Gas Drilling – Impact on Roads

Gas Drilling in the Marcellus Shale

Roads Can’t Handle the Loads

Road degradation due to an increase in heavy truck traffic as a result of natural gas drilling in the Marcellus Shale:

The design life of County Roads is approximately 30 years. The impact of every 1,000 extra trucks on a county road would decrease the roads lifespan by .13% (Country roads average 1,000 vehicles per day).

In contrast, the design life of Town Roads is approximately 13 years.

The impact of every 1,000 extra trucks on a town road would decrease the roads lifespan by 2% (Town roads average 200 vehicles per day).

This assumes good materials are used.

• Data from “Preserving Local Roads” presentation by David P. Orr, PE, Cornell Local Roads Program.

Monetary Costs and Enforcement Problems

Natural gas drilling in the Marcellus Shale is currently taking place in Pennsylvania's Northern and Western Counties. In Bradford County, PA, 1,000 of 1,300 miles of roads have been damaged.

This type of road damage will lead to extraordinary monetary cost. In Pennsylvania, tens of thousands of dollars have been spent on weight limit signs alone. Arkansas State Highways have incurred over $200 million in repair costs in the Fayetteville Shale.

• $12,500/mi buys a single chip seal, which is a thin layer of asphalt sprayed onto the pavement, then covered by small rock chips, and smoothed and compacted with a roller. This amount does not include at site preparation costs.

• $100,000/mi buys a substantial reconstruction of a lightly trafficked road that has some residual strength. To dig up the road and strengthen it would cost double.

• PA spent $6,000-$12,000/mi (low for NYS).

• WV spent $50,000/mi

Enforcement Problems:
To mitigate road damage, enforcement of weight limits to keep heavy trucks off most vulnerable roads is key. Inspections are absolutely necessary. On two separate weekends in June and September 2010, Pennsylvania State Police inspected 2,300 gas-drilling trucks. Of those, more than 1,600 trucks were given citations for weight limit and safety violations.

Truck Traffic At A Glance

• 890 – 1,350 trips per well
• Trucks are 80,000+ lb.
• Well requires 5.6 Million Gallons of Water During Fracing
• Impact Hauled to One Site Equivalent of 3.5 Million Car Trips

Before Photo
SR 3020 in Towanda Township
Bradford Country, PA

After Photo
(photo/PennDOT Engineering District 4-0)
Legal Landscape

• To what extent may a municipality exercise its municipal home rule powers to protect their roads from activity associated with gas drilling?

• Environmental Conservation Law §23-0303 (2)
  • The provisions on this article shall supersede all local laws or ordinances relating to the regulation of the oil, gas and solution mining industries; but shall not supersede local government jurisdiction over local roads... Local governments are authorized to establish reasonable rules and regulations to protect local roads from damage and require well operators to post reasonable bonds or other security to ensure that local roads are adequately maintained and improved to handle traffic associated with oil, gas and solution mining activities.

• Requests for clarification of ECL §23-0303 (2) have been directed to the NYSDEC and to the State Legislature. The request urges the State Legislature to expressly authorize municipalities to protect their roads from damages as a result of gas drilling operations.
  • Clarification is needed because the NYSDEC contemplates that local municipalities will govern road use through agreements with drilling companies and regulation through State Highway and Vehicle Traffic Laws, but neither the NYS Highway Law nor the State Vehicle and Traffic Laws provide such clear authority.

• While the New York State Courts will ultimately decide the scope of a municipalities ability to exercise its home rule authority over natural gas drilling activity, for municipality’s weighing the risk of exercising such authority before the issue is confronted by the courts, the following merit consideration:

  • Municipalities may not specifically target the natural gas drilling industry when imposing permits and regulations for use of town roads. While local officials can assert weight restrictions, they must be uniform and not intended to single out vehicles utilized in oil and gas production. *Envirogas, Inc. v. Town of Kiantone*, 112 Misc.2d 432, 447 N.Y.S.2d 221 (Supreme Court, Erie County, 1982).

  • A local law that would impose any toll or fee on gas drilling trucks that use a road in order to raise revenue to improve said road, is pre-empted by state statute and not allowed. *Albany Area Builders Association v. Town of Guilderland*, 74 NY2d 372, 547 NYS2d 627.

Waterville, PA. Spill into Pine Creek, 3/16/2010. Water and Hydrochloric Acid is Released.

**Environmental Concerns: Stormwater Runoff**

• The disturbance of soil and rock as a result of road damage creates erosion and sedimentation. The heavy truck traffic associated with gas drilling creates incalculable loads of sediment and pollutants conveyed to streams in runoff.

• Currently, EPA does not address natural gas drilling when determining TMDL allocations for New York. The increased pollutant loading due to the impact of gas drilling on roads will frustrate attempts to comply with the TMDL in the Chesapeake Bay.

**Recommendation:**

• Advocate for greater insitutional and financial support from EPA to enhance the capacity of local technical providers, such as Soil and Water Conservation Districts (SWCD).

• SWCD’s can provide technical assistance when reviewing Stormwater Pollution Prevention Plans (SWPPP), act as third-party inspectors to ensure SWPPP compliance, and recommend access road locations so gas drilling trucks are required to avoid ecologically sensitive areas.
Lessons From Fort Worth, Texas

Municipalities in New York State can learn from the experiences of towns and cities in other parts of the country. Natural gas drilling has been occurring in Fort Worth, TX for over a decade. Two Fort Worth City Attorneys, Sarah Fullenwider and Rick Trice, discuss the legal strategies they have contemplated and implemented to protect Fort Worth’s roads from damage due to gas drilling activity:

• In 2001, Fort Worth negotiated an agreement with drilling companies to post bonds for road damage it could be proven was attributable to them. The City hired engineers to survey roads, and take before and after pictures.
• Result: As of yet, the City has not collected on any bonds because it has been too difficult to point the finger at gas drillers for long-term road destruction. However, some gas drillers have voluntarily agreed to pay for small road repairs.

• In 2009, Forth Worth looked to implement a Road Use Assessment Fee. Gas drilling companies would be charged an upfront fee at time of permitting for the use of the road. Engineers developed a design method to determine how many loads it would take to cause road failure, then they would take route data from gas drilling operators themselves, and come up with a ratio of the percentage of degradation of the roads that would take place due to each gas drilling company.
• Result: NOT ADOPTED – Strong opposition from the gas drilling industry.
• Criticism 1: How would the fee be charged? One time up front, or charged multiple times to rebuild the road?
• Criticism 2: Singling out gas drilling trucks, what about concrete and garbage trucks?
• Criticism 3: Gas drilling company engineers disagreed with City engineers on the life expectancy of the road.
• Criticism 4: A portion of gas drilling companies taxes already go towards paying a percentage of road repairs. NOT A VIALBE OPTION FOR NYS, can’t charge “impact fees”

Lessons from Fort Worth, Cont.

• Currently, Forth Worth is looking into imposing a Transportation Utility Fee. The City would charge each property owner a fee tacked on to their water bill, the amount depending on water consumption. Regular property owners would expect to pay $5 more, while gas drillers likely to pay a high free. The extra money would be used to fix road damage and build roads to withstand heavy traffic.
• Result: Still in planning stages as of Fall 2010. The City likes this plan because the gas driller cannot say they are being singled out. Texas is allowed to charge impact fees; however, this fee could potentially be construed by courts as an illegal tax.
• This strategy is unlikely to pass muster in NYS, as it could be seen as both an illegal tax and an illegal impact fee.

Overall Issues:
• The gas drilling companies have voiced concerns Fort Worth is singling them out to pay for road damage, while other heavy trucks use the same routes.
• Commercial truck route enforcement has been very difficult.
• The gas drilling industry is willing to be cooperative because there is money to be made, but there may be a breaking point.

“AFTER A DECADE OF NATURAL GAS DRILLING, FORTH WORTH HAS NOT YET FOUND THE PERFECT SOLUTION.” – SARAH FULLENWIDER, CITY OF FORTH WORTH ATTORNEY
Strategies & Recommendations

Preserving and Protecting Roads:
• Hire a traffic-engineering firm to conduct a traffic impact study and document the structural and functional condition of the road.
• Draft a Road Use Agreement with gas drilling companies, designating truck routes. Optional – negotiate an agreement with gas drilling companies to post bonds for future road damage attributable to them. Collaboration is key to drafting an agreement mutually acceptable to both parties. Remember – the gas drilling industry is not legally bound to enter into such an agreement, although they may see it as a cost of doing business.
• Post load limits and ENFORCE load zoning through random inspection.
• Keep heavy truck traffic off most vulnerable roads while keeping in mind gas drilling trucks cannot be singled out. Possible strategy - regulating "high-frequency, high-impact" truck traffic.
• Collaboration among towns - share information across municipal lines about what is being negotiated between towns and gas drilling companies.
• Monitor road conditions as drilling progresses.

Legal/Policy Recommendations:
• Convey the important issues facing municipalities to policy-makers in Albany.
  - Contact legislatures, staff members, and lobby groups such as the New York Association of Towns for increased funding and/or technical assistance for engineering studies, road repairs, and legal fees.
  - Request the NYS Attorney General to release an Informal Opinion on the scope of municipality’s ability to exercise authority over natural gas drilling activity.
  - Request NYS to produce a Model Road Use Agreement between towns and the gas drilling industry, giving towns guidance with the goal of preventing future litigation.

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