How do you tell whether a transportation demand management program is making an impact? Traditionally, planners use two performance criteria: increased transportation efficiency and reduced air pollution. Arlington County, Virginia, has recently added another measure: improved public health and safety.

Mobility Lab, a TDM research-and-development initiative of Arlington County, has launched a Transportation Cost-Savings Calculator to improve knowledge and appreciation of the range of benefits resulting from TDM programs.

Mobility Lab’s preliminary calculations showed that if an additional one percent of Arlingtonians were to commute by foot or bicycle instead of driving alone, the community would get healthier as a result of the additional physical activity. The benefit would be reductions in all-cause mortality as well as morbidity or illness. The economic benefit of the reduced mortality rate, calculated using the value of a statistical life, was $7.5 million per year. Another $12 million per year would be saved by avoiding lost productivity, workers’ compensation, and medical care costs.

Arlington estimated that on every workday in fiscal 2013, TDM programs converted about 4,700 trips—or 2,350 round trips—from single-occupancy vehicles to walking and biking. The cost to provide these programs was about $10.5 million. This meant that for every dollar invested in Arlington’s TDM programs, the community saved two in public health costs. These findings have spurred an interest in more focused research and evaluation. The county’s TDM programs and policies are also being enhanced to better address public health.

### TDM supports multimodal travel

Strategic investment in transportation has made Arlington County a mecca for multimodal travel. Arlingtonians can travel by Metrorail (D.C.-area mass transit), commuter rail, several local and commuter buses, Capital Bikeshare, Zipcar, walking, personal bike or car, taxi, or shared rides. What makes these options gel is TDM. Accurate and timely information converts discrete modes into viable travel choices. TDM programs also make the available options more accessible, convenient, and affordable.

In addition, Arlington’s TDM programs inspire higher levels of physical activity—and better health—by encouraging walking, biking, and use of public transit. Physical activity has been shown to strengthen the immune system, reduce blood pressure, improve blood circulation, support weight control, and increase muscle strength. In this way, the transportation service acts as a public health intervention.

The linkages between TDM programs and public health impacts are numerous. TDM programs help to decrease accidents and fatalities associated with all modes of travel through education and outreach. Programs that enhance awareness of travel choices improve access to medical care and nutritious food. TDM can even reduce stress and have a positive impact on mental health by making trips more convenient and relaxing.

### Cost-savings calculators

In the return-on-investment modeling exercise, Mobility Lab assessed the internal and external benefits of increased commuting by foot and bike that could be traced to TDM in Arlington. Internal, or direct, benefits are enjoyed by the commuter, who becomes healthier and lives longer free of disabling disease. Mobility Lab used the Health Economic Assessment Tool from the World Health Organization to calculate the cost savings of reduced mortality. The families, employers, and communities of a healthier individual who is productive and actively engaged enjoy external, or indirect, benefits. These were calculated using the Physical Inactivity Cost Calculator developed at Eastern Carolina University by a group of experts led by David Chenoweth of Chenoweth & Associates, Inc.

Being able to use off-the-shelf cost-savings calculators was the key to success in this preliminary stage of exploration. HEAT and PICC were chosen because of their applicability for TDM programs, availability of data or estimates for the necessary inputs, ease of use, and adaptability to Arlington’s context. The two tools are complementary because HEAT estimates benefits associated with a reduction in the risk of death, and PICC calculates benefits resulting from reduced morbidity (i.e., illness) and absenteeism.

HEAT translates increases in the amount of walking or cycling in a given pop-
evolved into a more concerted effort to integrate health considerations into TDM programming. Mobility Lab has begun to develop a performance monitoring tool to calculate the annual impacts, so that improved public health can be reported alongside other benefits.

The performance monitoring tool will initially focus on the impacts of increased physical activity induced by the TDM programs. Most TDM programs are geared toward commuting, and incorporating physical activity into commute trips ensures regular exercise. However, all types of trips can count toward the recommended target of 150 minutes of physical activity each week.

In order to improve the accuracy of reported benefits, routine data collection will be enhanced to include physical activity levels of TDM program participants before and after they make changes in commute modes, as well as the distance and intensity of walking and biking for various types of trips. The tool could eventually be expanded to include the contribution of TDM toward improved safety, access, and mental health.

Because increased productivity accounted for a major share of the cost savings reported, this study can help employers recognize the direct benefits they can reap from healthier employees. TDM programs will emphasize the important contribution that Arlington employers can make by supporting physically active commuting.

This study has illuminated what a strong impact our choice of travel mode has on our health. As the community starts to appreciate the various benefits of multimodal travel, support for TDM is also likely to increase. Decision makers will find it easier to increase funding allocated to TDM programs once they can articulate the significant return on investment being delivered.

Sorali Soneji is a principal and a transportation planner and Aida Ollkonen is a public health research manager at Simple Solutions Planning & Design, LLC, in Arlington, Virginia.