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**Related Topic Areas:** Bicycle & Pedestrian Facilities; Impact Fees; Land Use & Development Regulations; Parking; Public Transportation (Transit); Roads & Highways

# Transportation Demand Management

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## Overview

**T**ransportation Demand Management (TDM) means managing the vehicle demand on the transportation system. Reducing the number of single occupancy vehicles (SOV) by encouraging alternative modes of transportation and other trip reduction techniques decreases the need to construct expensive improvements, such as road widening or new roadways. Fewer vehicles also mean reduced emissions, improved air quality, and energy savings.

TDM is accomplished in a number of ways: scheduling employers to work flexible hours (to reduce peak commuter traffic), encouraging other travel modes (such as public transit, bicycling, and walking), allowing telecommuting, providing incentives for people to live closer to work, and encouraging carpooling. TDM programs are most often implemented by the private sector; however, incentives or requirements can be included in



**Effective TDM relies on programs that help reduce traffic congestion like transit passes for employees, enabling flexible work hours and other policies and services. It also requires infrastructure that supports alternatives to driving such as the bus shelter and bike rack seen here at the park-and-ride lot in Richmond.** Photo from the Chittenden County Metropolitan Planning Organization (CCMPO).

the land development process. Which TDM measures are appropriate will depend on the proposed use and scale of a project, the amount of traffic congestion in the area, the relation-

ship of surrounding land uses, mix of uses, building density, and transit availability.

Many U.S. communities have successfully incorporated TDM provisions in their zoning regulations, including the requirement that all new businesses above a certain size provide TDM opportunities for their employees. In Vermont, the application of TDM provisions in land use regulations has been limited, although a few municipalities have encouraged transportation alternatives in new developments, such as access for bikes and transit buses. Some have asked developers to consider business carpooling programs.

There are two regulatory approaches that a municipality can take. One approach is to require TDM measures that achieve a percentage of SOV trip reduction goals be included in all commercial development proposals. The other approach is more flexible. It requires that the developer provide a traffic impact analysis, along

### Menu of Typical TDM Measures

**A commuter-matching service**, in addition to or coordinated with an areawide rideshare program, to facilitate employee ridesharing for work trips

**Purchase or lease of vanpooling vans**

**Subsidized carpooling or vanpooling**, which may include payments for fuel, insurance, or parking

**Use of company vehicles for carpooling**

**Preferential parking for carpool or vanpool users**, which may include parking close to the entranceway or covered facilities

**Cooperation with transportation**

**providers** to provide regular or express service buses to the work site

**Subsidized bus fares**

**Construction of walkways or bicycle routes** to the work site and coordinated with a local system

**Bicycle racks, lockers, and showers** for employees who walk or bicycle to and from work

**A special travel information center** where information on alternate modes and other travel reduction measures will be available.

**An employee work-at-home program**  
**Adjusted work hours**, which may include compressed work weeks and employee-selected starting and stopping hours (work-hour adjustments should not interfere with or discour-

age the use of ridesharing and transit)

**Parking incentives and disincentives**, such as a fee for parking and/or a monetary rebate or prizes (such as gifts, trips, or time off) for employees who do not use the parking facility

**Incentives that encourage employees to live closer to work**

**Workplace day-care facilities or emergency taxi services** and other measures designed to reduce commuter trips

**Basic support services for employees** to reduce their need to drive to obtain services, such as eating establishments, ATM machines, and convenience stores

with a list of TDM measures aimed at offsetting adverse traffic conditions. This provides an alternative or may supplement required infrastructure improvements.

TDM can also be encouraged through an impact fee ordinance. Opportunities for offsets in the form of fee waivers, reductions, or exemptions are offered for new nonresidential development, if TDM strategies are put in place. TDM programs can also be targeted for sections of the town, such as the downtown area, where there may be a parking shortage. As part of the program, special parking permits could be authorized for regular carpoolers.

## Regulatory Programs

TDM requirements are usually applied to commercial developments of a certain size, either a single-use or multiple-use site. The size threshold might be based on square feet, the number of employees, or the projected increase of vehicular trips. For example, a threshold might be ten or more employees, a nonresidential project or nonresidential portion of a mixed-use project that exceeds 10,000 square feet of gross floor area, or a change of use that increases the number of vehicular trips by fifty or more per day. The regulations can be stepped, so that smaller business might be required to provide a commuter ride matching service; whereas larger ones might be required to provide a more sophisticated program, including measures such as a vanpool operation, transit subsidies, employee parking charges with reductions for carpoolers, telecommuting, and alternative work hours.

The regulations usually require the submission of a traffic impact analysis. The analysis includes estimates of how many SOV trips the development is expected to generate and how many vehicular trips a proposed TDM plan could reduce. The plan should include a list of measures that will be applied, as well as a process for monitoring the plan's success.

The regulations might also offer incentives to developers to encourage the broad use of TDM. These might be financial incentives, such as an impact fee reduction, or site design incentives, such as a reduction in the number of required parking spaces or an increase in allowable number of units.

## Nonregulatory Programs

Public/private partnerships are often the best approach for implementing TDM and can work well along with the regulatory approach. Nationally, publicly funded TDM programs use federal, state, and local resources, augmented with private sector funding from employers, to set up programs that provide customized services to target markets, making these services visible and accessible to potential users. In the more urban areas, large employers, transit providers, and governmental representatives often form partnerships known as Transportation Management Associations (TMAs) or Transportation Management Initiatives (TMIs) to formalize their TDM relationships. The two more urban areas in the state—Chittenden County and the White River–Lebanon area—already each have a TMA, and Chittenden County is exploring other possible TMAs/TMIs.

### Chittenden County's Existing TDM Partnership

In Chittenden County, several organizations have joined together to discuss and plan for TDM strategies that can be implemented across the region. These TDM Partners include Campus Area Transportation Management Association (CATMA), the Burlington Department of Public Works, the Alliance for Climate Action, the Chittenden County Transportation Authority, Chittenden County Metropolitan Planning Organization and Regional Planning Commission (CCMPO and CCRPC).

## Considerations

In general, TDM is most likely to work when congestion or severe parking problems act as an incentive or encouragement. There is limited rationale for TDM without these problems. The rising price of gas will help support these efforts. While highway improvements have been the only approach for dealing with traffic impacts in Vermont in the past, the value of TDM as a regulatory tool is gaining recognition. TDM can be a far less expensive method for addressing congestion, and some highway improvements designed to increase traffic capacity have been shown to induce more traffic and congestion in the long run.

Municipal land use regulations can have provisions that conflict with the goals of TDM; for example, large lot zoning, which results in low density development often with widely separated land uses, encourages automobile travel and discourages the use of TDM. When municipalities require developers to make off-site roadway improvements to mitigate traffic impacts of new development, regardless of other options, it can create a disincentive for developers to make investments in alternative transportation. Also, inflexible parking requirements that require developers to supply a large number of parking spaces for every new development, without consideration for reducing parking demand through other means, makes implementing an effective TDM program difficult.

Furthermore, because infrastructure for alternatives to SOVs, such as transit to serve new development, is often not in place to support TDM programs, applying TDM concepts in Vermont can be challenging. However, by encouraging development to take place in pedestrian friendly, mixed-use growth centers and paying attention to all the ways that SOV use can be reduced, TDM can be applied in a rural state like Vermont.