NCDOT [DRAFT] Report to the Joint Legislative Energy Policy Commission and the Joint Legislative Transportation Oversight Committee

I. LEGISLATIVE REQUIREMENT

Session Law 2014-4, Section 23(a) requires the NC Department of Transportation to study "(i) additional statutory authority that may be necessary or advisable for the Department to adequately address energy-related traffic, including authority that pertains to permitting and assessment of fees; (ii) the feasibility and advisability of including any requirements that the Department may recommend to manage energy – related traffic, and resulting impacts, in a coordinated permit in conjunction with requirements of the Department of Environment and Natural Resources, or whether such requirements should be implemented through a separate permitting process; and (iii) performance bonding and any other surety mechanisms, including road use agreements, to reclaim and repair any State posted roads that are damaged due to heavy vehicle, equipment, and machinery traffic used in support of and conjunction with horizontal drilling and hydraulic fracturing operations on State posted roads. For purposes of this study, the term 'posted roads' means a system that records any secondary road on the State Highway System that is unable to carry heavy vehicles or equipment. In the conduct of this study, the Department shall do the following:

(1) Consider mechanisms for requiring performance bonds running to the Department.
(2) Develop criteria for setting the amount of the bond, including the weights and size of the proposed vehicles, equipment and machinery projected to utilize posted roads, the planned route and projected number of trips, and the duration of the activity necessitating travel of heavy vehicles, equipment and machinery along posted roads.
(3) Identify documentation to support bonding of posted roads.
(4) Identify any statutory or regulatory changes necessary to maintain and protect the State's transportation infrastructure network.~~"~~

II. EXECUTIVE SUMMARY

~~This report is meant~~ designed ~~to comply with the mandate set forth by the NC General Assembly (NCGA) in Session Law 2014-4, Section 23(a). In~~While ~~this report does satisfy the NCGA's mandate, it also goes past the mandate by providing information on all of the~~ 2012, the NCDOT began~~'s~~ studying~~ies~~ and researching ~~into~~ the ~~likely~~ impacts of energy-related traffic in other states~~, going back to 2012~~. As discussed in detail herein, the NCDOT's studies and research led to the determination that a road use and maintenance agreement, or "RUMA", is the best tool for maintaining and safeguarding North Carolina's transportation infrastructure. While the NCDOT acquainted itself with the specifics~~learned the fine points~~ of RUMAs during its study of natural gas industry traffic, the proposed RUMA policy outlined herein can and will be applied to all industries with hauling operations.

–Nonetheless, in the interests of complying with the above-outlined mandate from the NCGA, this report focuses on how the NCDOT intends to use the RUMA to work with the energy industry specifically. In order to meet that goal, t~~This report also provides additional information not specifically requested by the NCGA. T~~hise report is comprised of the following sections:

III. Summary of the NCDOT's Investigation and Studies to Date – *Includes a summary of the NCDOT's research into the e~~a~~ffects the energy industry, and specifically hydraulic fracturing, have had on other states. Also includes a summary of how other states have chosen to regulate and manage industry-related traffic.*

IV. Options for Management of Industry Traffic – *Includes an overview of the three policy options considered by the NCDOT for management of industry traffic, along with the pros and cons of each option. The options considered were funding of maintenance through the severance tax, posting and bonding, and a road use and maintenance agreement (RUMA).*

V. Case for the RUMA – *Includes a five-point overview of why the RUMA is preferable to the other regulation schemes considered.*

VI. Structure of the RUMA Policy – *Includes a summary of how the NCDOT proposes to implement the proposed RUMA policy, including a summary of the anticipated permitting and compliance costs, a summary of the anticipated infrastructure repair costs, a description of the proposed bond calculation, and a summary of the existing statutory authority and additional statutory authority and fees needed to implement the policy.*

VII. An Example of How a Hypothetical RUMA Would be Implemented – *Using a possible well site on Plank Road in Lee County, the details of how a RUMA would be implemented are provided.*

VIII. Conclusion – *An overview of the findings of the NCDOT's studies and the proposed RUMA.*

Based on the contents of this report (as above-outlined), the NCDOT represents to the Joint Legislative Energy Policy Commission and the Joint Legislative Transportation Oversight Committee that the following conclusions can be made:

(i) Regarding the NCGA's request that the NCDOT study "additional statutory authority that may be necessary or advisable for the Department to adequately address energy-related traffic, including authority that pertains to permitting and assessment of fees", the NCDOT recommends additions to N.C. Gen. Stat. §§ 136-___, 113-395(a)(1), 20-119.2, and 20-54 in order to provide the optimal statutory authority needed to implement the proposed RUMA policy. In addition, the NCDOT ~~recommends~~ has proposed that specific additions to Title 15A of the North Carolina Administrative Code be amended. *See Section VI, D. below for more details.*

(ii) Regarding the NCGA's request that the NCDOT study the "feasibility and advisability of including any requirements… in a coordinated permit in conjunction with requirements of the Department of Environment and Natural

Resources, or whether such requirements should be implemented through a separate permitting process;" the NCDOT recommends that either the NC General Statutes or DENR's administrative rules (Title 15A) be changed so that applicants for well permits are directed to obtain~~negotiate~~ a RUMA from~~with~~ the NCDOT in conjunction or contemporaneous with the DENR permit review process, and that DENR shall not issue a well permit until an applicant has provided proof that it has finalized a RUMA with the NCDOT. *See Sections V, and VI, D. for more details.*

(iii) Regarding the NCGA's request that the NCDOT study "performance bonding and any other surety mechanisms, including road use agreements, to reclaim and repair any State posted roads that are damaged due to heavy vehicle, equipment, and machinery traffic used in support of and conjunction with horizontal drilling and hydraulic fracturing operations on State posted roads," the NCDOT recommends the implementation of a RUMA policy, which will allow the NCDOT to protect the integrity of the State's transportation infrastructure while providing the energy industry a flexible tool that will best serve to encourage safe and responsible hauling on the State's roadways and bridges. As part of this RUMA policy, the NCDOT will impose certain fees and include certain bonding requirements. *See Section VI below for more details.*

Regarding the NCGA's mandate that the NCDOT's study of this issue include certain actions, the NCDOT represents to the NCGA as follows:

(1) The NCDOT considered options for requiring performance bonds and proposes that nearly all RUMAs will require that the permit applicant bond the relevant haul route identified in the RUMA. *See Section VI, C. below for more detail.*

(2) The NCDOT has developed a simple and straightforward equation for calculating all bond amounts. *See Section VI, C. below for more detail.*

(3) The NCDOT has not identified documentation to support the bonding of posted roads per se. The NCDOT has identified documentation and information to support the proposed RUMA policy and the bonding equation that is proposed for use within the RUMA policy. *See Sections VI, B. and VI, C below for more detail.*

(4) The NCDOT has identified statutory and regulatory changes necessary to "maintain and protect the State's transportation infrastructure." Specifically, the NCDOT recommends additions/changes to N.C. Gen. Stat. §§ 136-___, 113-395(a)(1), 20-119.2, and 20-54, as well as Title 15A of the North Carolina Administrative Code. *See Section VI, D. below for more detail.*

III. SUMMARY OF THE NCDOT'S INVESTIGATION AND STUDIES TO DATE

In 2012, ~~with is appearing likely that North Carolina would be opened to the exploration of natural gas through hydraulic fracturing,~~ the NCDOT began studying the possible effects that the natural gas industry's truck traffic could have on the State's transportation infrastructure~~, as well~~

~~as the best way to manage said traffic~~. Specifically, the NCDOT researched what occurs during the construction of a natural gas well site, the process of exploration through hydraulic fracturing, and the extraction of natural gas, and considered how best to protect and safeguard the State's ~~assets given the effects these processes are likely to have on the State's~~ transportation infrastructure.

As part of its research ~~and preparation for the entry of this new industry to the State~~, NCDOT representatives participated in the Mining and Energy Commission's (MEC) study group meetings; the intent being that NCDOT's interests would be considered in drafting the new version of Title 15A of the North Carolina Administrative Code ("Title 15A" or "the proposed rules"), which the MEC intends to adopt as part of the Administrative Code for the North Carolina Department of Environment and Natural Resources ("DENR").

In 2012, the NCDOT engaged in a peer exchange with the Pennsylvania Department of Transportation (PennDOT), in order to learn how the industry has affected Pennsylvania's roads and highways and learn from PennDOT's experiences in regulating the industry. During this visit, the NCDOT learned the following key points: (1) the industry does not use many "over-sized" or "over-weight" vehicles during the construction, drilling or extraction process[1]; (2) the majority of the traffic to and from each well-site occurs during the hydraulic fracturing process; (3) the volume of traffic can and does cause significant damage to secondary roads over a relatively short period of time.

The NCDOT's peer exchange with PennDOT focused on Bradford County, PA, where there is a concentration of industry activity. PennDOT decided to enact a program of posting roads with lower than usual weight and size limits, forcing the industry into agreeing to bond and maintain the roadways under PennDOT's supervision. In an effort to avoid penalizing pre-existing industries, Pennsylvania began issuing letters of local determination, which grant exceptions to pre-existing industries and allows hauling on posted roads by those industries without penalty. PennDOT officials explained that the amount of energy industry traffic was more than was expected and in Bradford County PennDOT ended up having to post nearly 90% of the roads.

Based on data received from PennDOT and other sources, the following is a summary of the typical truck traffic associated with the different phases of the development and~~s~~ use of a well site:

- Pad Development: 300-400 trucks for stone and equipment
- Drilling Operations: 150-200 trucks for equipment, water, and cement
- Hydraulic Fracturing: 800-1000 trucks for sand and up to 6-million gallons of water
- Extraction: 40-50 trucks[WAS1][2]

~~The above numbers are calculated on a per-well basis. Understanding that a typical pad will cover a 3-5 acre area and will contain within it 6-8 wells per pad, it is easy to see how significant~~

[1] "Over-sized" and "over-weight" trucks being those that require a specific permit in order to operate on roads and highways in a given state.

[2] These numbers are calculated on a per-well basis. Understanding that a typical pad covers a 3-5 acre area and contains within it 6-8 wells, it is easy to see how significant the traffic to one site can be.

the traffic to one site can be. PennDOT observed that the industry did not use trucks that exceeded the standard weight and size limitations for its road and highway systems, but instead used standard size and weight trucks in large numbers to accomplish its goals. As shown above, the traffic during the pad development, drilling and fracturing phases was significant and. The majority of this traffic occurs over a period of six weeks. PennDOT recounted that secondary road systems in areas of concentrated well distribution sustained damage that cost the State millions of dollars to repair and required a major change in how the roads in those areas were managed.

The NCDOT's peer exchange with PennDOT focused on Bradford County, PA, where there is a concentration of industry activity. PennDOT decided to enact a program of posting roads with lower than usual weight and size limits, forcing the industry into agreeing to bond and maintain the roadways under PennDOT's supervision. In an effort to avoid penalizing pre-existing industries, Pennsylvania began issuing letters of local determination, which grant exceptions to pre-existing industries and allows hauling on posted roads by those industries without penalty.

The NCDOT has also researched states other than Pennsylvania to see what options are available for managing energy industry traffic. Ohio uses Road Use and Maintenance Agreements as a successful way of ensuring the industry repairs the damage to that state's transportation infrastructure. West Virginia utilizes security bonds to mitigate risks associated with the energy industry. Texas, historically an energy producing state, has not added new regulations regarding energy related transportation impacts and has in the past three years seen a spike in the need for road repairs due to hydraulic fracturing related traffic. Likewise, Arkansas had to implement an emergency bond to repair roads due to energy industry traffic.

IV. OPTIONS FOR MANAGEMENT OF INDUSTRY TRAFFIC

There are three options that the NCDOT considered for the monitoring and controlling of the effects of industry traffic: (A) funding of maintenance through the severance tax, (B) posting and bonding, and (C) use of a Road Use and Maintenance Agreement (RUMA). Currently, the NCDOT utilizes posting and bonding as a means of safeguarding the secondary road system from damage due to hauling operations already operating in the State. As discussed above, the NCDOT has used the NCGA mandated study process as an opportunity to consider new options for safeguarding the State's transportation infrastructure in regards to all hauling operations.

A. Severance Tax

The "severance tax" is a tax that is to be imposed when natural gas is removed or "severed" from the earth. The MEC has made clear that permit fees associated with obtaining natural gas oil and well permits ("well permits") will not be a revenue producing measure and will serve to fund DENR's administrative costs associated with the permitting process. It is the NCDOT's understanding that, therefore, nearly all of the revenue that will come from the introduction of the natural gas industry to North Carolina will take the form of a severance tax. It is not known at this time what exactly the severance tax will be, nor what portion of any tax will be directed to the NCDOT.

It is NCDOT's opinion that the option of relying on the severance tax to accommodate and repair the industry's effects on transportation infrastructure is~~-~~ a less reliable source of timely revenue than will likely be necessary for maintaining transportation infrastructure.~~risky and not in the best interests of the State.~~ The time between the beginning of pad construction and extraction can be years. Often, once a source of natural gas is located during the fracturing process, the well is then capped and exactly when extraction occurs will depend on market forces. Therefore, even if the NCDOT were guaranteed to receive a portion of the severance tax necessary to repair the roads and highways used during ~~the~~ a permit holder's activities, there would be multi-year periods where the infrastructure affected by industry traffic may require repair, but those repairs ~~must wait for the funding that would only come once the permit holders extract gas and pay the accompanying severance tax.~~would require funding that otherwise would be used for other transportation priorities.

B. Posting and Bonding

The NCDOT has the statutory authority to post certain roads, limiting the weight and/or size of vehicles that may travel on those roads.[3] Currently, the NCDOT uses its statutory authority to protect roads from existing hauling and known planned hauling operations that are likely to damage infrastructure. When routes are posted with a maximum axle weight limit, businesses can coordinate with NCDOT to remove the light-traffic designation and allow for the businesses' planned use of the route. Before removing the light-traffic designation, the NCDOT will require the business to either upgrade the structural capacity of the roadway or place a bond and agree to maintain the roadway during the hauling operations. This bond is determined based on the local practices of each Division, considering the weight of the trucks in question, the volume of traffic, and the likely impact the traffic will have on the route in question. At completion of hauling, the business will return the roadway to pre-hauling conditions.

Currently, each of the fourteen separate NCDOT Divisions administers its bonding practices locally. These procedures vary based on local practices and historical interactions with local industry. In addition, the posting of a route is enforced by the State Highway Patrol (SHP). The NCDOT considered whether posting and bonding would be an acceptable solution for managing energy related traffic and, for reasons stated below, it was determined the RUMA is a better solution.

C. RUMA Plan

[3] N.C. Gen. Stat. § 20-118 (b)(4): "The Department of Transportation may establish light-traffic roads and further restrict the axle weight limit on such light-traffic roads lower than the statutory limits. The Department of Transportation shall have authority to designate any highway on the State Highway System, excluding routes designated by I, US and NC, as a light-traffic road when in the opinion of the Department of Transportation, such road is inadequate to carry and will be injuriously affected by vehicles using the said road carrying the maximum axle weight. All such roads so designated shall be conspicuously posted as light-traffic roads and the maximum axle weight authorized shall be displayed on proper signs erected thereon."

A RUMA would require industry members who are applying to DENR for well permits to provide information to the NCDOT regarding their anticipated trucking routes and traffic volumes. From this information, the applicant and the NCDOT would enter into an agreement, wherein the applicant will be responsible for maintaining the designated hauling route during its use of the route and then return the haul route to prior existing condition after its use. In reality, the RUMA is simply formalizing and documenting how many NCDOT divisions already handle posting and bonding.

As discussed herein, ~~two~~ changes to the NC General Statutes and/or Title 15A are necessary to properly implement the RUMA plan. Specifically, the NCDOT believes oil and gas well permits issued by DENR ~~Title 15A~~ must be contingent upon the applicant either obtaining a RUMA from the NCDOT or a waiver stating that a RUMA is not necessary. ~~direct all well permit applicants to provide information to the NCDOT that is necessary to draft a RUMA, which will be done in conjunction with submission of the well permit application. Title 15A must also require an applicant to provide proof that it has finalized a RUMA with the NCDOT before DENR may issue a well permit.~~

In addition, the RUMA can and will be used by the NCDOT in regulating and managing the traffic of other industries. ~~In cases where posting a road is required, other businesses could utilize the RUMA as a means of agreeing to terms with the NCDOT that will allow for the removal of the posting.~~

V. CASE FOR THE RUMA

As stated above, the NCDOT believes that relying on a severance tax to fund substantial infrastructure repairs is not in the State's best interests, as roads and bridges may need repairs well before severance tax income becomes available. Therefore, the NCDOT considered posting and bonding and the RUMA as the best options for ~~regulating~~ managing industry traffic and protecting the State's infrastructure. There are five main reasons the RUMA is preferable to posting and bonding:

(1) The NCDOT intends to take advantage of the time, energy, and expertise that has gone into creating a RUMA procedure by applying it to other appropriate contexts. The NCDOT anticipates the RUMA that will be used in the natural gas well permit process can and will be used across all industries. ~~The NCDOT intends to take advantage of the time, energy, and expertise that has gone into creating a RUMA procedure by applying it to other appropriate contexts.~~ In addition, the NCDOT has, as a matter of policy, been steering away from posting and bonding over the past ten to fifteen years because of the delays and obstructions that posting can cause to industries mid-operation.~~.~~

(2) While the natural gas industry does share similarities with other industries that have historically employed hauling operations in the State, it also presents challenges that are unique and specific to the natural gas mining industry, which require a change in how NCDOT currently regulates hauling activities. Specifically, the

NCDOT's study ~~of other states~~ has shown that a single well typically has anywhere between 1300 and 1600 trucks travelling to and from it during its lifetime, from construction to extraction. The hydraulic fracturing process alone often requires between 800 and 1000 trucks per well site to carry fluid, sand, and other materials both to and from the site over a relatively short time period, usually no more than one week for each well. This scenario of loaded trucks travelling both to and from a site is unique to this industry. Furthermore, no other industry of note typically affects such a large web of transportation routes. It is anticipated this web of routes will be created if a significant number of pads and well sites are constructed in a given region. ~~The RUMA~~RUMAs will provide more predictability and accountability when dealing with these unique characteristics.

(3) The RUMA will allow ~~the industry~~all industries to have a state-wide standard when dealing with the NCDOT. In contrast, the posting and bonding procedures currently used in limited situations often differ from one NCDOT Division to another. The NCDOT would prefer the energy industry not have to deal with different policies and procedures from division to division.

(4) The RUMA provides both the industry and the State the ability to better control the unknowns related to the industry's arrival in the State. No one knows how much production and drilling will actually occur, or exactly where it will occur. Nor does anyone know what the proceeds from a severance tax will be or exactly how those proceeds will be used. By using a contractual process, the RUMA allows for plans to be amended and agreements re-negotiated as circumstances change, while still providing a document that outlines the duties and responsibilities of all parties involved.

(5) The RUMA will reduce the amount of operational delays the industry could incur due to traffic and hauling related issues. Under the RUMA plan, the industry will consult with the NCDOT during the permitting process, allowing the industry to ensure that once production begins there will be an agreement in place as to where and how hauling will occur. In contrast, if the NCDOT were to rely on posting and bonding, it would likely result in the NCDOT and the SHP trying to anticipate and seek out haul routes the industry is likely to use that are not designed for the type of traffic the industry employs. This would result in the DOT posting routes and the SHP stopping traffic that is in violation of those postings. This scenario would be a lose-lose situation, as the NCDOT and SHP would be expending unnecessary resources and the industry's operations would be delayed mid-production.[4]

For these reasons, the NCDOT believes the RUMA is the best tool for ~~regulating the industry~~safeguarding the State's transportation infrastructure.

VI. STRUCTURE OF THE RUMA POLICY

[4] The North Carolina State Highway Patrol has expressed its support of the NCDOT's RUMA plan and ~~agrees with the reasoning laid out in this Comment~~has provided additional statutory changes discussed below.

Seeing that a RUMA is the best solution ~~for regulating and managing industry traffic~~, the question then becomes how the RUMA is to be implemented as a NCDOT-wide policy. To that end, below we have provided: (A) A summary of the anticipated permitting and compliance costs, (B) A summary of the anticipated infrastructure repair costs, (C) Description of the proposed bond calculation, and (D) A summary of the existing statutory authority, as well as additional statutory authority and fees needed to implement the policy.

A. Anticipated Permitting and Compliance Costs[5]

The NCDOT's future staffing needs are dependent upon the volume of energy development and potential workload of the offices coordinating with the industry. Future staffing requirements addressed in this report assume a scenario where Triassic shale resources are explored, proven, and exploited, before other areas of the State (i.e. Coastal Plain) are seriously considered by the industry. The workload associated with permitting (i.e. review and processing of RUMA applications) and compliance (i.e. oversight to ensure the terms of a RUMA are enforced) would generally be handled by current staff, with additional staff hired as needed. However, the NCDOT is recommending the creation of a new position: Director of Energy Operations. This position would serve as the coordinator for energy operations statewide and would assure uniformity and consistency in ~~our~~ the NCDOT's permitting and compliance processes.

The NCDOT anticipates that once a RUMA package is submitted to the Department, it will take 30-45 days to review the package, address any deficiencies, negotiate the terms of the RUMA, and finalize all necessary documents. This process will require the work of as many as ten people, to include district engineers, maintenance engineers, maintenance supervisors, bridge engineers, and clerical staff. Once a RUMA is finalized and a well permit is issued, many of those same employees will be required to ensure the RUMA is complied with, both by the NCDOT and the permit holder.

See Table 1 (pg. 9) for Permitting Costs due to the energy industry, Table 2 (pg. 10) for Compliance Costs and Table 3 (pg. 11) for Projected Annual NCDOT Permit and Compliance Costs for First Seven Years.

[5] This section summarizes the anticipated administrative costs the NCDOT will incur in the RUMA review and compliance processes. No calculation of the costs that would be associated with posting and bonding is included in this report. However, it is anticipated that the costs associated with the increased demands of posting and bonding this industry would be similar to the costs outlined herein for the RUMA plan.

~~**NOTE…Put full tables on separate pages!**~~

Table 1. Permitting Costs (Annual Costs)

Staff Costs				
Positions	Permit Review Hours	Total Hours (40 Permits Per Year)	Rate Per Hours*	Total Costs
Energy Coordinator (New)	4	160	$97.36	$15,577.60
District Engineers	10	400	$91.95	$36,780.00
County Maintenance Engineers	6	240	$76.89	$18,453.60
Road Maintenance Supervisors	6	240	$61.66	$14,798.40
Assistant District Engineers	16	640	$54.09	$34,617.60
Engineering Technicians	30	1,200	$45.43	$54,516.00
Bridge Engineering	12	480	$81.13	$38,942.40
Pavement Engineering	4	160	$81.13	$12,980.80
Clerical Support	3	120	$32.45	$3,894.00
		TOTAL STAFF:		$230,560.40
			Equates to $5,764 per permit	
Equipment Support				
Item	Per Permit	Total		
Vehicles (Mileage at $.565/mile)	600 miles	24,000 miles		$13,560.00
	Total Personnel and Equipment Costs:			$244,120.40
			Equates to $6,103 per permit	

Notes: Permit is for well pad site and not dependent upon number of wells on pad site.

Estimated permit review hours in Table 1 are based on NCDOT experience in reviewing large development plans.

The hours associated with the positions above will be using primarily existing staff and supplemented with consultants as needed.

Monies associated with the above positions come from charging directly to construction projects or maintenance functions. Energy funding would be needed to accommodate the dollars needed for the hours and costs denoted above.

*Rates determined using a 2.25 salary multiplier which is a typical overhead and profit multiplier used when hiring consultants.

Table 2. Compliance Costs (annual costs, based on a rate of 40 permits approved per year)

Positions	Total Hours	Rate Per Hour **	Total Costs
Energy Coordinator (New)	1,920	$97.36	$186,931.20
District Engineers	208	$91.95	$19,125.60
County Maintenance Engineers	312	$76.89	$23,989.68
Road Maintenance Supervisors	624	$61.66	$38,475.84
Assistant District Engineers	2,080	$54.09	$112,507.20
Engineering Technicians	3,120	$45.43	$141,741.60
Bridge Engineering	624	$81.13	$50,625.12
Pavement Engineering	312	$81.13	$25,312.56
Clerical Support	416	$32.45	$13,499.20
	TOTAL STAFF:		$612,208.00
Equipment Support			
Item			
Vehicles (Mileage at $.565/mile)	100,000 mi.		$56,500.00
Personal Protective Equipment			$2,000.00
GPS/Cameras (7 each)			$1,400.00
Laptops (7 each)			$2,100.00
	TOTAL:		$674,208.00
		Equates to $16,855.20 per permit	

Notes: Estimated compliance costs in Table 2 are based on NCDOT experience monitoring development and construction projects.

The hours associated with the positions above will be using existing staff and supplemented with consultants as needed.

Monies associated with the above positions come from charging directly to construction projects or maintenance functions. Supplemental funding would be needed to accommodate the dollars needed for the hours and costs denoted above.

**Rates determined using a 2.25 salary multiplier which is a typical overhead and profit multiplier used when hiring consultants.

Table 3. Projected Annual NCDOT Permit and Compliance Costs for First Seven Years

Year	Projected Wells	Projected Permits	Permit Costs**	Compliance Costs***	Total Annual Costs
0	3	3	$18,309.03	$50,565.60	$68,874.63
1	7	7	$42,721.07	$117,986.40	$160,707.47
2	22	22	$134,266.22	$370,814.40	$505,080.62
3	75	30	$183,090.30	$505,656.00	$688,746.30
4	75	30	$183,090.30	$505,656.00	$688,746.30
5	75	30	$183,090.30	$505,656.00	$688,746.30
6	109	36	$219,708.36	$606,787.20	$826,495.56
7	160	40	$244,120.40	$674,208.00	$918,328.40
Totals	526	198	$1,208,395.98	$3,337,329.60	$4,545,725.58

Notes: The number of projected wells is based on discussions with the Mining and Energy Commission. Projected Permits are based on single well sites for years 0 and 1and increases at year 2 and thereafter. If the practice of single well sites continues then projected permits would increase as would Total Costs.

**Permit Costs equals number of projected permits times $6,103 per permit from Table 1.

***Compliance Costs equals number of projected permits times the average of $16,855 per permit from Table 2.

B. Anticipated Infrastructure Repair Costs

As part of ~~our~~ its research, the NCDOT has sought to determine the general costs that would be associated with the types of repair and maintenance that ~~will~~ is likely to result from industry traffic. Below are typical repair and replacement costs for mitigating damaged roadways and bridges in the secondary road system.

1. Roadways – Typical 2 Lane-2 Way

Widening - $72,000 per mile (Performed to accommodate side by side truck traffic and alleviate constant shoulder rutting which leads to unsafe low shoulders)

Patching - $140/ton; $90,000-$120,000 per mile (Performed to repair roadway failures. Must perform prior to resurfacing)

Resurfacing - $100,000-$125,000 per mile (1.25-1.5 inch overlay. Does not include needed patching costs)

Reconstruction - $360,000 per mile (Performed when roadway failure expenses by patching and resurfacing are not as beneficial or economical and tearing up the entire existing road and building back)

2. Bridges

Deck Replacement - $75,000 (for a 75'x 28' concrete deck - performed when concrete deck damage is beyond structural benefits of concrete patching)

Total Bridge Replacement - $500,000 minimum (typically a minimum one-year process)

Depending upon the critical need of the bridge, there may be other repair measures that may be performed to allow a bridge to remain in operation. NCDOT would work with Professional Structural Engineers to determine allowable repair options.

C. Bond Calculation

In order to mitigate risks associated with the NCDOT allowing private industry to maintain infrastructure during hauling operations, companies will need to provide a bond. The amount of the bond required under each RUMA will be determined by a set equation that affords the industry uniformity and makes the bonding process more predictable. To accomplish this aim, the NCDOT is proposing a simple bonding equation that multiplies the length of roadways and square-footage of bridges on the applicable haul routes by set multipliers that are based on the average cost for repairing the secondary roads and bridges, which is as follows:

Total length of responsible haul routes (in miles) x $100,000.00 per mile of NC Routes and Secondary Roads

+

Total area of bridge deck along haul routes (in square feet) x $360.00 per square feet of bridges on NC Routes and Secondary Roads. [WAS2]

~~It should be noted that this bond equation could be much higher.~~ As demonstrated above, the costs of repairs to secondary roads can be as high as $360,000 per mile for total reconstruction. In its peer exchange with PennDOT, the NCDOT learned that roads that failed due to industry traffic did so almost immediately, and the resulting damage often required full reconstruction. However, requiring the industry to bond haul routes at $360,000 per mile c~~w~~ould ~~be~~be cost-prohibitive. Therefore, in an effort to accommodate the industry, the NCDOT is only requiring a bond of 60% of the average cost of the four road repair options outlined above.

Each RUMA application will require the applicant to provide a list of all routes associated with developing the well site, including Interstates, US Routes, NC Routes and Secondary Roads. For each RUMA, the NCDOT and the permit applicant will formalize the haul routes that are to be maintained during hauling. The proposed bond equation is meant to recognize that there are differences in the condition and structures or the roads and bridges that will comprise the different haul routes, along with different anticipated truck volumes, which is why the proposed equation can be used consistently across all RUMAs. The proposed calculation is not a "worst case" formula, but averages the risk across all haul routes. In addition, the bond calculation will not include any mileage on Interstates and US Routes, nor any other routes that would be determined to be structurally adequate for anticipated truck volumes.

D. Statutory Authority and Fees

The NCDOT already has a significant amount of statutory authority that allows it to regulate hauling traffic on the State's secondary road system. However, in order to properly execute the RUMA policy described herein, additional statutory authority and administrative rule changes are needed. Below is: (1) A summary of the current statutory authority given to the NCDOT, (2) A summary of the current fees levied by NCDOT for transportation activities, and (3) an outline of the proposed changes to the statutes and administrative rules.

1. Summary of Current Statutory Authority

There already exists statutory authority regarding the regulation of truck weights by the NCDOT. *See*, N.C. Gen. Stat. § 20-118 (weight restrictions of trucks and § (b)(4) - posting of "light-traffic roads"); N.C. Gen. Stat. § 20-119 (authorizing overweight permits); and N.C. Gen. Stat. § 20-121 (prohibiting heavy vehicles or imposing weight restrictions for up to 90 days). Such restrictions apply to all trucks and are not specific to energy-related traffic.

Most importantly, N.C.G.S. § 136-18(5) provides the necessary authority to NCDOT to regulate high volume truck traffic by providing that the NCDOT is vested with the power "[t]o make rules, regulations and ordinances for the use of, and to police traffic on, the State highways, and to prevent their abuse by individuals, corporations and public corporations, by trucks, tractors, trailers or other heavy or destructive vehicles or machinery, or by any other means whatsoever, and to provide ample means for the enforcement of same."

2. Summary of Current Fees Levied by NCDOT for Transportation Activities

Currently, the NCDOT levies fees for a variety of transportation activities. Below is a summary of the current fees levied for NCDOT for transportation activities.

Over-sized/over-weight vehicles:

- Over-sized/over-weight vehicles ("OSOW") – N.C.G.S. § 20-119; 19 N.C.A.C. 2D.0602(c).
  The most comprehensive and detailed statute concerning fees and fines are found in N.C.G.S. § 20-119 and deal with OSOW vehicles. That statute expressly authorizes the following fees:
- A single trip oversize vehicle permit = $12/foot over regular dimensions.
- A single trip overweight vehicle permit = $3/1000 lbs. over 132,000 lbs.
- Annual Permit fees for a single vehicle - $200 for house-movers and $100 for other commodities.
- If any permit requires an engineering pavement study then a $100 fee is imposed.
- Civil fines for violations range from $100.00-$10,000.00 (per N.C.G.S. § 20-119(d) and (d1)).
- N.C.G.S. § 20-119(e) allows for periodic adjustment of fees to assure that the revenue generated by the fees is equal to the cost to NCDOT of administering the Oversize/Overweight Permit Unit Program. Every 2 years NCDOT reports to the JLTOC regarding recommendations for fee adjustments.
- N.C.G.S. § 119.1 authorizes all oversize/overweight fees generated in excess of the cost of the OSOW program to go to highway maintenance.

House-movers

- N.C.G.S. § 20-358 and § 20-361 sets fees and permit costs for house-movers. There is a $100 fee for an annual license and $20 fee per permit application. 19 N.C.A.C. § 2D.0612 addresses house-mover permits but does not mention fees.

Outdoor Advertising

- N.C.G.S. § 136-13; 19 N.C.A.C. 2E.0207 sets a $120 application fees and an annual $60 renewal fee

Selective Vegetation Removal

- 19A N.C.A.C. § 2E.0602 and § 2E.0608 provides for a selective vegetation removal permit fee of $200.00.

Driveway Permit

- Page 56 of the driveway permit manual (July 2003) states that there are no fees for driveway permits, but there may be a $50 construction inspection fee which is reimbursed if the permit is denied.

Utility Encroachment Agreements

- There are no fees for the agreement, however pursuant to p. 21 of 132 of the standard encroachment agreement, inspection fees may apply.

3. Recommended Statutory Authority and Fees

a. Proposed General Statute Changes

The NCDOT believes that it is advisable to enact additional legislation that would specifically address legally loaded high volume truck traffic and would also require industry to coordinate NCDOT requirements with the drilling permit required by the Department of Environment and Natural Resources. While NCDOT believes the general authority granted to it under N.C. Gen. Stat. § 136-18(5) is sufficient to allow the implementation and use of a RUMA, it would be preferable to add authority that would specifically allow the NCDOT to receive and review RUMA applications. Reliance on N.C. Gen. Stat. § 136-18(5) to receive and review RUMAs for legally loaded high volume truck traffic could potentially conflict with existing statutes and/or ordinances that otherwise govern truck weights. Therefore, the Department recommends the following authority:

A new G.S. § 136-___ as follows:

> *The Department of Transportation is authorized to make rules, regulations, and ordinances for the use of, and to police traffic on, the State highways by trucking operations which may comply with weight-restrictions under Chapter 20, however, may still cause potential damage to the transportation infrastructure due to the volume of truckloads. The Department of Transportation may approve, issue and set fees for a Road Use and Maintenance Agreement upon such terms and conditions as it finds required to protect and preserve the transportation infrastructure from voluminous trucking operations.*

A new G.S. § 113-395(a)(1) ~~reads~~ to read as follows:

> *(a)(1) An application for a permit under this Section shall include as an attachment a copy of the application for a Road Use and Maintenance Agreement with the Department of Transportation or a certification by the Department of Transportation that a Road Use and Maintenance Agreement is not required for the activities under the permit in question.*
>
> *(a)(2) No permit shall be issued and effective under this section until the applicant has provided to the Department an approved Road Use and*

Maintenance Agreement from the Department of Transportation or in the alternative a certification by the Department of Transportation that a Road Use and Maintenance Agreement is not required for the activities under the permit in question.

NCDOT recommends the following statute for enforcement of the RUMA:

A new N.C. Gen. Stat. § 20-119.2 – "Vehicles operating under a RUMA" reads as follows:

Every Commercial Motor Vehicle as defined by N. C. Gen. Stat. § 20-4.01 traveling on designated Road Use Maintenance Agreement (RUMA) routes must have an approved RUMA and every such RUMA shall be carried within the vehicle in either paper or electronic form and shall be open to inspection by members of the North Carolina Highway Patrol.

(a) A RUMA issued under this subsection shall allow for travel from a specific origin to destination and return upon certain approved designated routes.

(b) The Department of Public Safety shall assess a civil penalty against the registered owner of any vehicle operating in violation as follows:

(1) A fine of two thousand five hundred dollars ($2,500) for operating off the issued RUMA route of travel.

~~(a)~~ (2) A fine of five hundred dollars ($500) for failing to have a copy of the issued RUMA in the vehicle at any time a RUMA is required.~~For the purpose of this section, the following definition shall apply:~~

~~(1) RUMA Road Use Maintenance Agreement~~

~~(b) All Commercial Motor Vehicles traveling on designated RUMA routes must have an approved RUMA and every such RUMA shall be carried within the vehicle in either paper or electronic form and shall be open to inspection by members of the North Carolina Highway Patrol.~~

~~(c) A RUMA issued under this subsection shall allow for travel from a specific origin to destination and return upon a certain approved designated routes.~~

~~(d) The Department of Public Safety shall assess a civil penalty against the registered owner of the vehicle as follows:~~

> ~~*(1) A fine of two thousand five hundred dollars ($2,500) for operating off the issued RUMA route of travel.*~~
>
> ~~*(2) A fine of five hundred dollars ($500) for failing to have a copy of the issued RUMA in the vehicle at any time a RUMA is required.*~~

A new N.C. Gen. Stat. § 20-54 – "Authority for refusing registration or certificate of title" shall read as follows:

> *The Division shall refuse registration or issuance of a certificate of title or any transfer of registration upon any of the following grounds:*
>
> *(11) The owner or previous owner of the vehicle has failed to timely pay a civil penalty that has been imposed pursuant to this chapter and the account has been deemed delinquent. Any vehicle deemed delinquent, shall be subject to N.C.G.S. 20-96.~~The Division shall refuse registration or issuance of a certificate of title or any transfer of registration upon any of the following grounds:~~*
>
> ~~*(11) The owner of the vehicle has failed to timely pay any civil penalty imposed pursuant to this chapter and the account has been deemed delinquent.*~~

b. Proposed changes to Title 15A

Understanding why the NCDOT has decided the RUMA is the best approach for working with and regulating the industry, the NCDOT has~~is~~ requested~~ing~~ two specific changes to the proposed DENR rules necessary for the best implementation of its plan~~. In order for the NCDOT's RUMA process to function properly, the NCDOT believes two changes to the proposed version of Title 15A should be made~~:

(1) The NCDOT respectfully requests that 15A NCAC 05H .1304 be amended to include a requirement that an oil or gas well permit application include a representation by the applicant that the it has also submitted a "RUMA package" to the NCDOT and has begun the process of negotiating a RUMA with the NCDOT.

(2) The NCDOT also requests that 15A NCAC 05H .1307 be amended to include a statement that no oil or gas well permit shall be issued without confirmation that the applicant has entered into a final RUMA with the NCDOT.[6]

The NCDOT understands these changes are not likely to be included in Title 15A before the Rules Review Commission considers the proposed rules in December 2014. Moreover, the NCDOT understands that if the statutory changes outlined above are implemented, changes to Title 15A would not be necessary. However, in an abundance of caution and in order to be thorough, the NCDOT has included in this report the changes to Title 15A that it has already requested.

~~The NCDOT believes these changes are necessary and in the best interests of both the State and the industry. Without these changes, there will be no requirement that the industry come to the NCDOT to figure out how the affected haul routes for a specific well site will be maintained. If these changes are not made, the NCDOT will have no choice but to use a posting and bonding scheme that could lead to halts in hauling in the event of damage to infrastructure the industry. Hauling uncertainty is a downside to the industry.~~

~~Moreover, the proposed changes allow for the RUMA negotiation process to occur at the same time as the oil or gas well permit application review process. The changes also incorporate the RUMA process into DENR's permitting process, accomplishing the goal of a coordinated permit process. Again, without these changes the NCDOT and the industry would have to engage in an entirely separate process, devoid of any relation to the DENR permitting process, which the NCDOT feels would fall outside the intent of the legislature to have a single coordinated permit.~~

c. Proposed RUMA Application Fee

Based on calculations shown in Tables 1, 2 and 3, NCDOT requests establishing a RUMA application fee of $6000 per well site.

E. Plank Road Example

Plank Road is a typical low volume "collector" type roadway consisting of two lanes of traffic. It is important in that it connects US 421 and NC 42, making it the type of road that a hauling operation would be likely to use in leaving a well site and getting to a primary roadway.

Testing at the roadway consisted of measuring the strength of the pavement, extracting cores to measure thickness of the pavement, and testing the strength of the base material and underlying soils. The section of the road between US 421 and the bridge in Chatham County was 8 inches thick and in good condition. However, the majority of the road was between 5 and 7 inches thick and half of the cores show cracking. The base course quality was marginal to poor and was about 7 inches thick.

In order to improve Plank Road to a level of service appropriate for heavy hauling operations, upgrades to the roadway must be completed at a cost of $634,025.00 as well as the addition of a right turn lane into the well site at a cost of $32,500.00. Structural improvements are necessary for Bridge # 169 over Deep River at a cost of $622,500.00. The total cost for structure and roadway improvements is $1,289,025.00. The cost to bond the roadway along the haul route is $2,551,000.00 and the cost to bond the structures along the haul route is $8,240,400.00. Thus, the total structural and roadway bond amount is $10,791,400.00. Once fracking operations are complete and certain roads are no longer used as part of the haul route, the roadway bond may be reduced by $2,400,000 and the structural bond reduced by $4,233,600.00. The total roadway and structural bond reduction would be $6,633,600.00.

Plank Road is adequate for the current traffic on the roadway but is inadequate for the number and types of truckloads associated with energy related traffic. ~~See Appendix A for testing results.~~

Section VI – Conclusions

The NCDOT recommends the implementation of a Road Use and Maintenance Agreement as the best means for regulating and managing energy-related traffic. This RUMA policy will require businesses applying for oil and gas well permits to enter into a RUMA with the NCDOT, which will require the applicant to take responsibility for maintenance of a designated haul route during its hauling activities specific to the applicable well permit. In order to cover the risk associated with this responsibility, permit holders will be required, under the RUMA, to bond the haul route. In order to properly implement this RUMA policy, the NCDOT is recommending multiple statutory changes, ~~including a change to Title 15A of the NC Administrative Code,~~ which will allow for a smooth implementation of the RUMA policy as a part of the ~~signle~~ single coordinated ~~well~~ permitting process under DENR.

The NCDOT will continue to work with the natural gas industry, the MEC, DENR, and the NCGA to accomplish the goal of creating a smart, efficient, and fair ~~regulatory~~ set of laws and rules~~scheme~~. To that end, the proposals contained herein are made with the intent to provide flexibility to both the NCDOT and the energy industry.