

feature

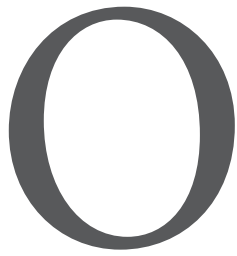
# Providing Travel Choices for Vibrant Streets:



## Transportation Demand Management in Arlington, Virginia, USA

BY HOWARD M. JENNINGS JR.

HENRYK SADURA/SHUTTERSTOCK.COM



Optimal management of resources is receiving more emphasis in all areas of endeavor today, and this is nowhere more important than transportation.

Transportation Demand Management (TDM) is increasingly recognized as essential to efficient use of multimodal transportation resources. This article

presents an advanced definition of the practice of demand management and uses Arlington County, Virginia, USA as a leading example of its implementation.

### **An Advanced Definition of TDM**

At its most basic level, TDM is a program of information, encouragement, and incentives provided by local or regional organizations to help people know about and use all their transportation options to optimize all modes in the system. These programs also are needed to counterbalance the incentives to drive that are prevalent in parking and road subsidies, as well as the driving habits that have become ingrained culturally over many decades. TDM services are both traditional and innovative technology-based services that help people use transit, ridesharing, walking, biking, telework, and alternative work hours. They can provide significant benefits for all modes and for system efficiency at a relatively low cost.

There is also a deeper dimension of TDM that is equally important. TDM is a principle that should guide everything we do in designing our physical development and our transportation infrastructure and services, so that alternatives to driving are naturally encouraged and our systems are better balanced. TDM thus underlies most of the important new initiatives of today, such as transit-oriented development, Complete Streets programs, walkable activity centers, livability and sustainability initiatives, and integrated corridor management, to name a few examples.

When both the aspects of TDM as a program and a principle are incorporated into an integrated transportation and development program, the greatest effectiveness is achieved. While needed most in metropolitan regions, both levels of TDM can be applied in a wide variety of situations from urban to small towns, depending upon the market needs and the transportation resources available. This broad approach to TDM is fully in keeping with the Institute of Transportation Engineers' (ITE) increasingly multimodal orientation and is useful to a broad range of practitioners.

### **Arlington County's Comprehensive Program**

Arlington County, Virginia in the heart of the Washington, DC region, provides a case study of an integrated approach to transportation and development using these principles that have transformed the county. In 1970 Arlington was a declining older suburb, but the County leaders fought to have the new Metrorail

lines built underground and staked their future on transit-oriented development. This strategy began Arlington's renaissance. According to the 2013 Arlington County Profile by the Arlington Department of Planning Housing and Community Development Planning Research Analysis Team, Arlington has accommodated a growth in population of 38 percent and in employment of 35 percent between 1980 and 2013. Today it is a thriving community of 213,000 residents and a major employment center of 229,000 jobs. For a comparison of scale, its 39 million square feet of private office space is more than that of downtown Denver, CO; Los Angeles, CA; or Seattle, WA.<sup>1</sup> The real news is that this growth has been accomplished with virtually no increase in road infrastructure and no increase in vehicular traffic.

### **Arlington's Three-pronged Strategy:**

#### **1. Walkable, Mixed-Use "Urban Villages"**

The County land use plan concentrates most commercial, retail, and multi-family development in high-density clusters around underground Metrorail stations or surface transit bus nodes unified by highly walkable pedestrian open spaces.

#### **2. Balanced Array of Transportation Resources**

The County is served not only by a network of expressways and urban arterials, but also a full complement of mode options, including HOV lanes, subway and commuter rail, bus transit, bike trails and routes, and walking infrastructure. These options and a serious commitment to Complete Streets help commuters and residents naturally employ alternatives to driving.

#### **3. TDM: Information, Encouragement, and Incentives**

The final layer is the TDM services provided through Arlington County Commuter Services (ACCS) that make it easy for people to know about and use the transportation options available to them.

### **Arlington County Commuter Services**

The TDM services assist a shift of thousands of residents and commuters each day from solo driving into higher occupancy modes or other alternative modes—beyond those who would do so on their own. This is the "software" that helps make the



*The Rosslyn-Ballston Corridor in Arlington, VA, USA, showing development built over the Metrorail Orange Line and Wilson and Clarendon Boulevards, was named one of the Outstanding Streets of America in 2004. Virtually devoid of large scale development in 1970, development has boomed since construction of the Metro, while vehicular traffic has declined since 1996.*

## Mobility Lab

Supported by Arlington County Commuter Services, Mobility Lab is a transportation think tank and a leading U.S. voice focused on advancing the practice of transportation demand management. Mobility Lab conducts research focused largely on the living laboratory of Arlington County, Virginia, USA; communication of best practices; and collaboration with individuals and organizations to develop innovative solutions. Its technology program has been the catalyst to develop new tools and strategies that make transportation more user-friendly through direct development, encouraging open source developments, nurturing new start-ups, and supporting a group of transportation technology enthusiasts with monthly “hack” meetings. Read more about Mobility Lab at [mobilitylab.org](http://mobilitylab.org).

hardware work more efficiently through a sophisticated array of marketing and encouragement programs addressing both individuals and businesses. On a typical workday, the result is approximately 45,000 more trips off the roads and into other modes.<sup>2</sup> Considering that a lane of urban freeway typically carries 4,000–8000 vehicles in the three hour peak period according to the Victoria Transport Planning Institute, the impact of the TDM services alone is huge, especially given its relatively low cost.<sup>3</sup> These services are always needed to keep all the modes in the system carrying their share of the load as optimally as possible. The good news is they work even more effectively in tough economic times when individuals and businesses alike are feeling the pinch.

The linchpin of the Arlington County Commuter Services (ACCS) program is services for employers, residential complexes, and developers provided by a professional sales force, which educates them about the business-friendly programs available to their employees and building occupants. The sales agents work with a liaison in the business to help set up internal marketing and incentive programs (e.g. the Federal tax-free transit benefit) to entice trial and usage of alternatives to driving and to help balance parking subsidies that are often offered. The Employer Services program is responsible for approximately 60 percent of the daily trip shifting.<sup>4</sup> Other services include a series of CommuterStores and a call center providing personal information and assistance, sophisticated websites, online transit fare sales, bike and walking programs, carsharing, Capital Bikeshare, and a comprehensive electronic and traditional marketing program.

### Mobility Lab: Research, Collaboration, and Communication

ACCS has a robust research and development program known as Mobility Lab whose threefold mission is to document the results of the transportation program; to collaborate with others in the transportation industry to seek innovative solutions; and to communicate best practices. Mobility Lab typically produces two or three primary research studies each year, as well as analyses of other data (see [MobilityLab.org/research](http://MobilityLab.org/research)). Progress in Arlington can be shown by a number of measures, many of which involve keeping traffic at manageable levels and thus supporting quality of life and the business climate. Below are selected measures of the effectiveness of the overall transportation and development program and measures of results attributable to the TDM services program alone.

Overall Program Results:

- The percentage of Arlington residents driving alone to work has dropped from 63 percent in 2001<sup>5</sup> to 53 percent in 2013.<sup>6</sup>
- The percentage of Arlington workers driving alone, including those coming in from other jurisdictions, has dropped from 59 percent in 2001<sup>7</sup> to 54 percent<sup>8</sup> in 2013.





IMAGE COURTESY OF HOWARD JENNINGS JR.

*Clarendon Boulevard shows complete street features, such as ample sidewalks and pedestrian amenities; buffered bike lane; and two parking lanes and two travel lanes, reduced from three to make room for sidewalks and bike lanes.*

- In the Rosslyn-Ballston corridor of central Arlington (Metro Orange Line), between 1996 and 2009, office space grew by 6 million square feet, retail by 1 million square feet, and residential by 11,000 units.<sup>9</sup> Vehicular traffic counts on the two major arteries of the corridor, Clarendon Boulevard and Wilson Boulevard, declined by 6 percent and 25 percent<sup>10</sup> respectively, and travel lanes were actually reduced to make room for bike lanes and wider sidewalks. County-wide, during the same period, traffic on the seven largest arterials in the county averaged zero growth.<sup>11</sup> This is against the backdrop of a region that consistently is ranked among the most congested in the United States.

**TDM Services Results:**

- At employer worksites that offer TDM services versus employer sites that do not, transit use is approximately double, and the drive alone rate is approximately 30 percent lower.<sup>12</sup>
- A 2013 study of 16 residential buildings with TDM plan requirements showed traffic generation rates that were approximately 40 percent to 50 percent<sup>13</sup> below the rates expected from the ITE *Trip Generation Manual*.
- The Commuter Services program on a typical weekday shifts approximately 45,000 trips<sup>14</sup> from drive alone to other modes (most during peak periods), up from 38,000 per weekday in 2008.<sup>15</sup> This also reduces daily vehicle miles traveled (VMT) by

more than 750,000 miles, fuel consumption by 31,000 gallons, and emissions by 350 tons each work day.<sup>16</sup>

**Mobility Lab Data provided to ITE**

Mobility Lab has provided the data from the 16 residential buildings studied above to ITE for updating the database for the ITE *Trip Generation Manual*. We are currently working on studies of another 22 commercial and residential buildings to be submitted in 2015. We are pleased to be adding significantly to ITE’s sample of buildings in urban mixed-use, multimodal environment. As many researchers and developers have noted in recent years, over half of the nation’s growth will occur in these walkable, mixed use activity centers in the near term. ITE’s continuing partnership with contributors of local data is thus of great importance to proper planning of these areas that are so vital to America’s economic growth.

**The Future Challenge**

No single factor is responsible for the kind of performance cited here; but the integration of walkable urban centers, balanced transportation options, and an aggressive program of TDM services combine to create extraordinary results. Arlington’s goal for 2030 is to grow population and employment by 19 percent and 33 percent respectively,<sup>17</sup> and to keep traffic within 5 percent of 2005 levels,<sup>18</sup> with no increase in roads. This will require a flip in mode split





IMAGE COURTESY OF M. V. JANTZEN

Wilson Boulevard is shared by buses, Capital Bikeshare riders, and cars.

from approximately 60 percent Single Occupancy Vehicle SOV/40 percent Non-Single Occupancy Vehicle in 2005, to 40 percent Single Occupancy Vehicle/60 percent Non-Single Occupancy Vehicle SOV. Arlington is moving in the right direction at this point, but the low-hanging fruit has been gathered and indications are that even more aggressive measures may be needed. With the County's quality of life and business climate at stake, continued innovation will be a mandate, not an option. **itej**

## References

1. Arlington Department of Planning Housing and Community Development, Planning Research Analysis Team, 2013 Arlington County Profile.
2. 2012 Arlington County Commuter Services Annual Report, TDM Impact Calculation Method, LDA Consulting.
3. Victoria Transport Planning Institute, Transportation Cost and Benefit Analysis, Techniques, Estimates, and Implications, 2009.
4. 2012 Arlington County Commuter Services Annual Report.
5. Metropolitan Washington Council of Governments, *State of Commute Survey 2001*.
6. Metropolitan Washington Council of Governments, *State of Commute Survey 2013*.
7. Metropolitan Washington Council of Governments, *State of Commute Survey 2001*.
8. Metropolitan Washington Council of Governments, *State of Commute Survey 2013*.
9. Arlington Department of Economic Development, staff analysis of Rosslyn-Ballston corridor.
10. Arlington County Department of Environmental Services Traffic Count Program.
11. Ibid.
12. Metropolitan Washington Council of Governments, *State of Commute Survey 2013*.
13. *Residential Aggregate Study*, Mobility Lab, Simple Solutions, LDA Consulting, 2013.
14. 2012 Arlington County Commuter Services Annual Report, TDM Impact Calculation Method, LDA Consulting.
15. 2008 Arlington County Commuter Services Annual Report, TDM Impact Calculation Method, LDA Consulting.
16. 2012 Arlington County Commuter Services Annual Report, TDM Impact Calculation Method, LDA Consulting.
17. Arlington Department of Planning Housing and Community Development, Planning Research Analysis Team, 2013 Arlington County Profile.
18. *Arlington County Master Transportation Plan*, TDM Element, p.7.



**Howard M. Jennings Jr.** is managing director of Mobility Lab, Arlington County Commuter Services, Arlington, VA, USA. Howard has a background in urban planning, real estate development, and marketing, with 20 years of experience in the Travel Demand Management (TDM) field, including 15 years at the Arlington County Services/Mobility Lab. He is a member of the Transportation Research Board TDM committee and the National Public Policy Council of the Association for Commuter Transportation.