MOVING COLORADO
VISION FOR THE FUTURE

2035 Statewide Transportation Plan

Transportation Demand Management

TECHNICAL REPORT

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DEPARTMENT OF TRANSPORTATION

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Introduction

Transportation Demand Management (TDM) is a critical element in developing a well-rounded transportation strategy. TDM encompasses a wide range of programs and services that make the most efficient use of existing transportation facilities by managing the "actual demand" placed on those facilities. Using strategies that promote alternative modes, increase vehicle occupancy, reduce travel distances, and ease peak-hour congestion, TDM efforts can extend the useful life of transportation facilities, enhance community mobility, and improve air quality. TDM approaches include strategies to promote alternative modes of travel, such as carpooling, vanpooling, transit, biking, and walking. From developers working on a site plan to regional governments forming a long-range transportation plan, TDM can provide a cost-effective complement to any strategy by addressing the demand for transportation, and by focusing on partnerships between public and private-sector stakeholders.

TDM is required for Transportation Management Areas of more than 200,000 people under the latest federal transportation law, SAFETEA-LU. In Colorado, Transportation Management Areas are Denver Regional Council of Governments, North Front Range Metropolitan Planning Organization, and Pikes Peak Area Council of Governments. 23 CFR 450.320 (b) requires those TMAs to consider "strategies that manage demand, reduce single occupant vehicle (SOV) travel, and improve transportation system management and operations" in addressing traffic congestion.

The Colorado Department of Transportation (CDOT) has developed tools to assist local governments and businesses with TDM implementation, including *The TDM Toolkit* and the *TDM Corridor Projects Study,* which offers a complete list of strategies with examples of TDM successes throughout Colorado and the United States.

State Of The System

For purposes of this document, TDM programs offer strategies to help eliminate congestion by providing alternatives to SOV travel. Currently, 76 percent of drivers in the Denver metro area regularly drive alone to work, and their commute averages 7,488 miles per year.

Communities around the state have established Transportation Demand Management Organizations (TMOs) or Transportation Management Associations (TMAs). The sole responsibility of these public-private partnerships is the implementation of TDM programs and services in a community to address traffic congestion and air quality problems. Today, there are more than 125 recognized TMAs nationwide, including approximately 10 in Colorado.

The three Transportation Management Areas in Colorado mentioned above also must address traffic congestion and air quality problems. Typical approaches include vanpool, carpool, and transit programs.

The appeal of a TMA lies in the synergism of multiple organizations and individuals banding together to address and accomplish more than any one government agency, employer, developer, or resident could alone. TMAs are organized to address the transportation issues in their immediate locales. TMA services vary by organization. TMAs act as brokers of

transportation services to private employees. They coordinate and market rideshare programs, provide shuttle services, develop parking management programs, and similar services. The most common services are rideshare promotions and member advocacy. Advocacy can range from working with the local transit provider to improve routing and services, to working with federal decision-makers on laws that can impact the commute. Other typical services include conducting promotional events at employment sites, producing periodicals and brochures that promote alternative transportation, forming vanpools and car-pools, managing parking resources, selling transit passes, promoting the use of bicycle facilities, and more. Additionally, some TMAs operate shuttle services within their service areas.

The need for the TMA stems from the realization that each group can make important contributions to improving mobility and air quality. The geographic scope of a TMA varies with each organization. Across the nation, one-third of all TMAs offer services region-wide and one-fifth serve a Central Business District. The remainder serve suburban business parks, residential areas, transportation corridors, and tourist venues.

TMAs may serve small areas such as the Stapleton Area TMA in Denver, or large areas such as the TMA of Utah, which oversees the entire Salt Lake City metropolitan area. The typical TMA, though, has a subregional area such as the US 36 Commuting Solutions (Broomfield/Westminster), Downtown Denver Partnership TMA, and the South I-25 Urban Corridor TMA (Denver Tech Center).

Vanpooling

Vanpooling is an agreement where groups of five to 15 individuals share a ride to work in a van that is provided and dedicated to their commute. Costs are shared among all members of the group and are generally based on the commute distance. In addition to the van, vanpool programs provide maintenance, repairs, and insurance. Vanpool providers in Colorado cover 250 linear miles along the Front Range with approximately 175 vans. Current providers include the Denver Regional Council of Governments' RideArrangers; the North Front Range MPO's VanGo™; and the Pikes Peak Area Council of Governments' Metro Rides. Additionally, a number of large businesses also provide their own vanpools.

Carpooling

Carpooling is the most common and flexible way for commuters to share a ride. Carpools generally have two or more passengers who live in the same area or along the same route using a private vehicle to travel to common or nearby destinations. Denver Regional Council of Governments (Ride Arrangers), North Front Range (SmartTrips™), and Pikes Peak Area Council of Governments (Metro Rides) currently offer carpool programs. Thousands of individuals are formally registered in these and other programs statewide.

Schoolpools, which act as carpools to transport children to school are also effective and flexible rideshare programs. Schoolpool programs are offered through DRCOG, NFRMPO, and PPACG.

Guaranteed Ride Home

In response to common concerns about family emergencies, bicycle breakdowns, bad weather, or being stranded at work, companies can sponsor or participate in a Guaranteed Ride Home program. Such programs provide employees with taxi service in response to these events that cause employees to miss their ride home. All three of the Front Range vanpool programs provide a Guaranteed Ride Home program. Additionally, some individual companies provide their own guaranteed ride home program to their employees.

Flextime

By varying the time of day or number of days that employees come to work, companies are operating leaner and employees have more schedule flexibility. Flextime allows employees to choose when their workday starts and ends, and even which days they work. By offering compressed work weeks, employees can work four 10-hour days, three 12-hour days, or 80 hours of work in nine days.

Telecommuting

Telecommuting means working at home or at an off-site location. To telecommute, employees connect to the main office via a sophisticated computer network. In the United States, 15.7 million people telecommute (AT&T Survey, 1998). More than 65 percent of teleworkers are employed by firms with fewer than 100 employees.

Teleconferencing

Meeting planners often opt to use teleconferencing facilities with a phone and audio-visual equipment connectivity, thereby avoiding a long-distance drive for meetings. This is also an effective training tool that reduces costs of time and travel.

Transit

Transit, another important TDM strategy, is discussed in the Transit Technical Report.

Applications

TDM strategies may have an application in each project that has an element of congestion mitigation during construction. Less traditional and less costly alternatives to construction may be available by utilizing the strategies and lessons learned nationwide by implementing TDM tools. Six different applications where TDM programs and services can play an important role are described:

1. City/county/ regional transportation plans
2. Major corridor planning or (re)construction projects
3. Sub-area planning or major (re)development projects
4. Universities and colleges
5. Development projects
6. Employment sites

Developing or updating a city, county, or regional transportation plan provides an opportunity to explore the integration of TDM into an area's long-range transportation strategy. These efforts typically involve an analysis of the existing transportation network, development of forecasts of future transportation needs, assessment of fiscal and other limitations, and a discussion of community goals and objectives for future transportation investments. Incorporating TDM into a community's transportation plan recognizes that, more often than not, no single approach to solving transportation problems can be effective. As a complementary part of a balanced transportation plan, TDM can help manage the long-term demand placed on the transportation network, reducing or delaying the need for expensive capital investments; expand the array of transportation choices available to residents, employees, and tourists; provide easy-to-implement, near-term solutions to current transportation challenges; provide low-cost alternatives to capital projects with high financial costs or unacceptable community or environmental impacts; provide enhanced mobility options for citizens that do not or cannot drive, including students and seniors; and strengthen partnerships with private sector stakeholders—such as major employers and developers—which often are an important financial contributor to the overall transportation network (in building parking and pedestrian/bicycle facilities, subsidizing transit passes, etc.).

Case Studies

Planning Case Study

City of Boulder: Transportation Master Plan Update

The City of Boulder has actively promoted the use of TDM and other management strategies in its comprehensive Transportation Master Plan (TMP) since the late 1980s. In each TMP, the provision of new alternative mode infrastructure, marketing, and education programs was featured as the means of accomplishing the goals of managing congestion and reducing SOV travel in order to decrease traffic growth and air pollution.

Starting with the creation of the Alternative Modes Center (later renamed GO Boulder), the city has actively promoted alternative forms of transportation side-by-side with the implementation of bicycle, pedestrian, and transit infrastructure. Every two years, the city evaluates the performance of its TDM and alternative mode programs against overall city traffic and transportation. Despite an overall increase in all trips, Boulder reduced the total number of all single-occupant vehicle trips by three percent and in-city commute trips by four percent. Furthermore, growth in vehicle miles traveled was less than population and employment growth in the city, indicating Boulder is making inroads toward holding congestion steady despite growth.

Subarea Case Study

Lowry Redevelopment Authority

Located in eastern metro Denver and sharing land with Denver and Aurora, the former Lowry Air Force Base was converted to a residential and commercial redevelopment community in the early 1990s. Over the past 12 years, 3,000 residents and 5,000 employees have made Lowry their home of operations. Lowry's build-out population in the next five years will extend to almost 10,000 residents and 10,000 employees. The Lowry Redevelopment Authority recognized the need to be proactive about providing viable transportation options to residents and employees in its planning and ongoing operations. TDM strategies are incorporated into each commercial development application. Among the many strategies and elements in use are Lowry-specific access information, including walking, bicycling, and bus information. This information will be developed as a real-time service on Lowry's Smart Community, the LowryLink.com website. In order to coordinate all the activities, Lowry uses a citizen and business subcommittee dedicated to overseeing the transportation options program.

University Case Study

University of Colorado at Colorado Springs

The University of Colorado at Colorado Springs (UCCS) exhibits a well-rounded approach to offering commuter services to its students. Unlike more traditional residential universities, UCCS tends to be more of a commuter college. Although the majority of students have a full course load, they also tend to work at least 32 hours per week. Given a lack of direct transit routes in Colorado Springs to the campus, UCCS has had to provide a more rounded program that reflects the reality that students are commuters by nature. To this extent, parking services play a key role in the development and encouragement of travel options. UCCS successfully implemented an off-site parking facility—connected by a high-frequency shuttle service called FasTracks—as a means of addressing short-term parking shortages. The benefit to the community was decreased traffic volume on the principal arterial serving UCCS, greater use of the city's transit system, and an increase in revenue to be designated for other alternative transportation purposes, such as bicycling and pedestrian services.

Major Corridor Planning Or (Re)Construction Projects

Major corridor planning projects or (re)construction efforts are often critical elements in a community's transportation decision-making process. These projects offer an opportunity to examine future transportation needs in a specific corridor and explore an array of investment alternatives to meet future travel needs.

Opportunities for the development and integration of TDM include: development of an easy-to-implement, near-term TDM component as part of a phased corridor investment plan; formulation of a TDM program that complements a major capital investment (such as developing an integrated rideshare program as part of a bus/high-occupancy vehicle {HOV} investment); development of a TDM congestion mitigation program that provides travel alternatives and advanced traveler information during corridor (re)construction; and development of a TDM program in corridors where major roadway expansion is not feasible or is undesirable.

From the major construction projects like T-REX to the replacement of a bridge in rural Colorado, moving people, goods, and information is CDOT's mission. Applying TDM strategies to construction projects can reduce major traffic tie-ups, resulting in less auto pollution. TDM strategies can also offer an alternative to widening highways, and promoting vanpooling, carpooling, and increased bus usage. By combining traffic signal management with TDM strategies, major corridors can be utilized to capacity without the cost of widening the roadway.

Major Corridor Case Study

T-REX

The reconstruction of Interstate 25 in southeast Denver, known as T-REX, involved the addition of two lanes of general-purpose traffic and a new light rail transit line parallel to the roadway. CDOT turned to TDM as a means to help mitigate the negative effects of extended delays and unpredictable travel times and to build a user base for the transit investments in the corridor.

One year into the reconstruction effort, a coalition of regional and local agencies was developed and implemented the TDM program for T-REX. Included in the steering committee were T-REX project managers, CDOT, DRCOG, the Regional Transportation District (RTD), the City and County of Denver, and various TMAs along the corridor. Services have met with varying success. The Smart Community element was implemented as a website, available at http://www.trexproject.com/. The vanpool subsidy element has been very successful, with new vanpools quickly filling within the first few months of operation.

Principal TDM elements used for T-REX:

- Subsidized the employer provision of free transit passes (called ECOPasses) to commuters.
- Created and marketed an Internet-based information network for alternative transportation (called a Smart Community).
- Subsidized the provision of new vanpools for I-25 commuters.
- Promoted and marketed commuter information for the corridor.

T-REX was completed in 2007; however, many of the TDM programs remain intact and continue to prove successful as measures to reduce travel times and delay.

Revenue

TDM can play a significant role in helping to mitigate congestion during major construction projects if a small percentage of the overall project budget is dedicated to implementing TDM strategies. Funds are made available from Congress to help states to relieve congestion and to help reduce the effects of air pollution by promoting alternatives to the single-occupant vehicle. By utilizing TDM strategies that make the most efficient use of existing transportation facilities, public or private-sector employers can promote alternative modes, increase vehicle occupancy, reduce travel distances, and ease peak-hour congestion. The annual budget for TMAs ranges between $75,000 and $2 million. Two of the largest sources of revenue for a TMA are dues (34 percent) and grants (49 percent). In some cases, developers have negotiated with cities to provide seed funding (start-up costs) for a TMA as opposed to having to pay for road expansion or other facility improvements. In most cases, the end result has been positive for both the developer and the community.

Conclusion

TDM projects can encourage participation in vanpooling, carpooling, teleconferencing, and help to promote teleworking or flex-place alternatives. They can also encourage employers to make flextime a normal part of doing business in Colorado and support TDM strategies in lieu of or as a part of construction projects statewide.