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Vision 2001: Virginia's Transportation System for the 21st Century

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Foreword

Transportation is a vexing problem for everyone: our citizens, our business and community leaders, and our elected leaders. All of us strive to figure out how we can more effectively and efficiently move people from one place to another.

As our economy expands the transportation system is being stretched to its limits, especially in our metropolitan and major suburban areas of the state. Northern Virginia has become the economic engine of our state. Hampton Roads finds its transportation system more and more inadequate with each passing week. Richmond is beginning to experience some significant congestion problems. And more rural areas of our state, and second tier cities, look at these transportation nightmares and wonder if they really want significant economic growth.

We can no longer simply wring our hands and gripe about the transportation crisis we face here in Virginia. A great deal is currently being done, and more is required if we are to continue to offer our citizens and our businesses, as well as business we are recruiting to come to our state, a truly top notch place where they can move and prosper. A realistic long-term plan needs to be designed that prioritizes major projects, includes many alternatives other than what we are doing today, and brings the citizens into the process in a way that does not overly hinder the building of our needed transportation infrastructure but makes sure that their concerns are part of the decision making process in a frank and straight forward manner.

This issue paper outlines some ideas that should be considered and, where practical, become part of the overall transportation plan here in our state. The author is a transportation expert who lives in Northern Virginia and experiences the congestion in that part of our state each and every day.

This issue paper is published by the Thomas Jefferson Institute for Public Policy. It is part of its *Campaign 2001 Briefing Series* of papers sent to all candidates running for elective office this year and to hundreds of business and political leaders around our state and to the media. The ideas presented in this issue paper, and the papers in this series, will give our leaders some good ideas to discuss in the campaigns and to use in crafting legislation in the years ahead. Nothing in this paper should be construed as official policy of the Thomas Jefferson Institute or its Board of Directors, nor is it meant to influence specific legislation.

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By: Stephen Blake

INTRODUCTION

Transportation is a vital component of Virginia's economy. Key elements in the Commonwealth's transportation system include an extensive highway network, rail systems that connect the state with major national markets, passenger and cargo air service, a world-class seaport and a range of mass transit services. The highway system includes 54,000 miles of interstate, primary, and secondary roads the majority of which are maintained by the state. Of this total, approximately 1100 miles comprise the interstate system and 1800 miles make up the arterial network serving communities of 3500 people or more. Virginia is fortunate in having developed tremendous motor carrier capacity through wise investments in infrastructure.

Virginia's rail network totals approximately 3300 miles and two of the nation's seven largest railroads, CSX and Norfolk Southern, are headquartered in the Commonwealth. AMTRAK, which operates eight routes in Virginia, provides intercity passenger services. Metro rail and the Virginia Rail Express (VRE) provide service to commuters in the suburbs of Washington DC and thirty-four mass transit systems serve local and regional needs throughout the state. The Commonwealth is served by thirteen commercial airports with service to 600 destinations worldwide. The Port of Hampton Roads, one of the finest natural seaports in the world, is among the largest intermodal facilities on the East Coast.

While Virginia's transportation infrastructure is a major asset for stimulating economic growth, changing conditions dictate the need to develop a new approach to continue and to enhance prosperity in the Commonwealth. Transportation projects are becoming increasingly complex, difficult to complete and more expensive because of the myriad of environmental, regulatory, and safety issues that must be addressed during the planning and implementation process. The situation today is characterized by stringent regulatory requirements, limited financial resources that call for diligence and stewardship, and new intergovernmental relationships that were redefined with the passage of the Intermodal Surface Transportation Efficiency Act of 1991. These new definitions had barely been understood and accepted when TEA-21, passed by Congress in 2000, was upon us. The impacts from these two measures included changes in the formula for allocating highway funds, more funding for the deployment of an Intelligent Transportation Systems, and changes in planning regulations implemented for both highway and transit projects. Each of these areas impacts the Commonwealth and requires changes in the manner in which we address these issues.

Virginia is at a crossroads. In this period of rapid change, the opportunities and

challenges to meeting the critical transportation requirements of the Commonwealth must be identified, evaluated and systematically addressed. In the past, Virginia has made its transportation investment decisions largely from an individual modal perspective. This was adequate during the period where modes were seen as individual and sometimes competing systems. If Virginia is to retain and improve its competitive position in the national and global economy, a new approach must be taken. This approach must be developed on a multi-modal basis that effectively integrates and connects all transportation modes (highways, transit, rail, aviation, and maritime). In addition, as the resources available to develop this approach become scarce there is a need to examine the role of the private sector in assisting the Commonwealth in meeting this transition to a new and improved transportation system. Strategic transportation policies and investments that make a critical difference in the performance of the state's transportation system and economy must be identified and pursued.

THE CRITICAL ROLE OF TRANSPORTATION

Transportation is vital to our economy and our quality of life. It is the mechanism for the safe and efficient local, regional and international movement of people and goods. It provides access to economic opportunities and the vast cultural, educational and recreational resources of our Commonwealth. Mobility in this new century must provide the means for fulfilling the many needs of society.

The transportation needs in Virginia vary by geography, population and degree of economic development. In recent years, the shift in population from rural to urban areas has exacerbated regional differences and accentuated the disparate views of the role of transportation. In the high growth urban areas of Northern Virginia, Richmond, and Hampton Roads transportation projects are critical to solving congestion, air quality, and land use problems. In rural communities connections to population centers and markets is a critical need. In both urban and rural areas, transportation infrastructure must be used to create economic development opportunities. Opening these communities to economic development will allow the Commonwealth to continue to grow and prosper. In this regard transportation is an essential element to:

- Promote Economic Development**
The transportation system is a vital force in creating economic development. The ability to generate income and wealth is largely dependent on the ability to move goods and people in an efficient and timely manner. Evidence of the impact of an inadequate transportation system can be seen in the Northern Virginia, Richmond and Hampton Roads areas.
- Ensure Regional and International Competitiveness**
Transportation improvements provide the Commonwealth with increased business productivity. This rise in productivity generates new concepts in service delivery and allows for the rapid movement of goods and people to and from production and labor markets.

- **Provide the Platform for Job Creation**
Infrastructure investments stimulate economic growth and job creation. The transportation industry itself is a major provider of employment in Virginia.

- **Provide Market Access for Goods and Services**
The transportation system provides business and people direct access to markets both within and outside the state for manufactured goods and services. In this regard the transportation system is the link to international markets for the Commonwealth.

- **Maintain and Enhance the Quality of Life**
A safe and efficient transportation system is key to maintaining and enhancing the quality of life for the citizens of Virginia. The mobility supplied by the transportation system provides the opportunity for people to access the economic, cultural, educational and recreational resources of the Commonwealth.

A NEW VISION FOR A NEW MILLENNIUM “Thinking Outside the Box”

Virginia must have a vision for transportation that provides a safe, coordinated, intermodal, comprehensive transportation system that effectively integrates all modes and establishes efficient connections among them. Virginians must be able to move from their automobiles to mass transit and connect from mass transit to international airports or receive cargo at ports that are state-of-the-art in the way they manage and move cargo. A balanced transportation system that provides a range of viable transportation choices forming the basis of a strong intermodal network that serves as a catalyst for economic development and growth must be developed for Virginia. This requires a transportation planning focus that defines problems and opportunities in terms of a coordinated, comprehensive, continuous transportation system. This system must take into account the changes in lifestyle of the citizenry, from rural to urban to suburban and exurban. It must also develop mechanisms for implementing the new technology that is rapidly coming on line in the field of transportation. Virginia Polytechnic University is at the forefront of research in the area of new technology with its “Smart Highway research project”. This project will establish the parameters for “radar” enhanced braking, for the use of satellite technology to provide traffic control information, and the use of technology to ameliorate the impacts of severe weather conditions on highway surfaces, thereby providing a safer driving environment.

The new transportation system cannot be mode-specific or focus exclusively on the movement of vehicles, it must embrace the concept of “mobility” and create a system that provides the best “mobility” for the citizens of the Commonwealth. To accomplish this policymakers must think “outside the box”. Conventional wisdom will not solve our problems. New and innovative thinking is necessary to the successful delivery of mobility to citizens of the Commonwealth.

In order to accomplish the transition to the new millennium there are seven key areas that must be addressed.

- 1. Privatization.** The privatization of transportation planning, design, construction and maintenance will enhance the efficiencies and effectiveness of the government sponsored transportation system. This can be accomplished through innovative financing mechanisms, particularly the development of public-private partnerships and privatization initiatives that move the financial burden away from sole dependence on government to a sharing of financial responsibility between government and the private sector. The current privatization legislation needs to be strengthened to provide incentives for the transportation industry to assume greater responsibility and for the state Department of Transportation to yield responsibility to the private sector. The adequacy of the private sector to provide this assistance must be addressed as the role of the public sector is reduced. Opportunities to privatize government activities should be pursued. An example of this privatization is the project conducted by the motor pool at the state. This project resulted in the hiring of Enterprise Rent-A-Car to provide a back up source of vehicles for state employees who travel, this allowed the motor pool to more efficiently manage the state cars and allowed a substantial savings over reimbursing state employees for using their personal vehicles for travel. This year Richmond Car and Truck Rental won the bid and reduced the cost from \$25/per vehicle and 19 cents a mile to \$18.95 and unlimited mileage. This is a huge savings. Other examples include; contracting out of maintenance functions by VDOT, and in Fairfax County and the City of Alexandria bus service is now provided through contracts with private transportation management companies. Recently, a group of road builders has proposed building the third crossing between the Peninsula and South Hampton Roads in significantly less time and substantially less money than the current VDOT way of building this needed transportation corridor.
- 2. Deregulation.** To enhance productivity, regulatory and administrative barriers that contribute to the inefficient operations of transportation systems should be removed sooner than later. Except where the safety of the traveling public is an overriding concern, state regulatory requirements should not exceed federal. For example the state Commercial Driver Licenses requirements are the same as the Federal requirements, in addition many motor carrier requirements, that do not affect safety, have been reviewed and eliminated.
- 3. Economic Development.** Providing a high quality transportation system is critical in the effort to attract and retain major employers. Improving the transportation infrastructure is a critical step in developing a secure economic future. It will allow the Commonwealth to attract major new industries and expand existing industries. Major new and expanded transportation systems are needed in Northern Virginia and Hampton Roads before major businesses decide to move out of our state. Investment in special projects such as the "Smart Highway" at Virginia Polytechnic can create centers of economic growth and

attract both private sector and Federal funding. The “Smart Highway” project applies and tests technology developed in the intelligent transportation systems field under actual road conditions. It will demonstrate the practical utilization of new and advanced technologies for controlling traffic flow, monitoring traffic conditions and making adjustments to ensure a free flow of traffic. There are other transportation projects that will generate economic development, the addition of two lanes to Interstate 81, the development of international airports for the Hampton Roads and Roanoke areas, and the development of a transportation infrastructure to support the Port of Hampton Roads, are but a very few examples of the types of transportation projects that will spur economic development.

4. **Market Orientation.** A market based approach to the provision of mobility needs to be developed. This approach would use the marketplace to determine what transportation investments will be made and possible uses of existing transportation assets. This method will allow for decisions to be measured in terms of the potential for economic development, the reduction in congestion costs, the improvement in mobility and the long-term viability of the project. An example of this approach is the Dulles/Greenway project. The private sector determined a need for the facility, projected the impact on potential economic development, and justified the cost by the rate of return expected over 30 years. The proposed “Techway” in Northern Virginia (connecting Virginia’s technology center around Dulles International Airport with the tech center in Maryland) is another example as is the use of High Occupancy Toll (HOT) lanes in conjunction with the existing High Occupancy Vehicle (HOV) lanes. These HOT lanes would allow cars with less than the HOV minimums to use these lanes by paying a toll. And congestion pricing of toll roads (high price during rush hour than at other times during the day) has successfully been used in other locations around the country. These projects are an example of the types of market oriented transportation approaches that need to be pursued to provide the Commonwealth with the most efficient transportation system possible.
5. **Technological Leadership and Safety.** To improve productivity, quality of service and reduce costs, state-of-the-art technology research must be utilized. The emphasis on “intelligent transportation systems” must move from the research arena into actual usage. Virginia must become a leader in research and in the implementation of technology to improve safety, mobility, increase the capacity of the infrastructure, and as a tool to foster economic development. This may be the most crucial element for transitioning to the new competitive era. Examples of technologies that can be used include ramp-metering, real-time traffic monitoring using satellite technology, vehicle tracking using ge-positioning satellite technology, and in vehicle computer systems that provide drivers with information on road conditions, alternative routes, and information on available services such as ATM machines, restaurants, shopping, etc.
6. **Intermodalism.** The old way of viewing the transportation system as separate modal entities is no longer valid. Improvements in the connectivity of different

modes will improve the efficiency and effectiveness of the transportation system. A full range of modal alternatives for passengers and freight should be developed. Key intermodal centers, such as Dulles Airport and the Port of Hampton Roads, should be studied so that these elements can be used to create intermodal centers in other geographic regions of Virginia. Subway stations need adequate parking (why aren't there multi-level parking garages at all subway stations?) and these stations could easily offer commercial outlets where riders could drop off their cleaning in the morning, pick it up in the evening while going next door to pick up a gallon of milk and hamburger meat for dinner. Such commercial units could include a drop-off and pick-center for day care as well.

7. **Planning and Research.** A key role for the Commonwealth in facilitating the changes necessary to move forward is in providing funding for researching and planning these new approaches to the future transportation system. This role of government should include investments from the private sector that match and supplement the investment made by the public sector. The economic benefit to both the public and private sector should be a major element in determining the projects that will be funded. Projects to consider would be the development of an international airport in the Hampton Roads/Norfolk area; the development of light rail in the City of Richmond; and high speed rail from Northern Virginia to Richmond. These and other projects that are currently being considered in the transportation improvement plans of Virginia's urban areas need to be fully examined and used to develop a comprehensive statewide, multi-modal transportation plan for the Commonwealth.

These seven key areas should form the foundation for creating the transportation vision for the 21st Century. They provide the framework for identifying significant challenges and opportunities for Virginia's transportation system. They also form the basis for prioritizing a list of actions necessary to achieve the vision of a truly integrated and technologically advanced system that enhances economic prosperity.

PROPOSED SOLUTIONS TO EXISTING TRANSPORTATION PROBLEMS

Virginia must use the principles identified above to address transportation needs. The changes in population throughout the Commonwealth, the creation of "edge cities" and the relocation of jobs to suburban and exurban areas requires a change in the manner and methodology of addressing transportation issues.

1. **Superpave:** The Transportation Research Board (TRB) and the Federal Highway Administration (FHWA) conducted research on pavements in Europe that had performance lives longer than the pavements being built in this country. The result has been the development of "superpave" an asphaltic material that will last significantly longer than the 20 year life-span of current pavements. By increasing the life of the pavement this reduces maintenance costs over the life of the project. This savings when applied to the life of the pavement is significant.

Virginia should explore the possibility of developing specifications for superpave that will result in significant cost savings to the state.

2. **Maintenance:** A major transportation cost is the maintenance and rehabilitation of pavements. Many European countries have contractors build and maintain their highway systems. This build and maintain agreement rewards contractors for building roads that require less maintenance. By building in the costs up-front for both construction and maintenance, a company earns more money if less maintenance is required on the system. Virginia should explore the possibility of utilizing such agreements in the construction and reconstruction of roadways in the state.
3. **Dedicated Bus Rights-of-Way:** Australia uses a system of dedicated, grade separated bus-ways to move people in the city of Perth. The system allows buses to 'platoon', that is to run several buses together. This in effect forms a train, similar to a subway, without the cost of constructing a subway. There are corridors in Northern Virginia, Hampton Roads and Richmond where this technology is applicable.
4. **HOT Lanes- High Occupancy Vehicle lanes** are being used in many areas of the state. These lanes restrict usage to cars with an occupancy of two, three, or four. There are test projects underway to determine if HOV lanes can be used as HOT lanes. That is, during rush hour people who value their time at a high level can pay to use the lanes and reduce their commute time. As the number of vehicles on these lanes increases the price increases for using the lane, until it reaches a level of saturation where only vehicles meeting the original HOV requirements can use the lanes. This concept addresses issues surrounding congestion in urban areas by providing an alternative for people willing to pay for quicker access. This HOT lane concept could be easily tested in locations such as US Highway 95 north from Stafford County into Washington DC.
5. **Telecommuting:** The idea of telecommuting is being tested in Northern Virginia by the federal government. The state should examine what the impacts of expanding and encouraging telecommuting would be on traffic congestion and mobility in general in the Commonwealth. The federal and state governments are paying commuters to take Metro or VRE to and from work. Using similar incentives to pay those who work from home a similar monthly amount so that the home-based worker can pay for the high-speed computer connection, fax machine, etc.
6. **New Airports -** In the Hampton Roads/Norfolk area there is a need for a truly international airport to match the international nature of the port, enhance transportation opportunities and encourage economic expansion. The same is true for the Roanoke/Lynchburg area, where a new international airport would provide the basis for major economic expansion. Some major localities have turned over the management of their airports to the private sector and have found this to be

much more cost effective. Virginia should do the same if at all possible and if at all practical.

The state needs to upgrade and maintain the transportation infrastructure that is in place today, and plan for new transportation assets to meet the needs of this century. The system of highways, freeways, arterials, and streets that serve the Commonwealth must be preserved and protected. New pavement materials, new pavement designs and a program of reconstruction and rehabilitation must be developed and implemented to protect the investment that has been made to date and continue Virginia's status as having one of the nation's best maintained transportation systems. In addition Virginia needs to give more authority to localities to address their transportation needs. Arlington and Hanover Counties have control over their transportation road systems. These two areas should be studied to determine if other localities could take over more responsibility for building and maintaining their roads.

SUMMARY

Virginia's transportation infrastructure is among the largest and best maintained in the nation. However, changing travel patterns, economic development needs, and the clear realization that government simply cannot provide all the money that is needed to create a fully functioning transportation system requires the Commonwealth to rethink and expand its current approach to providing transportation services. There is a need for greater public/private partnerships, such as the Dulles/Greenway project, the light rail system to Dulles airport (under consideration in Northern Virginia), and the Richmond Car and Truck Rental project to meet the growing demands for mobility.

Virginia is at a crossroads. An opportunity exists for Virginia to adopt an effective new approach to address transportation challenges based upon an unbiased analysis of the transportation system as a whole to determine how to create a seamless transportation system for the Commonwealth. This opportunity must be pursued, grasped and wrestled into existence for the Commonwealth to efficiently and cost-effectively meet the challenges that face our towns, our cities, and our state of Virginia.

About the Author

With almost 30 years experience in transportation planning and research, Mr. Blake is the President of the Center for Transportation Training, Education and Research in Prince William County, Virginia. From 1995 to 1997 he served as Director of the Transportation Group of Basic Technologies International where he was responsible for transportation planning, engineering and analysis areas of the firm. Mr. Blake attended the Masters Program in Political Science at the University of North Carolina, Chapel Hill and a Bachelor of Science Degree in Political Science from North Carolina A & T State University in Greensboro.