

Hillsborough 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 for Bay Area Commuter Services and their 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 Hillsborough County
- Reviewed the Hillsborough 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. 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 the following 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 (56% of employees work for employers with more than 100 employees. Only 3% 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

The following tables represent the annual impacts for the Preferred TDM Program Scenario under different assumptions regarding the extent of transit improvements. The first set of the tables is based on the impacts when the transit improvements contained in HARTLine's 2020 Existing Plus Committed Plan are included. The second set was based on the bus transit strategies in the Adopted Plan. The proposed rail system was not part of the analysis and, therefore, is not included in the tables.

Impacts Using Hillsborough County's 2020 Existing Plus Committed Transit Improvements

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

| Quantity | Peak | Off-Peak | Total |
|------------------|------------|-----------|------------|
| Baseline VMT | 15,302,719 | 6,099,685 | 21,402,404 |
| Final VMT | 14,500,071 | 5,779,748 | 20,279,819 |
| VMT Reduction | 802,648 | 319,937 | 1,122,585 |
| % VMT Reduction | +5.2% | +5.2% | +5.2% |
| Baseline Trips | 1,278,418 | 509,579 | 1,787,998 |
| Final Trips | 1,210,423 | 482,476 | 1,692,900 |
| Trip Reduction | 67,995 | 27,103 | 95,098 |
| % Trip Reduction | +5.3% | +5.3% | +5.3% |

Table 1.3: Mode Share Impacts

| Mode | Baseline | Final | %Change |
|-------------|----------|--------|---------|
| Drive Alone | 80.3% | 75.9% | -4.4% |
| Carpool | 13.7% | 13.1% | -0.6% |
| Vanpool | 0.1% | 0.2% | +0.1% |
| Transit | 1.8% | 2.0% | +0.2% |
| Bicycle | 0.6% | 0.6% | -0.0% |
| Pedestrian | 2.3% | 2.3% | -0.0% |
| Other | 1.2% | 1.1% | -0.1% |
| No Trip | - | 4.8% | +4.8% |
| Total | 100.0% | 100.0% | - |

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

| Pollutant | Peak | Off-Peak | Total |
|-----------------|-------|----------|--------|
| HC | 1.072 | 0.381 | 1.453 |
| CO | 9.471 | 3.151 | 12.622 |
| NOx | 1.224 | 0.503 | 1.727 |
| CO ₂ | 333.4 | 130.7 | 464.1 |

Impacts Using Hillsborough County 2020 Adopted Plan Transit Improvements

Table 1.5: Travel Impacts (relative to affected employment)

| Quantity | Peak | Off-Peak | Total |
|------------------|------------|-----------|------------|
| Baseline VMT | 15,302,719 | 6,099,685 | 21,402,404 |
| Final VMT | 14,390,117 | 5,735,921 | 20,126,038 |
| VMT Reduction | 912,602 | 363,764 | 1,276,366 |
| % VMT Reduction | 6.0% | 6.0% | 6.0% |
| Baseline Trips | 1,278,418 | 509,579 | 1,787,998 |
| Final Trips | 1,201,245 | 478,818 | 1,680,063 |
| Trip Reduction | 77,174 | 30,761 | 107,935 |
| % Trip Reduction | 6.0% | 6.0% | 6.0% |

Table 1.6: Mode Share Impacts

| Mode | Baseline | Final | %Change |
|-------------|----------|--------|---------|
| Drive Alone | 80.3% | 75.4% | -4.9% |
| Carpool | 13.7% | 13.0% | -0.7% |
| Vanpool | 0.1% | 0.1% | +0.0% |
| Transit | 1.8% | 2.7% | +0.9% |
| Bicycle | 0.6% | 0.6% | -0.0% |
| Pedestrian | 2.3% | 2.3% | -0.0% |
| Other | 1.2% | 1.1% | -0.1% |
| No Trip | - | 4.7% | +4.7% |
| Total | 100.0% | 100.0% | - |

Table 1.7: Emission Reductions (tons/day except CO₂ in metric tons/day)

| Pollutant | Peak | Off-Peak | Total |
|-----------------|--------|----------|--------|
| HC | 1.211 | 0.433 | 1.644 |
| CO | 10.723 | 3.582 | 14.306 |
| NOx | 1.368 | 0.572 | 1.940 |
| CO ₂ | 375.1 | 144.7 | 519.8 |

Estimated Cost

The total estimated cost for this scenario is \$1,950,000 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 \$2,000,000 annually will be required to match \$2,000,000 of employer subsidies for transit, vanpool, or other alternatives to driving alone would be required.

II. Research Design

Purpose

To identify and quantify for the BACS and the 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), MPO Citizens' Advisory Committee (MPO CAC), MPO Bicycle/Pedestrian Advisory Committee (MPO B/PAC), the City of Tampa, Hillsborough County, Hillsborough Area Regional Transit (HART), the Tampa Downtown Partnership TMO (TDPTMO), and the Environmental Protection Commission of Hillsborough County (EPC).

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Research Tasks

Task 1: Review of Hillsborough County's Long Range Transportation Plan (LRTP) and Comprehensive Plan.

Task 2: Identify the TDM goals, objectives, and measures of effectiveness are included in LRTP in up to 5 other peer regions identified in consultation with the Advisory Committee.

Task 3: Data Collection: With the assistance of BACS and members of the Advisory Committee, 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.

Task 4: Develop scenarios in coordination with the Advisory Committee concerning the 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. Develop potential scenarios based on EITHER:

1. Resource Availability (e.g., if we budgeted \$X million per year what could be achieved?). With the assistance of BACS and members of the Advisory Committee, budget estimates will be prepared for various strategies; OR
2. Performance Based (e.g., what resources and programs would be necessary to increase peak hour average vehicle ridership from 1. XX to 1.YY or carpool share from AA% in 19XX to BB% by the Year 2025?).

Task 5: Analyze the data with respect to quantifying the performance measures in Table 1 based on the scenarios preferred by the Advisory Committee (either resource availability or performance based) with budget estimates prepared in consultation with the provider (e.g., BACS, TMOs/TMIs, etc.) CUTR used EPA's COMMUTER model to analyze the impact of these programs on mode share, VMT, and vehicle trips emissions.

Task 6: Prepare final report including draft language for 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 is 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 Hillsborough County's Long Range Transportation Plan and Comprehensive Plan

The Hillsborough County 2020 Long Range Transportation Plan (LRTP) refers extensively to TDM in a descriptive manner. The LRTP defines TDM, discusses current TDM programs operating in the area, and identifies TDM strategies and their benefits. 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 LRTP emphasizes that TDM programs are voluntary and that there are no legal requirements for participation (although the latest version of the County Comprehensive Plan seeks to require participation in TDM programs).

Language from the MPO 2020 Long Range Transportation Plan (Adopted November 9, 1998)

Congestion Management System

The Tampa Bay region is a major growth area in the State of Florida. Steady growth and development have outpaced the ability of the State and local governments to provide necessary transportation improvements resulting in congested roadways throughout the region. In addition the lack of major improvements to the existing mass transit systems have rendered public transportation a relatively ineffective alternative to driving on congested roadways. The trips for work, school, shopping, and other purposes have become stressful and time consuming to many residents. Congested roadways also hamper the efficient movement of freight and other commodities within the Tampa Bay Area.

Growth and development are expected to continue to place heavy demands on the transportation system. Transportation improvements necessary to provide uncongested operations on area roadways are beyond the capacity of projected revenues. Therefore, greater emphasis will have to be placed on alternative modes of transportation to reduce the impacts of congestion and to improve the quality of life for all that live and work in the Tampa Bay Area. This section outlines some alternatives contained in the 2020 LRTP which may be pursued and implemented when major road building becomes unfeasible due to physical, environmental, policy, or cost factors.

Transportation System Management

Transportation System Management (TSM) has the overall objective of improving the efficiency of the existing transportation system without requiring major new construction. TSM emphasizes low cost improvements to the transportation system itself through measures such as intersection improvements, traffic signal timing and removing on-street parking. TSM focuses on achieving greater operating efficiency for the existing transportation system. TSM actions must be readily implementable and provide quick, location specific results. Enhanced roads incorporate TSM concepts.

TSM also applies to the public transit system. Actions such as improving reliability and on-time performance, providing passenger information and amenities, and improving transfers between modes are TSM efforts which provide excellent results and can be readily implemented with a minimum of cost.

Transportation Demand Management

Transportation Demand Management (TDM) refers to near term, relatively low cost activities designed to influence the demand for transportation by changing travel behavior. The purpose of

TDM is to maximize the movement of people, not vehicles, within the existing transportation system. TDM encourages alternatives to the single occupant automobile and more efficient use of the transportation system. By reducing traffic congestion during peak commuting periods, TDM can also result in improved air quality and energy conservation.

Regional TDM programs aimed at commuters have the greatest potential for success, but depend upon participation from major employers in the public and private sectors. Public sector employers can provide personnel support and funding. Private sector employers can provide funding and assistance in reaching commuters who would benefit from ridesharing.

TDM programs are voluntary. There are no legal requirements either for employers to reduce trip making by their employees or for their employees to participate. Therefore, TDM programs must be tailored to be beneficial to both employers and employees. TDM programs can provide significant benefits to employers by reducing:

- Tardiness by employees who are stuck on congested roadways
- Need for and expense of employee parking spaces
- Lost time for goods movement and client service calls due to congestion

TDM programs can be beneficial to employees by providing:

- Alternatives to driving on congested roadways
- The personal flexibility of alternative work arrangements
- Participation in employee incentive programs

TDM programs implemented by individual employers or organizations have had a greater success 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 Tampa Bay Area is unique in that it has several large cities (St. Petersburg, Clearwater and Tampa) in close proximity to each other. The greatest potential for a successful TDM program in the Tampa Bay Area is a regional approach. This requires cooperation and coordination among all jurisdictions throughout the region.

The Bay Area Commuter Services, Inc. (BACS), a public/private not-for-profit organization, also serves the Tampa Bay region. BACS is funded through FDOT and CUTR funds, and was incorporated in 1992.¹ BACS serves the residents of Pinellas, Hillsborough, Hernando, Citrus and Pasco Counties. The major focus of this organization is to reduce congestion by promoting High Occupancy Vehicles (HOV), such as car and vanpooling, as an alternative mode of transportation throughout the Tampa Bay Area through a regional ridesharing program. BACS uses a matching system to identify potential rideshare partners through out the region. The major priorities of BACS are:

- Reducing congestion
- Reducing air pollution
- Reducing the number of vehicles on the roadways

¹ CUTR does not currently fund BACS. CUTR was, however, involved with the initial formation of BACS.

BACS has approximately 3,250 active participants using carpooling and vanpooling. Currently, the guaranteed ride home program has 2,505 registered participants. There are 21 vans in the BACS vanpool fleet.

The 2020 LRTP goes on to discuss specific TDM strategies and efforts (this section is abbreviated):

Ridesharing

Benefits:

- Saving out-of-pocket commuting costs, such as parking, gasoline, auto maintenance and insurance
- Reducing hidden commuting costs such as wear-and-tear, depreciation, and financing of a new or used automobile
- More productive use of commuting time for business or personal reasons
- Reduced stress, tension, and fatigue of the solo commuter in congested traffic

Vanpooling

Highlights from section:

- Highest potential is “among employees who live 20 miles or more from work and have travel times of 30 minutes or greater”
- It is “an economical mode of travel for employees with longer commutes” and “a very visible sign of a company’s commitment to the transportation needs of employees”

Work Hours Management

Strategies to offset peak travel or eliminate the commute entirely:

- Flextime
- Staggered work hours
- Modified work weeks
- Telecommuting

Transportation Management Organizations

Benefits

- Create public-private partnerships to promote alternative mode use
- Operate in specific areas with local businesses
- Provide the business community with a voice in local transportation decision-making
- Enable transportation resources to be pooled

TMOs in Hillsborough County (History and Goals listed for each)

- Westshore Alliance
- Tampa Downtown Partnership
- University North Transportation Initiative

Employee Transportation Coordinators

Benefits

- The success of TDM programs is dependent on employers and employees being made aware of alternative commute programs and the benefits of TDM activities.
- ETCs serve as liaisons between the TMO, employer and employees, distribute alternative commute mode and program information, and can develop in-house ridematching and Commuter Choice programs.

The Hillsborough County Comprehensive Plan’s Transportation Element also makes reference to TDM as part of its objective and policies. The following section contains the language included in the 1994 plan

and the 2000 plan. The key difference between the two plans is the change from the County “encouraging” to “requiring” participation in TDM strategies.

Hillsborough County Comprehensive Plan (MPO Recommendations, April 25, 1994)

TDM Strategies (IV-31)

Objective 6.4: The County will encourage and support the increased use of alternative modes of transportation and the implementation of alternative work sites or alternative work hours where appropriate.

Policy 6.4.1

The County shall continue to support ridesharing such as carpools, vanpools, buspools, mass transit and the implementation of park and ride lots as well as through the subsidy of transit passes for County employees.

Policy 6.4.2

The County shall encourage new development to participate in transportation demand management strategies such as carpooling, vanpooling, parking management, flexible work hours, or provision of bicycle or mass transit facilities.

Policy 6.4.3

The County shall develop a program to support the establishment of public/private partnerships such as TMOs to promote TDM strategies and programs in regional activity centers and other densely developed areas.

Current Hillsborough County Comprehensive Plan

TDM Strategies (IV-38)

Objective 4.4: By 2002, the County will adopt measures to promote the increased use of alternative modes of transportation and the implementation of alternative work sites or alternative work hours.

Policy 4.4.1

The County shall continue to support ridesharing such as carpools, vanpools, buspools, transit and the implementation of park and ride lots as well as through the subsidy of transit passes for County employees.

Policy 4.4.2

The County shall require new development to participate in transportation demand management strategies such as carpooling, vanpooling, parking management, flexible work hours, or provision of bicycle or transit facilities.

Policy 4.4.3

The County shall develop a program to support the establishment of public/private partnerships such as TMOs to promote TDM strategies and programs in regional activity centers and other densely developed areas.

TDM Strategies (II-42)

Definitions and benefits for the following strategies are summarized in this section of the current Comprehensive Plan.

Ridesharing

- Carpools
- Vanpools
- Transit
- Park and Ride

Work Hours Management

- Staggered work hours
- Flextime
- Modified or compressed work weeks

Alternative Work Sites

- Satellite offices
- Telecommuting

TMOs

- Public-private partnerships
- Employer participation
- Alternative commute benefits

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 Hillsborough County taking into account all four characteristics.

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 Hillsborough 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. Broward, Norfolk and Charlotte are true peers in regard to vanpool size and operating expenses, and thus listed in bold. Orlando has a rapidly growing program, increasing in size by almost 30% from 1995. Austin has a much larger fleet and an aggressive vanpool program that can offer insight into new strategic approaches. 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). Although Broward County and Norfolk (which is included with the larger Hampton Roads region) have similar TRIs, they are not true peers since they are considered large metropolitan areas, while the others are medium. True peers are listed in bold.

TABLE 3.1: Peer Communities

| Peers | Transit | Vanpool | Congestion | Comments |
|--------------------------|--|--------------------------|-------------------------------|--|
| Hillsborough, FL | Fleet size:254 Operating Cost: \$24M | 9 VPs (2001) | 1.19 (1997) Medium | Research site |
| Broward County, FL | Fleet size: 390 Operating Cost: \$60M | 13 VPs (2001) | 1.24 (1997) Large | Florida coast peer, growing regional Commuter Assistance Program, Commuter Choice Initiative starting. |
| Charlotte, NC | Fleet size: 217 Operating Cost: \$25M | 38 VPs (1998) | 1.23 (1997) Medium | Stable VP program, similar transit systems |
| Norfolk, VA ¹ | Fleet size: 441 Operating Cost: \$39M | 14 VPs (1998) | 1.18 (1997) Large | Beach, Tourism, low density, part of greater Hampton Roads region |
| Orlando, FL | Fleet size:345 Operating Cost: \$48M | 66 VPs (1998) | 1.20 (1997) Medium | Transit and HOV goals set in LRTP |
| Louisville, KY | Fleet size:309 Operating Cost: \$41M | NA | 1.19 (1997) Medium | Major TDM Initiative underway on regional level |
| Austin, TX | Fleet size:376 Operating Cost: \$57M | 130 VPs (1998) | 1.23 (1997) Medium | Innovative low-cost Vanpool Program |
| Tucson, AZ | Fleet size: 213 Operating Cost: \$30M | NA | 1.19 (1997) Medium | Trip Reduction Ordinance in place for 11 years |

¹ Combined figures from Peninsula and Tidewater Transit systems. Tidewater alone is a good peer in that its fleet size is 297 and its overall operating costs are \$26M. Peninsula has an operating fleet size of 146 and an operating cost of \$13M.

TABLE 3.2: Peer Communities' Demographics ¹

| Peer | Pop | White | Black | American Indian | Asian | Other | % of total pop of Hispanic origin |
|-----------------------------|-----------|-----------|---------|-----------------|--------|--------|-----------------------------------|
| Hillsborough County | 853,468 | 702,967 | 115,368 | 2,510 | 11,613 | 21,010 | 113,112 |
| | 100% | 82% | 14% | 0% | 1% | 2% | 13% |
| Broward County | 1,277,425 | 1,036,962 | 202,593 | 2,758 | 17,361 | 17,751 | 114,600 |
| | 100% | 81% | 16% | 0% | 1% | 1% | 9% |
| Charlotte-Mecklenburg Co. | 511,433 | 364,651 | 134,468 | 1,936 | 8,461 | 1,917 | 6,693 |
| | 100% | 71% | 26% | 0% | 2% | 0% | 1% |
| Norfolk ² | 269,019 | 150,845 | 106,757 | 1,193 | 7,019 | 3,205 | 8,058 |
| | 100% | 56% | 40% | 0% | 3% | 1% | 3% |
| Orlando-Orange County | 693,649 | 548,819 | 107,884 | 2,084 | 14,235 | 20,627 | 68,982 |
| | 100% | 79% | 16% | 0% | 2% | 3% | 10% |
| Louisville-Jefferson County | 676,789 | 551,002 | 118,405 | 1,074 | 4,894 | 1,414 | 4,916 |
| | 100% | 81% | 17% | 0% | 1% | 0% | 1% |
| Austin-Travis County | 596,593 | 432,819 | 66,372 | 2,171 | 17,487 | 77,744 | 131,164 |
| | 100% | 73% | 11% | 0% | 3% | 13% | 22% |
| Tucson-Pima County | 666,880 | 524,976 | 20,795 | 20,330 | 11,964 | 88,815 | 163,262 |
| | 100% | 79% | 3% | 3% | 2% | 13% | 24% |

¹ Estimated 1999 Census

² Norfolk's high rate of home-based work is most likely due to the naval base, and its low population is the result of Norfolk being an independent city; however it is part of the larger Hampton Roads region which represents over 1.5 million people in 16 jurisdictions.

TABLE 3.3: Peer Communities' Mode Splits

| Peer | Drive alone | carpool | transit | motorcycle | bicycle | walk | other | Home | Total Commuters |
|-----------------------------|-------------|---------|---------|------------|---------|--------|-------|--------|-----------------|
| Hillsborough County | 322,743 | 55,605 | 7,415 | 1,410 | 2,239 | 9,165 | 3,415 | 8913 | 410,905 |
| | 78.54% | 13.53% | 1.80% | 0.34% | 0.54% | 2.23% | 0.83% | 2.17% | 100% |
| Broward County | 468,713 | 75,330 | 11,448 | 1,721 | 3,824 | 10,809 | 4,556 | 11058 | 587,459 |
| | 79.79% | 12.82% | 1.95% | 0.29% | 0.65% | 1.84% | 0.78% | 1.88% | 100% |
| Charlotte-Mecklenburg Co. | 218,060 | 34,685 | 9,897 | 310 | 459 | 5,909 | 1,851 | 6065 | 277,236 |
| | 78.66% | 12.51% | 3.57% | 0.11% | 0.17% | 2.13% | 0.67% | 2.19% | 100% |
| Norfolk ¹ | 73,125 | 18,095 | 6,077 | 486 | 1,051 | 6,310 | 1,704 | 23701 | 130,549 |
| | 56.01% | 13.86% | 4.65% | 0.37% | 0.81% | 4.83% | 1.31% | 18.15% | 100% |
| Orlando-Orange County | 272,100 | 47,861 | 7,671 | 1,641 | 2,345 | 15,755 | 2,475 | 6423 | 356,271 |
| | 76.37% | 13.43% | 2.15% | 0.46% | 0.66% | 4.42% | 0.69% | 1.80% | 100% |
| Louisville-Jefferson County | 246,008 | 37,659 | 13,467 | 164 | 322 | 6,734 | 1,504 | 5478 | 311,336 |
| | 79.02% | 12.10% | 4.33% | 0.05% | 0.10% | 2.16% | 0.48% | 1.76% | 100% |
| Austin-Travis County | 227,019 | 40,485 | 12,785 | 1,372 | 1,951 | 8,750 | 1,729 | 8818 | 302,909 |
| | 74.95% | 13.37% | 4.22% | 0.45% | 0.64% | 2.89% | 0.57% | 2.91% | 100% |
| Tucson-Pima County | 209,537 | 43,833 | 9,195 | 2,483 | 5,486 | 9,391 | 2,237 | 9391 | 291,553 |
| | 71.87% | 15.03% | 3.15% | 0.85% | 1.88% | 3.22% | 0.77% | 3.22% | 100% |

¹ Norfolk's high rate of home-based work is most likely due to the naval base, and its low population is the result of Norfolk being an independent city; however it is part of the larger Hampton Roads region which represents over 1.5 million people in 16 jurisdictions.

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. While some communities, such as Charlotte-Mecklenburg County and Louisville-Jefferson County, barely mentioned TDM, others, such as Orlando or Pima County, fully incorporate TDM into their long range transportation plans. Pima County has even gone as far as to adopt a Trip Reduction Ordinance that requires all businesses with 100 employees or more to implement a Trip Reduction Program. CUTR used data collected on peer communities to aid in the development of TDM scenarios and recommend changes to Hillsborough Counties LRTP language.

❖ **Broward County, FL**

- 2020 LRTP Key phrases
 - The Transportation system should incorporate existing bikeways and pedestrian pathway planning elements
 - Provide facilities to encourage an increase in the use of HOV's and provide the incentives and disincentives that would make them more successful.
 - Encourage the use of TMAs to maximize the existing facilities to increase transit ridership
 - Be responsive to efforts by older communities to redevelop by supporting "Eastward Ho" and other such initiatives as an alternative to increased urban sprawl by cooperating in making non-auto travel available
 - Identify alternative mechanisms, such as congestion pricing to reduce reliance upon SOVs
 - Identify means by which more efficient transportation can improve air quality

❖ **Charlotte-Mecklenburg County, NC**

- 2015 Plan
 - "We can no longer pursue a *roads first* strategy. We must begin developing a transit system today to meet the needs of our growing population. Along with transit, we have to do a better job of incorporating bicycles, pedestrians, and alternative modes of transportation in our system"

❖ **Norfolk, VA**

- 2015 Plan Key Elements
 - Support Traffic- Regional Rideshare program
 - Increase HOV regional network
 - Effective parking management to increase ridesharing
 - Bicycle/Pedestrian facility improvement
 - Work with appropriate agencies to implement transportation management options such as variable work hours, preferential parking, employer-sponsored vanpools in order to alleviate congestion.
 - Assist and foster the development and operation of TMOs

❖ **Orlando, FL**

- LRTP GOALS
 - To develop a balanced transportation system that supports building a livable community and improves access and travel choices through enhancement of roads, public transit, bicycle and pedestrian systems, intermodal facilities, demand management programs, and traffic management techniques.
 - Policy 1.8.8 Applicants requesting a Growth Management Plan Future Land Use Map amendment to create a new activity center or expand an existing activity center designation inside or outside the Transportation Concurrency Exception Area shall conduct a neighborhood impact analysis if projected traffic under the proposed future land use designation exceeds projected traffic under the existing designation by more

than 1,000 daily trips. If existing traffic on collector or local streets is projected to increase by more than ten (10%) percent due to the project, the developer shall mitigate through appropriate traffic calming or transportation demand management measures.

- Policy 1.8.9 Applicants for Developments of Regional Impact, inside the Transportation Concurrency Exception Area, shall mitigate their impacts. Mitigation shall occur through a combination of roadway, transit, bicycle, and pedestrian improvements, as well as traffic calming and transportation demand management measures.
- Policy 1.8.10 Applicants for development proposals inside and outside the Transportation Concurrency Exception Area generating more than 1,000 daily trips shall conduct a neighborhood impact analysis. If existing traffic on collector or local streets is projected to increase by more than ten (10%) percent due to the project, the developer shall mitigate through appropriate traffic calming or transportation demand management measures.
- Objective 4.2 The City shall recommend by 1999 to Metroplan Orlando and the Central Florida Regional Transportation Authority (dba Lynx) to undertake efforts to promote Transportation Demand Management programs focussing on the region's major activity centers.
 - Policy 4.2.1 The City shall support and will participate in activities of Metroplan Orlando and the Central Florida Regional Transportation Authority (dba Lynx) to promote Transportation Demand Management programs in the region.
 - Policy 4.2.2 The City shall encourage Metroplan Orlando and the Central Florida Regional Transportation Authority (dba Lynx) to undertake efforts to increase regional awareness on the importance of Transportation Demand Management programs in addressing traffic congestion, environmental protection, and energy conservation.
 - Policy 4.2.3 The City shall encourage Metroplan Orlando and the Central Florida Regional Transportation Authority (dba Lynx) to develop incentives for employers to implement Transportation Demand Management (TDM) programs. The TDM programs may include, but not be limited to, ridesharing, flexible work hours, telecommuting, preferential parking, bicycle parking, and transit subsidies.
 - Policy 4.2.4 The City shall encourage Metroplan Orlando and the Central Florida Regional Transportation Authority (dba Lynx) to develop thresholds at which various Transportation Demand Management measures could be required by local governments.
 - Policy 4.2.5 The City shall encourage Metroplan Orlando and the Central Florida Regional Transportation Authority (dba Lynx) to conduct transportation surveys to assess changes in alternative transportation modes use.
 - Policy 4.2.6 All projects that are located outside metropolitan activity centers, and that will include a concentration of more than 500 employees, shall coordinate with Metroplan Orlando and the Central Florida Regional Transportation Authority (dba Lynx) to implement Transportation Demand Management programs.

❖ **Louisville-Jefferson County, KY**

- 2020 Cornerstone Key Elements
 - Goal B1: Support the development, adoption and implementation of an effective congestion management strategy to focus on improving the transportation system and reducing roadway congestion and the rate of growth of VMT
 - Objective B1.1: Encourage the adoption of trip reduction and TDM strategies to reduce vehicular use of roadway and connected with land use

❖ **Austin, TX**

- Capital Area Metropolitan Planning Organization (CAMPO) 2025 Plan Key Elements
 - Coordinate land use and transportation planning
 - Create Park/Bike and Ride facilities to provide better access for transit and carpools
 - Multi-modal regional transit network
 - Mixed use development for more bicycling and walking
 - Adhere to CAMPO's Congestion Management System (CMS) Process Guidelines
 - Supports the use of CMS as a guide to develop and implement TDM and TSM projects to relieve traffic congestion in the Capital metropolitan area
 - Ozone Action Days/Commute Solutions- help member jurisdictions, public agencies, and major private sector employers to establish voluntary trip reduction programs for employees, and to discourage SOV travel.
 - Encourages member jurisdictions to adopt parking management policies that encourage transit use, carpooling, bicycling, and walking, and adopt financial disincentives to discourage free parking for SOVs
 - Supports HOV lanes and High Occupancy Toll (HOT) lanes

❖ **Tucson-Pima County, AZ**

- 2025 Regional Transportation Plan (RTP)
 - Improvements include “roadway, transit, bicycle and pedestrian facilities, as well as services, programs, and ordinances that promote the use of alternative modes, carpooling, telecommuting, and other measures.
 - Manage the performance of all modal systems to best mitigate traffic congestion
 - Regional multi-modal balance
- The 2025 RTP includes travel demand management programs intended to help reduce traffic congestion through improved management of vehicle trip demand. The plan provides for strengthening the following TDM programs in the Pima Association of Governments (PAG) region:
 - *Travel Reduction Program*, which requires employers with 100 or more full-time equivalent employees at a single work site to achieve specific goals for alternate mode usage.
 - *Rideshare Program*, which includes alternative mode promotion and car pool matching for the PAG region.
 - *Sun Tran Transit Pass Program*, providing transit passes at reduced rates.
 - *Park-and-Ride lots*, which allow transit riders to leave their vehicles near a bus stop in order to connect with a transit route or carpool.
 - *City of Tucson Alternative Modes Program*, promoting the use of bicycle, pedestrian, and transit modes of travel.
 - *Pima County Clean Air Program*, providing educational and technical services to reduce travel and emissions from motor vehicles.
 - *Tucson Regional Clean Cities Program*, promoting the acquisition and use of alternative fuels and alternative fuel vehicles for fleets of 20 or more vehicles.
 - The Tucson Regional Clean Cities Coalition long-range goals are guided by the 1992 Energy Policy Act mandates and mirror the mandates for Federal and State fleets:
 - Encourage County and Municipal fleet managers to have alternative fuel vehicles constitute 75 percent of annual vehicle purchases.
 - Encourage County and Municipal fleets to use alternative fuel to meet at least 51 percent of the vehicles' fuel needs.

- Encourage Sun Tran and Van Tran transit fleets to be 100 percent powered by alternative fuels.
- Develop the necessary infrastructure to support the use of alternative fuel vehicles throughout the region to include public accessible refueling stations.
- Pima Association of Governments have also implemented a Travel Reduction Program that is in its 11th year.
 - In 1999, 247 employers participated (100 employers or more required to participate)
 - 77 million VMT reduced
 - 3.9 million gallons of gasoline saved
 - \$35.4 million dollars saved
 - 3.1 million pounds of pollution reduced

Scenario Development

Performance Measures

In consultation with BACS, 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 this community, to determine which of the countywide TDM scenarios would be recommended to the MPO.

Table 3.4: Performance Measures

| L RTP Goal | Performance Measures |
|------------------------|---|
| Capacity | Vehicle Trips per day per person |
| Environmental | Emission Levels |
| Mode share | % Bicycle mode share within constrained corridors, major activity centers and countywide |
| | % Multioccupant mode share within constrained corridors, major activity centers and countywide |
| | % SOV mode share within constrained corridors, major activity centers and countywide |
| | % Telecommuting/Flextime/CWW mode share within constrained corridors, major activity centers and countywide |
| | % Transit mode share within constrained corridors, major activity centers and countywide |
| | % Walk mode share within constrained corridors, major activity centers and countywide |
| | Vehicle Trip Rate in constrained and deficient corridors in peak hours |
| System Characteristics | Vehicle Miles Traveled |

TDM Program Elements

There is a wide variety of TDM programs elements that could be combined into various scenarios to be tested with the COMMUTER Model. Table 3.5 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.

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; county-wide, major activity center, and individual employer level. 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 zdata. 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 consultation with HART staff and the project's Advisory Committee, it was decided that CUTR should use a slightly increased 2020 Existing plus Committed Plan (E+C) to establish 2025 Baseline transit improvements.

The difficulty in establishing future transit impacts for baselines lies 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.

In response to this situation, CUTR consulted with HART and MPO staff in order to develop reasonable inputs for the model baselines. Individuals were provided with various scenario inputs and outputs that modeled possible transit improvements by 2025. They were asked to give their opinion in regard to which scenario would be the best to serve as the 2025 baseline for the study. The improvement package that was ultimately chosen is between the 2020 E+C planned improvement and the 2025 Adopted Plan, but closer to the 2020 E+C. It was also the recommendation of this project's Advisory Board to go with a scenario based more on the E+C plan than the Adopted plan.

Currently the 2025 Baseline inputs increase the transit mode share from 1.8% to 1.9%. Taking into account increased numbers of workforce commuters, it adds up to almost a 10% increase in home-based work commuting on transit. It is important to note that according to the 2020 LRTP, the overall transit mode share is projected to lower from 0.76 to 0.60% under the 2020 E+C (2020 LRTP 5-3-Table 10). Using the inputs that represent the 2020 Adopted Plan, the transit mode share increases from 1.8% to 3.3%. In the 2020 LRTP, it is projected that the Adopted Plan would result in a transit mode share of 3.8% for home-based work trips (2020 LRTP 8-2). These increases would represent a 136% and 180% increase in daily home-based work transit trips. HART and MPO staff recommended that CUTR not model the Adopted Plan, as the general consensus was that the Adopted Plan is "unlikely to be fully implemented."

However, in the process of selecting a final recommended scenario at the county-wide level for the MPO, the Advisory Committee suggested that the 2020 Adopted Plan transit improvements should also be used in order to show how TDM impacts might vary depending on which set of transit improvements come to fruition.

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

See Appendix E 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 the 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 TMAs/TMIs 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 the employer or BACS if it becomes necessary to work late or in event of a personal emergency or had to work overtime unexpectedly.
 - 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 carpools and vanpoolers.
 - e. **Vanpooling:** Employers may offer new vanpool subsidies to help vanpools with less than a full complement of riders get on the road. 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, tokens, and other forms of fare media. They may disseminate HARTline 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 in order to meet the schedule of the chosen alternative mode. Arrangements include programs such as flexible or staggered work hours, compressed work weeks, and telecommuting.
 - a. **Flextime:** 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:** 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.
 4. 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 the form of fees that are currently in place, or 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.

Table 3.5: 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 3.6 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 3.6: 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 |

IV. TDM Scenarios

Using the COMMUTER Model, a variety of scenarios were developed for Hillsborough County, four major activity centers and one employer. For each area, CUTR determined the 2000 and 2025 baselines and measured the impacts of packages of TDM programs 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 is unavailable, CUTR uses regional or national data.

Employment in Analysis Area

For the 2000 Baseline, total employment figures for Hillsborough County (see Table 4.1) were taken from 1999 Zdata subtracting individuals that work at home (2.17% of 642,400 total employees). 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 Hillsborough County work for a small percentage of the total companies. In fact, 77% of employees (484,000 of 628,460) are found in only 14.8% of companies, which are companies with 20 or more employees. Furthermore, 56% of employees (352,000 of 628,460) are found in only 3.2% 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 86 of the largest employers in the County, BACS and the TMOs can potentially impact over half of the workers.**

Figure 1: Employees by Company Size

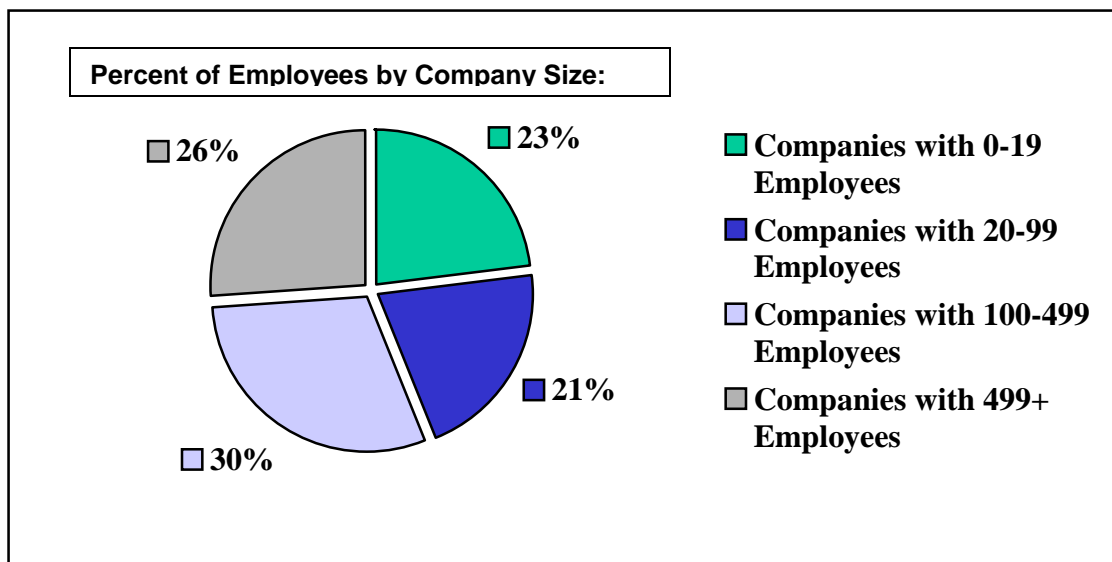


Table 4.1: 2000 Countywide Baseline Employment

| Employment | Number | Percentage |
|-----------------------|----------------|-------------------|
| Office Employment | 540,475 | 86% |
| Non-Office Employment | 87,985 | 14% |
| Total | 628,460 | 100% |

Source: 1999 Zdata

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

| Establishments | # of Establishments | % of Establishments | # of employees | % of employees |
|-----------------------|----------------------------|----------------------------|-----------------------|-----------------------|
| Total Establishments | 26,125 | 100% | 628,460 | 100% |
| 0-19 employees | 22,256 | 85.2% | 144,460 | 23% |
| 20-99 | 3,034 | 11.6% | 132,000 | 21% |
| 100-499 | 749 | 2.9% | 188,600 | 30% |
| >499 | 86 | 0.3% | 163,400 | 26% |

Source: 1998 Business Census Profile

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

| Type | NAICS Code | Industry | Number of Employees | Percent of Employees |
|-------------|-------------------|---|----------------------------|-----------------------------|
| | | Total | 493,710 | 100% |
| Office | 22 | Utilities | 3,480* | 0.7% |
| Office | 42 | Wholesale trade | 32,691 | 6.6% |
| Office | 44-45 | Retail trade | 57,866 | 11.7% |
| Office | 48-49 | Transportation & warehousing | 14,261 | 2.9% |
| Office | 51 | Information | 18,496 | 3.7% |
| Office | 52 | Finance & insurance | 34,351 | 7.0% |
| Office | 53 | Real estate & rental & leasing | 9,428 | 1.9% |
| Office | 54 | Professional, scientific & technical services | 35,316 | 7.2% |
| Office | 55 | Management of companies & enterprises | 13,481 | 2.7% |
| Office | 56 | Admin, support, waste mgt, remediation services | 96,427 | 19.5% |
| Office | 61 | Educational services | 5,048 | 1.0% |
| Office | 62 | Health care and social assistance | 51,804 | 10.5% |
| Office | 71 | Arts, entertainment & recreation | 9,970 | 2.0% |
| Office | 72 | Accommodation & food services | 34,176 | 6.9% |
| Office | 81 | Other services (except public administration) | 18,346 | 3.7% |
| Office | 95 | Auxiliaries (exec corporate, subsidiary & regional) | 2,087* | 0.4% |
| Non-office | 11 | <i>Forestry, fishing, hunting, and agriculture</i> | 323 | 0.1% |
| Non-office | 21 | <i>Mining</i> | 110* | 0.0% |
| Non-office | 23 | <i>Construction</i> | 26,186 | 5.3% |
| Non-office | 31-33 | <i>Manufacturing</i> | 29,467 | 6.0% |
| Non-office | 99 | <i>Unclassified establishments</i> | 396 | 0.1% |
| | | Office | 424,386 | 86.0% |
| | | Non-office | 69,324 | 14.0% |
| | | Total | 493,710 | 100.0% |

* The employment level of three categories (Utilities, Auxiliaries, and Mining) had too few employers so the Census Bureau reported their employees as a range. The balance of employment was allocated in proportion to the mid-point of each range.

Work Trip Mode Share

Work trip mode share figures used in the COMMUTER Model have been modified from 1990 Census data for Hillsborough 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 Hillsborough County. BACS has approximately 50 vanpoolers in the 9 vanpools operating in Hillsborough County, and there are only a few employers with their own vanpool system, such as USAA. USAA currently has 20 vans with 124 riders. 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 | |
|------------------|------------------|---------------|---------------------------|---------------|-----------------------|-------------------------------|
| | Count | Share | Count | Share | Count | Share |
| Auto-Drive alone | 322,743 | 78.5% | 322,743 | 80.3% | 322,743 | 80.3% |
| Auto-Carpool | 55,605 | 13.5% | 55,605 | 13.8% | 55,605 | 13.7% |
| Vanpool | NA | NA | NA | NA | 50 | 0.1% Borrowed from Carpool |
| Transit | 7,415 | 1.8% | 7,415 | 1.8% | 7,415 | 1.8% |
| Motorcycle | 1,140 | 0.3% | 1,140 | 0.4% | - | Added to Other |
| Bicycle | 2,239 | 0.5% | 2,239 | 0.6% | 2,239 | 0.6% |
| Walk | 9,165 | 2.2% | 9,165 | 2.3% | 9,165 | 2.3% |
| Other | 3,415 | 0.8% | 3,415 | 0.8% | 3,415 | 1.2% |
| Worked at home | 8,913 | 2.2% | - | - | - | - |
| Total | 410,905 | 100.0% | 401,992 | 100.0% | 401,992 | 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 Hillsborough County is 2.2. According to BACS data, the average occupancy of their operating vanpool program operating in Hillsborough County is 6.

Table 4.6: 2000 Countywide Baseline Vehicle Occupancy

| Vehicle Occupancy | # |
|---------------------------|----------|
| Average Carpool Occupancy | 2.2 |
| 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 Hillsborough 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 | 9758 | 2.4% |
| 5 to 5:59am | 20082 | 5.0% |
| 6 to 6:59am PEAK | 82999 | 20.6% |
| 7 to 7:59am PEAK | 139201 | 34.6% |
| 8 to 8:59am PEAK | 65399 | 16.3% |
| 9 to 9:59am | 22244 | 5.5% |
| 10 to 10:59am | 7734 | 1.9% |
| 11 to 11:59am | 4147 | 1.0% |
| 12 to 3:59pm | 23834 | 5.9% |
| 4 to 11:59pm | 26639 | 6.6% |
| TOTAL | 402037 | 100.0% |
| Percentage in Peak | 287,599 | 71.5% |

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, in effect, relative weights that signify its 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 HARTLine, 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 Hillsborough 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. The COMMUTER Model default of 14% of trips shifted from the peak period is used in the 2000 Baseline.

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 | 14% [default] |

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 | 9,309,919 | 3,710,947 | 13,020,886 |
| Baseline Trips | 777,768 | 310,020 | 1,087,788 |

Table 4.13: 2000 Countywide Baseline Mode Share

| Mode | Baseline |
|-------------|----------|
| Drive Alone | 80.3% |
| Carpool | 13.7% |
| Vanpool | 0.1% |
| Transit | 1.8% |
| Bicycle | 0.6% |
| Pedestrian | 2.3% |
| Other | 1.2% |
| No Trip | - |
| Total | 100.0% |

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

Countywide 2025 Baseline

The 2025 Baseline incorporates forecasted employment growth in Hillsborough 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 64% increase in VMT and Total Trips. CUTR did not include any changes in mode share for the 2020 Baseline.

Table 4.14: 2025 Countywide Baseline Employment

| Employment | Employees | Percent |
|-----------------------|-----------|---------|
| Office Employment | 888,380 | 86% |
| Non-Office Employment | 144620 | 14% |
| Total | 1,033,000 | 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 E for a full explanation of the expected telecommuting growth rate.

The 2025 Baseline data set also incorporates the transit improvements included in the 2020 Existing and Committed (E+C) Plan with minor increases to performance. The E+C Plan includes a 19% increase in HARTLine's transit fleet over the next 20 years. According to HARTLine, a portion of the new vehicles will be used to lower headways on frequently used HARTLine bus routes. The majority of the new vehicles will be used in planned neighborhood circulator systems and new routes.

These improvements will impact the data that is entered into the COMMUTER Model's Transit Improvement section. Specifically, walk access time for transit, average headway, and average route times are adjusted to account for projected changes in the E+C Plan. The growth of the HARTLine fleet and addition of new routes will also effect the daily VMT by transit vehicles, which in turn, impacts emission results.

Table 4.15: 2025 Countywide Baseline Transit Impacts

| Transit Impacts | Change | Percent Affected Employees | of | Explanation |
|-------------------------------|-------------|----------------------------|----|--|
| Transit Walk Access Time | -15 min. | 5% | | New Transit stops and neighbor circulator routes |
| Change in Average Headway | -15 min | 10% | | Additional buses on high ridership routes |
| Change in Average Route Time | -15 | 5% | | Addition of express bus routes |
| Increase in daily transit VMT | 3,200 miles | NA | | 19% increase of transit fleet |

2025 Countywide Baseline Travel and Mode Share Data

Table 4.16: 2025 Countywide Baseline Travel Data

| Quantity | Peak | Off-Peak | Total |
|----------------|------------|-----------|------------|
| Baseline VMT | 14,714,554 | 5,865,242 | 20,579,796 |
| Baseline Trips | 1,228,083 | 489,516 | 1,717,599 |

Table 4.17: 2025 Countywide Baseline Mode Share

| Mode | Baseline |
|-------------|----------|
| Drive Alone | 77.1% |
| Carpool | 13.2% |
| Vanpool | 0.1% |
| Transit | 1.9% |
| Bicycle | 0.6% |
| Pedestrian | 2.3% |
| Other | 1.2% |
| No Trip | 3.7% |
| 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 | 0.784 | 0.280 | 1.064 |
| CO | 6.931 | 2.311 | 9.243 |
| NO _x | 0.888 | 0.369 | 1.257 |
| CO ₂ | 242.9 | 94.4 | 337.2 |

Countywide TDM Program Scenarios

Scenario A: Alternative Work Schedule

Scenario A is 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: \$350,000 per year for 2 full-time professional staff and related direct expenses dedicated to assisting employers with adoption of compressed work week and telecommuting programs.

Table 4.19 Countywide Scenario A

| Scenario A- Hillsborough County | | COMMUTER MODEL Results | |
|------------------------------------|--|---------------------------------------|---|
| Description | Model Changes | 2000 Baseline | 2025 ETG/E+C |
| 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 | 1.2% or 150,000 VMT Reduction per day | 4.9% or 1,050,000 VMT Reduction per day |
| | | 1.2% or 13,000 Trip Reduction per day | 5.0% or 90,000 Trip Reduction per day |
| | | 0.235 tons/day NOx Reduction | 1.614 tons/day NOx Reduction |
| | | 0.9% Reduction of SOV Mode share | 4.0% 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 combines 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 are set at 5%. This means that 5% of the workforce has access to employer support programs.

Estimated Cost: \$1,500,000 per year for 3 Transportation Management Associations and 3 employer outreach transportation professionals within Bay Area Commuter Services dedicated to Hillsborough County to assist employers to reach 5% workforce participation (approximately 50,000 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: \$150,000 provided as vanpool fare subsidies per year (public and/or private) and \$3,500,000 provided as transit fare subsidies per year (public and/or private).

Table 4.20 Countywide Scenario B

| Scenario B- Hillsborough County | | COMMUTER MODEL Results | |
|--|--|---------------------------------------|---|
| Description | Model Changes | 2000 Baseline | 2025 ETG/E+C |
| Alternative Work Schedule with Employer-based TDM Programs | Compressed Work Week and Telecommuting Program | 1.3% or 165,000 VMT Reduction per day | 5.0% or 1,100,000 VMT Reduction per day |
| | 1% increase in 4/40 CWW | | |
| | 2% increase in 9/80 CWW | 1.3% or 14,000 Trip Reduction per day | 5.1% or 92,000 Trip Reduction per day |
| | 2% increase in telecommuting | | |
| | Preferential Parking Program | 0.259 tons/day NOx Reduction | 1.652 NOx tons/day Reduction |
| | -2 minutes CP/VP Walk Access +2 minutes SOV Walk Access | | |
| Commuter Choice Program | 1.1% Reduction in SOV Mode Share | 4.2% Reduction in SOV Mode Share | |
| \$0.60 Transit subsidy | | | |
| \$0.75 Vanpool subsidy | | | |
| 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: 7% Level 1 and 3% Level 2.

Estimated Cost: \$1,850,000 per year for 3 Transportation Management Associations and 5 employer outreach transportation professionals within Bay Area Commuter Services dedicated to Hillsborough County to assist employers to have 10% of the workforce offered these programs (approximately 100,000 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: \$300,000 provided as vanpool fare subsidies (public and/or private) and \$3,900,000 provided as transit fare subsidies (public and/or private).

Table 4.21 Countywide Scenario C

| Scenario C- Hillsborough County | | COMMUTER MODEL Results | |
|--|--|---------------------------------------|---|
| Description | Model Changes | 2000 Baseline | 2025 ETG/E+C |
| 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 | 1.4% or 190,000 VMT Reduction per day | 5.2% or 1,120,000 VMT Reduction per day |
| | Preferential Parking Program -2 minutes CP/VP Walk Access +2 minutes SOV Walk Access | 1.4% or 16,000 Trip Reduction per day | 5.3% or 95,000 Trip Reduction per day |
| | Commuter Choice Program \$0.60 Transit subsidy \$0.75 Vanpool subsidy | 0.293 tons/day NOx Reduction | 1.727 NOx tons/day Reduction |
| | 10% Workforce participation | 1.2% Reduction in SOV Mode Share | 4.4% Reduction in SOV Mode Share |
| | 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: \$3,000,000 per year for 6 positions for 3 Transportation Management Associations and 8 employer outreach transportation professionals within Bay Area Commuter Services dedicated to Hillsborough County to assist employers to reach 50% workforce participation (approximately 500,000 commuters in 2025). Also, 4 professionals would be dedicated to forming vanpools. Cost includes other direct expenses such as advertising, project related materials, etc. Plus: \$1,500,000 in vanpool fare subsidies per year (public and/or private) and \$4,600,000 in transit fare subsidies per year (public and/or private).

Table 4.22 Countywide Scenario D

| Scenario D- Hillsborough County | | COMMUTER MODEL Results | |
|--|--|--|---|
| Description | Model Changes | 2000 Baseline | 2025 ETG/E+C |
| 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 | 4.5% or 590,000 VMT Reduction per day 3.7% or 40,000 Trip Reduction per day | 7.9% or 1,700,000 VMT Reduction per day 7.2% or 130,000 Trip Reduction per day |
| | Preferential Parking Program -2 minutes CP/VP Walk Access +2 minutes SOV Walk Access | 0.918 tons/day NOx Reduction | 2.614 NOx tons/day Reduction |
| | Commuter Choice Program \$0.60 Transit subsidy \$0.75 Vanpool subsidy | 3.7% Reduction in SOV Mode Share | -6.4% 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.

Activity Center Scenario Baselines

For the Hillsborough County Long Range TDM Plan, four activity centers were chosen for analysis: Downtown Tampa, Brandon, USF/Busch/New Tampa, and Westshore. For each activity center, four scenarios have been developed. Since Downtown Tampa has a significant amount of paid parking, its scenarios include a parking cash-out program and are thus separated from the other three activity centers. 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 4.23: Activity Centers' Current and Future Employment

| Employment | Downtown | Brandon | USF/Busch/NewTampa | Westshore |
|---------------------------|----------|---------|--------------------|-----------|
| 2000 Commuting Workforce | 51,460 | 23,000 | 48,000 | 57,800 |
| 2025 Commuting Workforce | 110,115 | 32,950 | 71,100 | 74,000 |
| 2000 Office employees | 95.9% | 95.6% | 87.2% | 87.2% |
| 2000 Non-office employees | 4.1% | 4.4% | 12.8% | 12.8% |
| 2025 Office employees | 96.0% | 96.3% | 87.6% | 87.6% |
| 2025 Non-office employees | 4.0% | 3.7% | 12.4% | 12.4% |

Source: Zdata

Table 4.24: Activity Centers' Employment By Employer size

| Employer Size | Downtown | | Brandon | | USF/Busch/New Tampa | | Westshore | | |
|---------------|----------------|----------------|----------------|----------------|---------------------|----------------|----------------|----------------|-------|
| | # of employees | % of companies | % of employees | % of companies | % of employees | % of companies | % of employees | % of companies | |
| 0-19 | | 91.0% | 34.9% | 88.3% | 33.7% | 84.7% | 11.7% | 81.9% | 21.8% |
| 20-99 | | 4.8% | 14.5% | 10.3% | 34.7% | 10.4% | 11.4% | 14.4% | 27.6% |
| 100-499 | | 3.9% | 37.8% | 1.3% | 15.8% | 4.0% | 21.7% | 3.2% | 29.4% |
| 500+ | | 0.4% | 12.8% | 0.1% | 15.8% | 0.8% | 55.3% | 0.5% | 21.3% |

Source: Zdata

As in the countywide analysis, the major activity centers also show demonstrate a large percentage of workers in a small portion of the total amount of companies:

- Downtown: 50.6% of employees in 4.3% of businesses
- Brandon: 31.6% of employees in 1.4% of businesses
- USF/Busch/New Tampa: 77% of employees in 4.8% of businesses
- Westshore: 50.7% of employees in 3.7% of businesses

Table 4.25: 2000 Activity Centers' Baseline Mode Split and Work Trip Distance

| Modes | Hillsborough | Downtown | Brandon | USF/Busch/ New Tampa | Westshore |
|----------------------------------|--------------|----------|---------|-------------------------|-----------|
| Drive alone | 80.3% | 63.3% | 83.2% | 81.9% | 81.4% |
| Carpool | 13.8% | 24.4% | 13.9% | 14.2% | 14.4% |
| Vanpool | 0.1% | 0.1% | 0.1% | 0.1% | 0.1% |
| Transit | 1.8% | 9.6% | 0.2% | 1.2% | 1.6% |
| Bicycle | 0.6% | 0.6% | 0.6% | 0.6% | 0.6% |
| Pedestrian | 2.3% | 2.0% | 2.0% | 2.0% | 1.9% |
| Work Trip Distance (miles) | 11.7 | 8.9 | 10.5 | 11.7 | 11.4 |

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

Brandon, USF/Busch/New Tampa and Westshore Scenarios

Activity Center Scenario A: Alternative Work Schedule

Scenario A is 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.

For the 2025 ETG/E+C Baseline that incorporates expected telecommuting growth (ETG), the 2% increase in telecommuting is added on to the forecasted growth. According to the most recent survey by the International Telework Association and Council (ITAC), there are about 18 million teleworkers. When the telecommuting definition is made more restrictive to those who telecommute at least once per week among employees and contract workers, then the number declines to 6.4 million. Noted telecommuting expert, Jack Nilles, forecasts the projected number of US teleworkers, including those at telework centers, is likely to reach 30 million at yearend 2004, and 40 million at yearend 2010.³ As a result, the telecommuting rate is expected to reach 13% by the 2025.

The 2025 Baseline also incorporates the transit improvements that are expected as part of Hillsborough County's 2020 Long Range Transportation Plan's Existing and Committed (E+C) Scenario. The E+C Plan includes a 19% increase in HART's transit fleet to meet the demands of a growing population, increased traffic congestion, as well as planned routes and neighborhood circulators.

³ Nilles, Jack M. "Telework In the US: Telework America Survey 2000" for the International Telework Association and Council. JALA International, Inc. October 2000

Table 4.26 Brandon Activity Center Scenario A

| Scenario A- Brandon 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 5,700 VMT Reduction per day | 5.3% or 33,700 VMT Reduction per day |
| | | 1.3% or 500 Trip Reduction per day | 5.4% or 3,200 Trip Reduction per day |
| | | 0.009 tons/day NOx Reduction | 0.021 tons/day NOx Reduction |
| | | 1.1% Reduction of SOV Mode share | 4.5% Reduction of SOV Mode share |

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

Table 4.27 USF/Busch/New Tampa Activity Center Scenario A

| Scenario A- USF/Busch/New Tampa 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 | 1.2% or 12,000 VMT Reduction per day | 5.0% or 74,500 VMT Reduction per day |
| | | 1.2% or 1,000 Trip Reduction per day | 5.1% or 64,000 Trip Reduction per day |
| | | 0.019 tons/day NOx Reduction | 0.085 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 4.28 Westshore Activity Center Scenario A

| Scenario A- Westshore 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 | 1.2% or 14,100 VMT Reduction per day | 4.9% or 75,500 VMT Reduction per day |
| | | 1.2% or 1,200 Trip Reduction per day | 5.0% or 6,500 Trip Reduction per day |
| | | 0.022 tons/day Nox Reduction | 0.087 tons/day Nox Reduction |
| | | 1.0% Reduction of SOV Mode share | 4.1% Reduction of SOV Mode share |

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

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

Scenario B combines 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 10% 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 are set at 7% and Level 2 employer support programs are set at 3%. This means that 10% of the workforce has access to some level of employer support programs.

Table 4.29 Brandon Activity Center Scenario B

| Scenario B- Brandon 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% increase in 4/40 CWW 2% increase in 9/80 CWW 2% increase in telecommuting | 1.5% or 6,700 VMT Reduction per day 1.5% or 600 Trip Reduction per day | 5.6% or 35,100 VMT Reduction per day 5.7% or 3,300 Trip Reduction per day |
| | Preferential Parking Program -2 minutes CP/VP Walk Access +2 minutes SOV Walk Access | 0.010 tons/day NOx Reduction | 0.023NOx tons/day Reduction |
| | Commuter Choice Program \$0.60 Transit subsidy \$0.75 Vanpool subsidy | 1.3% Reduction in SOV Mode Share | 4.8% 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 4.30 USF/Busch/New Tampa Activity Center Scenario B

| Scenario B- USF/Busch/New Tampa 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% increase in 4/40 CWW 2% increase in 9/80 CWW 2% increase in telecommuting | 1.4% or 14,300 VMT Reduction per day 1.4% or 1,200 Trip Reduction per day | 5.2% or 78,400 VMT Reduction per day 5.3% or 6,700 Trip Reduction per day |
| | Preferential Parking Program -2 minutes CP/VP Walk Access +2 minutes SOV Walk Access | 0.022 tons/day NOx Reduction | 0.091NOx tons/day Reduction |
| | Commuter Choice Program \$0.60 Transit subsidy \$0.75 Vanpool subsidy | 1.3% Reduction in SOV Mode Share | 4.4% 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 4.31 Westshore Activity Center Scenario B

| Scenario B- Westshore 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% increase in 4/40 CWW 2% increase in 9/80 CWW 2% increase in telecommuting | 1.4% or 17,000 VMT Reduction per day | 5.2% or 80,100 VMT Reduction per day |
| | Preferential Parking Program -2 minutes CP/VP Walk Access +2 minutes SOV Walk Access | 1.4% or 1,500 Trip Reduction per day | 5.3% or 6,900 Trip Reduction per day |
| | Commuter Choice Program \$0.60 Transit subsidy \$0.75 Vanpool subsidy | 0.027 tons/day NOx Reduction | 0.094 NOx tons/day Reduction |
| | 10% Workforce participation | 1.3% Reduction in SOV Mode Share | 4.4% Reduction in SOV Mode Share |
| | 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 C: Employer-based TDM Program II

This scenario is a more aggressive version of B and is based on 35% workforce participation and corresponding changes in employer support levels: 20% Level 1 and 10% Level 2; 3% Level 3; and 2% Level 4.

Table 4.32 Brandon Activity Center Scenario C

| Scenario C- Brandon 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% increase in 4/40 CWW 2% increase in 9/80 CWW 2% increase in telecommuting | 2.6% or 11,700 VMT Reduction per day | 6.6% or 41,700 VMT Reduction per day |
| | Preferential Parking Program -2 minutes CP/VP Walk Access +2 minutes SOV Walk Access | 2.5% or 1000 Trip Reduction per day | 6.6% or 3,900 Trip Reduction per day |
| | Commuter Choice Program \$0.60 Transit subsidy \$0.75 Vanpool subsidy | 0.018 tons/day NOx Reduction | 0.034 NOx tons/day Reduction |
| | 35% Workforce participation | 2.5% Reduction in SOV Mode Share | 5.9% Reduction in SOV Mode Share |
| | 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 4.33 USF/Busch/New Tampa Activity Center Scenario C

| Scenario C- USF/Busch/New Tampa 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 | 2.5% or 25,200 VMT Reduction per day | 6.2% or 93,000 VMT Reduction per day |
| | 1% increase in 4/40 CWW | | |
| | 2% increase in 9/80 CWW | 2.4% or 2,100 Trip Reduction per day | 6.2% or 7,800 Trip Reduction per day |
| | 2% increase in telecommuting | | |
| | Preferential Parking Program | 0.039 tons/day NOx Reduction | 0.114 NOx tons/day Reduction |
| | -2 minutes CP/VP Walk Access | | |
| | +2 minutes SOV Walk Access | | |
| | Commuter Choice Program | 2.4% Reduction in SOV Mode Share | 5.5% Reduction in SOV Mode Share |
| | \$0.60 Transit subsidy | | |
| | \$0.75 Vanpool subsidy | | |
| | 35% 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 4.34 Westshore Activity Center Scenario C

| Scenario C- Westshore 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 | 2.5% or 30,200 VMT Reduction per day | 6.2% or 95,200 VMT Reduction per day |
| | 1% increase in 4/40 CWW | | |
| | 2% increase in 9/80 CWW | 2.5% or 2,500 Trip Reduction per day | 6.2% or 8,100 Trip Reduction per day |
| | 2% increase in telecommuting | | |
| | Preferential Parking Program | 0.047 tons/day NOx Reduction | 0.117 NOx tons/day Reduction |
| | -2 minutes CP/VP Walk Access | | |
| | +2 minutes SOV Walk Access | | |
| | Commuter Choice Program | 2.4% Reduction in SOV Mode Share | 5.5% Reduction in SOV Mode Share |
| | \$0.60 Transit subsidy | | |
| | \$0.75 Vanpool subsidy | | |
| | 35% 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.

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).

Table 4.35 Brandon Activity Center Scenario D

| Scenario D- Brandon 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% increase in 4/40 CWW 2% increase in 9/80 CWW 2% increase in telecommuting | 4.0% or 18,000 VMT Reduction per day | 7.8% or 49,500 VMT Reduction per day |
| | Preferential Parking Program -2 minutes CP/VP Walk Access +2 minutes SOV Walk Access | 3.7% or 1,500 Trip Reduction per day | 7.6% or 4,500 Trip Reduction per day |
| | Commuter Choice Program \$0.60 Transit subsidy \$0.75 Vanpool subsidy | 0.028 tons/day NOx Reduction | 0.046 NOx tons/day Reduction |
| | 50% Workforce participation | 3.9% Reduction in SOV Mode Share | 7.0% Reduction in SOV Mode Share |
| | 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 4.36 USF/Busch/New Tampa Activity Center Scenario D

| Scenario D- USF/Busch/New Tampa Activity Center | | COMMUTER MODEL Results | |
|--|---|--------------------------------------|---------------------------------------|
| Description | Model Changes | 2000 Baseline | 2025 ETG/E+C |
| 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 | 3.8% or 38,500 VMT Reduction per day | 7.4% or 110,500 VMT Reduction per day |
| | Preferential Parking Program -2 minutes CP/VP Walk Access +2 minutes SOV Walk Access | 3.6% or 3,100 Trip Reduction per day | 7.3% or 9,200 Trip Reduction per day |
| | Commuter Choice Program \$0.60 Transit subsidy \$0.75 Vanpool subsidy | 0.060 tons/day NOx Reduction | 0.141 NOx tons/day Reduction |
| | 50% Workforce participation | 3.8% Reduction in SOV Mode Share | 6.7% Reduction in SOV Mode Share |
| | 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 4.37 Westshore Activity Center Scenario D

| Scenario D- Westshore Activity Center | | COMMUTER MODEL Results | |
|--|--|--------------------------------------|---------------------------------------|
| Description | Model Changes | 2000 Baseline | 2025 ETG/E+C |
| Alternative Work Schedule with Employer-based TDM Programs | Compressed Work Week and Telecommuting Program | 3.8% or 46,100 VMT Reduction per day | 7.4% or 113,600 VMT Reduction per day |
| | 1% increase in 4/40 CWW | | |
| | 2% increase in 9/80 CWW | 3.7% or 3,700 Trip Reduction per day | 7.3% or 9,500 Trip Reduction per day |
| | 2% increase in telecommuting | | |
| | Preferential Parking Program | 0.072 tons/day NOx Reduction | 0.146 NOx tons/day Reduction |
| | -2 minutes CP/VP Walk Access | | |
| | +2 minutes SOV Walk Access | | |
| | Commuter Choice Program | 3.8% Reduction in SOV Mode Share | 6.6% 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.

Downtown Tampa Scenarios

In Downtown Tampa, there are 51,460 employees. Therefore, the Downtown Tampa's commuting workforce represents 8.2% of the total number of Hillsborough County commuters (628,460= 642,400 – 2.17% work at home). The Downtown Tampa office versus non-office split is 96% office and 4% non-office.

Table 3.8: 2000 Downtown Tampa Baseline Establishments and Employees

| Establishments | % of Establishments | # of employees | % of employees |
|----------------------|---------------------|----------------|----------------|
| Total Establishments | 100% | 51,460 | 100% |
| 0-19 employees | 91.0% | 17,960 | 34.9% |
| 20-99 | 4.8% | 7,460 | 14.5% |
| 100-499 | 3.9% | 19,450 | 37.8% |
| >499 | 0.4% | 6,590 | 12.8% |

Source: 1998 Business Census Profile

- Approximately 65% of Downtown Tampa employees are found in only 9% of companies, which have 20 or more employees.
- Over 50% of Downtown Tampa employees are found in just 4.3% of companies, which are companies with over 100 employees.

Downtown Activity Center Scenario A: Alternative Work Schedule

Scenario A1 is 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.

Table 4.39 Downtown Tampa Scenario A

| Scenario A- Downtown Tampa 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 9,000 VMT Reduction per day | 5.5% or 81,700 VMT Reduction per day |
| | | 1.3% or 1,000 Trip Reduction per day | 5.6% or 9,400 Trip Reduction per day |
| | | 0.014 tons/day NOx Reduction | 0.097 tons/day NOx Reduction |
| | | 0.8% Reduction of SOV Mode share | 3.6% Reduction of SOV Mode share |

See Appendix B 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 combines 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 10% 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 Parking Cash-Out Program is included in the Downtown Tampa scenarios due to the significant number of employees or employers that pay for parking. The after-tax value of the parking cash out is set at \$2.45. This figure is based on an average daily parking rate of \$3.60 and a tax rate of 32%.

In this scenario, Level 1 employer support programs are set at 7% and Level 2 at 3%. This means that 10% of the workforce has access to some level of employer support programs.

Table 4.40 Downtown Tampa Scenario B

| Scenario B- Downtown Tampa 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% increase in 4/40 CWW 2% increase in 9/80 CWW 2% increase in telecommuting | 2.6% or 18,000 VMT Reduction per day 2.5% or 1,900 Trip Reduction per day | 6.7% or 98,000 VMT Reduction per day 6.6% or 11,000 Trip Reduction per day |
| | Preferential Parking Program -2 minutes CP/VP Walk Access +2 minutes SOV Walk Access | 0.029 tons/day NOx Reduction | 0.124 NOx tons/day Reduction |
| | Parking Cash-Out Program \$2.45 after-tax subsidy | 2.0% Reduction in SOV Mode Share | 4.6% 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.

Scenario C: Employer-based TDM Program II

This scenario is a more aggressive version of B and is based on 35% workforce participation and corresponding changes in employer support levels: 20% Level 1 and 10% Level 2; 3% Level 3; and 2% Level 4.

Table 4.41 Downtown Tampa Scenario C

| Scenario C- Downtown Tampa 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% increase in 4/40 CWW 2% increase in 9/80 CWW 2% increase in telecommuting | 7.0% or 48,300 VMT Reduction per day 5.9% or 4,500 Trip Reduction per day | 8.8% or 130,200 VMT Reduction per day 7.9% or 12,900 Trip Reduction per day |
| | Preferential Parking Program -2 minutes CP/VP Walk Access +2 minutes SOV Walk Access | 0.076 tons/day NOx Reduction | 0.173 NOx tons/day Reduction |
| | Parking Cash-out Program \$2.45 after-tax subsidy | 5.2% Reduction in SOV Mode Share | 6.4% Reduction in SOV Mode Share |
| | 35% 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.

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).

Table 4.42 Downtown Tampa Scenario D

| Scenario D- Downtown Tampa Activity Center | | COMMUTER MODEL Results | |
|--|--|---------------------------------------|--|
| Description | Model Changes | 2000 Baseline | 2025 ETG/E+C |
| Alternative Work Schedule with Employer-based TDM Programs | Compressed Work Week and Telecommuting Program | 10.8% or 74,500 VMT Reduction per day | 11.3% or 167,200 VMT Reduction per day |
| | 1% increase in 4/40 CWW | | |
| | 2% increase in 9/80 CWW | 8.5% or 6,500 Trip Reduction per day | 9.2% or 15,000 Trip Reduction per day |
| | 2% increase in telecommuting | | |
| | Preferential Parking Program | 0.117 tons/day NOx Reduction | 0.231 NOx tons/day Reduction |
| | -2 minutes CP/VP Walk Access | | |
| | +2 minutes SOV Walk Access | 7.6% Reduction in SOV Mode Share | 7.8% Reduction in SOV Mode Share |
| | Parking Cash-Out Program | | |
| | \$2.45 after-tax 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.

Employer TDM Program Scenarios

For the individual employer-level analysis, Hillsborough County Government offices in downtown Tampa was selected as the employer. Due to a recent survey of its downtown employees, transportation data was readily available. As an employer, Hillsborough County does offer their employees a 50% subsidized transit pass, and is currently considering another 25% subsidy. The vast majority of downtown employees pay for their parking, however, the county is considering a reduction in parking costs for carpoolers and vanpoolers. Therefore, these potential changes were modeled as part of the TDM scenarios.

2000 Employer-level Baseline

The 2000 Baseline input is based on the recent Hillsborough County transportation survey (HCTS) completed by downtown employees of Hillsborough County government. For inputs that were not identified by the survey, CUTR uses the local, regional or national data that has been used throughout the Long Range TDM Plan project.

Employment in Analysis Area

For the 2000 Baseline, the total employment figure is taken from the HCTS. In order to divide that total employment figure into office versus non-office employment, the ratio that has been used throughout the project, 86% office and 16% non-office, is used

Table 4.43: 2000 Employer-level Baseline Employment

| Employment | Number | Percentage |
|-----------------------|---------------|-------------------|
| Office Employment | 2,400 | 86% |
| Non-Office Employment | 460 | 14% |
| Total | 2,860 | 100% |

Source: HCTS

Work Trip Mode Share

Work trip mode share figures used in the employer scenarios are taken from the HCTS.

Table 4.44: 2000 Employer-level Baseline Work Trip Mode Shares

| Commuter Modes | |
|-----------------------|-------|
| Auto- Drive alone | 83.6% |
| Auto- Carpool | 7.3% |
| Vanpool | 0.2% |
| Transit | 7.8% |
| Bicycle | 0.1% |
| Walk | 0.2% |
| Other | 0.8% |
| Total | 100% |

Source: HCTS

Work Trip Length

The average work trip length inputs, with the exception of the vanpool trip length, are taken from the HCTS. Since the average vanpool length from the survey was far below the BACS average, CUTR decided to use the BACS average in the model. This figure better represents the average trip length of vanpools formed in the future.

Table 4.45: 2000 Employer-level Baseline Work Trip Length

| Work Trip Length | Miles | Source |
|-----------------------------|-------|--------|
| Average person trip length | 13.7 | HCTS |
| Average trip length vanpool | 27.0 | BACS |
| Average trip length bicycle | 4.4 | HCTS |
| Average trip length walking | 3.2 | HCTS |

Vehicle Occupancy

Since this data is not available from the HCTS, figures used previous scenarios were entered in the model.

Table 4.46: 2000 Employer-level Baseline Vehicle Occupancy

| Vehicle Occupancy | # |
|---------------------------|-----|
| Average Carpool Occupancy | 2.2 |
| 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 Period

Since this data is not available from the HCTS, figures used previous scenarios were entered in the model. According to the Regional Planning Model, and verified by 1990 Census data, the peak period for Hillsborough 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.

Table 4.47: Percent of Work Trips in Peak Periods

| Travel Time to Work | Commuters | Percentage |
|---------------------------|----------------|---------------|
| 12 to 4:59am | 9,758 | 2.4% |
| 5 to 5:59am | 20,082 | 5.0% |
| 6 to 6:59am PEAK | 82,999 | 20.6% |
| 7 to 7:59am PEAK | 139,201 | 34.6% |
| 8 to 8:59am PEAK | 65,399 | 16.3% |
| 9 to 9:59am | 22,244 | 5.5% |
| 10 to 10:59am | 7,734 | 1.9% |
| 11 to 11:59am | 4,147 | 1.0% |
| 12 to 3:59pm | 23,834 | 5.9% |
| 4 to 11:59pm | 26,639 | 6.6% |
| TOTAL | 402,037 | 100.0% |
| Percentage in Peak | 287,599 | 71.5% |

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

Mode Choice Model Coefficients

The model coefficients were unchanged from previous scenarios.

Table 4.48: 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 HARTLine, 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. For employer-level modeling, each of the four programs is rated according to the level of support. The ratings were based on responses to questions posed to several Hillsborough County employees. The transit support program is Level 4 because of the County's policy of providing a 50% subsidy for transit passes. The carpool and vanpool are each Level 1 because the County does provide information on ridesharing and vanpools via a third party agency, e.g. BACS. The bicycle support program is Level 1 since the County does provide bicycle parking at many County buildings.

Table 4.49: 2000 Employer-level Baseline Employer Support Programs

| Program | Program Level |
|----------------|----------------------|
| Carpool | 1 |
| Vanpool | 1 |
| Transit | 4 |
| Bicycle | 1 |

Existing Alternative Work Schedule Participation Rates

The alternative work schedule inputs are based on both results from the HCTS and Hillsborough County employees who responded to information requests from CUTR. According to the HCTS, approximately 3% work some type of compressed work week (CWW), and there are no regularly employees that telecommute. However, according a Hillsborough County employee, the County is pre-testing a telecommuting program, starting with five employees. Another source estimated that the County has approximately 30% of its downtown employees working staggered hours: arriving to work at 7am, 8am and 9am.

Table 4.50: 2000 Employer-level Baseline Alternative Work Schedule Participation

| Alternative Work Schedule | Existing Participation |
|----------------------------------|-------------------------------|
| Flextime | 0% |
| Compressed 4/40 | 2% |
| Compressed 9/80 | 1% |
| Staggered Hours | 30% |
| Telecommuting | 0% |

2025 Employer-level Baseline

The 2025 Baseline employee figure is based on a ratio of County government employees to total County population. Currently in Hillsborough County there are approximately 5000 county government employees (of which 2,860 or 57.3% work downtown) in county of approximately 1,000,000. Therefore for every 1000 residents there are 5 county government employees. In 2025, the county population is expected to reach 1,300,000 residents. If the same ratio is applied, the number of Hillsborough County employees would be expected to reach 6500. If downtown employee remains at the same ratio, it would be 3,725.

Table 4.51: 2025 Employer-level Baseline Employment

| Employment | Employees | Percent |
|-----------------------|-----------|---------|
| Office Employment | 3,125 | 86% |
| Non-Office Employment | 600 | 14% |
| Total | 3,725 | 100% |

Source: HCTS

Transit Improvements

The 2025 Baseline for the employer scenarios are based on input from HART staff. The input into the model results in a modest 1.2% addition to transit mode share.

Table 4.52: 2025 Employer-level Baseline Transit Impacts

| Transit Impacts | Change | Comments |
|------------------------------|---------|---|
| Transit Walk Access Time | -1 min. | Only a small increase in the amount of stops in the downtown area, primarily from planned additions to trolley system |
| Change in Average Headway | -5 min | Based on more increased downtown service |
| Change in Average Route Time | -5 min | Based on the implementation of additional express routes to downtown |

Telecommuting Growth Rate

The 2025 Baseline data set includes a lowered expected growth rate of telecommuting. Countywide, telecommuting (at least one day per week as an employee or contractor) participation rates are projected to reach 13% by 2025 in previous models. This figure was deemed to large, since currently there are no regular telecommuters beyond a handful involved in a pre-test. As a result the ETG rate was lowered to just 7%.

Employer-Level TDM Scenarios

Scenario A: Parking Management and Increased Transit Subsidy

According to Hillsborough County Transportation Department staff, the County is considering providing free parking to carpools and vanpools. A preferential parking program was included as well. Staff also reported that the County is considering increasing the transit subsidy from 50% to 75% (or an additional \$0.37).

Table 4.53 Employer-level Scenario A Description

| Scenario A | Model Changes |
|--|--|
| Parking Management and Transit Subsidy | Preferential Parking Program -2 minutes CP/VP Walk Access +2 minutes SOV Walk Access Free Parking for CP/VP \$2.50/per day savings Commuter Choice Program 75% Transit subsidy CP/VP Support Levels Increased to Level 2 |

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

2000 Scenario A Results

Table 4.54: 2000 Employer-level Scenario A Travel Impacts (relative to affected employment)

| Quantity | Peak | Off-Peak | Total |
|------------------|--------|----------|--------|
| Baseline VMT | 48,602 | 19,373 | 67,975 |
| Final VMT | 46,439 | 18,510 | 64,949 |
| VMT Reduction | 2,164 | 862 | 3,026 |
| % VMT Reduction | 4.5% | 4.5% | 4.5% |
| Baseline Trips | 3,556 | 1,417 | 4,974 |
| Final Trips | 3,426 | 1,366 | 4,792 |
| Trip Reduction | 130 | 52 | 182 |
| % Trip Reduction | 3.7% | 3.7% | 3.7% |

Table 4.55: 2000 Employer-level Scenario A Mode Share Impacts

| Mode | Baseline | Final | %Change |
|-------------|----------|--------|---------|
| Drive Alone | 83.6% | 78.5% | -5.1% |
| Carpool | 7.3% | 11.3% | +4.0% |
| Vanpool | 0.2% | 0.9% | +0.7% |
| Transit | 7.8% | 8.3% | +0.5% |
| Bicycle | 0.1% | 0.1% | -0.0% |
| Pedestrian | 0.2% | 0.2% | -0.0% |
| Other | 0.8% | 0.8% | -0.0% |
| No Trip | - | 0.0% | +0.0% |
| Total | 100.0% | 100.0% | - |

Table 4.56: 2000 Employer-level Scenario A Emission Reductions (tons/day except CO₂ in metric tons/day)

| Pollutant | Peak | Off-Peak | Total |
|-----------------|-------|----------|-------|
| HC | 0.003 | 0.001 | 0.004 |
| CO | 0.025 | 0.008 | 0.033 |
| NO _x | 0.003 | 0.001 | 0.005 |
| CO ₂ | 0.9 | 0.4 | 1.2 |

2025 Scenario A Results

Table 4.57: 2025 Employer-level Scenario A Travel Impacts (relative to affected employment)

| Quantity | Peak | Off-Peak | Total |
|------------------|--------|----------|--------|
| Baseline VMT | 63,302 | 25,232 | 88,534 |
| Final VMT | 57,950 | 23,099 | 81,049 |
| VMT Reduction | 5,352 | 2,133 | 7,485 |
| % VMT Reduction | 8.5% | 8.5% | 8.5% |
| Baseline Trips | 4,632 | 1,846 | 6,478 |
| Final Trips | 4,275 | 1,704 | 5,979 |
| Trip Reduction | 356 | 142 | 498 |
| % Trip Reduction | 7.7% | 7.7% | 7.7% |

Table 4.58: 2025 Employer-level Scenario A Mode Share Impacts

| Mode | Baseline | Final | %Change |
|-------------|----------|--------|---------|
| Drive Alone | 83.6% | 75.2% | -8.4% |
| Carpool | 7.3% | 10.8% | +3.5% |
| Vanpool | 0.2% | 0.8% | +0.6% |
| Transit | 7.8% | 9.6% | +1.8% |
| Bicycle | 0.1% | 0.1% | -0.0% |
| Pedestrian | 0.2% | 0.2% | -0.0% |
| Other | 0.8% | 0.7% | -0.1% |
| No Trip | - | 2.5% | +2.5% |
| Total | 100.0% | 100.0% | - |

Table 4.59: 2025 Employer-level Scenario A Emission Reductions (tons/day except CO₂ in metric tons/day)

| Pollutant | Peak | Off-Peak | Total |
|-----------------|--------|----------|--------|
| HC | -0.003 | 0.002 | 0.000 |
| CO | 0.003 | 0.021 | 0.024 |
| NO _x | -0.023 | 0.003 | -0.020 |
| CO ₂ | -3.1 | -4.4 | -7.5 |

Scenario B: Alternative Work Schedule and Telecommuting

Scenario B is focused solely on increases in alternative work schedules and telecommuting. Specifically, it calls for a 15% increase in the 4/40 Compressed Work Week (CWW) and a 5% increase in both the 9/80 CWW and telecommuting. These figures were based on the desirability of CWW. Approximately

40% of employees stated that they would want to work a compressed work week. However, for almost half of them, their job is incompatible with an alternative schedule. As a result, a 20% increase was modeled, divided into 4/40 and 9/80 based on desirability. For the 2000 scenario, a 4% increase in telecommuting was modeled. This would mean that the County employee telecommuting rate would rise to the total county average. For 2025, an additional 7% was added. This figure is approximately half of the ETG rate.

Table 4.60 Employer-level Scenario B Description

| Scenario | Model Changes |
|------------------------------------|--|
| Alternative Work Schedule Scenario | Compressed Work Week and Telecommuting Program 15% increase in 4/40 CWW 5% increase in 9/80 CWW 4% increase in telecommuting for 2000 11% increase in telecommuting for 2025 |

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

2000 Scenario B Results

Table 4.61: 2000 Employer-level Scenario B Travel Impacts (relative to affected employment)

| Quantity | Peak | Off-Peak | Total |
|------------------|--------|----------|--------|
| Baseline VMT | 48,602 | 19,373 | 67,975 |
| Final VMT | 46,458 | 18,518 | 64,976 |
| VMT Reduction | 2,145 | 855 | 2,999 |
| % VMT Reduction | 4.4% | 4.4% | 4.4% |
| Baseline Trips | 3,556 | 1,417 | 4,974 |
| Final Trips | 3,399 | 1,355 | 4,754 |
| Trip Reduction | 157 | 63 | 220 |
| % Trip Reduction | 4.4% | 4.4% | 4.4% |

Table 4.62: 2000 Employer-level Scenario B Mode Share Impacts

| Mode | Baseline | Final | %Change |
|-------------|----------|--------|---------|
| Drive Alone | 83.6% | 79.9% | -3.7% |
| Carpool | 7.3% | 7.0% | -0.3% |
| Vanpool | 0.2% | 0.2% | -0.0% |
| Transit | 7.8% | 7.5% | -0.3% |
| Bicycle | 0.1% | 0.1% | -0.0% |
| Pedestrian | 0.2% | 0.2% | +0.0% |
| Other | 0.8% | 0.8% | -0.0% |
| No Trip | - | 4.4% | +4.4% |
| Total | 100.0% | 100.0% | - |

Table 4.63: 2000 Employer-level Scenario B Emission Reductions (tons/day except CO₂ in metric tons/day)

| Pollutant | Peak | Off-Peak | Total |
|-----------------|-------|----------|-------|
| HC | 0.003 | 0.001 | 0.004 |
| CO | 0.025 | 0.008 | 0.033 |
| NOx | 0.003 | 0.001 | 0.005 |
| CO ₂ | 0.9 | 0.3 | 1.2 |

2025 Scenario B Results

Table 4.64: 2025 Employer-level Scenario B Travel Impacts (relative to affected employment)

| Quantity | Peak | Off-Peak | Total |
|------------------|--------|----------|--------|
| Baseline VMT | 63,302 | 25,232 | 88,534 |
| Final VMT | 57,973 | 23,108 | 81,081 |
| VMT Reduction | 5,329 | 2,124 | 7,453 |
| % VMT Reduction | 8.4% | 8.4% | 8.4% |
| Baseline Trips | 4,632 | 1,846 | 6,478 |
| Final Trips | 4,241 | 1,691 | 5,932 |
| Trip Reduction | 390 | 156 | 546 |
| % Trip Reduction | 8.4% | 8.4% | 8.4% |

Table 4.65: 2025 Employer-level Scenario B Mode Share Impacts

| Mode | Baseline | Final | %Change |
|-------------|----------|--------|---------|
| Drive Alone | 83.6% | 76.6% | -7.0% |
| Carpool | 7.3% | 6.7% | -0.6% |
| Vanpool | 0.2% | 0.2% | -0.0% |
| Transit | 7.8% | 8.6% | +0.8% |
| Bicycle | 0.1% | 0.1% | -0.0% |
| Pedestrian | 0.2% | 0.2% | -0.0% |
| Other | 0.8% | 0.7% | -0.1% |
| No Trip | - | 6.9% | +6.9% |
| Total | 100.0% | 100.0% | - |

Table 4.66: 2025 Employer-level Scenario B Emission Reductions (tons/day except CO₂ in metric tons/day)

| Pollutant | Peak | Off-Peak | Total |
|-----------------|--------|----------|--------|
| HC | -0.003 | 0.002 | 0.000 |
| CO | 0.003 | 0.021 | 0.024 |
| NOx | -0.023 | 0.003 | -0.020 |
| CO ₂ | -3.1 | -4.4 | -7.5 |

Scenario C: Combination of A and B

This scenario is simply a combination of A and B.

Table 4.67. 2000 Employer-level Scenario C Description

| Scenario | Model Changes |
|-------------------------|--|
| Combination of A and B. | <p>Preferential Parking Program -2 minutes CP/VP Walk Access +2 minutes SOV Walk Access</p> <p>Free Parking for CP/VP \$2.50/per day savings</p> <p>Commuter Choice Program 75% Transit subsidy</p> <p>CP/VP Support Levels Increased to Level 2</p> <p>Compressed Work Week and Telecommuting Program 15% increase in 4/40 CWW 5% increase in 9/80 CWW 4% increase in telecommuting for 2000 11% increase in telecommuting for 2025</p> |

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

2000 Scenario C Results

Table 4.68: 2000 Employer-level Scenario C Travel Impacts (relative to affected employment)

| Quantity | Peak | Off-Peak | Total |
|------------------|--------|----------|--------|
| Baseline VMT | 48,602 | 19,373 | 67,975 |
| Final VMT | 44,444 | 17,716 | 62,160 |
| VMT Reduction | 4,158 | 1,657 | 5,815 |
| % VMT Reduction | 8.6% | 8.6% | 8.6% |
| Baseline Trips | 3,556 | 1,417 | 4,974 |
| Final Trips | 3,279 | 1,307 | 4,586 |
| Trip Reduction | 277 | 111 | 388 |
| % Trip Reduction | 7.8% | 7.8% | 7.8% |

Table 4.69: 2000 Employer-level Scenario C Mode Share Impacts

| Mode | Baseline | Final | %Change |
|-------------|----------|--------|---------|
| Drive Alone | 83.6% | 75.1% | -8.5% |
| Carpool | 7.3% | 10.8% | +3.5% |
| Vanpool | 0.2% | 0.8% | +0.6% |
| Transit | 7.8% | 8.0% | +0.2% |
| Bicycle | 0.1% | 0.1% | -0.0% |
| Pedestrian | 0.2% | 0.2% | -0.0% |
| Other | 0.8% | 0.7% | -0.1% |
| No Trip | - | 4.2% | +4.2% |
| Total | 100.0% | 100.0% | - |

Table 4.70: 2000 Employer-level Scenario C Emission Reductions (tons/day except CO₂ in metric tons/day)

| Pollutant | Peak | Off-Peak | Total |
|-----------------|-------|----------|-------|
| HC | 0.005 | 0.002 | 0.007 |
| CO | 0.048 | 0.016 | 0.064 |
| Nox | 0.006 | 0.003 | 0.009 |
| CO ₂ | 1.7 | 0.7 | 2.4 |

2025 Scenario C Results

Table 4.71: 2025 Employer-level Scenario C Travel Impacts (relative to affected employment)

| Quantity | Peak | Off-Peak | Total |
|------------------|--------|----------|--------|
| Baseline VMT | 63,302 | 25,232 | 88,534 |
| Final VMT | 55,445 | 22,101 | 77,546 |
| VMT Reduction | 7,857 | 3,132 | 10,988 |
| % VMT Reduction | 12.4% | 12.4% | 12.4% |
| Baseline Trips | 4,632 | 1,846 | 6,478 |
| Final Trips | 4,090 | 1,630 | 5,721 |
| Trip Reduction | 541 | 216 | 757 |
| % Trip Reduction | 11.7% | 11.7% | 11.7% |

Table 4.72: 2025 Employer-level Scenario C Mode Share Impacts

| Mode | Baseline | Final | %Change |
|-------------|----------|--------|---------|
| Drive Alone | 83.6% | 71.9% | -11.7% |
| Carpool | 7.3% | 10.4% | +3.1% |
| Vanpool | 0.2% | 0.8% | +0.6% |
| Transit | 7.8% | 9.2% | +1.4% |
| Bicycle | 0.1% | 0.1% | -0.0% |
| Pedestrian | 0.2% | 0.2% | -0.0% |
| Other | 0.8% | 0.7% | -0.1% |
| No Trip | - | 6.6% | +6.6% |
| Total | 100.0% | 100.0% | - |

Table 4.73: 2025 Employer-level Scenario C Emission Reductions (tons/day except CO₂ in metric tons/day)

| Pollutant | Peak | Off-Peak | Total |
|-----------------|--------|----------|--------|
| HC | 0.000 | 0.004 | 0.004 |
| CO | 0.033 | 0.030 | 0.063 |
| NOx | -0.019 | 0.005 | -0.015 |
| CO ₂ | -2.0 | -4.0 | -6.0 |

V. Recommended Language and TDM Scenario

This section of the report contains the recommended changes to the language for the 2025 Long Range Transportation Plan (LRTP) document, as well as the Advisory Committee's recommended TDM scenario to be included in the LRTP.

Recommended Language for LRTP and Proposed TDM Programs

Congestion Management System

The Tampa Bay region is a major growth area in the State of Florida. Steady growth and development have outpaced the ability of the State and local governments to provide necessary transportation improvements resulting in congested roadways throughout the region. In addition the lack of major improvements to the existing mass transit systems have rendered public transportation a relatively ineffective alternative to driving on congested roadways. The trips for work, school, shopping, and other purposes have become stressful and time consuming to many residents. Congested roadways also hamper the efficient movement of freight and other commodities within the Tampa Bay Area.

Growth and development are expected to continue to place heavy demands on the transportation system. Transportation improvements necessary to provide uncongested operations on area roadways are beyond the capacity of projected revenues. Therefore, greater emphasis will have to be placed on alternative modes of transportation to reduce the impacts of congestion and to improve the quality of life for all that live and work in the Tampa Bay Area.

This section outlines a management and operations approach to the continual improvement of the existing transportation system. The program focuses on serving the needs of Hillsborough County residents, businesses and commuters to the County.

Transportation System Management

Transportation System Management (TSM) has the overall objective of improving the efficiency of the existing transportation system without requiring major new construction. TSM emphasizes low cost improvements to the transportation system itself through measures such as intersection improvements, traffic signal timing and removing on-street parking. TSM focuses on achieving greater operating efficiency for the existing transportation system. TSM actions must be readily implementable and provide quick, location specific results. Enhanced roads incorporate TSM concepts.

TSM also applies to the public transit system. Actions such as improving reliability and on-time performance, providing passenger information and amenities, and improving transfers between modes are TSM efforts which provide excellent results and can be readily implemented with a minimum of cost.

Transportation Demand Management

Transportation Demand Management (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, cost or route.⁴ For example, some TDM strategies encourage alternatives to the single occupant vehicle (SOV) to improve the people-carrying capacity of the transportation system. By reducing traffic congestion during peak commuting periods, TDM can also result in improved air quality and energy conservation.

⁴ New, updated definition

There are several alternatives to the SOV available to residents of and commuters to Hillsborough County beyond public transit, including ridesharing, vanpooling, bicycling or walking, alternative work schedules and telecommuting.

Ridesharing

Ridesharing is two or more persons traveling by any mode of transportation, including but not limited to carpooling, vanpooling, and public transit. The most familiar form of ridesharing refers to the commuter work trip, although it can also be used for school trips, recreation and shopping.

In regard to the commuter work trip, ridesharing can yield numerous benefits such as:

- Saving out-of-pocket commuting costs, such as parking, gasoline, auto maintenance and insurance
- Reducing hidden commuting costs such as wear-and-tear, depreciation, and financing of a new or used automobile
- Providing more productive use of commuting time for business or personal reasons
- Reducing stress, tension, and fatigue of the solo commuter in congested traffic

Ridesharing programs seek to realize these benefits at an acceptable cost by making available a variety of ridesharing services to commuters and incentives to participate.

Vanpooling

Vanpooling is at least six people sharing a van for their work trip commute, generally to the same place of employment. One-way commuting for vanpools typically begin at 15 miles, but frequently operate at much greater distances. Driving is usually done by one of the commuters in exchange for some personal use of the vanpool, and operating costs are covered by monthly fares paid by the passengers. Employers may provide full or partial subsidies to their employees.

The highest potential for vanpools is among employees who live 20 miles or more from work and have travel times of 30 minutes or more. . With commuting distances greater than 30 miles, vanpools draw from clusters of commuters who live within a couple miles of each other. Clusters composed of smaller groups picked up along the route to work that intersect or border the vanpool route can also be set up.

Not only is vanpooling an economical mode of travel for employees, it is a very visible sign of the company's commitment to the transportation needs of their employees. Unlike carpooling, however, vanpooling often requires the acquisition of vehicles and insurance by the company, employees, or other parties. Vehicle lease programs are available, and federal funding can be used to offset such costs.

Alternative Work Schedules

Alternative work schedules shift the time of the commute trip from peak periods or eliminate trips all together to reduce traffic congestion. There are four primary alternative work schedule formats that can be implemented by employers: Flextime, Staggered Work Hours, Compressed Work Weeks, and Telecommuting. According to a 2001 survey of downtown employees who work for Hillsborough County, alternative work schedules and telecommuting are the most desirable alternatives offered in TDM programs.

Flextime gives individual employees the option of rearranging their daily starting and end times in order to avoid traffic congestion at peak periods or met their own needs. Staggered work hours programs spread out groups of employees' starting and ending times in order to shift some of the people out of the peak period and relieve local traffic congestion. Employers with multiple shifts can stagger their employee's hours to avoid peak period congestion. According to the Bureau of Labor Statistics, 17% of employees work outside of the traditional 8am to 5pm work schedule.

Compressed Work Week (CWW) programs allow employees to alter their work week to eliminate commute trips or avoid peak period congestion. The two standard CWW schedules are 4/40 and 9/80. In a 4/40 CWW, employees work their 40-hour week in 4 days, thus eliminating one day of commuting per week. In a 9/80 CWW, employees work 80 hours in 9 days. Under this schedule, employees can either take one day off every two weeks, or take a half-day every week. Nationwide, 3% of employees enjoy the benefits of CWW schedules.

Telecommuting programs will reduce or elimination the daily commute to and from the workplace. Telecommuting is defined 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 resulting from the partial or total substitution of information technologies for the commute to work. In 2000, approximately 4% of employees in the country telecommute at least once per week. By 2025, telecommuting is expected to increase to 13% driven by forces such as continuing advances in communication technology and computing power, changing employer attitudes toward work methods, savings to businesses from reductions in overhead, and, increasing demand from employees for more work-life programs.

More information on the strategies to encourage the use of the above modes will follow in a subsequent section.

Regional TDM organizations and Employer-based TDM Programs

The Tampa Bay Area is unique in that it has several large cities (St. Petersburg, Clearwater and Tampa) in close proximity to each other with each city and county generating and attracting commute trips from the other cities and counties. Therefore, a regional approach for providing basis TDM services augmented by and coordinated with a network programs that provide location-specific/market-specific solutions holds the most promise for a successful TDM program in the Tampa Bay Area. The success of a regional TDM program is dependent on the cooperation and coordination among all jurisdictions throughout the region, and the participation of major employers in the public and private sectors. By targeting major employers in the area, large percentages of the commuting workforce can be introduced to TDM programs and incentives. In Hillsborough County, over 75% of employees work for less than 15% of companies (those companies with 20 or more employees), and over half of all Hillsborough County employees are found in fewer than 4% of companies (those companies with over 100 employees).

Bay Area Commuter Services, Inc. (BACS) serves as the Commuter Assistance Program (CAP) that coordinates TDM activities on a regional basis in Hillsborough County. Founded in 1992, BACS is a public/private not-for-profit organization funded by the Florida Department of Transportation (FDOT). BACS also serves the residents of Pinellas, Hernando, Citrus and Pasco Counties. BACS' mission is to "actively influence the reduction of traffic growth and air pollution by promoting transportation services and developing new programs that reduce transportation congestion for businesses and the community which enhances the region's economic prosperity." The major focus of this organization is to reduce congestion by promoting alternatives to driving alone, such as car and vanpooling, as an alternative mode of transportation throughout the Tampa Bay Area through a regional ridesharing program. BACS uses a computerized ridematching system and the Tampa Bay Commuter, a monthly publication of free classifieds of those seeking rides or riders, to form carpools and vanpools through out the region. The goals of BACS are:

- Reduce the number of single occupant vehicles during the peak hours of traffic
- Educate, facilitate and consult with regional businesses and the community to provide transportation solutions that reduce congestion
- Integrate and coordinate with transportation-related agencies in the region
- Effectively market commute alternatives to the region
- Create and promote incentives for businesses and commuters which reduce congestion
- Enhance products and services and services to improve BACS' effectiveness

As of 2001, BACS has approximately 3,139 active participants using carpooling and vanpooling. Currently, the guaranteed ride home program has 1,804 registered participants. There are 9 active vans in the BACS vanpool fleet.

In Hillsborough County, there are three Transportation Management Organizations that work with BACS. Transportation Management Organizations (TMOs) or Transportation Management Initiatives (TMIs) are organized groups applying carefully selected approaches to facilitating the movement of people and goods within an area. TMOs are often legally constituted and frequently led by the private sector in partnership with the public sector to solve transportation problems. TMOs allow the business community and the transportation planning community to maintain an on-going dialogue related to transportation needs and proposed projects as well as foster more active participation in the transportation planning process and decision-making. Through the Transportation Management Organization Coordinating Group (TMOCG), BACS, the four TMOs, local government agencies, and FDOT coordinate regional TDM activities.

The three TMOs in Hillsborough County are the Westshore Alliance TMO, the Tampa Downtown Partnership TMO and the University North Transportation Initiative. BACS also works with the St. Petersburg Downtown TMO in Pinellas County.

Westshore Alliance TMO

The Westshore Alliance TMO was the first TMO to be incorporated in the state of Florida in 1989. It is a public/private not-for-profit partnership between the City of Tampa, FDOT, and the Westshore Alliance. The Westshore Alliance serves over 350 businesses with approximately 18,000 individual members. The Westshore Business District contains approximately 90,000 employees (including the Tampa International Airport). The primary objectives of the Westshore Alliance TMO are:

- Transportation
- Improved intersections
- Improved pedestrian amenities

Tampa Downtown Partnership TMO

The Tampa Downtown Partnership TMO primarily serves Tampa's central business district and other downtown areas. The Tampa Downtown Partnership is a private not-for-profit organization that formed in 1986 to represent the real estate and development community during the preparation of the downtown plan. Overtime it began playing a broader role in downtown revitalization efforts, serving as a catalyst in development of projects such as The Florida Aquarium, the Ice Palace, Lykes Gaslight Square and the Downtown Partnership Elementary School. In 1992, the Partnership expanded to include a TMO in an effort to encourage ride-sharing and parking management programs. The Partnership also manages a Special Services District, providing enhanced maintenance, security, marketing and business development programs. The Partnership has approximately 125 member employers, with approximately 50,000 employees. The main priorities of the Tampa Downtown Partnership TMO include:

- Transportation and parking
- Security
- Shuttle services
- Beautification

University North Transportation Initiative

The University North Transportation Initiative (UNTI) is a transportation management initiative based at the Center for Urban Transportation Research (CUTR) at the University of South Florida. The UNTI is a public/private partnership that provides a forum to address the unique needs of the University and New Tampa areas, where the growing employment base currently exceeds 45,000. Hospitality, medical, and recreational land uses dominate the region, creating unique transportation challenges, particularly for second and third-shift employees. The UNTI receives funding from the County, the City of Tampa, the University of South Florida, and a

Congestion Mitigation and Air Quality (CMAQ) grant, to provide personalized outreach to employers, operate a Transportation Information Center within University Mall, and to assist commuters switching to an alternative mode. The major goals of the UNTI include:

- Reducing traffic congestion
- Reducing parking demand
- Maximizing the use of public transit
- Improving air quality

The success of regional TDM programs is dependent on the participation of public and private sector employers. Currently, TDM programs are voluntary. There is no single ordinance that requires employers to develop TDM programs, although Developments of Regional Impact (DRIs) can include the provision of transit, pedestrian, bicycle and roadway facility improvements in order to offset development impacts.⁵ Therefore, TDM programs must be tailored to be beneficial to both employees and employers. TDM programs can provide significant benefits to employers by reducing:

- Tardiness by employees who are stuck on congested roadways
- Need for and expense of employee parking spaces
- Lost time for goods movement and client service calls due to congestion
- Taxable income through the Federal Government's Qualified Transportation Fringe Benefit (IRS Code Section 132(f))

TDM programs can be beneficial to employees by providing:

- Alternatives to driving on congested roadways
- The personal flexibility of alternative work schedules
- Participation in financial incentive programs
- Cost savings to SOV commuting

Employer-based TDM Programs can significantly reduce automobile congestion in a corridor or within a major activity center. The most successful TDM Programs provide individual businesses with strong economic incentives to adopt these measures. The Federal Government provides such an economic incentive through the Qualified Transportation Fringe Benefit, often associated with Commuter Choice Programs.

Under the Qualified Transportation Fringe Benefit (IRS Code Section 132(f)), an employer may give each employee up to \$65 per month, for transit or vanpool costs tax-free to an employee. Participating employers lower their FICA and Federal income tax costs. Eligible alternative transportation options include public transit, vanpooling, and qualified parking. The commute cost can be fully or partly subsidized by the employer, or the employer can provide a pre-tax deduction for transportation costs for employees.

Employers can also offer a parking cash-out. Parking Cash-out is a commute program in which employees can receive taxable cash income (up to \$180 per month) instead of a free or subsidized parking space at work. By offering free or subsidized parking to employees, employers are inadvertently encouraging employees to drive to work. Given the option to keep their parking space or switch to an alternative mode while receiving cash income for the space, many employees choose the money. In 2002, the maximum tax-free benefit allowed will increase to \$100 per month or up to \$1200 per year.

A key process in building acceptance and participation by employers and commuters in a region-wide TDM program is advancement along what can be termed the "awareness/participation continuum." Since one of the primary objectives is to maximize the number of people using non-SOV commuting modes, the approach should follow the same process to market its services and the benefits of those services as classic product and service marketing - namely:

⁵ Statement may be modified based on further research on DRIs

1. Create/Increase awareness
2. Provide information about options
3. Facilitate arrangement
4. Induce trial use
5. Maximize use/Increase frequency of use among those who try product and continue to use it

One method to move people along this continuum is to establish an Employee Transportation Coordinator (ETC), who works as a part-time liaison between BACS, TMOs, employers and employees. The role of the ETC is to personally assist employees in selecting and utilizing alternative commute modes. In order to change the commute behavior of employees, skillful encouragement and assistance by the company ETC is necessary. ETCs are responsible for matching prospective ridesharing partners who live and work near each other and share similar work schedules, and providing employees with information on alternative commute modes.

Long Range TDM Planning in Hillsborough County

The long-range success of TDM Programs in Hillsborough County area depends on the cooperation of the public and private sectors. The impact of regional and employer-based TDM Programs will depend on the level of commitment and support of employers. Depending on the level of funding available for TDM programs, the Hillsborough County area can expect a wide range of results.

Overview of TDM Strategies

The following list summarizes the strategies that were considered during the development of the TDM Plan.

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 TMAs/TMIs 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 the employer or BACS if it becomes necessary to work late or in event of a personal emergency or had to work overtime unexpectedly.
 - 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 help vanpools with less than a full complement of riders get on the road. 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, tokens, and other forms of fare media. They may disseminate HARTLine 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 in order to meet the schedule of the chosen alternative mode. Arrangements include programs such as flexible or staggered work hours, compressed work weeks, and telecommuting.
- a. **Flextime:** 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:** 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.
 4. 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 the form of fees that are currently in place, or 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.

Selected Federal and State Policies and Programs in Support of TDM

- The Commuter Choice Tax Benefits (also known as Transit Benefit Program) of the Transportation Equity Act for the 21st Century (TEA-21) made changes to a provision of the Internal Revenue Code (IRC) Section 132 (f) that permits most employers to provide up to \$65 per month tax-free to employees to purchase transit passes and pay vanpool fares. Employees may also receive up to \$180 per month tax free for parking. This provision of the IRC also allows employees to use pre-tax dollars to pay for their transit passes, vanpool fares and parking. The amount of the transit and vanpool tax-free contribution will increase to \$100 per month in 2002.
- The State of Florida made telecommuting a permanent workplace option for state employees in October 1998.
- In April 2000, Presidential Executive Order 13150 entitled "Federal Workforce Transportation" was signed aimed at reducing federal employees' contribution to traffic congestion and air pollution as well as expanding their commuting alternatives. This E.O. significantly impacts Federal agencies by requiring implementation of transit benefit programs by October 1, 2000. Federal agencies located outside of the Washington, D.C. region will permit employees to exchange some of their gross income to pay for agency provided transit/vanpool passes, before taxes are computed, up to a maximum of \$65 per month (\$100, beginning in 2002).
- The U. S. Environmental Protection Agency (EPA) and the U.S. Department of Transportation (DOT) are developing a Web-based calculator that enables an employer to estimate the financial, environmental, traffic, and other benefits of TDM. Based on the information that employers enter into the calculator, this fast and easy-to-use tool produces the following estimates:
 - Parking. The number of parking spaces saved.
 - Parking cost savings. The financial savings from the reduced parking demand (e.g., savings on construction of a new parking facility or enlargement of an existing one).
 - Employee recruiting and retention. The estimated savings from reduced employee turnover.
 - Employer and Employee tax savings. The savings employers and employees would realize in reduced payroll taxes if they select transit passes or vanpool benefits.
 - Total financial benefits. The total financial savings from parking facilities, taxes, and other financial impacts.

- Employee productivity and stress. The estimated improvement in employee productivity and reduction in employee stress.
- Traffic. The reduction in traffic congestion.
- Environmental benefits. The reduction in air pollution and global warming pollution, providing results that can be expressed in both layperson and scientific terms.
- Safety. The decrease in fatalities, injuries, and lost work time that results when the number of vehicle trips is reduced.
- Energy security. The reduction in demand for gasoline, a decrease that contributes to an improvement in our nation's energy security and energy independence.

TDM Programs at Work in Hillsborough County

Tropical Sportswear International

Situation: In early 1997, Tropical Sportswear International (TSI) had a very high turnover in employees in its second shift between 3 p.m. and 11:30 p.m. The human resources department decided to ask its employees the reason for the turnover and distributed a survey. They determined that unreliable transportation was the most significant factor. They also talked to associates on the main shift and discovered that if the transportation problem was addressed, main shift employees would consider working the later shift. Human resources calculated its costs of turnover by adding up recruiters' time, out-of-pocket expenses (background checks, drug testing, pre-employment testing), and the time to fill the position and training time. They contacted BACS to get information about the Bay Area Vanpool program and calculated the costs of providing reliable transportation to their employees through vanpooling. BACS also mapped out the distribution of TSI's employees' home sites to see if TSI employees were clustered close enough to make vanpools feasible.

The Program: TSI determined that the cost of subsidizing vanpools was significantly cheaper than costs associated with turnover. They decided to offer the vanpool program to their second shift employees at a reduced rate of \$10 per person, per month, plus gas, which was deducted from the employees' paycheck through a payroll deduction. The usual rate is approximately \$65 per month. In most vanpools, the driver collects the money and sends one check into the vanpool company. TSI took over this responsibility.

To market the program, BACS and TSI staff spoke to every associate on the shift. Three vanpool groups of nine participants started in September 1997 and one group started in March 1998.

Results: The four vanpools are still on the road after a year and a half. Nine of the vanpoolers have been in the vans over six months, and an additional six vanpoolers have been vanpooling over one year. TSI is so pleased with the program that they are considering offering it to employees on the main shift.

Company Testimonial: "When Tropical Sportswear International implemented a second shift, we were faced with the possibility of losing more than 30 excellent associates because of a lack of transportation. By offering this benefit and contributing to the cost, TSI was able to retain those associates. Vanpooling has definitely made economic sense and improved associate satisfaction at TSI!" - Vickie Cortez, director of human resources

The Hartford

Situation: In the Fall of 1998, The Hartford's Tampa office was informed by its building manager that due to the building's parking constraints, the company would have to remove 100 vehicles from their lot within three months. With a workforce of 280 employees, most of whom drove alone to work, this was a drastic situation, and The Hartford contacted Bay Area Commuter Services (BACS).

The Program: BACS contacted the Westshore Alliance Transportation Management Organization (WATMO) and arranged a preliminary meeting with The Hartford's upper management. The ridesharing agencies gave a presentation about services and incentive options and collected employee home and shift data (The Hartford has nine shifts). BACS compiled the workforce data and created a Zip Code Analysis Map for each shift of employees showing the employees' home locations. These maps demonstrated to management the clustering possibility for forming carpools and vanpools. The Hartford committed resources of \$55 and \$35 per month per person to subsidize vanpooling and carpooling respectively. Additionally, an Employee Transportation Coordinator was established to coordinate the vanpool and carpool parking spaces, to inform new employees about commute alternatives and to coordinate Guaranteed Ride Home and other services with BACS.

BACS & WATMO made presentations explaining commute options to six groups of Hartford employees over a two-day period. As a result, 67 people registered to use a commute alternative, 55 decided to either take the bus, carpool or vanpool and 22 carpools immediately formed. The first vanpool and carpools began just over two months from the initial contact.

Benefits: The company saved 38 parking spaces and contributed to reducing local and regional air pollution. The Hartford preempted a potential human resources disaster by keeping its employees informed about the parking situation from the beginning. The employees also felt supported by their company as it went to the trouble and expense of subsidizing carpooling and vanpooling costs. Other benefits to the company include an enhanced public image. By endorsing commute options, the company demonstrated its partnership with the community and concern for the environment.

Today and Tomorrow: As of June 20, 1999, 85 employees of The Hartford are actively in BACS' database, and 81 employees carpool to and from work. The cost to the company of subsidizing its ridesharing employees is approximately \$2,800 per month. The Hartford is very proud of its ridesharing program and considers it a success.

"BACS was instrumental in assisting us in resolving our parking issues. They were creative and responded very quickly and took the time to meet with our employees to explain the program." - Joe Scott, Tampa Director, The Hartford

Source: BACS

Busch Gardens, Tampa Bay

With the University North Transportation Initiative, Busch Gardens Tampa Bay hosted a transportation forum for employers in University North, to discuss the transportation issues affecting this rapidly growing region of Northeast Tampa and Hillsborough County. A panel discussion with several key speakers was held, to focus on planned roadway improvements, public/private development corporations, local initiatives, and alternative transportation options. Through this and other employee activities, Busch Gardens continues to strengthen its role in solving University North's transportation challenges.

The University Mall

The University Mall has been a dominant factor in the support of transportation choices for commuters throughout our community. The following are some of the innovative programs the mall continues to support:

- Mall Express Shuttle (in cooperation with the University of South Florida (USF)): This noontime shuttle provides free transportation between USF and the University Mall. Riders board the shuttle between the hours of 11:00 a.m. and 2:00 p.m., at the USF

Marshall Center, and disembark in the Dillard's Parking Garage Entrance to the mall. The shuttle operates Monday through Friday.

- **Bike Lids Secured Parking:** In conjunction with Bike LIDS Systems, Inc., the University Mall, has made possible the installation of secured bicycle parking facilities at this major regional employment site. By helping to provide bicyclists with safe and effective bicycle parking facilities, this effort has encouraged bicycle commuting as a viable alternative in the Northeast Tampa region. The close proximity of the mall to USF further enables the many students and lower-income residents in the surrounding neighborhoods to work and/or shop without having to rely upon the automobile or public transit for transportation.
- **The University North Commuter Center:** sells bus transit passes for all of HARTline's many local bus routes, out of its centralized location in the atrium of the University Mall. Trained staff of the Commuter Center is readily available to answer commuter questions, and help them make their transportation connections. Patrons can receive the latest information on bus routes, maps, and schedule modifications. Travelers can also receive the latest information on transportation events or issues that affect you. Free brochures and public information notices and free copies of the Tampa Bay Commuter newspaper are also available.

Hillsborough County

Our local government's backing of commute alternatives goes a long way in promoting ridesharing! Hillsborough County Commissioners recently decided to develop new incentives for County employees who work in the downtown Tampa area. Because parking shortages are inevitable in Tampa's growing downtown, the County is offering 75% subsidies for HARTline Transit Passes for County employees who commute via public transportation. The County is also offering preferential parking spaces for its employees who carpool, with three or more per vehicle.

The Florida Department of Transportation

Alternative work hours refer to any variation in the typical 8 a.m. to 5 p.m., Monday through Friday work schedule. Employees who work alternative schedules are spared the inconvenience and stress of driving during peak traffic periods. Three types of alternative work hour arrangements include: staggered work hours (set by employees, usually at 15-minute increments); flextime (enabling employees to set their own hours within an established range); and the compressed work week. The Florida DOT has adopted the Compressed Work Week transportation strategy, to help reduce the number of days their employees must travel to get to work. Eligible employees may choose to work 7:30 a.m. to 6:00 p.m., Monday through Thursday, with a half hour for lunch – and enjoy every Friday off. This approach reduces traffic congestion, minimizes trips, and boosts employee morale!

The James A. Haley Veteran's Administration (V.A.) Hospital

Faced with major parking shortages due to the much needed construction of a new Spinal Cord Injury Unit, the hospital began a new Park & Ride shuttle between the University Mall and the V.A. This shuttle operates throughout the day, transporting employees and from their new parking at the mall to their jobs at the hospital. This shuttle not only provides a multi-year solution to the problems facing the hospital due to facility expansion and loss of parking, but it also keeps these vehicles off the heavily congested Bruce B. Downs Boulevard during primary peak travel times. Patients are also eligible to ride the shuttle, giving them door-to-door access to meet their health care needs.

The University of South Florida

The University of South Florida is the largest employer throughout the University community. The campus representatives on the University North Transportation Initiative Advisory Board have been active in supporting transportation choices for commuters throughout our region. The following are some of the innovative programs the University continues to support:

- **Bike Safety Week:** In a coordinated effort, the USF Police Special Deployment Unit (Bicycle Squad), the USF Bike Club, and representatives from the Hillsborough County Bicycle Pedestrian Advisory Committee (B/PAC) collaborate to conduct the annual USF Bike Safety Week each fall. Past year efforts focused on reducing wrong-way riding, increasing helmet usage, educating motorists to share the road, and raising awareness of Florida's Bicycle Rules and Regulations. This annual activity keeps bicycle commuting and safe travel by all motorists, at the forefront.
- **BULLET Shuttle:** The Department of Parking & Transportation Services operates a new off-campus shuttle service from USF to the adjacent residential areas for students, staff, and faculty. The BULLET (Bull Express Transport) shuttle service launched operations in August, 2000. Ridership on this alternative transportation option reached 438,654 for the year!

Source: University North Transportation Initiative <http://www.commuterservices.com/unti/thanks.htm>

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 Hillsborough County, the local governments in Hillsborough County, HARTLine 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: \$1,950,000 per year for 3 Transportation Management Associations and 5 employer outreach transportation professionals within Bay Area Commuter Services dedicated to employers in Hillsborough County to have 10% of the workforce offered these programs (approximately 100,000 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: \$300,000 provided as vanpool fare subsidies (public and/or private) and \$3,900,000 provided as transit fare subsidies (public and/or private).

Table 5.1: Proposed Program Objectives and Projected Impacts of Enhanced Public/Private Partnership Program

| Hillsborough County Long Range TDM Plan | | | |
|--|--|---------------------------------------|---|
| Description | Model Changes | 2000 Baseline | 2025 Baseline |
| Alternative Work Schedule with Employer-based TDM Programs | Compressed Work Week and Telecommuting Program | 1.4% or 190,000 VMT Reduction per day | 5.2% or 1,120,000 VMT Reduction per day |
| | 1% increase in 4/40 CWW | | |
| | 2% increase in 9/80 CWW | 1.4% or 16,000 Trip Reduction per day | 5.3% or 95,000 Trip Reduction per day |
| | 2% increase in telecommuting | | |
| | Preferential Parking Program | 0.293 tons/day NOx Reduction | 1.727 NOx tons/day Reduction |
| | 10% Workforce Participation | | |
| | Commuter Choice Program | 1.2% Reduction in SOV Mode Share | 4.4% Reduction in SOV Mode Share |
| | 10% Workforce participation | | |

Status Quo Plus Telecommuting and Alternative Work Schedule Program

In order to ensure the success of TDM Programs in Hillsborough 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).

Estimated Cost: In addition to current funding levels, \$350,000 per year for 2 full-time professional staff and related direct expenses dedicated to assisting employers with adoption of compressed work week and telecommuting programs. Current programs are funded at between \$600,000 and \$1,000,000 per year in Hillsborough County.

Table 5.2: Proposed Program Objectives and Projected Impacts of Status Quo Plus Telecommuting and Alternative Work Schedule Program

| Hillsborough County Long Range TDM Plan | | | |
|--|--|---------------------------------------|---|
| Description | Scenario Objectives | 2000 Projected Impacts | 2025 Projected Impacts |
| Telecommuting and 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 | 1.2% or 150,000 VMT Reduction per day | 4.9% or 1,050,000 VMT Reduction per day |
| | | 1.2% or 13,000 Trip Reduction per day | 5.0% or 90,000 Trip Reduction per day |
| | | 0.235 tons/day NOx Reduction | 1.614 tons/day NOx Reduction |
| | | 0.9% Reduction of SOV Mode share | 4.0% Reduction of SOV Mode share |

Voluntary Commuter Choice Initiative

In order to ensure the success of TDM Programs in Hillsborough 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 Hillsborough-based employer that offers these programs (approximately 50,000 commuters in 2025).

Estimated Cost: \$1,500,000 per year for three Transportation Management Associations and three employer outreach transportation professionals within Bay Area Commuter Services dedicated to Hillsborough County to assist employers to reach 5% workforce participation (approximately 50,000 commuters in 2025).⁶ Also, 2 professionals would be dedicated to forming vanpools. Cost includes other direct expenses such as advertising, project related materials, etc. Plus: \$150,000 provided as vanpool fare subsidies per year (public and/or private) and \$3,500,000 provided as transit fare subsidies per year (public and/or private).

Table 5.3: Proposed Program Objectives and Projected Impacts of Voluntary Commuter Choice Initiative

| Hillsborough County Long Range TDM Plan | | | | | |
|--|--|---------------------------------------|------------------|---|------------------|
| Description | Program Objectives | 2000 Impacts | Projected | 2025 Impacts | Projected |
| Alternative Work Schedule with Employer-based TDM Programs | Compressed Work Week and Telecommuting Program | 1.3% or 165,000 VMT Reduction per day | | 5.0% or 1,100,000 VMT Reduction per day | |
| | 1% increase in 4/40 CWW | | | | |
| | 2% increase in 9/80 CWW | 1.3% or 14,000 Trip Reduction per day | | 5.1% or 92,000 Trip Reduction per day | |
| | 2% increase in telecommuting | | | | |
| | Preferential Parking Program | 0.259 tons/day NOx Reduction | | 1.652 NOx tons/day Reduction | |
| | 5% Participation rate | | | | |
| | Commuter Choice Program | 1.1% Reduction in SOV Mode Share | | 4.2% Reduction in SOV Mode Share | |
| | 5% Workforce participation rate | | | | |

⁶ Workforce participation represents the number of employees who work for companies that offer the particular TDM program.

Employer Trip Reduction Ordinance

Under this option, the Hillsborough County and local governments in Hillsborough County, including Temple Terrace, City of Tampa and Plant City, would adopt a Trip Reduction Ordinance (TRO) that will require employers of 100 or more employees 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 Hillsborough 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.

Estimated Cost: \$3,000,000 per year for 6 positions for 3 Transportation Management Associations and 8 employer outreach transportation professionals within Bay Area Commuter Services dedicated to Hillsborough County to assist employers to reach 50% workforce participation (approximately 500,000 commuters in 2025). Also, 4 professionals would be dedicated to forming vanpools. Cost includes other direct expenses such as advertising, project related materials, etc. Plus: \$1,500,000 in vanpool fare subsidies per year (public and/or private) and \$4,600,000 in transit fare subsidies per year (public and/or private).

Table 5.4: Proposed Program Objectives and Projected Impacts of Employer Trip Reduction Ordinance

| Hillsborough County Long Range TDM Plan | | | | | |
|--|--|---------------------------------------|------------------|---|------------------|
| Description | Program Objectives | 2000 Impacts | Projected | 2025 Impacts | Projected |
| Alternative Work Schedule with Employer-based TDM Programs required by TRO | Compressed Work Week and Telecommuting Program | 4.5% or 590,000 VMT Reduction per day | | 7.9% or 1,700,000 VMT Reduction per day | |
| | 1% increase in 4/40 CWW | | | | |
| | 2% increase in 9/80 CWW | 3.7% or 40,000 Trip Reduction per day | | 7.2% or 130,000 Trip Reduction per day | |
| | 2% increase in telecommuting | | | | |
| | Preferential Parking Program | 0.918 tons/day NOx Reduction | | 2.614 NOx tons/day Reduction | |
| | 50% Workforce participation | | | | |
| | Commuter Choice Program | 3.7% Reduction in SOV Mode Share | | -6.4% Reduction in SOV Mode Share | |
| | 50% Workforce participation | | | | |

Recommended TDM Scenario for 2025 L RTP

The Advisory Committee has recommended the **Enhanced Public/Private Partnership Program** 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 (56% of employees work for employers with more than 100 employees. Only 3% 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

The following tables represent the annual impacts for the Preferred TDM Program Scenario under different assumptions regarding the extent of transit improvements. The first set of the tables is based on the impacts when the transit improvements contained in HARTLine's 2020 Existing Plus Committed Plan are included. The second set was based on the bus transit strategies in the Adopted Plan. The proposed rail system was not part of the analysis and, therefore, are not included in the tables.

Impacts Using Hillsborough County's 2020 Existing Plus Committed Transit Improvements

Table 5.5: Travel Impacts (relative to affected employment)

| Quantity | Peak | Off-Peak | Total |
|------------------|------------|-----------|------------|
| Baseline VMT | 15,302,719 | 6,099,685 | 21,402,404 |
| Final VMT | 14,500,071 | 5,779,748 | 20,279,819 |
| VMT Reduction | 802,648 | 319,937 | 1,122,585 |
| % VMT Reduction | +5.2% | +5.2% | +5.2% |
| Baseline Trips | 1,278,418 | 509,579 | 1,787,998 |
| Final Trips | 1,210,423 | 482,476 | 1,692,900 |
| Trip Reduction | 67,995 | 27,103 | 95,098 |
| % Trip Reduction | +5.3% | +5.3% | +5.3% |

Table 5.6: Mode Share Impacts

| Mode | Baseline | Final | %Change |
|-------------|----------|--------|---------|
| Drive Alone | 80.3% | 75.9% | -4.4% |
| Carpool | 13.7% | 13.1% | -0.6% |
| Vanpool | 0.1% | 0.2% | +0.1% |
| Transit | 1.8% | 2.0% | +0.2% |
| Bicycle | 0.6% | 0.6% | -0.0% |
| Pedestrian | 2.3% | 2.3% | -0.0% |
| Other | 1.2% | 1.1% | -0.1% |
| No Trip | - | 4.8% | +4.8% |
| Total | 100.0% | 100.0% | - |

Table 5.7: Emission Reductions (tons/day except CO₂ in metric tons/day)

| Pollutant | Peak | Off-Peak | Total |
|-----------------|-------|----------|--------|
| HC | 1.072 | 0.381 | 1.453 |
| CO | 9.471 | 3.151 | 12.622 |
| NO _x | 1.224 | 0.503 | 1.727 |
| CO ₂ | 333.4 | 130.7 | 464.1 |

Impacts Using Hillsborough County 2020 Adopted Plan Transit Improvements

Table 5.8: Travel Impacts (relative to affected employment)

| Quantity | Peak | Off-Peak | Total |
|------------------|------------|-----------|------------|
| Baseline VMT | 15,302,719 | 6,099,685 | 21,402,404 |
| Final VMT | 14,390,117 | 5,735,921 | 20,126,038 |
| VMT Reduction | 912,602 | 363,764 | 1,276,366 |
| % VMT Reduction | 6.0% | 6.0% | 6.0% |
| Baseline Trips | 1,278,418 | 509,579 | 1,787,998 |
| Final Trips | 1,201,245 | 478,818 | 1,680,063 |
| Trip Reduction | 77,174 | 30,761 | 107,935 |
| % Trip Reduction | 6.0% | 6.0% | 6.0% |

Table 5.9: Mode Share Impacts

| Mode | Baseline | Final | %Change |
|-------------|----------|--------|---------|
| Drive Alone | 80.3% | 75.4% | -4.9% |
| Carpool | 13.7% | 13.0% | -0.7% |
| Vanpool | 0.1% | 0.1% | +0.0% |
| Transit | 1.8% | 2.7% | +0.9% |
| Bicycle | 0.6% | 0.6% | -0.0% |
| Pedestrian | 2.3% | 2.3% | -0.0% |
| Other | 1.2% | 1.1% | -0.1% |
| No Trip | - | 4.7% | +4.7% |
| Total | 100.0% | 100.0% | - |

Table 5.10: Emission Reductions (tons/day except CO₂ in metric tons/day)

| Pollutant | Peak | Off-Peak | Total |
|-----------------|--------|----------|--------|
| HC | 1.211 | 0.433 | 1.644 |
| CO | 10.723 | 3.582 | 14.306 |
| NOx | 1.368 | 0.572 | 1.940 |
| CO ₂ | 375.1 | 144.7 | 519.8 |

Estimated Cost

The total estimated cost for this scenario is \$1,950,000 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 \$2,000,000 annually will be required to match \$2,000,000 of employer subsidies for transit, vanpool, or other alternatives to driving alone would be required.

Appendix A

Countywide Scenarios Summary Matrix on next page...

Hillsborough County Long Range Transportation Demand Management Plan

| Hillsborough County Long Range TDM Plan Baselines and Scenarios | | | | | | | | | | |
|---|------------------------------------|--|--|------------------------------------|--|------------------------------------|---|------------------------------------|---|------------------------------------|
| COMMUTER Model Results | 2000 Baseline | 2025 Baseline | TDM Project Scenario A | | TDM Project Scenario B | | TDM Project Scenario C | | TDM Project Scenario D | |
| | 628,460 Commuting Workforce | 1,033,000 Commuting Workforce Expected Telecommuting Growth of 13% E+C Transit Improvements | Compressed Work Week and Telecommuting Program* Public Outreach | | Compressed Work Week and Telecommuting Program Employer-based TDM Program ▪ Preferential Parking ▪ VP/Transit subsidies 5% Workforce Participation Rate* | | Compressed Work Week and Telecommuting Program Employer-based TDM Program ▪ Preferential Parking ▪ VP/Transit subsidies 10% Workforce Participation Rate* | | Compressed Work Week and Telecommuting Program Employer-based TDM Program ▪ Preferential Parking ▪ VP/Transit subsidies 50% Workforce Participation Rate* | |
| | | | | | | | | | | |
| Baseline VMT | 13,000,000 | 21,400,000 | 13,000,000 | 21,400,000 | 13,000,000 | 21,400,000 | 13,000,000 | 21,400,000 | 13,000,000 | 21,400,000 |
| Final VMT | 13,000,000 | 20,600,000 | 12,850,000 | 20,350,000 | 12,835,000 | 20,300,000 | 12,810,000 | 20,280,000 | 12,410,000 | 19,700,000 |
| VMT Reduction per day | NA | 800,000 3.8% | 150,000 1.2% | 1,050,000 4.9% | 165,000 1.3% | 1,100,000 5.0% | 190,000 1.4% | 1,120,000 5.2% | 590,000 4.5% | 1,700,000 7.9% |
| Baseline Trips | 1,090,000 | 1,790,000 | 1,090,000 | 1,790,000 | 1,090,000 | 1,790,000 | 1,090,000 | 1,790,000 | 1,090,000 | 1,790,000 |
| Final Trips | 1,090,000 | 1,720,000 | 1,077,000 | 1,700,000 | 1,076,000 | 1,698,000 | 1,074,000 | 1,695,000 | 1,050,000 | 1,660,000 |
| Trip Reduction per day | NA | 70,000 3.9% | 13,000 1.2% | 90,000 5.0% | 14,000 1.3% | 92,000 5.1% | 16,000 1.4% | 95,000 5.3% | 40,000 3.7% | 130,000 7.2% |
| NOx Reduction tons/day | NA | 1.257 tons/day | 0.235 tons/day | 1.614 tons/day | 0.259 tons/day | 1.652 tons/day | 0.293 tons/day | 1.727 tons/day | 0.918 tons/day | 2.614 tons/day |
| SOV Mode Share Reduction | NA | 3.2% | 0.9% | 4.0% | 1.1% | 4.2% | 1.2% | 4.4% | 3.7% | 6.4% |
| Vehicle Trip Rate | 86.5 vehicles/100 commuters | 83.0 vehicles/100 commuters | 85.5 vehicles/100 commuters | 82.2 vehicles/100 commuters | 85.6 vehicles/100 commuters | 82.1 vehicles/100 commuters | 85.4 vehicles/100 commuters | 81.9 vehicles/100 commuters | 85.0 vehicles/100 commuters | 81.8 vehicles/100 commuters |
| Cost | NA | NA | \$550,000 per year | | \$1,600,000 per year; plus \$150,000 vanpool subsidies and \$3,500,000 transit subsidies per year (public and/or private) | | \$1,950,000 per year; plus \$300,000 vanpool subsidies and \$3,900,000 transit subsidies per year (public and/or private) | | \$3,000,000 per year; plus \$1,500,000 vanpool subsidies and \$4,600,000 transit subsidies per year (public and/or private) | |

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

Appendix B

Activity Center Scenario Summary Matrices start on next page...

Hillsborough County Long Range Transportation Demand Management Plan

| Brandon Scenarios: Hillsborough County Long Range TDM Plan | | | | | | | | | | |
|---|------------------------------------|--|---|------------------------------------|---|------------------------------------|---|------------------------------------|---|------------------------------------|
| COMMUTER Model Results | 2000 Baseline | 2025 Baseline | TDM Project Scenario A | | TDM Project Scenario B | | TDM Project Scenario C | | TDM Project Scenario D | |
| | 23,300 Commuting Workforce | 32,950 Commuting Workforce Expected Telecommuting Growth of 13% E+C Transit Improvements | Compressed Work Week and Telecommuting Program* | | Compressed Work Week and Telecommuting Program | | Compressed Work Week and Telecommuting Program | | Compressed Work Week and Telecommuting Program | |
| | | | Public Outreach | | Employer-based TDM Program ▪ Preferential Parking ▪ VP/Transit subsidies 10% Workforce Participation Rate* | | Employer-based TDM Program ▪ Preferential Parking ▪ VP/Transit subsidies 35% Workforce Participation Rate* | | Employer-based TDM Program ▪ Preferential Parking ▪ VP/Transit subsidies 50% Workforce Participation Rate* | |
| 2000 Baseline | 2025 Baseline | 2000 Results | 2000 Results | 2000 Results | 2025 Results | 2000 Results | 2025 Results | 2000 Results | 2025 Results | |
| Baseline VMT | 446,500 | 631,500 | 446,500 | 446,500 | 446,500 | 631,500 | 446,500 | 631,500 | 446,500 | 631,500 |
| Final VMT | 446,500 | 605,300 | 440,800 | 439,800 | 439,800 | 597,200 | 434,800 | 589,800 | 428,500 | 582,000 |
| VMT Reduction per day | NA | 26,200 4.2% | 5,700 1.3% | 6,700 1.5% | 6,700 1.5% | 34,300 5.4% | 11,700 2.6% | 41,700 6.6% | 18,000 4.0% | 49,500 7.8% |
| Baseline Trips | 41,700 | 59,000 | 41,700 | 41,700 | 41,700 | 59,000 | 41,700 | 59,000 | 41,700 | 59,000 |
| Final Trips | 41,700 | 56,500 | 41,200 | 41,100 | 41,100 | 55,800 | 40,700 | 55,100 | 40,200 | 54,500 |
| Trip Reduction per day | NA | 2,500 4.2% | 500 1.3% | 600 1.5% | 600 1.5% | 3,200 5.5% | 1000 2.5% | 3,900 6.6% | 1,500 3.7% | 4,500 7.6% |
| NOx Reduction tons/day | NA | 0.010 tons/day | 0.009 tons/day | 0.010 tons/day | 0.010 tons/day | 0.022 tons/day | 0.018 tons/day | 0.034 tons/day | 0.028 tons/day | 0.046 tons/day |
| SOV Mode Share Reduction | NA | 3.5% | 1.1% | 1.3% | 1.3% | 4.6% | 2.5% | 4.8% | 3.9% | 7.0% |
| Vehicle Trip Rate | 89.5 vehicles/100 commuters | 85.7 vehicles/100 commuters | 88.3 vehicles/100 commuters | 88.2 vehicles/100 commuters | 88.2 vehicles/100 commuters | 84.6 vehicles/100 commuters | 87.2 vehicles/100 commuters | 83.6 vehicles/100 commuters | 86.0 vehicles/100 commuters | 82.6 vehicles/100 commuters |

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

Hillsborough County Long Range Transportation Demand Management Plan

| USF/New Tampa/Busch Scenarios: Hillsborough County Long Range TDM Plan | | | | | | | | | | |
|--|------------------------------------|--|--|------------------------------------|---|------------------------------------|---|------------------------------------|---|------------------------------------|
| COMMUTER Model Results | 2000 Baseline | 2025 Baseline | TDM Project Scenario A | | TDM Project Scenario B | | TDM Project Scenario C | | TDM Project Scenario D | |
| | 48,000 Commuting Workforce | 71,100 Commuting Workforce Expected Telecommuting Growth of 13% E+C Transit Improvements | Compressed Work Week and Telecommuting Program* Public Outreach | | Compressed Work Week and Telecommuting Program Employer-based TDM Program <ul style="list-style-type: none"> ▪ Preferential Parking ▪ VP/Transit subsidies 10% Workforce Participation Rate* | | Compressed Work Week and Telecommuting Program Employer-based TDM Program <ul style="list-style-type: none"> ▪ Preferential Parking ▪ VP/Transit subsidies 35% Workforce Participation Rate* | | Compressed Work Week and Telecommuting Program Employer-based TDM Program <ul style="list-style-type: none"> ▪ Preferential Parking ▪ VP/Transit subsidies 50% Workforce Participation Rate* | |
| | | | | | | | | | | |
| Baseline VMT | 1,012,700 | 1,499,500 | 1,012,700 | 1,012,700 | 1,012,700 | 1,499,500 | 1,012,700 | 1,499,500 | 1,012,700 | 1,499,500 |
| Final VMT | 1,012,700 | 1,441,500 | 1,000,700 | 998,400 | 998,400 | 1,423,700 | 987,500 | 1,406,500 | 974,200 | 1,389,000 |
| VMT Reduction per day | NA | 58,000 3.9% | 12,000 1.2% | 14,300 1.4% | 14,300 1.4% | 75,800 5.1% | 25,200 2.5% | 93,000 6.2% | 38,500 3.8% | 110,500 7.4% |
| Baseline Trips | 84,900 | 125,700 | 84,900 | 84,900 | 84,900 | 125,700 | 84,900 | 125,700 | 84,900 | 125,700 |
| Final Trips | 84,900 | 120,700 | 83,900 | 83,700 | 83,700 | 119,200 | 82,800 | 117,800 | 81,800 | 116,500 |
| Trip Reduction per day | NA | 5,000 4.0% | 1,000 1.2% | 1,200 1.4% | 1,200 1.4% | 6,500 5.2% | 2,100 2.4% | 7,900 6.2% | 3,100 3.6% | 9,200 7.3% |
| NOx Reduction tons/day | NA | 0.059 tons/day | 0.019 tons/day | 0.022 tons/day | 0.022 tons/day | 0.087 tons/day | 0.039 tons/day | 0.114 tons/day | 0.060 tons/day | 0.141 tons/day |
| SOV Mode Share Reduction | NA | 3.2% | 1.0% | 1.3% | 1.3% | 4.3% | 2.4% | 5.5% | 3.8% | 6.7% |
| Vehicle Trip Rate | 88.4 vehicles/100 commuters | 84.9 vehicles/100 commuters | 87.3 vehicles/100 commuters | 87.1 vehicles/100 commuters | 87.1 vehicles/100 commuters | 83.7 vehicles/100 commuters | 86.1 vehicles/100 commuters | 82.8 vehicles/100 commuters | 85.0 vehicles/100 commuters | 81.7 vehicles/100 commuters |

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

Hillsborough County Long Range Transportation Demand Management Plan

| Westshore/Airport Scenario: Hillsborough County Long Range TDM Plan | | | | | | | | | | |
|--|------------------------------------|---|--|------------------------------------|---|------------------------------------|---|------------------------------------|---|------------------------------------|
| COMMUTER Model Results | 2000 Baseline | 2025 Baseline | TDM Project Scenario A | | TDM Project Scenario B | | TDM Project Scenario C | | TDM Project Scenario D | |
| | 57,800 Commuting Workforce | 74,000 Commuting Workforce Expected Telecommuting Growth of 13% E+C Transit Improvements | Compressed Work Week and Telecommuting Program* Public Outreach | | Compressed Work Week and Telecommuting Program Employer-based TDM Program ▪ Preferential Parking ▪ VP/Transit subsidies 10% Workforce Participation Rate* | | Compressed Work Week and Telecommuting Program Employer-based TDM Program ▪ Preferential Parking ▪ VP/Transit subsidies 35% Workforce Participation Rate* | | Compressed Work Week and Telecommuting Program Employer-based TDM Program ▪ Preferential Parking ▪ VP/Transit subsidies 50% Workforce Participation Rate* | |
| | 2000 Baseline | 2025 Baseline | 2000 Results | 2000 Results | 2000 Results | 2025 Results | 2000 Results | 2025 Results | 2000 Results | 2025 Results |
| Baseline VMT | 1,201,700 | 1,538,500 | 1,201,700 | 1,201,700 | 1,201,700 | 1,538,500 | 1,201,700 | 1,538,500 | 1,201,700 | 1,538,500 |
| Final VMT | 1,201,700 | 1,479,400 | 1,187,600 | 1,184,700 | 1,184,700 | 1,461,300 | 1,171,500 | 1,443,300 | 1,155,600 | 1,424,900 |
| VMT Reduction per day | NA | 59,100 3.8% | 14,100 1.2% | 17,000 1.4% | 17,000 1.4% | 77,200 5.0% | 30,200 2.5% | 95,200 6.2% | 46,100 3.8% | 113,600 7.4% |
| Baseline Trips | 101,700 | 130,200 | 101,700 | 101,700 | 101,700 | 130,200 | 101,700 | 130,200 | 101,700 | 130,200 |
| Final Trips | 101,700 | 125,100 | 100,500 | 100,200 | 100,200 | 123,500 | 99,200 | 122,100 | 98,000 | 120,700 |
| Trip Reduction per day | NA | 5,100 3.9% | 1,200 1.2% | 1,500 1.4% | 1,500 1.4% | 6,700 5.1% | 2,500 2.5% | 8,100 6.2% | 3,700 3.7% | 9,500 7.3% |
| NOx Reduction tons/day | NA | 0.061 tons/day | 0.022 tons/day | 0.027 tons/day | 0.027 tons/day | 0.089 tons/day | 0.047 tons/day | 0.117 tons/day | 0.072 tons/day | 0.146 tons/day |
| SOV Mode Share Reduction | NA | 3.2% | 1.0% | 1.3% | 1.3% | 4.2% | 2.4% | 5.5% | 3.8% | 6.6% |
| Vehicle Trip Rate | 87.9 vehicles/100 commuters | 84.5 vehicles/100 commuters | 86.9 vehicles/100 commuters | 86.6 vehicles/100 commuters | 86.6 vehicles/100 commuters | 83.5 vehicles/100 commuters | 85.7 vehicles/100 commuters | 82.4 vehicles/100 commuters | 84.6 vehicles/100 commuters | 81.4 vehicles/100 commuters |

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

Hillsborough County Long Range Transportation Demand Management Plan

| Downtown Tampa Scenarios: Hillsborough County Long Range TDM Plan | | | | | | | | | | |
|---|-----------------------------|---|---|------------------------------|---|------------------------------|---|-------------------------------|---|--------------------------------|
| COMMUTER Model Results | 2000 Baseline | 2025 Baseline | Downtown Scenario A | | Downtown Scenario B | | Downtown Scenario C | | Downtown Scenario D | |
| | 51,460 Commuting Workforce | 110,115 Commuting Workforce Expected Telecommuting Growth of 13% E+C Transit Improvements | Compressed Work Week and Telecommuting Program Public Outreach | | Compressed Work Week and Telecommuting Program Employer-based TDM Program ▪ Preferential Parking ▪ Parking Cash Out 10% Workforce Participation | | Compressed Work Week and Telecommuting Program Employer-based TDM Program ▪ Preferential Parking ▪ Parking Cash Out 35% Workforce Participation | | Compressed Work Week and Telecommuting Program Employer-based TDM Program ▪ Preferential Parking ▪ Parking Cash Out 50% Workforce Participation | |
| | 2000 Baseline | 2025 Baseline | 2000 Results | 2000 Results | 2000 Results | 2025 Results | 2000 Results | 2025 Results | 2000 Results | 2025 Results |
| Baseline VMT | 692,000 | 1,480,700 | 692,000 | 692,000 | 692,000 | 1,480,700 | 692,000 | 1,480,700 | 692,000 | 1,480,700 |
| Final VMT | 692,000 | 1,416,500 | 683,000 | 674,000 | 674,000 | 1,391,100 | 643,700 | 1,350,600 | 617,500 | 1,313,500 |
| VMT Reduction per day | NA | 64,000 4.3% | 9,000 1.3% | 18,000 2.6% | 18,000 2.6% | 89,600 6.0% | 48,300 7.0% | 130,100 8.8% | 74,500 10.8% | 167,200 11.3% |
| Baseline Trips | 76,500 | 164,000 | 76,500 | 76,500 | 76,500 | 164,000 | 76,500 | 164,000 | 76,500 | 164,000 |
| Final Trips | 76,500 | 156,500 | 75,500 | 74,600 | 74,600 | 154,000 | 72,000 | 151,000 | 70,000 | 149,000 |
| Trip Reduction per day | NA | 7,500 4.4% | 1,000 1.3% | 1,900 2.5% | 1,900 2.5% | 10,000 6.1% | 4,500 5.9% | 13,000 7.9% | 6,500 8.5% | 15,000 9.2% |
| NOx Reduction tons/day | NA | 0.070 tons/day | 0.014 tons/day | 0.029 tons/day | 0.029 tons/day | 0.111 tons/day | 0.076 tons/day | 0.173 tons/day | 0.117 tons/day | 0.231 tons/day |
| SOV Mode Share Reduction | NA | 2.8% | 0.8% | 2.0% | 2.0% | 4.1% | 5.2% | 6.4% | 7.6% | 7.8% |
| Vehicle Trip Rate | 74.4 vehicles/100 commuters | 71.1 vehicles/100 commuters | 73.5 vehicles/100 commuters | 72.5 vehicles/100 commuters | 72.5 vehicles/100 commuters | 69.8 vehicles/100 commuters | 69.8 vehicles/100 commuters | 68.4 vehicles/100 commuters | 68.0 vehicles/100 commuters | 67.6 vehicles/100 commuters |

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

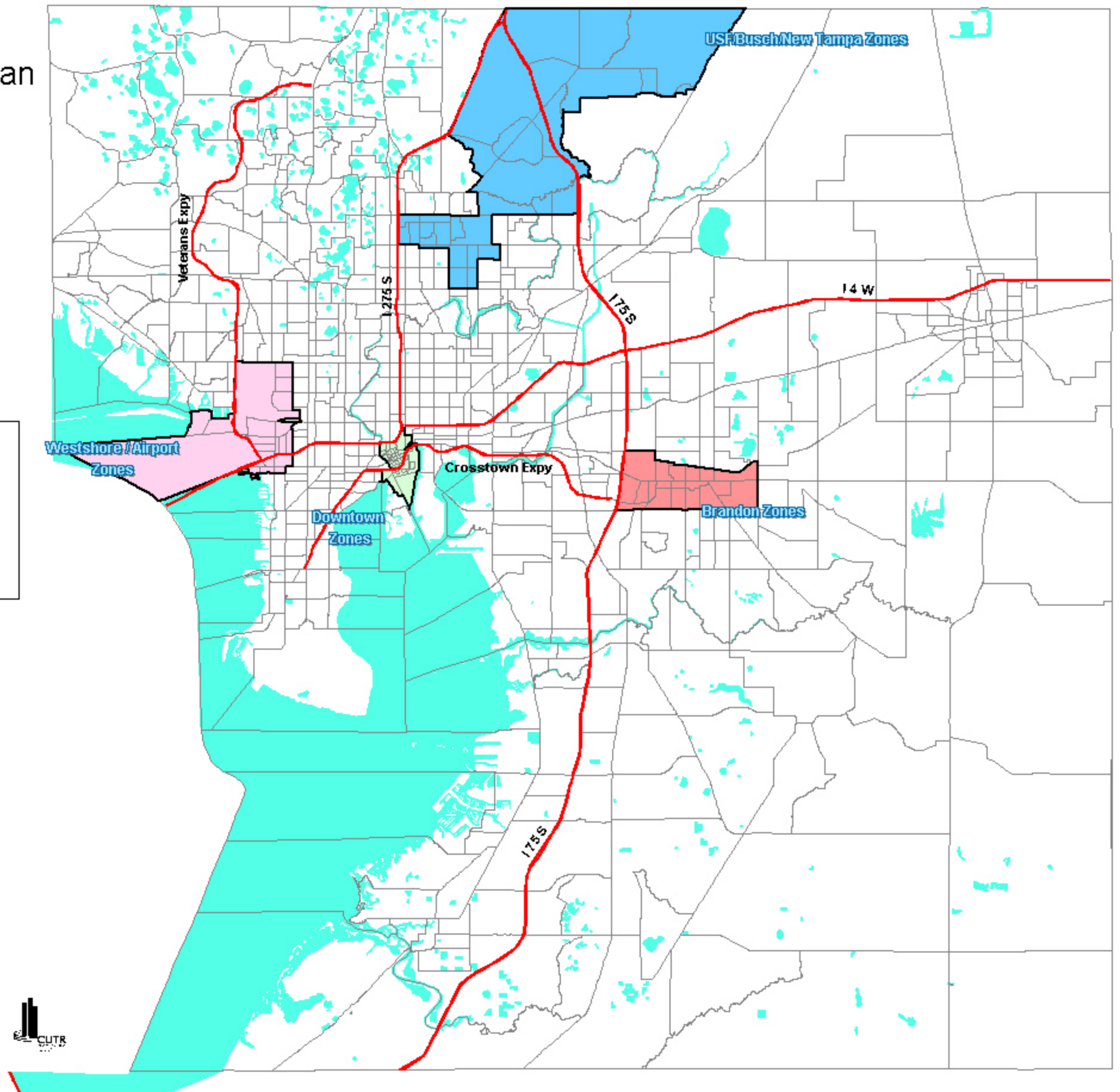
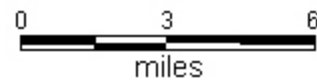
Appendix C

Activity Centers Map on next page...

Hillsborough County Long Range TDM Plan Activity Centers

Major Activity Centers

- Brandon zones
- Downtown zones
- USF/Busch/New Tampa Zones
- Westshore Airport
- Traffic Analysis Zone



Appendix D

Employer-level Scenario Summary Matrix on next page...

Hillsborough County Long Range Transportation Demand Management Plan

Employer-Level Scenarios: Hillsborough County Long Range TDM Plan Downtown Hillsborough County Government Employees

| COMMUTER Model Results | 2000 Baseline | 2025 Baseline | Employer Scenario A | | Employer Scenario B | | Employer Scenario C | |
|---------------------------------|---------------------------------|--|--|---------------------------------|---------------------------------|---|---------------------------------|---------------------------------|
| | 2,860 Commuting Workforce | 3,725 Commuting Workforce 2020 Transit Improvements Lowered ETG rate | Preferential Parking Program Free Parking for CP/VP 75% Transit subsidy Increased CP/VP support levels | | | Compressed Work Week and Telecommuting Program | | Combination of A and B |
| | 2000 Baseline | 2025 Baseline | 2000 Results | 2025 Results | 2000 Results | 2025 Results | 2000 Results | 2025 Results |
| Baseline VMT | 68,000 | 88,500 | 68,000 | 88,500 | 68,000 | 88,500 | 68,000 | 88,500 |
| Final VMT | 68,000 | 84,800 | 65,000 | 81,000 | 65,000 | 81,000 | 62,200 | 77,500 |
| VMT Reduction per day | NA | 3,700 4.2% | 3,000 4.5% | 7,500 8.5% | 3,000 4.4% | 7,500 8.4% | 5,800 8.6% | 11,000 12.4% |
| Baseline Trips | 5,000 | 6,500 | 5,000 | 6,500 | 5,000 | 6,500 | 5,000 | 6,500 |
| Final Trips | 5,000 | 6,200 | 4,800 | 6,000 | 4,750 | 5,900 | 4,600 | 5,700 |
| Trip Reduction per day | NA | 3,000 4.2% | 200 3.7% | 500 7.7% | 250 4.4% | 600 8.4% | 400 7.8% | 800 11.7% |
| NOx Reduction tons/day | NA | 0.026 tons/day | 0.005 tons/day | 0.020 tons/day | 0.005 tons/day | 0.020 tons/day | 0.009 tons/day | 0.015 tons/day |
| SOV Mode Share Reduction | NA | 3.5% | 5.1% | 8.4% | 3.7% | 7.0% | 8.5% | 11.7% |
| Vehicle Trip Rate | 86.9 Vehicles per 100 commuters | 83.3 Vehicles per 100 commuters | 83.8 Vehicles per 100 commuters | 80.2 Vehicles per 100 commuters | 83.1 Vehicles per 100 commuters | 79.7 Vehicles per 100 commuters | 80.1 Vehicles per 100 commuters | 76.7 Vehicles per 100 commuters |

Appendix E

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 1997⁷ 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.

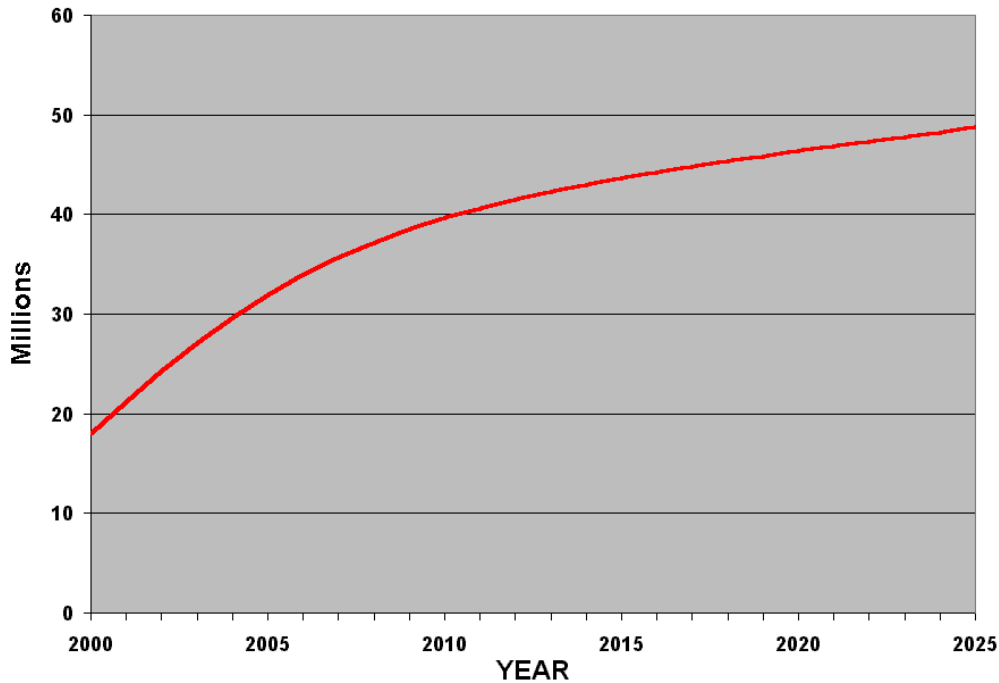
It is important to draw the distinction between *teleworking* and *telecommuting*. Jack Nilles, who coined the term *telecommuting* in the 1970's, defines **telecommuting** as “periodic work out of the principal office, one or more days per week, either at home, a client's site, or in a telework center; 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)

⁷ U.S. Department of Labor. Bureau of Labor Statistics. Current Population Survey. May 1997.

Figure E.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 Hillsborough County TDM Plan. Based on the data from the survey, approximately 69 percent of teleworkers are telecommuters (Table E.2).

Table E.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*:

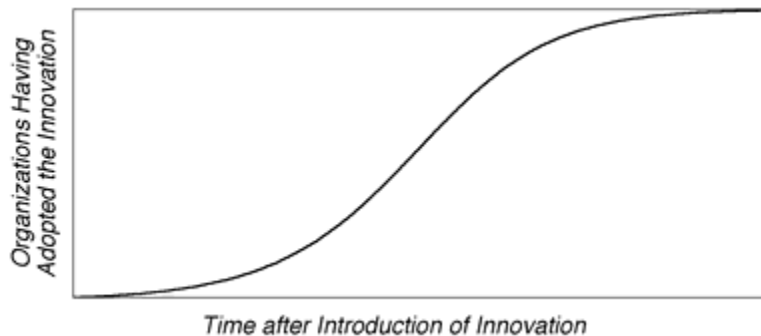
$$N_t = N_{t-1} + p(m - N_{t-1}) + q \frac{N_{t-1}}{m}(m - N_{t-1})$$

The Bass Diffusion Model is designed to answer the question when will customers adopt a new product or technology.⁸

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"⁹. 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.¹⁰ 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%.¹¹ Therefore, the maximum share of telecommuters is the product of these three factors or approximately 30% of employment.

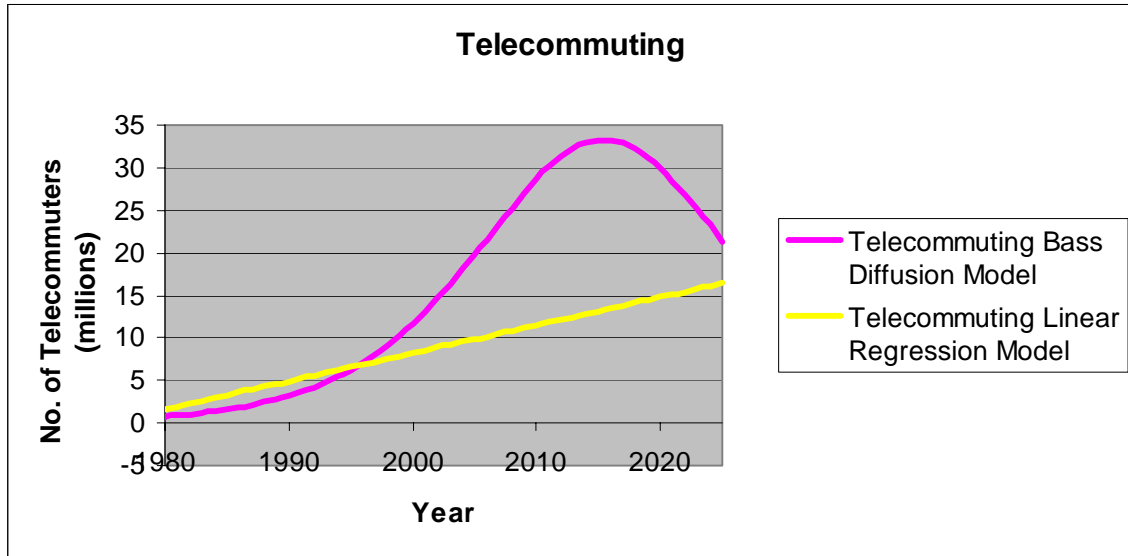
⁸ Mahajan, V., Muller, E., and Bass, F.M. "New product diffusion models in marketing: A review and directions for research." *Journal of Marketing* 54, 1 (January 1990), 1-26.

⁹ Gareis, Karsten and Norbert Kordey. "The Spread of Telework in 2005". *Electronic Commerce and Telework Trends*. <http://www.ecatt.com/ecatt/>

¹⁰ Ibid

¹¹ 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.)