Unclogging Virginia's Roads: Aligning Commuter Incentives in Northern Virginia

Lathrop B. Nelson*

I. INTRODUCTION

Northern Virginians face some of the country's worst traffic congestion. Traffic congestion has been defined as a "a function of the imbalance between the capacity of roadway facilities and the demand for those facilities created by increasing automobile reliance and new growth development."[1] As a practical matter, traffic congestion occurs when a region dependent on the automobile grows beyond its infrastructure. There is perhaps no greater example of traffic congestion than weekday mornings and evenings along Northern Virginia's highways and secondary roads. Traffic delays occur along I-66, the east-west thoroughfare extending from Washington to Front Royal; I-495, the 65 mile ring around the city known as the Beltway; and I-95, the principal north-south corridor between Miami and Maine. These highways become virtual parking lots on a daily basis.

Part II of this Note analyzes the current state of traffic in Northern

* J.D. Candidate, University of Virginia School of Law, to be conferred 2001; B.A., Washington and Lee University, 1997. The author thanks Professor Clayton P. Gillette of the New York University School of Law for his assistance and suggestions for this comment. The author thanks his parents for their love and support.

1. Robert H. Freilich and S. Mark White, Transportation Congestion and Growth Management: Comprehensive Approaches to Resolving America's Major Qualities of Life Crisis, 24 LOY. L.A. L. REV. 915, 917 (1991).

Virginia. The population of the region is growing, adding more drivers to the roads and thus placing a greater strain on the region's road network. Part III of this Note examines several factors that have led to this traffic entanglement, including the rising number of women in the workforce and the suburbanization of the region's housing and employment centers. Despite a healthy transit system, Northern Virginia's residents are increasingly driving alone.

Part IV analyzes the costs incurred as a result of the region's clogged roads. Although the region continues to grow, traffic congestion threatens continued economic prosperity and even civility. Commuters internalize some of the costs associated with traffic congestion, such as time lost and wasted fuel, but these commuters do not carry the full effects of their driving.

What, then, is the solution to this problem? As discussed in Part V, the General Assembly has recently passed a six-year, $2.9 billion transportation package. However the funding in this legislation dwarfs in comparison to that recommended by a regional transportation commission. Virginia Governor James S. Gilmore, III has insisted on no new taxes, and the General Assembly does not have the political resolve to implement any major traffic proposal without the Governor's support. Neither the General Assembly's final package, nor the Governor's proposed transportation initiative, properly addresses the failure of commuters to internalize all of the costs associated with traffic congestion.

This Note is not limited by political influences. This Note seeks to "recreate" the transportation system in a rapidly growing region by providing a new perspective on reducing traffic congestion. Part VI addresses one possible solution to this predicament, congestion pricing, and suggests several other initiatives that, when combined, could significantly reduce the traffic problem in Northern Virginia. It is important to note that there is no one answer. Neither roads nor rails nor telecommuting initiatives alone will solve the problem. There must be a comprehensive approach, and one that is targeted at the heart of the transportation issue: individuals must bear the full costs of their transportation decisions.

II. Traffic in Northern Virginia

Metropolitan Washington, D.C., is growing. From 1970 to 1990, the population of the Metropolitan Statistical Area (MSA) increased 29 percent, to 3.9 million residents.[2] City planners expect the region's population to increase at an even faster rate over the next twenty years. By 2020, the number of households in the Washington area will rise 40 per-

2. N. Va. Transp. Coordinating Council, N. Va. 2020 Transp. Plan § 1.1.1.2 (1999) [hereinafter 2020 Plan].

cent, to approximately 2.7 million. Over the same period, employment is expected to grow by 39 percent, to 4.3 million jobs.[3]

In the face of this expansion, Washington area residents are both literally and figuratively stuck in traffic. According to the Texas Transportation Institute, traffic in the Washington area is the second worst in the nation, as measured by miles traveled and total miles of road.[4] Even though traffic congestion in general has steadied in recent years, one of their analysts opined that traffic in fact might be worsening in portions of the Washington region.[5] Each year the report evaluates a larger area as the region grows geographically, so that uncongested outer suburbs may defray the congestion of the more crowded inner suburbs.[6]

The Texas Transportation Institute provides a numerical evaluation of the toll of traffic congestion.[7] The total annual hours of delay in the Washington Area region equals 216,110,000 person-hours, an escalation of 68% from 1990 to 1997.[8] While Washington area drivers spent an average of 76 hours in traffic in 1997,[9] the average for the 68 urban areas studied by the Texas Transportation Institute was only 34 hours.[10] In addition, Washington drivers consumed an extra 327 million gallons of gasoline as a result of sitting in traffic, with each driver averaging 116 extra gallons of gasoline per year.[11] The result of these delays generated a $3.5 billion economic drain on the region, with a per-driver cost of $1,260.[12] Since 1990, the congestion costs per driver have increased 63%.[13]

It is important to note that these per driver costs are averages of all Washington area residents, with some commuters incurring a much greater tolls for sitting in traffic.[14] The Texas Transportation Institute's study provides a glimpse of the traffic congestion in the area, but it does not evaluate the vast differences in the congestion that individual commuters encounter on different routes and different days. For those who travel along more highly congested routes, such as the Dulles Toll Road, the Woodrow Wilson Bridge or the Beltway, the costs and delays can be

3. 2020 PLAN, supra note 2, at § 2.1.1.

4. Alan Sipress, No Headway in Traffic Woes, WASH. POST., Nov. 17, 1999, at B1.

5. Id.

6. Id.

7. See infra Part III; See generally David Schrank & Tim Lomax, THE 1999 ANNUAL MOBILITY REPORT: INFORMATION FOR URBAN AMERICA (Texas Trans. Inst. 1999) (providing transportation data for 68 American urban areas).

8. Urban Mobility Study, Washington, DC-Maryland-Virginia, available at, http://mobility.tamu.edu/study/cities/washington_dc.stm, (visited May 1, 2000).

9. Id.

10. Sipress, supra note 4, at B1.

11. Shrank & Lomax, supra note 7.

12. Id.

13. Id.

14. See infra notes 133-135 and accompanying text.

significantly more.[15]

While the population has increased throughout the Washington area, these increases are particularly pronounced in Northern Virginia.[16] Between 1970 and 1990, the population of the Washington MSA increased by over 29 percent, from 3.0 to 3.9 million individuals. During this same period, the population of Northern Virginia increased by twice that amount, by 59 percent, from .92 million to 1.47 million.[17]

Northern Virginia's population increases will likely outpace that of the region over the next 20 years. Between 1990 and 2020, the projected growth of Fairfax County is expected to rise from 818,000 residents to 1.18 million. While Fairfax County is expected to gain the largest number of residents over this period, Loudoun County's growth rate is more severe. Loudoun County will swell from 86,000 residents to 371,000, a 331 percent increase. Not only will population in Northern Virginia rise at a rate outpacing the entire metropolitan region, the area's employment is anticipated to expand from 853,000 to 1.48 million jobs. This equates to a 73 percent rise in employment, which will significantly outpace the anticipated employment increase of only 45 percent for the entire MSA.[18]

An upswing in population will result in an attendant increase in traffic congestion. The number of licensed drivers has increased from 1.11 million in 1990 to 1.33 million in 1999, a 19.8 percent increase.[19] The number of vehicles (including automobiles, trucks and buses) in the Commonwealth of Virginia has grown by 16 percent, from 4.9 million to 5.7 between 1990 and 1997.[20] Nevertheless, lane miles have increased by only 6 percent between 1994 and 1999.[21] The area has thus grown significantly, but has not constructed the highway infrastructure to keep pace with this growth.[22]

With more vehicles on the road, and comparatively fewer lane miles, the region's highway system has clogged. The Commonwealth's Secretary of Transportation has announced, "residents in Northern Virginia . . . fac[e] the longest daily commutes and the most severe congestion in Vir-

15. Peter Behr, Traffic? You Haven't Seen Traffic, WASH. POST, Nov. 22, 1999, at F27.

16. For the purposes of this Note, Northern Virginia consists of the following jurisdictions: the counties of Arlington, Fairfax, Loudoun and Prince William, the independent cities of Alexandria, Fairfax, Falls Church, Manassas and Manassas Park and the towns of Dumfries, Herndon, Leesburg and Vienna. The land area of the region totals approximately 1,280 square miles. See 2020 PLAN, supra note 2, at § 1.1.1.1.

17. Id. at § 1.1.1.2.

18. See id.

19. Alan Sipress, Traffic's Toll; A Day on the Roads, WASH. POST, Feb. 4, 2000, at A1.

20. STAT. ABSTRACT OF THE UNITED STATES, Table No. 1027 (1999) [hereinafter STAT. ABSTRACT].

21. Sipress, supra note 19, at A1.

22. See Editorial, "We're Going Backwards," WASH. POST, April 27, 2000, at A26.

ginia. They spend too much time in traffic and away from their families."[23] Former Virginia Governor Gerald L. Baliles states that Northern Virginia is "choking on congestion," and argues that the "inadequacy of Northern Virginia's transportation infrastructure is the single greatest threat to its quality of life, its prosperity, and to state government's own source of revenue."[24]

According to the American Highway User's Alliance, of the nation's top 18 bottlenecks, four are located in the Washington area and two are located in Virginia: the Mixing Bowl in Springfield and the intersection of I-66 and the Beltway.[25] The Mixing Bowl is the informal name for the intersection of the Beltway, I-95 and I-395, which connects the Beltway with Washington, D.C. Each day nearly 370,000 vehicles pass through this interchange, which requires drivers to cross several lanes of highway in a short period to enter or exit. During a recent two-year study, there were 179 accidents in the Mixing Bowl, making it the most dangerous section on the entire 65-mile Beltway. The Virginia Department of Transportation is in the midst of an eight-year, $350 million improvement project at the Mixing Bowl, which will consist of building more than 50 bridges and fly-overs, as well as widening I-95 to 24 lanes in one section.[26]

As a result of the congestion on the Beltway and the Mixing Bowl, the New York Times has labeled Northern Virginia's morning and evening traffic patterns one of "the nation's worst commutes."[27] On February 4, 2000, the Washington Post published an in-depth report of the area's traffic situation, entitled "Traffic's Toll; A Day On the Roads; Incredible Journeys; One Day's Commute Has Many Stories: Crashes, Impatience, Guilt and Even Gunfire," which profiled the frustrating commutes of area residents that either brave the traffic, ride transit or even opt to live in the District with a "dead end job" rather than participate in the daily commute.[28] Northern Virginian's themselves have voiced their concern with the condition of the area's roads. The American Automobile Association's (AAA) Mid-Atlantic region's Transportation Poll 2000 found that 43 percent of the Virginia residents polled described traffic conditions as "more bad than good" or "very bad."[29] As

23. Shirley Ybarra, Editorial, Innovation in Virginia, WASH. POST, Jan. 23, 2000, at B8.

24. Gerald L. Baliles, Virginia's Transportation System and a Decade of Delusion, VA. NEWS LETTER, July 1999, at 1.

25. Study Names 18 Worst Sites for Tie-Ups on U.S. Roads, N.Y. TIMES, Nov. 28, 1999, at A37.

26. Springfield Interchange Improvement Project (visited March 25, 2000) <http://www.springfieldinterchange.com/pb.htm>.

27. Keith Schenider, Five Commutes That Make You Feel Better About Yours, N.Y. TIMES, Oct. 20, 1999, at H13.

28. Sipress, supra note 19, at A1.

29. Area Motorists Prefer Suburban Life Style According to AAA Survey, at http://

one traffic reporter, flying high above clogged I-95, remarked, "'When you see people sitting in traffic from Woodbridge to Washington, I don't know what's left of their lives after working an eight-hour day and spending two or three hours a day on the road. It's a sad commentary on the way we live.'"[30]

In such a car-dependent metropolitan region, the area is susceptible to massive back-ups that cripple the region's transportation network. At 4:00 AM on June 2, 1999, a truck carrying 34,000 pounds of explosive powder crashed in the Mixing Bowl, closing I-95 North and a portion of the Beltway throughout the morning and then again through later parts of the day. The accident caused massive back-ups throughout Northern Virginia, both during the morning and evening commutes.[31] In another incident six months earlier, an Alexandria man stood poised to jump off the Woodrow Wilson Bridge for more than five hours, during which time officials closed the bridge. The incident caused traffic that paralyzed the region's evening commute, causing delays of up to 20 miles on the Beltway and gridlock throughout the region.[32] While these incidents are "extraordinary," these events nonetheless caused "Northern Virginia's arterial system [to have] a coronary . . . . The region stopped moving."[33]

III. How Did We Get Here?

The surge in population has affected the rise of traffic congestion in Northern Virginia. More people in the same area results – whether directly or indirectly – in a greater number of people on the roads. A seemingly obvious explanation nonetheless, one commentator has stated that "the explosion in vehicle travel stems largely from increasing number of cars and drivers."[34] But, specifically, what has led to the unfortunate parking-lot status of major roadways during the morning and evening rush hours, and even during non-traditional rush-hour periods?[35] The broad answer to this question is relatively simple: prosperity.[36] As one

www.aaamidatlantic.com/Live/pga/pga_dc/2-15%20Poll%Prefer%20Suburbs.html (visited March 22, 2000).

30. Sipress, supra note 19, at A1.

31. Alan Sipress and Josh White, Truck Crash Paralyzes Area Roads, Wash. Post, June 3, 1999, at A1.

32. Alice Reid and Patricia Davis, Jumper on Wilson Bridge Throws Area into Gridlock, Wash. Post, Nov. 5, 1998, at A1.

33. Baliles, supra note 24, at 1.

34. Craig N. Oren, Getting Commuters Out of Their Cars: What Went Wrong?, 17 Stan. Envtl. L.J. 141, 160 (1998).

35. See Alan Sipress, Saturday Saturation; Traffic Volume on "Off" Day Now Outpaces Weekday Rush Hours in Region, Wash. Post, Feb. 19, 2000, at A1 (stating that on some roads, Saturday rush is "the greatest crescendo of traffic all week").

36. See Va. Exec. Order No. 43 (1999) (citing the "continuous and unprecedented growth" in Virginia in the Preamble of the Executive Order creating the Governor's Commission on

prominent traffic scholar has explained, "People can afford cars and [as a result, they] use them."[37]

A. Increasing Number of Drivers

Women are joining the work force in increasing numbers.[38] In the Washington area at the turn of the 21st Century, the "typical woman" now works outside the home and thus contributes, in some way, to the increase in traffic congestion.[39] Both nationally and within Virginia, approximately 60 percent of women participated in the labor force in 1997.[40] By contrast, only 43.3 percent of women participated in the workplace in 1970.[41] Not only are more women joining the workforce, they are also driving more. From 1983 to 1990, while the annual miles per driver for men increased 28 percent, the annual miles per driver for women increased 50 percent.[42]

With the increase of women joining the workplace, the number of multiple-vehicle households has grown dramatically, creating something of a "democratization of mobility"[43] or even a "liberation."[44] An increasing number of low-income households can now afford an automobile.[45] Nationally, the number of households with no vehicles has decreased approximately 33 percent since 1969. While the number of households with one vehicle has increased by only one percent, the number of households with more than one vehicle has risen substantially. The number of two-vehicle households has increased by 117 percent since 1969, and the number of three or more vehicle households has ballooned by 535 percent over the same period. There are more than twice as many households with three or more vehicles than there are with no vehicles.[46] In fact, one-fifth of the households without vehicles are located in the New York

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Transportation Policy); Alan E. Pisarski, Forcing Drivers Off the Road Won't Solve Virginia's Traffic Woes, Va. News Letter, Jan./Feb. 2000, at 1 (stating that "the most fundamental cause of our congestion problem is that terrible villain: prosperity"); Alan Sipress, supra note 35, at A1 (quoting Ronald F. Kirby, chief transportation planner for the Metropolitan Washington Council of Governments as noting the reason for the increase in traffic congestion is that "people travel more because they have more resources").

37. Pisarski, supra note 36 at 1.

38. See William W. Buzbee, Urban Sprawl, Federalism, and the Problem of Institutional Complexity, 68 Fordham L. Rev. 57, 68 (1999); Oren, supra note 33, at 161-162.

39. See Sipress, supra note 19, at A1.

40. Stat. Abstract, supra note 20, Table No. 654.

41. Id. at Table No. 659.

42. Anthony Downs, Stuck in Traffic 21 (1992).

43. Pisarski, supra note 36, at 1.

44. JOEL GARREAU, EDGE CITY: LIFE ON THE NEW FRONTIER 113 (1991).

45. Pisarski, supra note 36, at 1.

46. STAT. ABSTRACT, supra note 20, Table No. 1039.

area, while the remaining tend to be small households in central cities.[47] The upswing in women workers and drivers is a "liberation," as women have made their way into the work force, increasing their use of the great mechanism of individualism, the automobile.[48]

Not only do mothers and fathers have cars, but their children, also, have their own vehicles. Administrators at one Arlington County school, for example, estimate that nearly half of their 1,500 students drive to and from school.[49] In an area of increasing wealth, parents want to provide their children with the freedom of mobility, while in turn emancipating themselves from serving as a taxi-service for their children.[50]

B. Driving Alone

Americans are also increasingly driving alone.[51] Since 1977, average vehicle occupancy has dropped slightly, from 1.9 occupants for every trip in 1977 to 1.6 occupants per trip in 1990. All types of trips have seen a decline in occupancy: from home to work, on shopping trips, on trips relating to family business, and social and recreational trips.[52] Nearly 70 percent of all commuters (including those who drive, participate in car and van pools and take public transit), drive alone.[53] Most Americans prefer traveling in their private vehicles, with more privacy, convenience, comfort and speed than that of public transportation.[54] Driving alone to work has become so engrained in the minds of the public that it has become the norm of commuting.[55]

C. HOV and Carpooling in Northern Virginia

Despite the increase in driving alone, Northern Virginia remains a "national leader" in the use of High Occupancy Vehicle (HOV) lanes.[56]

47. Oren, supra note 34, at 162.

48. GARREAU, supra note 44, at 113.

49. Sipress, supra note 19, at A1.

50. Id.

51. See Lior Jacob Strahilevitz, How Changes in Property Regimes Influences Social Norms: Commodifying California's Carpool Lanes, 75 Ind. L.J. 1231, 1235 (2000).

52. STAT. ABSTRACT, supra note 20, Table No. 1039. (During this period, occupancy on trips from home to work has fallen from 1.3 to 1.1. Occupancy for shopping trips has fallen from 2.1 to 1.7. Occupancy on trips for family or personal business has decreased from 2.0 to 1.8. Finally, occupancy on trips for social or recreational purposes has fallen from 2.4 to 2.1.) See id.

53. DOWNS, supra note 42, at 20.

54. Id. (Downs also suggests that those who drive alone, on average, have faster commuting times than those that take transit or carpool. While statistics are not available for all commuters, however, the Northern Virginia Transportation. Commission's 1998 Annual Report suggests that commuting times for those in high occupancy vehicles (HOV) are significantly less than those in low occupancy vehicles (LOV)). See infra note 60 and accompanying text.

55. See supra note 50, at 1275.

56. Car/Vanpool/HOV, at http://www.CommuterPage.com/carpool.htm.

HOV are lanes "reserved during peak periods . . . for the exclusive use of buses and high-occupancy vehicles."[57] HOV lanes do not apply to emergency and law enforcement vehicles, motorcycles, transit or commuter buses designed to carry sixteen or more passengers, public utility company vehicles responding to an emergency call, or clean-fuel vehicles.[58] Violators are subject to a $50 fine for their first offense, with a maximum penalty of $500 penalty for four or more offenses.[59]

In Northern Virginia, there are three HOV corridors: the I-95/I-395 north-south corridor; the I-66 east-west corridor; and the north-south Route One and George Washington Parkway corridor through Alexandria.[60] HOV lanes on I-66 and I-95/I-395 carry more people per lane, per hour than the conventional lanes.[61] For example, during a Fall 1997 morning survey of I-395, the number of persons per HOV lane per hour totaled 4,733, while the number of persons per Low Occupancy Vehicle (LOV) lane per hour totaled only 2,075.[62] The HOV lanes also provide for faster commuting times. The same survey found travel in the peak morning period along I-95/I-395, a 27.6 mile span, took 26 minutes in an HOV lane, while travel along the same stretch of road in a LOV lane took 65 minutes.[63]

Although the national trend toward carpooling has decreased, Virginians remain leaders in carpooling. Nationally, the percentage of people carpooling slipped from 20 percent of workers in 1980 to 13 percent of workers in 1990. In addition, the size of the carpools also decreased. During this period, the number of three-person carpools declined nearly 40 percent, while the number of two-person carpools fell less than 10 percent. Those that carpool tend to be lower-salary workers, with long trips to work, and who live in households with more than one worker.[64] Virginia, however, ranks eighth nationally in the percentage of those people who carpool to get to work.[65] Traffic expert Alan E. Pisarski states that, despite a recent decline in carpooling nationally and locally, the Washington, D.C. MSA is the most car-pooling oriented large city in the country.[66]

The development of HOV requirements in Northern Virginia has

57. VA. CODE ANN. § 33.1-46.2 (1999).
58. Id.
59. Id.
60. N. VA. TRANSP. COMM'N, 14 N. VA. ANN. TRANSP. UPDATE 130 (Oct. 1998).
61. Id. at 130.
62. Id. at 131 (providing data for I-95 and I-66 during the same Fall 1997 survey, which shows that each HOV lane out-performed each LOV lane in terms of people per lane per hour).
63. Id. at 132.
64. Oren, supra note 34, at 164-65.
65. STAT. ABSTRACT, supra note 20, Table No. 1037.
66. Pisarski, supra note 36, at 1.

given rise to a new phenomenon in commuting called slugs. Slugs are commuters who form lines at parking lots and metro stations to catch free rides with drivers, known as "bodysnatchers,"[67] who need additional passengers to be able to use the HOV lines.[68] Most slug stops are located along bus routes, so that if a slug fails to find a ride, he or she is not stuck without transportation: the slug can take the bus or, if the slug drove to the pick-up spot, drive into work. Slugging evolved in the 1970s along the I-395/I-95 corridor with the development of a HOV-4 reversible lane facility between Springfield and the 14th Street Bridge into Washington. Since then, it has expanded along I-395/I-95, as well along I-66.[69]

Slugging emerged – indeed, has "thrived" – with no governmental regulation.[70] Slugging has fashioned a culture of its own.[71] Two web sites, designed by "slugs", have developed to inform potential "slugs" and "bodysnatchers" of locations, etiquette and general information on slugging in Northern Virginia (including a lost and found site for slugs that have left items in their hosts' vehicles).[72]

During one weekday afternoon peak period, a total of 2,187 slugs were picked up at two Washington, D.C., locations and two Pentagon locations in Virginia. It is estimated that slug usage is higher in the morning hours, with approximately 3,000 peak period slugs using the I-395/I-95 corridor. Based on these figures, transportation planners estimate that approximately 25 percent of the vehicles on the HOV lanes south of the Pentagon during the morning peak period have at least one slug in the automobile.[73] Supporters attribute the success of the phenomenon to the strength of the region's public transportation system, which acts as a safety net, the large number of professional and governmental employees, who are low-risk passengers, and free commuter parking along the corridors.[74]

67. VA. DEP'T. TRANSP, I-95/I-395 HOV RESTRICTION STUDY, VOL. I: SUMMARY REPORT 17 (Feb. 1999).

68. Slug-Lines, Free Commuter Carpools for HOV, available at http://www.slug-line.com.html (visited March 22, 2000).

69. Slug Virginia, History, available at http://www.slugvirginia.com/history.html (visited March 22, 2000).

70. Id.

71. VA. DEP'T TRANSP, supra note 67, at 17.

72. Slug-Lines, Free Commuter Carpools for HOV, at http://www.slug-line.com.html (visited March 25, 2000); Slug Virginia, available at http://www.slugvirginia.com.html (visited March 22, 2000).

73. VA. DEP'T TRANSP, supra note 67, at 18.

74. Slug Virginia, History, at http://www.slugvirginia.com/history.html (visited March 22, 2000).

D. Public Transportation in Northern Virginia

The Washington area's 103-mile Metrorail system (Metro) is one of the nation's premier transit systems. Metro, operated by the Washington Metropolitan Area Transit Authority (WMATA), serves Northern Virginia with three rail lines. The Orange Line enters the Commonwealth from the District at Roslyn and shadows I-66 through Arlington to the Vienna-Fairfax-GMU station. The Blue Line also enters Virginia at Roslyn, turns south through the Pentagon and Crystal City and southeastern Alexandria and terminates at Franconia-Springfield Transportation Center. The Yellow line enters Virginia at the Pentagon, heads south along with the Blue Line and terminates at the Huntington station.[75] In 1999, the total annual weekday Metro ridership at stations in Virginia topped 62 million riders, an increase of 7 percent from 1997.[76] Indeed, 13 of the top 20 Metro ridership days through the system's 25-year history (based on total ridership on the entire Washington D.C. Metro system) occurred between March 1, 2000 and April 30, 2000.[77] According to Metro General Manager Richard A. White, the Orange line is now running close to capacity.[78]

In 1992, the Commonwealth began operation of the Virginia Railway Express (VRE) Manasass and Fredricksburg lines. The Manassas line runs from Manassas to Alexandria, then up to Union Station, after stops at Crystal City and L'Enfant Plaza. The Fredericksburg line runs north along the I-95 corridor, connecting with Metro at the Franconia/Springfield Transportation Center, before reaching Alexandria, Crystal City, L'Enfant Plaza and Union Station.[79] The VRE is the second fastest growing commuter railroad in the country.[80] Although ridership, which was as high as 8,000 trips per day, dipped after a CSX freight train derailment in 1997 caused delays on the line for weeks, the number of riders has since rebounded.[81] In December 1999, ridership reached an average of 7,624 riders per day, up 11 percent from December 1998.[82] In order to attract riders, VRE places a premium on customer service, expanding free parking, offering café cars, providing an e-mail service to alert riders of any problems and even reimbursing day-care late charges if the trains

75. 2020 PLAN, supra note 2, § 1.5.1.3.

76. N. VA. TRANSP. COMM'N, 15 N. VA. ANN. TRANSP. UPDATE 17 (Oct. 1999).

77. Lyndsey Layton, Mass Transit Popularity Surges in U.S., Wash. Post, April 30, 2000, at A1.

78. Id.

79. 2020 PLAN, supra note 2, § 1.5.1.3.

80. Lyndsey Layton, Opposite Sides of the Tracks; Maryland's Rail Services Rocky Compared with Virginia's Smooth Ride, Wash. Post, Feb. 22, 2000, at B1.

81. Paul Bradley, Commuter Rail Line Riding High; Double Decker Cars Result of Turnaround, Richmond Times Dispatch, Jan. 29, 2000, at B4.

82. Bradley, supra note 81, at B4.

are late. VRE will also issue a free ticket to any commuter whose train is more than 30 minutes late.[83] In December 1999, average on-time performance for both the Fredericksburg and Manassas lines reached 95 percent.[84]

In addition to rail transit, a variety of bus lines serve Northern Virginia. Metrobus, operated by WMATA, serves over 15 million weekday riders each year in Northern Virginia.[85] Individual jurisdictions within the region also provide bus service.[86] The total annual passenger trips for all of these transit systems reached approximately 9.3 million riders, including transfers, in 1999. In 1998, the county and city transit services reported 9 million riders.[87]

Despite such healthy transit systems, Northern Virginians remain choked by traffic congestion. Nevertheless, it is important to note that a significant number of commuters in Northern Virginia use transit systems. In fact, after New York City, Washington area residents are the most transit-oriented commuters in the nation.[88] Indeed, the number of people using public transportation is the largest in 40 years.[89] This penchant for transit commuting, however, has not eliminated the area's traffic congestion. Traffic still exists, and it is getting worse.

E. Suburbanization: Living, Working and Driving in Edge Cities

The United States is in the midst of a suburbanization phenomenon.[90] Specifically, Americans flock not to the urban core, but to suburban office parks and shopping malls in what are known as "Edge Cities."[91] Instead of separating our largely residential suburbs from our

83. See Layton, supra note 77, at B1.

84. See Average On Time Performance, at <http://www.vre.org/performance_measures/sld003.html>. (visited March 24, 2000).

85. See 1999 N. Va. Transp. Comm'n, supra note 76, at 20.

86. These bus services include DASH operated by the City of Alexandria, the ART operated by Arlington County within Crystal City, CUE operated by the City of Fairfax, Fairfax Connector operated by the County of Fairfax, OmniRide and Omnilink operated by the Potomac & Rappahannock Transportation Commission (PRTC) in Prince William County, and Commuter Service by Loudoun County. See id.

87. See 1998 N. Va. Transp. Comm'n, supra note 60, at 124.

88. See Pisarski, supra note 36, at 1.

89. Layton, supra note 77, at A1.

90. See, e.g., Robert W. Burchell and Naveed A. Shad, The Evolution of the Sprawl Debate in the United States, 5 Hastings W.-Nw. J.Envtl. L. & Pol'y 137, 139 (1999) (stating that the suburban population in the United States has increased from 15 percent in 1942 to 60 percent at the turn of the millenium, with the trend likely to continue); Oren, supra note 33, at 166-167 (declaring that "suburbanization is perhaps the most important social phenomenon of twentieth-century America").

91. See Garreau, supra note 44.

commercial downtown areas, companies – led by high-tech service industries[92] – are moving jobs to where most individuals have previously only lived and shopped.[93] A major result of this suburbanization has been an increased dependence on the automobile.

In his book, *Edge City: Life on the New Frontier*, Joel Garreau describes this phenomenon, stating that these new employment and retail centers are no longer like the traditional downtown, but instead, are low-density office parks, with vast parking lots and manicured campuses.[94] He also provides a functional definition of these new Edge Cities. Each has five million square feet or more of leasable office space, as well as 600,000 square feet of leasable retail space. The Edge Cities must have more jobs than bedrooms, so that the population increases each morning, and they must be perceived by the population as one distinct place. Finally, this new employment and retail center must not have been anything like "city" as recently as thirty years ago.[95]

Northern Virginia is perhaps the very model of the Edge City phenomenon. Writing in 1988, Garraeu listed eight Edge Cities in Northern Virginia and four emerging ones.[96] Tysons Corner, Virginia, represents the quintessential Edge City, with two large shopping malls surrounded by scores of strip malls and office parks. In contrast to today's Tysons Corner, the crossroads in the 1940s consisted of a feed store and a "beer joint."[97] By the end of the century, however, Tysons Corner has become "the largest urban agglomeration between Washington and Atlanta."[98] And it is growing: Employment in Tysons Corner is expected to rise from 88,000 workers to 120,000 by the year 2020.[99]

Given their youth, these Edge Cities are in fact, "works in progress."[100] They have created low unemployment,[101] generated great

92. See Oren, supra note 34, at 168.

93. See GARREAU, supra note 44, at 4.

94. Id. at 3.

95. Id. at 6-7.

96. See id. at 438. The Edge Cities are Rosslyn-Ballston and Crystal City in Arlington, Old Town Alexandria, and Tysons Corner, Merrifield (the Beltway and Route 50 West), Fairfax Center-Fair Oaks Mall area (I-66 and Route 50), the Reston-Herndon-Dulles Access Road area and the Dulles International Airport-Route 28 area in Fairfax County. The emerging Edge Cities are the I-395 Corridor and Eisenhower Valley area in Alexandria, the Greater Leesburg-Route 7 area in Loudoun-Route 7 area and Gainesville in Prince William County. See id.

97. Id. at 349.

98. Id. at 350.

99. See TRANSP. COORDINATING COUNCIL, Travel Corridors & Emp. Centers (January 2000) (map).

100. Garreau, supra note 44, at 8.

101. In 1998, Fairfax County, home to five of Joel Garreau's Edge Cities, had an unemployment rate of 1.6 percent, compared with a 2.9 percent unemployment rate for the entire Commonwealth and a 4.5 percent unemployment rate for the United States. See Local Area

wealth for local home and landowners,[102] and are the location of great retail bazaars.[103] Generally, the tenants of these office parks enjoy the wide-open campuses and free parking.[104] Nevertheless, aesthetically, Edge Cities, with their low-density office spaces, strip malls and standard housing units, are often criticized for lacking "livability, civilization, community, neighborhood, and even a soul."[105]

More importantly, however, critics have blasted these Edge Cities for depleting the urban core: As individuals and companies move to the suburbs, they take their money with them and leave a poor underclass in the inner city, with decreasing tax revenues to provide increasingly needed services.[106] Companies that migrate to the suburbs leave their prior inner-city industrial sites empty, often described as "brownfields."[107] Critics describe these suburban commercial and residential centers not as Edge Cities, a term which invokes the sense that these areas complement the urban core, but as a doughnut: empty on the inside and full on the outer edges.[108]

Both critics and admirers of the suburban phenomenon will agree that this rise in suburban living creates an increased reliance on the automobile. In 1994, over 52 percent of all commuting trips within the Washington region occurred between suburbs,[109] above the average of 33 percent of suburb-to-suburb trips nationally.[110] These new urban centers, in fact, maintain land use densities far below central business districts and contain nearly thirty times as much land per area as downtown office

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Unemployment Series, at http://www.virginia.edu/coopercenter/vastat/lausannual.html (visited May 3, 2000).

102. See Michael D. Shear, Evans Farm Vote Goes to Developer, WASH. POST, June 25, 1999, at B6 (reporting that a 24 acre parcel of land located near Tysons Corner was sold to a developer, who intends to construct 144 town houses, condominiums and single-family detached houses, for an estimated $20 million). See also Michael Laris, Growth Limits Anger Loudoun Landowners; Farmers Claim Right to Develop Property, WASH. POST, April 18, 2000, at B5 (reporting opposition to "slow growth" policies by farmers, concerned that such restrictions will reduce their farms' property values).

103. In addition to two shopping malls, Tysons I and Tysons II, a trip down Route 7 takes one to such luxury stores as Tiffany's and Hermes.

104. See Downs, supra note 42, at 18.

105. Garreau, supra note 44, at 8.

106. See Kenneth T. Jackson, CRABGRASS FRONTIER: THE SUBURBANIZATION OF THE UNITED STATES 285 (1985) (stating that the negative results of suburbanization "are the stripped automobiles, burned-out buildings, board-up houses, rotting sewers, and glass-littered streets that are common in so many of America's inner cities"); Buzbee, supra note 37, at 69-72 (citing one of urban sprawl's harmful effects as the abandonment of the inner urban core).

107. Buzbee, supra note 38, at 70.

108. Kenneth T. Jackson, Op-Ed., Why America Has Gone Suburban, N.Y. TIMES, June 9, 1996, at D15.

109. 1998 N. VA. TRANSP. COMM'N, supra note 59, at 117.

110. Oren, supra note 34, at 168.

settings. Filled with plenty of parking, these urban settings "virtually invite workers" to use automobiles.[111] With their offices and homes located in suburban settings, commuters are less likely to use transit. For maximum transit efficiency, passenger's homes and workplaces must be massed in a few large areas.[112]

The suburbanization of America's workplaces might appear to decrease the distances between work and home. Surprisingly, there is an increasing distance between where employees live and work. Nationally, the average commute in 1983 was 8.5 miles. In 1990, that number had increase to 10.7. In the Washington area, the average distance between home and work jumped from 9.6 miles in 1989 to 11.2 miles in 1994. From 1990 to 1999 the total number of miles driven per person on a weekday increased 10 percent, from 30 miles to 33 miles.[113]

Americans cherish the right to travel alone in their own vehicles.[114] Unlike mass transit, the automobile places the ability to go where, when, and at what frequency in the hands of the individual, rather than in those of the train engineer.[115] The automobile serves a symbol of individualism and freedom: one need only to get behind the wheel to drive anywhere at any time.[116] Driving also provides individuals with an opportunity to escape from interactions with others and engage in self-reflection.[117] In driving to work, the commuter has the freedom to use the trip as an opportunity to complete other tasks, such as stopping by the bank, the dry cleaner, or the shopping mall.[118] This practice of combining both commuting and running errands is known as "chaining."[119] Approximately one-third of all work trips involve this type work/errand coordination.[120]

Women, increasingly joining the workforce, yet maintaining many of their traditional family responsibilities, are more likely to make additional stops after work. Approximately 61 percent of working, commut-

111. Id. at 167-68.

112. See DOWNS, supra note 42, at 19.

113. Sipress, supra note 19, at A1.

114. See Downs, supra note 42, at 144.

115. See Garreau, supra note 44, at 107.

116. See Melanie Baker Daly, America – On the Road to Mass Transit, 19 TRANSP. L. J. 357 (1991) (stating that "[t]he car has come to symbolize American Individualism and the ability to come and go at a whim"); Tirza S. Wahrman, Breaking the Logjam: The Peak Pricing of Congested Urban Roadways Under the Clean Air Act to Improve Quality and Reduce Vehicle Miles Traveled, 8 DUKE ENVTL. L. & POL'Y F. 181, 204 (1998) (declaring that "the automobile is considered central to the American dream and represents the quintessence of personal freedom"). See also Garreau, supra note 44, at 107 (noting that "[n]ot for nothing is that most American hymn to individual freedom, Jack Kerouac's magnum opus, entitled On the Road").

117. See Strahilevitz, supra note 51, at 1236.

118. See Oren, supra note 34, at 170.

119. Id. at 171.

120. Id. at 170-71.

ing women make at least one stop after work; 28 percent of women make at least two stops. On the other hand, only 46 percent of men make at least one stop and only 18 percent make two or more.[121] The increase in time pressure among working women who juggle family and work responsibilities has led to chaining and thus has made transit and carpooling virtually impossible for these commuters.[122]

Thus, Northern Virginia faces somewhat of a paradox. It has, at the same time, one of the nation's best transit systems but one of the worst commutes. The region is growing significantly and prosperously, yet that prosperity – with the accompanying rise in the number of two-person working households and the ability of more people to afford automobiles – is starting to choke the growth of the region.

IV. The Costs of Traffic Congestion

Former Governor Gerald L. Baliles has suggested that traffic congestion has exacted costs of more than $200 billion in lost regional economic product.[123] It is unclear how the former Governor calculates this burden on the Washington metropolitan region, but the figure does provide a starting point for the discussion of the costs of traffic congestion. The region, as a whole, pays a tremendous cost for traffic congestion.[124] Once we determine that traffic congestion does produce costs, it is important to determine whether those costs are actually internalized: are those people who are creating the ill effects of traffic congestion fully incorporating all those costs into their transportation decision-making process?

A. Determining the Costs of Congestion

The Texas Transportation Institute suggests that Washington area residents spend approximately 216 million hours each year in traffic delay, with the average commuter delayed 76 hours.[125] In addition, the region consumed an excess of 327 gallons of fuel in 1997 as a result of traffic, with the average commuter consumed an excess of 116 gallons.[126] The

121. Nancy McGuckin and Elaine Mirakami, Examining Trip-Chaining Behavior: A Comparison of Travel by Men and Women 6 (Federal Highway Administration).

122. See 1998 N. Va. Transp. Comm'n, supra note 60, at 118; Pisarski, supra note 36, at 1.

123. Baliles, supra note 24, at 1.

124. The Washington, D.C. region is currently not the only area experiencing substantial growth and increased pressure on its transportation infrastructure with economic repercussions. The Atlanta Metropolitan area, for example, is experiencing similar growth pains. See Orlyn O. Lockard, III, Note, Solving the "Tragedy": Transportation, Pollution and Regionalism in Atlanta, 19 Va. Envtl. L.J. 161 (2000). See generally Dedicated Issue, Smart Growth, 35 Wake Forest L. Rev. 509 (2000).

125. Texas Transportation Institute, Urban Mobility Study, Washington, DC-Maryland-Virginia, at http://mobility.tamu.edu/study/cities/washington_dc.stm (last visited May 1, 2000).

126. Id.

Texas Transportation Institute calculates a total congestion cost of 3.5 billion dollars.[127] The cost of congestion for the average commuter totaled $1,260, the second highest in the nation.[128]

These costs, however, are average commuting costs for fuel and lost time.[129] Commuting may also cause drivers to incur significant indirect costs, including late fees at child care centers and expenses such as take out dinners and housekeeping costs, as a result of being too tired to make dinner or clean their house.[130] In addition, there are personal costs that are difficult to calculate numerically. The time spent sitting in traffic is time that commuters could have spent with their families or using to pursue recreational or educational endeavors.[131]

Indeed, there are other personal costs that must be calculated into the "magic equation" to determine the exact costs of traffic congestion. There are those in Washington who stay in "dead end jobs" while living in the District of Columbia – within bicycle or walking range from work – rather than enjoying a more challenging and financially rewarding position elsewhere.[132] The Washington Post told the story of one such individual, who has turned down technology jobs in Northern Virginia, refusing to tolerate the commute that once ate up four hours of his day. The result was a job with less promise for intellectual and financial development, but also one without the daily grind of a long commute.[133] It is not possible to determine how many individuals have passed up a more economically and mentally stimulating job in return for a peaceful commute. Nevertheless, such anecdotal evidence provides further evidence that commuting exacts larger costs than simply hours stuck in traffic and excess gas consumption. Traffic congestion has an influence on major personal decisions.

A recent AAA poll confirms this assumption. The poll found that of the 67 percent of the respondents who view traffic conditions as bad, 33 percent said that they are considering major life style changes as a result of traffic.[134] In Northern Virginia, the number considering life style

127. Id.

128. Id.

129. Schrank & Lomax, supra note 6, at xi, available at http://mobility.tamu.edu. (The value of travel time is based not on wages, but on a research gauging the value that individuals demonstrate by their behavior, such as paying tolls, aggressive driving that risk accidents and traffic citations.) See id.

130. See Alan Sipress, Driven to Extremes, WASH. POST, June 4, 2000, at C1.

131. See Sipress, supra note 19, at A1.

132. Id.

133. Id.

134. AAA Mid-Atlantic, Area Motorists Prefer Suburban Life Style According to AAA Survey, at http://www.aaamidatlantic.com/LiveNew/aboutus/pga/pga_dc/0215_Poll_Prefer_Suburbs.asp (last visited March 22, 2000).

changes increased to 40 percent.[135] Of that percentage group, 42 percent stated that they are considering moving out of the area and 16 percent indicated that they are considering a new job.[136] In total, 10 percent of all respondents explained that they are considering moving out of the region to escape the traffic.[137] Robert Grow, government relations director of the Greater Washington Board of Trade, views such responses as imposing a great cost on the region: "'We have an economy that is booming. I think we have to ask ourselves how long it will continue when we have a percentage of people who say that want to get out of Dodge because of the traffic.'"[138]

Although the Texas Transportation Institute suggests that traffic congestion may eat up 76 hours for the average Washingtonian, such a figure is an average of all the commuting times in the region, including those who drive very short distances to and from work. At the same time, however, this figure downplays those in the region who undertake significantly longer daily commutes. A commute from eastern Loudoun County to Washington, D.C., can take 60 minutes, each way.[139] From Woodbridge to Washington, D.C., the commute – even when using a slug to gain access to the HOV lanes and thereby reducing the trip by 30 to 45 minutes[140] – can also take an hour each way.[141]

A decrease in the reliability of travel is another cost created by the current transportation situation. With an unpredictable transportation system, there is an increased number of wasted minutes and hours, as individual commuters must allow a "cushion of time" whenever they travel in case of unexpected traffic congestion.[142] Commuters cannot trust the transportation infrastructure to deliver them "just-in-time."[143] In addition to time costs attributed to the unreliability of the transportation system, there are direct financial costs, including late charges for day care facilities, when traffic congestion does, in fact, cause delays.[144] It is estimated that the costs, on average, of unanticipated delays are four times as much as those for anticipated traffic congestion, owing to loss of

135. AAA Mid-Atlantic, AAA Mid-Atlantic's Transportation Poll 2000, at http://www.aaamidatlantic.com/LiveNew/aboutus/pga/pga_dc/0215_Synopsis_of_Trans_Poll.asp (last visited March 22, 2000).

136. AAA Mid-Atlantic, supra note 128.

137. Patrick Lackey, Worsening Traffic the Virginia Way: To Endure, Rather than Spend, VIRGINIAN-PILOT, Feb. 18, 2000, at B11.

138. Paul Bradley, Policy Makers Ignore AAA Polls Findings Again, RICHMOND TIMES-DISPATCH, Feb. 20, 2000, at C1.

139. Sipress, supra note 19, at A1.

140. See supra notes 64-71; See supra text accompanying notes 64-71.

141. See Sipress, supra note 19, at A1.

142. Alan Sipress, The Traffic Jams Are No Accident, WASH. POST, March 5, 2000, at C1.

143. See Pisarski, supra note 36, at 1.

144. See Sipress, supra note 142, at C1.

time, missed meetings, late fees and other charges that may accrue because of late arrivals.[145]

The costs of goods and services also increases as a result of a clogged transportation system. With a declining 20-minute market radius around one's home, consumers are left with fewer places to shop, resulting in fewer choices, increased prices and lower productivity.[146] But this increasing cost of products argument is not limited to retail shopping. Those in service industries, such as technical and maintenance workers, who must make service calls, face increasing costs associated with traffic congestion. As the time it takes to make a service call increases because of traffic congestion, the "nonproductive time" per day for each driver also increases, forcing companies to raise their hourly rates.[147]

Traffic congestion also causes pollution. The Clean Air Act provides rigorous standards for the control of automobile emissions.[148] Although federal standards have reduced tailpipe emissions by 96 percent per automobile, automobiles still remain the "single most important source of air pollution in the United States."[149] Automobiles are responsible for 75 percent of hydrocaron emissions, 45 percent of nitrogen oxide emissions and 34 percent of the volatile organic compound emissions in this country.[150] These air pollutants give rise to such health effects as headaches and eye irritation to reduced lung functions, lung damage, respiratory disease, and cancer.[151]

Beyond the economic and environmental effects, traffic congestion also contributes to a lack of civility in society. In an effort to get to their destinations sooner, drivers who would never commit crimes such as stealing or shoplifting routinely break traffic laws.[152] Many commuters see traffic laws as not "real law," because they are seen as "victimless crimes" that involve no intent to harm.[153] Drivers, with "'too much to do and not enough time to do it,'" often pay little attention to speed limits and stop signs.[154]

A general inattention to traffic laws, however, creates yet another

145. Id.

146. See Pisarski, supra note 36, at 1.

147. Sipress, supra note 19, at A1 (reporting that one repair company estimates that traffic adds 15 minutes to each service call, which creates two hours of 'nonproductive time' per day for each driver. The company passes these costs onto customers through higher hourly rates).

148. See 42 U.S.C. § 7521-54 (1994).

149. Wahrman, supra note 116, at 185.

150. Id.

151. EPA, OPPORTUNITIES TO IMPROVE AIR QUALITY THROUGH TRANSPORTATION PRICING PROGRAMS 4 (Sept. 1997).

152. See Alan Sipress and Josh White, Guilty, But Feeling Guilty Free, WASH. POST, July 16, 2000, at A1.

153. Id.

154. Id.

breed of drivers: those suffering from "road rage." Road rage is the loss of courtesy on the road that has been defined as intentional aggressive driving by angry and frustrated motorists.[155] The source of this frustration is often traffic congestion. As one Virginia State Trooper explained, "'You've got plenty of angry motorists who aren't necessarily paying attention. And there are plenty of angry motorists today. They don't care why traffic isn't moving. They just want it to move.'"[156] One recent "road rage" incident in Northern Virginia resulted in a pregnant woman suffering from a miscarriage after an angry motorist hit her car several times and forced her off the road.[157] Such incidents, while uncommon, undermine the sense of safety on area roads. The AAA Mid-Atlantic Transportation Poll 2000 found that 53 percent of area residents rated aggressive driving as the number one highway safety concern.[158]

B. Cost Internalization?

There is some evidence that given the extreme costs of traffic congestion, individuals have internalized the costs of sitting in traffic. That is to say that the commuter, in deciding to use his automobile, has absorbed all the costs associated with that decision: the temporal, financial, environmental, and societal costs of traffic congestion. However, should the commuter's decision to drive not be based on an assessment of all of these factors, then the commuter's decision is not solely personal. The decision to commute has then created effects that are external to the driver, imposing costs on those who have no power to influence the decision making process. The cost of driving, therefore, would not lay entirely on the decision-maker and is deemed to be an externality.[159]

It is clear that suburban living is popular. According to the AAA poll, 65 percent of those questioned in the Washington metropolitan area stated that they preferred to live in a less densely populated suburb, using a car to get to work, school and shopping, while only 29 percent of those questioned preferred urban living with public transportation.[160] Not only is suburban living popular, but the very idea of driving – and driving

155. See Wahrman, supra note 116, at n4; See also William E. Welsh, Behind the Wheel and Seeing Red, Wash. Post, Jan. 6, 2000, at C4.

156. Sipress, supra note 19, at A1.

157. Michael D. Shear, Road Rage Attack on I-95 Blamed for Miscarriage, Wash. Post, March 19, 2000, at C1.

158. AAA Mid-Atlantic, Motorists Rate Aggressive Driving Number One Threat to Highway Safety for Fifth Year, According to AAA, at http://www.aaamidatlantic.com/LiveNew/aboutus/pga/pga_dc/0215_Poll_Aggressive_Driving.asp (visited March 22, 2000).

159. See Jesse Dukenminier and James E. Krier, Property 47-51 (4th ed. 1998) (discussion of externalities).

160. AAA Mid-Atlantic, supra note 134.

alone – is also preferable.[161] The question that remains, however, is whether those who live in the suburbs and insist on driving personally incorporate all of the costs associated with their decision.

The argument that costs are internalized is based on the realization that in order to live in the suburbs, you have to pay the costs of traffic congestion. As one Maryland commuter, who travels 500 miles a week, spending nearly $600 per month on parking, gas and repairs, explains, "'I guess I've gotten used to the fresh air and the sunshine and the flowers and the nice neighborhoods . . . You have to give up something to get something.'"[162] As a rational actor, the commuter assesses the costs of living in the suburbs and of being able to enjoy the convenience and individualism of the automobile and determines that the value of living in the suburbs outweighs the costs. Indeed, the story of the individual who has turned down job offers in Northern Virginia because of the cost of congestion has – like any rational actor – assessed the financial rewards of a higher-paying position and weighed them against the negative commuting aspects, choosing to remain in the District.[163] The key to this decision is that those who have decided to commute have been forced to take into account the costs of their actions while making that decision.[164] Those who move out to Loudoun County do so because, as one suburbanite claims, after assessing all the costs and benefits, "'It's worth it."[165]

This conclusion assumes, however, that in deciding to live in Loudoun, Prince William, or other Northern Virginia counties, and accepting the long commutes, fuel costs, and even time away from their families, commuters have internalized *all* of the effects of driving. While it is certainly true that in deciding to live in the suburbs, the commuter has incurred significant costs, it is not likely that the commuter has internalized all the costs.

Americans like suburban living, preferring detached dwellings over row houses, rural to city life, and home ownership to renting.[166] The wide open spaces of suburbia do provide a manifestation of such American ideals such as individualism and freedom. This suburbanization phenomenon, however, has not developed without governmental subsidies. The federal tax system, for example, has allowed mortgage and property tax deductions. Additionally, savings are taxed twice, first on the income itself, and then on the interest on that income.[167] With tax incentives to

161. See DOWNS, supra note 42, at 144.
162. Sipress, supra note 19, at A1.
163. See supra notes 126-27; See supra text accompanying notes 126-27.
164. See Dukeminier and Krier, supra note 159, at 50.
165. Sipress, supra note 19, at A1.
166. Jackson, supra note 106, at 11.
167. See Pietro S. Nivola, Make Way for Sprawl, WASH. POST, June 1, 1999, at A15.

purchase a house and disincentives to save, the government has encouraged home-ownership. Such homes typically are located in the suburbs.[168] Inextricably linked to suburban living is the use of the automobile for transportation. With home-ownership subsidized, suburbanites are not paying the full effects of suburban living, and thus not internalizing all of the costs associated with life in the suburbs.

Inextricably linked to suburban living is the use of the automobile for transportation. With home-ownership subsidized, suburbanites are not paying the full effects of suburban living, and thus not internalizing all of the costs associated with life in the suburbs.

In addition to creating incentives for home-ownership, which results in a transportation subsidy, governmental policy has provided a direct subsidy of driving. The construction of free beltways and expressways has encouraged suburban development.[169] Almost 85 percent of transportation expenditures are directed toward roads.[170] Although highway users do support these roads through user fees such as gas taxes, gas taxes do not cover the full costs of highway construction and maintenance.[171]

Drivers do not bear the costs of air and noise pollution,[172] nor do they bear the costs of the lack of civility attendant with traffic congestion. These costs are hidden from the driver; the driver does not pay for these effects at the time he decides to use his car.[173] Thus, driving as a resource becomes "over consumed."[174] In this respect, highway transportation is a classic "tragedy of the commons."[175] The driver, a rational actor, determines that his share of the costs of the wastes (i.e. hydrocarbon emissions) is less than the cost of purifying his wastes (i.e. using emission-free vehicles or not driving at all). The result is a system where individuals are "locked into" contributing to the deterioration of the environment, "so long as we behave only as independent, rational, free-enterprisers."[176]

Finally, peak automobile travel is, itself, an externality.[177] Although those that sit in traffic incur costs – namely, the costs of their own time, lost fuel and wear and tear on their vehicles – they do not internalize the

168. See id.

169. See Howard P. Wood, How Government Highway Policy Encourages Sprawl, (Aug. 18, 1998) at http://www.cato.org/dailys/8-18-98.html.

170. Nivola, supra note 167, at A15.

171. Wood, supra note 169.

172. See 1998 N. VA. TRANSP. COMM'N, supra note 57, at 24. See also Oren, supra note 33, at 171.

173. See EPA, supra note 151, at 2.

174. Id.

175. Garrett Hardin, The Tragedy of the Commons, in PERSPECTIVES ON PROPERTY LAW 133 (1995).

176. Id. at 135.

177. See Wahrman, supra note 116, at 196.

loss incurred on others.[178] This loss is that of imposing additional costs on other by adding to their delay.[179] Automobile traffic should flow consistently at the speed limit, but as traffic increases, the addition of each new vehicle decreases the flow of traffic and increases the travel time of other vehicles.[180]

V. Proposals to Improve Transportation in Virginia

Politicians, bureaucrats and policy experts have not remained silent in suggesting ways to confront the traffic dilemma in the Washington area. Indeed, transportation funding ranked among the top issues in Virginia politics during the General Assembly's 2000 session and in the 2000 Virginia Senate Race between George Allen and Charles S. Robb. Prior to the session, Governor Gilmore announced a six-year, Commonwealth-wide $2.5 billion transportation package.[181] Yet the Governor's proposal and the $2.9 billion package that came out of the General Assembly, pales in comparison to the transportation proposal released by the Northern Virginia Transportation Coordinating Council – the Northern Virginia 2020 Transportation Plan ("2020 Plan")[182] – which calls for an additional $17 billion in transportation funding over the next 20 years for Northern Virginia alone. Furthermore, while each of the proposal targets improvements in the region's transportation infrastructure, each fails to align individual commuter incentives. The proposals do not force drivers to internalize all of the costs of their commuting decisions.

A. Innovative Progress

On August 31, 1999, Governor Gilmore introduced his transportation proposal, Innovative Progress: Improving Transportation in Virginia. The proposal called for a statewide approach to transportation policy that included incentives for teleworking (also called telecommuting) and intelligent transportation systems in addition to road and transit programs.[183] The hallmark of the proposal was its steadfast refusal to raise or establish any new taxes on Virginia residents.[184]

The transportation proposal included the use of "Grant Anticipation

178. See Oren, supra note 34, at 171.

179. See Downs, supra note 42, at 3; Wahrman, supra note 116, at 196.

180. See Wahrman, supra note 116, at 196.

181. Governor Gilmore Unveils Statewide Transportation Plan, News Release, Aug. 31, 1999, available at http://www.state.va.us/governor/newsre/tran0831.html.

182. 2020 Plan, supra note 2.

183. See Jim Gilmore, Innovative Progress: Improving Transportation in Virginia 2 (Aug. 31, 1999) (hereinafter "Innovative Progress"). Intelligent Transportation Systems are technologies directed at providing commuters with "up-to-the-minute" traffic information and directing and controlling traffic flow. 2020 Plan, supra note 2, at § 2.3.4.1.

184. Innovative Progress, supra note 183, at 4.

Revenue Vehicles" (GARVEEs) a financing mechanism that allows the Commonwealth to fund current transportation projects with future federal highway funds.[185] As a result of 1995 legislation, states may now use future federal funds to reimburse the interest payments, retirement of principal, cost of issuance, cost of insurance and another costs relating to the sale of an eligible debt financing instrument.[186] Thus, a state may issue a GARVEE bond and subsequently repay that debt-financing instrument with future federal highway dollars.[187] The Governor's plan called for approximately $590 million to be added to transportation projects through this proposal.[188] Of this figure, $137.8 million was directed to advance ten projects in Northern Virginia.[189] The Governor's proposal calls for "naked GARVEEs," meaning that the creditworthiness of the bonds rests solely on future federal funds, without any state or other entity's revenues or credits.[190] If Congress reduces the amount of federal highway funding to the states, then the capability to repay these bonds is correspondingly reduced.[191]

In addition to the use of GARVEEs, the Governor also called for repaying funds into the Commonwealth's Transportation Trust Fund that had been diverted from the fund in earlier years. In the early 1990s, the Commonwealth diverted approximately $194.6 million from the Transportation Trust Fund to the general fund in order to balance the state's budget. Governor's Gilmore's plan called for $200 million to be transferred from the General Fund back to the Transportation Trust Fund.[192]

The Governor also advocated the implementation of electronic fuels tax collection. Currently, motor fuels can be purchased and sold several times before the fuels tax is collected, making the administration of a

185. See generally 'Grant Anticipation Revenue Vehicles' – A New Way to Retire Debt., FHWA's INNOVATIVE FIN. Q., Fall 1997, at 1 (providing a comprehensive description of GARVEEs).

186. See 23 U.S.C. § 122(b) (Supp. IV 1999).

187. New Mexico, Ohio and Massachusetts have already issued GARVEE bonds. Mississippi and Arkansas are in the process of issuing these bonds. See GARVEES, at http://www.wfc.fhwa.dot.gov/GARVEE.HTM (visited April 18, 2000).

188. INNOVATIVE PROGRESS, supra note 183, at 6.

189. Governor Gilmore Unveils Statewide Transportation Plan, supra note 181.

190. See GARVEES, at http://www.wfc.fhwa.dot.gov/GARVEE.HTM (visited April 18, 2000),

191. Telephone Interview with Ray D. Pethtel, Former Chairman, Commonwealth Transp. Board (March 5, 2000). Nevertheless, in the short-term, Congress has ensured that each state will receive no less than 90.5 percent of its percentage contribution to the Highway Trust Fund through 2003. See 23 U.S.C. § 105(f) (Supp. IV 1999). Additionally, although Congress could choose not to reauthorize the federal aid highway program when the current authorization expires at the end of fiscal year 2003, "the risk of non-authorization in future years is remote, given the importance, longevity, and general popularity of the Federal-aid program." Case Studies: Federal Highway Funds and Debt Finance, FHWA's INNOVATIVE FIN. Q., Summer 1998, at 1.

192. INNOVATIVE PROGRESS, supra note 183, at 8.

fuels tax difficult and resulting in a loss of revenue, as some tax is not collected. By implementing an electronic fuels tax, however, the point of taxation falls on the distributor, not on the retailer of gas. The number of entities submitting fuels tax will fall from approximately 1,300 to 200.[193] The Governor predicts an additional $210 million in revenue over the next six years from the implementation of electronic fuels tax collection.[194]

The Governor also called for the establishment of a Priority Trust Fund. Unlike traditional transportation funding, which is allocated based on a regional formula, this transportation fund would provide for specialized funding for projects throughout the Commonwealth. The fund would be directed to transportation projects of "critical importance" and distributed by the Commonwealth Transportation Board.[195] The Governor's plan called for $1.5 billion dollars to be deposited in this fund over the next six years, coming from allocations of $100 million yearly from the General Fund and approximately $813 million from proceeds from the Commonwealth's settlement reached with tobacco companies over tobacco litigation.[196]

In 1999, the General Assembly adopted legislation to distribute 60 percent of the Tobacco Settlement to tobacco communities and farmers, as well as for anti-smoking measures. Forty percent of the settlement, however, was unallocated. Governor Gilmore's plan called for that unallocated settlement to be distributed to the tobacco settlement through securitization. Securitization of the Tobacco Settlement would provide an "up front" payment of nearly $600 million, with a continuing stream of nearly $713 million over the next 30 years. The securitization would not be tax-supported debt of the Commonwealth, nor would it impact the Commonwealth's debt capacity.[197]

Governor Gilmore also addressed transportation in Northern Virginia in a document entitled, Innovative Progress: Improving Transportation in Northern Virginia.[198] In addition to the money directed toward Northern Virginia for specific projects funded by GARVEE bonds, the Governor touted initiatives such as accelerating plans to expand bus and Metro service to Tyson's Corner and along the Dulles corridor, expanding VRE and promoting telecommuting and intelligent transportation system technology.[199]

193. See id. at 9.
194. See id. at 6.
195. Id. at 11.
196. See id. at 6.
197. See id. at 13.
198. See INNOVATIVE PROGRESS, supra note 183.
199. See id. at 2-3.

B. The Governor's Commission on Transportation Policy

Pursuant to section 2.1-51.35 of the Code of Virginia, Governor Gilmore created the Governor's Commission on Transportation Policy. In the Preamble of the Order creating the Commission, the Governor points to the "continuous and unprecedented economic growth" within the Commonwealth, and charges the Commission with evaluating the Commonwealth's transportation system and developing broad principles of transportation management to "move all of Virginia into the next century."[200]

On December 1, 1999, the Commission released its Interim Report. The Commission endorsed Governor Gilmore's Innovative Progress proposal as a measure to improve "short term transportation issues."[201] The Interim Report provided a broad look at transportation issues, articulating a wide range of proposals for Virginia's transportation system. The Interim Report addressed teleworking, public transportation, transportation technology initiatives, and criteria for the Priority Transportation Fund. Despite the wide-range of proposals mentioned in the Interim Report, the Commission stressed that the report is the first of three to be submitted and is merely "intended to frame the dialogue related to a long-term integrated transportation policy for the Commonwealth and lay out the strategies and opportunities available."[202]

While the Governor's plan addressed short-term transportation issues, the Commission looked at several long-term financing proposals that would enable the Commonwealth to "invest in [Virginia's transportation network] to enable the state to continue moving forward today and into the future."[203] The Commission, in addition to endorsing the funding proposals in Gilmore's Innovative Progress, laid out additional mechanisms that would provide new sources of funding, such as toll roads, general obligations bonds, and regional and local taxation. The Commission also suggested several measures that would shift general funds to transportation projects, such as using a larger portion of the Motor Vehicle Licensing Fee for transportation purposes, eliminating the practice of supporting other state agencies with money collected for transportation purposes, and funding the Department of Motor Vehicles out of the General Fund.[204]

200. Va. Exec. Order No. 43 (1999).
201. Governor's Comm'n on Transp. Pol'y, Interim Rep., at 3 (Dec. 1, 1999).
202. Id. at 2.
203. Id. at 7.
204. Id. at 4-25.

C. The General Assembly

After two months of debate, the Virginia General Assembly passed a $2.64 billion transportation package.[205] The bill establishes the Priority Trust Fund, as requested by the Governor.[206] The General Assembly also established $800 million for GARVEE bonds, to be sold in at least three issues.[207] In addition to the GARVEE bonds, the Commonwealth maintains $275 million in debt capacity for transportation purposes that remain from previous years' legislation.[208]

The General Assembly, however, did not pass the Governor's proposal to use the Tobacco Settlement.[209] Furthermore, while the proposal establishes the Priority Trust Fund, the General Assembly assigned specific dollar amounts to projects; the Governor had wanted the Virginia Department of Transportation to have the flexibility to assign funds to projects.[210]

One of the major criticisms of the transportation package was the failure of the General Assembly to provide a permanent source of funding for transportation.[211] The Governor responded to those criticisms and – using his constitutional power to recommend specific amendments for consideration by the General Assembly[212] – proposed the use of part of the Commonwealth's tax on insurance premiums to help fund the Priority Transportation Fund.[213] The Governor's proposal would dedicate one-third of the funds from the insurance premium tax to the fund beginning in 2003, providing an extra $96 million in the first year and $113.3 million by 2006.[214] Gilmore earlier opposed a plan to use a portion of the state's corporate income tax as a permanent source of funding but offered the insurance premium because there was a tie between the revenue source – which includes revenue from car insurance premiums – and transportation.[215] The General Assembly, meeting in its veto session, approved the Governor's proposal, boosting the entire transportation pack-

205. See Craig Timberg and Alan Sipress, Va. Transit Plan Passes, Wash. Post, March 11, 2000, at A1.

206. Id.

207. Ola Kinnander, Paving Virginia's Future, Bond Buyer, April 6, 2000, at 1.

208. Id.

209. Timber and Sipress, supra note 205.

210. Christina Nuckols, Legislators Meet in the Middle Lane on Road Funding, Roanoke Times, March 11, 2000, at A1.

211. See id. at A1; Timbers and Sipress, supra note 203, at A1.

212. See Va. Const. art. V, § 6(b)(iii).

213. See Stephan Dinan, Gilmore Plans to Use Insurance Tax for Transportation, Wash. Times, April 9, 2000, at C12.

214. See id. at C12.

215. See id. at C12.

age to approximately $3 billion over six years.[216]

Governor Gilmore also used his veto authority to reject a measure that would have allowed county governments in Northern Virginia to hold a referendum on local income tax increases for transportation projects.[217] The proposal would have allowed citizens to approve a 1 percent local income tax increase.[218] The General Assembly chose not to vote to override the veto, and the bill was withdrawn.[219]

Nevertheless, despite Gilmore's veto, this issue of local taxation for transportation purposes has resurfaced for the 2001 General Assembly session. Although there is support among Northern Virginian legislators for a referendum proposing a local tax increase for transportation funding, there is not a consensus as to the scope of the increase.[220] The Fairfax County Board of Supervisors approved a plan for a referendum to increase the 4.5% sales tax by one percent, with half of the revenue dedicated to education initiatives and the other half for transportation.[221] The General Assembly and Governor Gilmore must approve the plan.[222] A similar measure has been proposed by Delegate John A. "Jack" Rollinson, III (R-Prince William) to hold a referendum for a half-cent increase, dedicated solely to transportation.[223] Delegate John H. "Jack" Rust, Jr. (R-Fairfax) favors a full-cent increase, devoted entirely to transportation.[224] Governor Gilmore has stated that although he has not changed his anti-tax perspective and has reservations about any local tax proposal, he "would like to hear what they have to say."[225]

D. Beyond the 2000 General Assembly Session

The 2000 General Assembly's final transportation package did bring some needed funds to Northern Virginia. In September 2000, Virginia transportation officials released a six-year plan that increased transportation funding in Northern Virginia from $292 million in fiscal year 1999 to $617 million in fiscal year 2000.[226] Northern Virginia received 28 percent

216. R.H. Melton and Craig Timberg, Assembly Passes Gilmore's Plan for Permanent Highway Funds, Wash. Post, April 20, 2000, at B1.

217. R.H. Melton, Gilmore Vetoes Local Taxing Power, Wash. Post, April 9, 2000, at C4.

218. See id.

219. Melton and Timberg, supra note 216, at B1.

220. See Craig Timberg, Lawmakers Differ on Taxes for Va. Roads, Wash. Post, Jan. 16, 2001, at B1.

221. Michael D. Shear, Fairfax Sees 1-Cent Sales Tax Increase, Wash. Post, Jan. 9, 2001, atB1.

222. Id.

223. Id.

224. Timberg, supra note 220, at B1.

225. Id.

226. Alan Sipress, Six-Year Plan Boosts N.Va. Highway Funds, Wash. Post, Sept. 21, 2000, at B1.

of the $2.19 billion allocated to transportation spending in the Commonwealth for fiscal year 2000.[227] Over the plan's six year period, Northern Virginia will receive more than $2.3 billion in transportation funding.[228] The money allocated to Northern Virginia will be used for improvements at the interchange between I-66 and the Beltway, widening of a three mile section of Route 28 in Prince William County, development of bus and rail service along the Dulles Toll Road, studies addressing the proposals to widen I-66 both inside and outside the Beltway and expand the Metro system, and acceleration of widening I-66 between Manassas and Gainesville.[229] Governor Gilmore called the increase of funds in Northern Virginia a "very good thing," but refused to call it "sufficient, because everyone has a different opinion of what that means."[230] Critics, however, noted that the increased spending doesn't meet the $11 billion dollar need of Northern Virginia as outlined by the 2020 Plan.[231]

Of course, passage of the General Assembly's 2000 transportation package did not end the debate over transportation in Northern Virginia. Governor Gilmore has proposed several initiatives to reduce traffic congestion in Northern Virginia.[232] These initiatives include providing better information to commuters concerning traffic congestion, so as to allow commuters to seek alternative routes.[233] The proposals also include increasing the speed limit in certain HOV lanes, opening the HOV ramp from eastbound I-66 to the Betlway, offering a subsidy for state employees that use public transportation or van pools, and unveiling a new website, www.beltwayrail.org, to promote public comment concerning construction of a Metrorail line from Springfield to Tysons Corner and perhaps beyond.[234] Some critics contend that while these initiatives are welcome, they "seem to be just baby steps, nibbling around the edges of the problem."[235] Governor Gilmore has also expanded his Innovative Progress proposal to include the Transportation Reform Initiative, a reorganization of the Virginia Department of Transportation ("VDOT"),

227. Id.

228. Alan Sipress, Funds Give Jump-Start to N.Va. Road Work, WASH. POST, Oct. 1, 2000, at V1.

229. Sipress, supra note 220, at B1.

230. Id.

231. See id. For a discussion of the 2020 PLAN, see Part V(E), infra.

232. See, e.g., Governor Gilmore Announces Traffic Safety Plan, News Release, Oct. 21, 2000 http://www.thedigitialdominion.com/press/news2000/traf1031.cfm (visited Nov. 12, 2000); Governor Gilmore Continues Transportation Reforms, News Release, Sept. 14, 2000 http://www.thedigitaldominion.com/press/news2000/vdot0914.cfm (visited Nov. 12, 2000); Governor Gilmore Announces Commuter Incentive Program, News Release, Aug. 23, 2000 http://www.thedigitaldominion.com/press/news2000/nova0823.html (visited Nov. 12, 2000)

233. See Governor Gilmore Announces Traffic Safety Plan, supra note 224.

234. R.H. Melton, Gilmore Again Tackles N.Va. Traffic, WASH. POST, Aug. 24, 2000, at B1.

235. Id.

which would modernize the department and lead to annual savings of $148 million.[236]

The transportation debate in Northern Virginia is not simply a state issue. It received nationwide attention in closely watched Senate campaign between George Allen and Charles S. Robb. Senator Robb attempted to make the traffic congestion in Northern Virginia an issue, blaming former Governor Allen for his $40 million VDOT buyout program, which reduced VDOT by as many as 1,300 employees.[237] Allen's critics contended that his pro-growth efforts in Northern Virginia failed to include appropriate investment in transportation infrastructure.[238] Allen responded by stating that the cuts in VDOT made the department more efficient and that he doubled the road construction budget without raising taxes.[239] In the end, it appears that Allen effectively challenged his critics on transportation and other issues, as he defeated the incumbent Robb on November 7, 2000.[240] In the process of winning the Senate seat, Allen picked up 47 percent of the votes in counties in Northern Virginia.[241] Robb won the traditionally Democratic suburbs of Alexandria, Arlington and Fairfax (Robb's home county), while Allen topped Robb in fast-growing Prince William and Loudoun counties.[242] Allen managed to garner 46 percent of the vote Fairfax county, ten percent more than Robb's last opponent, Oliver North, received in 1994.[243]

E. Northern Virginia Transportation Coordinating Council

Although it is not unclear how transportation issues actually affected the 2000 Senate race, one thing that is certain is that traffic congestion in Northern Virginia remains a critical issue in the Commonwealth. What is further apparent is that although state and federal officials in the state have proposed and enacted plans to reduce traffic congestion in the region, none provide for as comprehensive a plan as the one proposed by the Transportation Coordinating Council of Northern Virginia ("TCC").

The TCC is an advisory group of 27 locally elected officials that rec-

236. See Governor Gilmore Announces 'Transportation Reform Initiative,' News Release, Dec. 13, 2000, http://www.thedigitaldominion.com/press/news2000/tran1213.cfm. See also R.H. Melton, Gilmore Prescribes Cures for Transportation, Wash. Post, Dec. 14, 2000, at B1.

237. See Dan Eggen and Spencer S. Hsu, Robb Calls Allen Partly to Blame for N.Va. Traffic, Wash. Post, July 25, 2000, at B1.

238. See Michael D. Shear, Allen's Pro-Growth Legacy Still Clouded, Wash. Post, Oct. 5, 2000, at B1.

239. See Alan Sipress, Allen Defends Record on Transportation, Blasts Robb, Wash. Post, Aug. 3, 2000, at A13.

240. Spencer S. Hsu, N .Va. Goes in a New Direction, Wash. Post, Nov. 9, 2000, at B1.

241. Id.

242. Id.

243. Id.

ommends regional transportation priorities and funding allocations. Pursuant to Senate Joint Resolution 434 of the 1999 General Assembly Session, the TCC developed the 2020 Plan, which the TCC adopted on December 16, 1999. The TCC drafted a three-pronged strategy to (1) identify needed transportation improvements in the short-term, medium and long-term; (2) identify feasible funding sources for those improvements; and (3) provide a vision for future planning, including the update to the Washington Metropolitan region's long-term transportation plan, the Constrained Long Range Plan ("CLRP").[244]

The Technical Report of the 2020 Plan identifies congested arteries within the Northern Virginia transportation structure and provides a detailed list of improvements for the region, based on an analysis of current and future residential and employment data. While the CLRP must include financial information demonstrating how the transportation improvements can be implemented based on financial resources "that are reasonably expected to be made available to carry out the plan," the 2020 Plan faces no such "reasonable" requirement.[245] As such, while Northern Virginia's portion of the region's CLRP will require $16 billion in funding over the next 20 years, the 2020 Plan adds an additional $14.3 billion over that same period.[246]

The 2020 Plan provides both highway and transit improvements. The 2020 Plan estimates that the total cost for highway improvements beyond the CLRP over the next 20 years will reach approximately $6.45 billion. Included in this figure are expansions of I-66 to eight lanes and two HOV lanes outside of the Beltway, and I-495 to ten lanes and two HOV lanes from the American Legion Bridge in the north to the Woodrow Wilson Bridge in the south.[247] For transit improvements, the 2020 Plan estimates that the total costs beyond the CLRP over the next 20 years will be $6.56 billion. These costs include the expansion of Metro to Centreville, along the Dulles Corridor, along I-495 and into Prince William County, as well as the development of light rail lines in Arlington and Loudoun counties.[248]

Although extensively detailed on projects to be constructed and ex-

244. See 2020 PLAN, supra note 2, at § 1.2. By law, the Washington D.C. metropolitan area is required to have a regional transportation planning body. See 23 U.S.C. § 134 (Supp. IV 1999). The Washington D.C.'s transportation planning board is the National Capital Region Transportation Planning Board (TPB) and is staffed by the Metropolitan Washington Council of Governments – Department of Transportation Planning. See 2020 PLAN, supra note 2, at § 1.1.2.2. The TPB must develop a long-range transportation plan for the entire region. See 23 U.S.C. § 134(g) (Supp. IV 1999).

245. 23 U.S.C. 134(g)(2)(B) (Supp. IV 1999).

246. 2020 PLAN, supra note 2, at § 4.4.

247. Id. at § 4.1.

248. Id. at § 4.2.

panded, the 2020 Plan is conspicuously short on plans to finance the proposal, dedicating merely 3 pages out of the 172-page report to finance issues. The extent of funding proposals consists of a table listing "Potential Revenue Sources" which represents nothing more than a brainstorm of every possible funding mechanism.[249] A second table provides potential revenue for Northern Virginia for various funding sources, including a 5-cent gas tax, tolls, 1 percent increase in the sales tax, and a 1 percent increase in the income tax.[250]

VI. Comprehensive Approach

It is no easy task decreasing traffic congestion. Indeed, one commentator has suggested an approach resting on the "principle of one-hundred small cuts."[251] Just as a woodsman, using a small axe, must employ many small blows to cut down a large tree, so too must policy makers employ multiple tactics to reduce traffic congestion.[252] This section analyzes the debate between "roads and rails," then examines one mechanism – congestion pricing – designed to force drivers to internalize the cost of their commuting. Finally, the Note returns to the notion of one-hundred small cuts, suggesting other mechanisms that may be used in conjunction with congestion pricing to alleviate the traffic congestion in Northern Virginia.

A. Roads or Rails?

Northern Virginia's road network is insufficient to meet the current demands of commuter travel. The increase in lane miles has not kept pace with the increases in the number of licensed drivers and vehicles.[253] Nonetheless, there are those transportation planners that wish to see no new road development.[254] The reason for such an approach is based on a "Field of Dreams" philosophy: if you build it they will come.[255] The argument is that when new lanes are built, there is a "triple convergence" onto the new road: (1) those who used alternative routes during the peak hours will switch to the new lanes; (2) those who drove either prior to or

249. See id. at Table 5-1.

250. Id. at Table 5-2.

251. Downs, supra note 42, at 146.

252. Id.

253. See supra notes 18-21 and accompanying text.

254. Timothy Egan, Concrete Choices: Freeways, Their Costs and 2 Cities' Destinies, Denver Post , July 14, 1999, at A1 (reporting that Milwaukee Mayor John O. Norquist has toured the country arguing that cities should be removing highways instead of building new ones).

255. Oren, supra note 34, at 172 (paraphrasing the line, "If you build it, he will come," from the movie Field of Dreams (Universal 1989)). See also Mathew L. Wald, Do Additional Roads Increase Congestion?, N.Y. Times, Jan. 28, 2000, at F1 (discussing the "Field of Dreams" phenomenon).

after peak hours will switch to peak hours; and (3) those who used public transportation will switch to automobile travel.[256] In addition to individuals changing transportation behavior, new roadways are a stimulant of development in an area.[257] Thus, building freeways, it is argued, won't solve the traffic problem.[258] What is needed under this approach is a more efficient transit system.

However, it is important to determine what, exactly, is the goal of a transit system? Is it to help move individuals to and from their destinations, or is it an end unto itself? If it is an end to itself, then it would seem appropriate to let the transportation system decay beyond its current state, which will induce individuals to leave the roads and take mass transit.[259] Indeed, perhaps the answer is to even deconstruct highways, so that individuals are forced off the roads.[260] Thus, while eliminating road capacity and making commuting "miserable enough for 90 percent of travelers," some of those commuters will switch to rails.[261]

The "Field of Dreams" analysis thus appears self-defeating.[262] It implies that the solution is not to make transportation more efficient, it is to make the situation even worse, all in an effort to move some individuals from their cars into buses or trains. This argument places the means to achieve a goal as the very goal itself. Transit at all costs, without consideration of the effects of such a policy.

Moreover, it is not clear how effective this policy would be in getting people out of their cars. As this debate between roads and transit rages throughout the country, some policy makers feel that they have no choice but to provide their constituents – the consumers of highways – what they want: the ability to drive.[263] For example, in Salt Lake City, Utah, where the state is on the verge of adding a parallel highway to I-15, some surveys suggest that nearly 97 percent of the population will not use transit.[264] Indeed, some communities that have developed light-rail systems have not seen a significant drop in traffic congestion. One reason for such failures is that in some cities, those who now ride light-rail were former bus passengers.[265] Light-rail ridership in many urban areas has failed to meet original expectations, while, at the same time, the costs of

256. DOWNS, supra note 42, at 27-28.

257. Freilich and White, supra note 1, at 918-19. See also Egan, supra note 220, at A1.

258. See Egan, supra note 254, at A1.

259. Pisarski, supra note 36, at 1.

260. See Egan, supra note 254, at A1 (reporting Milwaukee's plans to use more than $20 million in federal highway funds to tear-down a half-section of highway).

261. See Pisarski, supra note 36, at 1.

262. See id.

263. See Egan, supra note 254, at A1.

264. See id.

265. See Keith Schneider, Who is Served by More Concrete?, N.Y. TIMES, Oct. 21, 1998, at

these light rail programs have far exceeded original projections.[266] According to one commentator, "'With low ridership and most patrons drawn from bus transit, there is no case where new rail service has been shown to noticeably improve highway congestion or air quality.'"[267] Apparently, "the public expects their neighbors to use mass transit, but not themselves."[268]

There is another problem with the "Field of Dreams" analysis. It is very likely that the entire premise of the argument – that additional roads provide no sustainable congestion relief owing to the influx of new cars – fails. According to the Texas Transportation Institute, additional roadways do, in fact, reduce the growth in travel delays.[269] When compared to areas that have not added road capacity, adding roadways at rates comparable to the rate of traffic growth results in slower growth in travel time.[270] Furthermore, when coupled with market mechanisms to align commuter incentives,[271] additional capacity will ease the flow of traffic even more by forcing commuters to bear the full costs of traveling on new roads.

The debate between roads and rail, however, is shortsighted. What is needed is not an all or nothing approach to both transportation initiatives, but a balance. A policy of forcing adults from their cars by making highway transportation worse will not solve the transportation problem in the region.[272] Any transportation plan should provide both highway and rail service under the auspices of one unified transportation policy. Without a combination of roads, mass transit and smart planning, "congestion will choke off prosperty."[273]

B. Congestion Pricing

What is needed is a transportation agenda that will address the strangling congestion but will also align transportation incentives. The 2020 Plan provides for a sweeping infrastructure improvement throughout the region which would help to alleviate the region's traffic problem. Nevertheless, such a plan would also expand the tragedy of the commons. The rationale behind the tragedy of the commons phenomenon contends that

G1 (reporting that of the 27,000 daily riders of Portland, Oregon's light rail line, only 12,000 of those passengers were new to public transportation).

266. See Daly, supra note 116, at 367.

267. Free the Roads, Wall St. J., April 21, 2000, at A14 (quoting Jonathan Richmond of Harvard's Center for State and Local Government).

268. Daly, supra note 116, at 368.

269. Schrank & Lomax, supra note 6, at IV-11.

270. Schrank & Lomax, supra note 6, at IV-11.

271. Infra Part V(B).

272. See Pisarski, supra note 36, at 1.

273. "We're Going Backwards," supra note 22, at A26.

a grazing field, open for all to use, will eventually be overgrazed, as each who uses the field has an incentive to increase the size of his heard without bearing the full cost of that decision.[274] Applied to the transportation situation in Northern Virginia, any such improvements to the infrastructure would essentially provide an incentive those commuters to use the commons. It would encourage more users to consume the product, making access to the transportation infrastructure even more available, without forcing these consumers of highways to internalize the costs.

In moving toward a transportation system that will ease traffic congestion, public policy makers must address the underlying problem with current highway policy: despite paying significant costs for gas and lost time, motorists view highways as essentially free, no matter how much they consume.[275] Using an analogy to a supermarket, if consumers can walk into a grocery store and fill their carts with steaks, fine wine, and anything else that they might want with no thought to costs, then there would be a run on super-markets.[276] Indeed, the grocery store would be emptied immediately. However, such a phenomenon does not exist because the market value of a product – the price of the product – keeps the market operating smoothly, requiring consumers to purchase only that which they can afford.[277]

Policy makers should apply market forces to the highway through roadway pricing mechanisms.[278] Under a roadway pricing regime, commuters are assessed fees for using the road. These fees can vary based on the demand for the road. During peak hours – *i.e.* during periods of highest congestion – the charges will be higher that those during non-peak hours.[279] In fact, during low capacity hours use of the roadways may be free.[280] The use of pricing mechanisms encourages individuals to make choices: They either pay for the use of the limited resource, or they can drive during non-peak hours (spreading the flow of traffic more evenly throughout the day), drive on other, less congested roadways, use other modes of transportation, or even telework or live within the urban core (both of which will eliminate their presence on the roads altogether).[281]

274. See Hardin, Tragedy of the Commons, supra note 175, at 174.

275. See New Roads Now, WASH. TIMES, Oct. 29, 1999, at A20.

276. See Mother of All Traffic Jams, WASH. TIMES, Nov. 23, 1999, at A16.

277. See id.

278. See Wahrman, supra note 116.

279. The theory behind congestion pricing is similar to that pricing mechanisms of long distance phone companies or seasonal resorts. In times of high use-either during business hours in the case of the long distance industry, or during the peak season for the resort industry-businesses can charge higher rates than during non-peak times. The pricing structure thus shifts some use from the peak times to the off-peak times. See Strahilevitz, supra note 51, at 1244.

280. See EPA, supra note 151, at 27.

281. See id. at 26-27.

There are three types of roadway pricing mechanisms.[282] First, there is facility pricing, which assesses fees for travel on a bridge, tunnel or small segment of road. Second, there is road pricing, which charges a toll along a specific roadway. And finally, there is cordon pricing, which charges a fee for travel within a particular area, establishing a series of toll collection areas in a ring around the congested area. Motorists are charged as they enter that area.

Policy makers should apply market forces to the highway through roadway pricing mechanisms such as congestion pricing.[283] The use of congestion pricing is a common phenomenon in a fluid marketplace, in which the price of a product varies as the products' supply and demand ebb and flow. Congestion pricing dictates, for instance, the hotel rates at seasonal resorts.[284] Seasonal resorts often charge higher prices during the peak season when the demand is high and charge significantly less during non-peak times in an effort to attract "bargain-hunters."[285] The long distance phone industry applies a similar pricing mechanism, assessing higher fees for long distance phone calls during the day and less for long distance calls at night, when there is less stress on the capacity of the lines.[286] Congestion pricing is the fundamental pricing scheme for television advertising: advertisers are willing to pay a premium to television networks to air their ads during prime time. Even movie theaters engage in congestion pricing, charging less for matinees, when the demand for movies is low, and more during the evening, when the demand for movies is high. In each of these instances, the pricing structure shifts some use from the peak times to the off-peak time.[287]

Under a roadway pricing regime, commuters are assessed fees for using the road. These fees vary based on the demand for the road. During peak hours – i.e. during periods of highest congestion – the charges will be higher that those during non-peak hours. In fact, during low volume hours use of the roadways may be free.[288] The use of pricing mechanisms encourages individuals to make choices: They either pay for the use of the limited resource, or they can drive during non-peak hours (spreading the flow of traffic more evenly throughout the day), drive on other, less congested roadways, use other modes of transportation, or even telework or live within the urban core (both of which will eliminate their

282. Id. at 27.
283. See Wahrman, supra note 116.
284. See Strahilevitz, supra note 51, at 1244.
285. See id.
286. See id.
287. See id.
288. See EPA, supra note 151, at 27.

presence on the roads altogether).[289]

Congestion pricing provides significant advantages over governmental regulations in reducing traffic congestion. First, by applying pricing mechanisms to achieve reductions in traffic congestion, individual commuters are provided considerable discretion for freedom of choice. Governmental regulations impose a particular course of action on a commuter, while market forces enable drivers to chose whether or not to "pay for" the benefit of driving.[290] Individuals can make informed decisions, assessing how much they are willing to pay based on a clear cost of commuting. Unlike the indirect connection between car insurance premiums and road construction, as enacted by the 2000 General Assembly, the use of road pricing provides a clear choice for the consumer, allowing him to adjust his priorities accordingly.[291] Furthermore, while the federal Employee Trip Reduction program applied only to work-related commuting, pricing mechanisms can be applied to all commuter trips.[292] Considering that the total volume on many metropolitan Washington roads is greatest on Saturdays (traditionally a non-work day),[293] a pricing mechanism would be able to address this problem in ways that a work-related regulation would not. Finally, transportation pricing provides a steady stream of income that can defray the costs of road and highway construction, as well as other strategies aimed at reducing congestion.[294]

One common criticism of congestion pricing mechanism is the prospect of creating even more traffic along the roadway by constructing tollbooths. However, the development of electronic toll collection is revolutionizing the way in which tolls are collected on highways.[295] Using electronic and radio toll collecting devices, cars can drive through the tollbooth, without stopping, using a vehicle-mounted transponder which deducts the price of the toll automatically from an existing toll account.[296] This system allows toll collection without creating the traditional bottlenecks that arise through manual collection.[297] According to the Port Authority of New York and New Jersey, which operates an electronic toll collection program, a toll booth operator can collect tolls from 350 cars in an hour, while an electronic system can process up to 1,000 cars in an

289. See id. at 26-27. See also Strahilevitz, supra note 51, at 1245-45, 1263.

290. See EPA, supra note 151, at 10.

291. See Mother of All Traffic Jams, supra note 276, at A16.

292. See EPA, supra note 151, at 11.

293. See Sipress, supra note 35, at A1.

294. See EPA, supra note 151, at 11.

295. See Wahrman, supra note 116, at 182.

296. For a discussion of how one electronic payments system operates, see David Kushner, Crusing Through Toll Plazas with the Windows Rolled Up, N.Y. TIMES, Sept. 9, 1999, at G11.

297. Warhman, supra note 116, at 183.

hour.[298] In addition, since these electronic collection mechanisms deduct money from commuters' advance toll payments, the state earns not only the price per toll, but also can earn interest on the money prepaid into the system, providing additional revenue for operation and construction programs.[299] Electronic toll booths are not a panacea, however. Their use fuels consumer concerns over monitoring of driver's whereabouts, that "big brother" may be able to track individuals' location by using electronic toll booth data.[300]

In addition to the use of tollbooths for collecting tolls, local authorities could open up HOV lanes to paying commuters by means of high-occupancy/toll lanes (HOT) lanes.[301] The state could sell access for non-HOV commuters, which would enable the drivers to use limited-access highways or lanes. Such a pricing system would still provide commuters with a clear understanding of the costs of commuting, but will reduce the need for electronic or manual tollbooths, thus decreasing congestion at those areas. However, while a HOT lane system will provide reduced congestion at tollbooths, it will also require greater police monitoring at additional costs.

Orange County, California, implemented one of the first congestion pricing programs in the country, on State Road (SR) 91.[302] A private sector consortium worked with the state to construct, finance and operate "ExpressLanes," a pricing program adding four new lanes in the median along a 16 kilometer strip of an existing highway.[303] To encourage carpooling, those vehicles with three or more passengers are exempt from tolls, while all others must pay a toll to use the ExpressLanes.[304] The price of the toll varies according to the time of travel, ranging from $.50 to $2.75 per trip, with a special $15.00 monthly pass that grants users a $.50 discount per trip at any time of day.[305] Although the project is in its infancy, there has been a measurable improvement in congestion on the "free" lanes parallel to the ExpressLanes.[306] During 1996 it is estimated that over 5.7 million vehicles used the ExpressLanes.[307] From 1996 to

298. Betsy Wade, Practical Traveler; Electronic Tolls Pick Up Speed, N.Y. TIMES, Feb. 14, 1999, sec. 5, p. 4.

299. See Thruway Authority Sees Earnings from E-Z Pass, N.Y. TIMES, July 12, 1999, at B5.

300. See Alan Sipress, 'Big Brother' Could Soon Ride Along in Back Seat, WASH. POST, Oct. 8, 2000, at A1. See also Strahilevitz, supra note 51 at 19.

301. See Building a Case for HOT Lanes: A New Approach to Reducing Urban Highway Congestion, SPECTRUM: J. OF ST. GOV'T, June 22, 1999, at 19.

302. Warhman, supra note 116, at 199.

303. Id. at 200.

304. Id.

305. Id.

306. Id.

307. Id. at 200-01.

1997, SR-91's volume increased from 25,000 vehicles to 30,000 vehicles, with gross revenues at $14 million.[308]

San Diego has also instituted a congestion pricing program on Interstate 15.[309] In the face of increasing traffic congestion and underutilization of the highway's HOV lanes ("Express Lanes"), the mayor proposed a plan to allow single occupancy vehicles to use the HOV lanes for a fee.[310] For the first six months, drivers could purchase a decal for $50 that would allow them access to the HOV lane.[311] Thereafter, the local government developed a per-use pricing system, in which solo drivers, when approaching an entrance to the Express Lanes, would see an electronic sign specifying the toll for using the Lanes at that time.[312] The toll, which would be paid out of a pre-paid account using an electronic transponder, corresponds to the amount of traffic in the Express Lanes: the more cars, the higher the toll.[313] In 1998, tolls averaged between $1.95 and $2.26 per trip, and over 13,000 drivers have obtained the electronic transponders.[314]

Given the magnitude of the traffic congestion in Northern Virginia and the need not only for an increased transportation infrastructure but also for the development of a non-subsidized market for commuting, any viable congestion pricing system must embrace not merely one stretch of road, but the entire highway infrastructure. Such a proposal will be costly, as the 2020 Plan suggests, but using congestion pricing mechanisms will provide income to the state for construction and maintenance of the state's transportation infrastructure. While the 2020 Plan provides extensive technical proposals for where to lay asphalt, it does not provide an adequate recommendation on the financing of such construction projects.

The Commonwealth can finance these projects through bonds pledged solely against the future earnings of the highways' peak pricing mechanism.[315] The General Assembly, however, may not pledge those bonds against the general full faith and credit of the Commonwealth without following the strict requirements of the Virginia Constitution.[316] Instead of financing these bonds through general revenues, the Commonwealth may finance a highway bond issuance with a special fund com-

308. Simon Hakim and Edwin Blackstone, Making Inroads in Private Highway Construction, AM. CITY & COUNTY, Aug. 1999.

309. Strahilevitz, supra note 51.

310. Id. at 1250-51.

311. Id. at 1251.

312. Id.

313. Id.

314. Id. at 1251-52.

315. See Va. Const. art. X, § 9(d).

316. See Va. Const. art. X, § 9(b).

prised of revenues earned entirely from highway use.[317] The legislature must not be obligated to appropriate funds to pay this debt, nor may the "general faith, credit, and taxing power of the state" secure the debt.[318]

Despite these potential gains, such an alternative seems politically "dead on arrival." Congestion pricing, while reducing the driving subsidy and infusing the transportation system with a market-based approach, will likely be considered nothing more than "just another tax."[319] According to one transportation observer in the region, "'If you suggest [congestion pricing] in Virginia, the governor would drop-kick you across the river.'"[320]

Congestion pricing, though, is as much of a tax on commuters as charging consumers for sending mail. Because there are collection and distribution costs associated with operating the postal system, the post office charges users a fee for each piece of mail.[321] Because those costs increase when the piece of mail is sent via overnight or two-day mail, the post office charges a higher fee. Thus, those who wish immediate delivery of a piece of mail or a package pay the higher fee and incur the expense of faster delivery. By charging fees that vary with the immediacy of the delivery, the post office forces consumers to internalize the cost of sending each piece of mail. Users must weigh the value of the piece of mail they wish to send against the cost of getting that item to their desired recipient in the desired time. If individuals could send as many pieces of mail and as fast as they wish, without having to internalize the collection and distribution costs, the system would be flooded. The post office would not be able to process the amount of "free" overnight mail with no revenue to support its infrastructure. Just as the post office would be financially unable to handle the volume of mail if consumers didn't have to internalize the cost of sending an item, highways currently are overutilized because drivers are not required to internalize the costs of using the roads.

Drivers, though, may already be engaging in activity that suggests

317. See Almond v. Gilmer, 51 S.E.2d 272, 280 (Va. 1949).

318. Miller v. Watts, 214 S.E.2d 165, 169 (Va. 1975).

319. 1998 N. VA. TRANSP. COMM'N, supra note 59, at 24. See also Strahilevitz, supra note 50, at 1247.

320. Alan Sipress, Beltway Collision; States' Divergent Views May Doom Efforts to Fix Artery, WASH. POST, Jan. 30, 2000, at C1.

321. This example uses the post office, a governmental entity, as the owner of the distribution system. The example applies equally to a private mail operator, such as the United Parcel Service ("UPS") or Federal Express ("FedEx"), who also charges a fee to mail an item. If UPS or FedEx shipped packages for free, they would immediately fail as a business. Although virtually all roads in this country are constructed and maintained by a governmental entity, this Note does not assume that all roads must be operated by the state. Private roads, such as the Dulles Greenway, see infra note 326, may also provide an effective resource in reducing congestion by introducing market forces into highway development and management.

that they are willing to pay to drive on less congested roads. In an effort to get to work faster, drivers often disregard HOV restrictions, calculating that the price of a traffic ticket is less than the value of sitting in traffic.[322] Paying a traffic ticket is often "little more daunting then paying a toll."[323] With an estimated violation rate of between 35 percent and 41 percent on the HOV lanes,[324] it appears that many drivers are prepared to take the risk of paying for the convenience of faster commuting times. Thus, despite the Governor's opposition, the proposal remains a viable mechanism to project the costs of traffic congestion on the users, and create an efficient market for a resource: driving.

C. Other Solutions

Congestion pricing is not, nor should it be, the only solution for fixing traffic congestion in Northern Virginia. Rather, it is but one arrow in a quiver of options available to the Commonwealth. There are scores of other strategies, including (but certainly not limited to) the encouragement of entrepreneurial measures to reduce traffic congestion, incentives for teleworking, and the use of financing options such as GARVEE bonds and use of the Tobacco Settlement for targeted public transportation programs. In developing any program, however, it is important to avoid creating subsidies for driving.

Left to their own devices and free from governmental regulations, Americans have a crafty way of developing innovative solutions to society's problems. Allowing entrepreneurs the freedom to compete with existing transportation structures, either through the development of private roads, such as the ExpressLanes on SR-91,[325] or the region's own Dulles Greenway,[326] or the creation of private carpooling and taxi services, may create a more efficient transportation system.[327] For example, the very notion of "slugging," the phenomenon of single drivers picking up fellow commuters in an effort to gain access to HOV lanes, developed and remains entirely free from governmental regulation and has resulted in decreased commuting times for a vast number of Northern

322. See Sipress and White, supra note 153, at A1.

323. Id.

324. Alice Reid, Area's Changing Economy Takes Toll on Car-Pooling, Wash. Post, May 18, 1998, at B1.

325. See supra notes 295-302 and accompanying text.

326. The Dulles Greenway is a 15-mile, privately owned and operated extension of the Dulles Toll Road, connecting the Beltway to Dulles International Airport. The road does not employ congestion pricing, but does provide additional lanes to the airport, with a daily ridership of 30,000 to 35,000. See Hakim and Blackstone, supra note 308.

327. See Pisarski, supra note 36, at 1 (arguing to "extend the option to the private sector to provide jitney-like transit services").

Virginians.[328]

Another way to improve traffic congestion is to reduce the demand for traffic with teleworking initiatives.[329] The Governor embraced telecommuting in his Innovative Progress proposal.[330] With Northern Virginia home to such technology-based companies as American Online, Cable & Wireless, AT&T, MCI Worldcom, and PSInet,[331] the region's employer base provides an excellent opportunity for telecommuting. Even local governments have expressed interest in teleworking initiatives: Fairfax Country officials have pledged to have 900 of its 10,000 employees telework for at least one day a week by the year 2005.[332] In 1998, an estimated 250,000 people, totaling 12 percent of the region's work force telecommuted.[333] It is estimated that an additional 470,000 workers in the Washington area could telecommute, decreasing hundreds of thousands daily commuting trips.[334] In an effort to encourage telecommuting, the Governor offered a $10 million, two-year package with tax incentives for companies that encourage their employees to telecommute, but the proposal was defeated in the General Assembly.[335] Nevertheless, such a proposal, while not individually able to solve the traffic problem in the Commonwealth, provides part of a comprehensive solution.[336] As the Chairman of the Metropolitan Washington Council of Governments has noted, "[w]hen we look for a solution to congestion in the region, only transit rivals teleworking in its ability to take drivers off the road.[337]

Finally, although transit may not solve all of the region's transportation problems, dedicating the Commonwealth's resources to improved transit services will help reduce traffic congestion in Northern Virginia. The 2020 Plan has recommended additional Metro service to Centerville, development of Metro from Maryland along the Beltway to Tysons Cor-

328. See supra notes 67-74 and accompanying text.

329. See Downs, supra note 42, at 62-63. Telecommuting "involves an employee working from a site other than his normal job location and communicating with his normal office via telephone or computer link." 2020 Plan, supra note 2, § 1.5.2.1. The employee may work from home or at a telecommuting center, equipped with phones, computers and other office accessories and services. See id.

330. INNOVATIVE PROGRESS, supra note 183, at 1.

331. Jeffrey D. Zbar, Send Your Workers Home – Please?, HOME OFF. COMPUTING, Dec. 1999, at 17.

332. Michael D. Shear, Area Governments Seek to Boost Telecommuting, WASH. POST, Nov. 2, 2000, at V1.

333. Sipress, supra note 19, at A1.

334. R.H. Melton, Gilmore Plans Drive for Telecommuting, WASH. POST, Dec. 17, 1999, at B1.

335. Alan Sipress, Initiative to Encourage Telecommuting, WASH. POST, April 12, 2000, at A12.

336. See Melton, supra note 334, at B1.

337. Shear, supra note 332, at V1.

ner, and expansion along the Dulles Corridor with eventual service to Leesburg.[338] These are expensive undertakings with uncertain financing available. Nevertheless, proceeds from the GARVEE bonds, approved by the General Assembly, could be used toward financing these projects, as could the undedicated portion of the Tobacco Settlement.[339] These provide additional funds for transportation purposes, without increasing tax burdens on Virginians.

VII. CONCLUSION

Northern Virginia has grown considerably in past decades, both in terms of population and prosperity, but despite continued growth, Northern Virginia remains stuck in traffic as a result of an increase in drivers, a rise in the number of drivers commuting alone, and a growing desire to live and work in the suburbs. The region is mired in this sea of cars, even though it boasts one of the nation's premier transit systems and a strong network of HOV lanes. This traffic problem has created considerable economic, social, and environmental costs that threaten the prosperity, civility, and environment of Northern Virginia. The response from Richmond by both the General Assembly and the Governor has not adequately addressed the region's transportation problems.

Although individual commuters feel the effects of traffic congestion through the loss of their time, increased fuel costs, and even strains on social and familial relationships, commuters do not internalize all of the costs of their driving. Suburban living is subsidized, as are highways. Such subsidies prevent commuters from feeling the full effects of their behavior.

Thus, any proposal to improve the transportation infrastructure in Northern Virginia must allow commuters to incorporate the costs of their driving decisions. One such mechanism, congesting pricing, charges commuters for their use of highways and other roads. Congestion pricing encourages commuters to use alternative means of transportation, shift to driving in non-peak hours, or even abandon daily commuting by embracing telecommuting.

But no transportation initiative alone will solve Northern Virginia's transportation woes. Congestion pricing must be one portion of a multipronged approach. The Commonwealth must embrace other devices, such as encouraging private solutions and telecommuting or investing in

338. 2020 PLAN, supra note 2, § 2.3.1.

339. The proposal to use the Tobacco Settlement for transportation purposes did not pass the General Assembly, thus leaving those funds undedicated. See Timberg and Sipress, supra note 205, at A1. Securitization of the Tobacco Settlement would provide nearly $600 million "up front" and a continuing stream of $713 million over the next 30 years. See supra note 205 and accompanying text.

practical transit strategies. These additional proposals provide merely a glimpse of the array of options available to public policy decision-makers. There is no one answer, but a combination of these approaches and others will help unclog Virginia's roads and enable her to continue to prosper.