

Pinellas County Long Range TDM Plan

Executive Summary

Prepared for Bay Area Commuter
Services

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DISCLAIMER

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The report is prepared in cooperation with Bay Area Commuter Services.

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I. Executive Summary

Purpose

The purpose of this project is to estimate the potential impact of transportation demand management (TDM) for reducing congestion and air pollution in Pinellas County for Bay Area Commuter Services and its Advisory Board. TDM is a set of specific strategies that foster increased efficiency of the transportation systems and resources by influencing travel behavior by mode, time, frequency, trip length, regulation, route or cost. Table 1.1 provides a partial list of the TDM and related strategies and tactics that can be used to influence travel behavior.

Table 1.1: TDM Strategies and Tactics

INFLUENCE TRAVEL BY USING THESE STRATEGIES AND TACTICS	
Mode	Carpools, vanpools, transit, bike, walk
Time	Flextime, staggered work hours, compressed work weeks, high occupancy vehicle (HOV) lanes, preferential parking for carpools and vanpools, time-of-day value pricing/congestion pricing
Frequency	Telecommuting, linking of trips, frequent rider programs, carsharing/short term auto rental, guaranteed ride home
Trip Length	Transit oriented development, bicycle and pedestrian facilities, access management, telecommuting
Regulation	Trip reduction ordinances, developments of regional impact, minimum and maximum parking requirements
Route	Value pricing/congestion pricing, intelligent transportation systems
Cost	Commuter choice tax benefits for transit and vanpooling, parking pricing, value pricing/congestion pricing, high occupancy toll (HOT) lanes

Approach

In consultation with the project Advisory Committee, Bay Area Commuter Services and its subcontractor, the Center for Urban Transportation Research (CUTR) at the University of South Florida:

- Identified the key measures of effectiveness (i.e., vehicle miles of travel, vehicle trips, mode split, and emissions) for assessing the impact of TDM in Pinellas County
- Reviewed the Pinellas County's 2020 Long Range Transportation (LRTP) and Comprehensive Plans
- Reviewed similar plans from five peer communities to identify approaches used by those communities
- Identified strategies for analysis at several levels: countywide, activity centers and employer site level.

An analysis was conducted using the Environmental Protection Agency's COMMUTER Model to assess effects of different combinations of TDM strategies on the key measures of effectiveness. These strategies were identified by the Advisory Committee and grouped into four scenarios or packages of TDM programs. The potential policies and/or program changes related to, but were not limited to, a comprehensive employer outreach program, the provision of transit and vanpool benefits by employers, planned improvements to transit system, and growth in the adoption of compressed work week and telecommuting programs by employers.

Results

The Advisory Committee has recommended a Preferred TDM Program Scenario, which was based on the following conditions and assumptions:

Regional TDM programs aimed at commuters have the greatest potential for success, but depend upon a working partnership between employers and the public sector to reach mutual goals. The public sector offers the TDM products and services as well as provides technical assistance to employers to apply employee transportation solutions to solve business problems such as employee recruitment, parking shortages, etc. while meeting the goals of reducing congestion and emissions. Employers set workplace policies such as flexible work hours and parking pricing that affect employee commute behavior. They also provide easy access to reach commuters who would benefit from these products and services. Since there are no legal requirements either for employers to reduce trip making by their employees or for their employees to participate, Bay Area Commuter Services (BACS), the St. Petersburg Downtown Partnership TMO, and the Pinellas Suncoast Transit Authority (PSTA) foster voluntary actions through their employer outreach efforts to increase employer participation in TDM programs.

TDM programs implemented by individual employers or organizations typically show larger changes in key measures of effectiveness than area-wide programs. But, the sum of individual efforts has contributed to measured success on a regional basis. TDM can significantly reduce automobile congestion in a corridor or within a sub-area. The degree of success is directly determined by the specific components of the TDM program. The most successful TDM programs provide individual firms with a strong economic incentive to adopt these measures. The success of TDM rests not with just implementing one or two individual activities on existing facilities, but with packaging various actions that complement and reinforce each other to achieve a desired objective.

The Preferred TDM Program Scenario recommended by the Advisory Committee consists of the following strategies:

- Employer Outreach to encourage the voluntary adoption and support of TDM programs among large employers or worksites (over half of employees work for employers with more than 100 employees. Only 2.4% of companies have more than 100 employees.)
- Transit services
- Compressed work week and telecommuting outreach program
- Vanpool program management and promotions
- Matching program for employer-provided discounts for transit, vanpool and other commute benefits.
- Preferential parking for carpools and vanpools

Impacts of the Recommended TDM Scenario in Pinellas County in 2025

Table 1.2: Travel Impacts per day (relative to affected employment)

Quantity	Peak	Off-Peak	Total
Baseline VMT	8,711,471	3,523,741	12,235,212
Final VMT	8,294,196	3,354,956	11,649,152
VMT Reduction	417,275	168,785	586,060
% VMT Reduction	4.8%	4.8%	4.8%
Baseline Trips	722,157	292,109	1,014,266
Final Trips	686,587	277,720	964,307
Trip Reduction	35,571	14,388	49,959
% Trip Reduction	4.9%	4.9%	4.9%

Table 1.3: Mode Share Impacts

Mode	Baseline	Final	%Change
Drive Alone	80.9%	76.9%	-4.0%
Carpool	12.7%	12.1%	-0.6%
Vanpool	0.1%	0.1%	+0.0%
Transit	1.5%	1.5%	-0.0%
Bicycle	1.1%	1.1%	-0.0%
Pedestrian	2.5%	2.5%	-0.0%
Other	1.2%	1.1%	-0.1%
No Trip	-	4.7%	+4.7%
Total	100.0%	100.0%	-

Table 1.4: Emission Reductions (tons/day except CO₂ in metric tons/day)

Pollutant	Peak	Off-Peak	Total
HC	0.679	0.246	0.925
CO	5.668	1.996	7.664
NO _x	0.675	0.294	0.968
CO ₂	166.6	63.9	230.5

Estimated Cost

The total estimated cost for this scenario is \$1,700,00 per year (in Year 2001 dollars) for management and operations of the Preferred TDM Program Scenario to fund employer outreach program through BACS, PSTA, and any transportation management organizations/initiatives, the management of the vanpool program, and a compressed work week/telecommuting initiative. An additional \$1,765,000 annually will be required to match \$1,765,000 of employer subsidies for transit, vanpool, or other alternatives to driving alone would be required. The impacts of the Recommended TDM Scenario are the result of cumulative effects over the course of 25 years (from 2000 to 2025). By the year 2025, it is projected that Pinellas County will see a 4.8% reduction in VMT and a 4.9% reduction in vehicle trips as a result of implementing and maintaining these programs over the next 25 years.

II. Research Design

Purpose

To identify and quantify for the BACS and the Pinellas County MPO the potential level of achievements in reducing congestion, air pollution and fossil fuel use through transit, vanpooling, carpooling, bicycling, walking, alternative work hours and telecommuting.

Advisory Committee

An advisory committee was formed in order to provide guidance throughout the research process. The advisory committee included representatives from Bay Area Commuter Services (BACS), the Florida Department of Transportation (FDOT), the Metropolitan Planning Organization (MPO), the MPO Technical Advisory Committee, the MPO Citizens Advisory Committee, the MPO Bicycle Advisory Committee, the MPO Pedestrian Advisory Committee, the Transportation Management Organizations Coordinating Group, Pinellas Suncoast Transit Authority and the City of St. Petersburg.

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Scope of Work

1. Review pertinent literature, including existing LRTP.
2. Identify the TDM goals, objectives, and measures of effectiveness that are included in LRTP in up to 5 other cities.
3. Hold first meeting with the Advisory Committee to review the project scope and timetable and to discuss role of the Advisory Committee. Present potential performance measures based on the Tasks 1 and 2 to the Advisory Committee for their feedback.
4. With the assistance of BACS and Pinellas MPO, obtain FSUTMS model coefficients, socio-demographic, employment, mode split and other required data for major activity centers and policy constrained corridors from the MPO/FDOT to conduct the analysis for no more than 5 major activity centers and/or corridors and for a county-wide analysis.
5. Hold second meeting with the Advisory Committee to develop up to 3 scenarios or packages of TDM programs (e.g., low, medium, high TDM) for each of the up to 5 major activity centers/corridors to be analyzed. The scenarios may include potential policies and/or program changes related to, but not limited to, transit benefits, parking policies, potential environmental justice issues related to scenarios, and funding. These scenarios may be based on resource availability (e.g., if we budgeted \$X million per year what could be achieved?) and/or performance

based (e.g., what resources and programs would be necessary to increase peak hour average vehicle ridership from X to Y or carpool share from X% in 2000 to Y% by the Year 2025?)

6. Analyze up to 3 scenarios (e.g., low, medium, high TDM) with respect to quantifying the performance measures for each of the up to 5 major activity centers/corridors to be analyzed. With budget estimates prepared in consultation with the provider (e.g., BACS, SPDTMO, PSTA etc.), CUTR will use EPA's COMMUTER model to analyze the impact of these programs on mode share, VMT, and vehicle trip emissions.
7. Hold third meeting with the Advisory Committee to review and discuss modal outputs with Advisory Committee and obtain their input into the draft language for LRTP.
8. Prepare draft final report including draft language for LRTP.
9. Present final report to Advisory Committee (if necessary).
10. Prepare up to 25 copies of the final report including draft language for the LRTP.

COMMUTER Model

The Environment Protection Agency's (EPA) COMMUTER Model is designed to analyze the impacts of TDM programs in regard to mode share, vehicle miles, vehicle trips and emissions. COMMUTER model uses two procedures for calculating travel response to TDM strategies:

1. Logit Pivot-Point Model: A multimodal pivot-point model using coefficients and computational procedures from accepted logit-based mode choice models;
2. Look-Up Tables: Relational factors from empirical research, arrayed in lookup tables where increments of change are associated with particular types of programs, reflecting different application assumptions, levels of intensity, and setting.

It is essentially a three-step procedure:

1. The user establishes a baseline by supplying essential information on local conditions.
2. An analysis scenario is selected from among available program options.
3. Impacts on vehicle trip making, VMT, and its distribution between peak and off-peak travel periods are calculated and used to estimate the change in emissions of HCs, CO, and NOx.

Data Inputs

The baseline is established by entering data inputs for local demographic, work trip, employer support and alternative work schedule parameters and participation rates. There are a variety of sources for this data. CUTR relied on data from the 1990 Census, Zdata from the Regional Planning Model, BACS, FDOT, and previous CUTR research. See Table 2.1.

TDM Program Options

There is a wide variety of TDM program options that can be analyzed by the COMMUTER model. The four primary program areas include: Site Access; Financial Incentives and Parking Costs; Employer Support Programs; and Alternative Work Schedule Programs. See Table 2.2.

Model Outputs

The three areas of model outputs are: 1) Change in Mode Share; 2) Change in Vehicle Miles Traveled and Trip Reductions; and 3) Emission Reductions

Table 2.1 COMMUTER Model Inputs

Categories	Sub-category	Inputs
Demographic	Metropolitan Area Size	Small (Under 750,000)
		Medium (750,000 to 2 million)
		Large (Over 2 million)
	Employment in area	Office employment
Non-office employment		
Work Trip Characteristics	Modes	Auto- Drive Alone
		Auto- Carpool
		Vanpool
		Transit
		Bicycle
		Walk
		Other
	Work Trip Length	Average person
		Average trip length
		Average trip length
		Average trip length
	Vehicle Occupancy	Average carpool occupancy
Average vanpool occupancy		
Peak Period Travel	Length of peak period	
	% of work trips in peak period	
Transit Characteristics	Average transit speed	
Mode Choice Model Coefficients	In Vehicle Travel Time	Transit Time
	Out of Vehicle Travel Time	Walk time
		Transit time
	Costs	Auto-parking
		Transit fare
Existing employer support	Carpool	Levels 1-4
	Vanpool	Levels 1-4
	Transit	Levels 1-4
	Bicycle	Levels 1-4
Alternative Work Schedule	Telecommuting	Average days per week
	Flextime/Staggered hours	% of trips shifted from peak
	Existing Participation rates	Flextime
		CWW 4/40 or 9/80
		Staggered hours
Telecommuting		

Table 2.2: TDM Program Options

Program Areas	Specific Programs	Measured by...	Factors
SITE ACCESS	Remote parking for SOVs	Change in Walk Access Time (minutes)	Workforce Participation
	Preferential parking for carpoolers	Change in Walk Access Time (minutes)	Workforce Participation
	Preferential parking for vanpoolers	Change in Walk Access Time (minutes)	Workforce Participation
	Closer transit stop	Change in Walk Access Time (minutes)	Workforce Participation
	Shuttle from transit stop	Change in Walk Access Time (minutes)	Workforce Participation
	Closer bicycle parking facilities	Change in Walk Access Time (minutes)	Workforce Participation
	Improved pedestrian access	Change in Walk Access Time (minutes)	Workforce Participation
	More frequent transit service	Change in avg. headway (minutes)	Workforce Served Increased Transit VMT
	Faster transit service	Change in route travel time (minutes)	Workforce Served Increased Transit VMT
FINANCIAL INCENTIVES AND PARKING COSTS	Increased parking cost for SOVs	Parking cost (\$)	Workforce Participation
	Parking discount for carpools	Parking cost (\$)	Workforce Participation
	Parking discount for vanpools	Parking cost (\$)	Workforce Participation
	Parking Cash out	\$/month/20	Workforce Participation
	Transit Fare reduction	\$/month/20	Workforce Participation
	VP subsidy	\$/month/20	Workforce Participation
	Transit Pass subsidy	Transit discount (\$)	Workforce Participation
	Financial Incentive for bicycling	(\$)	Workforce Participation
	Financial incentive for walking	(\$)	Workforce Participation
EMPLOYER SUPPORT PROGRAMS	Carpool Program	Change in Program Level (0-4)	Workforce Participation
	Vanpool Program	Change in Program Level (0-4)	Workforce Participation
	Transit Program	Change in Program Level (0-4)	Workforce Participation
	Bicycle Program	Change in Program Level (0-4)	Workforce Participation
ALTERNATIVE WORK SCHEDULES	Flextime	Change in Eligibility or Participation (%)	Present rates of Telecommuting and alternative work schedule employees
	Compressed 4/40	Change in Eligibility or Participation (%)	Present rates of Telecommuting and alternative work schedule employees
	Compressed 9/80	Change in Eligibility or Participation (%)	Present rates of Telecommuting and alternative work schedule employees
	Staggered Hours	Change in Eligibility or Participation (%)	Present rates of Telecommuting and alternative work schedule employees
	Telecommute	Change in Eligibility or Participation (%)	Present rates of Telecommuting and alternative work schedule employees

NOTE: Workforce participation represents the number of commuters who work for employers that offer the particular TDM program.

III. Research Findings

Review of Pinellas County’s Long Range Transportation Plan and Comprehensive Plan

The Pinellas County 2020 Long Range Transportation Plan (LRTP) refers to TDM in a descriptive manner. The LRTP defines TDM and discusses current TDM programs operating in the area. However, the LRTP does not quantify the goals or benefits of TDM nor does it outline a long-range plan to implement a specific set of TDM programs to meet the air quality or congestion mitigation goals. The following italicized sections are from the 2020 LRTP that concern TDM planning:

Transportation System Efficiency and Travel Demand Management

- 1.6.Objective: *Protect roadway capacity, optimize operating efficiency and reduce travel demand through the application of Intelligent Transportation Systems (ITS), system management and demand management strategies.*
- 1.6.1.Policy: *The MPO shall ensure that decisions regarding traffic signal installations and median opening requests are balanced between impacts on surrounding neighborhoods and compliance with federal warrant criteria or applicable state and local roadway access rules and regulations.*
- 1.6.2.Policy: *The MPO shall develop an Intelligent Transportation System (ITS) plan for Pinellas County that conforms to the regional and national ITS standards.*
- 1.6.3.Policy: *The MPO shall support the implementation of ITS strategies in Pinellas County that are consistent with Long Range Transportation Plan goals, objectives and policies.*
- 1.6.4.Policy: *The MPO shall encourage vanpooling and ride-sharing activity by providing technical and funding support to programs sponsored by Bay Area Commuter Services (BACS) and the St. Petersburg Downtown Transportation Management Initiative.*
- 1.6.5.Policy: *The MPO shall continue to participate in the annual Alternative Transportation Week and Bike Bus Car Pool Pedestrian (B-BOPP) Week events, sponsored by BACS and FDOT respectively.*

Transportation Demand Management

Nationwide, the number of automobiles on the road and the distances people are driving in them has continued to increase through the 1990s. Moreover, an increasing number of vehicles on the road are without passenger(s). In 1980, 69 percent of commuter trips in Florida were single-occupant vehicles. In 1990, the number of single-occupant vehicles jumped to 77 percent of the state=s commuter trips. Pinellas County has reflected these state and national trends. Since the 1970s, growth in the county has pushed out into low-density residential areas with two-vehicle households located further away from commercial and industrial areas occupied by the largest employers. This has led to more single-occupant vehicles traveling longer distances to work and has been a major contributor to the roadway congestion the county has faced over the years.

In response to the problems associated with increasing numbers of single-occupant vehicles and the realization that road funding cannot keep pace with demand, national, state and local policy initiatives have embraced the concept of transportation demand management. The purpose of

TDM is to increase the efficiency of roadway systems by reducing the demand for vehicular travel. Strategies involved with TDM initiatives are aimed at reducing peak-hour travel demands. They include carpooling and vanpooling, flexible work hours, telecommuting, alternative transportation use (e.g., bicycle, transit) and parking controls. Studies conducted for the Federal Highway Administration (FHWA) suggest that TDM measures may reduce peak hour traffic demand by two to 18 percent. Demand management strategies are typically aimed at commuters and are implemented through commuter assistance programs sponsored by employers or transportation management initiatives (TMIs).

Transportation Management Initiatives are organizations formed to encourage and coordinate the participation of local businesses in various TDM activities. Their purpose is to study and implement creative solutions to problems of traffic congestion, air pollution, and parking inefficiencies through the reduction of single-occupant vehicle travel. There is currently one TMI in Pinellas County, the St. Petersburg Downtown Transportation Management Initiative (SPDTMI), which plays a lead role in the implementation of TDM programs in St. Petersburg. Another TMI, the Gateway Transportation Initiative closed operations in 1997. However, Bay Area Commuter Services (BACS) has an agreement with the Florida Department of Transportation and the MPO to provide TDM services in the Gateway Area since the Gateway TMI ceased operations. Based in Tampa, BACS is a regional agency that assists and supports the TMIs in the Tampa Bay Area and other TDM initiatives to facilitate an integrated, comprehensive, and cooperative approach to reducing travel demand. The MPO supports the efforts of BACS and SPDTMI through the provision of technical assistance and the allocation of federal funding.

St. Petersburg Downtown Transportation Management Initiative

The St. Petersburg Downtown Transportation Management Initiative (SPDTMI) was established in 1996 as an outgrowth of St. Petersburg Progress, Incorporated, a local alliance of downtown business leaders. The initiative was prompted by existing and future parking shortages the City was facing in light of increased development activity and occupancy rates and the arrival of Major League Baseball in 1998. As with GTI, CMAQ funds provided the capital for the start-up and initial three year operation of SPDTMI. In addition to the development of parking management strategies, SPDTMI manages an extensive trip reduction program for fifteen businesses, promoting transit amenities and area ride-share programs. One example of the strategies implemented by the SPDTMI is the creation of the Looper Shuttles which serve various areas of downtown St. Petersburg to and from Tropicana Field. The shuttles are also used to provide transportation to downtown attractions such as the museums, the St. Petersburg Pier and downtown area businesses. By utilizing these shuttles, parking during major events is less concentrated in the areas in close proximity of Tropicana Field and, therefore, congestion is reduced as motorists exit special events from the downtown area.

Bay Area Commuter Services

Bay Area Commuter Services (BACS) was established in 1992 as a private, non-profit organization, funded by FDOT to operate a regional commuter assistance program for the geographic areas not included in the service area for the TMIs in the Tampa Bay Region. The mission of BACS is to market and promote alternatives to single-occupant vehicle travel and to develop innovative solutions to transportation in the Tampa Bay Region through a partnership of private businesses, private citizens and public agencies.

In the absence of the Gateway Transportation Initiative TMI, BACS is continuing the implementation of TDM activities in the Mid-County Gateway Area. The Gateway Area is bordered by Belleair Road to the north, the Pinellas coastline to the east, 62nd Avenue North to the south and Starkey Road to the west (see

Figure 2-6). With over 96,000 employees, there are an estimated 200,000 daily work trips generated by Gateway Area businesses. To reduce this trip demand, BACS encourages and supports enhanced bicycle/pedestrian improvements, expanded paratransit services, employee trip reduction programs, and area ride share programs. BACS promotes their initiatives in the area through an aggressive outreach campaign which includes a monthly newsletter as well as community forums with employers in the area. Currently, thirteen major employers in the Gateway Area participate in the implementation of TDM strategies.

Bay Area Commuter Services maintains a database of individuals interested in commuter assistance programs throughout the region. Using the database, BACS is able to match individuals together with compatible origins and destinations for ride-sharing. Bay Area Commuter Services also operates a regional toll-free customer service center that provides information on commuter services for Bay Area vanpools. The vanpools cover routes extending from Brandon to St. Petersburg, Tampa to the Gateway Area (two vans), Clearwater to Tampa and St. Petersburg to Tampa. Bay Area Commuter Services also coordinates marketing and promotional efforts for the region's TDMs with the local media, community organizations, and local governments. In addition, the agency acts as a resource for technical and planning assistance to public agencies and businesses interested in implementing commuter assistance programs.

Bicycle and Pedestrian Travel

To encourage and provide for bicycle and pedestrian travel, the MPO relies on expanding safe and convenient bicycle and pedestrian travel facilities, including trailways, bicycle lanes and sidewalks. Regarding trailways, a resurgence of bicycle and pedestrian activity in Pinellas County took hold following the signing of a lease agreement in 1989 between the county and the Florida Department of Transportation (FDOT) regarding a 35-mile abandoned CSX railroad line that would become the Pinellas Trail. The agreement placed responsibility for developing and maintaining the Trail with Pinellas County. The necessary financial support for the Trail came later that year when the Penny For Pinellas infrastructure sales tax was passed through voter referendum. The Penny For Pinellas infrastructure sales tax has provided approximately 70 percent of the \$14 million in funding spent on the development of the Trail as it currently exists (see Figure 2-8). The remaining funding included federal revenue provided through ISTEA.

The Trail currently extends from Tarpon Springs south to St. Petersburg with one remaining gap extending over Cross Bayou Canal from Seminole to Northwest St. Petersburg where a bicycle/pedestrian bridge is currently under construction. Development of the Trail has spawned the construction of community trails providing connections to points of interest such as public parks and shopping centers. As an example, the 3.5-mile Honeymoon Island trail completed by Pinellas County in 1996, provides a connection from the Pinellas Trail to the Honeymoon Island State Park. The county will also be constructing a 0.7-mile community trail at Walsingham Park and the 1.75-mile Elfers Community Trail in Tarpon Springs in fiscal year 1998/99. A more detailed discussion concerning future bicycle facilities are provided in Chapter 3.

With the Pinellas Trail established as the backbone of the county's bicycle network, the MPO and Pinellas County have looked to on-road facilities to further extend bicycle opportunities to a greater number of people. Pinellas County embarked on a major initiative to provide on-street accommodations for bicyclists with its adoption of Comprehensive Plan policies calling for the inclusion of dedicated and striped four-foot bicycle lanes on road construction projects, where feasible, in November 1995 (Ordinance 96-31). Striped bicycle lanes were included in the expansion of Sunset Point Road to a four-lane facility from County Road 1 to US Highway 19, completed by the county in 1996. As a result, this facility became the first county arterial roadway

with designated bicycle lanes. Figure 2-8B identifies road segments planned for bicycle lanes as a result of a re-construction or re-surfacing project. Although nearly every major road segment shown on the map is designated for a future bicycle lane, it is recognized that installing bicycle lanes on many of these facilities may not be feasible. Working through its Bicycle Advisory Committee (BAC), the MPO will be examine each of the designated facilities in conjunction with the affected local governments to determine which of them will ultimately be scheduled for the installation of striped bicycle lanes.

The MPO's most far-reaching effort to address the travel needs of pedestrians is through the development of a continuous network of sidewalks throughout the county. By increasing the coverage of sidewalks, more direct access is provided to major points of interest (e.g., schools, shopping centers, churches, etc.), thereby improving accommodations for pedestrians while encouraging more people to walk. The value of this approach is underscored by a survey of pedestrians conducted by The Campaign to Make America Walkable, a project of the Bicycle Federation of America, in 1997. The Campaign reported that the number one complaint voiced by pedestrians about roadway safety and sidewalk design was "missing sections of sidewalk, especially on key walking routes."

Sidewalk facilities in Pinellas County have undergone a major expansion in recent years, particularly since the passage of the Penny For Pinellas Sales Tax in 1989. Penny revenue has been the catalyst for much of this expansion. Road improvements constructed since 1989 on County Road 611 (East Lake Road, McMullen Booth Road), 54th Avenue North, Alderman Road, Belcher Road, 118th Avenue and County Road 1 included new sidewalk facilities within the rights-of-way. In the City of St. Petersburg, approximately \$2.5 million in Penny funds was spent by the close of fiscal year 1995/96 for sidewalk improvements constructed as part of the City's efforts to redevelop older neighborhoods. In addition, ISTEA revenue under the Enhancement Program has provided a major source of revenue for sidewalk facilities since the Federal Act was passed. New construction extending and connecting sidewalk facilities on the east and west sides of Clearwater-Largo Road from West Bay Drive to Belleair Road in the City of Largo was completed in 1996 through the use of Enhancement funding.

Existing Facilities

The county's bikeway and pedestrian facilities network primarily consists of the Pinellas Trail, community trails, bike lanes and sidewalks. These facilities are defined as follows:

1. Pinellas Trail - Mainline off-road trail facility with paved 15-foot wide surface providing a high degree of safety, efficiency and comfort to multiple users such as bicyclists, walkers and rollerbladers. The Pinellas Trail is restricted to non-motorized traffic.
2. Community Trail - A locally-sponsored paved bicycle/pedestrian trail that provides a high degree of safety, efficiency, and comfort for non-motorized traffic, including pedestrians, bicyclists and rollerbladers. These facilities serve to connect the mainline Pinellas Trail to local points of interests such as parks and schools.
3. Bike Lane - Striped unseparated lane along roadside designated for preferential or exclusive use of bicyclists.
4. Sidewalks - Paved surface usually four to five feet wide that provides the backbone of the county's pedestrian facility network.

Trailway Inventory

As of August 1998, there were approximately 67 miles of trailways which exist throughout Pinellas County. A map of these facilities is provided in Figure 2-8A. A complete inventory of

these facilities as well as planned trail alignments is provided in the MPO Bikeways Plan adopted by the MPO in 1996.

Sidewalks

A number of gaps exist within the county's sidewalk network that hinder safe pedestrian movement between existing sidewalk links and along major roadways. Most areas where sidewalks are not provided are those developed prior to the 1970s before local jurisdictions began to require sidewalk construction as a land development regulation. The exception is the historical downtown areas. Most of the downtown areas have extensive sidewalk coverage to accommodate pedestrian travel. The MPO is currently working with Pinellas County to develop sidewalk maps covering each of the county's 12 planning sectors that identify sidewalk locations and major destination points for pedestrians such as schools, shopping malls, employment centers and parks. The maps will illustrate areas where sidewalk construction is necessary to close gaps existing between sidewalk links and to improve connectivity between existing sidewalks and major destination points. The maps will be included and discussed, concerning the identified gaps in the sidewalk network, in an update to the data and analysis of the Long Range Transportation Plan by 2000.

Major destination points most in need of pedestrian facility connections are in proximity to public schools where the school system does not provide bus service. With the recent Pinellas County School Board decision to discontinue courtesy busing, students residing within two miles of their respective school are no longer able to utilize bus service provided by the school system, unless the route is determined to be a safety hazard. Though routes may be determined to be safe according to the provisions outlined in Florida Statutes, that does not alleviate safety concerns on the part of parents and local officials in cases where children must still walk to school along heavily traveled roadways. Consequently, those students living in areas where there is a lack of adequate sidewalk facilities and where no bus service is provided are susceptible to unsafe travel conditions.

Peer Communities

Peer cities/counties were selected in regard to demographic, transit, vanpool program and congestion index characteristics. Out of the total population of potential peers, seven cities/counties were selected based on how well they compared to Pinellas County taking into account all four characteristics. Two counties, Summit and Eagle Counties of Colorado were also researched at the request of the Advisory Committee.

Census Demographics: Demographics and transportation characteristics, (see Tables 2 and 3), were used to examine the peer cities/counties investigated in the study. Specifically, CUTR examined population, ethnicity and mode split. The 1990 Census and the 1999 Census Estimates were used as the source of the data.

Transit Peers: The CUTR Transit Research Team often conducts peer studies. Bold face in the transit column means that county/city is used as a peer for Pinellas County by CUTR. The primary measures that are used to determine peer status are population, fleet size, passenger trips, passenger miles and operating expenses. The data was taken from: *CUTR 1998 "Performance Evaluation of Florida's Transit Systems" June 2000* and the 1998 *National Transit Database*.

Vanpool Peers: CUTR also investigated the existence and size of vanpool programs to determine peer status. The data source was: *National Transit Database 1995*

Congestion Rate Peers: CUTR used the Annual Mobility Report 1999, from the Texas Transportation Institute to identify peer counties/cities in terms of traffic congestion rates. Congestion, measured as a travel rate index (TRI) is based on the extra amount of time it would take to travel a particular

roadway during peak hours due to increased volumes and limited capacity. Specifically the “TRI is a measure of the amount of extra time it takes to travel during the peak period. The travel rate (in minutes per mile) in the peak is compared to the free-flow travel time. A TRI of 1.20, for example, indicates that it will take 20 percent longer to travel to a destination during the peak than it will to travel at “speed limit” conditions. This measure estimates travel conditions on days without crashes or vehicle breakdowns, presenting delay due to high traffic volumes” (TTI 1999: x).

TABLE 3.1: Peer Communities

Communities	Demographics	Transit	Vanpool	Comments
Pinellas County, FL	851,659 (1990 population) 376,906 (1990 commuters)	Fleet size:109 Operating Cost: \$24M	11 VPs (12/2000)	Research site
Broward County, FL	1,535,468 (1990 population) 587,459 (1990 commuters)	Fleet size: 170 Operating Cost: \$48M	13 VPs (2001)	Florida coast peer, growing regional Commuter Assistance Program, Commuter Choice Initiative starting. High Retirement Population, Tourism
Palm Beach County, FL	863,518 (1990 population) 380,260 (1990 commuters)	Fleet size: 115 Operating Cost: \$23M	4 VPs (2001)	Florida coast peer, growing regional Commuter Assistance Program, Commuter Choice Initiative High Retirement Population, Tourism
Maricopa County, AZ	2,122,101 (1990 population) 996,495 (1990 commuters)	Fleet size: 207 Operating Cost: \$30M	143 VPs (1998)	High Retirement population, successful vanpool program, Trip Reduction Ordinance (TRO)
Eagle County, CO	21,928 (1990 population) 13,156 (1990 commuters)	Fleet size: 27 Operating Cost: NA	NA	Tourism, geographic limits of growth
Summit County, CO	12,881 (1990 population) 8,590 (1990 commuters)	Fleet size: NA Operating Cost: NA	NA	Tourism, geographic limits of growth

TABLE 3.2: Peer Communities' Mode Splits

Community	Pop	Commuters	Drive alone	carpool	transit	mc	bicycle	walk	other	home
Pinellas County	851,659	376,906	297,509	47,004	5,637	1,559	3,918	9,231	2,767	9281
			78.9%	12.5%	1.5%	0.4%	1.0%	2.4%	0.7%	2.5%
<i>Minus Worked at Home</i>		<i>367,625</i>	<i>80.9%</i>	<i>12.8%</i>	<i>1.5%</i>	<i>0.4%</i>	<i>1.1%</i>	<i>2.5%</i>	<i>0.8%</i>	<i>-</i>
Broward County	1,535,468	587,459	468,713	75,330	11,448	1,721	3,824	10,809	4,556	11058
			79.79%	12.82%	1.95%	0.29%	0.65%	1.84%	0.78%	1.88%
Palm Beach	863,518	380,260	301,796	48,613	5,118	1,352	2,270	7,580	3,361	10170
			79.37%	12.78%	1.35%	0.36%	0.60%	1.99%	0.88%	2.67%
Maricopa County, AZ	2,122,101	996,495	747,818	143,170	21,184	7,298	13,930	26,403	7,383	29309
			75.04%	14.37%	2.13%	0.73%	1.40%	2.65%	0.74%	2.94%
Eagle County, CO	21,928	13,156	8,580	2,369	628	31	159	661	126	602
			65.22%	18.01%	4.77%	0.24%	1.21%	5.02%	0.96%	4.58%
Summit County, CO	12,881	8,590	6,021	1,017	87	14	159	732	87	473
			70.09%	11.84%	1.01%	0.16%	1.85%	8.52%	1.01%	5.51%

Source: 1990 Census Data

TDM Goals, Objectives and Effectiveness Measures of Peer Communities

A wide range of TDM goals, objectives and effectiveness measures were identified among the peer communities.

- **Pinellas County**
 - Policy of encouraging vanpooling and ride-sharing by providing technical and funding support to programs sponsored by BACS
 - Policy of MPO participation in Alternative Transportation Week
 - Through its Congestion Management System (CMS), the MPO targets TSM and TDM strategies to constrained corridors; identifies US 19, Alt. 19, and Tyrone Crossroads area
- **Broward County**
 - LRTP sets a 20 year goal of increasing HOV use by 5% and Transit by 4%
 - Policies emphasizing bikeways and pedestrian amenities
 - Policy of providing HOV facilities and providing incentives and disincentives that would make them more effective
 - Policy of encouraging use of TMAs
 - Land use development policies that discourage urban sprawl and make non-auto travel available and viable
 - Policy to identify mechanisms, such as congestion pricing, to reduce reliance on SOVs
 - Policy to identify means of improving air quality through efficient transportation
- **Palm Beach**
 - Policies to encourage employer-based TDM programs
 - Policies to support the activities of TMOs and South Florida Commuter Services
 - Policies to examine the impact of HOV lanes and investigate the implementation of High Occupancy Toll (HOT) lanes
 - Policies to encourage increases in bicycle and pedestrian modes
- **Maricopa County**
 - LRTP views TDM as important strategy to reduce congestion and improve air quality
 - Trip Reduction Ordinance: major employers and schools are required to develop, implement and maintain a Trip Reduction Program
 - <http://www.maricopa.gov/sbeap/trplwnvr.htm>
 - Policies to support local vanpool program: \$950,000 allocated for funding vanpool program
- **Eagle County**
 - No mention of TDM beyond identification as a possible means to improve transportation conditions
- **Summit County**
 - TDM only listed as a possible strategy to improve mobility

Factors to Consider in Developing Scenarios

Performance Measures

In consultation with the Advisory Committee, CUTR identified a list of performance measures to examine the impacts of the selected TDM program scenarios. The Advisory Committee used these performance measures, in combination with cost considerations and consideration of applicability to Pinellas County, to determine which of the countywide TDM scenarios would be recommended to the MPO.

Table 3.3: Performance Measures

Performance Measure	Current Condition	Source
Vehicle Trips (workforce)	870,000 daily vehicle trips	Work Trips by commuters factoring out telecommuters and CWW employees
VMT	10,500,000 daily VMT	1990 Census Data: Mode split x average trip distance by mode
Vehicle Trip Rate	87 (87 vehicles are used to transport 100 commuters; average vehicle occupancy = 1.15)	SOV Mode Share + Carpool Mode Share/Average Carpool Occupancy+Transit Mode share
Transit Ridership	40 million annual passenger miles	1998 National Transit Database
	8.3 million riders	Pinellas 2020 LRTP: 1996 data
Mode Split	SOV	80.9%
	Carpool	12.8%
	Transit	1.5%
	Bike	1.1%
	Walk	2.5%
	Other	1.2%

TDM Program Elements

There is a wide variety of TDM program elements that could be combined into various scenarios to be tested with the COMMUTER Model. Table 3.4 lists the full range TDM program elements that were identified by the Advisory Committee. The Advisory Committee completed an exercise to rank program elements according to commuter desirability, applicability, and overall effectiveness. The top ranked program elements included alternative work schedule programs, vanpool and transit subsidy programs, preferential parking, and higher levels of employer support programs. CUTR used these elements to develop a series of scenarios that were tested with the COMMUTER Model.

Table 3.4: TDM Program Elements

Program Areas	Specific Programs	Definition
SITE ACCESS	Remote parking for SOVs	SOVs are forced to park further from entrance to accommodate HOV preferred parking
	Preferential parking for carpoolers	Carpoolers have reserved parking close to entrance of employer site
	Preferential parking for vanpoolers	Vanpoolers have reserved parking close to entrance of employer site
	Closer transit stop	New transit stops are located closer to an employment site
	Shuttle from transit stop	Transit agency/employer/third party provides shuttle service between transit stops and employment sites
	Closer bicycle parking facilities	Bicycle parking facilities are placed at employment entrance
	Improved pedestrian access	Pedestrian amenities, such as sidewalks, are added to improve pedestrian access
	More frequent transit service	More frequent transit service to employer sites
	Faster transit service	Express bus routes decrease transit travel times to employer sites
	Bus Rapid Transit	Express bus routes with signal prioritization and exclusive bus lanes
FINANCIAL INCENTIVES AND PARKING COSTS	Increased parking cost for SOVs	SOVs are charged more for parking
	Parking discount for carpools	Carpools pay less for parking
	Parking discount for vanpools	Vanpools pay less for parking
	Parking Cash out	Transit agency lowers transit fares
	Transit Fare reduction	Employers provide a subsidy to pay for or help pay for the price of vanpooling
	Vanpool subsidy	Employers provide a subsidy to pay for or help pay for the price of using transit. Subsidy may be the result of the employer buying discounted transit passes in bulk and then passing savings onto employers
	Transit Pass subsidy	Employers provide a financial incentive for bicycling, through for example, a parking cash out program or gift certificates from bikes shops to pay for tubes, tires or other equipment
	Financial Incentive for bicycling	Employers provide a financial incentive for bicycling, through for example, a parking cash out program or gift certificates for walking or jogging shoes
	Financial incentive for walking	For not using a parking space, alternative transportation users receive taxable cash from employer
EMPLOYER SUPPORT PROGRAMS	Carpool Program	See Table 3.5 for explanation of Program Levels 1-4
	Vanpool Program	
	Transit Program	
	Bicycle Program	
ALTERNATIVE WORK SCHEDULES	Flextime	Employers allow individual employees to vary their arrival and departure times to and from work to avoid traffic congestion or to accommodate transit, carpool, or vanpool schedules
	Compressed 4/40	Employees work 40 hours in 4 days, allowing for one day off every week
	Compressed 9/80	Employees work 80 hours in 9 days, allowing for one day off every other week or one half day every week
	Staggered Hours	Employers group sets of employees into staggered shifts
	Telecommute	Employees work at home and eliminate their commute.

Table 3.5: Definitions of Employer Support Levels (ESL)

Employer Support Level	Description
Carpool Program Level 1	Carpool information activities (tied in with area-wide matching; Quarter-time transportation coordinator
Carpool Program Level 2	All of the above, plus: In-house carpool matching service and/or personalized carpool candidates get-togethers
Carpool Program Level 3	All of the above, plus: Preferential parking (reserved, indoor, and/or close-in); Flexible work schedule policy to accommodate carpool schedules; Half-time transportation coordinator
Carpool Program Level 4	All of the above, plus: Full-time transportation coordinator
Vanpool Program Level 1	Vanpool information activities (tied in with area-wide vanpool matching and/or third party vanpool programs; Quarter-time transportation coordinator
Vanpool Program Level 2	All of the above, plus: In-house vanpool matching services and/or personalized vanpool candidate get-togethers; Non-monetary vanpool development assistance; Policy of flexible work schedules to accommodate vanpool schedule
Vanpool Program Level 3	All of the above, plus: Vanpool development and operating assistance, including financial assistance such as vanpool purchase loan guarantees, consolidate purchase of insurance, and a start-up subsidy; Supporting services such as van washing and fueling; Half-time transportation coordinator
Vanpool Program Level 4	All of the above, plus: Major financial assistance for development and operations, such as employer purchase of vans with favorable leaseback, continuing subsidy, free maintenance, free insurance. Full-time transportation coordinator
Transit Program Level 1	Transit Information center Quarter-time transportation coordinator
Transit Program Level 2	All of the above, plus: Policy of work hours flexibility to accommodate transit schedules
Transit Program Level 3	All of the above, plus: On-site transit pass sales Half-time transportation coordinator
Transit Program Level 4	All of the above, plus: GRH Full-time transportation coordinator
Bicycle Program Level 1	On-site bicycle parking
Bicycle Program Level 2	All of the above, plus: Shower and changing facilities
Bicycle Program Level 3	All of the above, plus: Secure bicycle parking, Bike-friendly infrastructure
Bicycle Program Level 4	All of the above, plus: Workplace information and promotional activities

Special Explanations

There are five areas of the modeling process that require special explanations:

Baselines: In order to measure the impact of TDM programs, CUTR had to develop baselines for both 2000 and 2025, and for each of the areas of analysis; countywide, major activity center, and individual employer level. Two baselines are needed in order to account for the changes that will impact transportation conditions and performance measures in Pinellas County over the next 25 years. For examples, employment growth, changes in office versus non-office employment, the expected growth in telecommuting, and subsequent changes in VMT, vehicle trips and emissions.

The 2025 Baselines differed from the 2000 Baseline in terms of employment size, estimated impacts of transit improvements, and the expected telecommuting growth. Changes in employment size were taken from the Regional Planning Model's Zdata¹. Transit improvements and the Expected Telecommuting Growth Rate (ETG) are explained below.

Transit Improvements: In order to accurately develop a 2025 Baseline, CUTR had to take into account possible changes in the transit system. After consulting the staff from the Pinellas County MPO and PSTA, it was determined that the impacts of transit improvement should be kept to a minimum for the 2025 Baseline. According to the Planning Commission staff:

The preliminary transit modeling that we have for the year 2025 does not show any increase in mode share. The transit system mode share characteristics for the validation year of 1999 indicate a mode share of 0.7% for public transit (linked trips). Single occupant auto mode share is 54.5%, and for multi-occupant auto it is 44.9%. The public transit mode share in the year 2025 appears to remain stationary at 0.7%, due to the fact that both transit trips and auto trips appear to be growing proportionally at the same rates.

As a result, minor transit improvements that reflect the 2020 LRTP Planned Transit Improvement were incorporated into the 2025 Baselines and Scenario. The incorporated transit improvements did not increase transit mode share, except in two of the activity centers in which transit mode share increased by 0.1%.

The difficulty in establishing future transit impacts for baselines lies in how the COMMUTER Model's accounts for transit improvements. The COMMUTER Model calls for data that is not typically collected or used by transit agencies, specifically:

1. Average change in system-wide headway
2. Average change in system-wide route time
3. Percentage of workforce impacted by each changes in headway and route time.

Expected Telecommuting Growth Rate: As technology advances and businesses adapt to the electronic information age, telecommuting participation rates are expected to increase. In order to estimate this growth, CUTR used two approaches to estimate demand: linear regression analysis and the diffusion of innovation model. According to the linear regression model, there would be nearly 16.5 million telecommuters by 2025 in the United States. This is based on data from surveys conducted by Find/SVP and CyberDialogue, which have collected trends since 1990. According the diffusion of innovation, or Bass Model, it is forecasted that by 2025, 13% of the workforce or 22 million people in the U.S. will be telecommuting at least one day per week.

¹ For the Regional Planning Model, four user-supplied data sets are provided as inputs to the lifestyles trip generation model. These are the zonal trip production data (ZDATA1), attraction data (ZDATA2), special trip generators (ZDATA3), and internal/external trip productions (ZDATA4). ZDATA files are input to the model in ASCII format and contain all of the variables used in trip generation.

CUTR used this share (13%) of the workforce to estimate changes in the key performance measures and to establish the 2025 Baselines for Pinellas County.

See Appendix D for a full explanation of how CUTR forecasted the expected telecommuting growth rate.

Workforce Participation: A significant factor in terms of the impact of analyzed TDM scenarios is the amount of workforce participation. For the purpose of interpreting the TDM scenarios, workforce participation refers to the percent of the commuters working for employers that are implementing these programs.

Overview of TDM Strategies

The following list summarizes the strategies that were considered during the development of possible scenarios for this Long Range TDM Plan. The organization and descriptions of these strategies are based on the documentation for the EPA's COMMUTER Model.

1. **Employer TDM Outreach and Support Strategies:** The following products and services are directed at encouraging and supporting employer actions to encourage employees to use alternative modes rather than drive alone. Many employer policies such as work schedules and parking policies influence employee travel behavior. BACS and the local TMO provide employer outreach assistance to foster the adoption of many of these strategies by employers.
 - a. **Employee Transportation Coordinators:** An employee assigned by the employer to provide information or advice to co-workers regarding use of any mode, including ridematching information, company policies and benefits, etc.
 - b. **Guaranteed ride home or emergency ride home:** Free taxi rides for existing carpool, vanpool, and transit riders are provided by BACS if it becomes necessary to work late or in event of a personal emergency or illness.
 - c. **Ridematching:** This service provides the names and contact information of co-workers who live nearby and work similar schedules from which the employee can form a carpool. Services may be provided by the employer or as part of a regional computerized ridematching program operated by BACS. Employers may also fill this need by distributing BACS' Tampa Bay Commuter - a free "classified want-a-ride ads" publication.
 - d. **Preferential parking:** Employers provide parking in a reserved, protected, and/or close-in location for easier and quicker access for carpoolers and vanpoolers.
 - e. **Vanpooling:** Employers may offer new vanpool subsidies to maintain vanpools that are short riders. They may underwrite the capital cost, insurance and/or maintenance of vanpools
 - f. **Transit:** Employers may provide for the on-site sales of transit passes. They may disseminate PSTA transit information. Employers may establish bus shelters and provide benches and other amenities at bus stops.
 - g. **Non-Motorized Options:** Employers may provide sidewalks, bike lockers or racks, and shower and changing facilities for use by bicyclists and pedestrians
 - h. **Promotions:** Marketing and other methods to increase awareness of a given mode or employer incentive, or to provide prizes or awards for meeting some usage challenge.
2. **Alternative Work Hours Strategies:** A formal or informal policy that allows employees some flexibility over the official office hours. Arrangements include programs such as flexible or staggered work hours, compressed work weeks, and telecommuting.
 - a. **Flexitime:** A relaxation in the official daily hours of business allows employees the flexibility to adjust their personal work schedules to either arrive early/leave

early, or arrive late/leave late in order to avoid the most congested portion of daily commute periods.

- b. **Staggered Work Hours:** A more formalized version of flextime, where the employer sets one or more starting/ending times within a small time increment of each other, so that all employees are not arriving/departing at the same time and causing on-site congestion. For example, one-third of the workforce may arrive at 7:00 a.m., one-third arrive at 7:30 and the remaining third arrives at 8:00 a.m.
 - c. **Compressed Work Weeks (CWW):** Rather than working a standard 5-day/8-hour-per day work week, some employers will allow employees to work a longer work day, usually either 9 or 10 hours, and build credit in order to work fewer days. The most common versions of compressed work week arrangements are 4/40, where the employee works four 10-hour days and then takes the fifth day off, or 9/80, where the employee works nine 9-hour days and takes the tenth day off.
 - d. **Telecommuting:** This arrangement allows employees to work off-site usually one or more days per week, being in communication with the worksite via telephone or computer modem connection.
3. **Travel Time Incentives and Disincentives:** TDM programs and services that change the time or cost of making a commute trip often have the most significant impact on travel behavior. There are several strategies that can be applied to save time.
- a. **Travel Time Improvements:** On-site or adjacent area modifications to improve access to work sites from transit, or by walking or biking. Also includes preferential parking for carpools or vanpools, and improved routing of transit service.
 - b. **Site Access Improvements:** A change in time required to access the employment site once it is reached by the respective mode is one form of site access improvement. Improvements can be made for any or all of the modes, with different assumptions for each mode. A reduction in travel time is an incentive since it reduces travel time. However, a disincentive such as making people who drive alone walk from more remote parking lots increases the travel time for those who are single occupant vehicle (SOV). Changes in walk access time for carpools, vanpools, or drive alone can be achieved through parking management techniques, such as preferential close-in parking for pools or on-site vs. off-site parking privileges. Changes in access time for transit, biking, or walking can be realized through improved site access design, affording a more direct and safe connection to the transit stop or the local community or sidewalk/street network.
 - c. **Transit Service Improvements** - Most employers are not likely to *initiate* strategies that will change the travel time associated with transit service, other than the improvements to on-site access described above. However, the analysis evaluated the consequences of improving the travel time associated with improved transit service. Transit service can provide shorter door-to-door travel time as a result of the following changes:
 - 1. Increased frequency of service (i.e., shorter headways between vehicles), which allows reduction in wait time or transfer time.
 - 2. More direct service, which could result in both reduced in-vehicle travel time as well as elimination of transfer time.
 - 3. Faster service, which could result from introduction of express service, more direct service, or operation on an exclusive facility/right-of-way that is free of highway traffic congestion.Improved transit service was analyzed by making changes in either Frequency of Service (which is analyzed as “wait time”) or Faster Service (which is analyzed as “in vehicle time”). Improvements in ease of accessing transit—

even if they occur off-site—can be evaluated through the Access Time feature described above.

4. **Travel Cost Incentives and Disincentives:** Measures such as transit and vanpool fare subsidies, imposition of parking fees, differential parking rates or discounts for carpools or vanpools, or other financial incentives or disincentives can impact travel behavior/mode choice.
 - a. **Changes in Parking Costs:** These changes may either be in the form of fees that are currently in place, or through the introduction of fees where parking is currently free.
 - b. **Transit and Vanpool Fare Cost:** The cost element that is most relevant to transit and vanpool use is the level of fare paid.
 - c. **Other Financial Incentives or Disincentives:** Employers may also utilize pricing strategies in other ways to either encourage alternative mode use or discourage SOV use. For example, some employers have imposed a cost for parking on site and then used the revenues to provide general subsidies to some or all of the alternative modes, including walk and bicycle.

IV. County-wide Baseline Data and Proposed Scenarios

Using the COMMUTER Model, a variety of scenarios or packages of TDM programs were developed for Pinellas County as a whole and for major activity centers (See Appendix B for Activity Center Baselines and Scenarios). For each area, CUTR determined the 2000 and 2025 baselines and measured the impacts of scenarios on those baselines.

Countywide 2000 Baseline

The 2000 Baseline uses a variety of sources to identify local data to be entered as inputs into the COMMUTER Model in order to provide a starting point for forecasting TDM impacts. If local data was unavailable, CUTR used regional or national data.

Employment in Analysis Area

For the 2000 Baseline, total employment figures for Pinellas County (see Table 4.1) were taken from 1999 Zdata subtracting individuals that work at home (2.5%). In order to divide that total employment figure into office versus non-office employment, 1990 Census data was used. Employment data from the 1990 Census is divided by NAICS Industry Codes, which classify industries into office and non-office categories (see Table 4.3)

As Table 4.2 indicates, the vast majority of employees in Pinellas County work for a small percentage of the total companies. In fact, 72% of employees are found in only 12% of companies, which are companies with 20 or more employees. Furthermore, 51% of employees are found in only 2.4% of companies, which are companies with over 100 employees (see Figure 1 below). The distribution of employees between companies plays a significant role in understanding the effectiveness of TDM outreach efforts. **By reaching just 76 of the largest employers in the County, BACS and the TMO can potentially impact approximately one-quarter of the workers.**

Figure 1: Employees by Company Size

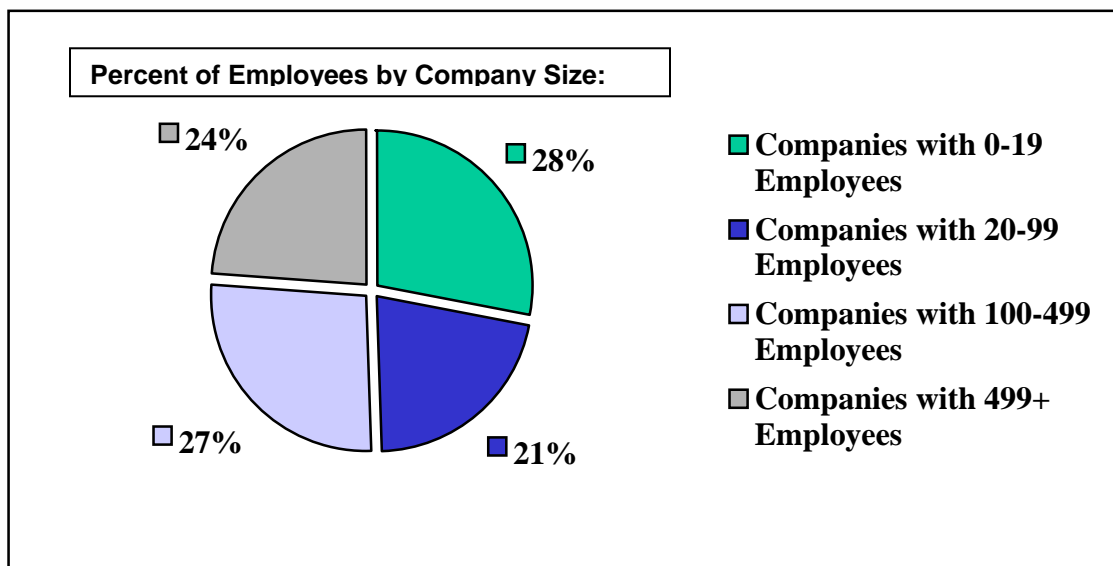


Table 4.1: 2000 Countywide Baseline Employment

Employment	Number	Percentage
Office Employment	416358	83.62%
Non-Office Employment	81542	16.38%
Total	497900	100.00%

Source: 1999 Zdata

Table 4.2: 2000 Countywide Baseline Establishments and Employees in Pinellas County

Establishments	# of Establishments	% of Establishments	# of employees	% of employees
Total Establishments	26,087	100.0%	408,552	100%
0-19 employees	22,980	88.1%	114,900	28.1%
20-99	2,488	9.5%	87,080	21.3%
100-499	543	2.1%	108,600	26.6%
>499	76	0.3%	97,972	24.0%

Source: 1998 Business Census Profile

Table 4.3: 2000 Countywide Baseline Employment- Office versus Non-Office

Pinellas County			
Office	Utilities	3750	0.93%
Office	Wholesale trade	17,002	4.21%
Office	Retail trade	54,874	13.60%
Office	Transportation & warehousing	3,715	0.92%
Office	Information	9,643	2.39%
Office	Finance & insurance	23,332	5.78%
Office	Real estate & rental & leasing	5,547	1.37%
Office	Professional, scientific & technical services	30,842	7.64%
Office	Management of companies & enterprises	8,462	2.10%
Office	Admin, support, waste mgt, remediation services	61,032	15.13%
Office	Educational services	3,396	0.84%
Office	Health care and social assistance	55,913	13.86%
Office	Arts, entertainment & recreation	5,819	1.44%
Office	Accommodation & food services	34,332	8.51%
Office	Other services (except public administration)	19,232	4.77%
Office	Auxiliaries (exc corporate, subsidiary & regional)	517	0.13%
Non-office	Forestry, fishing, hunting, and agriculture	6016	1.49%
Non-office	Mining	180	0.04%
Non-office	Construction	17,931	4.44%
Non-office	Manufacturing	41,578	10.30%
Non-office	Unclassified establishments	375	0.09%
	Office	337,408	83.62%
	Non-office	66,080	16.38%
	Total	403,488	100.00%
	2000 Office	416358	83.62%
	2000 Non-office	81542	16.38%
	2000 Baseline Total Employment	497900	100.00%

Source: 1998 Business Census Profile

Work Trip Mode Share

Work trip mode share figures used in the COMMUTER Model have been modified from 1990 Census data for Pinellas County. The data was modified in three ways:

1. Worked at home figures were removed from data, and mode share percentages were adjusted;
2. Motorcycle figures were grouped with Other; and
3. The mode share for Vanpool was added by borrowing 0.1% from carpool. In reality, there are not over 400 vanpoolers in Pinellas County. BACS has only 6 vanpools operating in Pinellas County. However, to run the COMMUTER Model, it is necessary to increase the mode share of vanpools.

Table 4.4: 2000 Countywide Baseline Work Trip Mode Shares

Commute Modes	1990 Census Data		Modified 1990 Census Data		Commuter Model Inputs	
Auto- Drive alone	297,509	78.9%	297,509	80.9%	80.9%	
Auto-Carpool	47,004	12.5%	47,004	12.8%	12.7%	
Vanpool	NA	NA	NA	NA	0.1%	Borrowed from Carpool
Transit	5,637	1.5%	5,637	1.5%	1.5%	
Motorcycle	1,559	0.4%	1,559	0.4%	-	Added to Other
Bicycle	3,918	1.0%	3,918	1.1%	1.1%	
Walk	9,231	2.4%	9,231	2.5%	2.5%	
Other	2,767	0.7%	2,767	0.7%	1.2%	
Worked at home	9,281	2.5%	NA	-	-	
Total	376,906	100.0%	367,625	100.0%	100.0%	

Source: 1990 Census Data

Work Trip Length

According to the 1995 National Personal Transportation Survey, the average person trip length of a work commute for metropolitan statistical areas (MSAs) in Florida is 11.7 miles (CUTR 1998: 38). The average trip length of a work trip by bicycle for Florida MSAs is 3.2 miles (CUTR 1998: 39). The average trip length of a work trip for pedestrians for Florida MSAs is 0.6 miles. According to BACS data, the average trip length of their vanpool fleet is 27 miles.

Table 4.5: 2000 Countywide Baseline Work Trip Lengths

Work Trip Length	Miles	Source
Average person trip length	11.7	NPTS 1995
Average trip length vanpool	27.0	BACS
Average trip length bicycle	3.2	NPTS 1995
Average trip length walking	0.6	NPTS 1995

Source: National Personal Transportation Survey 1995 Data in Florida
Transportation Almanac 1998: Tampa, FL: CUTR

Vehicle Occupancy

According to the 1990 Census, the average carpool occupancy in Pinellas County is 2.2. According to BACS data, the average occupancy of their operating vanpool program operating in Pinellas County is 6.

Table 4.6: 2000 Countywide Baseline Vehicle Occupancy

Vehicle Occupancy	#
Average Carpool Occupancy	2.12
Average Vanpool Occupancy	6.0

Source: 1990 Census Data and BACS Vanpool Program

Length of Peak Period and Percent of Trips to Work in Peak Periods

According to the Regional Planning Model, and verified by 1990 Census data, the morning peak period for Pinellas County is 3 hours in length and lasts from 6am to 8:59am. This is verified by 1990 Census Data and CUTR's *Florida Demographic and Journey-to-Work Report* (May 1993) in which 71.5% of commuters travel to work during the Peak Period of 6am to 8:59am. The COMMUTER Model will use this figure as a baseline in order to determine shifts out of the peak that result from TDM efforts, particularly alternative work schedule programs.

Table 4.7: Percent of Trips to Work in Peak Period

Travel Time to Work	Commuters	Percentage
12 to 4:59am	7,078	1.9%
5 to 5:59am	14,582	4.0%
6 to 6:59am PEAK	66,051	18.0%
7 to 7:59am PEAK	121,217	33.0%
8 to 8:59am PEAK	74,627	20.3%
9 to 9:59am	22,588	6.1%
10 to 10:59am	8,770	2.4%
11 to 11:59am	4,434	1.2%
12 to 3:59pm	24,171	6.6%
4 to 11:59pm	24,107	6.6%
TOTAL	367,625	100.0%
Percentage in Peak	261,895	71.3%

Source: 1990 Census Data and the Florida Demographic and Journey-to-Work Report (CUTR, May 1993)

Mode Choice Model Coefficients

The COMMUTER model uses the same mode choice model coefficients from Miami that are used in the Tampa Bay Regional Planning Model. These coefficients measure the change in mode choice based on changes in time- or cost-based strategies using the logit model procedure. In effect, these coefficients are relative weights that signify the coefficients' contribution to mode choice behavior.

Table 4.8: Mode Choice Model Coefficients

Model Coefficient	
In Vehicle Travel Time (minutes)	-0.0200
Out of Vehicle Travel Time- Walk Time (minutes)	-0.0450
Out of Vehicle Travel Time - Transit Wait (minutes)	-0.0450
Costs- Auto parking (cents)	-0.0032
Costs- Transit fare (cents)	-0.0032

Source: Table 9.2 Nested Logit Choice Model Coefficients - Tampa Bay Regional Planning Model Version 3.2

Average Transit Speed

According to PSTA, the average speed of transit is 13 mph. This figure is used when developing routes and determining route times.

Existing Employer Support Programs

The COMMUTER Model divides employer support programs into carpool, vanpool, transit and bicycle categories, each with four levels of support. CUTR elected to begin all employer support program at 0%, since currently BACS is working with approximately 50 companies out of more than 26,000 establishments in Pinellas County. The only exception is for bicycle programs, which was given 1% at Level 1 Program Support. This means that CUTR assumes that at least 260 provide bicycle-parking facilities.

Table 4.9: Employer Support Program- Levels and Descriptions

Employer Support Level	Description
Carpool Program Level 1	Carpool information activities (tied in with area-wide matching); Quarter-time transportation coordinator
Carpool Program Level 2	All of the above, plus: In-house carpool matching service and/or personalized carpool candidates get-togethers
Carpool Program Level 3	All of the above, plus: Preferential parking (reserved, indoor, and/or close-in); Flexible work schedule policy to accommodate carpool schedules; Half-time transportation coordinator
Carpool Program Level 4	All of the above, plus: Full-time transportation coordinator
Vanpool Program Level 1	Vanpool information activities (tied in with area-wide vanpool matching and/or third party vanpool programs); Quarter-time transportation coordinator
Vanpool Program Level 2	All of the above, plus: In-house vanpool matching services and/or personalized vanpool candidate get-togethers; Non-monetary vanpool development assistance; Policy of flexible work schedules to accommodate vanpool schedule
Vanpool Program Level 3	All of the above, plus: Vanpool development and operating assistance, including financial assistance such as vanpool purchase loan guarantees, consolidate purchase of insurance, and a start-up subsidy; Supporting services such as van washing and fueling; Half-time transportation coordinator
Vanpool Program Level 4	All of the above, plus: Major financial assistance for development and operations, such as employer purchase of vans with favorable leaseback, continuing subsidy, free maintenance, free insurance. Full-time transportation coordinator
Transit Program Level 1	Transit Information center Quarter-time transportation coordinator
Transit Program Level 2	All of the above, plus: Policy of work hours flexibility to accommodate transit schedules
Transit Program Level 3	All of the above, plus: On-site transit pass sales Half-time transportation coordinator
Transit Program Level 4	All of the above, plus: GRH Full-time transportation coordinator
Bicycle Program Level 1	On-site bicycle parking
Bicycle Program Level 2	All of the above, plus: Shower and changing facilities
Bicycle Program Level 3	All of the above, plus: Secure bicycle parking, Bike-friendly infrastructure
Bicycle Program Level 4	All of the above, plus: Workplace information and promotional activities

Existing Alternative Work Schedule Parameters

According to the International Telework Association and Council's 2000 Survey, the average number of days per week of telecommuting for employees is 2.5. According to the Current Population Survey from the Bureau of the Census for the Bureau of Labor Statistics, 17% of employees work hours that are outside of the traditional 8am to 5pm shift.

Table 4.10: 2000 Countywide Baseline Alternative Work Parameters

Alternative Work Parameters	
Telecommuting: Average days per week	2.5 days per week
Flextime/Staggered Hours: Percent of trips shifted from peak period	17%

Existing Alternative Work Schedule Participation Rates

In the COMMUTER Model flextime is defined as a shift of the work schedule outside of the peak period. However, in traditional TDM studies, flextime is defined as minor shifts in arrival and departure times to and from work in order to accommodate carpooling or transit schedules, for example. Therefore, CUTR decided to eliminate flextime as an input and only use staggered hours to account for work schedules that shift the commute out of peak periods. According to the Current Population Survey from the Bureau of the Census for the Bureau of Labor Statistics, 17% of employees work hours that are outside of the traditional 8am to 5pm shift. These employees work either an evening shift, night shift, rotating shift, split shift or employer-arranged irregular schedules.²

According to the 2000 Evaluation of South Florida Commuter Services, 3% of employees work an unspecified type of compressed work week. That figure must be allocated to 4/40 and 9/80 categories in order to use in the COMMUTER model. Therefore, the data from the Los Angeles State of the Commute Report were used to distribute the South Florida CWW proportionally. In that report, 54% of compressed work week participants worked a 9/80 schedule and 46% worked a 4/40 schedule, which converts to 1.6% and 1.4% respectively.

Table 4.11: 2000 Countywide Baseline Alternative Work Schedule Participation

Alternative Work Schedule	Existing Participation
Flextime	0%
Compressed 4/40	1.4%
Compressed 9/80	1.6%
Staggered Hours	17%
Telecommuting	4%

2000 Countywide Baseline Travel and Mode Share Data

Table 4.12: 2000 Countywide Baseline Travel Data

Quantity	Peak	Off-Peak	Total
Baseline VMT	7,414,430	2,999,095	10,413,525
Baseline Trips	614,636	248,617	863,253

Source: COMMUTER Model Outputs

² Beers, Thomas M. "Flexible schedules and shift work: replacing the '9 to 5' workday?". Bureau of Labor Statistics. Monthly Labor Review. June 2000.

Table 4.13: 2000 Countywide Baseline Mode Share

Mode	Baseline
Drive Alone	80.9%
Carpool	12.7%
Vanpool	0.1%
Transit	1.5%
Bicycle	1.1%
Pedestrian	2.5%
Other	1.2%
No Trip	-
Total	100.0%

Countywide 2025 Baseline

The 2025 Baseline incorporates forecasted employment growth in Pinellas County. The forecasted employment figures are from Zdata Tables, subtracting 2.17% (1990 Census figure) for individual that work at home. The primary impacts of the projected employment growth are a 17.5% increase in both VMT and Total Trips. Daily VMT are projected to increase from 10.4 million to 12.2 million and daily vehicle trips are expected to increase from 863,000 to 1,014,000. CUTR did not project any changes in mode share for the 2025 Baseline.

Table 4.14 Pinellas County 1999 and 2025 Projected Employment

Year	Industrial	Regional Commercial	Local Commercial	Regional Service	Local Service	Total Employment
1999	110,900	38,800	57,400	240,800	50,000	497,900
2025	126,447	44,443	65,367	289,291	59,180	584,728
Net Growth	14.0%	14.5%	13.9%	20.1%	18.4%	17.4%

Source: 1999 Zdata

Table 4.15: 2025 Countywide Baseline Employment

Employment	Employees	Percent
Office Employment	491,400	86%
Non-Office Employment	93,600	14%
Total	585,000	100%

Source: Zdata 1999

The 2025 Baseline data set includes the expected growth rate of telecommuting. Telecommuting (at least one day per week as an employee or contractor) participation rates are projected to reach 13% by 2025. See Appendix D for a full explanation of the expected telecommuting growth rate.

As previously stated on page 16, after consulting the staff from the Planning Commission and PSTA, it was determined that the impacts of transit improvement should be kept to a minimum for the 2025 Baseline. As a result, minor transit improvements that reflect the 2020 LRTP Planned Transit Improvement were incorporated into the 2025 Baselines and Scenario. The incorporated transit improvements did not increase transit mode share, except in two of the activity centers in which transit mode share increased by 0.1%.

2025 Countywide Baseline Travel and Mode Share Data

Table 4.16: 2025 Countywide Baseline Travel Data

Quantity	Peak	Off-Peak	Total
Baseline VMT	8,711,471	3,523,741	12,235,212
Baseline Trips	722,157	292,109	1,014,266

Table 4.17: 2025 Countywide Baseline Mode Share

Mode	Baseline
Drive Alone	80.9%
Carpool	12.7%
Vanpool	0.1%
Transit	1.5%
Bicycle	1.1%
Pedestrian	2.5%
Other	1.2%
No Trip	0.0%
Total	100.0%

Table 4.18: 2025 Countywide Baseline Emission Reductions (tons/day except CO₂ in metric tons/day)

Pollutant	Peak	Off-Peak	Total
HC	0.207	0.078	0.285
CO	1.754	0.630	2.384
NOx	0.179	0.093	0.272
CO ₂	48.0	15.6	63.7

Countywide TDM Program Scenarios

Scenario A: Alternative Work Schedule

Scenario A is comprised of a package of TDM programs focused solely on increases in alternative work schedules. Specifically, it calls for a 1% increase in the 4/40 Compressed Work Week (CWW) and a 2% increase in both the 9/80 CWW and telecommuting.

In 4/40 CWW, an employee works 40 hours in only 4 days, thus taking off one day per week. In a 9/80 CWW, an employee works 80 hours in 9 days and takes off either one half day once per week, or one whole day every two weeks.

Estimated Cost: Cost estimates were not developed for this scenario. Cost estimates were developed for Scenarios B and C only at the request of the Advisory Committee.

Table 4.19 Countywide Scenario A

Scenario A- Pinellas County		COMMUTER MODEL Results	
Description	Model Changes	2000 Baseline	2025 Baseline
Alternative Work Schedule Scenario	Compressed Work Week and Telecommuting Program 1% increase in 4/40 CWW 2% increase in 9/80 CWW 2% increase in telecommuting	1.1% or 117,000 VMT Reduction per day	4.7% or 575,300 VMT Reduction per day
		1.2% or 9,950 Trip Reduction per day	4.8% or 49,000 Trip Reduction per day
		0.203 tons/day NOx Reduction	0.950 tons/day NOx Reduction
		0.9% Reduction of SOV Mode share	3.9% Reduction of SOV Mode share

See Appendix A for complete listing of mode share changes, vehicle trip rates, and all emission reductions.

Scenario B: Alternative Work Schedule and Employer-based TDM Programs

Scenario B is comprised of a package of TDM programs that combine the alternative work schedule changes from Scenario A with employer-based TDM programs. These programs include preferential parking for car and vanpools, a Commuter Choice Tax Benefits Program, and increased employer support of transit, carpooling, vanpooling, and bicycling. The scenario is based on 5% workforce participation.

In a preferential parking program, the closest parking spaces to the employment site entrance are reserved for carpool and vanpool vehicles, and single-occupant vehicles (SOVs) are assigned to relatively more remote parking. In the COMMUTER Model, a preferential parking program is accounted for in terms of walk access time. In the scenario, 2 minutes are added for SOVs and there is a 2-minute reduction for carpools and vanpools.

A Commuter Choice Program provides employees and/or employers with tax benefits for using or supporting alternative commuter modes. In this scenario, commuters are provided with a 25% (\$0.60 per day) transit subsidy, and a \$0.75 per day vanpool subsidy. These subsidies may be either privately or publicly funded, or shared.

In this scenario, Level 1 employer support programs (as explained on page 24) are set at 5%. This means that 5% of the workforce has access to employer support programs.

Estimated Cost: \$1,533,000 per year for 1 Transportation Management Association and 3 employer outreach transportation professionals within Bay Area Commuter Services dedicated to Pinellas County to assist employers to reach 5% workforce participation (approximately 29,000 commuters in 2025). Also, 2 professionals would be dedicated to forming vanpools. Cost includes other direct expenses such as advertising, project related materials, etc. Plus: \$88,000 provided as vanpool fare subsidies per year (public and/or private) and \$1,645,000 provided as transit fare subsidies per year (public and/or private).

Table 4.20 Countywide Scenario B

Scenario B- Pinellas County		COMMUTER MODEL Results	
Description	Model Changes	2000 Baseline	2025 Baseline
Alternative Work Schedule with Employer-based TDM Programs	Compressed Work Week and Telecommuting Program 1% increase in 4/40 CWW 2% increase in 9/80 CWW 2% increase in telecommuting	1.2% or 126,000 VMT Reduction per day 1.2% or 10,800 Trip Reduction per day	4.8% or 586,000 VMT Reduction per day 4.9% or 50,000 Trip Reduction per day
	Preferential Parking Program -2 minutes CP/VP Walk Access +2 minutes SOV Walk Access	0.219 tons/day NOx Reduction	0.968 NOx tons/day Reduction
	Commuter Choice Program \$0.60 Transit subsidy \$0.75 Vanpool subsidy	1.0% Reduction in SOV Mode Share	4.0% Reduction in SOV Mode Share
	5% Workforce participation		
	All employer support levels at 5% Level 1		

See Appendix A for complete listing of mode share changes, vehicle trip rates, and all emission reductions.

Scenario C: Employer-based TDM Program II

This scenario is a more aggressive version of B and is based on 10% workforce participation and corresponding changes in employer support levels for the four types of employer support programs: 7% Level 1 and 3% Level 2.

Estimated Cost: \$1,714,000 per year for 1 Transportation Management Associations and 5 employer outreach transportation professionals within Bay Area Commuter Services dedicated to Pinellas County to assist employers to have 10% of the workforce offered these programs (approximately 58,000 commuters in 2025). Also, 2 professionals would be dedicated to forming vanpools. Cost includes other direct expenses such as advertising, project related materials, etc. Plus: \$175,000 provided as vanpool fare subsidies (public and/or private) and \$1,645,000 provided as transit fare subsidies (public and/or private).

Table 4.21 Countywide Scenario C

Scenario C- Pinellas County		COMMUTER MODEL Results	
Description	Model Changes	2000 Baseline	2025 Baseline
Alternative Work Schedule with Employer-based TDM Programs	Compressed Work Week and Telecommuting Program	1.3% or 139,000 VMT Reduction per day	4.9% or 601,000 VMT Reduction per day
	1% increase in 4/40 CWW		
	2% increase in 9/80 CWW	1.4% or 12,000 Trip Reduction per day	5.1% or 51,000 Trip Reduction per day
	2% increase in telecommuting		
	Preferential Parking Program	0.241 tons/day NOx Reduction	0.994 NOx tons/day Reduction
	-2 minutes CP/VP Walk Access		
	+2 minutes SOV Walk Access		
	Commuter Choice Program	1.2% Reduction in SOV Mode Share	4.2% Reduction in SOV Mode Share
	\$0.60 Transit subsidy		
	\$0.75 Vanpool subsidy		
	10% Workforce participation		
	All employer support levels at 7% Level 1; 3% Level 2		

See Appendix A for complete listing of mode share changes, vehicle trip rates, and all emission reductions.

Scenario D: Employer-based TDM Program III

This scenario is a more aggressive version of C and is based on 50% workforce participation and corresponding changes in employer support levels: 20% Level 1 and 15% Level 2; 10% Level 3; and 5% Level 4. Employers with 100 or more employees represent only 5% of the companies but employ about 50% of the workforce. Strategies aimed at obtaining employer participation in these type of programs could range from market-based strategies such as tax incentives or matching funds to more command-and-control strategies such as trip reduction ordinances that mandate employers to reach a particular objective (e.g., reduction in vehicle trips or non-single occupant vehicle mode share).

Estimated Cost: Cost estimates were not developed for this scenario. Cost estimates were developed for Scenarios B and C only at the request of the Advisory Committee.

Table 4.22 Countywide Scenario D

Scenario D- Pinellas County		COMMUTER MODEL Results	
Description	Model Changes	2000 Baseline	2025 Baseline
Alternative Work Schedule with Employer-based TDM Programs	Compressed Work Week and Telecommuting Program 1% increase in 4/40 CWW 2% increase in 9/80 CWW 2% increase in telecommuting	3.4% or 350,000 VMT Reduction per day 3.6% or 31,000 Trip Reduction per day	6.8% or 831,000 VMT Reduction per day 7.2% or 73,000 Trip Reduction per day
	Preferential Parking Program -2 minutes CP/VP Walk Access +2 minutes SOV Walk Access	0.607 tons/day NOx Reduction	1.395 NOx tons/day Reduction
	Commuter Choice Program \$0.60 Transit subsidy \$0.75 Vanpool subsidy	3.7% Reduction in SOV Mode Share	-6.5% Reduction in SOV Mode Share
	50% Workforce participation		
	All employer support levels at 20% Level 1; 15% Level 2; 10% Level 3; 5% Level 4		

See Appendix A for complete listing of mode share changes, vehicle trip rates, and all emission reductions.

V. Recommendations

Recommended TDM Scenario for 2025 LRTP

The Advisory Committee recommended the **Voluntary Commuter Choice Initiative (Scenario B)** as the Preferred TDM Program Scenario, which was based on the these conditions and assumptions:

Regional TDM programs aimed at commuters have the greatest potential for success, but depend upon a working partnership between employers and the public sector to reach mutual goals. The public sector offers the TDM products and services as well as provides technical assistance to employers to apply employee transportation solutions to solve business problems such as employee recruitment, parking shortages, etc. while meeting the goals of reducing congestion and emissions. Employers set workplace policies such as flexible work hours and parking pricing that affect employee commute behavior. They also provide easy access to reach commuters who would benefit from these products and services. Since there are no legal requirements either for employers to reduce trip making by their employees or for their employees to participate, Bay Area Commuter Services, the transportation management organizations and the transportation management initiatives foster voluntary actions through their employer outreach efforts to increase employer participation in TDM programs.

TDM programs implemented by individual employers or organizations typically show larger changes in key measures of effectiveness than area-wide programs. But, the sum of individual efforts has contributed to measured success on a regional basis. TDM can significantly reduce automobile congestion in a corridor or within a sub-area. The degree of success is directly determined by the specific components of the TDM program. The most successful TDM programs provide individual firms with a strong economic incentive to adopt these measures. The success of TDM rests not with just implementing one or two individual activities on existing facilities, but with packaging various actions that complement and reinforce each other to achieve a desired objective.

The Preferred TDM Program Scenario consists of the following strategies:

- Employer Outreach to encourage the voluntary adoption and support of TDM programs among large employers or worksites (51% of employees work for employers with more than 100 employees. Only 2.4% of companies have more than 100 employees.)
- Transit services
- Compressed work week and telecommuting outreach program
- Vanpool program management and promotions
- Matching program for employer-provided discounts for transit, vanpool and other commute benefits.
- Preferential parking for carpools and vanpools

Impacts of Recommended TDM Scenario in Pinellas County

Table 5.1: Travel Impacts per day (relative to affected employment)

Quantity	Peak	Off-Peak	Total
Baseline VMT	8,711,471	3,523,741	12,235,212
Final VMT	8,294,196	3,354,956	11,649,152
VMT Reduction	417,275	168,785	586,060
% VMT Reduction	4.8%	4.8%	4.8%
Baseline Trips	722,157	292,109	1,014,266
Final Trips	686,587	277,720	964,307
Trip Reduction	35,571	14,388	49,959
% Trip Reduction	4.9%	4.9%	4.9%

Table 5.2: Mode Share Impacts

Mode	Baseline	Final	%Change
Drive Alone	80.9%	76.9%	-4.0%
Carpool	12.7%	12.1%	-0.6%
Vanpool	0.1%	0.1%	+0.0%
Transit	1.5%	1.5%	-0.0%
Bicycle	1.1%	1.1%	-0.0%
Pedestrian	2.5%	2.5%	-0.0%
Other	1.2%	1.1%	-0.1%
No Trip	-	4.7%	+4.7%
Total	100.0%	100.0%	-

Table 5.3: Emission Reductions (tons/day except CO₂ in metric tons/day)

Pollutant	Peak	Off-Peak	Total
HC	0.679	0.246	0.925
CO	5.668	1.996	7.664
NOx	0.675	0.294	0.968
CO ₂	166.6	63.9	230.5

Estimated Cost

The total estimated cost for this scenario is \$1,700,00 per year (in Year 2001 dollars) for management and operations of the Preferred TDM Program Scenario to fund employer outreach program through Bay Area Commuter Services and the transportation management organizations/initiatives, the management of the vanpool program, and a compressed work week/telecommuting initiative. An additional \$1,765,000 annually will be required to match \$1,765,000 of employer subsidies for transit, vanpool, or other alternatives to driving alone would be required.

Recommended and Approved TDM Language for 2025 LRTP

The Pinellas County MPO declined on implementing the program. However, they asked BACS to develop TDM language for the Goals Objectives and Policies section of the 2025 LRTP

This section of the report contains the language BACS developed, and the MPO approved. The following italicized language has been adopted into the 2025 Long Range Transportation Plan (LRTP) document:

Transportation Demand Management

- 1.11. Objective: *Reduce transportation congestion and positively impact air quality by decreasing the use of the single occupant vehicle (SOV) at peak hours through the promotion and support of transportation demand management (TDM) strategies.*
- 1.11.1. Policy: *The MPO shall work with local governments, TDM agencies and FDOT to develop vehicle trip (VT) reduction and vehicle miles of travel (VMT) reduction goals.*
- 1.11.2. Policy: *The MPO shall assist and support the efforts of BACS to implement and achieve the goals of its Long Range Transportation Demand Management Plan and to carry out recommended actions derived from related studies.*
- 1.11.3. Policy: *The MPO shall assist and encourage the efforts of local TDM agencies by providing technical and funding support for promotion of alternatives to SOV travel, including carpool, vanpool, transit, walking, bicycling, telecommuting and variable work schedules.*
- 1.11.4. Policy: *The MPO shall continue to participate in events and other activities sponsored by local transportation-related agencies that support and facilitate the use of alternatives to driving alone by commuters and other travelers (i.e. Commuter Choices Week, B-BOPP, Tampa Bay Commuter, etc.).*
- 1.11.5. Policy: *The MPO shall work with transportation agencies and local governments to encourage non-work trips to be made at times other than peak to assist in the reduction of traffic congestion during those periods.*
- 1.11.6. Policy: *The MPO shall work with transportation agencies and local governments to encourage those using non-work trips to use public transportation and/or other forms of ridesharing (i.e., carpool and vanpool) whenever possible.*
- 1.11.7. Policy: *The MPO shall encourage and participate in public-private partnerships and develop incentives to encourage employer, developer and other organizations' participation in meeting the mobility needs of County residents, visitors and businesses.*
- 1.11.8. Policy: *The MPO shall work with transportation-related agencies and local governments to encourage, promote and support employer participation in qualified transportation fringe benefit allowed under the federal IRS Code to provide tax-deductible public transportation benefits to their employees.*
- 1.11.9. Policy: *The MPO shall work with local governments, TDM agencies, employers and developers to encourage and implement effective parking management strategies, including preferential parking for carpools and vanpools, shared use parking and variable parking pricing.*

- 1.11.10. Policy: *The MPO shall provide policy direction and implementation support to city and county traffic departments, TDM agencies, FDOT and state/local emergency and police departments to maintain the flow of people and goods during major reconstruction of highway facilities.*
- 1.11.11. Policy: *The MPO shall work with the Pinellas County School Board and private schools to encourage the use of carpools and non-motorized modes to reduce traffic congestion in and around schools and improve safety of our children.*
- 1.11.12. Policy: *The MPO shall encourage the development of a telecommunication infrastructure to provide universal service access to all citizens for expanding educational opportunities via distance learning, obtaining medical information via telemedicine, increasing commerce via the purchase of goods by online shopping, and creating job opportunities via telework. These elements will foster economic development by helping citizens and businesses move intellectual property, data and information electronically. This policy is intended to reduce or even eliminate the need to physically travel.*
- 1.11.13. Policy: *The MPO shall encourage the opportunities for advancement in telecommunications and other technologies and their impacts on travel behavior to identify other means for meeting some of the transportation needs of County residents and businesses.*
- 1.11.14. Policy: *The MPO shall encourage the business community to adopt telecommunication solutions such as web conferencing and telecommuting in order to substitute for some of their needs to travel by private vehicle and/or complement the transportation needs.*

Appendix A

Countywide TDM Program Options

Four options have been developed by BACS in order to project the long-range impacts of TDM Programs.

Enhanced Public/Private Partnership Program

In order to ensure the success of TDM Programs in Pinellas County, the local governments in Pinellas County, PSTA and BACS shall enhance and maintain partnership programs with private and public sector employers to include a sharing or matching of the financial incentives for commuters for encourage use of non-SOV modes.

In this option, the telecommuting and alternative work schedule programs, will be combined with partnership program aimed at providing employers with greater incentives to implement Commuter Choice and other TDM programs. The local city and county governments, FDOT, and participating employers work as partners to share the cost of developing, implementing and maintaining TDM programs. For example, an employer could receive matching funds to subsidize transit pass or vanpool fares for their employees. Employer participation remains voluntary. The projected impacts of this option are based on a 10% workforce participation rate.

Estimated Cost: \$1,714,000 per year for 1 Transportation Management Associations and 5 employer outreach transportation professionals within Bay Area Commuter Services dedicated to Pinellas County to assist employers to have 10% of the workforce offered these programs (approximately 58,000 commuters in 2025). Also, 2 professionals would be dedicated to forming vanpools. Cost includes other direct expenses such as advertising, project related materials, etc. Plus: \$175,000 provided as vanpool fare subsidies (public and/or private) and \$1,645,000 provided as transit fare subsidies (public and/or private).

Table A.1: Proposed Objectives and Projected Impacts of Enhanced Public/Private Partnership Program

Pinellas County		COMMUTER MODEL Results	
Description	Model Changes	2000 Projected Impacts	2025 Projected Impacts
Alternative Work Schedule with Employer-based TDM Programs	Compressed Work Week and Telecommuting Program	1.3% or 139,000 VMT Reduction per day	4.9% or 601,000 VMT Reduction per day
	1% increase in 4/40 CWW		
	2% increase in 9/80 CWW	1.4% or 12,000 Trip Reduction per day	5.1% or 51,000 Trip Reduction per day
	2% increase in telecommuting		
	Preferential Parking Program	0.241 tons/day NOx Reduction	0.994 NOx tons/day Reduction
	-2 minutes CP/VP Walk Access		
	+2 minutes SOV Walk Access	1.2% Reduction in SOV Mode Share	4.2% Reduction in SOV Mode Share
	Commuter Choice Program		
	\$0.60 Transit subsidy		
	\$0.75 Vanpool subsidy		
	10% Workforce participation		
	All employer support levels at 7% Level 1; 3% Level 2		

Status Quo Plus Telecommuting and Alternative Work Schedule Program

In order to ensure the success of TDM Programs in Pinellas County, the local city and county governments will encourage employers to develop, implement and maintain TDM Programs. Local city and county governments will continue to fund BACS and area TMOs to assist employers in these efforts.

Under this option, a regional TDM Program focused on telecommuting and alternative work schedules will be implemented through additional funding of BACS. Telecommuting and alternative work schedules are desired by employees and have the potential to significantly reduce VMT and vehicle trips, and improve air quality. The objectives of this option are a 1% increase in the 4/40 Compressed Work Week (CWW) and a 2% increase in both the 9/80 CWW and telecommuting. Employer participation is voluntary. BACS and the TMOs will be responsible for program outreach and assisting employers and employees to develop and implement the programs.

It is projected that a regional TDM Program focused on increasing participation in telecommuting and alternative work schedules will result in a 4.9% VMT reduction by 2025 (see Table B below).

Table A.2: Proposed Program Objectives and Projected Impacts of Status Quo Plus Telecommuting and Alternative Work Schedule Program

Pinellas County		COMMUTER MODEL Results	
Description	Model Changes	2000 Projected Impacts	2025 Projected Impacts
Alternative Work Schedule Scenario	Compressed Work Week and Telecommuting Program 1% increase in 4/40 CWW 2% increase in 9/80 CWW 2% increase in telecommuting	1.1% or 117,000 VMT Reduction per day	4.7% or 575,300 VMT Reduction per day
		1.2% or 9,950 Trip Reduction per day	4.8% or 49,000 Trip Reduction per day
		0.203 tons/day NOx Reduction	0.950 tons/day NOx Reduction
		0.9% Reduction of SOV Mode share	3.9% Reduction of SOV Mode share

Voluntary Commuter Choice Initiative

In order to ensure the success of TDM Programs in Pinellas County, the local city and county governments shall develop TDM Programs designed to reach private and public sector employers through the regional CAP (BACS) and TMOs. In addition to the telecommuting and alternative work schedule programs of Option 1, additional funding will be used to assist employers in developing Commuter Choice Programs designed to take advantage of federal tax benefits.

Under this option, employer participation remains voluntary. The local city and county governments shall provide BACS and the area's TMOs with the additional funding necessary to develop TDM Programs in which employers can participate. These programs can include preferential parking for car and vanpools, a Commuter Choice tax benefit program, and other programs to increase employer support of transit, carpooling, vanpooling, and bicycling.

In a preferential parking program, the closest parking spaces to the employment site entrance are reserved for carpool and vanpool vehicles, and single-occupant vehicles (SOVs) are assigned to relatively more remote parking. The objective of a Commuter Choice Initiative is to help employers take advantage of federal tax benefits for supporting their employees that use alternative commuter modes. The projected impacts stated in Table C are based on the condition that 5% of employees work for a Pinellas-based employer that offers these programs (approximately 50,000 commuters in 2025).

Estimated Cost: \$1,533,000 per year for 1 Transportation Management Association and 3 employer outreach transportation professionals within Bay Area Commuter Services dedicated to Pinellas County to assist employers to reach 5% workforce participation (approximately 29,000 commuters in 2025). Also, 2 professionals would be dedicated to forming vanpools. Cost includes other direct expenses such as advertising, project related materials, etc. Plus: \$88,000 provided as vanpool fare subsidies per year (public and/or private) and \$1,645,000 provided as transit fare subsidies per year (public and/or private).

Table A.3: Proposed Program Objectives and Projected Impacts of Voluntary Commuter Choice Initiative

Scenario A- Pinellas County		COMMUTER MODEL Results	
Description	Model Changes	2000 Projected Impacts	2025 Projected Impacts
Alternative Work Schedule Scenario	Compressed Work Week and Telecommuting Program 1% increase in 4/40 CWW 2% increase in 9/80 CWW 2% increase in telecommuting	1.1% or 117,000 VMT Reduction per day	4.7% or 575,300 VMT Reduction per day
		1.2% or 9,950 Trip Reduction per day	4.8% or 49,000 Trip Reduction per day
		0.203 tons/day NOx Reduction	0.950 tons/day NOx Reduction
		0.9% Reduction of SOV Mode share	3.9% Reduction of SOV Mode share

Employer Trip Reduction Ordinance

Under this option, the Pinellas County and local governments in Pinellas County would adopt a Trip Reduction Ordinance (TRO) that will require employers of 100 or more employers to develop, implement, and maintain their own TDM programs to reach a particular goal (e.g., reduce vehicle trips by x% by 20XX).

Local county and city governments, including the City of Temple Terrace for example, are responsible for implementing and enforcing Trip Reduction Ordinances.

The adoption of a TRO would require significant policy changes and funding to assist participating employers develop their TDM Programs. However, the impact on traffic congestion and air quality would also be significant. By requiring these large employers who represent 4% of Pinellas County employers to develop and maintain a TDM program, over half of all employees in the County would be actively offered TDM programs and services on an ongoing basis. As a result the project impacts of the program are based on a 50% workforce participation rate.

Table A.4: Proposed Program Objectives and Projected Impacts of Employer Trip Reduction Ordinance

Scenario D- Pinellas County		COMMUTER MODEL Results	
Description	Model Changes	2000 Projected Impacts	2025 Projected Impacts
Alternative Work Schedule with Employer-based TDM Programs	Compressed Work Week and Telecommuting Program 1% increase in 4/40 CWW 2% increase in 9/80 CWW 2% increase in telecommuting	3.4% or 350,000 VMT Reduction per day 3.6% or 31,000 Trip Reduction per day	6.8% or 831,000 VMT Reduction per day 7.2% or 73,000 Trip Reduction per day
	Preferential Parking Program -2 minutes CP/VP Walk Access +2 minutes SOV Walk Access	0.607 tons/day NOx Reduction 3.7% Reduction in SOV Mode Share	1.395 NOx tons/day Reduction -6.5% Reduction in SOV Mode Share
	Commuter Choice Program \$0.60 Transit subsidy \$0.75 Vanpool subsidy		
	50% Workforce participation		
	All employer support levels at 20% Level 1; 15% Level 2; 10% Level 3; 5% Level 4		

Appendix A: Pinellas County Long Range TDM Plan: Countywide Scenario Tables

Pinellas County Long Range TDM Plan: Countywide Scenarios						
Commuter Model Results	2000 Baseline	2025 Baseline	Scenario A 2025 Results	Scenario B 2025 Results	Scenario C 2025 Results	Scenario D 2025 Results
	497,900 Commuters	585,000 Commuters Expected Telecommuting Growth Rates Minor Transit Improvements	Compressed Work Week and Telecommuting Program	Compressed Work Week and Telecommuting Program Employer-based TDM Program 5% Workforce Participation Rate ¹	Compressed Work Week and Telecommuting Program Employer-based TDM Program 10% Workforce Participation Rate	Compressed Work Week and Telecommuting Program Employer-based TDM Program 50% Workforce Participation Rate
VMT	10,413,525	12,235,212	11,659,910	11,649,152	11,634,453	11,408,885
VMT Reduction/day	NA	NA	575,302	586,060	600,759	831,328
% VMT Reduction/day	NA	NA	4.7%	4.8%	4.9%	6.8%
Vehicle Trips	863,253	1,014,266	965,282	964,307	962,935	941,694
Vehicle Trip Reduction/day	NA	NA	48,984	49,959	51,331	72,572
% Vehicle Trip Reduction/day	NA	NA	4.8%	4.9%	5.1%	7.2%
Emission Reductions ²	NA	NA	0.903 HC 7.664CO 0.968NOx 230.5 CO ₂	0.925 HC 7.522 CO 0.950 NOx 226.0 CO ₂	0.949 HC 7.859 CO 0.994 NOx 236.6 CO ₂	1.322 HC 10.918 CO 1.395 NOx 332.5 CO ₂
SOV Mode Share Reduction	NA	NA	3.9%	4.0%	4.2%	6.5%
Vehicle Trip Rate	86.7 vehicles/100 commuters	85.3 vehicles/100 commuters	82.5 vehicles/100 commuters	82.4 vehicles/100 commuters	82.2 vehicles/100 commuters	80.4 vehicles/100 commuters

¹ Workforce participation rate refers to the percent of the commuters working for employers that are implementing these programs

² Tons/day except CO₂ in metric tons/day, positive values are decreases

Appendix B

Activity Center Scenario Baselines

For the Pinellas County Long Range TDM Plan, four activity centers were chosen for analysis: Downtown St. Petersburg, Downtown Clearwater, Mid County, and Gateway. Four scenarios were developed for each activity, with three additional scenarios for Downtown St. Petersburg and Downtown Clearwater since there is paid parking available. Compared to the countywide scenarios, the activity center scenarios are based on higher levels of employer participation.

In terms of the baseline data used in the COMMUTER Model, the only differences between the countywide and activity center data include; Employment Size, Office v. Non-Office Employment, Mode Split, and Average Travel Distance.

Table B.1: Activity Centers' Current and Future Employment

Employment	Downtown St. Pete	Downtown Clearwater	Mid County	Gateway
2000 Commuting Workforce	23,136	16,482	73,851	13,738
2025 Commuting Workforce	31,427	18,725	90,691	32,830
2000 Office employees	92.8%	91.7%	41.5%	71.4%
2000 Non-office employees	7.2%	8.3%	58.5%	28.6%
2025 Office employees	92.4%	90.8%	47.3%	73.0%
2025 Non-office employees	7.6%	9.2%	52.7%	27.0%

Source: Zdata

Table B.2: 2000 Activity Center Mode Shares and Trip Distance

Modes	Pinellas	Downtown St. Petersburg	Downtown Clearwater	Mid County	Gateway
Drive alone	80.9%	79.2%	75.5%	82.9%	83.1%
Carpool	12.7%	14.6%	17.5%	14.0%	14.0%
Vanpool	0.1%	0.1%	0.1%	0.1%	0.1%
Transit	1.5%	4.7%	5.4%	1.7%	1.5%
Bicycle	1.1%	0.2%	0.3%	0.1%	0.1%
Pedestrian	2.5%	1.2%	1.2%	1.2%	1.2%
Work Trip Distance (miles)	11.4	9.0	8.4	11.7	11.7

Source: 1990 Census data (modified to fit COMMUTER Model) and Zdata Tables

Table B.3: Summary of Activity Center TDM Scenarios

Scenarios	DT Clearwater and St. Pete	Mid County and Gateway
A Alternative Work Schedule and Telecommuting Program	Alternative Work Schedule and Telecommuting 4/40 +1% 9/80 +2% Telecommuting +2%	Alternative Work Schedule and Telecommuting 4/40 +1% 9/80 +2% Telecommuting +2%
Parking 1 Parking Management	Free Parking for Carpools and Vanpools Clearwater: -\$2.50 10% St. Pete: -\$2.20 15% Preferential parking for Carpools and Vanpools +2 Drive alone -2 Carpools and Vanpools 10% Workforce Participation in Clearwater 15% Workforce Participation in St. Pete Employer Support Levels 7% Level 1; 3% Level 2 in Clearwater 10% Level 1; 5% Level 2 in St. Pete	NA
Parking 2 Parking Management plus increased parking cost for SOVs	Free Parking for Carpools and Vanpools Clearwater: -\$2.50 10% St. Pete: -\$2.20 15% Drive alone parking cost= +\$1.00 Preferential parking for Carpools and Vanpools +2 Drive alone -2 carpool/vanpool 10% Workforce Participation in Clearwater 15% Workforce Participation in St. Pete Employer Support Levels 7% Level 1; 3% Level 2 in Clearwater 10% Level 1; 5% Level 2 in St. Pete	NA
B Employer-based TDM Program and Alternative Work Schedule and Telecommuting Program 10% Workforce Participation	Alternative Work Schedule and Telecommuting 4/40 +1% 9/80 +2% Tele +2% Preferential parking for Carpools and Vanpools +2 Drive alone -2 Carpools and vanpools 10% Workforce Participation Subsidies (quarter subsidy) Vanpool: -\$.75 Transit: -\$.60 10% Workforce Participation Employer Support Levels 7% Level 1; 3% Level 2	Alternative Work Schedule and Telecommuting 4/40 +1% 9/80 +2% Tele +2% Preferential parking for Carpools and Vanpools +2 Drive alone -2 Carpools and Vanpools 10% Workforce Participation Subsidies (quarter subsidy) Vanpool: -\$.75 Transit: -\$.60 10% Workforce Participation Employer Support Levels 7% Level 1; 3% Level 2
C 1 Employer-based TDM Program and Alternative Work Schedule and Telecommuting Program 20% Workforce Participation	Alternative Work Schedule and Telecommuting 4/40 +1% 9/80 +2% Tele +2% Preferential parking for Carpools and Vanpools +2 Drive alone -2 Carpools and Vanpools 20% Workforce Participation Subsidies (quarter subsidy) Vanpool: -\$.75 Transit: -\$.60 20% Workforce Participation Employer Support Levels 10% Level 1; 7% Level 2; 3% Level 3	Alternative Work Schedule and Telecommuting 4/40 +1% 9/80 +2% Tele +2% Preferential parking for Carpools and Vanpools +2 Drive alone -2 Carpools and Vanpools 20% Workforce Participation Subsidies (quarter subsidy) Vanpool: -\$.75 Transit: -\$.60 20% Workforce Participation Employer Support Levels 10% Level 1; 7% Level 2; 3% Level 3

Scenarios	DT Clearwater and St. Pete	Mid County and Gateway
C 2 Employer-based TDM Program with Parking Cash-out and Alternative Work Schedule and Telecommuting Program 20% Workforce Participation	Alternative Work Schedule and Telecommuting 4/40 +1% 9/80 +2% Telecommuting +2% Preferential parking for Carpools and Vanpools +2 Drive alone -2 Carpools and Vanpools 20% Workforce Participation Level Parking Cashout -\$2.25 for 2000 Baseline -\$3.50 for 2025 Baseline 20% Workforce Participation Level Employer Support Levels 10% Level 1; 7% Level 2; 3% Level 3	NA
D Employer-based TDM Program and Alternative Work Schedule and Telecommuting Program 50% Workforce Participation	Alternative Work Schedule and Telecommuting 4/40 +1% 9/80 +2% Telecommuting +2% Preferential parking for Carpools and Vanpools +2 Drive alone -2 Carpools and Vanpools 50% Workforce Participation Level Subsidies (quarter subsidy) VP: -\$.75 Tran: -\$.60 50% Workforce Participation Level Employer Support Levels 20% Level 1; 15% Level 2; 10% Level 3; 5% Level 4	Alternative Work Schedule and Telecommuting 4/40 +1% 9/80 +2% Telecommuting +2% Preferential parking for Carpools and Vanpools +2 Drive alone -2 Carpools and Vanpools 50% Workforce Participation Level Subsidies (quarter subsidy) VP: -\$.75 Tran: -\$.60 50% Workforce Participation Level Employer Support Levels 20% Level 1; 15% Level 2; 10% Level 3; 5% Level 4

Activity Centers: Scenario A Results

Table B.4: St. Petersburg Activity Center Scenario A

Scenario A- St. Petersburg Activity Center		COMMUTER MODEL Results	
Description	Model Changes	2000 Baseline	2025 Baseline
Alternative Work Schedule Scenario	Compressed Work Week and Telecommuting Program 1% increase in 4/40 CWW 2% increase in 9/80 CWW 2% increase in telecommuting	1.3% or 4,600 VMT Reduction per day	5.2% or 25,600 VMT Reduction per day
		1.3% or 520 Trip Reduction per day	5.3% or 2,900 Trip Reduction per day
		0.008 tons/day NOx Reduction	0.040 tons/day NOx Reduction
		1.0% Reduction of SOV Mode share	4.2% Reduction of SOV Mode share

See Appendix B for complete listing of mode share changes, vehicle trip rates, and all emission reductions.

Table B.5: Clearwater Activity Center Scenario A

Scenario A- Clearwater Activity Center		COMMUTER MODEL Results	
Description	Model Changes	2000 Baseline	2025 Baseline
Alternative Work Schedule Scenario	Compressed Work Week and Telecommuting Program 1% increase in 4/40 CWW 2% increase in 9/80 CWW 2% increase in telecommuting	1.3% or 3000 VMT Reduction per day	5.1% or 13,400 VMT Reduction per day
		1.3% or 350 Trip Reduction per day	5.1% or 1,600 Trip Reduction per day
		0.005 tons/day NOx Reduction	0.021 tons/day NOx Reduction
		1.0% Reduction of SOV Mode share	3.9% Reduction of SOV Mode share

See Appendix B for complete listing of mode share changes, vehicle trip rates, and all emission reductions.

Table B.6 Mid County Activity Center Scenario A

Scenario A- Mid County Activity Center		COMMUTER MODEL Results	
Description	Model Changes	2000 Baseline	2025 Baseline
Alternative Work Schedule Scenario	Compressed Work Week and Telecommuting Program 1% increase in 4/40 CWW 2% increase in 9/80 CWW 2% increase in telecommuting	0.6% or 9,000 VMT Reduction per day	2.7% or 52,300 VMT Reduction per day
		0.6% or 800 Trip Reduction per day	2.8% or 4,500 Trip Reduction per day
		0.016 tons/day NOx Reduction	0.081 tons/day Nox Reduction
		0.5% Reduction of SOV Mode share	2.3% Reduction of SOV Mode share

See Appendix B for complete listing of mode share changes, vehicle trip rates, and all emission reductions.

Table B.7 Gateway Activity Center Scenario A

Scenario A- Gateway Activity Center		COMMUTER MODEL Results	
Description	Model Changes	2000 Baseline	2025 Baseline
Alternative Work Schedule Scenario	Compressed Work Week and Telecommuting Program 1% increase in 4/40 CWW 2% increase in 9/80 CWW 2% increase in telecommuting	1.0% or 2,900 VMT Reduction per day 1.0% or 250 Trip Reduction per day 0.005 tons/day NOx Reduction 0.8% Reduction of SOV Mode share	4.1% or 28,700 VMT Reduction per day 4.2% or 2,500 Trip Reduction per day 0.044 tons/day Nox Reduction 3.5% Reduction of SOV Mode share

See Appendix B for complete listing of mode share changes, vehicle trip rates, and all emission reductions.

Activity Centers Scenario B Results

Table B.8: St. Petersburg Activity Center Scenario B

Scenario B- St.Petersburg Activity Center		COMMUTER MODEL Results	
Description	Model Changes	2000 Baseline	2025 Baseline
Alternative Work Schedule with Employer-based TDM Programs	Compressed Work Week and Telecommuting Program	1.6% or 5800 VMT Reduction per day	5.5% or 27,100 VMT Reduction per day
	1% increase in 4/40 CWW		
	2% increase in 9/80 CWW	1.6% or 630 Trip Reduction per day	5.6% or 3,000 Trip Reduction per day
	2% increase in telecommuting		
	Preferential Parking Program	0.010 tons/day NOx Reduction	0.042NOx tons/day Reduction
	-2 minutes CP/VP Walk Access +2 minutes SOV Walk Access		
Commuter Choice Program	1.4% Reduction in SOV Mode Share	4.5% Reduction in SOV Mode Share	
\$0.60 Transit subsidy			
\$0.75 Vanpool subsidy			
10% Workforce participation			
All employer support levels at 7% Level 1; 3% Level 2			

See Appendix B for complete listing of mode share changes, vehicle trip rates, and all emission reductions.

Table B.9: Clearwater Activity Center Scenario B

Scenario B- Clearwater Activity Center		COMMUTER MODEL Results	
Description	Model Changes	2000 Baseline	2025 Baseline
Alternative Work Schedule with Employer-based TDM Programs	Compressed Work Week and Telecommuting Program	1.6% or 3,800 VMT Reduction per day	5.5% or 14,500 VMT Reduction per day
	1% increase in 4/40 CWW		
	2% increase in 9/80 CWW	1.6% or 440 Trip Reduction per day	5.5% or 1,700Trip Reduction per day
	2% increase in telecommuting		
	Preferential Parking Program	0.007 tons/day NOx Reduction	0.022 NOx tons/day Reduction
	-2 minutes CP/VP Walk Access +2 minutes SOV Walk Access		
Commuter Choice Program	1.3% Reduction in SOV Mode Share	4.3% Reduction in SOV Mode Share	
\$0.60 Transit subsidy			
\$0.75 Vanpool subsidy			
10% Workforce participation			
All employer support levels at 7% Level 1; 3% Level 2			

See Appendix B for complete listing of mode share changes, vehicle trip rates, and all emission reductions.

Table B.10 Mid County Center Scenario B

Scenario B- Mid County Center		COMMUTER MODEL Results	
Description	Model Changes	2000 Baseline	2025 Baseline
Alternative Work Schedule with Employer-based TDM Programs	Compressed Work Week and Telecommuting Program 1% increase in 4/40 CWW 2% increase in 9/80 CWW 2% increase in telecommuting	0.8% or 12,300 VMT Reduction per day 0.8% or 1,000 Trip Reduction per day	3.0% or 56,300 VMT Reduction per day 3.0% or 4,900 Trip Reduction per day
	Preferential Parking Program -2 minutes CP/VP Walk Access +2 minutes SOV Walk Access	0.021 tons/day NOx Reduction	0.088 NOx tons/day Reduction
	Commuter Choice Program \$0.60 Transit subsidy \$0.75 Vanpool subsidy	0.7% Reduction in SOV Mode Share	2.6% Reduction in SOV Mode Share
	10% Workforce participation		
	All employer support levels at 7% Level 1; 3% Level 2		

See Appendix B for complete listing of mode share changes, vehicle trip rates, and all emission reductions.

Table B.11 Gateway Center Scenario B

Scenario B- Gateway Center		COMMUTER MODEL Results	
Description	Model Changes	2000 Baseline	2025 Baseline
Alternative Work Schedule with Employer-based TDM Programs	Compressed Work Week and Telecommuting Program 1% increase in 4/40 CWW 2% increase in 9/80 CWW 2% increase in telecommuting	1.2% or 3,500 VMT Reduction per day 1.2% or 300 Trip Reduction per day	4.4% or 30,300 VMT Reduction per day 4.4% or 2,600 Trip Reduction per day
	Preferential Parking Program -2 minutes CP/VP Walk Access +2 minutes SOV Walk Access	0.006 tons/day NOx Reduction	0.047 NOx tons/day Reduction
	Commuter Choice Program \$0.60 Transit subsidy \$0.75 Vanpool subsidy	1.1% Reduction in SOV Mode Share	3.7% Reduction in SOV Mode Share
	10% Workforce participation		
	All employer support levels at 7% Level 1; 3% Level 2		

See Appendix B for complete listing of mode share changes, vehicle trip rates, and all emission reductions.

Activity Center Scenario C1: Employer-based TDM Program II

Table B.12 St. Petersburg Activity Center Scenario C1

Scenario C1- St. Petersburg Activity Center		COMMUTER MODEL Results	
Description	Model Changes	2000 Baseline	2025 Baseline
Alternative Work Schedule with Employer-based TDM Programs	Compressed Work Week and Telecommuting Program	2.3% or 81,100 VMT Reduction per day	6.1% or 30,000 VMT Reduction per day
	1% increase in 4/40 CWW		
	2% increase in 9/80 CWW	2.1% or 840 Trip Reduction per day	6.1% or 3,300 Trip Reduction per day
	2% increase in telecommuting		
	Preferential Parking Program -2 minutes CP/VP Walk Access +2 minutes SOV Walk Access	0.014 tons/day NOx Reduction	0.047 NOx tons/day Reduction
Commuter Choice Program \$0.60 Transit subsidy \$0.75 Vanpool subsidy	1.9% Reduction in SOV Mode Share	5.0% Reduction in SOV Mode Share	
20% Workforce participation			
All employer support levels at 20% Level 1; 10% Level 2; 3% Level 3 and 2% Level 4			

See Appendix B for complete listing of mode share changes, vehicle trip rates, and all emission reductions.

Table B.13 Clearwater Activity Center Scenario C1

Scenario C1- Clearwater Activity Center		COMMUTER MODEL Results	
Description	Model Changes	2000 Baseline	2025 Baseline
Alternative Work Schedule with Employer-based TDM Programs	Compressed Work Week and Telecommuting Program	2.3% or 5,400 VMT Reduction per day	6.2% or 16,200 VMT Reduction per day
	1% increase in 4/40 CWW		
	2% increase in 9/80 CWW	14% or 590 Trip Reduction per day	6.0% or 1,900 Trip Reduction per day
	2% increase in telecommuting		
	Preferential Parking Program -2 minutes CP/VP Walk Access +2 minutes SOV Walk Access	0.009 tons/day NOx Reduction	0.025 NOx tons/day Reduction
Commuter Choice Program \$0.60 Transit subsidy \$0.75 Vanpool subsidy	1.9% Reduction in SOV Mode Share	4.8% Reduction in SOV Mode Share	
20% Workforce participation			
All employer support levels at 20% Level 1; 10% Level 2; 3% Level 3 and 2% Level 4			

See Appendix B for complete listing of mode share changes, vehicle trip rates, and all emission reductions.

Table B.14 Mid County Activity Center Scenario C1

Scenario C1- Mid County Activity Center		COMMUTER MODEL Results	
Description	Model Changes	2000 Baseline	2025 Baseline
Alternative Work Schedule with Employer-based TDM Programs	Compressed Work Week and Telecommuting Program	1.2% or 18,500 VMT Reduction per day	3.4% or 63,900 VMT Reduction per day
	1% increase in 4/40 CWW		
	2% increase in 9/80 CWW	1.2% or 1,500 Trip Reduction per day	3.4% or 5,400 Trip Reduction per day
	2% increase in telecommuting		
	Preferential Parking Program	0.032 tons/day NOx Reduction	0.100 NOx tons/day Reduction
	-2 minutes CP/VP Walk Access		
	+2 minutes SOV Walk Access		
	Commuter Choice Program	1.2% Reduction in SOV Mode Share	3.0% Reduction in SOV Mode Share
	\$0.60 Transit subsidy		
	\$0.75 Vanpool subsidy		
	20% Workforce participation		
	All employer support levels at 20% Level 1; 10% Level 2; 3% Level 3 and 2% Level 4		

See Appendix B for complete listing of mode share changes, vehicle trip rates, and all emission reductions.

Table B.15 Gateway Activity Center Scenario C1

Scenario C1- Gateway Activity Center		COMMUTER MODEL Results	
Description	Model Changes	2000 Baseline	2025 Baseline
Alternative Work Schedule with Employer-based TDM Programs	Compressed Work Week and Telecommuting Program	1.7% or 4,800 VMT Reduction per day	4.8% or 33,200 VMT Reduction per day
	1% increase in 4/40 CWW		
	2% increase in 9/80 CWW	1.6% or 400 Trip Reduction per day	4.8% or 2,900 Trip Reduction per day
	2% increase in telecommuting		
	Preferential Parking Program	0.008 tons/day NOx Reduction	0.052 NOx tons/day Reduction
	-2 minutes CP/VP Walk Access		
	+2 minutes SOV Walk Access		
	Commuter Choice Program	1.6% Reduction in SOV Mode Share	4.2% Reduction in SOV Mode Share
	\$0.60 Transit subsidy		
	\$0.75 Vanpool subsidy		
	20% Workforce participation		
	All employer support levels at 20% Level 1; 10% Level 2; 3% Level 3 and 2% Level 4		

See Appendix B for complete listing of mode share changes, vehicle trip rates, and all emission reductions.

Activity Center Scenario C2

Table B.16 St. Petersburg Activity Center Scenario C2

Scenario C1- St. Petersburg Activity Center		COMMUTER MODEL Results	
Description	Model Changes	2000 Baseline	2025 Baseline
Alternative Work Schedule with Employer-based TDM Programs with Parking Cashout	Compressed Work Week and Telecommuting Program	3.3% or 11,900 VMT Reduction per day	7.7% or 37,800 VMT Reduction per day
	1% increase in 4/40 CWW	3.2% or 1,300 Trip Reduction per day	7.8% or 4,200 Trip Reduction per day
	2% increase in 9/80 CWW		
	2% increase in telecommuting		
Preferential Parking Program	-2 minutes CP/VP Walk Access	0.021 tons/day NOx Reduction	0.059 NOx tons/day Reduction
	+2 minutes SOV Walk Access		
Parking Cashout	20% Workforce participation	3.4% Reduction in SOV Mode Share	7.3% Reduction in SOV Mode Share
	All employer support levels at 10% Level 1; 7% Level 2; and 3% Level 3		

See Appendix B for complete listing of mode share changes, vehicle trip rates, and all emission reductions.

Table B.17 Clearwater Activity Center Scenario C2

Scenario C1- Clearwater Activity Center		COMMUTER MODEL Results	
Description	Model Changes	2000 Baseline	2025 Baseline
Alternative Work Schedule with Employer-based TDM Programs with Parking Cashout	Compressed Work Week and Telecommuting Program	3.0% or 7,400 VMT Reduction per day	7.3% or 19,200 VMT Reduction per day
	1% increase in 4/40 CWW	2.9% or 800 Trip Reduction per day	7.2% or 2,300 Trip Reduction per day
	2% increase in 9/80 CWW		
	2% increase in telecommuting		
Preferential Parking Program	-2 minutes CP/VP Walk Access	0.012 tons/day NOx Reduction	0.030 NOx tons/day Reduction
	+2 minutes SOV Walk Access		
Parking Cashout	20% Workforce participation	2.9% Reduction in SOV Mode Share	6.4% Reduction in SOV Mode Share
	All employer support levels at 10% Level 1; 7% Level 2; and 3% Level 3		

See Appendix B for complete listing of mode share changes, vehicle trip rates, and all emission reductions.

Activity Center Scenario D

Table B.18 St. Petersburg Activity Center Scenario D

Scenario D- St. Petersburg Activity Center		COMMUTER MODEL Results	
Description	Model Changes	2000 Baseline	2025 Baseline
Alternative Work Schedule with Employer-based TDM Programs	Compressed Work Week and Telecommuting Program	4.8% or 17,100 VMT Reduction per day	7.0% or 41,500 VMT Reduction per day
	1% increase in 4/40 CWW		
	2% increase in 9/80 CWW	4.1% or 1,600 Trip Reduction per day	7.9% or 4,300 Trip Reduction per day
	2% increase in telecommuting		
	Preferential Parking Program	0.030 tons/day NOx Reduction	0.065 NOx tons/day Reduction
	-2 minutes CP/VP Walk Access		
	+2 minutes SOV Walk Access		
	Commuter Choice Program	4.0% Reduction in SOV Mode Share	7.0% Reduction in SOV Mode Share
	\$0.60 Transit subsidy		
	\$0.75 Vanpool subsidy		
	50% Workforce participation		
	All employer support levels at 20% Level 1; 15% Level 2; 10% Level 3; 5% Level 4		

See Appendix B for complete listing of mode share changes, vehicle trip rates, and all emission reductions.

Table B.19 Clearwater Activity Center Scenario D

Scenario D- Clearwater Activity Center		COMMUTER MODEL Results	
Description	Model Changes	2000 Baseline	2025 Baseline
Alternative Work Schedule with Employer-based TDM Programs	Compressed Work Week and Telecommuting Program	4.0% or 11,600 VMT Reduction per day	8.7% or 22,900 VMT Reduction per day
	1% increase in 4/40 CWW		
	2% increase in 9/80 CWW	4.2% or 1,100 Trip Reduction per day	7.9% or 2,500 Trip Reduction per day
	2% increase in telecommuting		
	Preferential Parking Program	0.020 tons/day NOx Reduction	0.036 NOx tons/day Reduction
	-2 minutes CP/VP Walk Access		
	+2 minutes SOV Walk Access		
	Commuter Choice Program	4.0% Reduction in SOV Mode Share	6.8% Reduction in SOV Mode Share
	\$0.60 Transit subsidy		
	\$0.75 Vanpool subsidy		
	50% Workforce participation		
	All employer support levels at 20% Level 1; 15% Level 2; 10% Level 3; 5% Level 4		

See Appendix B for complete listing of mode share changes, vehicle trip rates, and all emission reductions.

Table B.20 Mid County Activity Center Scenario D

Scenario D- Mid County Activity Center		COMMUTER MODEL Results	
Description	Model Changes	2000 Baseline	2025 Baseline
Alternative Work Schedule with Employer-based TDM Programs	Compressed Work Week and Telecommuting Program	2.7% or 42,400 VMT Reduction per day	4.9% or 93,200 VMT Reduction per day
	1% increase in 4/40 CWW		
	2% increase in 9/80 CWW	2.6% or 3,400 Trip Reduction per day	4.8% or 7,700 Trip Reduction per day
	2% increase in telecommuting		
	Preferential Parking Program	0.074 tons/day NOx Reduction	0.145 NOx tons/day Reduction
	-2 minutes CP/VP Walk Access		
	+2 minutes SOV Walk Access		
	Commuter Choice Program	2.8% Reduction in SOV Mode Share	4.6% Reduction in SOV Mode Share
	\$0.60 Transit subsidy		
	\$0.75 Vanpool subsidy		
	50% Workforce participation		
	All employer support levels at 20% Level 1; 15% Level 2; 10% Level 3; 5% Level 4		

See Appendix B for complete listing of mode share changes, vehicle trip rates, and all emission reductions.

Table B.21 Gateway Activity Center Scenario D

Scenario D- Gateway Activity Center		COMMUTER MODEL Results	
Description	Model Changes	2000 Baseline	2025 Baseline
Alternative Work Schedule with Employer-based TDM Programs	Compressed Work Week and Telecommuting Program	3.5% or 1,000 VMT Reduction per day	6.5% or 45,000 VMT Reduction per day
	1% increase in 4/40 CWW		
	2% increase in 9/80 CWW	3.3% or 800 Trip Reduction per day	6.4% or 3,700 Trip Reduction per day
	2% increase in telecommuting		
	Preferential Parking Program	0.017 tons/day NOx Reduction	0.070 NOx tons/day Reduction
	-2 minutes CP/VP Walk Access		
	+2 minutes SOV Walk Access		
	Commuter Choice Program	3.5% Reduction in SOV Mode Share	6.0% Reduction in SOV Mode Share
	\$0.60 Transit subsidy		
	\$0.75 Vanpool subsidy		
	50% Workforce participation		
	All employer support levels at 20% Level 1; 15% Level 2; 10% Level 3; 5% Level 4		

See Appendix B for complete listing of mode share changes, vehicle trip rates, and all emission reductions.

Activity Center Parking Scenario 1

Table B.22 St. Petersburg Activity Center Parking Scenario 1

St. Petersburg Activity Center		COMMUTER MODEL Results	
Description	Model Changes	2000 Baseline	2025 Baseline
Parking Management	Free Parking for Carpools and Vanpools St. Pete: -\$2.20 15%	0.6% or 2,300 VMT Reduction per day	2.3% or 11,300 VMT Reduction per day
	Preferential parking for Carpools and Vanpools +2 Drive alone -2 Carpools and Vanpools	0.5% or 200 Trip Reduction per day	2.2% or 1,200 Trip Reduction per day
	15% Workforce Participation	0.004 tons/day NOx Reduction	0.017 NOx tons/day Reduction
	Employer Support Levels 10% Level 1; 5% Level 2 in St. Pete	0.8% Reduction in SOV Mode Share	2.2% Reduction in SOV Mode Share

See Appendix B for complete listing of mode share changes, vehicle trip rates, and all emission reductions.

Table B.23 Clearwater Activity Center Parking Scenario 1

Clearwater Activity Center		COMMUTER MODEL Results	
Description	Model Changes	2000 Baseline	2025 Baseline
Parking Management	Free Parking for Carpools and Vanpools Clearwater: -\$2.50 10%	0.5% or 1,200 VMT Reduction per day	2.2% or 5,800 VMT Reduction per day
	Preferential parking for Carpools and Vanpools +2 Drive alone -2 Carpools and Vanpools	0.4% or 100 Trip Reduction per day	2.1% or 700 Trip Reduction per day
	10% Workforce Participation	0.002 tons/day NOx Reduction	0.009 NOx tons/day Reduction
	Employer Support Levels 7% Level 1; 3% Level 2 in Clearwater	0.6% Reduction in SOV Mode Share	1.9% Reduction in SOV Mode Share

See Appendix B for complete listing of mode share changes, vehicle trip rates, and all emission reductions.

Activity Center Parking Scenario 2

Table B.24 St. Petersburg Activity Center Parking Scenario 2

St. Petersburg Activity Center		COMMUTER MODEL Results	
Description	Model Changes	2000 Baseline	2025 Baseline
Parking Management plus increased parking cost for SOVs	Free Parking for Carpools and Vanpools St. Pete: -\$2.20 15% Drive alone cost: \$1.00/day	0.8% or 2,800 VMT Reduction per day	2.5% or 12,100 VMT Reduction per day
	Preferential parking for Carpools and Vanpools +2 Drive alone -2 Carpools and Vanpools	0.7% or 260 Trip Reduction per day	2.4% or 1,300 Trip Reduction per day
	15% Workforce Participation	0.005 tons/day NOx Reduction	0.019 NOx tons/day Reduction
	Employer Support Levels 10% Level 1; 5% Level 2 in St. Pete	1.0% Reduction in SOV Mode Share	2.3% Reduction in SOV Mode Share

See Appendix B for complete listing of mode share changes, vehicle trip rates, and all emission reductions.

Table B.25 Clearwater Activity Center Parking Scenario 2

Clearwater Activity Center		COMMUTER MODEL Results	
Description	Model Changes	2000 Baseline	2025 Baseline
Parking Management plus increased parking cost for SOVs	Free Parking for Carpools and Vanpools Clearwater: -\$2.50 10% Drive alone cost: \$1.00/day	0.6% or 1,400 VMT Reduction per day	2.3% or 6,000 VMT Reduction per day
	Preferential parking for Carpools and Vanpools +2 Drive alone -2 Carpools and Vanpools	0.4% or 150 Trip Reduction per day	2.2% or 700 Trip Reduction per day
	10% Workforce Participation	0.003 tons/day NOx Reduction	0.009 NOx tons/day Reduction
	Employer Support Levels 7% Level 1; 3% Level 2 in Clearwater	0.8% Reduction in SOV Mode Share	2.1% Reduction in SOV Mode Share

See Appendix B for complete listing of mode share changes, vehicle trip rates, and all emission reductions.

Appendix B: Pinellas County Long Range TDM Plan: Countywide Scenario Tables

Pinellas County Long Range TDM Plan: Downtown Clearwater Activity Center									
Commuter Model Results	2000 Baseline	2025 Baseline	Parking 1	Parking 2	Scenario A 2025 Results	Scenario B 2025 Results	Scenario C1 2025 Results	Scenario C2	Scenario D 2025 Results
	16,482 Commuters	18,725 Commuters	Free and Preferential Parking for Vanpools and Carpools 10% Workforce Participation	Free and Preferential Parking for Vanpools and Carpools SOVs charged \$1/day for parking 10% Workforce Participation	Compressed Work Week and Telecommuting Program	Compressed Work Week and Telecommuting Program Employer-based TDM Program 10% Workforce Participation	Compressed Work Week and Telecommuting Program Employer-based TDM Program 20% Workforce Participation	Compressed Work Week and Telecommuting Program Employer-based TDM Program Parking Cash-out Program 20% Workforce Participation	Compressed Work Week and Telecommuting Program Employer-based TDM Program 50% Workforce Participation
VMT	232,344	263,963	258,215	257,865	250,565	249,431	247,723	244,818	241,068
VMT Reduction/day	NA	NA	5,749	6,098	13,398	14,533	16,241	19,145	22,895
% VMT Reduction/day	NA	NA	2.2%	2.3%	5.1%	5.5%	6.2%	7.3%	8.7%
Vehicle Trips	27,480	31,220	30,562	30,519	29,614	29,494	29,335	28,965	28,747
Vehicle Trip Reduction/day	NA	NA	658	701	1,606	1,726	1,885	2,255	2,472
% Vehicle Trip Reduction/day	NA	NA	2.1%	2.2%	5.1%	5.5%	6.0%	7.2%	7.9%
Emission Reductions ¹	NA	NA	0.008 HC 0.066 CO 0.009 NOx 2.3 CO ₂	0.008 HC 0.070 CO 0.009 NOx 2.4 CO ₂	0.019 HC 0.157 CO 0.021 NOx 5.7 CO ₂	0.020 HC 0.169 CO 0.022 NOx 6.0 CO ₂	0.022 HC 0.189 CO 0.025 NOx 6.7 CO ₂	0.026 HC 0.223 CO 0.030 NOx 7.9 CO ₂	0.031 HC 0.264 CO 0.036 NOx 9.5 CO ₂
SOV Mode Share Reduction	NA	NA	1.9%	2.1%	3.9%	4.3%	4.8%	6.4%	6.8%
Vehicle Trip Rate	83.5 vehicles/100 commuters	82.0 vehicles/100 commuters	81.7 vehicles/100 commuters	81.5 vehicles/100 commuters	79.1 vehicles/100 commuters	78.8 vehicles/100 commuters	78.4 vehicles/100 commuters	77.4 vehicles/100 commuters	76.7 vehicles/100 commuters

¹ Tons/day except CO₂ in metric tons/day, positive values are decreases

Appendix B: Pinellas County Long Range TDM Plan: Countywide Scenario Tables

Pinellas County Long Range TDM Plan: Downtown St. Petersburg Activity Center									
Commuter Model Results	2000 Baseline	2025 Baseline	Parking 1	Parking 2	Scenario A 2025 Results	Scenario B 2025 Results	Scenario C1 2025 Results	Scenario C2	Scenario D 2025 Results
	23,136 Commuters		Free and Preferential Parking for Vanpools and Carpools 15% Workforce Participation	Free and Preferential Parking for Vanpools and Carpools SOVs charged \$1/day for parking 15% Workforce Participation	Compressed Work Week and Telecommuting Program	Compressed Work Week and Telecommuting Program Employer-based TDM Program 10% Workforce Participation	Compressed Work Week and Telecommuting Program Employer-based TDM Program 20% Workforce Participation	Compressed Work Week and Telecommuting Program Employer-based TDM Program Parking Cash-out Program 20% Workforce Participation	Compressed Work Week and Telecommuting Program Employer-based TDM Program 50% Workforce Participation
VMT	359,728	488,640	477,250	476,499	463,075	461,527	458,601	450,852	447,127
VMT Reduction/day	NA	NA	11,389	12,140	25,564	27,112	30,039	37,787	412,513
% VMT Reduction/day	NA	NA	2.3%	2.5%	5.2%	5.5%	6.1%	7.7%	8.5%
Vehicle Trips	39,685	53,906	52,700	52,614	51,048	50,898	50,634	49,709	49,648
Vehicle Trip Reduction/day	NA	NA	1,206	1,292	2,857	3,008	3,272	4,197	4,258
% Vehicle Trip Reduction/day	NA	NA	2.2%	2.4%	5.3%	5.6%	6.1%	7.8%	7.9%
Emission Reductions ²	NA	NA	0.015 HC 0.131 CO 0.017 NOx 4.6 CO ₂	0.016 HC 0.139 CO 0.019 NOx 5.0 CO ₂	0.035 HC 0.296 CO 0.040 NOx 10.6 CO ₂	0.037 HC 0.314 CO 0.042 NOx 11.3 CO ₂	0.041 HC 0.374 CO 0.047 NOx 12.5 CO ₂	0.052 HC 0.438 CO 0.059 NOx 15.8 CO ₂	0.056 HC 0.477 CO 0.065 NOx 17.4 CO ₂
SOV Mode Share Reduction	NA	NA	2.2%	2.3%	4.2%	4.5%	5.0%	7.3%	7.0%
Vehicle Trip Rate	85.8 vehicles/100 commuters	84.3 vehicles/100 commuters	83.7 vehicles/100 commuters	84.3 vehicles/100 commuters	81.3 vehicles/100 commuters	81.1 vehicles/100 commuters	80.7 vehicles/100 commuters	79.1 vehicles/100 commuters	80.4 vehicles/100 commuters

² Tons/day except CO₂ in metric tons/day, positive values are decreases

Appendix B: Pinellas County Long Range TDM Plan: Countywide Scenario Tables

Pinellas County Long Range TDM Plan: Mid County Industrial Activity Center						
Commuter Model Results	2000 Baseline	2025 Baseline	Scenario A 2025 Results	Scenario B 2025 Results	Scenario C1 2025 Results	Scenario D 2025 Results
	73,851 Commuters	90,691 Commuters	Compressed Work Week and Telecommuting Program	Compressed Work Week and Telecommuting Program Employer-based TDM Program 10% Workforce Participation	Compressed Work Week and Telecommuting Program Employer-based TDM Program 20% Workforce Participation	Compressed Work Week and Telecommuting Program Employer-based TDM Program 50% Workforce Participation
VMT	1,552,417	1,906,409	1,854,138	1,850,080	1,842,526	1,813,174
VMT Reduction/day	NA	NA	52,272	56,329	63,883	93,235
% VMT Reduction/day	NA	NA	2.7%	3.0%	3.4%	4.9%
Vehicle Trips	131,742	161,783	157,289	156,958	156,348	154,036
Vehicle Trip Reduction/day	NA	NA	4,494	4,825	5,435	7,747
% Vehicle Trip Reduction/day	NA	NA	2.8%	3.0%	3.4%	4.8%
Emission Reductions ³	NA	NA	0.068 HC 0.590CO 0.081 NOx 21.9 CO ₂	0.073 HC 0.636 CO 0.088 NOx 23.7 CO ₂	0.083 HC 0.721 CO 0.100 NOx 26.8 CO ₂	0.121 HC 1.050 CO 0.145 NOx 39.3 CO ₂
SOV Mode Share Reduction	NA	NA	2.3%	2.6%	3.0%	4.6%
Vehicle Trip Rate	89.3 vehicles/100 commuters	88.5 vehicles/100 commuters	86.8 vehicles/100 commuters	86.5 vehicles/100 commuters	86.2 vehicles/100 commuters	84.9 vehicles/100 commuters

³ Tons/day except CO₂ in metric tons/day, positive values are decreases

Appendix B: Pinellas County Long Range TDM Plan: Countywide Scenario Tables

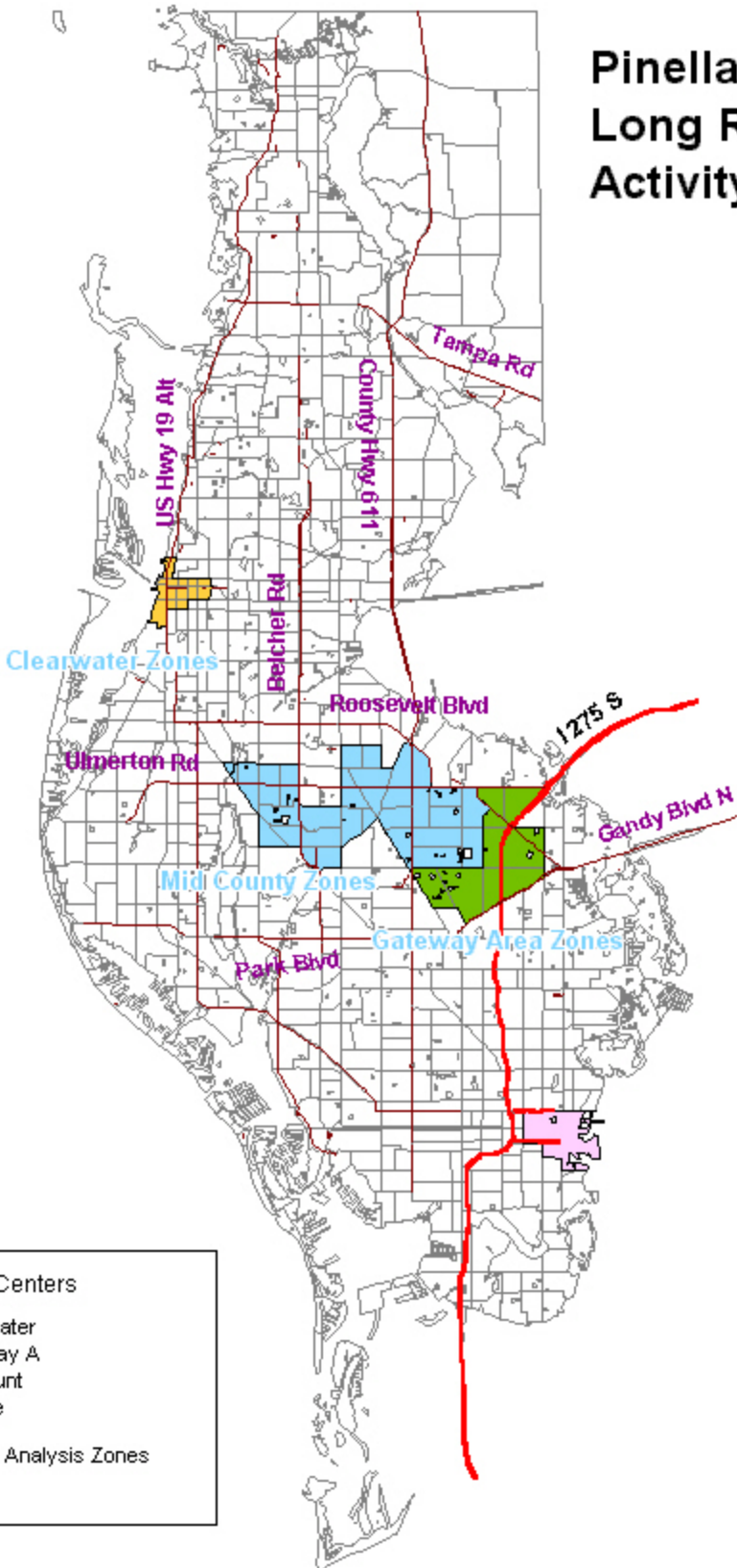
Pinellas County Long Range TDM Plan: Gateway Activity Center						
Commuter Model Results	2000 Baseline	2025 Baseline	Scenario A 2025 Results	Scenario B 2025 Results	Scenario C1 2025 Results	Scenario D 2025 Results
	13,738 Commuters	32,830 Commuters	Compressed Work Week and Telecommuting Program	Compressed Work Week and Telecommuting Program Employer-based TDM Program 10% Workforce Participation	Compressed Work Week and Telecommuting Program Employer-based TDM Program 20% Workforce Participation	Compressed Work Week and Telecommuting Program Employer-based TDM Program 50% Workforce Participation
VMT	289,428	691,654	662,970	661,450	658,460	646,664
VMT Reduction/day	NA	NA	28,683	30,204	33,194	44,990
% VMT Reduction/day	NA	NA	4.1%	4.4%	4.8%	6.5%
Vehicle Trips	24,562	58,697	56,231	56,107	55,868	54,951
Vehicle Trip Reduction/day	NA	NA	2,466	2,590	2,829	3,746
% Vehicle Trip Reduction/day	NA	NA	4.2%	4.4%	4.8%	6.4%
Emission Reductions ⁴	NA	NA	0.037 HC 0.323CO 0.044 NOx 12.0 CO ₂	0.039 HC 0.340 CO 0.047 NOx 12.6 CO ₂	0.043 HC 0.374 CO 0.052 NOx 13.9 CO ₂	0.058 HC 0.560 CO 0.070 NOx 18.9 CO ₂
SOV Mode Share Reduction	NA	NA	3.5%	3.7%	4.2%	6.0%
Vehicle Trip Rate	89.5 vehicles/100 commuters	88.3 vehicles/100 commuters	86.8 vehicles/100 commuters	85.5 vehicles/100 commuters	85.1 vehicles/100 commuters	83.6 vehicles/100 commuters

⁴ Tons/day except CO₂ in metric tons/day, positive values are decreases

Appendix C

Activity Centers Map on next page...

Pinellas County Long Range TDM Plan Activity Centers



Major Activity Centers

- Clearwater
- Gateway A
- Mid Count
- St. Pete

Traffic Analysis Zones



Appendix D

Forecasting Telecommuting Demand for 2025

If there is one travel option other than driving alone that has had substantial growth rates, it is working from home. The U.S. Censuses of Population show that the number of home-based workers increased from 2.2 million in 1980 to 3.4 million in 1990. A survey in 1997 by the Bureau of Labor Statistics reported more than 21 million persons did some work at home as part of their primary job in May 1997³ with a dramatic increase in the number of wage and salary workers doing paid work at home.

The adoption of working from home or *teleworking* is a relatively new and fast growing “travel” option that may have ramifications on the transportation system. Teleworking may find a would-be traveler substituting a vehicle trip with a trip on the information highway. The challenge is to estimate the growth of teleworking and assess the impact on travel behavior.

The lack of a single definition hinders the ability to forecast growth. Census information provides much of the information used to forecast transportation needs in the planning models. However, the Census collects information on working from home but that definition includes self-employed people and those who operate businesses from their home as well as telecommuters. Other groups such as the International Telework Association and Council, Find/SVP and CyberDialogue conduct annual surveys on teleworking.

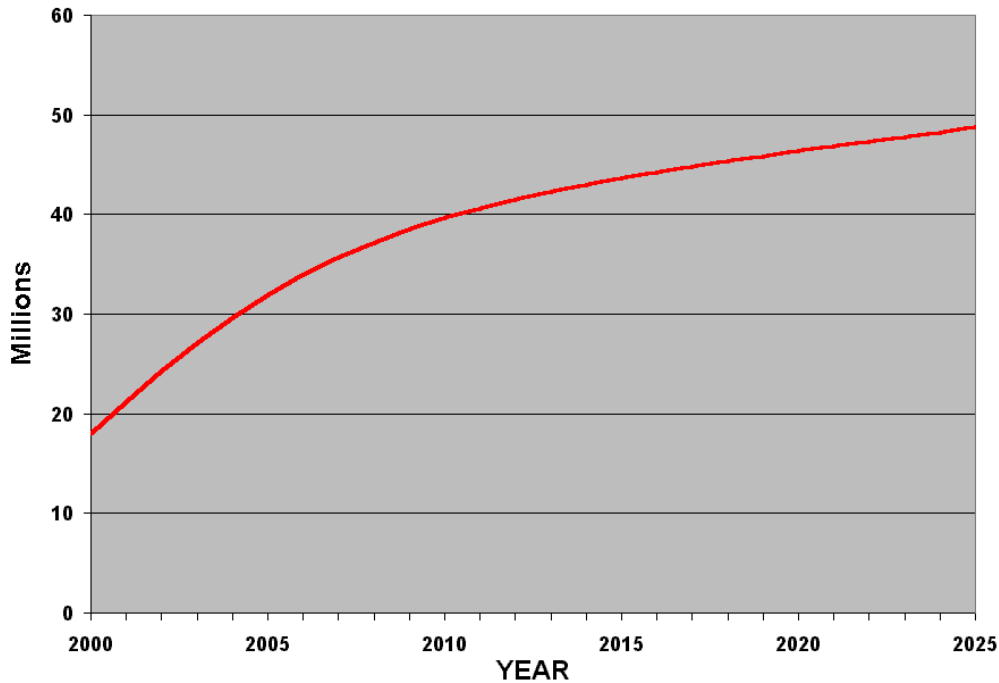
It is important to draw the distinction between *teleworking* and *telecommuting*. Jack Nilles, who coined the term *telecommuting* in the 1970's, defines **telecommuting** as “periodic work out of the principal office, one or more days per week, either at home, a client's site, or in a telework center; the partial or total substitution of information technologies for the commute to work. The emphasis here is on *reduction or elimination of the daily commute* to and from the workplace.” Nilles also defines **teleworking** as “ANY form of substitution of information technologies (such as telecommunications and/or computers) for normal work-related travel. Nilles classifies telecommuting as a subset of teleworking.

Forecasting the growth in teleworking over the next 25 years is based on making several assumptions. Will teleworking grow steadily in direct proportion with the change in population or employment levels? Or will the growth rate for teleworking continue to accelerate rapidly? With driving forces for telework such as continuing advances in technology, changing employer attitudes toward work methods, savings from reductions in overhead, and, increasing demand from employees for more work-life programs.

A review of the literature finds that most of the focus is on estimating the level of telecommuting usage today or short term estimates rather than forecasting growth over a long period. Nilles forecasts the growth in teleworking to grow to nearly 50 million by 2025 from the 16.5 million in 2000 (teleworking at least one day monthly.) Though the once per month usage rate was used, Nilles reports the average use is half-time. (Figure E.1)

³ U.S. Department of Labor. Bureau of Labor Statistics. Current Population Survey. May 1997.

Figure D.1



Source: Jala International, Inc. (2000)

For this project, CUTR used two approaches to estimate demand: linear regression analysis and the diffusion of innovation model.

Our analysis focused on telecommuting, rather than telework since that is the option available for using in the COMMUTER model used in our analysis. Since telecommuting is a form of teleworking, adjustments to telework estimates were made by applying a discount factor. The share of telecommuters was calculated as the percent of teleworkers who are either employees and contract workers who telecommute from home or a telework center using the results of a survey conducted by Nilles on behalf of the International Telework Association and Council in 2000. In other words, we excluded teleworking operators of home businesses or self-employed teleworkers from the telecommuting forecast used in the preparation of the Pinellas County TDM Plan. Based on the data from the survey, approximately 69 percent of teleworkers are telecommuters (Table E.2).

Table D.2: Distribution of Teleworkers by Teleworking Location and Type of Employment

Teleworkers		Pct. Of Teleworkers by Teleworking Location	Percent of Total Teleworkers	Percent Telecommuters
Solely home-based	Total	89.0%		
	Employees	54.0%	48.1%	48.1%
	Contract workers	13.0%	11.6%	11.6%
	Teleworking operator of home businesses	9.0%	8.0%	NA
	Self-employed teleworkers	27.0%	24.0%	NA
	Totals	100.0%		
Solely telework-center-based	Total	7.0%		
	Employees	61.0%	4.3%	4.3%
	Contract workers	18.0%	1.3%	1.3%
	Teleworking operator of home businesses	4.0%	0.3%	
	Self-employed teleworkers	18.0%	1.3%	
	Total	100.0%		
Both home- and telework center-based	Total	4.0%	4.0%	4.0%
Total		100.0%		69.2%

Linear Regression Model

The first modeling approach, linear regression, assumes a constant growth rate. The following regression equation was developed using the data from surveys conducted by Find/SVP and CyberDialogue which have tracked work at home trends since 1990. Furthermore, we assumed telecommuting began in 1970.

$$Y = 0.475236542x - 938.598$$

$$\text{Adjusted } R^2 = 0.74$$

Where

Y = No. of Telecommuters

X = Year

Using this model, there will be nearly 24 million teleworkers or 16.5 telecommuters (assuming 69% of teleworkers are telecommuters) in the U.S. by 2025.

Diffusion of Innovations Model

Economists and market researchers often represent the adoption of new products or technologies as an "s-curve" of growth (i.e., diffusion). This s-curve illustrates how the number of users of a new product or technology grows over time. The curve starts slowly upward and then at some point becomes much steeper (as the technology spreads rapidly, like cell phone and Internet use in the past several years), and in due course evens out because there are fewer potential workers who have not already adopted the product or technology. In effect, the curve represents five groups of potential adopters:

- **innovators** are the enterprising group who have the resources and desire to be first to offer telecommuting.
- **early adopters** are the group who quickly see a strategic advantage in adopting telecommuting.
- **early majority** group could be characterized as followers who make a deliberate choice to use telecommuting.
- **late majority** group are skeptical and risk averse to telecommuting.
- **laggards group** is very unlikely to begin telecommuting.

Experience from many other earlier new products or technologies shows that the s-curve can be represented by the *Bass formula*:

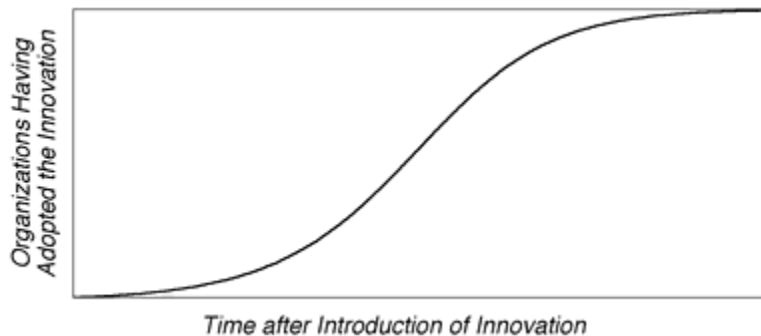
$$N_t = N_{t-1} + p(m - N_{t-1}) + q \frac{N_{t-1}}{m}(m - N_{t-1})$$

The Bass Diffusion Model is designed to answer the question when will customers adopt a new product or technology.⁴

The three parameters of the model are:

- p = the coefficient of external influence; the likelihood that somebody who is not yet telecommuting will start telecommuting because of external factors.
- q = the coefficient of internal influence; the likelihood that somebody who is not yet telecommuting will start using it because of "word-of-mouth" or other influence from those already telecommuting.
- m = the market potential; the total number of people who will eventually telecommute (cumulative number of telecommuters per year).

The standard Bass curve (with the average values of p and q of 0.03 and 0.38, respectively) looks like this:



The standard Bass curve for the diffusion of innovations over time.

If one describes the maximum demand for teleworking to be a function of the job tasks (not job titles), then an estimate of 68% of the tasks are "teleworkable"⁵. It is also fair to assume that not all employees whose jobs or portions thereof could be teleworkable are interested in home-based telecommuting. Using data collected from a large survey, an estimated 59% of employees are interested.⁶ Finally, we'd also discount the number percent of those who are able and willing by the share that actually follows through. One leading telework researcher estimates this rate to be 76%.⁷ Therefore, the maximum share of telecommuters is the product of these three factors or approximately 30% of employment.

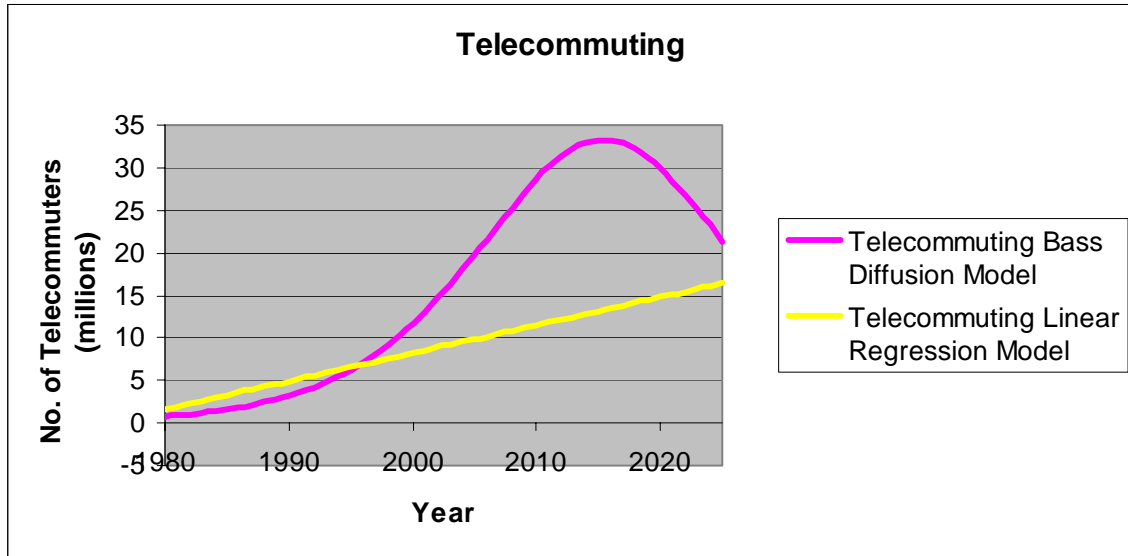
⁴ Mahajan, V., Muller, E., and Bass, F.M. "New product diffusion models in marketing: A review and directions for research." *Journal of Marketing* 54, 1 (January 1990), 1-26.

⁵ Gareis, Karsten and Norbert Kordey. "The Spread of Telework in 2005". *Electronic Commerce and Telework Trends*. <http://www.ecatt.com/ecatt/>

⁶ Ibid

⁷ Mokhtarian, Patricia L. "A Synthetic Approach to Estimating the Impacts of Telecommuting on Travel." *Urban Design, Telecommunication and Travel Forecasting Conference: Summary, Recommendations and Compendium of Papers*. Final Report, August 1997

Solving for q and p to minimize the square of the differences and imposing a limit of 30%, and adjusting for the share of telecommuters among teleworkers yields the growth pattern shown in Figure XX below ($p = 0.000173847$, $q = 0.143684412$, and the number of telecommuters peaks at 33 million in 2015)



Results

The Bass Model forecasts telecommuting to grow to 33 million by 2015 (approximately 30% of the workforce). However, if telecommuting adoption patterns follow those of other new products or innovations then some loss may occur after the peak (e.g., these telecommuters may become self-employed and thus no longer be classified as telecommuters). By 2025, the model estimates 13% of the workforce or 22 million people in the U.S will be telecommuting at least one day per week. CUTR used this share (13%) of the workforce to estimate changes in the key performance measures (e.g., change in vehicle miles of travel, etc.)