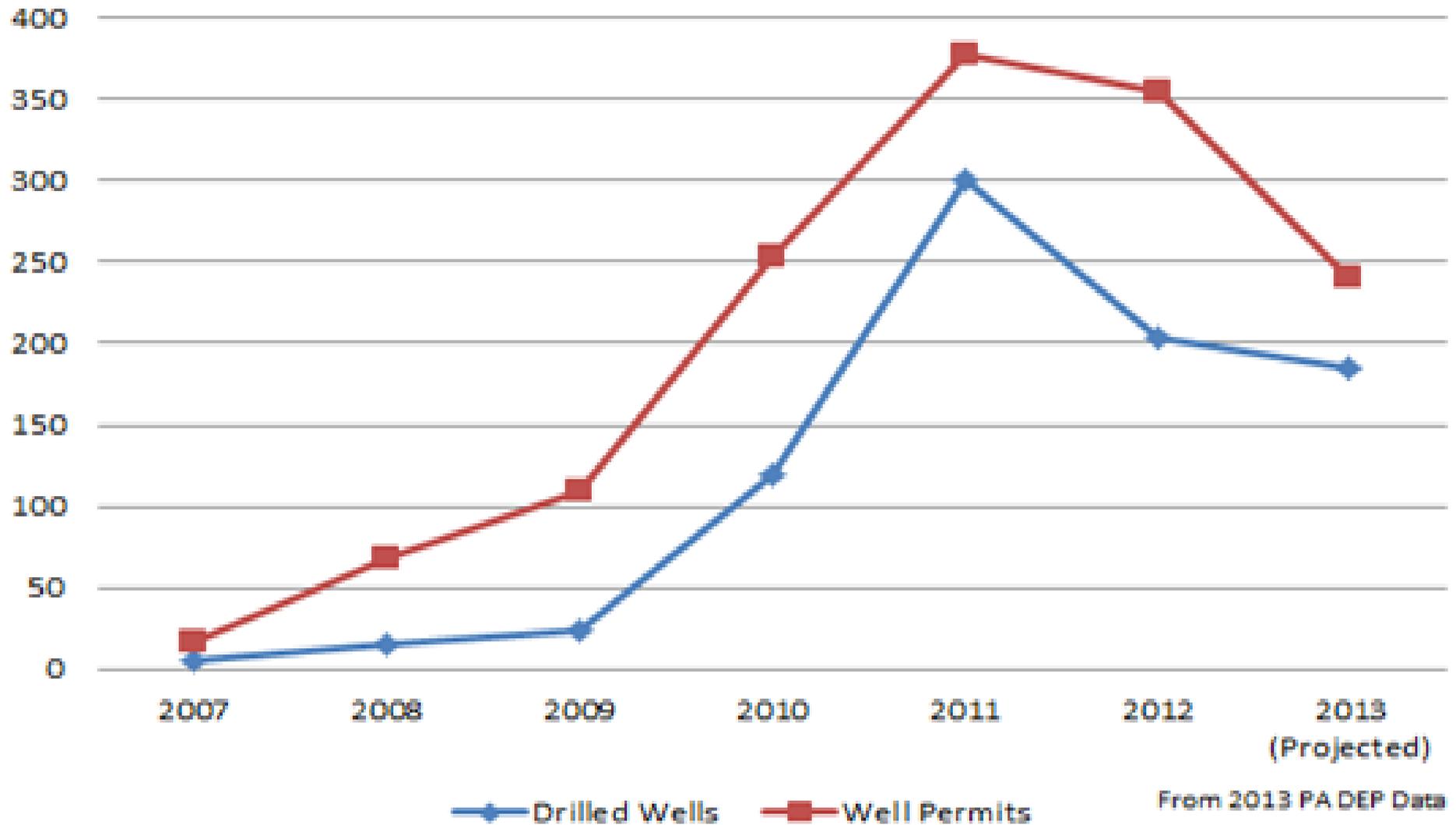


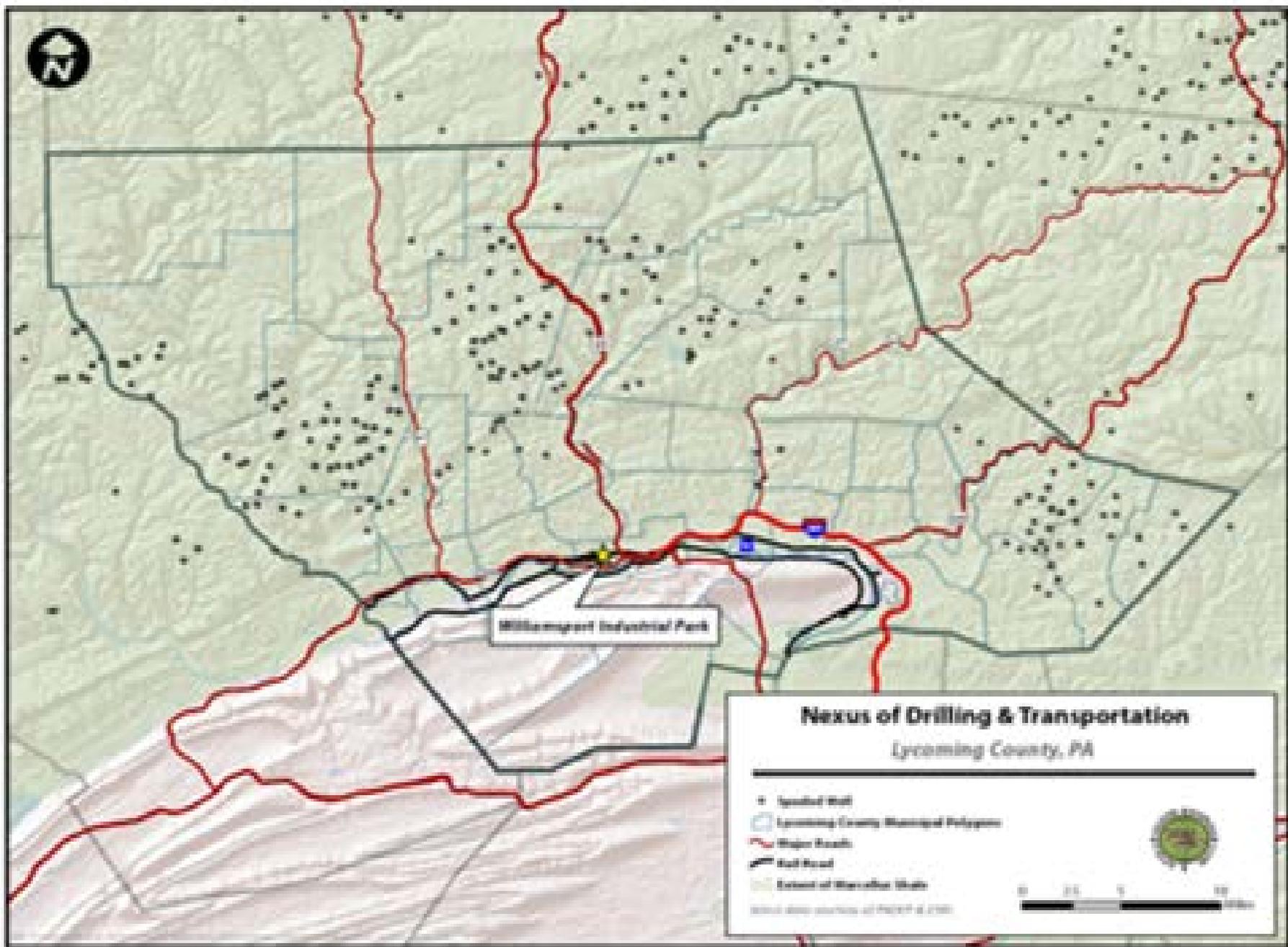
Lycoming County Land Leases

- Lycoming County is the geographically the largest County in PA, bigger than the State of Rhode Island.
- Approximately 60% of the County's total land area is under land lease for natural gas exploration comprising 691 square miles.



Total Drilled/Permitted Gas Wells Lycoming County 2007-Present



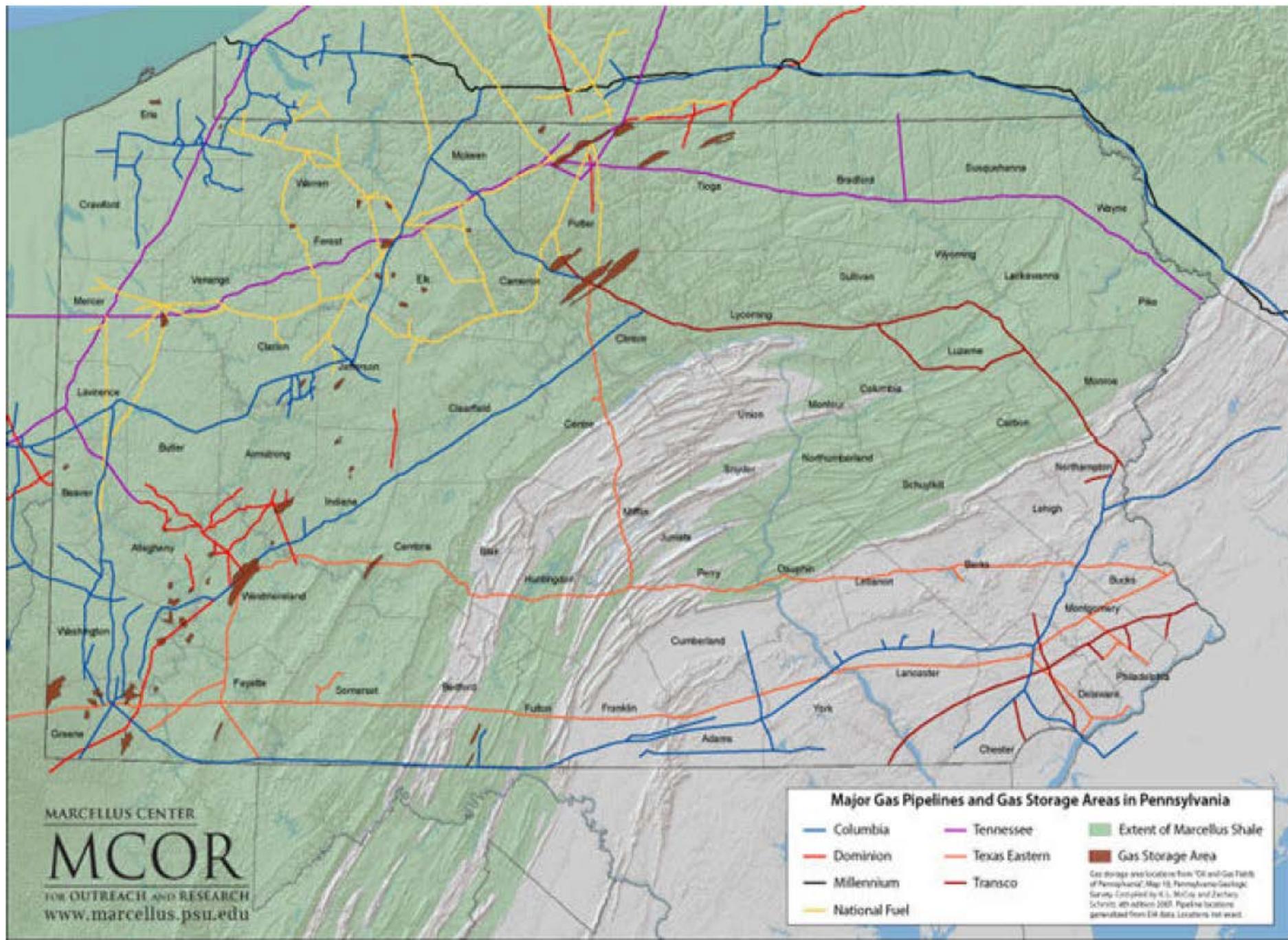


PVR's Lone Walnut Compressor Station





**30 Inch
Diameter
Gas
Gathering
Lines
rising up
Bobst
Mountain**



Created Task Force

- Lycoming County was first county in PA to form a Natural Gas Exploration Task Force in Spring 2008.
- Task Force mission is to identify key issues, research facts and information, and review proposed public policy regarding positive economic impact of gas exploration in county.
- Task Force is NOT a regulatory body.
- 18 Members on Task Force representing state, county and local government, Chamber, emergency services, transportation, banking, education, real estate and health system.
- 7 subcommittees: Economic Development, Education, Environment, Planning and Zoning, Public Policy, Public Safety and Housing.
- Traveled to Texas in 2008 to learn about Barnett Shale Experiences.



Natural Gas Drilling Basic Requirements



- Each well pad typically uses about 3-5 acres of land with 6-8 wells per pad
- Pad development is done over 4-6 week period
- Approximately 5,000 tons of aggregate needed during pad construction generating 300-400 truck trips.
- Drilling activity requires more equipment, water and cement generating another 150-200 truck trips over 4-5 week period.
- Fracking then resumes with an additional 800-1,000 truck trips transportating 3-6 million gallons of water and frac sand over 1-2 week period
- 1,250-1,600 cummulative truck trips per pad over 2-3 months

Local Road Impacts



- About 2/3 of road system in Lycoming County is locally owned
- Many of these roads not built to accommodate heavy hauling activity.
- PA Motor Vehicle Code sets forth process to legally impose road weight limits and bonding requirements.
- Our County partners with PennDOT on LTAP Program and provides training to municipal officials on proper posting and bonding procedures.
- Most of our municipalities impacted by Marcellus have adopted posting and bonding programs, however some have chosen more informal legal agreements with gas companies to recover costs for damage to local roads.
- For the most part, gas companies are doing a good job making necessary repairs to local roads.
- Future road maintenance may be a concern.
- Accelerated deterioration to life cycle pavements on non-bonded roads and who bears these costs.
- No comprehensive database exists regarding condition of local roads.

ROAD DAMAGE

Tioga County, S.R. 3001



March 2010 condition

Bradford County, S.R. 3018
(Towanda)



March 2010 condition

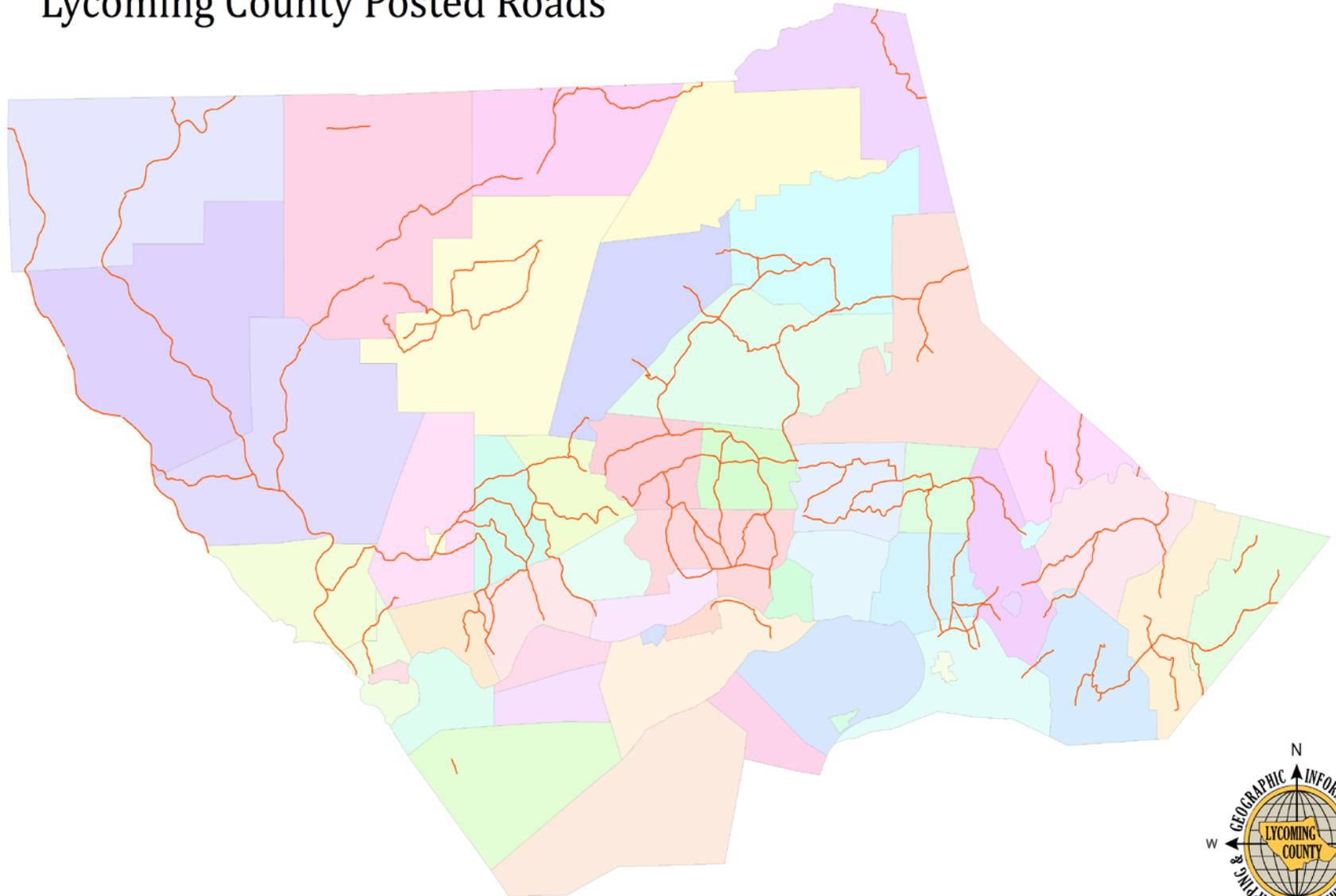
TRAFFIC CHANGES

- Increases in traffic volumes and percent of truck traffic on primary networks
- Secondary, low volume system has seen traffic increase from 150 vehicles a day to an additional 700 trucks per day



Photo: Universal Well Services

Lycoming County Posted Roads



IMPACT TO LOCAL BRIDGES



- Lycoming County has about 100 locally owned bridges greater than 20 feet span length.
- Approximately 25% of these bridges are structurally deficient.
- The Feds require routine bridge inspections for structures over 20 feet long.
- Lycoming County has another 100 locally owned bridges between 8-20 feet long.
- Approximately 35% of these smaller bridges are structurally deficient.
- The Feds do NOT require these smaller bridges to be inspected.
- Lycoming County did its own pilot program and inventoried and inspected these smaller bridges especially due to Marcellus heavy hauling over these bridges so proper weight limit postings can be determined.
- PennDOT has launched a state-wide planning initiative to inventory the 8-20 foot locally owned bridges, but no funds to conduct inspections.
- Gas companies in our area have used “Jumper Bridges”

RIVER VALLEY TRANSIT (RVT) COMPRESSED NATURAL GAS (CNG) PROJECT



River Valley Transit (RVT) operates a 30 bus transit fleet and has plans to transition it to Compressed Natural Gas (CNG). River Valley Transit has completed a CNG Fueling Feasibility Study in order to understand the investment and payback of fueling its bus fleet and county, city, and municipal vehicles with CNG.

The RVT CNG Project involves the creation of a multi-municipal Fast-Fill CNG fueling station that will be open to the public at River Valley Transit's West Third Street location in Williamsport, PA.

River Valley Transit has applied for an Alternative Fuels Incentive Grant (AFIG) from the PA Department of Environmental Protection's Office of Energy and Technology Deployment to assist in covering some of the project costs.

Historically, River Valley Transit has fueled its bus fleet with diesel. As a public entity, they have had the most diesel volume usage in Lycoming County, leading them to become the fuel purchaser and distribution point for Lycoming County surrounding

municipal-owned vehicles, including the City of Williamsport. In addition to diesel, they supply gasoline for their smaller vehicles and other entities.

Adding CNG to the facility's fuel offerings is a great opportunity for Williamsport and central Pennsylvania to benefit from its natural gas resources in Pennsylvania and will produce economic development in the region and provide long-term benefits to the community.



Learn more about how compressed natural gas can benefit you, your company, your environment and your economy at:

www.CNGFOCUSGROUP.com

Williamsport Regional Airport Impacts



Williamsport Regional Airport

- US Airways provides direct commercial air service to Philadelphia International Airport with 3 daily flights using 37 seat Dash 8-Turboprop aircraft.
- Approximately 50% of commercial passenger traffic is Marcellus related air travel. We report an 85% load factor meaning typically full planes which is highest load factor among PA commercial service airports.
- Approximately 60% of corporate aviation traffic is Marcellus related travel.
- Since Marcellus activity began enplanements have increased 44%. (18,000 total enplanements in 2008 to 26,000+ enplanements in 2012.)
- Airport Authority is seeking additional direct air service connections to Washington DC, Charlotte, Chicago and Orlando partly to better address Marcellus customer air travel needs.
- \$ 13.6 million project now underway to replace airport terminal building.

WILLIAMSPORT REGIONAL AIRPORT

- Airport Budget Has Gone from the Red to the Black by securing leases with gas companies to occupy airport property.
- Gas Industry Tenants Now Include:
 - Anadarko (7 employees)
 - Sooner Pipe (19 employees)
 - MB Machining (52 employees)
 - Infrastructure Pipeline Services (30 emp.)
 - Exco Corporation (28 employees)

These tenants have invested over \$ 7 million to improve airport property for their facilities

LYCOMING VALLEY RAILROAD IMPACTS



LYCOMING VALLEY RAILROAD IMPACTS

LVRR GAS WELL IMPACT



LYCOMING VALLEY RAILROAD IMPACTS

- In the past 3 years there has been a significant increase in carloads attributable to Marcellus Shale:

2009 = 1,230 total carloads

2010 = 5,789 total carloads

2011 = 6,880 total carloads

20% of total LVRR traffic is Marcellus related.

Each railcar load removes 4 trucks from road BUT rail cannot substitute for trucks as well sites are not rail served so an intermodal transfer from rail to truck must occur. Newberry Rail Yard is a major transfer center.

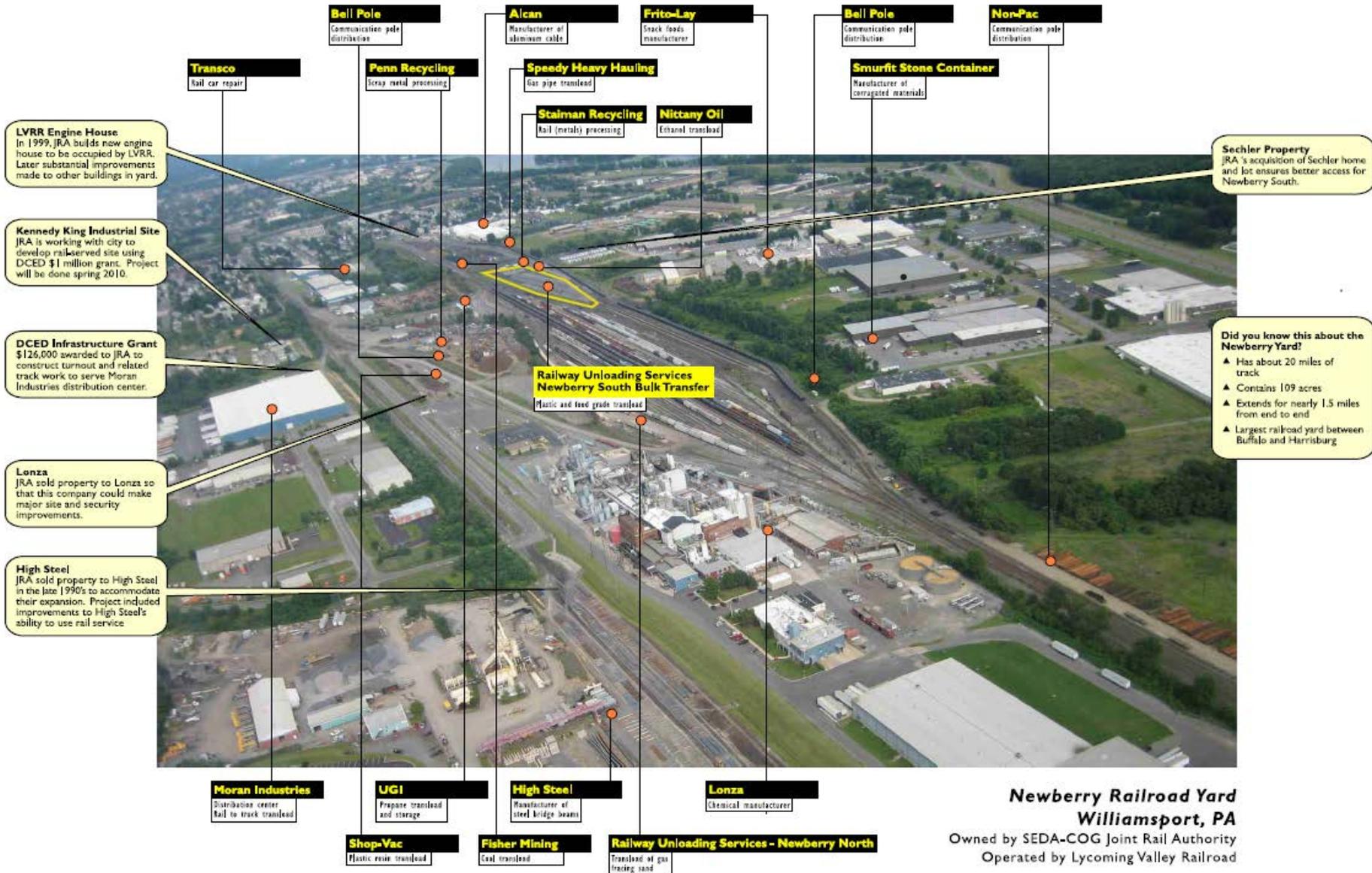
LYCOMING VALLEY RAILROAD IMPACTS

- The LVRR handles a variety of Marcellus related commodities:

<u>Commodity</u>	<u>Origin</u>
*Frac Sand	Ind, ILL, Mich, Wis, NJ
Steel Pipe	AR, AL
Plastic Pipe	Tx
Hydrochloric Acid	KY
Petroleum Oil	LA
Ground Barites	Tx, NV
Barium Sulfate	LA
Cement	Tx, Lehigh Valley
Ceramic Proppant	GA
Equipment (Primarily cranes)	CO, Saskatchewan

* Not unusual to have a frac sand inventory at Newberry Rail Yard of over 500 carloads at any one time.

Newberry Rail Yard



**Newberry Railroad Yard
Williamsport, PA**

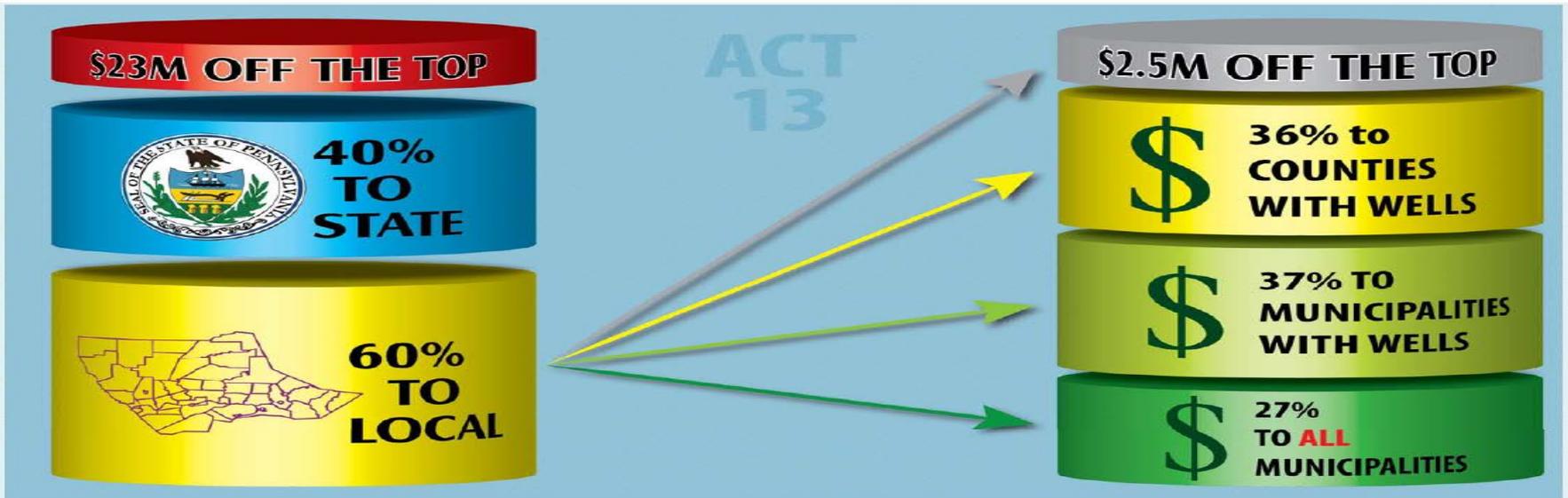
Owned by SEDA-COG Joint Rail Authority
Operated by Lycoming Valley Railroad

LYCOMING VALLEY RAILROAD IMPACTS

- Limited amount of rail served industrial sites in Lycoming County.
- SEDA-COG Joint Rail Authority received a \$ 10 million federal TIGER 2 Grant to improve rail infrastructure in 5 counties of service area to meet Marcellus rail demand and other industry needs.

Impact Fee Distribution

21



County Impact Fee Allocation

22

■ Lycoming County Estimated Allocation (36%)

Year	Estimated County Allocation
1	\$3,776,240
2	\$3,200,000
3	\$2,800,000

■ Key Components of County's Allocation

- Allocation based on proportion of spud wells physically located within Lycoming County
- Year 2 and 3 are conservative estimates

**Calculations based on DEP well count

LYCOMING COUNTY CONTACT INFORMATION

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JUST THE TIP OF THE ICEBERG??

