Capstone Project Assignment – Freight Resiliency

Scenario:

You are the freight unit of your state's department of transportation. Your duties include capital investments in public infrastructure, regulation and enforcement, operation of some facilities, working with the economic development agency to retain and attract businesses, interfacing with security/police units, and interfacing with several independent transportation agencies that are specifically tasked with running the port, airport and the one of the major highways.

Your state is home to a large international port, an airport with domestic and international service, several major distribution center clusters, and a number of key manufacturing plants (including an auto production facility). Agricultural production continues, though farm land is under increasing pressure to be developed for other purposes. There are three major urban areas (one of which also contains the port and airport), along with a mix of suburban and rural areas. The population is growing, and new suburban residential, retail, and office developments continue to spring up further and further from the core cities, along major highways and arterials. Communities of newly migrated and underemployed individuals exist, primarily in the urban areas.

Your state has two national Class I railroads and several short line railroads, along with unused but available rail rights of way. New passenger rail service is under consideration for some of the existing rail freight lines, along with at least one of the available rail rights of way. Some coastal sites are in use or available for barge and other maritime movements. Transit service exists throughout most of the urban areas, with rail and bus service to some of the suburban communities.

Highway congestion is growing at an unprecedented rate, causing serious concern for residents and shippers alike. There are two major highways where the problem is particularly difficult, with traffic backed up for a total of 8 hours per day. One of these highways serves the port and airport. Both highways are critical transportation spines in your state. Congestion is affecting the competitiveness of the Port, as well as increasing the amount of time necessary to move goods between the Port and major distribution centers and manufacturing clusters. The highway congestion, along with older bridges and tunnels in the more urbanized areas, has also affected the movement of goods to these areas.

Rail freight service also faces hurtles – one major route is already over capacity and other routes have multiple at grade rail crossings, some in residential communities.

Recently, one of the major bridges connecting to an urban area tragically collapsed. Inspections and reviews indicate that other older infrastructure elements may also need near term attention. Meanwhile, it will take at least one year to replace the bridge. The state's residents, businesses and elected officials have expressed deep concern over the safety of the transportation infrastructure. Against the backdrop of this tragedy, the devastation that a recent hurricane caused in a neighboring state, and 9/11, security and the ability to quickly manage disruptions in the transportation system have become paramount. The Governor has made this issue a top priority.

Simultaneously, a group of residents has become increasingly vocal about the increase of truck traffic coming through their neighborhoods, as the trucks try to avoid the highway congestion and are rerouted because of the bridge collapse. The residents cite noise, air quality, and safety for their children as their main concerns. They are well organized, and have found some friends in the state legislature willing to champion their cause.

Another group has formed to voice concern about increasing rail traffic. Their concerns include the at grade rail crossings, noise, and the movement of solid waste and hazardous materials. They do not want to see rail freight traffic increased in their residential areas.

The owners of the two largest distribution centers in your state and the auto production facility have also started to complain to your team. They have told you that the highway congestion and the lack of transportation options are severely comprising their business, and making it nearly impossible to meet their delivery time and goals. The owners have implied that they are looking for opportunities in nearby states for relocation opportunities. They have informed the Governor's office of their intent and the negative implications of losing these major tax and employment bases has become a priority concern.

Fiscal conditions are tight. The state has a deficit and traditional funding mechanisms are stretched. The amount of federal funding anticipated in the near term is unknown, though the federal government is largely funding the bridge replacement on an expedited and special basis.

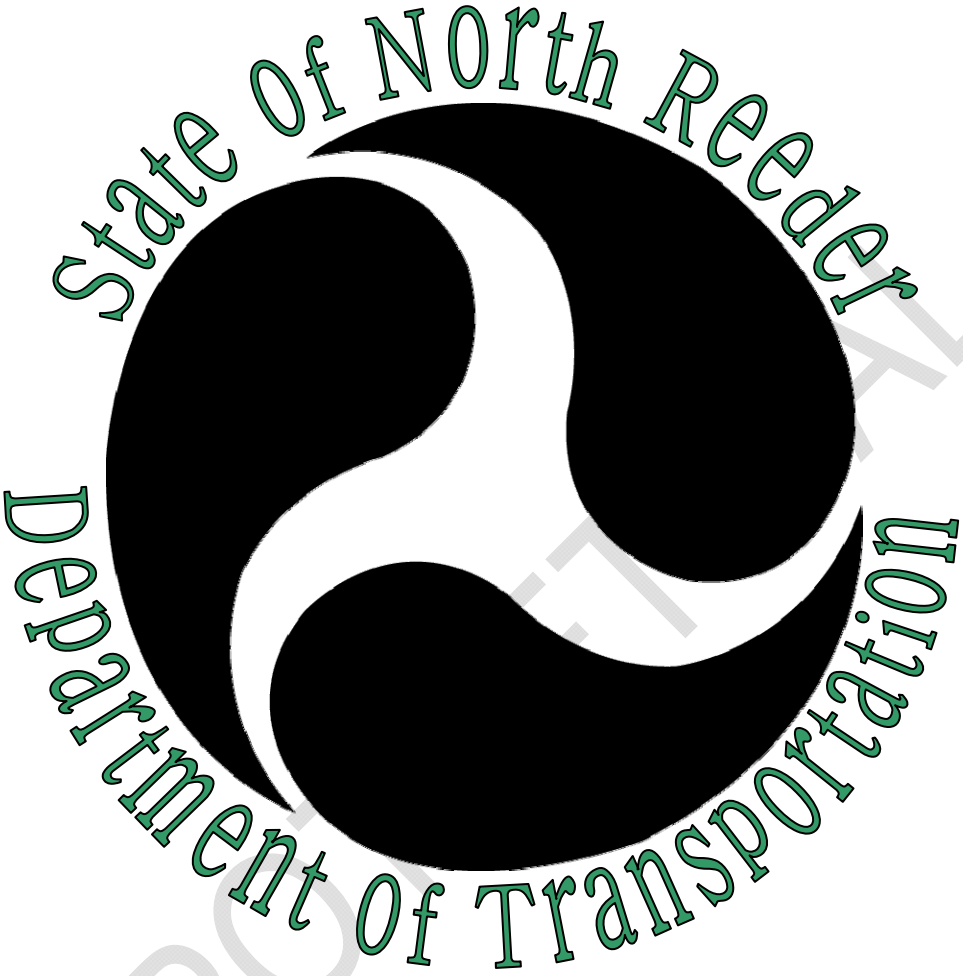
Your Assignment:

The DOT commissioner has turned to your team to develop a plan for addressing the infrastructure needs, with both short- and long-term actions, while simultaneously addressing the concerns of residents and these major business clusters. She has asked that you create a plan that details the actions, and is looking for a longer term policy that, if adopted, could reduce the opportunities for this type of situation to occur again. You must involve the other transportation agencies in your plan. Your proposal needs to answer the following questions:

- How will you reach out to and engage the private sector and the public? Who will you include in this conversation and how?
- How will you work with other public agencies?
- What background information will you collect to paint the picture of the current situation? Where will you get this data? How will you present it?
- What will you propose to the commissioner and other decision makers as a solution that will solve the immediate problem for all parties involved?
- What actions could be proposed and how will you arrive at them?
- How will you address the funding needed for the recommended actions?
- What policy recommendations will you make that could alleviate similar situations in the long-term?

Product:

Be prepared to present your recommendations and answer questions on it at the Annual Meeting of the I-95 Corridor Coalition. Each capstone group will give a 30 minute PowerPoint presentation. The group of presentations will be followed by 90 minutes of group Q&A and discussion with an outside panel of public and private sector representatives. You are also required to compile your findings and recommendations into a final report (about 10 pages in length), due at the time of presentation. The report should be prepared as an executive briefing document that would be given to the DOT Commissioner and Governor's Office.



Goods Movement Resiliency Report to North Reeder Department of Transportation Commissioner Parker

Executive Summary
Fall 2009

This report is based on a hypothetical scenario developed through an academic exercise for the I-95 Corridor Coalition Freight Academy. The contents of this report should not be construed as factual in any way.

This paper and Powerpoint presentation is a Capstone Project for the I-95 Corridor Coalition, Freight Academy-Class 2008. This exercise is based on hypothetical scenario. This report was prepared and presented by the Freight Resiliency Group:

Sam Beydoun
Deborah Bowden
Richard Guarino
Stacey Hodge
Harry T. Smith
Sara Walfoort

Introduction

North Reeder is an economically significant State. Its proximity to the largest consumer market in the nation makes North Reeder an international gateway for the East Coast of the United States. The State has a mature infrastructure that includes a major international airport, local and national freight rail access (including two Class 1 lines, four regional, and numerous shortlines/switching yards), an international seaport, and a National Highway System (NHS) network that is vital to the Northeast market. North Reeder is a both an importer and exporter of goods for the industrial and consumer markets for much of the United States. The State is the home of two major freight villages, Frontier Industrial Park and Pinelands Freight Village, which serve both the international and northeast markets. The Jupiter Car Manufacturing Plant, one of the state's largest employers, is located in the Frontier Industrial Park.

Freight Mobility Challenges

In recent months, North Reeder has been faced with unprecedented challenges and opportunities in the area of freight transportation, from the tragic collapse of the Gilmerton Bridge early in 2009 to the funding opportunities presented by the American Redevelopment and Reinvestment Act of 2009 (ARRA), and subsequent U.S. Department of Transportation's (USDOT) Transportation Investment Generating Economic Recovery (TIGER) program.

This report comprises two components. First: an update on the Gilmerton Bridge collapse and the state of repairs to the bridge. Second: the Goods Movement Resiliency Plan to address the challenges facing North Reeder as the region strives to maintain a multi-modal transportation system capable of ensuring the safe, efficient and reliable transportation of goods, services and manufacturing needs of the region.

Gilmerton Bridge Collapse

On March 26, 2009, the Gilmerton Bridge carrying SR 313 over the DB&HS Railroad collapsed at 2:16 p.m. There was light traffic volume on the roadway and no railcars on the tracks at the time of the bridge failure. No fatalities, injuries, or reportable personal property damage was reported.

The Gilmerton Bridge was a non-composite pre-stressed adjacent box beam (NCABB) design. The bridge was 45 years old, and had been rated as Structurally Deficient as a result of a North Reeder Department of Transportation (NRDOT) bridge inspection completed in 2004.

The DB&HS Railroad is a Class III shortline, which carries lumber, grain, and petroleum along the line. DB&HS also serves Highpoint, which is a major freight consolidation point for the Port of North Reeder (PONR), and takes trucks off the roadways affected by truck servicing the port. The railway from mile marker 133 to 138 was closed for the 16 hours during the immediate response time. Federal rail safety inspectors deemed the railway safe. Limited operations began again on Mar. 28, 2009.

SR 313 is part of the NHS and has an Average Annual Daily Truck Volume (AADTV) of 5620 (34.8% of total Annual Average Daily Traffic (AADT)). This roadway is the only designated truck route into the Frontier Industrial Park, which houses two large food/ grocery distribution warehouses that serve the metropolitan area. Immediately following the bridge failure, the Emergency Service Providers and accident recovery teams closed the approaches to SR 313 between Dribbler Blvd. and Alliance Way for 16 hours. Freight traffic entering and leaving the industrial park was rerouted to loop around the incident site via Mountain Pass Way, Canon Vista, and Chelsea Drive until bridge repairs were complete. Each of these roads was designated as a temporary local truck routes after being checked by engineering. As bridge repair continued, no oversize/overweight trucks were permitted to traverse the temporary truck routes, and enforcement was increased to ensure compliance.

Bridge Rebuild

An accelerated bridge-rebuilding program is well underway. Key elements of the program include:

- Completion of engineering assessments of artifacts saved from the Gilmerton Bridge to identify specific weaknesses in bridge design that may be applicable to other bridges of that same type (NCABB).
- The Governor has ordered immediate re-inspection of all NCABB bridges in the State. All NCABB Bridges shall receive inspection within the next 12 months.
- Future inspection of individual bridges will be conducted on a time schedule dictated by bridge condition; under no circumstances will the interval between bridge inspections exceed the two year annual inspection cycle currently in place.
- Replacement of 20 percent of all remaining NCABB bridges in each of the next five years, with priority attention going to bridges having the highest structural deficiency ratings and average daily traffic volumes.

- Bridge rehabilitation and/or replacement will be facilitated through the implementation of the following measures:
    - Maximum use of design-build contracting;
    - Grouping bridge contracts by similar bridge type and by geographic area to maximize contractor competition, capability and construction efficiency;
    - Jump-starting increased bridge construction contract lettings by initially emphasizing rehabilitation projects that require the least lead time;
    - Initiating an expanded program of design and environmental work on longer lead time replacement projects;
    - Maximizing the contract production capabilities of NRDOT's districts through streamlined design, utility and right-of-way procedures;
    - Use of smart transportation principles to ensure designs are efficient, cost-effective and fit within the community; and
    - Use of 100-year design life for all replacement projects.

In addition, the North Reader Department of Transportation (NRDOT) is working closely with the North Reeder Department of Environmental Protection (NRDEP) to fast track the required reviews for bridge projects. NRDEP and NRDOT worked cooperatively and expeditiously to reach a Memorandum of Understanding (MU) that will remove unnecessary delays from the bridge permitting process, reducing the time involved from months to a matter of weeks. These new streamlined processes will apply to all current and future bridge replacement projects.

Goods Movement Resiliency Plan

Current State of Freight Resiliency

North Reeder faces multiple challenges for moving goods through the State and region. Congestion is the prime difficulty facing freight transportation in the State. Both Interstate 95 and Interstate 66 suffer bottlenecks for eight hours a day. Congestion along multiple corridors that extends beyond the normal morning and evening rush hours is indicative of a transportation network experiencing systemic problems that extend beyond the two highway corridors in question.

I-95 congestion is particularly troublesome as it serves GMA International Airport, the PONR, and hosts a portion of the main East Coast artery for freight and passenger

highway movement. Because the State is an international gateway, 60 percent of the goods arriving in the region are destined for markets outside of the State.

The State's highway infrastructure is antiquated. Much of the highway system was built over 50 years ago. The region has reached build-out; the costs of adding new lanes are prohibitive. An ever-increasing percentage of the State's transportation investment is devoted to maintaining the regional infrastructure in its current condition. The highway congestion and lack of other viable freight movement options have led to complaints from Jupiter Cars and two of the largest food / grocery distribution Centers in the State, Acme Crown Distribution Centers (ACDC) and Metropolitan Distribution. The three businesses clearly see the impact of this congestion on their bottom line, suffering lost man-hours as their delivery trucks sit in traffic, their customers see a reduction in the quality of service they receive, and the reliability of their delivery schedules are jeopardized. Of course these negative impacts are not being felt solely by these three businesses, but the impacts have become endemic to the region, affecting both large and small users of the transportation network

The NRDOT is not alone in facing tremendous infrastructure capacity issues. Our freight and passenger railroads face similar situation, with aging infrastructure, and growing demand for additional and better service. The railroads are capital intensive, and all are facing considerable downturns in freight volume in this current recession. But, all indicators are that rail freight will continue to grow as we emerge from this economic downturn. Rights of way (ROW) exist to expand the network when freight volumes increase to pre-recession levels. However, there are pressures to use some existing rail lines and ROW's for passenger rail. A citizens group, People's Information for Transportation Analysis (PITA), is voicing concern over increased freight rail traffic, at-grade-crossing safety, hazardous materials security, solid waste, and noise. PITA would like to see much of the existing ROW used for Rails to Trails Programs or wildlife reserves. The railroads are resistant, as they own the ROW and trackage rights, and will require expanded freight passage when the economy recovers.

Lessons Learned

What we've learned in working through these challenges is that we are not alone in facing issues of aging infrastructure, rising congestion and limited financial resources. Communities throughout the nation share these concerns. We've also learned that there are deficiencies in the regional goods movement network as well as the transportation and emergency response planning processes. Existing mechanisms to respond to goods movement failures, whether physical or operational, are inadequate. We must use the lessons learned over the past few months to formulate policies and procedures that can be immediately implemented in the event of any future transportation failure or service disruption.

Perhaps most importantly, we will share our lessons learned widely. The safe and efficient movement of goods relies on a strong and robust freight network. That network does not end at our State lines. NRDOT will disseminate the lessons learned with other

states and regions, so that they too may learn from our experiences. We will continue to seek better ways of doing business and make goods movement more efficient, and make better transportation investment decisions that impact our goods movement stakeholders. The safety and economic well being of our entire region depends on us to do so. For that reason, we are proud to announce the initiation of a new Goods Movement Resiliency Plan for our region.

"*North Reeder Moves,*" a Plan for Goods Movement Resiliency

"*North Reeder Moves*" will provide a plan for addressing the multimodal and intermodal freight transportation operational needs of the region, both those that exist and those that are reasonably foreseeable. Recommendations presented in the Plan include near-term, mid-term and long-term strategies; with the focus on low cost, easy to implement solutions. Strategies include operational enhancements within our own departments as well as working with our modal partners to find ways to enhance operational efficiency.

The goal of the plan is the development of a resilient freight transportation system in the region, with resiliency defined as, "the ability to rapidly restore service after a disruption." A resilient system will provide modal options, and redundancy within options, so that goods movement continues, or can be quickly re-established, following road closure or service disruption. Our more resilient NRDOT will provide system users with the information they need to make educated transportation routing decisions. This information must be consistently accurate, and provide this accuracy in real time over multiple media, including Internet and 511 systems. The public and private sectors must be invited to join us in the design and implementation of this new, resilient system and we can't do it without them.

Our initial outreach to these private and agency partners has been well received. These new partners understand that the cost of transportation inefficiency is being borne by regional businesses every day. They understand that the lack of modal options limit business opportunities for our major manufacturing and distribution centers and threaten their global competitiveness; that our aging and crumbling infrastructure limits the mobility of workers; and the new threat of additional bridge failures threatens the safety of the traveling public.

"*North Reeder Moves*" is not about doing business in traditional ways. Rather, it is an invitation to explore innovative ways of making our transportation system stronger, more redundant, more responsive and more accessible. This will require new levels of outreach and partnership.

Starting Point

The first step in the creation of "North Reeder Moves" was a thorough review of our own NRDOT operation processes to identify areas where operational or technological

improvements may result in a more efficient, more effective and more resilient freight system. Also, we reached out to our modal partners, economic development organizations and local business groups to solicit their thoughts on how well the existing transportation network works for them, and what improvements they'd like to see. These efforts are on going, and establish the framework of a long-term public outreach program by NRDOT.

"*North Reeder Moves*" identifies the need for more resources for our NRDOT personnel, to equip them to fully meet our bridge construction and repair needs, and it calls for the department to enhance the processes used to get projects from paper to places where they can help people. Specific action items in "North Reeder Moves" will make recommendations to strengthen the NRDOT emergency response processes, streamline operational procedure within the NRDOT and between NRDOT and its partners, and reassure the traveling public that our transportation network is safe. These actions are described below.

Emergency Response Planning

In the aftermath of the Gilmerton Bridge collapse, we recognized several shortcomings in our own operations and procedures. Existing NRDOT policies failed to recognize that the first responders to any crisis on our roadways are the traveling public. Many of those who were at the scene of the Gilmerton Bridge collapse before the Emergency Service Providers arrived on the scene had no idea how to alert NRDOT. 911 operators received hundreds of calls in the minutes following the bridge collapse, but followed existing protocols that focused on the dispatch of ambulances and other public safety personnel, but not the NRDOT. NRDOT did not learn of the incident until almost a quarter-hour after the actual collapse. While the 911 service operators performed admirably in their duties on that day, the need for additional training and review of existing procedures for response to major highway incidents is clear. Fortunately, the traffic congestion that occurred following the bridge failure alerted truck drivers to seek alternate routes, and served as an informal warning system. This informal warning system may have saved lives in the precious minutes that passed before NRDOT and local officials could get to the scene and implement formal traffic control and safety measures. We cannot afford to presume that we will have this sort of impromptu safety net as we plan for future incidents.

It is also clear that Emergency Service Personnel at all levels were unprepared for a catastrophe of this magnitude on the local roadway network. Their inexperience in addressing the needs of freight carriers is a shortcoming that shall not be repeated. The NRDOT, North Reeder Emergency Management Agency (NROEM), local trauma centers, law enforcement officials, and members of the State trucking association will conduct large-scale emergency drills replicating a variety of potential crises. The location of these training exercises will be rotated around the State to permit training of all local law enforcement and emergency service providers.

Emergency planning exercises have already been conducted within the NRDOT as well. As a result of these exercises, all senior staff has been trained on the location of traffic cameras on area roadways, and a user manual has been developed as a guide for use of such cameras for incident monitoring. We have enlisted the staff of the Office of Freight Logistics to share their institutional knowledge of freight and logistics to provide an understanding of the special and specific needs of trucking and rail. Senior staff has also been cross-trained in the use and deployment of variable messaging signage along our highway network, so that information may be transmitted to travelers in a wide geographic region very quickly. Parameters for the use of such messages are currently under review by the Department.

Operations

Once an incident occurs, the role of NRDOT is to restore the safe flow of goods and movement of people on the transportation network. The level and mode of operations would be determined by the criticality of the incident and the impact on customers and travelers. For example, a disruption of emergency supplies such as fuel, food and medicine should dictate what routes should be designated as emergency routes. Additionally, there should be some performance measures that would determine the resources required to achieve the goals and objectives of the response and recovery. For example, restore truck routes to certain percentage within a certain number of days on such routes.

The following are action items that would help NRDOT achieve its goals of response and recovery:

1. Transform the Traffic Management Center (TMC) into Transportation Operations Center (TOC) with responsibility for active incident response.
    a. The TOC will serve as a command post staffed by representatives from maintenance, operations, public affairs and state and local police.
    b. The TOC will maintain a list of resources available to deal with complex situations involving hazardous material handling, unusual cargo, etc.
    c. Integrate the TOC with NROEM.
2. NRDOT will modernize its fleet of maintenance and incident response vehicles and preposition them at critical locations for quick clearance. This includes Safety Service Patrol (SSP) vehicles equipped with Automatic Vehicle Location (AVL) and multi-band radios.
3. NRDOT will deploy a network of sensors to assist in the decision making process with respect to emergency response.
    a. Deploy fixed and mobile Closed Circuit Television (CCTV) cameras to provide visual monitoring at critical locations
    b. Deploy Vehicle Detection Systems (VDS) to provide accurate information on vehicle speed and volume.
    c. Acquire private sources data such as probe data to monitor traffic conditions on key segments of the highway network.

    d. Deploy an integrated network of Environmental Sensing Stations (ESS) in critical locations.
    e. Establish a comprehensive maintenance contract to enable immediate installation, repair or replacement of sensing devices.
4. NRDOT will deploy a communications system that ensures comprehensive intra-agency coverage and interoperability among partner agencies.
    a. Establish an interagency working group to determine the equipment, training and protocols necessary to achieve the requirements for internal and interagency communications.
    b. Integrate current communications tools with new technology to create interoperable system that provides redundancy.
5. NRDOT will implement a plan for communication devices and protocols for their use.
    a. Deploy fixed and mobile Dynamic Message Signs (DMS) for public information dissemination during incident.
    b. Adopt "push" technology including RSS feeds, twitter, 511 and other media to disseminate emergency information to computers, call phones, PDA, and navigations devices.
    c. Standardize message libraries for quick meaningful information dissemination to commercial vehicle operations and travelers via field devices including dynamic message signs, highway advisory radio and 511 systems.

Inter/ Intra-agency Coordination

Our aging infrastructure extends beyond the highway network maintained by the NRDOT, and includes county and local road, the Turnpike, a number of key railroad bridges and underpasses, as well as outdated navigation aids at the GMA International Airport.

To effectively serve the needs of area residents and businesses, the transportation system must work as an integrated network of modal transportation options. To facilitate the implementation of strategic transportation improvements in the State, the Secretary of Transportation has called for monthly meetings of all NRDOT Assistant Secretaries to eliminate the modal silos that have traditionally existed within the department. Following the model of the Governor's Environmental Agency Coordination Meetings, each Deputy will be required to present information on significant plans or operational changes affecting other Deputies, or requiring inter-agency or intra-Department coordination or cooperation.

Advancing on the NRDOT's "Smart Transportation" initiatives, efforts to engage land use policy makers on the local and regional level will be increased. An assessment of the rail network in the region will be conducted, and a plan for the rationalization of the rail network to identify and address community issues will be developed. Part of that plan will also identify the future land use needs of the freight transportation network, and develop policies that will protect that land from incompatible land uses.

Outreach

As noted above, NRDOT's TOC (in cooperation with NROEM and local jurisdictions) will proactively reach out to the freight and logistics community, motoring public, and affected communities during and after the time of an incident. The TOC will work closely with the NRDOT Office of Public Affairs (NRDOT/OPA), leaders of the trucking associations, chambers of commerce, community organizations to maintain a continuous flow of information regarding alternate routes and hours of operation. Additionally, TOC will be the lead agency to reporting the status of the transportation system; identifying temporary alternative systems and routes; and coordinating the issuance of regulatory waivers and exemptions.

NRDOT proposes putting together a Statewide Freight Stakeholders Advisory Council (FSAC). The council will consist of private sector executives from trucking, rail and port operations. The FSAC will also have a representative from industry and local government in order to foster complete cooperation.

FSAC members will represent the best interests of businesses and consumers by providing input on the freight planning process. The FSAC will be instrumental in development of our final resiliency plan by imparting testimony and risk analysis to what can be expected in the event of surface transportation system failure.

A special "goods movement" hotline has been established within NRDOT to address the specific needs of our freight haulers. This number has been distributed widely within the freight community. This hotline is to be used to report instances of non-recurring congestion in geographic areas where such congestion is unusual, or where such congestion is of unusual duration. NRDOT is aware that the use of this hotline is subject to a certain level of misuse or abuse, with proper training we believe that it will be a valuable mechanism through with the DOT operations offices may monitor traffic throughout the region.

Public Private Partnerships

Significant efficiencies in freight movement may result from partnerships with private entities in the freight and logistics community in looking for non-highway improvements made in the areas of operations and staging. North Reeder will be looking at multiple opportunities to enhance freight efficiency, including an assessment of traffic signalization timing and coordination along the Strauss corridor between the PONR and the Acme Plant in Marygraceland, one of the region's most congested corridors.

ARRA funds will have been allocated by the NRDOT for the elimination of at grade railroad crossings at Lost Highway and Electric Avenue and the construction of grade-separated crossings at these locations. The State's commitment to these improvements is provided in support of Class I Railroad NXRS' previously announced strategy to remove

overhead obstructions at High Road and Low Road, thereby creating double stack clearances all the way from Highpoint to the PONR.

Our commitment to public and private partnerships does not end there. In the coming months we will be working with our intermodal partners to assess regional opportunities for a variety of low-cost operational improvements and construction improvements at our intermodal centers, along our highways and railroads, and at PONR.

Funding

The ARRA provided NRDOT with an influx of $100 million for much needed transportation enhancement projects. The receipt of a portion of these funds has permitted us to advance construction on several important freight related projects, such as the Alliance Way rehabilitation project. The completion of that project nearly four years ahead of schedule will go a long way toward addressing congestion and safety issues on this regional freight lifeline.

The State of North Reeder does not intend to be bound by the fiscal limits imposed by the next federal transportation authorization. The Highway Trust Fund can no longer be counted on to provide the level of service our citizens' demand. North Reeder will aggressively pursue other reasonable funding streams that become available.

NRDOT will look to partner with other State and local entities on the innovative use of federal programs for the design and implementation of our freight transportation system. We recognize that competition for such funds is strong, but we believe that through effective partnering, a strong and enduring link between transportation and economic development may be created and formalized. This partnership will go a long way towards ensuring the economic competitiveness of all of North Reeder.

Among the grant programs that could provide opportunities for creative partnering within NRDOT are:

- U.S. Department of Commerce Economic Development Administration (EDA) provides grants for projects in economically distressed industrial sites that promote job creation and/or retention.

- The United States Department of Agriculture (USDA) Rural Housing Service's Community Facility Program provides funding mechanisms to fund construction, enlargement, extension, or improvement of community facilities, providing essential services in rural areas and towns with a population of 20,000 or less. Eligible freight-related facilities include transportation infrastructure for industrial parks, railroads, marinas, municipal docks, and special transportation equipment.

- Through the Environmental Protection Agency's (EPA) Brownfield Revitalization Program, the Federal government provides grants and loans for brownfield site

cleanup. Brownfield sites could be redeveloped industrial uses including intermodal facilities.

Financing

Nor does the State of North Reeder intend to be bound by traditional investment techniques that provide direct funding of transportation improvements through the allocation of program funds to a specific project or program. Instead, NRDOT intends to work with the North Reader Department of Economic Development (NRDEC) and other entities that may provide financing tools that could be used by our private partners to make self-investments in their own infrastructure, despite the economic downturn, through the provision of low interest loans, loan guarantees, credit enhancements, and tax exempt or tax credit financing programs.

We will also be investigating the creation of a North Reeder grant and loan program to stimulate freight investment. Other states have created comparable programs, and are seeing the benefits. We will be exploring several such programs to determine the specific needs of the business community in North Reeder.

The Federal government provides several financing tools that we need to be more aggressive in pursuing for local transportation/economic development enhancements: Loans, where a project sponsor borrows federal highway funds directly from a state DOT or the Federal Government [e.g., State Infrastructure Banks (SIB), and Transportation Infrastructure Finance and Innovation Act (TIFIA) loans]; Credit Enhancement, where a state DOT or the Federal Government makes federal funds available on a contingent (or standby) basis [e.g., TIFIA loan guarantees and lines of credit]. Credit enhancement helps reduce risk to investors and thus allows the project sponsor to borrow at lower interest rates.

- The TIFIA credit program's goal is to leverage limited federal resources and stimulate private capital investment by providing credit assistance (up to 33 percent of the project cost) for major transportation investments of national or regional significance, including private rail projects. Credit assistance is provided through secured loans, loan guarantees, or lines of credit. Project costs must be at least $50 million or one-third of the state's annual apportionment of federal-aid highway funds whichever is less.

- Through the State Infrastructure Banks (SIB) program, states can issue loans and other credit tools to public and private sponsors of transportation infrastructure projects. All states can establish infrastructure revolving funds eligible to be capitalized with federal transportation dollars authorized through FY 2009. The implementation of multi-state SIBs is permitted, which may encourage states to fund regional freight improvements projects that cross-jurisdictional boundaries.

- The Rail Rehabilitation and Improvement Financing (RRIF) program provides loans and credit assistance to both public and private sponsors of rail and intermodal

projects. Eligible projects include acquisition, development, improvement, or rehabilitation of intermodal or rail equipment and facilities. Direct loans can fund up to 100 percent of a railroad project with repayment terms of up to 25 years and interest rates equal to the cost of borrowing to the government.

- A Grant Anticipation Revenue Vehicle (GARVEE) bond is a financing instrument that allows states to issue debt backed by future federal-aid highway revenues. Eligibility for freight projects is constrained by the underlying federal-aid highway programs that will be used to repay debt service.

- States and local governments are allowed to issue tax-exempt bonds to finance highway and freight transfer facility projects sponsored by the private sector. There is a cap of $15 billion on private activity bonds. Providing private developers and operators with access to tax-exempt interest rates lowers the cost of capital significantly, enhancing investment prospects. Increasing the involvement of private investors in highway and freight projects generates new sources of money, ideas, and efficiency.

Future demand

To better predict the future volumes and travel patterns of freight on the roads and rail lines, several travel demand and freight traffic simulation models will be used. In addition, we will overlay emergency response and preparedness models from the Emergency Service Personnel to simulate natural and man-made disruptions to the freight transportation system, and facilitate the rerouting of traffic to allow for minimal disruption and delay of commercial traffic.

Through the "*North Reeder Moves*" plan, we will work with the Planning Department to identify current and future industrial uses that will allow for more accurate origin/destination models for freight. The Land Use component will allow us to model the demand for truck and rail usage, commercial and industrial uses, retail areas, and residential area. We will be able to understand how industrial and commercial development throughout the region will change in response to changes in freight transportation system, and show how changes in land use will cause changes in freight traffic patterns.

Freight Travel Demand Models will be used to forecast changes in regional freight patterns and the utilization of the transportation system in response to changes in regional development, demographics, and transportation supply. Modeling travel demand is a challenging task, but one that is required for rational planning and evaluation of transportation systems. We will build the Freight Travel Demand Models to include comprehensive tools for freight trip generation (origin and destination), freight distribution (into, out of, within, and through the state), mode share (truck, rail, marine, intermodal), and traffic assignment (which routes are used for trips).

Finally, through Freight Traffic Simulation Models we can simulate various levels of truck routes, from NHS to local delivery areas. Models will allow one to visualize the behavior of complex freight traffic systems in a Geographic Information System (GIS) environment to illustrate and evaluate freight traffic flow dynamics, operational changes, and overall network performance. We will integrate the freight users and beneficiaries' input, Land Use Model, and Freight Travel Demand Models, to provide for evaluating the future freight traffic impacts and emergency scenarios.

Moving Forward -- *"North Reeder Moves"*

Why develop such an ambitious plan in a time of fiscal uncertainty and restraint? We simply can't afford not to. The Federal Highway Administration has estimated that freight bottlenecks cost US businesses $8 billion per year. The ability of our businesses to compete effectively in the ever-tightening global market depends on their ability to control costs. The ability to move their product to market at all times represents an ever more important position in their operational decision-making and site selection assessments.

Today, investment in regional freight transportation resiliency is an investment in the future of North Reeder. "*North Reeder Moves*" is the blueprint to a healthy and vibrant future for goods and passenger movement into, within, and through the State. With confidence in the freight transportation infrastructure restored particularly in the time of crisis, North Reeder Department of Transportation calls for an ambitious program of transportation planning, investment and performance monitoring to ensure that the vital corridors that serve as the economic lifelines of the State and region remain strong and efficient.

Acronyms

1. AADT - Annual Average Daily Traffic
2. AADTV - Average Annual Daily Truck Volume
3. ARRA- American Recovery and Reinvestment Act of 2009
4. AVL - Automatic Vehicle Location
5. CCTV - Closed Circuit Television
6. DMS - Dynamic Message Sign
7. EDA - Economic Development Administration
8. EPA – Environmental Protection Agency
9. ESS - Environmental Sensing Stations
10. FHWA – Federal Highway Administration
11. FSAC - Freight Stakeholders Advisory Council
12. GARVEE - Grant Anticipation Revenue Vehicle
13. GIS – Graphic Information System
14. MOU – Memorandum of Understanding
15. NCABB - Non-composite pre-stressed Adjacent Box Beam
16. NHS – National Highway System
17. PITA - People's Information for Transportation Analysis
18. NRDEC - North Reeder Department of Economic Development
19. NRDEP – North Reeder Department of Environmental Protection
20. NRDOT – North Reeder Department of Transportation
21. NRDOT/OPA – North Reeder Department of Transportation Office of Public Affairs
22. NROEM - North Reeder Emergency Management Agency
23. PONR – Port of North Reeder
24. RRIF - Rail Rehabilitation and Improvement Financing
25. ROW – Right of Way
26. SAFETEA- LU - Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users
27. SIB - State Infrastructure Banks
28. SSP - Safety Service Patrol
29. TEA – 21 - Transportation Equity Act for the 21st Century
30. TIFIA - Transportation Infrastructure Finance and Innovation Act
31. TIGER - Transportation Investment Generating Economic Recovery
32. TMC - Traffic Management Center
33. TOC – Traffic Operations Center
34. USDA - United States Department of Agriculture
35. USDOT – Unites States Department of Transportation
36. VDS – Vehicle Detection System

freightacademy
An Immersion Program for Public Sector Transportation Professionals

I-95 CORRIDOR COALITION

Capstone Group Project Presentation - Freight Resiliency

October 22, 2009

2:00 PM to 3:00 PM

Some reminders to make sure the web cast runs smoothly…

- Please do not put your telephone on hold at any point during the call
- Please mute your telephone line unless participating in discussion
  - *6 to mute, *7 to return to talk mode
- Feel free to utilize the chat function for questions, or to indicate that you would like to speak

freightacademy Agenda

An Immersion Program for Public Sector Transportation Professionals

I-95 CORRIDOR COALITION

- Welcome
- Introductions
- Meeting Objectives
- Capstone Presentation
- Questions and Answers, and Feedback

freightacademy
An Immersion Program for Public Sector Transportation Professionals

I-95 CORRIDOR COALITION

"North Reeder Moves"

A Plan for Freight Resiliency

Freight Resiliency team:

Sam Beydoun, Virginia Department of Transportation
Deborah Bowden, Maryland Department of Transportation
Richard Guarino, Greater Buffalo-Niagara Regional Transportation
Stacey Hodge, New York City Department of Transportation
Harry Smith, Port Authority Technical Center
Sara Walfoort, Southwestern Pennsylvania Commission

NR Freight System

- Global Gateway
  - International and national freight through airport and sea port.
- Regional Economy
  - Sixty percent of goods are bound to neighboring states.
- Local Economy
  - Three Major food centers. Shortlines carry grain, lumber and fuel.

Gilmerton Bridge Collapse

March 26, 2009

September 14, 2009

Gilmerton Bridge Impact

- **Collapse impact on truck and rail movement**
  - Reduced capacity of the freight system.
  - Physical damage to transportation Infrastucture.
  - Disruption to local supplies of food, lumber and fuel.
  - Disruption of regional freight in and out of the airport and sea port.
  - Disruption to distribution, manufacturing and import/export trades.

Gilmerton Bridge Response

- **NRDOT Immediate Response:**
  - Truck traffic was detoured onto temporary truck routes.
  - Inspection of bridges and other structures.
  - Immediate repair to the rail track damage at owner's expense. The damage was minimal.
  - Fast Track rebuilding program for Gilmerton Bridge through expedited environmental permitting process and emergency funds from DHS and FEMA.

"Lessons Learned"

- Goods movement RELIES on robust and resilient freight network: *Our customers expect it.*
- The Planning and Implementation processes must include the public and private sectors: *Each has a role to play.*
- The freight network extends beyond our State lines: *Regional impact, regional partners, more resources.*
- Inadequate physical and operational mechanisms for goods movement failure response: *Room for improvement.*
- Safety and security investments must take freight into account: *Such investments yield economic benefits.*

"North Reeder Moves"

- Vision
  - Develop "the ability to rapidly restore service after a disruption."
- Goal
  - Develop innovative ways of making our transportation system stronger, more redundant, responsive and accessible.

"North Reeder Moves"

Objectives

- Create an interconnected multimodal freight transportation system that facilitates regional economic growth.
- Alleviate transportation and land use incompatibilities through selective infrastructure improvements.
- Enhance community outreach and the establishment of new partnerships with local economic development agencies responsible for industrial site selection and key manufacturers in the region.

"North Reeder Moves"

First Steps

- Review the existing condition of our freight transportation infrastructure.
- Review the processes for resiliency in case of disruption.
- Review NRDOT operation processes for operational or technological improvements.
- Reach out to modal partners, economic development organizations, and local business groups for input on current condition and suggestions for improvements.

Areas of Focus

- Develop coordinated and comprehensive response and recovery plan to minimize impact of an incident and restore freight movement.
- Define Public/Private relationships, roles and responsibilities in response and recovery.
- Identify and manage resources vital to maintaining resilient freight system.
- Fast track projects and streamline processes to facilitate economic recovery.
- Build a communication system that is reliable, credible and accessible.

"North Reeder Moves" Near Term Activities

- Operations:
  - Mechanism and resources needed for effective response and fast track recovery.
- Outreach:
  - Develop coordination and communication systems that are comprehensive, credible, reliable with periodic testing, validation, and ongoing evaluation of readiness and preparedness.
- Infrastructure Improvements:
  - To improve safety, achieve interconnectivity between modes and add freight capacity.

Operations

- Transportation Operations Center (TOC)
  - Serves as a command post staffed by representatives from maintenance, operations, public affairs and state and local police.
  - Maintains a list of resources available to deal with complex situations involving hazardous material handling, unusual cargo, etc.

Operations

- Deploy
  - Core technologies (CCTV, DMS, AVL, RWIS, SSP) to address basic operation needs.

- Spotlight On
  - Enhanced/next generations technologies (PSAP integration, ATM, Travel Time, Travelers Information, GIS integration) to sustain infrastructure support and services.

Operations

- Implement a plan for communication devices and protocols for their use.
  - Deploy fixed and mobile Dynamic Message Signs (DMS) for public information dissemination during incident.
  - Adopt “push” technology including RSS feeds, twitter, 511 and other media to disseminate emergency information to computers, cell phones, PDA and navigations devices.
  - Standardize message libraries for quick meaningful information dissemination to commercial vehicle operations and travelers via field devices including dynamic message signs, highway advisory radio and 511 systems.

Outreach

- Develop inter/intra-agency coordination and embrace Public/Private Partnerships.
- Reach out to the freight and logistics community, motoring public, and affected communities during and after the time of an incident.
- The TOC will work closely with the NRDOT Office of Public Affairs, leaders of the trucking associations, chambers of commerce, community organizations to maintain a continuous flow of information regarding alternate routes and hours of operation.
- Additionally, TOC will be the lead agency to reporting the status of the transportation system; identifying temporary alternative systems and routes; and coordinating the issuance of regulatory waivers and exemptions.

Testing and Simulation

- Develop computerized travel demand and freight traffic simulation models.
- Overlay emergency response and preparedness models.
- Identify current and future industrial uses for freight origin/destination models.
- Perform real-time simulations of various levels of trucks routes through Freight Traffic Simulation Models.
- Use Geographic Information Systems (GIS) to integrate all input and model data to provide visual and spatial analysis for evaluating the future freight traffic impacts and emergency scenarios.

Funding Plan
Cost of Bridge Failure-Response and Restoration

Key Activities	Delivery Timeframe	Costs (Funding Source)
Incident/Emergency Management		
Control and Maintenance of Traffic	Completed	$5 million
Emergency Preparedness Simulations with First Responders at locations around State	On-going	(NRDOT Operations)
Bridge Failure Analysis/Assessment		
Bridge Failure Analysis and Evaluation	Completed	Costs TBD (FEMA/DHS)
Accelerated Bridge Inspection Program	On-going	Costs TBD (NRDOT Bridge Inspection Line Item)
Infrastructure Repair/Restoration		
Replacement of Gilmerton Bridge	Completed	$100 million (FEMA/DHS)
Repair of DB&HS Railroad, MP 133 - 138	Completed	Private Funds

Funding Requirement

Resilient Freight-Operations Improvement

Key Activities - Near Term Activities	Delivery Timeframe	Costs (Funding Source)
Response to Bridge Failure		
Incident/Emergency Management	Year 0-1	$1 million
Cross Training on Emergency Operations Protocols/Technology		
Assessment and Evaluation		
Continuation of accelerated bridge inspection program	Year 0-2	(NRDOT Operations)
Emergency Management Program Enhancements		
Enhancement of NRDOT Operations	Year 0-3	$20 million
Evolution of TMC to TOC (Active Incident Management)		(FEMA, DHS and NRDOT Safety funds)
Equipment/Technological Innovation within NRDOT	Year 0-5	$100 million
Deploy AVL in all first responder equipment		(DHS/FEMA)
GIS integration-Freight Specific Information		
Expanded use of Vehicle Detection System	Year 0-4	Private Funds
Standardization of protocols (Communications, Traveler Information, PSAP integration)	Year 0-1	
NRDOT Research and Development	Underway	Cost TBD
Research and Evaluation of Innovative Funding/Financing	On-going	Program Center Funds

Funding Requirement

Resilient Freight-Outreach Program

Key Activities - Near Term Activities	Delivery Timeframe	Costs (Funding Source)
Creative Partnering-Emergency Management		
Hold Simulation with Emergency Service Providers Statewide	Underway	$1 Million
Expand Inter-agency Cooperation	On-going	(NRDOT Operations)
Creative Partnering (Public and Private)		
Establish Freight Advisory Committee-Stakeholders	Completed	$50K/Year (NRDOT Planning Program)
Freight Specific Traveler Information		
Freight Movement Hotline Added to Traffic Management System	Year 2010	$200K (NRDOT Operations)
Creative Partnering-Other		
Land Use Evaluation in MPO/RPO Work Programs Statewide		
Streamline Environmental Permitting Process-Execute MOU	Year 2010	Varies by Location (NRDOT Operations)
Infrastructure Enhancements		
Grade Separated Rail Crossings (2 Locations)	Year 2012	(ARRA)
Double Stack Clearance DB&HS Railroad	Year 2014	(Private/CMAQ Funds)
Rehabilitation of Alliance Way (advance construction by four years)	Year 2014	(ARRA)

"North Reeder Moves"
Why such an ambitious plan?

We simply can't afford not to!

- FHWA estimated that freight bottlenecks cost US businesses $8 Billion per year.
- To enable our businesses to compete globally through efficient and reliable system.
- The Gilmerton Bridge collapse raised concerns to the safety of our aging infrastructure.

"North Reeder Moves" is the blueprint to healthy and responsive transportation system that will support the growth and a vibrant economy in our state and sustain prosperity to our citizens and business community.

Questions?