



## **TRANSPORTATION DEMAND MANAGEMENT AND CORRIDOR PLANNING**

A GUIDEBOOK FOR HOUSTON AREA PLANNERS,  
ENGINEERS AND POLICY MAKERS



PREPARED FOR THE

**HOUSTON-GALVESTON AREA COUNCIL**



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## Report Overview

This handbook is designed as a guide for transportation planning and engineering professionals and policy makers to develop transportation management strategies as an integrated component of all alternatives reviewed in a corridor planning effort. This guidebook discusses the integration of Transportation Demand Management (TDM) strategies into corridor planning and provides a methodology for the application and evaluation of TDM elements. A full listing of TDM strategies is included as an appendix to this document.

The *Houston Area TDM and Corridor Planning Guidebook* is organized by these sections:

Section 1: Introduction

Section 2: TDM Overview

Section 3: Integrating TDM into Corridor Planning

Section 4: TDM Implementation

Section 5: Developing and Evaluating a TDM Plan for Corridors

Section 6: National Experience with Implementation

Appendix A: TDM Strategies for Corridor Projects

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## **SECTION 1: Introduction**

Effective corridor improvement projects seek to maximize the efficient use and capacity of a roadway and/or transit corridor, often with limited transportation resources. Developing a viable transportation system not only includes building new roadways and adding transit, but also includes managing the demand for travel on these systems.

Transportation Demand Management (TDM) is a set of strategies designed to make best use of existing transportation facilities as well as enhancing transportation improvements.

Using strategies that promote alternative modes, increase vehicle occupancy, reduce

travel distances, and ease peak-hour congestion, TDM increases the efficiency and effectiveness of the transportation system.



*I-45 North*

TDM approaches can include:

- Strategies to promote alternative modes of travel, such as carpooling, vanpooling, transit, biking and walking.
- Projects designed to maximize the efficient use of parking resources.
- Efforts to shift travel demand to “nonpeak” periods, by promoting flexible work schedules and variable work hours.
- Attempts to eliminate the demand for some trips through teleworking, teleconferencing, etc.

Planning and preliminary engineering of major corridor investment projects in the Houston area present significant opportunities for the coordinated integration of TDM elements and are instrumental to meeting corridor planning goals. TDM is recognized as the quickest and least expensive component of transportation solutions, resulting in reduced construction impacts, increased use of new and existing transit services, and extension of the life of a roadway through reduced congestion. In addition, a basic tenet of TDM programs is developing partnerships between multiple organizations that have influence on commuting and travel habits, to develop programs and policies that will reduce congestion and increase accessibility and mobility.

TDM elements have played a key role in corridor projects. In the late 1970s, efforts were pursued to manage the demand for transportation systems and services. The idea was to encourage shared forms of travel as well as promote a balanced transportation system with a focus on more than one mode of travel. This trend has continued and taken on a more formal role in how we address major public investments in transportation.

## **SECTION 2: TDM Overview**

Incorporating TDM elements into corridor projects can mitigate construction impacts, extend the useful life of transportation facilities, enhance community mobility, and lessen environmental impacts of transportation improvements by providing a range of choices for both the commuter and the traveler, including:

- What mode commuters/travelers choose: carpooling, vanpooling, transit, biking, walking
- When commuters choose to work: flexible work schedules, variable work hours
- Where commuters work: teleworking, teleconferencing, etc.
- What route commuters/travelers take: pricing strategies.

TDM relies on incentives and disincentives to influence travel behavior and it is often based on participation from both the public and private sectors. TDM strategies are outlined in the box below and discussed in detail in Appendix A: TDM strategies for corridor projects.

### **TDM strategies include:**

- Carpooling: two or more people in a car
- Vanpooling: eight to 15 people in a van
- Transit: shuttles, buses and rail
- Bicycling and Walking
- Teleworking: working from home and teleconferencing
- Variable Work Hours: changing work schedules to provide flexibility

### **TDM support strategies:**

- Parking Management: preferential parking for carpoolers and vanpoolers, allowing non-drivers to “Cash Out” the value of an employer provided parking space, and charging for parking.
- Rideshare Matching: Ridematching is a service that identifies people that live and work close to each other. Matching services can offer full-time partners or simply, a person to call in the case of an emergency.
- Incentives and Subsidies: either brings down the cost of a transit pass or vanpool fare, or reward commuters with cash, prizes, time off and recognition.
- Marketing and Promotions
- Guaranteed RideHome: a ride home by taxi or rental car for carpoolers, vanpoolers and other alternative modes in the case of an emergency or need to work late.
- Value Pricing: the use of market-based transportation strategies to enhance mobility options (e.g., parking pricing, tolls, etc.).
- Intelligent Transportation Systems: the use of information technology to enhance travel & system efficiency.
- On-site Amenities and TDM-friendly Site Design: designing facilities that support an array of convenient transportation options.

### **SECTION 3: Integrating TDM into Corridor Planning**

As noted in Section 1, the planning, preliminary engineering and construction of major corridor investment projects presents significant opportunities for the coordinated integration of transportation management strategies, including both transportation systems management (TSM) and transportation demand management (TDM) elements. Too often, transportation management is considered only as a “stand-alone” alternative in the planning process – used for analysis in comparison with a “no-build” alternative and a variety of “build” alternatives.



*U.S. 59 South*

While this assessment may prove informative in some scenarios, developing transportation management strategies as an *integrated* component of all build alternatives is far more conducive to developing cost-effective corridor transportation improvements – and ensuring that these investments are as successful as possible. TDM enhances the effectiveness of whatever alternative is chosen. With minimal additional investment, TDM strategies can maximize ridership of new transit investments and can increase the cost/benefit ratio of new roadways through increased vehicle occupancy. Marginal investments in TDM can offset the environmental and cost impacts of transportation improvements.

There are three prime opportunities for integration of transportation management into build alternatives: construction mitigation, the phasing of project improvements and as a complement to new roadway or transit facilities.

#### **Construction Mitigation**

The (re)construction of major corridor infrastructure projects often takes many years to complete. During this time period, transportation capacity in the corridor is often degraded and access to businesses limited. Transportation management programs provide critical mitigation strategies to reduce the negative impacts of construction, including:

- Providing traveler information regarding construction activities like ramp closures, and offering details and assistance on alternative travel modes, travel routes and travel times.
- Working with corridor employers and other businesses to provide traveler information and to develop access alternatives, such as transit, vanpooling, flexible work hours or telework.
- Working with transportation agencies to adjust existing transportation facilities and services, such as adding temporary High Occupancy Vehicle (HOV) lanes or adding additional transit services.

## Project Phasing

In corridors where major capital investments are selected as part of the “preferred alternative,” the final implementation of these investments may be 5-10 years down the road. Transportation management programs often take much less time and money to implement, and can provide valuable transportation services in the early years of implementation. TSM strategies can achieve near-term, incremental improvements to traffic flow. TDM measures can enhance available travel choices and establish key partnerships with corridor businesses. These strategies can also “prime the market” for the major capital investments to come.



***METRO Transit***

## Complementing Build Alternatives

Transportation management strategies play an important role as a complement to any build alternative, in two key ways:

1. *Maximizing the utilization of build alternatives.* Strategies implemented vary, based on the nature of the build alternative. For example:
  - For corridors adding HOV lanes, appropriate strategies might include partnerships with employers for promotion of transit and ridesharing, development of incentives, education and marketing of associated travel time and travel cost savings for HOV lane use, information on lane access times and locations, etc.
  - For corridors adding transit systems, appropriate strategies might include working with employers to improve connections to the transit stops/stations, development of transit pass programs, marketing and education of transit routes, stops and schedules, real-time transit schedule information, etc.
2. *Providing enhanced travel choices for trip patterns not well served by the major investment.* For example, construction of new general-purpose lanes and a rail transit line along a north-south corridor may not provide significant benefits for east-west travel patterns in the area. Transportation management strategies can augment the major north-south investment with TSM strategies to improve traffic flow and TDM programs to provide enhanced travel choices for east-west trips. These same programs also enhance access to major north-south investments.

## **SECTION 4: TDM Implementation**

The following section reviews typical implementers of TDM programs and services and discusses available TDM resources in the Houston area.

### **Regional Implementation**

In most metropolitan areas TDM is implemented regionally, by Metropolitan Planning Organizations, transit agencies, or other appropriate entities. In the Houston-Galveston region formal rideshare programs are offered by the Metropolitan Transit Authority (METRO) and TDM services are provided by Commute Solutions, a partnership of the Houston-Galveston Area Council's (H-GAC's) Regional Commute Alternatives Program, METRO, the Texas Department of Transportation (TxDOT), Brazos Transit System, Colorado Valley Transit, Gulf Coast Center, City of Galveston Island Transit and Transportation Management Organizations (TMOs).

### **Local Implementation**

Often times, metropolitan areas need local representatives to coordinate sub regional transportation programs and promotions with employers. The focus of these efforts is to address area specific commute challenges and provide services directly to commuters. In the Houston-Galveston region, the following TMOs have been established to address these concerns:

- TREK (Uptown/Galleria Area)
- Bay Area Transportation Partnership (Greater Clear Lake/ Bay Area)
- Texas Medical Center (emerging TMO)



*Local Shuttle*

Transportation Management Organizations (TMOs) are business-oriented organizations tasked with implementing commuter and TDM assistance programs within a given service area. These service areas may be cooperative with a business improvement district, such as the Central Houston TMO, or created independent of such a district. TMOs can be small or large. The typical TMO has a sub regional service area, such as TREK, which serves the Uptown, Galleria, and Greenway Plaza. A study conducted by the TDM Resource Center in 1996 found that TMOs typically reduce a minimum of 6 to 7 percent of total commute trips, and more if implemented in conjunction with transit improvements. A TMO formed in suburban Los Angeles, Warner Center, managed to shift nearly one-third of all commute trips into some form of shared travel.

TMO services vary by organization. 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 promoting alternative transportation, forming vanpools and

carpools, managing parking resources, selling transit passes, promoting the use of bicycle facilities and more. Some of the TMOs also operate a shuttle service within their service area.

## **Houston Area TDM Resources**

### **Commute Solutions**

The purpose of Commute Solutions is to provide a "one-stop" alternative transportation resource in the Houston-Galveston area for both employers and commuters. Commute Solutions provides advice, answers and assistance on commuting options and employee transportation programs. Central strategies of the program are:

- Moving more people in fewer vehicles
- Promoting transportation that does not contribute to congestion and pollution
- Reducing the number of people commuting during rush hours
- Reducing the number of single occupant vehicles
- Eliminating the need to commute to work

Services offered by Commute Solutions include:

**Transit Promotion:** Commute Solutions provides METRO transit maps and bus schedules, and works with employers and TMOs to promote METRO's transit and bus pass sales program (see below).

**Carpool/Vanpool:** Promotes METRO's computerized RideShare Matching Program (see below), vanpool program and the Guaranteed RideHome (GRH) program. Currently, Commute Solutions is offering a special promotion to promote vanpooling. New riders receive the first month free.

**Commuter Services:** Pilot commuter and transit services provided by Commute Solutions are primarily centered in large suburban employment areas. These new services include Park and Ride and fixed route circulators that connect with existing METRO services and shuttles.

**Teleworking:** The Telework Resource Center, a program offered by Commute Solutions, offers assistance at no charge to Houston-Galveston region employers that implement telework programs, including the e-commute program. The Telework Resource Center offers a comprehensive package of technical assistance services, including:

- One-on-one consultation with telework experts
- Presentations designed for upper and middle management
- Design and implementation of telework programs
- Identification and selection of telework programs
- Development of telework policies and agreements
- Sample materials, case studies, and implementation kits

- Program evaluation guidelines and strategies
- Training sessions for employees and managers

**Parking Management:** Commute Solutions provides an analysis of current parking for area employers and produces parking management strategies, such as parking allowances, subsidized parking for carpools and vanpools, or preferential parking for employees who use alternative commuting modes.

**Biking and Walking:** Commute Solutions encourages use of these two alternatives by providing bicycle and pedestrian commuting tips and trail maps, and bike storage facilities in the region.

**Alternative Work Schedules:** Flextime (staggered work hours) and Compressed Work Weeks (more hours per day for fewer days per week) are advocated by Commute Solutions.

## **METRO**

METRO is a regional transportation organization that partners with public and private entities to provide transit, High Occupancy Vehicle (HOV) lanes and rideshare transportation services. In operation since 1979, METRO serves the City of Houston, Bellaire, Bunker Hill Village, El Lago, Hedwig Village, Hilshire Village, Humble, Hunters Creek, Katy, Missouri City, Piney Point, Southside Place, Spring Valley, Taylor Lake Village, and West University Place. Major portions of unincorporated Harris County are also included.

METRO rideshare services include:

**RideSponsor Program:** A discount transit pass program to assist area companies and groups encourage employees and members to ride METRO. Eligible participants are employers with 25 or more employees that ride the bus. Currently, 130 employers receive the 10 percent METRO transit pass discount.

**Rideshare Matching.** RideShare is METRO's free service that uses a computer to match commuters who live and work near each other so that they can form vanpools and carpools. METRO has over 6,000 potential carpools and vanpools in the database. Approximately 75 percent of its requests actually form a vanpool or carpool.

**Vanpool:** METRO currently implements a regional vanpool program: METROVan. The focus of the program is to provide a viable alternative for commuters who currently drive alone. A \$35 incentive is provided by METRO and H-GAC to encourage vanpooling and new riders get the first month free.

While experiencing a dramatic drop in the number of vanpools in the 1990s, the program is once again on the rise. In late 2003, there were approximately 325 vans operating in the area. The program serves Harris, Galveston, Brazoria, Fort Bend, Waller, Montgomery, Liberty, and Chambers counties. METROVan is a joint effort of

H-GAC and METRO with oversight and counsel from TxDOT and the Federal Highway Administration (FHWA). Results from the 2002 METROVan program are:

- A monthly reduction of 3,382,218 - vehicle miles traveled
- An average daily vanpool ridership of 4,084

**Guaranteed RideHome (GRH) Program:** METRO offers a variety of ways for employees to get home by taxi, rental car, company car or other means if they become ill, have a family emergency or need to work late. In 2002, 783 people used GRH from the vanpool program and 67 people used GRH from the park and ride stations.

**HOV Network.** METRO also developed an HOV network with six barrier protected HOV Lanes to better serve buses, vanpools and carpools.

## **TREK**

TREK was formed in 1994 and is the Transportation Management Organization (TMO) serving companies and employees in the Greenway Plaza and Uptown/Galleria area. TREK's goal is to reduce congestion and help clean the air. TREK programs include: emergency ride homes for employees choosing to carpool, ride transit, or bike or walk to work; providing assistance in matching employees for carpools and vanpools; providing discounted METRO bus passes; free holiday shuttles; and the development and implementation of employer commute programs, including transportation fairs to share information with employees on better ways to commute to work. TREK also offers the TREKEXPRESS service from Ft. Bend County and Southwest Houston to Greenway Plaza. In August 2003 this route added 682 more trips over the July ridership, totaling over 5,000 trips.

## **The Bay Area Transportation Partnership**

The TMO serving the Bay Area was formed in 1990 to address the transportation needs in Harris, Galveston, and Brazoria counties. The Bay Area Transportation Partnership (BATP) assists and coordinates regional efforts of employers, government agencies, and others in designing and implementing programs that will support transportation demand management as a means of improving access to and around the Bay Area. BATP provides rideshare matching services to employers, vanpool formation assistance and discounted fares, the Guaranteed RideHome program, and other commute oriented programs.

## **South Main Access and Mobility Center**

The South Main Access & Mobility Center (South Main AMC) is a public-private partnership working to improve access and mobility for organizations and individuals in Houston's South Main Street District. A program of the South Main Center Association (SMCA), the South Main AMC will serve the area bounded by U.S. 59 on the north, SH 288 on the east, West Bellfort on the south, and Kirby Drive on the west. The area includes:

- The Texas Medical Center campus and expansion areas

- Rice University
- Rice Village
- Reliant Park
- Hermann Park
- The Museum District

The South Main AMC emerged in 2003, following a feasibility study sponsored by H-GAC. Nearly 20 area organizations participated in the process, leading to the creation of the South Main AMC. The organization's goals are to enhance area-wide transportation access and mobility systems, improve customer-based access and mobility programs, and set the national standard for program excellence.

## **SECTION 5: Developing and Evaluating a TDM Plan for Corridors**

### **TDM and Corridor Planning Steps**

Developing a TDM Plan for a corridor requires a clear understanding of the application, realistic objectives and commitment from the surrounding community and TDM service providers to participate. Steps to consider include:



*US 59 North HOV Facilities*

- **Clarify need for TDM.** Is the purpose of the TDM element to offset travel and air quality impacts of construction? Is it to mitigate traffic during construction? Is it to support a more balanced array of transportation options? Develop a statement of purpose that has buy in from all interested parties. The TDM plan should address the specific problems facing the corridor and the surrounding community.
- **Meet with Stakeholders in the Corridor.** TDM relies heavily on both public and private participation to be successful. Therefore, invite key stakeholders along the Corridor such as: citizens, governmental transportation authorities, local TMOs, regional organizations, employers, commuters, and even visitors to discuss both real and perceived transportation problems. Engaging those who could be affected by the TDM efforts encourages buy-in and acceptability.
- **Inventory existing TDM service.** Develop an understanding of what is currently available in the region. Figure out how those services could be applied to the corridor plan. Recognize that just because a service organization exists, it doesn't mean that they can automatically provide enhanced services without additional funding. Too often transportation plans throughout the country have identified TDM strategies without an implementer. Without funding and careful coordination with TMOs and their stakeholders, little may be accomplished.
- **Prepare list of strategies.** Work with corridor partners to choose the most appropriate TDM strategies. A list of potential services and strategies should be developed with input from stakeholders and a review of other similar efforts throughout the state and elsewhere in the nation. The list should look at varying levels of application based on funding and stakeholder interest. See Appendix A for a comprehensive list of possible TDM strategies.
- **Test acceptance of strategies with employers and commuters.** It is important to choose strategies that have a realistic chance of succeeding. Find out what is likely to work on the corridor by conducting interviews with employers and focus groups with commuters. Also, consider the administrative and financial aspects of implementing the chosen strategies.

- **Be realistic about partnerships for sustaining the effort.** TDM builds on partnerships with a variety of entities. Roles and responsibilities need to be clearly identified at the beginning of the program. Commitments should be secured for the full project period. Do not assume that service will continue indefinitely if a sustainable funding source cannot be identified.
- **Estimate results.** The program performance could be estimated based on similar experience in other areas, feedback from employers and commuters, and in some cases, estimated using the TDM Model developed for the Federal Highway Administration or COMMUTER model developed by the Environmental Protection Agency.
- **Refine plan to complement the preferred alternative.** TDM needs to serve the core effort of the corridor plan. For example, if the plan is to build rail, TDM should promote ridership, support station access and in some cases, address travel that cannot be accommodated by the preferred alternative. Additionally, TDM can help to mitigate traffic during construction.

### **The Corridor TDM Plan**

TDM strategies can play a variety of roles in corridor projects, including construction traffic mitigation, building ridership in transit investments, and maximizing the effectiveness of corridor improvements. Community and corridor-specific goals serve as the basis for selecting a specific combination of corridor TDM strategies. In addition to these broader goals, establishing more narrowly defined goals for the TDM program itself will determine the way in which individual TDM strategies are implemented. Developing an implementation plan designed to achieve desired project goals should involve:

- Creating general and/or specific goals for the program
- Developing a time-frame to achieve these goals
- Establishing targets to assess incremental progress
- Developing a system to measure cost-effectiveness and track success

The overall goals for a corridor TDM plan will likely depend on the specific way in which TDM will fit into the overall corridor improvement plan. Will TDM strategies be used to complement and support a major investment strategy (roadway widening, transit investments, etc.)? Will TDM elements be used primarily as a construction mitigation technique? The types of goals for the TDM program can vary.

TDM goals can be general, as in the following:

- Improve mobility options in the corridor
- Promote enhanced utilization of transit options
- Improve community awareness of various travel and route alternatives during construction
- Shift travel demand to off-peak times or alternative routes during construction periods
- Reduce vehicle miles traveled
- Increase overall vehicle occupancy
- Establish a TMO

- Help improve business climate
- Help improve air quality

TDM goals can also be very specific, as in the following:

- Maintain current Level of Service at key intersections
- Reduce traffic volumes at key corridor intersections
- Reduce vehicle miles traveled by 7 percent over the 15 years
- Shift 5 percent of all trips to alternative modes over 10 years

In most cases, the goals established for a TDM program will include a combination of general and specific measures of success. TDM strategies often attempt to address a wide variety of corridor concerns. As such, the goals established for a TDM program should track both traditional transportation measures of success and more broad-based economic and quality-of-life indicators. This approach recognizes that the quality of a transportation network is not only defined by its ability to move people from point to point, but also by its ability to support wider community or corridor-specific goals.

### **Evaluating the Program**

TDM evaluation efforts attempt to determine how, when and where individual travel behavior is modified in response to the strategies employed as part of the TDM effort. While measuring and evaluating individual TDM strategies can be a complex endeavor, the more work that is done early on, the more useful evaluation efforts will be down the road. Working with local employers, property managers and neighboring communities, evaluation efforts can provide consistent measures of cost and effectiveness that will prove invaluable in assessing the achievements of the TDM program. The ability to cite reliable and accurate data regarding the success or failure of individual TDM strategies, and of the TDM program as a whole, can generate further support for programs that work.

The most important part of the evaluation process involves the collection of baseline data. The types of data collected should be based on the goals established for the TDM plan. For example, efforts to reduce the vehicle occupancy of home-based work trips must begin with an assessment of current occupancy conditions. Efforts to maintain current levels of service at key intersections should begin with an analysis of current traffic volumes, level of service and hours of delay. While these sometimes cumbersome analyses may increase the initial cost of implementing a package of TDM strategies, reliable baseline measurements are critical to long-term program evaluation.

Baseline measures of TDM effectiveness can include a wide range of quantitative and qualitative information. For example:

- Average vehicle occupancy (peak-period, all day avg.)
- Awareness of transportation or route alternatives
- Awareness of TDM incentives or transit pass programs
- Number of vanpools operating in the corridor
- Number of transit passes sold at area employment sites
- Total vehicle miles traveled in the corridor
- Vehicle emissions / vehicle miles traveled (VMT)

When creating a TDM implementation plan, community leaders, regional planning agencies and area businesses should clarify TDM goals and time frames, establish timeframes for success, and set parameters for measurement.

### ***Tracking Air Quality Benefits***

For many areas, tracking air quality benefits is an important element of a TDM program. The majority of public funding agencies require quantification of vehicle emission reductions as part of their funding process. The Texas Commission on Environmental Quality (TCEQ) implements air quality legislation and sets policy for the Houston area.

### ***Other Evaluation Resources***

*A Guidance Manual for Implementing Effective Employer-based Travel Demand Management Programs.* FHWA / FTA 1993. This manual “offers guidance on selecting TDM strategies to produce a needed level of trip reduction. The manual presents a series of worksheets and look-up tables with which you can estimate trip reduction impacts of individual TDM strategies and packages of strategies. These tables can be used to test the trip reduction impacts of various packages of TDM strategies you might be considering.” This manual may be found online at: <http://ntl.bts.gov/DOCS/474.html>

## **SECTION 6: National Experience with Implementation**

TDM has been implemented in many corridor projects throughout the country. More successful applications of TDM in corridors are articulated below.

### **State of Washington, Puget Sound Region, I-405 Corridor TDM Program**

Like many urban corridors, I-405 in the Seattle area has experienced increasing congestion. In response, the Washington State Department of Transportation (WSDOT) recently conducted an Environmental Impact Statement (EIS) to review four build alternatives for the corridor. Regardless as to which of the four alternatives was selected, WSDOT planned and implemented a comprehensive corridor TDM program with consistent strategies across all four alternatives.

WSDOT promotes a few core components about the I-405 Corridor TDM Program:

- Existing public and private TDM efforts will continue, with expansion in new and growing markets
- TDM is implemented by an alliance of regional and local entities
- Strategies are flexible, to respond to the needs of travelers
- TDM is funded through demonstration projects and ongoing funding by WSDOT

Specific strategies enacted by the Corridor TDM Program include:

- Vanpools and transit. In support of the goal to add 2,000 new vanpools in the next 20 years, WSDOT provides financial incentives to both users and providers of vanpools. For potential users, WSDOT finances an ongoing vanpool marketing program, a 50 percent vanpool fare subsidy for users of the corridor, and “value-added” incentives (such as frequent flyer miles). For providers, WSDOT provides a revolving no-interest loan fund for purchasing vans, owner-operated vanpool promotion, and other start-up subsidies. Transit subsidies, innovative demonstration programs for smart card technologies, state tax credits, and park and ride support are included, as well.
- Public information, education, and promotion. The TDM program’s information emphasis is on helping travelers plan TDM-friendly trips in the corridor. This includes trip-planning assistance for transit, interactive ridematching, and other awareness programs.
- Employer-based programs. An extensive employer based TDM effort is conducted for the whole corridor, in order to reduce single occupant vehicle commuting and vehicle miles traveled to worksites in the corridor. Efforts include: telework, alternative work arrangements, tax credits and other incentives for commute behavior, support for TMAs, parking cash-out incentives and financing, and an expansion of the Commute Trip Reduction (CTR) program to smaller employers.
- TDM friendly land use. TDM friendly site design and land use efforts include broad transit oriented development planning, code changes that support TDM friendly redevelopment, design review support to local jurisdictions, developer and business incentives, and parking management programs.

WSDOT has identified success factors in the I-405 Corridor EIS planning process:

- The packaging of TDM strategies was approved by all key decision makers in the corridor, marking the first time TDM had been identified and approved in the early months of a major planning process
- There is wide acceptance of TDM cost effectiveness across corridor stakeholders. This acceptance included not only public officials and decision makers, but also corridor citizens.
- TDM has been identified as the quickest and cheapest multi-modal option for the corridor. As such, the implementation is fast-tracked while build-based alternatives are arranged.

The I-405 Corridor TDM Program has a 20-year estimated cost of \$350-400 M (\$11-13 M per mile), yielding a 2 – 5 percent reduction of trips.

### **State of Delaware Philadelphia / Wilmington area, I-95 Integrated Transportation Management Effort**

I-95 serves as the principal connection between Philadelphia, Wilmington, and Baltimore. Reconstruction of I-95 in northern Delaware (New Castle County) was recently initiated by the Delaware Department of Transportation (DelDOT), with the focus on reconstruction, highway widening, and capacity improvements. Construction began in 2000 on the “North Section” (north of Wilmington and south of the Pennsylvania border). Additional construction activities will occur in the Wilmington area over the next few years.

In preparation for this project, DelDOT has worked with Transportation Management Association (TMA) Delaware and the Delaware Administration for Regional Transit (DART First State) to help mitigate construction impacts, and, to build the use of alternatives for the long-term. The term DelDOT uses for TDM efforts is “Integrated Transportation Management”, whereby the focus is not simply on demand oriented strategies, but also how TDM can be used in conjunction with TSM strategies to best manage existing infrastructure.

One of the first tasks was identifying an “inverse mascot” – the Traffic Creep. The Traffic Creep “thrives on traffic congestion and smiles when he keeps drivers waiting in long lines.” Travelers are encouraged to make the Traffic Creep unhappy by riding transit and ridesharing. Specific efforts that have been intensified in the I-95 Corridor include:

- Corridor ridematching. TMA Delaware and DART conduct coordinated and targeted ridematching for the I-95 Corridor. Registration for ridematching automatically includes the “Home Free Guarantee”. About 5,000 carpoolers have registered since August 2000.
- Transit promotion. Bus and rail transit promotion occurs throughout the Corridor, with focus upon new services that enhance convenience (such as the DARTCard, an electronic fare collection system). Marketing efforts highlight the cost and time advantages of using transit to Wilmington.
- Employer workshops. Over 60 large employers in Wilmington have sponsored workshops on site for showing construction and traffic avoidance options to employees. These workshops, accompanied by a permanent “Commuter Corner” to be installed at offices,

include information on how to rideshare and use transit throughout the reconstruction efforts. These workshops & commuter corners have reached 30,000 commuters.

### **State of Utah, Salt Lake City area, Wasatch Front Corridor TDM Program**

TDM got its start in the Salt Lake City metropolitan area as a result of concern regarding pending reconstruction of the I-15 Corridor. Coupled with the need to address long-term growth planning through efficiency-maximizing strategies, the Salt Lake Area Chamber of Commerce formed a partnership with the Utah Department of Transportation (UDOT), Utah Transit Agency (UTA) Wasatch Front Regional Council, and other governmental agencies to develop a comprehensive TDM program for the Corridor and a regional TMA.

Over time, the TMA became the principal representative for business concerns to UDOT, UTA, and the construction contractors. This was an important role, as construction along Main Street for the new TRAX Light Rail Transit system began to impede upon business operators' stream of revenue. The TMA of Utah is the primary conduit for business and employer outreach in the I-15 (Wasatch Front) Corridor. However, UDOT and UTA are the primary agencies responsible for delivering TDM services to the Corridor.

Specific strategies that were enacted include:

- Community Coordination Team. Demand management starts with coordinating the business community around corridor improvement projects. The Community Coordination Team (CCT) is a representative body of small and large groups within the corridor. They are tasked with reviewing month-to-month construction activities and developing targeted demand management strategies with employers and neighborhoods that will be particularly affected in the months ahead.
- Demand-management focused contractor bonus. The TMA of Utah and the CCT have control over a corridor reconstruction effort's bonus to be paid to the design/build contractor. If the contractor satisfies business and commuter concerns, it receives a bonus; if the contractor does not satisfy demand management concerns, then bonuses are not awarded.
- Employer-based programs. An extensive employer based TDM effort is conducted for the whole corridor, in order to reduce single occupant vehicle commuting and minimize construction impacts. Efforts include: telework, alternative work arrangements, leased and no interest van pool programs, co-op and ECO transit passes, tax credits and other incentives for commute behavior, Guaranteed RideHome, vanpool and carpool matching, and Commuter Choice promotion.

### **State of Colorado, Denver I-25 Corridor T-REX (Transportation Expansion Project)**

The locally preferred alternative resulting from a MIS conducted for the I-25 corridor traveling through downtown Denver, Colorado was a new light rail line. When political leadership changed, an additional travel lane was also added to the project. TDM was added as an element of the project to complement and enhance the benefits of the light rail and roadway expansion. TDM was also added with the goal of offsetting environmental impacts, reducing trips, and mitigating community impacts during construction. A comprehensive TDM plan for construction mitigation and post construction activities was developed.

The Colorado Department of Transportation (CDOT) and the Regional Transportation District (RTD) are currently overseeing the construction of the project. Three million was set-aside for six-year construction mitigation, and TDM was a primary mitigation tool. In partnership with the Denver Regional Council of Governments (DRCOG), area TMOs, and Business Associations a TDM strategy, called the T-REX TransOptions Program, was developed and implemented.

The program includes:

- Subsidies for transit and vanpool commuters who travel to, through, or from the T-REX Corridor. First-time vanpoolers can receive 50 percent off of their first three months' fares. Commuters in the corridor are also eligible to purchase an eight-month transit pass (ValuPass) and ride for 12.
- Employers within corridor, as well as employers that have 10 percent of employees that travel to or through corridor, can receive the T-REX discount of 50 percent off the face value of "Commuter Checks" up to a maximum of \$10,000. Commuter Checks are transit vouchers accepted for the purchase of transit passes or tickets and vanpool usage. They are also used as an alternative to free or discounted employee parking, or as a bonus/incentive to offer employees. Employers are also eligible to purchase the annual bus/light rail pass (Eco Pass) at 50 percent off (up to a maximum of \$10,000) and the ValuPass for individual employees.
- Temporary Bus/HOV (High Occupancy Vehicle) lanes operate in each direction in the inside lanes (nearest the median) of I-25. These lanes are offered exclusively to buses, motorists who participate in carpool (two or more persons in a vehicle), vanpools and motorcycles during peak drive times. Peak hours are from 6 a.m. to 9 a.m. and again from 3 p.m. to 6:30 p.m., Monday through Friday. At all other times, these lanes are open to all motorists.

T-REX staff is in charge of the marketing and public outreach for these programs. They partner and provide funding to DRCOG and the TMOs, recognizing that these organizations have existing relationships with employers. T-REX also provides mini-grants to TMOs for specific marketing and outreach programs.

Evaluation of the program showed reduced vehicle miles traveled (VMT) and an increased usage of alternative modes. Thus far, the subsidies provided by TransOptions have reduced a minimum of 74,800 VMT. Due to the success of the T-REX TransOptions program, CDOT is now reviewing TDM as a construction mitigation tool in future corridor projects.

## **APPENDIX A: TDM Strategies for Corridor Projects**

The following section defines the key strategies and support strategies for TDM. A variety of strategies are used to influence the demand on the transportation system. These strategies focus on encouraging different forms of travel and alternative work arrangements. Transportation modes include carpooling, vanpooling, public transit, bicycling and walking. Alternative work arrangements include flextime, compressed work weeks, and teleworking.

The following is a list of potential TDM strategies for corridor projects. Each alternative is introduced in three levels of potential application. The level demonstrates both the intensity of application and possible resource commitment needed. The three levels are defined as:

**Basic** – using existing resources to implement the alternative in the area or services that are relatively common and readily available.

**Enhanced** – applying strategies from similar successful applications and adding resources to the basic services.

**Aggressive** – moving beyond current experiences from around the country to create a new level of implementation. In some cases, concepts may be experimental.

These terms may be different depending on the community. What might be basic in Houston or Austin could require a significant investment in El Paso or Corpus Christi. Check with local implementers, such as METRO, the Commute Solutions program at the Houston-Galveston Area Council, or with the Texas Department of Transportation to learn what is available.

### **Carpooling**

Defined as two or more people sharing a ride in a car, carpools are the most common and flexible way for commuters to share a ride. More informal than a vanpool and more flexible than public transit, carpools generally have two or more passengers who live in the same neighborhood or along the same route using a private vehicle to travel to common or nearby destinations. One person may drive every day, with passengers sharing the cost of gas and/or parking expenses, or participants may rotate driving responsibilities, circumventing the need to reimburse the driver. Carpooling seems to be most appealing to people who commute at least ten miles or whose trip to work takes at least 30 minutes.

#### **Basic**

- Promote online ridematching.
- Conduct annual carpooling registration surveys at all sites with 50 or more employees.
- Work with property managers/owners to distribute registration surveys at sites with smaller employers (less than 50 employees).
- Encourage prize drawing and promotional events at work sites.
- Offer Guaranteed RideHome.

### **Enhanced**

- Create Commuter Club incentive program (see Incentives for more details).
- Incorporate TDM-friendly site design and facility improvements (see Site Design for more details).
- Require preferential parking at work sites in the area (ten percent of all employee spaces).

### **Aggressive**

- Charge for parking and/or require a transportation allowances at work sites in the area (see Parking Management for more detail).
- Create for-profit carpooling as part of a regional Smart Shuttle program (demand responsive dispatch, etc.)
- Create HOV facilities on and around corridor.

Typically, carpooling accounts for 5 to 10 percent of travel in an urbanized area. Aggressive carpooling efforts may be able to achieve a 25 percent mode share at participating work sites in urban and suburban locations.

### ***Considerations***

Carpooling is all about trust. The majority of active carpoolers are spouses, relatives, neighbors and co-workers. Why? Sharing a ride to work with someone requires a significant amount of trust – trust that your ride will show up every morning and trust that your ride will be safe and pleasant. If a community promotes carpooling, it must address the necessity for trust.

Carpools can be relatively convenient. Carpooling with a spouse, neighbor or co-worker reduces the amount of time lost at one or both ends of the journey. Time is often cited as the most important element driving individual commute decisions. While some time is naturally lost picking up and dropping off passengers, the private and public sectors can work together to offset lost time with carpool travel lanes, parking, or financial incentives.

Marketing commuting costs helps in developing a successful carpool environment. Carpooling with family members or spouses can eliminate the need for a second car or greatly reduce the wear and tear placed on a second vehicle. Similarly, reimbursements from passengers can significantly reduce commuting expenses. Financial incentives from public and private sources can create cost benefits, which outweigh losses in either comfort or convenience.

### **Vanpooling**

Vanpooling can provide a realistic alternative for groups that travel over 15 miles to their jobs or to school. Generally, vanpools work best for groups of 6 to 15 people who live relatively close to each other and work for the same employer or for employers in the same general area. One of the members of the vanpool can drive or participants can alternate driving responsibility.

Vanpool programs can be structured in one of three ways:

**1. Owner Operator** – This approach allows individuals to purchase a van and charge passengers for commuting costs only (not for profit). These programs can be supported by subsidies from employers or facilitation from public agencies. With owner-operated vanpools, the maintenance and insurance costs are paid by individual owners. In some areas, public agencies and private, non-profit groups have encouraged owner-operated vanpools through offering low-interest loans, arranging for the purchase of vehicles at wholesale prices and helping operators secure better maintenance and insurance rates.

**2. Employer sponsored** – Companies purchase vans, provide insurance and maintenance and administer ridesharing. Employers have the option of either purchasing or leasing vehicles, with cost recovered through passenger fares, reduced parking, and improved employee productivity.

**3. Third-party Programs** – This setup involves a ridesharing organization (e.g., H-GAC's Commute Solutions program), public agency (e.g., METRO), public-private partnerships or van leasing companies (e.g., VPSI, Enterprise Vanpool). Leasing and maintenance are handled by the third-party. Van drivers are often allowed to drive for free and use the vehicle for some personal travel not to exceed a certain amount each month (e.g., 100 miles per month).

#### **Basic**

- Provide matching service for vanpooling.
- Host ZIP code meetings at worksites (commuter from similar ZIP code get together for a brown bag lunch to meet each other).
- Cover the cost of empty seats for up to three months to avoid rate fluctuation for other riders.
- Offer Guaranteed RideHome.

#### **Enhanced**

- Use third-party vendor and subsidize a quarter or half of the operating cost. Or, purchase vans for employers in the area. Provide funds for maintenance and replacement.
- Create "Quick Start" strategy that provides a variety of incentives for first time riders that continue for at least six months (e.g., child care vouchers, prizes, etc.).
- Implement Commuter Club.
- Incorporate TDM-friendly site design and facility improvements (see Site Design for more details).
- Require preferential parking at work sites in the area.

#### **Aggressive**

- Create flex-van service (demand responsive, curb-to-curb service) with paid drivers.
- Create HOV facilities.

### ***Considerations***

Vanpools are an attractive alternative to transit. Vanpooling provides the convenience of door-to-door service and the cost-savings associated with splitting commute costs. Participants dramatically reduce the wear and tear on their personal vehicles, avoid the stress frequently associated with longer commutes and parking, and reduce the demand for parking spaces at worksites and congested commercial areas.

Vanpools can be used for attracting employees. Employers can expand their labor market by coordinating vanpools for workers living in nearby towns. In some scenarios, vanpools offer greater convenience than transit by providing employees tailored transportation services designed to fit commute patterns and work schedules.

Attracting passengers is the principle concern for vanpools. Convincing employees to leave their cars at home, even a few days a week, means providing an alternative that is reasonably comfortable and convenient. Perhaps most important, however, is developing an alternative that is also cheaper than driving. Vanpools offer a uniquely cost-effective alternative by carrying six or more people. Dividing commute costs between six people can result in significant savings. The key ingredient, of course, is ensuring the sufficient number of vanpool participants.

Partnerships enable successful vanpool programs. Forging partnerships between local employers, public agencies and non-profit groups to market vanpool programs and creating public-private partnerships to facilitate ridematching and promotional efforts are both important components in developing a base of vanpool users.

### **Transit**

Transit provides passenger service to the general public. Key principles of transit include: predetermined schedules, standard fares, and either local and/or regional service. Local transit service generally operates within one community or area. Regional services connect rural areas or distant communities to a larger town or regional center. Typically in Texas, the public sector operates local transit services and many regional services; however, the regional and intercity bus services operated by the private sector are also an important part of the transit network.

Employers and others can support transit use through transit pass subsidies and assistance in purchasing passes. Area employers frequently request links to park-and-ride locations to improve access to transit.

### **Basic**

- Encourage employers to subsidize employee bus passes.
- Offer Guaranteed RideHome.
- Improve bus stops and shelters.

### **Enhanced**

- Implement Commuter Club.
- Incorporate TDM-friendly site design and facility improvements (see Site Design for more details).
- Develop feeder services to local park-&-ride locations (shuttles, jitneys, etc.).

### **Aggressive**

- Provide bus passes to all employees and residents of the area.
- Provide light rail, commuter rail and/or guided bus services.

### **Considerations**

Transit is not just an urban solution. Transit service is increasingly important to rural communities as well as to communities that have employees but not jobs. While it is common to think of transit as something that works in downtown Houston, several of the Houston area's recent transit investments have been in small towns. For example, the Colorado Valley Transit Authority provides transit service in and around the Prairie View area on northwest US 290, providing services to Waller County residents. Rural transit often provides rides to people who do not have access to a vehicle or who are unable to drive, provides access to employment opportunities, and reduces the numbers of cars on the road in congested corridors.

Size doesn't matter. Generally, transit is thought of as big buses operating on city streets. But there are many types of transit services, each appropriate to different sizes and types of communities. Today's transit systems provide a wide range of services that can be tailored to meet the needs of each community:

- Fixed route bus service is often used in communities over 20,000 in population, or in an economy with a strong visitor or college sector.
- Demand response services, sometimes known as "dial-a-ride" services, are often more appropriate in smaller communities.
- Fixed and flexible routing combinations may best suit communities between 10,000 and 20,000.

Transit is an important alternative transportation option in its own right. As a shared ride service, it can offer greater flexibility than carpools or vanpools. With a carpool or vanpool, you have one departure time. While with transit, you can often take a later bus. Transit is a natural travel complement. Some people take the bus when they cannot make their vanpool or carpool schedule. Having transit available makes being in town without a car much more appealing to people who may carpool, vanpool, bicycle, walk, or simply catch an odd trip into town with a friend or family member.

### **Bicycling and Walking**

Walking is often overlooked as an alternative form of travel due to distances involved. However, walking can be the perfect complement to other TDM strategies, such as transit and carpool programs. A safe and convenient environment for pedestrians can dramatically increase the

number of commuters walking to offices, stores, or schools during the day. Walking then enables sharing a ride or taking the bus as a realistic commute alternative.

Similar to walking, bicycling can serve as a complement to transit services, extending the reach of alternative modes of travel to commuters. Furthermore, employers and employees realize a wide array of benefits by enhancing bicycle facilities and promoting bicycle commuting. Bike and pedestrian amenities, as well as incentives are critical in encouraging these modes.

### **Basic**

- Provide bicycle information to employees.
- Support "Bike to Work" week.
- Encourage walking to work where feasible.
- Offer Guaranteed RideHome.

### **Enhanced**

- Create safe and convenient bicycle route and pedestrian amenities throughout the area.
- Promote local (within two miles) real estate information to new employees.
- Implement Commuter Club.
- Incorporate TDM-friendly site design and facility improvements (see Site Design for more details).

### **Aggressive**

- Offer bike loan program.

### ***Considerations***

Walking is limited to people that live in close proximity to work. Generally, the further the distance, the less likely someone is willing to walk to work. This can affect the viability of pedestrian investments for a corridor.

Pedestrian investments can assist economic redevelopment. In many areas, traditional commercial centers have been revitalized through a series of pedestrian improvements. The interest in enhancing these "Main Street" districts ranges from improving the business climate to preserving small town character. The walkability of the town center often represents its best quality, allowing residents to window shop on weekends and workers to run errands after work.

Bicycling can help employees save money and maintain their health. Employees who bicycle more and drive less save significant amounts of money on fuel, vehicle maintenance, parking and even automobile insurance. The health benefits associated with riding to and from work, even a few days week, have been associated with increased productivity, decreased absenteeism and reduced stress.

Bicycle commuting can also save employers costly overhead. Employers with active bicycle commuting programs can save money on parking spaces and health insurance. The design, construction, maintenance, and property tax costs associated with providing employee parking are extremely high. With 10-15 bikes fitting in the same space as one automobile space, increasing the number of employees bicycling to work can yield substantial cost savings, reduce

the size of parking lots, and open up more spaces for revenue-generating customers. Health insurance rates may be reduced with healthier employees, who file fewer medical claims.

## **Teleworking**

Simply defined, teleworking is working at home or another off site location, full- or part-time. While employees may be hooked up to the main office via a sophisticated computer network, it is possible to telework, with as little as a pen, paper and phone.

Jobs are more portable than they once were. The U.S. used to be largely an industrial nation. In fact, in 1950 only 17 percent of workers were in information or service businesses like sales, public relations, personnel, banking, healthcare and publishing. By the 1997 US Economic and Government Censuses, that number grew to more than half of all private-, non-profit, and public-sector employees nationwide.

While these factors may make it possible to telework, others may make it necessary. Some of the changes in our lifestyles are dictating a need for change in our work styles. The standard “nine to five” schedule was designed around a traditional family that does not exist anymore. Picking up and dropping off small children at day-care, arranging after school care – or even handling the growing demand of elder care – cause many employees to need more flexibility in their schedules. While teleworking is not a substitute for childcare, it can allow some workers much-needed freedom.

Some of the benefits of teleworking include:

- Increased productivity
- Savings on facility costs
- Reduced absenteeism
- Recruitment and retention
- Improved customer service
- Business continuity in the event of an emergency or disaster
- Reduced traffic congestion and improved air quality

## **Telework Options:**

**At Home** – Currently the most popular option, this one involves little or no outlay in time or cash for employers. Some employers only allow employees that have home computers to telecommute. Others may provide portable computers to help those that would otherwise not be able to work from home.

**At Satellite Work Centers** – Often confused with “branch offices,” satellite work centers differ in one important respect: all the people who work at them also live near them. For example, if an employer in Katy had many employees living in Galveston, the employer could lease office space in Galveston for the occasional use of employees. The employees’ managers would continue to work from the main office.

**At Neighborhood Work Centers** – Similarly, neighborhood work centers provide an opportunity for employees to work closer to home – in this case, in office facilities with

employees of other firms. Tenants in a neighborhood work center usually share support services, such as clerical help, telecommunications equipment, photocopying machines and office supplies.

#### **Basic**

- Offer implementation assistance to employers including development of policies and procedures, employee orientation, and program evaluation.
- Promote benefits to management.

#### **Enhanced**

- Offer start up grants to employers to cover the cost of additional equipment for people that work from home.
- Promote teleworking at the home-end.

#### **Aggressive**

- Create telecenters throughout the area.

#### ***Considerations***

Teleworking increases options. Perhaps the main reason people are teleworking now is simply because they can. In the United States, 15.7 million people telework (AT&T Survey, 1998), consisting of company employees working at home or another off site location, on a full- or part-time basis.

Teleworking can mitigate disruptions in a disaster. Employees' home offices become a community's hidden asset when an emergency occurs. During a major storm in central New Jersey, teleworkers at Bellcore and American Express Travel maintained their productivity while many of their office counterparts missed work for a whole week. Teleworking helped get the newspaper out after a fire at the Dallas Times Herald. It also kept people at the California State Public Utilities Commission working productively at home after an earthquake.

#### **Variable Work Hours**

Public agencies can promote variable work hour strategies to employers, to help to reduce congestion, spread out the peak or help travelers adjust their schedule to catch the bus or form a carpool arrangement. This can help significantly during a reconstruction effort. Strategies include:

**Flextime** – With a flextime program, employees work five eight-hour days each week, but they are allowed to choose their work arrival and departure times, as well as the length of their lunch break. Flex-time programs generally require employees to be present during a specified “core” time when meetings or other company-wide events are scheduled.

Note: a flextime schedule allows employees to work early or late, depending on their personal preferences. Some may come to work at 6 a.m. and leave at 3 p.m., while others will arrive at 9:30 a.m. and work until 6:30 p.m. However, all employees must complete their usual number of hours by the end of each workday.

**Compressed Workweeks** – In a compressed workweek, employees complete their required number of work hours in fewer-than-normal days per week (or per pay period). This arrangement allows employees to have one or two days off each week or one day off every other week, depending upon which type of compressed work week program you prefer.

The two most popular compressed workweek schedules are the 4/40 and 9/80 programs, although other variations also exist.

- **4/40 Program** – Employees work four 10-hour days each week, with the fifth day off. To ensure five-day coverage, you may want to consider having half the company take Mondays off and half take Fridays off.
- **9/80 Program** – Employees work 80 hours in nine days, with the 10th day off. This schedule usually translates to eight 9-hour days and one 8-hour day (this shorter day is often the Friday that the employee works). In a company with two major work groups, each group might take off alternating Fridays.
- **3/12 Program** – Employees work three 12-hour days each week, with two days off.

**Staggered Work Hours** – This concept involves spreading out employee arrival and departure times by anywhere from 15 minutes to two hours. By staggering these “shifts,” you can help reduce bottlenecks in employee parking lots, in streets at the entrance to your office park or building, and even in elevators. Communities have asked businesses to voluntarily stagger their start and stop times to reduce localized traffic problems especially during construction.

#### **Basic**

- Offer implementation assistance to employers including development of policies and procedures, employee orientation, and program evaluation.
- Promote benefits to management.

#### **Enhanced**

- Offer start up grants to employers to cover the cost of implementation.
- Coordinate schedules and options between employers.

#### **Aggressive**

- Provide employers with incentives to implement compressed workweek schedules. For example, get a portion of the companies to minimize operations one day each week by working 10-hour days. If the non-work days are spread out over the week, it could result in as much as a 20 percent reduction in commute trips in and out of the area.

#### **Considerations**

In any alternative work arrangement program, there must be adequate coverage in the office for employees who are taking their day off. Generally, this means that not everyone takes the same day off.

- Employers may want to rotate days off every six months so that every employee gets a three-day weekend.

- Another option is for small departments or work groups to have everyone take the same day off and simply close down the department for the day. This is common for public agencies extending customer service hours.
- To encourage ridesharing, you may want to give carpoolers, vanpoolers and employees who ride the bus “day off” preference over non-ridesharers.
- Employees who must attend important meetings may change their scheduled day off with advance notice.
- Some employees may need to be exempt from the alternative work arrangement program because of childcare duties, medical reasons, or conflicts with school.

### **TDM Support Strategies for Corridors**

Support strategies enhance the effectiveness of the various modal options described in the previous section. Support strategies are too often ignored in developing programs, as they are not as immediately apparent as are the core modal strategies. It should be noted that research clearly shows that without the support strategies, rarely can any of the modal options independently succeed.

### **Ridematching**

Ridematching is a service that identifies people that live and work close to each other. The idea is that if you know someone that lives close by, you may decide to share the ride together and leave a car at home. Matching services can offer full-time partners or a person to call in the case of an emergency. For example, hospitals in cold-weather environments match up key personnel who own four-wheel drive vehicles with other essential staff to help get people to work.

Ridematching is usually done through a computerized matching system, currently operated by METRO and utilized by Commute Solutions program partners. A variety of vendors have developed inexpensive, effective software for matching. The system identifies people living within the same grid that work at the same location. Some systems can match people from area park-&-ride lots or from childcare facilities. Employees simply fill out a brief ridematching form that requests information about work schedule, days of travel, nearest cross streets to their home and their work location.

Ridematching systems are set up to respect confidentiality. Most systems provide the prospective rideshare partner with the work telephone number only. One town has developed a portable system that they can take to work sites and provide matching services over the lunch break for employees.

Increasingly, ridematching services are being offered online. Travelers can find a person to share the ride by use of the Internet or from information kiosks set up at local transportation, community or retail centers.

Less sophisticated, non-computerized systems have been developed by employers using index cards and bulletin boards to help match people. At the work site, matching can be as simple as plotting the home locations of employees on a map and then hosting brown-bag lunches for

those employees that live in the same areas. The idea is that when people become more comfortable with their neighbor, they may be more likely to share the ride to work.

When you have nine or 10 people who are willing to share the ride from a particular area, the carpools can be consolidated into a van. Ridematching can continue to bring in new riders to the vans.

Ridematching is most effective when offered region-wide. The larger the database, the more likely the system will find a good match. Government agencies have typically managed ridematching services in their community. Ridematching services are eligible expenses under a variety of state and federal funding categories.

### **Site Design and Facility Improvements**

A variety of facility improvements can be pursued in the area to support the use of TDM. These improvements should be required by local jurisdiction in all new developments. The following is a list of improvements.

#### **Pedestrian Walkways:**

- Minimize opportunities for pedestrian/ auto conflicts by separating roads and parking from pedestrian walkways, consolidating driveways, creating safe pedestrian crossings and providing continuous sidewalks.
- Connect all buildings with walkways.
- Provide sidewalks that are at least five feet wide (eight feet or more for sidewalks adjacent to bus stops) along major streets. A minimum of a 5-foot buffer should be created between the walking area and adjacent traffic lanes.
- Consider using trees and other landscaping as part of the buffer zone (people will walk further in a quality pedestrian environment).
- Eliminate physical barriers such as poles and fences that can block passenger traffic.
- Be sure to include ample lighting for nighttime safety.
- Provide curb cuts for persons with disabilities.

#### **Building Orientation:**

- Reduce building set backs to allow better street access for transit users and pedestrians (locate the parking behind the building).
- Cluster buildings and avoid campus-type office development that discourages pedestrian and bicycles travel.
- Provide front door access by transit and pedestrians.

#### **Passenger Loading Areas:**

- Offer a turnout lane for passenger drop off in front of the building. Be sure to provide adequate space for cars so as to avoid a "lineup" that could block traffic during peak commute hours.
- Provide passenger shelters.

#### **Transit Access and Visibility:**

- Bus stops should be within 500 to 1,000 feet of the building entrance.

- Orient building entrance toward public transportation facilities, not parking lots.
- At high volume stops, bus shelters, outside seating and trash receptacles should be provided.
- At low volume stops, bus benches and trash receptacles should be provided.

**Bicycle Amenities:**

- Provide bicycle storage. For short-term storage, provide racks to accommodate two to five bicycle spaces for every 100 automobile parking spaces. For long term storage and better protection from weather and vandalism, provide bicycle lockers.
- Consider bike paths and lanes. For a two-way, off street bike path: the width should be around 8 - 12 feet with a 2-foot graded shoulder on each side. For a bike path shared with pedestrian traffic: an additional 2½-foot minimum separation between bicyclists and pedestrians is needed. For a bike lane adjacent to a street: depending on whether or not the particular street allows parking, the width should be between 3 and 5 feet.
- Make linkages to the regional bike path system.
- Install additional amenities such as showers, changing rooms and clothing lockers.

**Amount and Location of Parking:**

- Explore opportunities for shared parking with neighboring facilities. Large, ample parking areas can be an inefficient use of land.
- Parking lots should be screened from adjacent sidewalks and streets by a wall, hedge or berm. The recommended height for a wall is 30 to 36 inches.
- Consider charging for parking. Where appropriate, paid parking can cut the number of people driving alone by up to 20 percent.

**Garage Height Clearance for Van Vehicles:**

- Adjust parking structure ceiling heights to allow for vanpool access. The minimum ceiling height for vanpools is 8 feet 2 inches.

**Access to Services and Amenities:**

- For large facilities, create a “village” atmosphere where employees don’t have to take their cars out during the day. Some amenities include:
  - Restaurants
  - Convenience Stores
  - Banks or ATMs
  - Childcare Facilities
  - Post Offices or vending machine
  - Health Clubs
  - Cappuccino/Coffee Bars
  - Dry Cleaners
  - Bookstores
  - Shoe Repair Shops
  - News and Magazine Stands
- For smaller facilities, provide pedestrian linkages to nearby amenities.

**Transportation Information Board or Kiosk:**

- Provide transportation information on a bulletin board, display rack or kiosk. Include local bus and rail maps and schedules, carpool matching information, available vanpools to the area and regional bike routes.
- Place the information in a high-traffic area such as a building lobby or cafeteria.
- For large facilities, consider a transportation office or commuter store that could provide direct assistance to commuters. The center could be incorporated into the building management office or be staffed by a TMO.

## **Parking Management**

Parking management includes three strategies: preferential parking, parking pricing and the transportation allowance.

**Preferential Parking** – Preferential parking is a means of offering employees that carpool or vanpool a qualitative advantage over those that drive alone. This strategy is one of the most common incentives offered by employers. What makes the preferential arrangement desirable depends upon employees' interests. Typically, this is done by reserving the spaces closest to the door for ridesharers; however, it can be any space or arrangement that the employee chooses as "preferred". Some employers will set aside ten percent of all spaces for preferential use and restripe the spaces. Others prefer to make the spaces available as demand increases.

One challenge in administering a preferential parking program is policing the use of the space. Many employers will require employees to register for the preferential spaces and be issued a hangtag. The tag is usually updated every three or six months. If a vehicle without a tag is parked in a preferential space, the vehicle is ticketed.

**Parking Pricing** – Charging for parking is a powerful tool in changing travel behavior. The higher the price, the less likely a person will be to use or purchase the space. However, employees often strongly resist any attempt to charge for parking and employers rarely want to risk damaging employee morale by dealing with the parking issue. Many employees feel that free parking at the work place is a right and that any attempt to change that is tantamount to violating the constitution. Pricing may be especially difficult in some corridors given the moderate densities of development and lack of parking controls.

**Transportation Allowance** – The concept of the transportation allowance has received increasing attention with employers, employees, city planners and regulators as a means of balancing the costs of different travel options and promoting individual choice. The idea is that when we are allowed to choose how a subsidy is spent in helping us get to work, we may choose something other than a parking space and driving to work alone.

An allowance is not a new concept. It usually takes the form of a regular provision of money, food or other support provided by an organization or employer. When applied to transportation, it is a tool offered by the employer to assist their employees in commuting to work. All employees receive the same dollar amount each month for use in offsetting commute travel expenses including bus passes, vanpool fees, parking passes (the employer must charge for parking) or other expenses associated with carpooling, bicycling, and walking to work. Any

surplus can be pocketed. In essence, the transportation allowance is the cafeteria approach to commute travel.

### ***Considerations***

**Parking Spill-over** – Commuters strive to save money when similar options are convenient and safe. Most commuters will seek out the least costly space near the work place. Employees will use their money wisely. If the least expensive space is on the street or in a neighbor’s parking lot then that is where they will park. In many cases, these spaces may be free and employees will continue driving their cars to work. It is important to give careful consideration to most opportunities within a reasonable walking distance (5 to 10 minutes or two to three city blocks).

**Labor Unions** – Labor unions strive to maintain a consistent and improving working condition for its members. Since free parking has been so prevalent in the past, it has been increasingly included as part of the working condition of the employee. To change the mandated working condition, the employer must meet and negotiate the change with the union representatives.

**Equity** – The parking charge must be fair. This can be a challenge in that tax laws do not offer balanced treatment of the dollar depending on how they are spent. Current Federal tax laws provide an advantage to driving alone by allowing an employer to provide up to \$180 per month for a parking space tax free to the employee. The tax-free limit on vanpooling and transit are much lower, \$100 per month. For carpooling, walking and bicycling, all financial benefits are fully taxable. Dollar for dollar, the greatest value for the employee, tax-wise, is in providing a transportation benefit in the form of free or subsidized parking.

### **Marketing and Promotions**

Marketing and education are the foundation of any successful TDM effort. A lesson too often learned throughout the country is that alternative transportation services do not sell themselves. Marketing is essential to raising people’s awareness of the options and motivating them to try them out at least once.

As a rule of thumb, it is usually a good idea to set aside up to 15 percent of a projects budget for marketing. For example, if you set up a \$100,000 shuttle service – put \$15,000 into marketing the new service. Marketing can go beyond simply advertising the new service; it can be a way to educate people about the overall benefits of not driving their car.

Marketing can address the consumer in three areas:

- **Awareness** – Let people know what services exist and how their use of these services can benefit them and the community.
- **Try** – Convince people to try an alternative transportation option at least once. Some communities have asked people to sign pledge cards to use an alternative transportation option at least once during a weekly promotional effort. The company that collects the greatest number of pledge cards can win a prize or get recognition for their efforts.

- **Maintain** – Once people try an option at least once, the message needs to focus on maintaining that person’s participation in an alternative mode.

The TMOs could be provided with funds to actively promote TDM strategies to employees and residents. Options include:

- Conduct onsite promotional events and fairs.
- Establish “Rideshare Week” and seek pledges from participants.
- Place ads on the benefits of alternative transportation.
- Educate school children about the importance of sharing a ride.
- Seek media opportunities about successes in the area.
- Establish an awards program for employers and commuters that do something exceptional.

## **Incentives**

Incentives are an important consideration in making alternative transportation more appealing. Some communities, such as Riverside and San Bernardino counties in California, rewarded people up to \$2 per day for their use of an alternative transportation mode (up to six months) in driving to and from work. Other communities have developed commuter club programs where commuters can be eligible for discount coupons and special prizes by staying involved in transportation alternatives.

The incentive is a way to reward those that help to reduce traffic congestion and clean the air. There are five types of incentives that can be offered by either a community or an employer:

- **Cash** – Travelers can earn cash to use towards a transportation expense or pocket the money as a benefit of their travel choice. The cash can help to offset the added costs related to a travel choice, such as a bus pass.
- **Prizes** – Travelers can be eligible for a prize drawing every time they use alternative transportation. The prize can be as simple as a gift certificate to a local store. Drawings can be done monthly, quarterly or annually. Often an annual prize drawing could be tied to a “Bike-to-Work Day” activity.
- **Commuter Club Point Program** – Travelers can earn points each time they use alternative transportation. For example, a cyclist can earn 150 point for riding his bike to and from work one day or 75 points for sharing the ride to work in a carpool. The points can then be applied to a select set of items or gift certificates at retailers. Research has shown that points are three times the monetary value than cash for motivating people to try something new. The point reward is a common strategy of airlines to maintain a regular, repeat customer base.
- **Time Off** – Some employers allow employees to earn vacation time by using alternative transportation. For example, an employee that uses some form of alternative transportation 60 times in a quarter can earn an extra four hours of vacation time. This could mean up to two extra vacation days each year.
- **Recognition** – People that use alternative transportation on a regular basis can be acknowledged in the local paper for doing something good for the community. Or, the

city could provide “Good Citizen” certificates for people that consistently do something other than driving alone in their car.

### **A Smarter Way to Work**

#### Information and Resources

For more information about available programs, requests for projects and funding opportunities, visit the Web at [www.commutesolutions-hou.com](http://www.commutesolutions-hou.com). To learn more about how the Houston-Galveston Area Council can assist you, contact a Commute Solutions representative at 713-627-3200 or [commutesolutions@hgac.cog.tx.us](mailto:commutesolutions@hgac.cog.tx.us).

