

IMPLEMENTATION ISSUES AND BARRIERS

Katherine L. Gerwig
Kaiser Permanente

ABSTRACT

Transportation Demand Management, or TDM, is a set of strategies that have been implemented in many urban and suburban areas to combat problems related to traffic congestion, air pollution, and reliance on fossil fuel. TDM focuses primarily on reducing commute trips by shifting employees out of their cars and into alternatives such as ridesharing, telecommuting, and compressed work weeks.

As a result of the Federal Clean Air Act Amendments of 1990, scores of local and regional mandates, and voluntary initiatives, TDM programs are being implemented in many areas by those entities that have influence over commute trips: employers and owners/managers of commercial complexes. This paper examines TDM implementation issues and barriers from the perspective of these and other providers of TDM services to commuters. There are important issues and barriers that are outside the scope of this paper, including such areas as high-occupancy-vehicle facilities planning, land use issues, and institutional relationships. These topics are the focus of other presenters at the symposium.

Key issues include who pays for TDM programs, larger employers are impacted more than small employers, liability for implementors, challenges associated with parking pricing and financial incentives, labor relations issues, impact on business site selection, ensuring adequate alternatives and support programs, public policy issues, and the limited understanding of the effectiveness and longevity of TDM strategies.

Today's performance by the service providers will, in part, dictate how and to what extent TDM is mandated or encouraged in the future. Our understanding of the various side effects of TDM on employees, employers, and communities needs to be enhanced. A better understanding of TDM is critical to future policy making and program development. Capitalizing upon the experience and knowledge of implementors and regulators may create new opportunities.

INTRODUCTION

Transportation Demand Management, or TDM, is a set of strategies that have been implemented in many urban and suburban areas to combat problems related to traffic congestion, air pollution, and reliance on fossil fuel. TDM focuses primarily on reducing commute trips by shifting employees out of their cars and into alternatives such as ridesharing, telecommuting, and compressed work weeks.

As a result of the Federal Clean Air Act Amendments of 1990, the Intermodal Surface Transportation Efficiency Act (ISTEA), scores of local and regional mandates, and voluntary initiatives, TDM programs are being implemented in many areas by those entities that have influence over commute trips: employers and owners/managers of commercial complexes. This paper contains an examination of TDM implementation from the perspective of these providers of TDM services to commuters. Many of these implementors are new to the business of transportation, and they are discovering the challenges and opportunities resulting from TDM initiatives.

There are important issues and barriers that are outside the scope of this paper, including such areas as high-occupancy-vehicle facilities planning, land use issues, and institutional relationships. These issues are the focus of other papers presented at the conference.

CURRENT TDM IMPLEMENTATION PRACTICES

Commute trips are targeted by TDM initiatives because most commuters drive alone to work, and employment destinations offer a logical point of contact for reaching the target group. There has been a proliferation of employer-based or worksite-based TDM programs throughout the country.

Voluntary TDM programs started in the 1970's in response to the energy crises. Programs continued and grew through the 1980's to address traffic congestion problems. In the late 1980's and early 1990's, air quality became the primary focus of TDM initiatives in many areas as mandated programs emerged throughout the country. Despite the limited evidence regarding the air quality benefits that could be derived from worksite-based TDM programs, the federal Clean Air Act Amendments of 1990 set in motion widespread implementation of TDM strategies in states that do not meet federal air quality standards. Some states that meet the federal standards, including Florida and Washington, have initiated worksite-based TDM programs to mitigate the impacts of growth on their environments.

Trips are reduced by encouraging the use of alternatives to the single occupant car. Many papers and training guides are available that contain lists and definitions of TDM strategies, and this information is not repeated in this paper.

Worksite-based TDM mandates include:

1. Air quality regulations to reduce commute trips. Typical requirements include a 25 % increase in the average number of employees arriving per vehicle at employment sites with more than 100 employees.
2. Site specific requirements to mitigate transportation problems resulting from expansion or new construction of facilities. Local jurisdictions are more frequently requiring TDM programs as conditions of construction and use permits.
3. Trip reduction ordinances (TROs) to reduce congestion and/or air pollution on a local and subregional level.
4. Various state and federal issue-specific laws. An example is California's "parking cash out" law that requires employers who lease parking to offer employees cash instead of free or subsidized parking.

In areas with voluntary TDM programs, objectives may be similar to those of mandated programs, absent the regulatory and enforcement infrastructure.

The service providers (implementors) of TDM and their target markets include:

1. Implementor: Employers
Target markets: Employees (especially reporting to work during the morning peak period) and customers/vendors

Baseline activities at most sites where TDM is being implemented include the following elements:

- Appoint and train a Transportation Coordinator
- Notify employees and promote their participation in commute alternatives programs
- Conduct an employee survey
- Prepare and implement a Trip Reduction Program
- Submit documents to regulatory agencies
- Keep records and monitor results of programs.

2. Implementor: Real estate developers and managers of commercial complexes
Target markets: Tenant businesses and commuters

Developers and building owners can offer TDM services to tenants, and can be especially important in complexes with numerous small employers. TDM activities for these implementors include preferential parking, parking pricing, itemization of parking costs in tenants leases, flexibility to negotiate for fewer parking spaces, ridematching, TDM information center, and staff to work personally with tenants and their employees.

3. Implementor: Ridesharing organizations
Target markets: Commuters and employers/building owners

Ridesharing organizations are usually departments in public agencies or publicly funded private companies. They implement TDM by providing services directly to commuters, such as regional ridematching, and by offering support services to employers, such as conducting employee surveys and providing training.

4. Implementor: Transportation Management Organizations
Target markets: Commuters and member companies

TMOs are partnerships of businesses that join together to address local transportation concerns. Many are created through public funding and then continued through dues collected from member businesses. TMOs offer value by implementing a variety of services for their members, thereby relieving employers from the tasks of developing and financing separate programs.

5. Implementor: Government agencies (as service providers)
Target markets: Businesses within jurisdictional boundaries

Some government agencies offer services to employers and developers within their jurisdiction. Services can include funding for certain programs (such as low interest loans for employer purchase of vanpool vehicles), advertising and promotional campaigns to generate public support, ridematching services, and consultation regarding TDM program development and implementation.

KEY ISSUES

Paying for TDM

There are no industry standards for TDM program cost allocations, in part because TDM programs are relatively new, and in part because employers don't track costs consistently. Estimates of average costs to employers range from a high of \$232 per employee per year to comply with the (San Francisco) Bay Area Air Quality Management District's Regulation 13¹ to \$40 per employee per year for selected employers in southern California.²

In 1990, the work trip accounted for 26% of all trips, and the actual number of work trips per household has remained relatively stable for the last 20 years. Household vehicle miles traveled and vehicle trips, by contrast, increased by 82% during that same period. Trips for non-work purposes are growing at a far greater rate than work trips.³

¹Applied Development Economics, *Socioeconomic Analysis of Proposed Regulation 13/Rule 1: Trip Reduction Requirements for Large Employers*, November 6, 1992.

²Commuter Transportation Services, Inc., *What Price Success? Regulation XV Trip Reduction Plans: Investment Patterns and Cost Effectiveness*, April 1992.

³U.S. General Accounting office, *Urban Transportation, Reducing Vehicle Emissions with Transportation Control Measures*, August 1993.

In regions with air quality trip reduction regulations, this begs the question of why employers are being held accountable for allocating resources to reduce employee trips. Even if objectives for trip reduction are met, the result will not be a significant reduction in total emissions from vehicle travel. Businesses are asked to contribute resources to programs for which the cost-benefit ratio isn't clear or quantifiable.

On the other hand, certain benefits that businesses may enjoy from TDM programs are frequently underestimated, contributing to an unfavorable cost-benefit ratio. These benefits may include enhancing customer service through better site accessibility and extended work hours; reducing the down time incurred when employees are stuck in traffic while making business calls; recruitment and retention benefits; increased employee productivity, and; reducing costs by reducing parking demand.

If healthy companies have difficulty justifying resources for TDM programs, companies experiencing declines in profitability or competitive standing are much less likely to authorize expenditures for TDM programs. In California where the unemployment rate is above the national average, and there is concern over the number of businesses that are relocating outside the state, policy makers have been especially interested in balancing the need for environmental protection with the need for economic stability and growth.

To improve the cost-benefit picture, some states offer tax credits and tax deductions to employers who support TDM programs. In California, qualifying companies may claim a 20% to 30% credit toward the purchase of vanpool vehicles; a tax credit to defray the cost of transit passes, and; business expense deductions for ridesharing and facility improvement programs.⁴ Some states also offer tax credits to commuters. Federal tax code does not now offer credits for commute programs. Some businesses may, however, qualify for tax deductions.

Federal tax code was amended this year to exempt from gross income an employer-provided mass transit or vanpool subsidy worth up to \$60 per month per employee.⁵ Most other incentives (e.g., travel allowances, cash prizes) are taxable as income to the employee.

Larger Employers are Affected More than Small Employers

Voluntary and mandated TDM initiatives impact large employers the most, since it is through employers that many policy makers choose to reach commuters. While the focus has been on larger employers, most people (55%) work for companies with fewer than 100 employees. Fewer than three percent (3%) of all business establishments in the U.S. employ more than 100 people, with 54% employing 1 to 4 employees.⁶ This means that most employers are not held responsible for influencing their employees' commutes, and they are not expected to invest resources into TDM programs.

Some areas have attempted to involve smaller employers through promotional initiatives focused along specific travel corridors. Other areas look to building owners and developers to offer programs that will influence the travel behavior of their tenants' employees.

While the burden for TDM falls to large employers, they also receive some benefits from their involvement. Mandates provide a level playing field for large employers because strategies that may be difficult for a single employer to undertake, such as charging employees to park, can be implemented if all employers in an area are required or encouraged to achieve similar performance measures.

⁴State of California, *Revenue and Taxation Code Sec. 17053, Sec. 23605; and Sec. 24343.5.*

⁵U.S. Internal Revenue Code, Sec. 132(f), amended 1/1/93.

⁶U.S. Department of Commerce, Economic and Statistics Administration, Bureau of the Census, *County Business Patterns*, 1990.

Another important benefit is that TDM mandates may offer opportunities for reallocating resources that would otherwise not be feasible for employers, such as reallocating funds currently used to pay for parking subsidies.

Customer access to products and services is a priority for any organization. Access includes being able to conveniently get to facilities in a reasonable amount of time. Traffic congestion, parking shortages, and lack of travel alternatives are obstacles to customer satisfaction. By employing TDM strategies, and by broadening efforts currently aimed at employees to suppliers and customers, employers may enhance accessibility, another benefit from TDM.

Whether the benefits justify the costs in any given program is a question for which there is no clear answer.

Liability

There are questions regarding the extent of employer liability when sponsoring or encouraging commute alternatives. Experts say that areas of concern are workers' compensation and claims by third parties. Despite widespread regulations requiring employers to get involved in their employees' commutes, there has not yet been a court case on either of these issues.

Commuting has generally been considered outside the course of employment, and injuries sustained during the commute are not compensated under workers' compensation laws. However, if the employment relationship is implied to continue during the commute because the employer furnished or subsidized transportation in some way, then workers' compensation may apply. An important consideration is whether the employer receives a benefit from the employees' commute choices. These factors also apply to injuries to third parties caused by employees participating in TDM programs.⁷

It is thought that employers who mandate the use of certain commute alternatives by employees will face a higher risk of liability than employers who offer a variety of choices to commuters. It is in managers' interests to ensure that TDM programs are being implemented in ways that offer minimum exposure to liability.

Advocating reasonable legislative remedies may help to address liability obstacles. The State of Illinois Revised Statutes, Chapter 95 1/2 states, "An employer shall not be liable for injuries to passengers and other persons because he provides information, incentives, or otherwise encourages his employees to participate in ridesharing arrangements."

Parking Pricing and Financial Incentives

The treatment of parking in the federal tax code allows employees to receive up to \$155 per month in parking subsidies without tax consequences.⁸

Employers are learning that charging employees for the privilege of parking is a powerful way to change travel behavior. Some employers don't realize how much money they're spending to encourage employees to drive alone to work. Free or cheap parking greatly increase solo driving; reducing or removing parking subsidies reduces solo driving.⁹ Parking pricing not only influences commuters' travel mode, but it changes the way a company allocates their transportation dollars. By charging employees to park, employers can reallocate the resources formerly used for parking and use them for TDM programs. Developers can negotiate with local planning agencies to build less parking in favor of strong travel reduction programs.

⁷Correspondence to California State Senator Tim Leslie from Deputy Legislative Counsel Sally B. McGough, July 12, 1993.

⁸U.S. Internal Revenue Code, Sec. 132(f), amended 1/1/93.

⁹Willson and Shoup, *Parking Subsidies and Travel Choices: Assessing the Evidence*, Western Regional Science Association, February 24, 1990.

Despite the proven connection between parking pricing and travel behavior, raising parking rates is one of the most controversial TDM strategies, and one of the most difficult to implement. Parking pricing can have a disproportionate impact on the lowest wage earners, and on certain socioeconomic groups. Remedies for this problem include instituting travel allowances to offset parking pricing increases, thereby turning the subsidy into cash which is put in the hands of the commuter. Another remedy that has worked successfully is to set parking rates in relation to employees' salary levels, resulting in the highest paid employees paying the highest parking rates. This solution, however, doesn't take into account employees' total household incomes, which may have more bearing on their transportation choices than their individual wages.

Labor Relations Issues

Unions have a number of concerns that relate to TDM programs. First, they want to ensure that their members don't assume the entire financial burden for TDM program implementation. Employers who raise parking fees without adding incentives or options to their employees' transportation options may face serious protests from unions and long term distrust of TDM activities. Unions also want equitable treatment of employees. Offering certain incentives and programs to some employees and not others (such as targeting employees who drive to work alone) may be counter to the principles of affected unions. Additionally, unions want to ensure that the employees they represent are not unfairly disadvantaged as a result of travel restrictions.

Offering financial incentives can be problematic for some businesses, since incentives may be viewed by collective bargaining units as negotiable benefits. Some union representatives have raised concerns about telecommuting in that it favors paying employees on the basis of performance of agreed upon objectives. This can be considered close to the concept of payment for piece-work (rather than hourly wages) which unions have opposed in some industries.

Where employees are represented by labor unions, those unions need to be involved in developing and communicating TDM programs. This added complexity may hinder an employer's ability to take short term actions that involve financial incentives, disincentives and work place/schedule changes. But it is important to point out that TDM programs can actually increase the options available to employees, and can enhance job satisfaction by easing the costs and stress associated with the commute. From this perspective, some union leaders have taken a proactive position in negotiating programs that benefit the employer and the employees.

Business Site Selection

There is anecdotal evidence from employers involved with determining where to locate or relocate their businesses regarding the role that regulatory activity plays in choosing new locations. Certainly, employers desire a "business-friendly" climate in which to operate, but it is very unlikely that TDM regulations when considered alone play a significant role in site selection.¹⁰ Public hearing testimony from businesses about TDM mandates often includes pleas for balanced policies, adequate support, and reasonable timelines. Employers object to programs that put unrealistic burdens on them, and do not want to bear sole responsibility for problems created by and exacerbated by larger populations. Burdensome TDM regulations may reflect a tendency toward an unfriendly climate in which to conduct business, and may, in that context, affect site selection.

One important aspect of site selection is the ability to decentralize operations through the use of technology. TDM offers businesses new support for programs that use *information* highways rather than *vehicle* highways. The more sophisticated such networks become, the more options employers have to reduce the need for people to report to central offices during standard daytime shifts. Opportunities are increasing for employers to join public sector partners in creating new work places that are designed for minimal travel and maximum efficiency.

Facility expansion represents an ideal time to incorporate location and design features that encourage the use of travel alternatives to the single occupant car. Proximity to transit, parking design and supply, pedestrian access, ridesharing

¹⁰Various site selection studies conducted by The Breen Consortium, Inc., McLean, VA.

staging areas, and on site services are some of the considerations that will impact behavior of all travelers to new sites in the future.

Ensuring Adequate Alternatives and Support Programs

Worksite based TDM activities need supporting programs to be effective. Specifically, support programs include enhanced transit and rail service, integrated high-occupancy-vehicle (HOV) systems, regional ridematching systems, training programs for employers, and other regional services that ensure options for travelers who are being asked to leave their cars at home.

Some communities are funding transit and rail service enhancements in conjunction with TDM initiatives, however, many are finding it difficult to devote the necessary resources to these programs. HOV systems can take years to implement due to the need for inter-jurisdictional negotiations. In the absence of supporting programs, employers are justified in their criticism that they are shouldering an unfair share of the burden.

Public Policy That Affects Implementation

Regulations, ordinances and other "command and control" strategies have become the preferred method of addressing congestion and air pollution problems by policy makers. The option of "market-based" strategies holds promise, but has yet to be tested on a regional scale. Market-based strategies are those that require travelers to pay for the cost of using the system they choose. The higher the impact is of a particular use, the higher the cost would be for that use.

Congestion pricing is an example of a market-based strategy. There are no congestion pricing projects currently in existence in the U.S., and there are only a few in operation throughout the world. One project being considered in the San Francisco Bay Area would increase tolls on the Bay Bridge (a primary east-west connector) during peak hours. Singapore's downtown area has a successful pricing scheme that requires users to pay a fee to bring a car into the densest zone during peak hours.

Obstacles to the adoption of congestion pricing include public concerns regarding the impact of such systems on low income users, technological barriers, lack of inter-jurisdictional planning, agreement on the uses for the revenue generated, and the lack of long term demonstrations of its effectiveness. The Federal Highway Administration is directing a program to fund up to five congestion pricing projects in the U.S. to help overcome this last obstacle.

Another concern relative to public policy has to do with the lack of consistency of definitions and measures used in TDM programs. Since TDM initiatives are being created simultaneously throughout the country, local jurisdictions are crafting definitions suited to their local needs. The problem with this is that employers who do business in multiple jurisdictions have numerous programs with which to become familiar. Also, obtaining comparable data between programs that use different measuring devices is difficult. The Federal Clean Air Act guidelines establish some common parameters, but every implementing state has freedom in determining exactly how employers will be required to collect and report data. Differences also impede research activities that could help us better understand the real impact and cost effectiveness of TDM programs.

Policies concerning parking requirements often run counter to TDM initiatives when local jurisdictions establish minimum amounts of parking spaces for new or expanded development. Often parking minimums do not take into account the reduced need that results from successful TDM programs (that may include parking pricing).

As evidence of TDM's growing popularity, some regions have overlapping initiatives imposed by state, regional, and local agencies. One agency concerned with congestion management may adopt TDM requirements while another agency concerned with air quality may adopt similar requirements for the same geographic area and population. The result is that employers may be affected by redundant or conflicting regulations. Addressing these problems diverts attention and limited resources away from the real issue which is to reduce demand.

Limited Understanding of the Effectiveness and Longevity of TDM Strategies

There's a lot that implementors don't know about TDM implementation. Some very good research has been performed, and more is currently underway. But findings need to be published and disseminated in a timely way to employers and others who are responsible for implementation. Today, implementors don't know how various TDM strategies complement or contradict one another; which are the most cost effective in terms of results by site and by region; how long changes that result from TDM are sustained; or what affects longevity. These gaps in knowledge can be filled through diligent research endeavors, communication of findings, and through more experience. In the meantime, implementors are using best guesses to move forward with their TDM efforts.

FUTURE IMPLICATIONS OF IMPLEMENTATION

Today's performance by implementors will, in part, dictate how and to what extent TDM is mandated in the future. There is little dispute that TDM programs can have a significant effect on site specific congestion, and that every trip reduced offers some reduction of polluting emissions and energy use. The questions arise when regional impacts are desired. Is there too much reliance on TDM as the most effective way in which to achieve the results? Is the relatively quick and inexpensive solution of TDM delaying the adoption of other measures that may be more difficult to implement, but may also be better at achieving the goals? What role can technology play?

For many in the TDM profession, TDM has been viewed as *part* of the solution to traffic and pollution problems. For some employers who are required to implement TDM programs in regions that lack sufficient support systems, it can feel as though the weight of solving regional problems is being put on their shoulders. As more transportation control measures are put into place, perceptions about TDM programs will undoubtedly change.

TDM programs involve new players in solving societal and environmental problems. Perhaps the real contribution of TDM programs is that the implementors become the avenues through which society learns new ways of planning and using its transportation resources. TDM challenges certain cultural beliefs that have been fostered by decades of automobile advertisements, highway building, and lack of integrated land use planning, namely that everyone should have the right to drive what they want wherever and whenever they want to. Polls in the San Francisco Bay Area indicate a willingness on the part of citizens to approve higher tolls on bridges during peak hours if the revenue is used to support transportation alternatives. The involvement of employers and commuters in TDM programs has raised awareness of the choices we make regarding transportation.

The involvement of new players is only one of the side effects of TDM that we don't fully understand. The manner in which each region addresses the issues listed in the previous section will also create side effects that, as yet, can't be determined. The only way to enhance our understanding is through more experience and testing, which implies the ongoing implementation of worksite-based TDM.

There is speculation that TDM initiatives may expand to affect non-work trips. These trips constitute the majority of all trips, but may be much more difficult to reduce using the same command and control approaches prevalent in work trip reduction programs. The characteristics of non-work trips are different from work trips, and the prospect of being required to reduce them is of great concern to businesses that indirectly generate trips by those seeking the businesses' services. Business alliances are already positioning market-based strategies as being more appropriate than indirect source regulations for reducing non-work trips.

The increased numbers and growing sophistication of professionals in the TDM field offers opportunities and challenges. The learning curve for TDM is short. In Los Angeles where worksite-based TDM programs have been mandated for five years, there has been a rapid change in the level of involvement and the quality of input by the regulated employer community. Because of their hands-on experience, the knowledge of the implementors can surpass the knowledge of policy makers, creating challenges for setting future policy and communicating objectives and strategies. For this reason, it is critical for all parties involved to seek the knowledge and opinions of the other stakeholders on an ongoing basis, and to respond to new findings quickly.

CONCLUSIONS

Today, TDM is focused on the reduction of work trips through programs implemented by employers or building owners. The primary reasons for TDM initiatives are to reduce congestion and air pollution. There is little proof that worksite-based programs will achieve desired regional improvements in mobility or air quality, but there is continued emphasis on these strategies because they can result in some measurable change, and they are relatively easy and inexpensive to implement.

The future of TDM depends largely on the implementors of today. As they gain experience, these implementors are discovering issues and side effects of TDM programs that were unexpected and will require thoughtful consideration and significant effort to resolve. The implementors' experience and growing sophistication is placing them in the position of knowing more about TDM than those who initiated the programs. As TDM implementors are viewed as true partners in solving transportation, air quality, and energy problems, they will offer a unique perspective and creativity to policy decisions and program development.