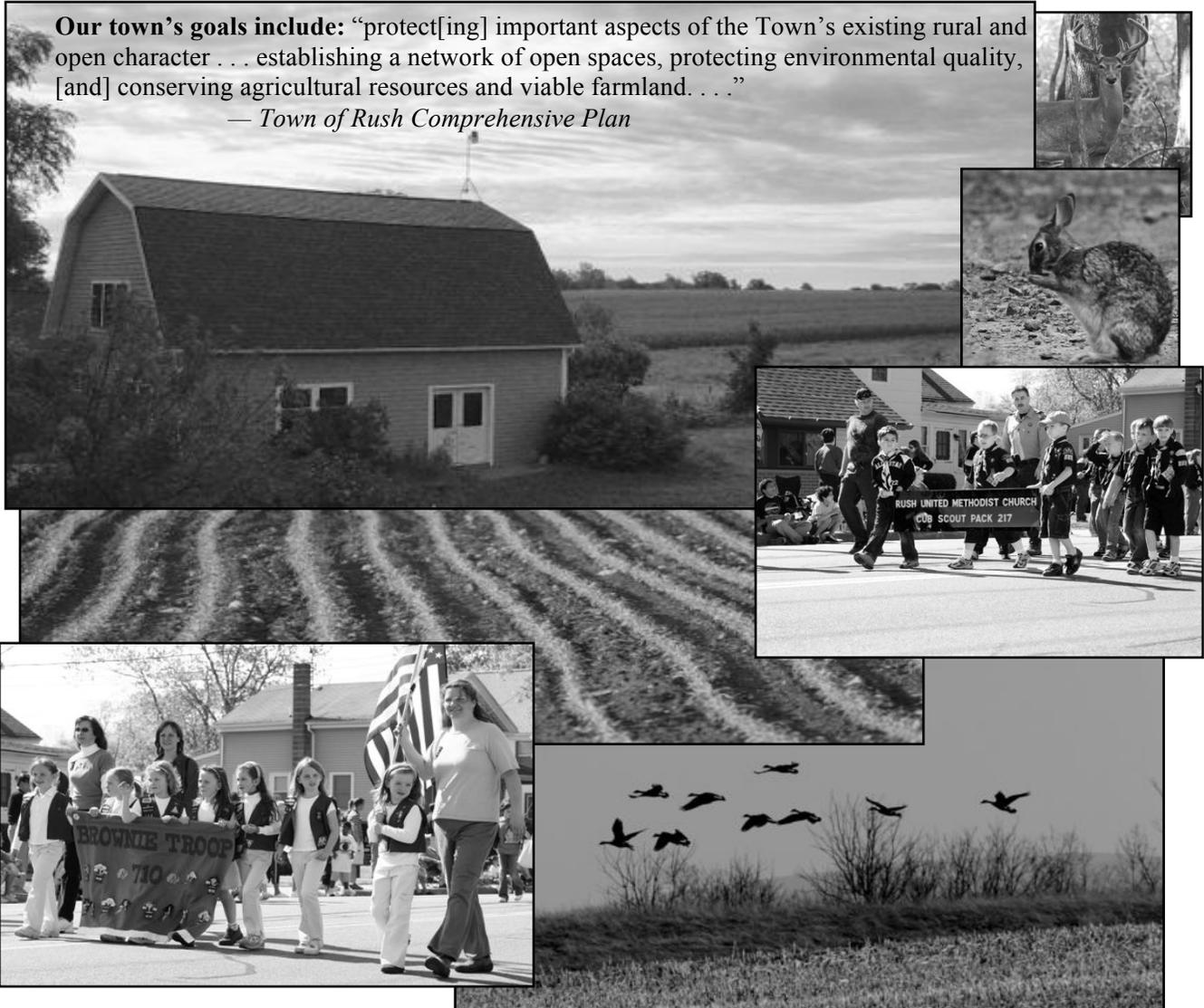


# Report of the Citizens Working Committee on Hydrofracking

Town of Rush  
January 21, 2013

**Our town's goals include:** "protect[ing] important aspects of the Town's existing rural and open character . . . establishing a network of open spaces, protecting environmental quality, [and] conserving agricultural resources and viable farmland. . . ."

— *Town of Rush Comprehensive Plan*



**Our Town:** "Established in 1818, the Town of Rush is a closely-knit rural community located in Western New York about 12 miles south of Rochester. It possesses a unique rural character among the nineteen towns which comprise Monroe County, with both wide-open spaces and wooded areas. Rush is predominantly a suburban, commuter community of the Greater Rochester Area and offers activities for the whole family. The town offers convenient access to jobs, shopping, and services throughout the metropolitan area, while keeping its serene, safe, small town qualities intact. With its rolling hills and quaint village, Rush is regarded by many as a diamond in the rough, perhaps Southern Monroe County's best kept secret!"

— *Town of Rush Website*

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**EXECUTIVE SUMMARY**

On March 28, 2012, the Rush Town Board passed a 12-month Moratorium on Gas and Petroleum Exploration and Extraction Activities, Underground Storage of Natural Gas, and Disposal of Natural Gas or Petroleum Extraction, Exploration and Production Wastes. *Hereafter, throughout this Report, we will use the phrase “Gas Drilling-Related Activities” to refer to this entire complex of activities.*

Following enactment of the Moratorium on Gas Drilling-Related Activities (Local Law #1 of 2012), the Rush Town Board created the Citizens Working Committee on Hydrofracking (the Committee). The Committee’s mission was:

- 1) to study the possible impacts on the town’s infrastructure and other assets, and on the health, safety, and welfare of the residents of the town, if Gas Drilling-Related Activities were allowed to be conducted within the town;
- 2) if the Committee determined that Gas Drilling-Related Activities would likely have negative impacts, to evaluate whether the town’s existing Zoning Ordinance allows such activities to be conducted within the town;
- 3) if the Committee determined that the town’s existing laws allow Gas Drilling-Related Activities, to evaluate whether it is feasible for the town to attach conditions on the conduct of such activities, so as to mitigate the expected negative impacts; or, whether such activities should be prohibited; and
- 4) if the recommendation is that Gas Drilling-Related Activities should be prohibited within the town, to present to the Town Board proposed legislation or amendments to existing laws.

**As set forth more fully in the body of this Report, the Committee concludes that:**

- 1) allowing Gas Drilling-Related Activities within the town has a high potential for negative impacts on the town's infrastructure, resources and assets; on the economic stability and vitality of the town; and on the health, safety, and welfare of its residents;**
- 2) the town Zoning Ordinance, as currently written, allows Gas Drilling-Related Activities to be conducted within the town; and**
- 3) it is not feasible for the Town to mitigate such negative impacts by attaching conditions on the conduct of such activities.**

**Based on these conclusions, the Committee recommends that the Town Board:**

- 1) Pass an amendment to our Comprehensive Plan (no later than March 28, 2013) that:**
  - a. specifically states that Gas Drilling-Related Activities are incompatible with the current and desired future character of the town;**
  - b. references the endorsement and acceptance of Rush's Farmland Protection Plan;**
- 2) Pass an Ordinance and Amendment as necessary to our current Zoning Ordinance (no later than March 28, 2013) that:**
  - a. will remove Gas Drilling-Related Activities as a permitted use under special use permit;**
  - b. will prohibit Gas Drilling-Related Activities in all areas of the Town;**
  - c. is based upon and inclusive of all issues addressed in the draft Zoning Ordinance Amendment attached to this Report;**
- 3) Pass a Road Use Ordinance (no later than June 28, 2013) that:**
  - a. provides explicit support to the Highway Supervisor to exercise his authority and enforcement power;**
  - b. sets a weight limit (based on criteria such as road design, curves, sight distance for driveways, pedestrian traffic, and capacity) that would apply to all town roads, that is posted and enforced, and that provides waivers only for farm equipment and materials;**
  - c. requires, as allowed under NYS law, a bond for any trucking company that establishes a travel path through our town, so as to ensure adequate funding for road repairs and other transportation-related expenses associated with Gas Drilling-Related Activities;**
- 4) Develop a Brine Prohibition Policy that will prohibit the spreading of hydrofracking byproducts on town roads for such purposes as de-icing and dust control (no later than June 28, 2013).**

## **GOALS & OBJECTIVES OF THE COMMITTEE**

Having passed the Moratorium law, the Town was obligated to study the issue and decide on a course of action before the end of the moratorium period. The Town Board thus created the Committee to consider what measures would be needed to ensure that our town is protected from the negative impacts of Gas Drilling-Related Activities. The Moratorium law states that it was passed “to allow the Town time to study the impacts, effects, and possible controls over such activities and to consider amendments to the Town’s zoning laws to address the same.” In keeping with this mandate, our goal was to conduct a fact-finding process that would identify the specific needs of our town, and to develop specific recommendations to be implemented by the Town Board that would protect the town from the negative effects of Gas Drilling-Related Activities.

Throughout this process, the Committee has focused on the implications of shale gas development for the Town of Rush. Our purpose is not to render a judgment on the natural gas industry and its practices in general. Instead, we have considered the much narrower question of how to protect our town and its residents from the potential negative impacts of Gas Drilling-Related Activities. Our top priority has been to preserve our rich rural heritage and landscape, to prevent the careless squandering of our natural resources, to protect the health and well-being of Rush residents, and to ensure the enduring viability of our community vision as identified in the town’s Comprehensive Plan.

We appreciate the Town Board’s confidence and support of our work. We welcome questions and feedback from town officials and other residents, and we urge prompt action on our recommendations before the end of the Moratorium to ensure a continuity of protection and to minimize exposure to legal liability.

## **METHODOLOGY**

The Committee conducted an extensive literature review and made direct inquiries to a number of experts and town officials. And on October 20, 2012, the Committee took a full-day field trip to Susquehanna and Bradford Counties in the Northern Tier of Pennsylvania to observe directly the impact of full-scale shale gas development on rural communities and towns.

In conducting its research, the Committee assessed a wide range of potential impacts, including those related to health, pollution (water, air, noise, and light), natural resources, agriculture, cumulative industrialization of the landscape, infrastructure, traffic, emergency responders, crime, economic stability, quality of life, and rural character of the town. The Committee also assessed our town’s current Comprehensive Plan, Zoning Ordinances, and Farmland Protection Plan and reviewed ordinances in other New York State towns where attempts have been made to address and mitigate the potential impacts of Gas Drilling-Related Activities.

In conducting its research, the Committee reached out to a broad spectrum of individuals and organizations, including several officials from the Town of Rush, with expertise on various aspects of Gas Drilling-Related Activities and its potential impacts. Among them were:

- Dr. Richard Young, Geologist, SUNY-Geneseo
- Michael Kenneally, attorney, New York Association of Towns
- Mark David, Rush Highway Superintendent
- Robert Faugh, Chairman of the Board of Fire Commissioners, Town of Rush
- David and Helen Slottje, attorneys, Community Environmental Defense Council
- Vera Scroggins, Citizens for Clean Water
- Cornell Cooperative Extension
- New York State Department of Environmental Conservation
- United States Environmental Protection Agency

Committee members also attended several presentations and workshops and consulted a wide array of publications and websites. Our literature review included:

- natural gas industry websites
- New York land-use laws and open-space guidance documents
- existing and proposed federal and state regulations and rules on natural gas development
- peer-reviewed scientific studies
- NYMIR Publication, “Protecting Our Local Roads”
- Town of Rush documents (Zoning Ordinance, Comprehensive Plan, Farmland Protection Plan, Natural Resource Inventory)
- Town of Rush road use and appraisal data
- 2010 Census and other town demographic information
- U.S. Geological Survey maps
- emergency first responder data

## **FINDINGS AND ANALYSIS**

### **Overview of Potential Impacts on Rush**

High-Volume Hydraulic Fracturing (HVHF), commonly referred to as “fracking,” is the only economically feasible means of developing shale gas. Each time a well is stimulated using HVHF, between two and eight million of gallons of frack fluid—consisting of water, chemicals and sand—are injected underground at enormous pressure (10,000-15,000 lbs. per square inch) to fracture the shale bedrock<sup>1</sup> and extract the gas entombed in its tiny pores and fissures. Among other things, HVHF:

- generates immense quantities of highly toxic wastewater that can pollute groundwater, surface water, and soil (fracking wastewater contains not only carcinogens, neurotoxins, and endocrine disruptors deployed in proprietary fracking fluids, but also naturally occurring radioactive substances, heavy metals, and hydrocarbons that come back to the surface in production brines and drill cuttings);
- requires massive, ecologically damaging water withdrawals from lakes, rivers, and aquifers;

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<sup>1</sup> Or, more precisely, the process re-fractures a multitude of tiny, naturally occurring fractures formed millions of years ago.

- generates enormous emissions of diesel fumes and volatile organic compounds, which, when combined with sunlight, result in dramatic spikes in ground-level ozone (chronic exposure to ozone, which can travel 200 miles from the point of origin, can result in permanent lung damage in humans and can damage the photosynthetic tissues of farm crops);
- generates large quantities of airborne crystalline silica dust, chronic exposure to which can lead to lung cancer;
- fills roadways with heavy trucks hauling hazardous materials;
- poses a risk of toxic spills, chemical fires, and explosions on well pads and in traffic accidents;
- poses a risk of earthquakes resulting from induced seismicity associated with deep-injection disposal wells and with the fracking process itself;
- sends sediment into streams;
- destroys and degrades forestland;
- leaks prodigious amounts of fugitive methane, a potent greenhouse gas, into the atmosphere.

Although research on the health impacts of HVHF is still in its early stages, a number of studies have already shown that the process poses a serious threat to the health of humans, farm and companion animals, and wildlife.

We also have abundant evidence of the threat that HVHF poses to underground and surface water sources. Unfortunately, the systematic study of that threat, as with HVHF's threat to public health, has been significantly hampered by (1) the gas industry's refusal to divulge the proprietary contents of fracking fluids to regulators and public health officials, and (2) the gas industry's insistence that plaintiffs in groundwater-contamination cases sign non-disclosure agreements before receiving any compensation. Despite these obstacles to the scientific study and regulatory monitoring of HVHF, what we do know is that there have been well-documented reports (more than 1,000 in states outside of New York) of contamination of groundwater and deep aquifers in areas with HVHF; that the EPA's own study of HVHF in Wyoming has revealed alarming levels of toxic chemicals in underground drinking water sources; that drilling areas are burdened with significant methane contamination of groundwater (this has occurred with both HVHF and "low-volume" vertical drilling); and that HVHF has resulted in stream and creek pollution, increased sedimentation, and erosion.

We also have ample evidence—in academic studies, journalistic accounts, and the Committee's first-hand observations in Pennsylvania's Northern Tier—that shale gas development poses a significant threat to the economic viability and character of rural communities. In Pennsylvania and elsewhere, previously tranquil rural communities have been transformed into heavy industrial zones. The once bucolic landscapes of these communities have been turned into what are, in effect, landscape-scale roofless factories. As in any extraction-based economy, the diverse array of businesses essential to viable local economies are "crowded out" by the gas industry's temporarily inflated wages and housing costs, and the local economy is then whip-sawed by the inevitable boom-and-bust cycle of resource extraction. Some industries—notably agriculture, wine-making, and tourism—are simply incompatible with the heavy industrial activities central to HVHF. As communities absorb a large influx of out-of-state roughnecks who take most of the high-paying jobs during the short-lived drilling phase (which includes the clearing of well pads,

drilling, fracking, and restoration of well pads), crime rates soar, as do the local financial burdens of dealing with such problems. The drilling and oil-field services companies, meanwhile, send the vast majority of their locally derived profits back to their out-of-state corporate headquarters. Likewise, the out-of-state workers typically send a significant portion of their pay back to their families in Oklahoma or Texas. As a result, the economic multiplier effect (i.e., the local recirculation of money) that once provided stability to the local economy diminishes dramatically. And as the labor-intensive drilling phase gives way to the capital-intensive operation and maintenance phase, the town is left with a declining population and the burden of maintaining an overbuilt physical infrastructure (roads, schools, etc. built to accommodate the initial boom). On a less tangible but no less important level, close-knit communities are frequently disrupted by hostile disputes between those who benefit economically from Gas Drilling-Related Activities and those who merely suffer its consequences. The lack of civility that we witnessed in Pennsylvania was striking.

In short, our research shows that Gas Drilling-Related Activities pose a serious threat to our town's natural resources and infrastructure, as well as to the health and welfare of Rush residents.

### **The Need for Local Action**

Because Rush lies north of the Marcellus Shale, the gas industry has not, thus far, pursued leases in our town. This has led some to conclude—erroneously, in our view—that Rush lies outside the gas industry's zone of interest. This conclusion ignores the fact that Rush is situated atop the much deeper Utica Shale, which has been developed in parts of Canada, Ohio, and Pennsylvania. Recent industry reports indicate a strong interest in extending this development in light of the glutted market in “dry” gas (mainly methane), a situation due largely to the overproduction of shale gas in the Marcellus, the Barnett, and other shale gas plays outside of NYS. Although the domestic price of dry gas has temporarily collapsed, it will likely rise again if the gas industry succeeds in its effort to reverse the direction of a dozen or so specialized Liquefied Natural Gas import facilities in order to export shale gas to foreign markets, where the price dry gas remains high. Recent developments in Washington strongly suggest that the permit-applications for these conversions will gain regulatory approval, though the actual retooling of the port facilities will take time, as it is a complicated and expensive technological process and faces some degree of political opposition from consumers and the industries that rely on natural gas as a feedstock (chemicals, plastics, synthetic fertilizers, etc.). In the interim, the gas industry has been shifting its assets into the development of shale formations rich in “wet” gas (a.k.a. “natural gas liquids”—e.g., propane, butane and ethane), which, for the time being, are more lucrative. In eastern Ohio, for example, the industry has been drilling successfully for natural gas liquids in the Utica formation. Rush, it is important to note, sits atop the same formation at around the same depth, which suggests that our area may be targeted for drilling sooner rather than later. It should also be noted that the Independent Oil & Gas Association of New York had its law firm, Hinman Straub, send our Town Board an 80-page letter attempting to dissuade it from passing the Moratorium, which suggests that Rush is indeed an area of interest for shale gas development.

While Rush may well be a target for shale gas development, the town cannot realistically rely on federal or state officials to protect it against negative impacts. A well-funded and politically

influential gas industry has managed to bring about a nearly total<sup>2</sup> exemption of HVHF from the protections afforded by the federal Safe Drinking Water Act, as well as partial exemptions from a whole range of other federal regulatory laws, including the Clean Air Act; Clean Water Act; Resource Conservation and Recovery Act; Comprehensive Environmental Response, Compensation, & Liability Act (“Superfund”); National Environmental Policy Act; and Emergency Planning & Community Right-to-Know Act. The current presidential administration has nevertheless signaled that it is intent on developing American shale gas resources and has made only minimal efforts to strengthen regulations at the federal level.

The situation is no more reassuring at the state level. New York State has had a moratorium on HVHF in place since 2008. The Department of Environmental Conservation (DEC) is expected to complete its environmental review process and finalize its proposed regulations in the next few months, allowing its Division of Mineral Resources (which, in what many regard as a conflict of interest, is charged with both promoting and regulating gas development) to issue permits for drilling. Both the environmental review and the promulgation of regulations have become targets of well-documented criticism from health professionals, scientists, municipal officials, and others who have taken the DEC to task for a number of major procedural shortcomings, including failure to: (1) consider the cumulative impacts of HVHF; (2) conduct a comprehensive health impact assessment; (3) assess the negative economic impacts of HVHF on the state and local communities; and (4) indicate how enormous quantities of toxic wastewater will be disposed of without causing widespread contamination of surface and underground water sources. Nor has the governor explained how a substantially defunded DEC plans to regulate HVHF when its staff has already shown itself incapable of adequately overseeing the far less intensive process of conventional gas development. Among the DEC’s greatest challenges is getting a handle on orphaned and inactive wells, which can act as conduits for the migration of fluids into shallow freshwater aquifers (particularly if HVHF is taking place in the vicinity). The agency has fully documented 4,100 of these wells, but it acknowledges that the problem is much greater in scope:

DEC has at least partial records on 40,000 wells, but estimates that over 75,000 oil and gas wells have been drilled in the State since the 1820s. Most of the wells date from before New York established a regulatory program. Many of these old wells were never properly plugged or were plugged using older techniques that were less reliable and long-lasting than modern methods.<sup>3</sup>

If the DEC can’t even stay on top of existing wells, it stands to reason that it will be unlikely to handle the regulatory burden that would come with tens of thousands of shale gas wells.

Critics have also wondered why our governor, who has repeatedly insisted that we must let science rather than emotion or politics be our guide on this issue, refuses to wait for the results of the most comprehensive federal study of fracking’s impact on the nation’s drinking water

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<sup>2</sup> Aside from prohibiting the use of diesel fuel in frack fluids, the exemption (which appeared in the Energy Policy Act of 2005) was total.

<sup>3</sup> NYS-DEC (Division of Mineral Resources), “New York State Oil, Gas, & Mineral Resources, 2009.”

resources. The final results of the Environmental Protection Agency's study will not be available until 2014, yet the DEC has already issued its proposed regulations and allowed a mere thirty days for public comment.

Finally, critics have noted that the whole notion of proposing regulations before completing the required Environmental Impact Statement—the most recent publically accessible iteration of which includes decidedly thin and industry-friendly assessments of environmental, economic, and health impacts—is irrational, arbitrary, capricious, and probably illegal. Put simply, the DEC has put the proverbial cart before the horse: how can a regulatory agency be expected to mitigate the risks of HVHF if it hasn't adequately assessed the nature of those risks?

It is expected that local communities that pass legislation to exclude Gas Drilling-Related Activities will be honored by the DEC, and that permits will be issued only in communities that choose to forego their constitutional right to Home Rule protection.<sup>4</sup> Assuming that the state will eventually lift its moratorium on HVHF, which seems likely at this point, municipalities wishing to protect themselves will need to enact legislation of their own to restrict or prohibit Gas Drilling-Related Activities. Moreover, they will need to protect themselves *before* the DEC begins issuing permits. If Rush allows its Moratorium to expire without enacting a ban of some sort by the time the permitting process has begun, any attempt to enact local protection from that point forward will be considered a regulatory taking and will subject the town to financially punitive lawsuits. The time to act is now. Waiting for the DEC to act—as urged not only by landowner coalitions with a vested interest in drilling, but also by a number of municipal officials in the Southern Tier who have refused to recuse themselves despite holding gas leases—is an abdication of responsibility, not a cautious approach to the issue.

In short, it is incumbent upon local governments to fill the regulatory vacuum left by federal and state regulatory agencies. Fortunately, New Yorkers have a well-established constitutional right to Home Rule, an invaluable tool for local elected officials seeking to exercise their right and responsibility to protect the residents, physical assets, and rural character of their towns.

### **Impact on Natural Resources of the Town of Rush**

#### **WATER RESOURCES:**

Rush has a substantial network of wetlands, with 7.5% of the town included in either federally regulated or state-regulated wetland. Our wetlands provide storm water drainage, flood storage, ground water recharge, and scenic beauty.

The main drainage features of the town are the Genesee River and Honeoye Creek, both bordered by federally designated 100-year floodplain. This fresh water, the value of which will

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<sup>4</sup> That right has thus far been upheld in the only three NYS Supreme Court cases involving local prohibitions of Gas Drilling-Related Activities (Dryden, Middlefield, and Binghamton). These decisions, it should be stressed, were rendered by three independent judges solely on the grounds of legal principle and involved no factual dispute. While it is impossible to predict the outcome of appeals with absolute certainty, such well-considered decisions are very unlikely to be overturned.

only increase as we head into an era of global water shortages, is threatened by both depletion and pollution should shale gas development come to our region.

More than 200 Rush residents depend on wells for fresh drinking water. Any damage to our aquifers or groundwater would at best result in a major inconvenience to well-owners and at worst a significant threat to their health and property values.

The threat to Rush's underground water sources is directly related to the specific geological characteristics of the town, which, according to Dr. Richard Young (Distinguished Service Professor of Geological Sciences at SUNY-Geneseo), overlies an extremely permeable limestone-karst bedrock formation called the Onondaga Formation (see appended map). Dr. Young notes that the issue of permeability is clearly illustrated by the 1970 Lehigh Valley Railroad spill, which released approximately 35,000 gallons of trichloroethene (TCE) into the soil. The spill occurred in nearby LeRoy, NY, which, like Rush, sits atop the Onondaga Formation. Once underground, the TCE was expected to flow north given the contour of the landscape. Instead, it flowed three miles to the east due to the irregular fracture systems in the Onondaga Formation, illustrating the high degree of hydrological unpredictability in extensively fractured limestone-karst formations.

The health of our citizens, the stability of our property values, and the ability of our town to attract future residential development all rely on the quality of our water and the viability of our water table and our natural drainage systems. All of these interests would be threatened by Gas Drilling-Related Activities in our town.

#### FOREST & FARMLAND RESOURCES:

Rush's forested areas, while comprising a relatively small percentage of the town's land mass, nevertheless provide a number of important "ecosystem services" to our community and region, including wildlife habitat and diversity, watershed services, carbon storage, and scenic landscapes. The town is also home to Rush Oak Openings, a valuable and distinctive ecological asset which, according to the DEC's Unit Management Plan for the site, "contains a globally rare plant community" and is "the only known intact oak opening remaining in New York State" and one of the few remaining in the eastern United States. The DEC further notes that "recent recognition of the rarity and importance of maintaining remaining oak openings for both biological and historical reasons" has led the Natural Conservancy, the Environmental Protection Fund, and the DEC to acquire the 228-acre site in order to preserve it.

As amply documented in Pennsylvania, Wyoming, and elsewhere, the building out of the sprawling industrial infrastructure associated with shale gas development results in significant loss and degradation of forest habitat. Wherever shale gas development has been conducted in forested areas, it has resulted in extensive habitat fragmentation (threatening species that rely on contiguous areas and corridors); pervasive "edge" disturbances (resulting in increased vulnerability to invasive species); excessive light, noise, and odors (threatening the ability of species to reproduce, find food, etc.); and the exposure of wildlife to toxic chemicals.

In addition to damaging forestland, shale gas development poses a serious threat to agricultural land and local food production. This is of particular concern in Rush, where 83% of the town's land—a total of 15,709 acres—is considered either prime farmland or high-quality or important

soil, as defined by the U.S. Department of Agriculture. Though the research on the impact of HVHF on agriculture is just getting underway, a number of studies have already demonstrated that shale gas development can undermine the viability of farmland, the health of livestock, and the safety of locally produced food. Among the dangers observed have been:

- polluted water and enormous water withdrawals;
- crop damage resulting from exposure to the high levels of ground-level ozone associated with fracking (ozone damages photosynthetic tissues of plants, hurting yields and leaving blemishes that can make some crops unmarketable; particularly vulnerable are spinach, pumpkins, watermelons, tomatoes, and grapes; also vulnerable is clover, which is a key forage crop in pastured livestock operations);
- damage to the health of livestock (including stillbirths, infertility, and outright poisoning);
- a threat to the integrity and safety of locally produced food (contamination of soil leads to bioaccumulation of toxins in plant and animal tissues);
- the undermining of existing organic agriculture (and the preempting of future operations) by threatening organic certification and the marketability of organic crops in areas where shale gas development takes place (several organic food wholesalers and cooperatives have publicly declared that they won't buy produce from farms in areas where drilling is permitted).

<b>Natural Resource</b>	<b>Number/Name</b>	<b>Potential Negative Impacts</b>
Streams, Rivers	Honeoye Creek	Stormwater events, increased sediment
Rivers	Genesee	Depletion, potential contamination
Ponds	No count available	Depletion, potential contamination
Reservoirs	1	Depletion, potential contamination
Aquifers	No count available	Potential contamination
Residential Wells	235 <sup>5</sup>	Potential contamination
Wetlands	Extensive	Potential contamination
Forest/Woodlots	Some coverage	Clearing for pipeline right of way
Farmland	15,709 acres	Potential contamination; risk to livestock

*Figure 1: Natural Resources Data for the Town of Rush*

### **Impact on the Health of Rush Residents**

While Gas Drilling-Related Activities threaten the health of anyone who lives or works in proximity to them (see discussion above), certain demographic groups are more vulnerable than others. These include children, who spend a great deal of time playing outdoors, and seniors, whose immune systems are frequently compromised and who may be struggling to manage respiratory, cardio-vascular, or other long-term ailments. This increased vulnerability is of particular concern in Rush, where more than a third of the residents are seniors (age 55 and older) and more than 14% of residents are age 14 or younger (see figure 2).

<sup>5</sup> The number may actually be higher if approved building lots are included.

<b>Age Group</b>	<b>Number of Individuals</b>	<b>Percentage of Rush Population</b>
4 years and under	123	3.5%
5-9 years	150	4.3%
10-14 years	224	6.4%
15-19 years	321	9.2%
55 years and older	1,180	33.9%

*Figure 2: Demographic Data for the Town of Rush (2010 U.S. Census)*

### **Impact on Local Economy of Rush**

Although most Rush residents are employed and access essential services outside of the town's boundaries, Rush does have a modest number of businesses that are important to the local economy. Gas Drilling-Related Activities within our town would place increased burdens on those businesses by driving up labor and housing rental costs, possibly resulting in the “crowding out” of local enterprises.

Businesses, farmers, and other residents, as well as the town government, would find themselves on the receiving end of a *de facto* “unfunded mandate” to pay for a whole host of gas development-induced expenses, including increased demand for:

- road repair and maintenance
- environmental monitoring and mitigation
- schools and health care
- emergency first-responder services
- social services (including schools, health care facilities, etc.)
- liability insurance coverage

While some property owners may reap financial gain by leasing their land, their neighbors who have no leases will be forced to endure the negative impacts of shale gas development without the financial gain. Those impacts include not only increased health risks, but also the decline of property values and the diminished ability to sell and relocate.

Gas Drilling-Related Activities bring with them other kinds of financial uncertainty. As a number of lending institutions have warned, borrowers who lease their land for drilling may be violating the terms of their mortgage agreement and may even be in technical default on the loan, in which case the lending institution could repossess the property. Gas leases also make it more difficult to obtain a mortgage in the first place. They may also invalidate homeowner's and/or liability insurance policies. Recently, Nationwide Insurance announced it would not offer coverage to property owners who sign gas-drilling leases.

Group	Current Approx. Number	Potential Negative Impacts	Potential Positive Impacts
Businesses	73	Instability of boom-bust cycle; reduced multiplier effect; upward pressure on wages and rental housing for workers; “crowding out” non-gas-related enterprises, resulting in diminished economic diversity and resilience	Temporary spike in demand for goods and services
Farmers	70	Damage to crops and livestock; depletion and pollution of water needed for irrigation; undermining of consumer trust in locally grown crops	Potential short-term economic benefit for leaseholders
Schools	2 (Leary & Industry)	Risk of toxic exposures and vehicular accidents due to increased traffic	None
Group Homes	4	Risk of toxic exposures and vehicular accidents due to increased traffic	None
Home-owners	1,239	Risks to health and property values; negative impact on mortgages and homeowners’ insurance; increase in town- and property-tax burden due to unfunded mandate (road repair, spills, emergency services, crime, etc.)	Potential short-term economic benefit for leaseholders
Renters	122	Upward pressure on rents with non-industry renters being “priced out” of the rental market	None
Land developers		Loss of confidence and interest on the part of potential buyers	None

*Figure 3: Economic Impacts*

**Impact on Road Use and Road Preservation in Rush**

In assessing the impact on road-use and road preservation, the Committee identified two broad categories of risk: (1) the impact on roads if Gas Drilling-Related Activities are allowed to proceed within town limits, and (2) the impact on roads even if the town bans Gas Drilling-Related Activities within its borders.

Rush currently has 23.65 centerline miles of town roads, as well as 27.44 centerline miles of county roads and 17 centerline miles of state roads, for a total of 68.09 centerline miles of road (or 136.18 total lane miles). None of the town or county roads represented by this figure are structurally capable of accommodating the heavy truck traffic required for shale gas development, and it is unknown if the state roads are capable of doing so without significant upgrade.

Many of the roads running through have short “sight distances,”<sup>6</sup> which increases the danger to pedestrians, bicyclists, and motorists posed by the large numbers of heavy truck trips required in shale gas development. This will be of particular concern to the considerable number of residents with driveways obscured by hilly terrain and/or vegetation.

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<sup>6</sup> The U.S. Department of Transportation defines “sight distance” as “the length of roadway ahead that is visible to the driver.”

Many town roads were originally winding, narrow, one-lane dirt roads with no shoulders. While they have been updated, their design and weight capacity remain significantly limited. Such limitations, however, should be seen as a blessing—an important part of the town’s rural character. Rush residents are accustomed to quiet, uncongested, tranquil town roads, where residents of all ages can safely walk and bike, enter and exit their driveways, and pick up their mail without excessive fear of accidents. If shale gas development comes to our town, the rural character of our roadways will change dramatically, as the Committee observed in its visit to the Northern Tier of Pennsylvania.

The Town of Rush is approximately 30 square miles in size. With the DEC’s proposed 40-acre drilling units (allowing 16 wells per square mile<sup>7</sup>), our community could theoretically accommodate as many as 480 potential wells. Each well that is developed using HVHF requires an average of 1,000 round-trip truck trips.<sup>8</sup> That would mean a total of 960,000 one-way truck trips. While it is very unlikely that Rush would have that many wells, the above estimate includes only the potential maximum number of truck trips generated by gas development within our town borders. In other words, the 960,000 figure does not include truck trips through Rush that originated at gas development sites in other towns throughout the region. Even if we take a very conservative estimate—say, 50 wells—we would still be dealing with at least 100,000 truck trips generated by our town alone. That figure is even more ominous when one considers that impact of heavy truck traffic versus automobile traffic. The New York Municipal Insurance Reciprocal (NYMIR) notes: “by some estimates, each passing of a single large truck is equivalent of approximately 9,000 passing automobiles.” NYMIR also notes that “the cost to repair damaged pavement on local roads varies from \$70,000 - \$150,000 per lane mile for low level maintenance such as single course overlay, up to \$500,000 - \$1.9 million per lane mile for full-depth reconstruction. For local bridges, the costs increase.”

While the town is responsible only for the financial costs of maintaining its own roads, Rush residents would be forced bear the burden of inconvenience, noise, dust, and diesel fumes that would accompany the continual maintenance and upgrade of *all* roads necessary to support shale gas development.

While a ban prohibiting Gas Drilling-Related Activities is critical to the well-being of our community, we also need to protect our roads and our community from the regional impact of shale gas development. Because of our town’s location, we could easily be on the route of county, state, and regional truck traffic coming and going from gas drilling sites while hauling prodigious amounts of fresh water, sand, toxic chemicals, toxic wastewater, and contaminated

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<sup>7</sup> NYS-DEC, *Revised Draft: Supplemental Generic Environmental Impact Statement On The Oil, Gas and Solution Mining Regulatory Program* (2011). NOTE: this is the latest publicly available version of the state’s environmental impact statement and is commonly referred to as rdSGEIS.

<sup>8</sup> Note that the 1,000 trip figure is the most commonly cited estimate. New York Municipal Insurance Reciprocal (NYMIR), however, suggests a much higher estimate: “With each horizontal well, it is estimated that approximately 3,950 heavy truck trips (round trips) will be made, along with approximately 2,840 light truck trips (round trips). If a single well pad contains multiple wells, then the number of trips stated above will be multiplied by the number of wells on the well pad.” NYMIR adds: “Because of the quantity of water used in HVHF and the proximity of the water to the well pads, the majority of these trips will be made on local roads.”

drill cuttings, as well as heavy equipment used for drilling, fracking, and the excavation of well pads and pipeline right-of-ways.

To protect our roads and the safety of our residents, the Committee has concluded that Rush will need to take two courses of action: (1) ban Gas Drilling-Related Activities within the town; and (2) pass legislation that will require any trucking companies who pass through our town to assume responsibility for any damage they do to our town roads, and that will restrict traffic on all roads that run through our town. Towns in NYS are permitted to pass ordinances enforcing a range of road-use stipulations, including the setting of weight limits, the restricting of truck traffic to appropriate routes, the setting of liability requirements for road damage, etc.

Working with the Town Highway Supervisor and members of his department, along with the NYS Association of Towns, Rush will be able to develop an effective ordinance that is tailored to the specific and unique needs of our town, that is designed to protect the safety of our residents, and that preserves the attractive rural character of our town's peaceful, winding roads. The Committee reviewed four road-use ordinances from other locations (Town of Otsego, Village of Cooperstown, Tioga County, and the Town of Perinton) that may be useful for Rush officials as they formulate an ordinance for our town (see appendix).

### **Impact on Emergency Preparedness in Rush**

In assessing the impact of shale gas development on Rush's emergency preparedness, the Committee first took stock of the town's current assets and deficits, and then projected the likely outcome of placing additional pressure on existing resources. Rush, we learned, is fairly limited in its capacity to handle emergencies on its own—especially the sort of industrial accidents that have accompanied shale gas development in other communities. The town has no police department of its own and is served by a small volunteer fire department, the members of which are trained and equipped to provide a limited range of emergency medical services. Faced with limited resources, Rush Fire Department: (1) operates a single ambulance that provides only Basic Life Support services; (2) must rely almost entirely on the Monroe County to handle accidents involving Hazardous Materials; and (3) must contend with chronic staffing shortages. The Rush Fire Department's website states: "It is getting harder and harder to come up with people to take care of our calls from 6 am to 6 pm. When we have our few firefighters out of town on an ambulance run which takes almost two hours we have almost no one left for another call, EMS or fire."

Given these constraints, the Department must rely heavily on "mutual aid" arrangements with surrounding towns, including Avon, Henrietta, and Honeoye Falls. When none of the adjacent communities are able to provide assistance, Rush must rely on emergency services from communities further away, as well as county-level services provided by Monroe Ambulance/Transportation and Rural/Metro Medical Services. To the extent that these circumstances result in longer response times, risks to life and property increase.

After assessing the strengths and weaknesses of our current emergency services, the Committee proceeded to evaluate the additional pressures that shale gas development would likely place on the town's capacity to respond to emergencies. As amply demonstrated by news reports, academic studies, and our own first-hand observations in the Northern Tier of Pennsylvania, communities undergoing intensive shale gas development face substantial increases in:

- the volume of heavy truck traffic and general road congestion;
- the number of traffic accidents, including those potentially involving toxic spills and explosions;
- the risk of industrial accidents involving hazardous materials (including explosions, fires, and spills into surface water involving toxic and radioactive materials, etc.) at well pads, compressor stations, and other sites associated with gas development;
- the volume of emergency calls (in 2010, e.g., Bradford Co., which lies at the epicenter of shale gas development in Pennsylvania's Northern Tier, experienced a 30% increase in emergency calls, a 60% increase in DWIs, and a 35% increase in crime).

Given that Rush's existing emergency service providers acknowledge that they are already overextended, the added burden of shale gas development should be of grave concern. To begin with, the potential for Multiple Casualty Incidents (MCIs) would be greatly increased. Considering that Henrietta is already expected to answer a high volume of EMS calls, and that Honeoye Falls/Mendon Volunteer Ambulance relies on just one ambulance crew to cover its own district at any given time, adequate coverage for emergencies in Rush would not assured without substantial investment in local service provision.

The added burdens brought by shale gas development not only would increase the likelihood of longer response times (and thus greater risk to lives and property), but also would place upward pressure on Fire District fees to cover additional needs. The Rush Fire Department has always taken great pride in being the last all-volunteer service in Monroe County. The increased call volume associated with HVHF would very likely force Rush to turn to paid emergency personnel, possibly even contracting with county-level service providers. If Pennsylvania is any guide, hiring additional personnel during the boom phase of a gas rush, when wages are high and unemployment is low, is both difficult and costly. Either scenario—shifting to a professional staff or subcontracting services from the country—would result in additional expense to Rush residents, who have traditionally reacted with great negativity to any increase in taxes.

### **Impact on Quality of Life and Rural Character of Rush**

Our Comprehensive Plan, adopted in 1993, supports the preservation of our rural heritage as a primary goal. The intent of the plan is "to protect important aspects of the Town's existing rural and open character" and its goals "include establishing a network of open spaces, protecting environmental quality, [and] conserving agricultural resources and viable farmland." These goals are confirmed in the recently passed Farmland Protection Plan, a community project ~~that was~~ launched "[i]n recognition of agriculture's importance to the future of Rush" and to enable the town "to embrace and protect its agricultural assets." The Farmland Protection Plan was approved by the Town Board on 9/12/12 and is on a path to being implemented by the Town. In its review of the plan, New York State has encouraged the town to incorporate a reference to the plan and its goals into the Town Comprehensive Plan.

Judging by what Committee members have observed in the academic and journalistic literature on shale gas development, as well as in our first-hand observations of communities in the Northern Tier of Pennsylvania, we strongly believe that the anticipated negative impacts of Gas Drilling-Related Activities on our landscape, ecosystems, physical infrastructure, local economy, and public health are fundamentally incompatible with the vision of life in Rush that is embodied in our Comprehensive Plan and in the Farmland Protection Plan. Those important town

documents buttress our recommendation for a prohibition of Gas Drilling-Related Activities in Rush.

### **Review of Rush's Current Zoning Ordinance**

As a result of a 2003 amendment, our Zoning Ordinance lists “natural gas extraction” as a permitted use (by special permit to be issued by the Planning Board) in our residential zoning districts—R-20, R-30, RR-5, R-MD, and R-MH—which currently comprise 19,089 acres, amounting to 97.6% of our town.

The Committee has identified several problems with this situation, which are listed briefly here and elaborated below: (1) relying on the discretionary power of the Planning Board leaves the town vulnerable both to the impacts of Gas Drilling-Related Activities and to lawsuits; (2) the Town never offered an explicitly stated rationale for allowing natural gas extraction as a permitted use; (3) HVHF is a heavy industrial activity that is utterly inappropriate for residential areas.

Relying on the discretionary power of the Planning Board to stave off undesirable impacts of an activity allowed by special-use permit is unwise. While NYS Home Rule protections allow municipalities to *ban* gas mining by enacting appropriate land-use laws (as discussed in the next section), lawyers on both sides of the HVHF debate agree that the NYS Environmental Conservation Law 2303-2 gives the state exclusive authority to *regulate* gas development activities. In other words, a municipality has the right to ban Gas Drilling-Related Activities outright, but once it allows such activities in the town—even by the normally restrictive mechanism of special-use permits—the town will have *no legal right to regulate how, when, or where the activities will take place*. So, for example, because industry standards hold that the most economically efficient way to extract natural gas is to drill and frack 24/7, and because ECL 2303-02 is intended to facilitate the most efficient extraction of the gas, residents living in the vicinity will be subjected around the clock to light, noise, dust, and heavy truck traffic generated by such operations, whether they like it or not. The town will have no power whatsoever to regulate such activities. In short, our Zoning Ordinance, as currently written, will not allow the Planning Board either to exclude or to regulate Gas Drilling-Related Activities. In retaining the Zoning Code as written, the town is effectively—and unnecessarily—*forfeiting its Home Rule authority to manage its own land-use decisions*.

The identified purpose of the 2003 Amendments to the Zoning Ordinance was to make the granting of special permits the responsibility of the Planning Board rather than the Zoning Board, in keeping with common practice in other towns. In making this procedural change, the Zoning Board, tasked with drafting the revisions, inserted a list of activities to be allowed by special permit, including natural gas extraction. The town minutes offer no rationale for the inclusion of natural gas extraction, which has never taken place in our town. There was no fact-finding or report in the minutes in support of the change, and there was no comment on this or any other aspect of the Amendments during the Town Board meeting at which they were passed.

This is an inadequate and risky approach to dealing with the possibility of natural gas extraction in Rush, especially given the subsequent advent of HVHF in our region of the country. The intensive industrial nature of that process could not possibly have been anticipated by the various town boards when they proposed, considered, and approved the Amendments. New Yorkers'

understanding of the impacts of HVHF first took shape with the use of the process in the Northern Tier of Pennsylvania. Since that use began around 2008—i.e., several years *after* Rush officials decided to allow Gas Drilling-Related Activities by special permit—it is now essential for town officials to revisit that decision in light of what we know about the risks associated with HVHF.

Zoning District Abbreviation	District Name	Designation Total Acres	Percent of Town	Gas Drilling Currently Allowed by Special Permit
R-20	Residential	764	3.9	Yes
R-30	Residential	18,278	93.4	Yes
RR-5	Rural Residential	0	0	Yes
R-MD	Multiple Dwelling Residential	35	0.2	Yes
R-MH	Mobile Home Residential	12	0.1	Yes
R-TH	Townhouse Residential	0	0	No
C	Commercial	271	1.4	No
RB	Restricted Business	0	0	No
I	Industrial	0	0	No
LI	Limited Industrial	191	1.0	No

**Figure 4: Existing Zoning Districts in the Town of Rush (from Rush Farmland Protection Plan)**

### **The Town's Authority under Home Rule to Protect Itself**

As a society, we have a long history of restricting heavy industry to confined areas in order to protect our homes, schools, playgrounds, and hospitals. Our modern zoning laws are a product of that common-sense desire to protect our selves and our families. With the advent of HVHF, which has aptly been described as a landscape-scale industrial process, the fossil fuel industry is now asking us dispense with that historical precedent. The gas industry, we are told, should be allowed to intersperse its heavy-industrial activity among our homes, schools, playgrounds, and hospitals. Communities in states lacking sufficient Home Rule protections—Pennsylvania, e.g.—have had remarkably little control over this unprecedented development as it has unfolded thus far. In contrast, NYS municipalities have a well-defined and legally encoded tradition of Home Rule that allows them to regulate land use within their own borders. Large, out-of-state (frequently multinational) corporations cannot simply walk into our communities and tell us what they can and can't do, regardless of its impact on our health, environment, and economy.

Zoning is intended to ensure that the use and development of land is done in a manner that (1) aligns with a specific community's vision and goals and supports the community's comprehensive plan; (2) is consistent and compatible with identified local priorities, concerns and interests of residents; (3) supports a community's demographics and special environmental concerns; (4) is consistent with the character of the town; and (5) protects the health and wellness of all citizens, and their quality of life.

Under New York State laws, including the Home Rule Law, and in the legitimate exercise of its police power, a municipality is able to pass limits on the use of land through zoning and land-use ordinances to protect the health, safety, and welfare of its citizens. By invoking Home Rule authority, our town can decide now to block Gas Drilling-Related Activities as a type of

undesirable heavy industry incompatible with our Comprehensive Plan.

With a ban, a town is not trying to supersede the state's authority to *regulate* Gas Drilling-Related Activities (that authority was established by the NYS Environmental Conservation Law, Section 2303-2), but is deciding whether to allow such an activity at all. Such land-use decisions—even in the case of oil and gas development—are clearly supported by the Home Rule Law. In the three cases that are making their way through the judicial system, the courts have thus far upheld the right of towns to enact bans on Gas Drilling-Related Activities. (These cases are discussed in greater detail above, in the section titled “The Need for Local Action.”) There is every indication that the Cuomo administration will not stand in the way of towns that wish to exercise Home Rule to prohibit Gas Drilling-Related Activities.

### **Pennsylvania Field Trip Review**

Our field trip to Pennsylvania's Susquehanna and Bradford Counties on October 20, 2012, allowed us to view every phase and aspect of hydrofracking, including:

- drilling and hydraulic fracturing
- productive wells in the operation and maintenance phase
- compressor stations and pipelines
- residences requiring replacement water and venting of their water wells
- deteriorated and abandoned gas wells
- bitter disputes over hydrofracking that threatened to undermined the civility of formerly peaceful communities

We saw first-hand that once a town has been opened to Gas Drilling-Related Activities, the industry seeks to develop the area as fully as possible. Wells are fracked and re-fracked as many as ten or more times, and infrastructure is continually built out. In order to achieve economies of scale and improve their bottom line, the gas companies will turn a previously serene rural setting into a heavy industrial site.

One of the most long-lasting and powerful observations during our field trip to Pennsylvania was the impact of Gas Drilling-Related Activities in towns without zoning ordinances to protect them. There we witnessed haphazard arrays of well pads; severely damaged paved roads; unpaved roads turned into wide dirt “highways” to accommodate 24/7 truck traffic; rural neighborhoods transformed into what looked like industrial factory sites; open lands and forests fragmented by hastily constructed pipelines requiring 100-foot right-of-ways maintained with the use of prodigious amounts of herbicides. All of these things showed us a cumulative effect on rural communities that is devastating and irreversible.

We were able to witness graphic examples of rural communities protected only by the Pennsylvania Department of Environmental Protection, which, like the NYS Department of Environmental Conservation, is charged with the conflicting mandate to both regulate and promote natural gas development. The experience provided a sobering look at the consequences of allowing a lightly regulated extractive industry extensive access to rural communities. We came away determined to urge our town leaders to use all local measures available to protect our way of life.

Our video footage of the field trip can be viewed on YouTube or via a link given at the Town of Rush website; the link is also given in our Appendix.

— REPORT CONTINUES ON NEXT PAGE —

**RECOMMENDATIONS****Based upon the Findings and Analysis in this Report, the Committee recommends that the Town Board:**

- 1) **Pass an amendment to our Comprehensive Plan (no later than March 28, 2013) that:**
  - a. **specifically states that Gas Drilling-Related Activities are incompatible with the current and desired future character of the town;**
  - b. **references the endorsement and acceptance of Rush's Farmland Protection Plan;**
  
- 2) **Pass an Ordinance and Amendment as necessary to our current Zoning Ordinance (no later than March 28, 2013) that:**
  - a. **will remove Gas Drilling-Related Activities as a permitted use under special use permit;**
  - b. **will prohibit Gas Drilling-Related Activities in all areas of the Town;**
  - c. **is based upon and inclusive of all issues addressed in the draft Zoning Ordinance Amendment attached to this Report;**
  
- 3) **Pass a Road Use Ordinance (no later than June 28, 2013) that:**
  - a. **provides explicit support to the Highway Supervisor to exercise his authority and enforcement power;**
  - b. **sets a weight limit (based on criteria such as road design, curves, sight distance for driveways, pedestrian traffic, and capacity) that would apply to all town roads, that is posted and enforced, and that provides waivers only for farm equipment and materials;**
  - c. **requires, as allowed under NYS law, a bond for any trucking company that establishes a travel path through our town, so as to ensure adequate funding for road repairs and other transportation-related expenses associated with Gas Drilling-Related Activities.**
  
- 4) **Develop a Brine Prohibition Policy that will prohibit the spreading of hydrofracking byproducts on town roads for such purposes as de-icing and dust control (no later than June 28, 2013).**

Finally, the Committee wishes to re-emphasize the importance of acting quickly on these recommendations. Once the DEC finalizes its regulations, any attempt the town makes to restrict Gas Drilling-Related Activities in Rush—including but not limited to the Planning Board denying permit applications—will be ineffective and will expose the town to potentially lengthy and costly litigation that, based on our in-depth review, we believe the town would lose. Only by passing the recommended amendments to our zoning ordinances can we maintain our position to manage our future in this regard. The Town Board has a well-supported right and responsibility under NYS Town Law Home Rule provisions to pass zoning ordinances to manage land use based on our comprehensive plan. This right has been consistently upheld by our New York State courts, and we are in an excellent position if we act now before our moratorium is over to protect our residents and preserve the character of our town.

## **ACKNOWLEDGMENTS**

We gratefully acknowledge the dedication and time committed by many people, including:

- Committee Co-Chairpersons: Carol Barnett, Jordan Kleiman
- Committee Members: Ted Barnett, Kathryn Hankins, Beth Hoak, Bob Powers, Marianne Rizzo
- Town Board Liaisons to the Committee: Councilwoman Lisa Sluberski (resigned October 2012) and Councilman Bill Riepe

We also wish to thank Town Supervisor Rich Anderson; members of our Town, Conservation, Planning, and Zoning Boards; Town Highway Superintendent Mark David; Supervisor's secretary, Valerie Mertsock; Town Clerk Pam Bucci; and Assistant Town Clerk Meribeth Palmer. Finally, we would like to express our gratitude to the many individuals from neighboring towns who are working on this issue and who shared their ideas. Many others contributed to our work, for which we are very grateful.

The appendices can be viewed at:

<https://www.dropbox.com/s/13y6r8hmn7off2g/CWCH%2C%20Final%20Report%2C%201-21-2013%2C%20website.pdf>