Triangle Region 7-Year Long Range Travel Demand Management Plan

Submitted by:
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In association with:
Texas Transportation Institute

June 2007

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Background

Transportation Demand Management (TDM) programs have evolved over the years in the Triangle area, with different entities taking on various responsibilities and leading program innovation in certain segments. A combination of regional leadership from Triangle Transit Authority and successful programs originating at local levels (such as the SmartCommute Challenge) has formed a strong foundation of success within the area. Nonetheless, program development and coordination, along with funding allocation, are conducted on a year-to-year basis, and as a whole, programs across the region lack common, strategic focus.

It is within this context that the Triangle Region Transportation Demand Management Advisory Committee (TDM Advisory Committee) led the development of a 7-Year Long-Range Regional TDM Plan.

The TDM Advisory Committee hired UrbanTrans Consultants, Inc. in the fall of 2006 to develop a 7-Year Long-Range Regional TDM Plan that would accomplish the following:

1. Forge a collaborative regional working group that buys into the process of developing the long-range plan, and emerges legitimately invested in the outcomes and recommendations.
2. Use the best available data and information to provide the technical background and analysis to aid decision making, while leaving room for professional judgment and common sense.
3. Outline a clear and straight-forward action-plan for all involved parties to move forward in a coordinated manner. For a long-range plan to work, its implementation steps must be clear.

The pages that follow explain the steps taken to develop the 7-Year Long-Range Regional TDM Plan and the recommendations for the future.

Project Team

UrbanTrans Consultants (UrbanTrans) is a transportation planning firm with offices in Washington, DC, Atlanta, GA, Denver, CO, and Houston, TX. A growing firm of 19 employees, UrbanTrans offers clients a unique combination of specialized, local knowledge, and broad based national experience in designing innovative transportation management solutions. UrbanTrans specializes in the development and assessment of TDM programs and services, TDM feasibility studies, business plans and strategic planning, as well as marketing and implementation of TDM programs and services.

This 7-Year Long Range TDM Plan for the Triangle Region (TDM Plan) was developed by UrbanTrans Consultants with assistance from Texas Transportation Institute (TTI) for the TDM Advisory Committee and draws from the talents and experiences of each firm. The TDM Advisory Committee and UrbanTrans team members that participated in development of the TDM Plan were as follows:

Advisory Committee Members	Affiliation
Ed Johnson	Capital Area MPO (CAMPO)
Jake Petrosky	CAMPO
David Bonk	Town of Chapel Hill
Catherine Reeve	Duke University
Cha'ssem Anderson	Durham Area Transit Authority (DATA)
Ellen Beckmann	Durham Chapel Hill Carrboro MPO (DCHC)
Dale McKeel	DCHC
Felix Nwoko	DCHC
Tamra Shaw	North Carolina Department of Transportation (NCDOT)
Adena Messinger	North Carolina State University
Joe Milazzo	Regional Transportation Alliance (RTA)
Alison Fiori	Smart Commute@RTP (Research Triangle Park)
Tobin Freid	Triangle J Council of Governments (TJCOG)
John Hodges-Copple	TJCOG
Amy Armbruster	Triangle Transit Authority (TTA)
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Purpose Statement

The TDM Advisory Committee collectively determined that the purpose of the 7-Year Long Range Transportation Demand Management (TDM) Plan is to reduce regional growth in VMT by 25% between 2007 and 2015 through a moderate package of TDM strategies that encourage alternative mode usage.

In order to develop a moderate package of TDM Strategies that encourage alternative mode usage, UrbanTrans Consultants in cooperation with the Texas Transportation Institute (TTI), worked with the Triangle Regional TDM Advisory Committee to complete a seven step process. The process included the following:

A. Stakeholder Involvement
B. TDM Program Analysis
C. Assess VMT Growth Management
D. Market Analysis
E. Investment Scenario
F. Draft Recommendations
G. Final Report

This process resulted in a detailed list of strategies categorized by five main performance areas. In order to insure that these strategies are effectively implemented, each one has been assigned a responsible party, timeframe to complete and a budget to pay for it.

Complementing these strategies are recommendations for how to reorganize and grow the Triangle Regional TDM program to best achieve and maintain the stated goal of reducing regional growth in VMT by 25% by 2015.

The sections that follow explain the process utilized to develop the strategies, responsibilities, timeframes, and budget to reach this goal.

Task A: Stakeholder Outreach Strategy and Preliminary Results

The Triangle region has a diversity of stakeholders involved with or influencing local and regional TDM programs. The Triangle region Long Range TDM Plan stakeholder outreach strategy was developed to both inform key stakeholders and to gather necessary input to the planning of TDM in the Region and the needs and desires of key stakeholders. The intended result is a long-range TDM plan that is fully supported by key stakeholders and includes projects, programs and policies that will be successfully implemented.

Key activities, many of which were continued throughout the plan process, are included below.

Project Website

A project website, www.triangletdmplan.com, has been developed to provide information to both the general public and stakeholders that are not able to attend the Advisory Committee meetings. The website includes a general project overview, meeting notes, links to surveys, an option for posting general feedback and TDM references.

The website was updated throughout the life of the project. Any general comments were considered in the recommendations of the plan.

Advisory Committee Meetings

Monthly meetings with key stakeholders, including state, regional and local TDM program managers and implementation staff were held to provide information and gather feedback at key decision points during the plan process.

Stakeholder Interviews

One-on-one or small group meetings with Advisory Committee members and current or potential program partners (downtown associations, chambers, etc.) were conducted to further understand individual programs and to identify strengths, weaknesses, opportunities and threats.

The following interviews were conducted:

- Capital Area Metropolitan Planning Organization
- Durham Chapel Hill Carrboro Metropolitan Planning Organization
- North Carolina Department of Transportation
- North Carolina State University
- Regional Transportation Alliance
- SmartCommute@RTP
- Town of Chapel Hill
- Triangle J Council of Governments
- Triangle Transit Authority
- University of North Carolina at Chapel Hill

Information gathered at these interviews is included in the regional TDM overview and program assessment.

Forums and Business Leader Surveys
A Business Leader Survey was conducted with the membership of the Regional Transportation Alliance. Results were made available in December 2006.

There were thirty seven responses. The respondents stated the leading transportation issues affecting area business are traffic congestion, length of commute and transit convenience. These issues affect the Region's ability to conduct business through challenges in recruiting businesses, businesses selecting locations based on traffic congestion and businesses not able to attract the employees they need from within the region.

The respondents were most interested in advocating for new and/or improved transit services, promoting ridematching services for carpools / vanpools and assisting with marketing and educational services on transportation options.

See Appendix A for full survey results.

Employer Survey
The Triangle region Employer Survey summarizes employer needs and preferences by asking them for their thoughts on the following:

- Transportation problems affecting the Triangle Region.
- How their employees get to work, convenience of transit service to their worksite
- How to encourage more carpooling/vanpooling
- What type and level parking availability exists at their worksite
- What type of transportation programs and incentives are offered at their worksite
- What their level of interest is for commute options information and awareness of where to get it

The survey was sent to approximately 200 employers, identified by the Advisory Committee. Sixty eight employers completed the survey. Employer responses to the survey have been integrated into the TDM framework assessment.

See Appendix B for full survey results.

Task B: TDM Program Analysis

History of TDM implementation in the Triangle Region

The Triangle region of North Carolina has experienced rapid growth in recent years. According to the United States Census, the Raleigh Durham area was the fastest growing metro area in North Carolina and tied with Atlanta as the twelfth highest growth area in the country at 39 percent over the 1990 - 2000 decade. The rapid growth had led to significant increases in traffic congestion. Over the last decade, the Triangle region has had the second highest increase in commute time in the nation. *(US Census Bureau, 2000).*

Despite the significant increase in congestion, Travel Demand Management (TDM) is a relatively new concept for the Triangle region, having formally emerged only within the past decade. For the last several years, TDM efforts have been programmed on a year-by-year basis throughout the Triangle region. Though there are a number of successful TDM related efforts, there is no coordinated long-range TDM planning.

In 2004, the North Carolina Department of Transportation (NCDOT) adopted a statewide TDM plan. The TDM plan mission is to provide the citizens of North Carolina specific opportunities and strategies for improving sustainable economic growth and quality of life through reduced transportation congestion, expanded mobility options, improved air quality and more efficient use of scarce resources. Despite the successful adoption of the statewide plan, a regional program coordination and TDM integration still needs to occur.

Today a number of TDM programs and activities exist throughout the region, as outlined in the following section.

Current TDM Programs

Currently a number of TDM activities are occurring throughout the region. Several local, regional and state organizations are working together to ensure seamless TDM services for the region's employers and travelers. The TDM efforts typically promote alternative transportation choices through marketing, information dissemination and the provision of incentives related to carpooling, vanpooling, bicycling, walking, transit and telecommuting.

Several different types of organizations are involved in TDM, each providing different but complementary services:

North Carolina State Department of Transportation: NCDOT provides the overall policy framework for TDM in North Carolina, and provides state funding and fiscal oversight for regional TDM programs and individual Transportation Management

Associations. Involvement is guided by the *Statewide Transportation Demand Management Plan* (April 2004) and administered by the Public Transportation Division.

TDM programs receiving NCDOT state funding are typically matched at 50 percent by local and/or federal funding. NCDOT also provides funding for the statewide ridematching program software, managed by TTA. NCDOT provides 50 percent of licensing and administration and 100 percent of the procurement costs. NCDOT also reserves some statewide CMAQ funding for specific programs and, at their discretion, may provide this funding for a regional TDM study or program.

NCDOT's TDM programs are assisting the State meet legislative mandate SB 953 calling for a 25 percent reduction in growth of Vehicle Miles Traveled (VMT) over existing levels by 2009.

Triangle J Council of Governments: Triangle J Council of Governments (TJCOG) is a regional TDM coordinator that serves as a link between state policy and funding and local and regional service providers. TJCOG oversees the Triangle Best Workplaces for Commuters annual campaign and website, and works with NCDOT in reviewing and coordinating annual work plans and budgets for TDM efforts. TJCOG also convenes the region's TDM partners to coordinate efforts, and works with employers outside the Triangle Transit Authority (TTA) service area such as those in Chatham, Johnston and Lee Counties. In addition, TJCOG assists in coordinating regional planning efforts and transportation modeling for the two regional Metropolitan Planning Organizations (MPOs).

Triangle Transit Authority: TTA serves as the regional TDM service provider. TTA provides direct services and outreach to specific employers and travelers in its regional service area. Among the services provided are:

- Support for employers, commuters and TMAs:
  - Regional administration of the statewide Rideshare Matching Program
  - Regional Transit Services
  - Emergency Ride Home
  - Vanpool operation, marketing and outreach
  - Develop and maintain on-line trip planning and alternative mode promotion website, www.GoTriangle.org

- Employer Recruitment and Marketing/Promotion Activities:
  - Establishing new Transportation Management Associations
  - Enlisting Employers as Best Workplaces for Commuters
  - Wake and Durham County Worksite Outreach
  - Support for local Universities, including the Redefine Travel student campaign
  - Manage the Regional Smart Commute Challenge
  - Administer and evaluate Durham County Commute Trip Reduction survey

In addition, TTA is responsible for the National Transit Database (NTD) reporting of vanpools. TTA also supports TDM outreach coordinator positions in partnership with the City of Durham and the two regional MPOs.

Transportation Management Association (TMA): TMAs provide direct services and outreach to specific employers and travelers who are members of the association. TMAs involve a specific geographic area, such as a downtown, activity center or transportation corridor and serve all individual firms or operating units within that area.

One TMA currently operates in the region called SmartCommute@RTP. The organization was formed in 1999 in response to growing transportation concerns in the Research Triangle Park. Serving major employers, they currently have 24 members representing between 80 and 90 percent of the employees in the area. Primary activities include promotion of transportation alternatives, administration of transit incentives, and other marketing and outreach efforts to enhance the use of alternative commuting practices. SmartCommute@RTP started the SmartCommute Challenge. They are funded through statewide funding and service district funding.

Transportation Cooperative Associations (TCA): TCAs are small and often informal transportation programs that can be considered a stepping stone to a larger and more formal program or organization such as a TMA. Typically TCAs are driven by BWC employers and often may serve emerging activity centers that have become or are becoming TDM hotspots. Existing TCAs include the Raleigh Corporate Center and Downtown Raleigh.

University Transportation Programs: Universities often have different transportation concerns as compared to other employers. As such, several area university transportation programs have emerged to address campus-specific transportation concerns. Two programs that receive state TDM funds are UNC-Chapel Hill and North Carolina State University:

- UNC-Chapel Hill: TDM efforts are coordinated through the Department of Public Safety in the Transportation and Parking department. The CAP Program provides free annual TTA transit passes and offers a local ERH program. In addition, they promote carsharing, vanpools, carpooling, and provide travel information. A NCDOT grant pays for some marketing materials, but no operations.

- North Carolina State University: TDM efforts are coordinated through the NCSU Transportation department and in conjunction with Triangle Transit Authority TDM staff. The TDM program primarily consists of carpool, vanpool, transit, bicycle and pedestrian components. NCSU also has its own transit system that provides service to the campus and its surroundings. Currently, NCSU Transportation funds both the transit system and TDM program. The transit system is funded 80 percent from student transit fees and 20 percent from parking revenue. The TDM program is funded 50 percent through NCDOT and 50 percent from parking revenue. In addition, NCSU Transportation supports a U-

PASS program that enables all university affiliates to ride TTA and CAT buses fare free with their ID. This is funded through 80 percent student transit fees and 20 percent from parking revenue.

- Duke University: TDM efforts are coordinated through an alternative transportation program that provides free transit serving the campus area and offers several alternatives to driving to campus alone, which include ridesharing, carpooling, vanpooling, biking and regional transportation. The services are offered through the Parking and Transportation Department.

Individual Organizations and Employers: Individual organizations, local governments and private sector employers often provide commute benefits to employees. Many employers appoint an Employee Transportation Coordinator (ETC) who serves as the key contact or champion for providing commute information to employees or for other transportation related concerns of an employer. Employers also individually enroll as a Best Workplace for Commuters.

In addition, local governments include the counties of Wake, Orange and Durham and the municipalities of Raleigh, Cary, Durham and Chapel Hill. Both Durham and Chapel Hill have adopted employer trip reduction ordinances.

The Regional Transportation Alliance, a program of the Raleigh Chamber of Commerce, provides commute information as a part of an overall transportation strategy. Several area Business Improvement Districts in Raleigh and Chapel Hill are addressing transportation services and parking in their respective Downtown areas.

Metropolitan Planning Organizations: Two MPOs serve the region including the Capital Area Metropolitan Planning Organization (CAMPO) and the Durham-Chapel Hill-Carrboro Metropolitan Planning Organization (DCHC MPO). Both assist with the promotion and funding of TDM programs and integrate TDM in their regional transportation planning efforts.

CAMPO: The organization serves the eastern part of the Triangle region and uses Unified Work Planning funds to help fund TDM outreach at TTA. In addition, some CMAQ funding from the MPO is used for the BWC program. CAMPO also maintains the Capital Area Bicycle and Pedestrian Stakeholders group, which advocates for more bicycle and pedestrian facilities and organizes promotional events to encourage bicycling and walking to work.

DCHC: This MPO serves the western portion of the Triangle region and uses federal Surface Transportation Program–Direct Allocation (STP-DA) funding for TDM program. DCHC also has a bicycle and pedestrian group that advocates for improved bicycling and walking conditions.

Transit: In addition to specific TDM programs and activities outlined above, a number of transit service providers exist throughout the region.

Triangle Transit Authority (TTA): TTA was chartered in 1989 and serves Durham, Orange and Wake counties. In addition to its role as the regional TDM Service Provider, TTA provides regional public transportation services to the Triangle area. These services include regional buses, connector shuttles, paratransit, and vanpool services. TTA is also the lead agency working toward the development and construction of a regional rail transit system. The Triangle regional Bus Service operates over 60 buses along fixed routes throughout the region. The regional bus service complements municipal bus services offered in Raleigh, Durham, Cary and Chapel Hill. The TTA Vanpool Program leases vans to commuters throughout the region and outlying counties. There are approximately 65 TTA vanpools currently in operation throughout the region.

Capital Area Transit (CAT): CAT provides fixed route and demand responsive service throughout the City of Raleigh with connections to TTA.

Cary Transit (C-TRAN): C-TRAN provides fixed route and demand responsive service throughout the city of Cary. Reservations are required.

Chapel Hill Transit: This municipal and University based bus service provides fare free fixed route and demand responsive service throughout the Cities of Chapel Hill and Carrboro with connections to TTA.

Chatham Transit Network: A demand responsive system serving trips originating in Chatham County.

Duke University: The University provides free transit shuttle services on and around their campus.

Durham Area Transit Authority (DATA): DATA provides fixed route and demand responsive service throughout the City of Durham with connections to TTA.

Durham County ACCESS: A demand responsive system serving Durham County.

Johnston County Area Transit System (JCATS): A demand responsive system serving Johnston County.

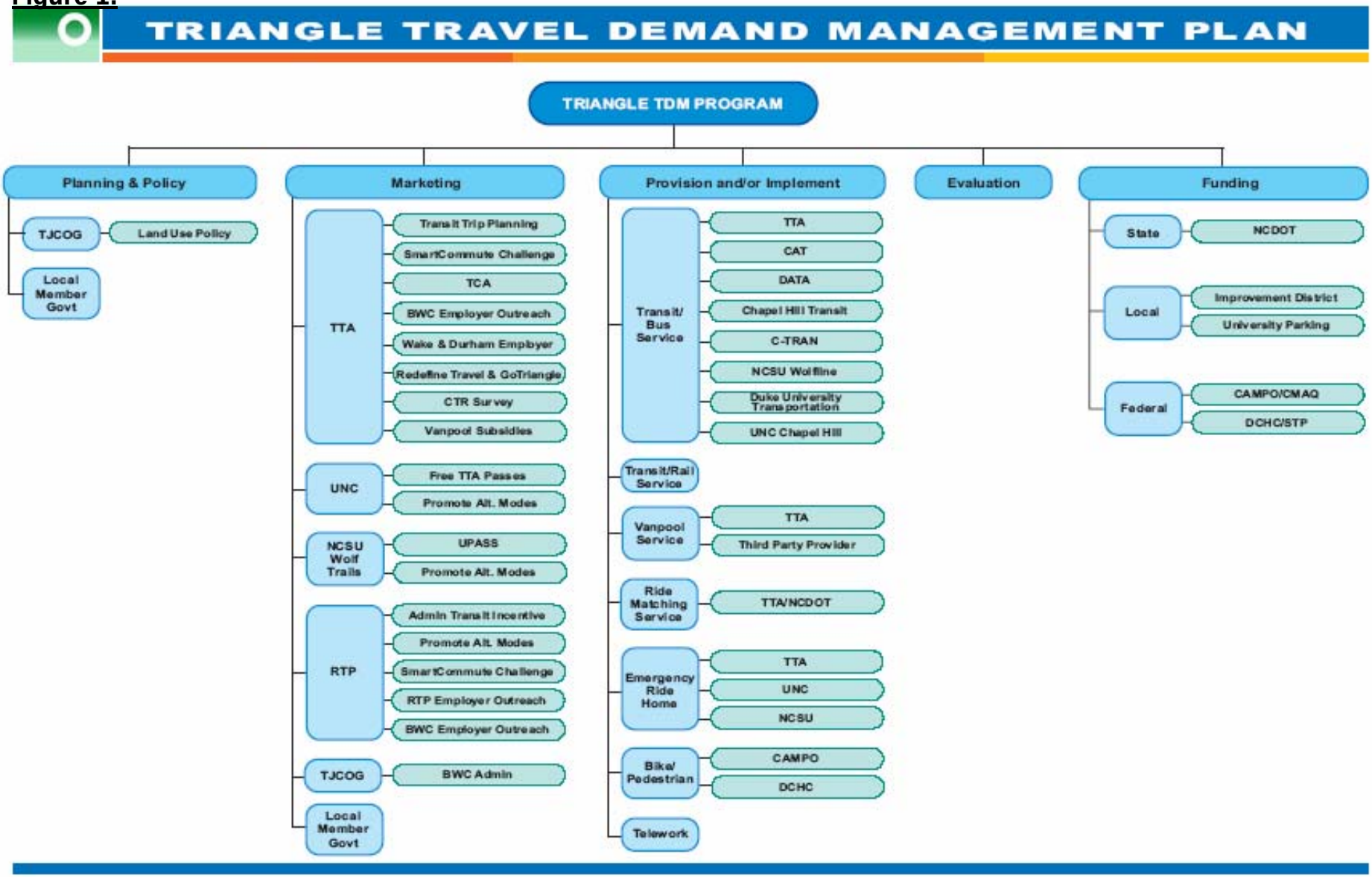
Kerr Area Rural Transit System (KARTS): A demand responsive system serving Granville County.

Orange County Public Transportation: Operate the TTA 420 shuttle to Hillsborough and EZ-Rider paratransit program.

Transportation and Rural Access (TRACS): A demand responsive system serving Wake County.

Wolfline: The North Carolina State University Wolfline is a fare- free, fixed-route transit service that is open to the public.

Figure 1.


TRIANGLE TRAVEL DEMAND MANAGEMENT PLAN
TRIANGLE TDM PROGRAM
Planning & Policy
TJCOG
Land Use Policy
Local Member Govt
Marketing
TTA
Transit Trip Planning
SmartCommute Challenge
TCA
BWC Employer Outreach
Wake & Durham Employer
Redefine Travel & GoTriangle
CTR Survey
Vanpool Subsidies
UNC
Free TTA Passes
Promote Alt. Modes
NCSU Wolf Trails
UPASS
Promote Alt. Modes
RTP
Admin Transit Incentive
Promote Alt. Modes
SmartCommute Challenge
RTP Employer Outreach
BWC Employer Outreach
TJCOG
BWC Admin
Local Member Govt
Provision and/or Implement
Transit/ Bus Service
TTA
CAT
DATA
Chapel Hill Transit
C-TRAN
NCSU Wolfline
Duke University Transportation
UNC Chapel Hill
Transit/Rail Service
Vanpool Service
TTA
Third Party Provider
Ride Matching Service
TTA/NCDOT
Emergency Ride Home
TTA
UNC
NCSU
Bike/ Pedestrian
CAMPO
DCHC
Telework
Evaluation
Funding
State
NCDOT
Local
Improvement District
University Parking
Federal
CAMPO/CMAQ
DCHC/STP

TDM Program Measurement, Evaluation and Results

Measurement and evaluation of the Triangle region's TDM programs is important to demonstrate the effectiveness of funding spent on them. Depending on the source of funding and its intent, the effectiveness of TDM Programs is measured in terms of their impact on travel behavior or air quality. These measurements also allow funding organizations to evaluate the performance of funding recipients and hold them accountable for the results they promised.

Current Evaluation in the Triangle Region

Currently the Triangle region's TDM measurement and evaluations are conducted on an individual program basis. NCDOT does not have specific performance measures for the region or the state, but each jurisdiction is required to develop their own. Since area TDM programs are unique, many require different evaluation measures. There is difficulty in measuring the effectiveness of marketing and public relations goals and consequently some difficulty in quantifying the results of these programs. There has been interest in measuring results on a regional basis instead of individual programs

As described in the Current TDM Programs section of this report, NCDOT provides funds for both the statewide ridematching system and regional TDM Programs. All of the regional TDM programs funded by NCDOT market the use of the ridematching system as well as other TDM strategies that are relevant to their customer base. TDM Strategy marketing and promotion comprise the majority of what NCDOT funds for the Triangle regional TDM Program. In an effort to measure the regional impact of these collective efforts, NCDOT recently funded TJCOG to complete a Triangle TDM Joint Marketing Plan. The plan included a matrix that summarizes:

1. How each NCDOT funded TDM service provider uses funding to promote TDM.
2. What they hope to achieve from their efforts.
3. How they plan to measure its effectiveness.

The matrix reveals some common measurements of effectiveness that apply to most marketing and promotion efforts being done by all of the TDM funding recipients. Those measurements look at how many people use some sort of alternative mode of transportation as a result of the effort applied. These measurements include, but are not limited to:

1. Transit Pass numbers and/or ridership before and after promotions
2. Vanpools before and after promotions
3. Carpool ridematching registrants before and after promotions
4. Bike registrations before and after promotions
5. ERH registrations before and after promotions

Key Observations and Findings

A coordinated regional TDM program requires standardized measurement and evaluation. This will ensure that there is fairness and equity in how programs are funded. The variety of evaluation measurements currently being used in the Triangle

Region can lead to unfair and inequitable distribution of funding. Identifying common sets of measurements upon which to evaluate all programs in the region will help unify its efforts.

These common sets of measurements can be derived by beginning with the end in mind or working backwards from the desired result. In other words, the region's TDM Stakeholders need to identify goals they are trying to achieve and fund only projects that will achieve those goals and can be measured as doing so. It is important to come to some consensus about which measurements most effectively demonstrate achieving those goals and build programs around them.

The TDM Advisory Committee identified this goal to be reducing the growth of vehicle miles of travel (VMT) in the Triangle Region by 25 percent from 2007 to 2015 through the implementation of transportation demand management (TDM) services. Section 2.2 of the Work Plan recommends guidelines for tracking the region's success in achieving this goal. In addition, this section of the Work Plan makes recommendations for tracking outreach efforts and community and business perceptions of transportation issues and programs. It incorporates all administrative activities required to measure the success of the regional TDM program. This includes monitoring and evaluating Program Impacts, Program Participation, Program Awareness, Customer Satisfaction, and Outreach Activities.

TDM Framework Assessment

A general assessment of the current regional TDM implementation framework shows that a number of TDM activities are occurring throughout the region, but that regional coordination efforts could be improved to maximize the regional benefits of each TDM related activity or program. Stakeholder input has been collected from throughout the Triangle region to comprehensively assess strengths and weaknesses of the existing regional TDM framework. A summary and analysis of the strengths and weaknesses of the existing regional TDM implementation framework is included below and will be used to identify the best opportunities for program enhancements.

Triangle Area TDM Community Strengths and Weaknesses

Regional TDM program Strengths and Weaknesses are based on the current qualities of the regional TDM implementation framework. That is, this is not intended to convey strengths and weaknesses of TDM in general, but rather only TDM programs that are internal to the operations of the Triangle Area TDM Community have been considered as part of this analysis.

Regional Strengths and Weaknesses have been divided into several key areas including: Program Coordination, Planning and Policy, Marketing and Program Implementation and Funding.

Strengths

Program Coordination

- Engaged TDM community with broad and diverse stakeholder representation
- Regional TDM mindset includes a strong desire to avoid duplication of efforts

Planning and Policy

- Travelers are interested in using transportation alternatives
- Long commutes encourage vanpooling
- TDM has begun to be integrated into the regional long-range transportation planning process through the MPOs
- Regional activity centers are conducive to TDM
- Area trip reduction ordinances, including Durham and Chapel Hill
- Regional emphasis on data collection through commuter surveys

Marketing and Program Implementation

- There is a strong market for and interest in Teleworking
- Regional trip planning website, www.gotriangle.org
- Dedicated professional TDM staff both regionally and locally
- Regional Emergency Ride Home program
- Growing usage of transit pass subsidy programs.
- SmartCommute Challenge:

  - Raises awareness to commuters and employers
  - Measurable results show behavior change
  - Positive media attention
  - Provides opportunity for regional public/private partnership
- Triangle Best Workplaces for Commuters:
  - 52 organizations with 80,000 employees have received the designation, more than 10% of the region's workforce
  - Designation requires employers to offer specified commuter benefits and achieve a 14% alternative commute mode share
  - Triangle BWC program one of only 5 regional programs nationwide awarded the 2006 Gold Level Award in EPA's Race To Excellence, joining such larger regions such as Houston, San Diego and Phoenix
- Successful federally funded individualized marketing pilot program
- Awareness by employers that government agencies provide commute services

Funding
- Diverse TDM funding sources including state, federal and local

Weaknesses

Program Coordination
- TDM program complexity hinders efficient regional coordination
- Regional bicycle and pedestrian planning not always done in conjunction with TDM planning
- TDM marketing coordination and cost sharing is sometimes lacking

Planning and Policy
- There has been no coordinated long range regional TDM planning
- Performance based measurement and evaluation systems not built into TDM program. Often a lack of funding to do in-depth measurements
- Lack of exemplary trip reduction ordinances and lack of 'teeth' on existing trip reduction ordinances.
- Land use policies not well coordinated with transportation and TDM policy

Marketing and Program Implementation
- Additional staff dedicated to TDM programs is needed, including outreach staff and regional TDM planning staff. Many programs only have shared or part time staff.
- Overall lack of TDM incentives as part of overall program implementation
- Volunteer ETC networks spread thin
- TDM programs only geared toward employers/commuters
- Untapped potential of teleworking
- Transit fares often vary between transit systems
- There exists gaps in transit service
- Ridematching system and Emergency Ride Home program need additional flexibility to coordinate different shift times
- Long wait times for ERH when needed

- Survey information is not used to strategically improve TDM programs
- Develop 'starter' programs that increase mode split goals over time; too aggressive mode split goals might deter initial participation
- Vanpool fare costs for individuals are considered high
- Not a lot of choice in vanpool product (one size vans)
- Need additional bicycle lanes and trails throughout the region
- Many businesses not motivated by BWC designation

Funding

- Additional TDM funding opportunities are needed

Key Observations and Findings

- The Regional ERH program should be as demand responsive as possible, with limited wait times for rental cars and/or taxis and flexibility in providing vouchers. It should also be directly connected to registering for Ridematching to reduce duplicative data entry on the part of TTA staff and the commuter.

- One regional commute award ceremony would be beneficial to building regional momentum and recognition for commute programs. Reward employers and property managers of different sizes. An additional category could be towns or developers who implement TDM friendly developments for proactive planning initiatives. It should not be mandatory to be a designated Best Workplace for Commuter to participate. This would not replace internal or local recognition or awards, but would combine all sub-regional awards into one.

- TDM programs will benefit from a regional framework that includes:
    - One agency with contracting responsibilities for state and non-state funding
    - Established criteria for state and MPO funding
    - Evaluation and measurement guidelines
    - Economies of scale on appropriate marketing materials and campaigns, incentives and employer training/workshops

- A precursor program to the Best Workplaces for Commuters program is needed, to engage employers that either find the minimum requirements difficult or overwhelming to achieve

- SmartCommute Challenge still has support and momentum, but the program will run the risk of stagnation if continued for too many years without reinvention. Future plans should allow for program flexibility to make changes or improvements, as necessary.

- CMAQ is underutilized for TDM funding (100 percent funding is available for specific programs). However, recognize that this funding is not as stable as state funding.

- Regional TDM programs must be sensitive to the desire to have local programs that highlight the specific needs and unique characteristics of individual activity centers. A well thought out strategy to regional program implementation that supports local programs, as appropriate, will be critical.

- The various commute survey results are not providing input to the regional and/or TDM program direction. A regional survey process, with local input, should be considered to maximize response rate and usefulness and reduce funding expenditure. Survey results can provide key program direction for both the regional and local programs.

- Vanpooling can be a precursor to transit. The two services should be examined and planned for holistically.

- Funding gathered from the 5307 program for vanpooling can be set aside for vanpool and TDM programs instead of the current practice of going to a general fund.

- The regional travel planning website, www.GoTriangle.org can serve as a primary point of reference for all regional TDM programs, transit, trip planning and more. Opportunity to explore 511 opportunities with this tool.

- There is a possible disconnect between actual influences on travel behavior and employer perceived influences. Further exploration would be beneficial on the impact of regional education campaigns highlighting the relationship between commuting and reduced employee productivity and recruitment.

- Financial incentives for vanpools and carpools would be an attractive complement to ridematching and ERH.

- The Downtown Raleigh TCA has opportunity to integrate parking strategies into the overall Downtown commute options strategy. May require a separate study to fully realize benefits of this relationship.

- Employers would benefit from tailored and personalized commute information, including how to offer pre-tax benefits, infrastructure and amenity improvements, parking assistance (where relevant) and the benefits of providing transportation allowances or subsidies.

- TTA has name recognition as providing information on commute options.

- Opportunity to tie TDM Program funding to provision of local growth policies.

- Explore Regional Rewards tied to commute program tracking.

- Broaden scope of services to address travel needs beyond those of commuters.

Task C: Local Growth Management Strategy Assessment

The connection between land use and transportation is a critical, yet often overlooked element of successful TDM programs. Development patterns and design have significant impact on the travel choices made by the public. Numerous growth management policies exist throughout the Triangle region such as parking regulations, regional bicycle and pedestrian plans, park and rides, trip reduction ordinances, TDM incentive programs, and other land use regulations.

The intent of this Task is to both identify where the highest future growth is projected to occur in the Triangle region over the next 7 years as well where there are growth management strategies in place that encourage TDM programs. This will provide important information for the Market Analysis to be conducted as part of Task D and the TDM Investment Scenario Development and Analysis in Task E. It will help identify those areas where high growth and solid growth management strategies will yield markets where investment in TDM programs will yield maximum results.

Future Growth Areas

The regional planning organizations have developed long-range transportation plans designating future growth areas. These areas are characterized as communities with the greatest concentration of jobs and where mixed use high density developments are planned. Table 1.0 below highlights future growth areas for the region.

Table 1. Triangle Region Forecasted Growth Areas

Jurisdiction	Employment Growth	Mixed Use Development
DCHC		
City of Durham/Durham County	O	
Research Triangle Park/Wake & Durham Counties	O	
Duke University/Durham	O	
UNC Chapel Hill/Chapel Hill	O	O
CAMPO		
Downtown Raleigh	O	O
Raleigh Durham International Airport/Raleigh	O	
Rex Hospital/Raleigh	O	
Wake Medical Center/Raleigh	O	
Centennial Campus at NCSU	O	
Western Wake Corridor	O	ϴ
Town of Cary Regional Center	O	O
Crabtree Valley Mall/Raleigh		ϴ
Triangle Town Regional Center/Raleigh		ϴ
North Hills Shopping Plaza/Raleigh		O

ϴ = Mixed Use Development is Planned, but Dependent on Private Sector

How growth management land use and TDM policies are applied in these future growth areas will have a significant impact on their mobility and traffic congestion levels. The sections that follow identify the types of policies that positively impact TDM success and describe different regions of the country where they are applied.

Role of TDM: Planning Review & Development Process

This section will provide an overview and assessment of community land development ordinances found throughout the Triangle region. It will also assess development regulations and policy decisions that both support and undermine TDM strategies.

The types of ordinances supporting or undermining the effectiveness TDM strategies can be found below in Table 2.

Table 2. Existing ordinances which support or undermine the effect of TDM

Positive (+)	Negative (-)
Employer Commute Reduction Programs	*No Parking Regulations*
Park N Ride Ordinances	*Developer Parking Minimums*
Transit Overlay Districts	*Density Ceilings along Transportation Corridors*
Higher Density/Mixed Use Developments	*Ordinances that Prohibit or Discourage Mix Use*
Bicycle Pedestrian Plans	*Setbacks*
Connectivity Ordinances	
TDM Ordinances	

While many of the communities within the Triangle region encourage use of TDM strategies, these policies have not been fully integrated into the zoning and development process region-wide. The cities of Chapel Hill, Durham, Raleigh and Cary have successfully integrated TDM ordinances into their planning review and development process. While other areas have incorporated TDM strategies in their plan language, they are working toward implementing them.

There are a number of communities in the region, such as the Cary, Chapel Hill and the City of Durham, that have existing ordinances which support TDM including bicycle pedestrian, employer mandated commute trip reduction programs, and park and ride ordinances.

Cary and Apex have also identified prescriptive land use plans that incorporate design guidelines, encourage high density and mixed use development. Highlighted below in Table 3 are various land use policies in communities in the Triangle region that positively impact the implementation of TDM Strategies.

Table 3. Triangle Region Positive Land Use Policies

	Parking Requirements & Regulations	Bicycle Pedestrians Plans	Trip Generation	Park N Ride	Connectivity	TDM	Developer Regulations or Incentives supporting Vertical Mixed Use Development	Zoning Ordinances allowing higher densities	Transit Overlay Districts	Commute Reduction - Employer Programs
Cary	x	x	x		x					
Raleigh	x	x		x	x		x	x		
Chapel Hill						x	x	x	x	x
Durham	x	x		x		x	x	x	x	x
Apex	x	x			x		x	x		

These communities were compared to other communities nationally that have implemented some combination of these same land use and TDM policies and found varying degrees of success. The section that follows explains who those communities were and what characteristics of success they demonstrated. Future analysis will also include the results these combinations of strategies had on mode splits in each community.

Peer Review

Analyzing what TDM strategies are successfully implemented in various areas included investigating "best practices" and lessons learned throughout the region and across the country. The team obtained and reviewed existing TDM and TOD literature sources.

The results of the research were a comparison of several national and regional examples of communities and, an examination of their level of transit service, TOD characteristics, mobility programs, policies and results:

- Pleasant Hill, Contra Costa County, CA (San Francisco)
- Redmond Ridge PUD, King County, WA
- Lloyd District, Portland, OR
- Metropolitan Place, Renton WA
- Rosslyn Corridor, Arlington County, VA
- Fairfax County, VA

Pleasant Hill, CA Dept. of Transportation

UrbanTrans Consultants also conducted an exhaustive research of best practices in several Sunbelt cities with comparable demographics including Nashville, TN, Atlanta, GA, Austin, TX, and Tampa, FL. Of those Sunbelt cities researched, the City of Austin, TX and the Buckhead activity center in Atlanta, GA have integrated TDM into their planning review and development process. So these two communities were also included in the analysis. Supplemental research of TOD and TDM characteristics at Universities in other parts of the country will be completed to provide a comparison for the universities that play a large role in the economy of the Triangle region. Those

universities that will be researched include University of Colorado – Boulder Campus and University of California – Berkeley Campus.

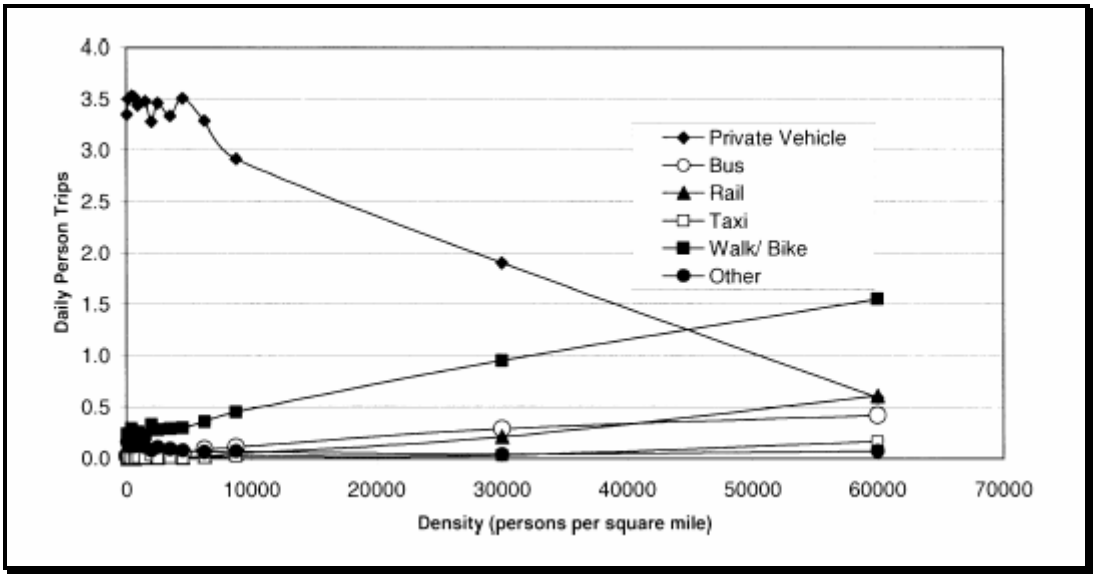
The peer comparison looked at both traditional physical attributes of success, effective land use policies as well as TDM key characteristics. The attributes of success framework outlined the following three primary areas of importance:

1. High-Capacity Transit Service: Essentially, the existence of strong transit service, typically through light rail or heavy rail transit, with connections to a large number of regional activity centers.

2. Physical Attributes of Success: These are the more traditional attributes including Density, Diversity and Design (often called the "Three Ds"), covering the key physical design features of a TOD, including:

   - *Density of Uses*. This attribute refers to location of uses within walking distance of the station (typically within ¼ - ½ mile). "At higher densities, use of alternative modes — particularly transit and pedestrian travel — is higher. Per-capita passenger vehicle trips and VMT are lower" (Kuzmyak, 2003). One point of note from the research is that density is often closely related to other factors, such as diversity of uses (as more people can support more retail at a particular location), pedestrian-friendly design, and lower levels of vehicle ownership per household. Figure 3 below illustrates the relationship between daily person trips and density.

Figure 2: Average daily person trips per person in the United States by mode and density, 1990 NPTS survey



(Dunphy and Fisher, 1996, from Kuzmyak, 2003)

   - *Diversity of Uses / Mix of Uses*. This attribute refers to the inclusion of an integrated mix of land uses, such as residential, retail, and employment uses. Diversity of uses is often connected to the intensity of uses, as

noted above, and the impact of mixed-use developments on trip reduction is also linked to pedestrian-friendly design factors. Providing a mix of uses can impact primary mode choice decisions and can also facilitate bike/walk access to transit (at the origin and/or destination). In one research example, analysis of over 15,000 households in 11 metropolitan areas found that "both land use mix and residential densities are linked with mode choice decisions… The analysis revealed that close proximity of retail uses and residents was associated with non-automotive commuting in two ways — more walking and cycling for short trips and marginally greater transit travel" (Parsons Brinkerhoff, 1996, from Kuzmyak, 2003).

- *Site Design*. This attribute refers to the "pedestrian-friendly" or "transit-supportive" nature of the site design. Design is also linked to both intensity of use and mix of use, as it pertains to how these uses are linked together, and the degree to which design features – such as safe / appealing walking environments (i.e., sidewalks, crosswalks), short block lengths, and direct linkages between walkways and building entrances – support walking and bicycling. Research on the individual impact of these factors, sometimes referred to as pedestrian environmental factors (or PEFs), faces challenges isolating the direct relationship between individual design attributes and travel behavior. A study of two San Francisco East Bay neighborhoods found that transit and pedestrian friendly design features were linked to an increased likelihood of using a non-auto mode for non-work trips of about 10 percentage points (Parsons Brinkerhoff, et al, 1996, as presented in Kuzmyak, 2003). In another effort, the impacts of PEFs on travel behavior were modeled for the Portland, OR, region. "These tests suggested that substituting a very pedestrian-friendly neighborhood for one with an average pedestrian environment should result in 10 percent less VMT per individual in an average household, holding everything else constant" (Kuzmyak, 2003).

3. <u>TDM Key Characteristics</u>: In addition to the physical attributes, additional programmatic and policy-related factors were added to the analysis of TOD success. These TDM characteristics – the "Five Ps"$_{TM}$ – include programs and services that can significantly impact travel behavior and vehicle trip generation:

   - *Promotion and Marketing (including individual travel planning). Refers to p*rograms that market available transportation options, as well as educates users on how different options work.

   - *Pricing / Incentives*. Pricing and incentives refer to the use of financial incentives and disincentives for different travel options, including subsidies for transit and vanpool fares, reward-based incentive programs, and variable pricing (e.g., pricing which varies by time of day, to encourage non-peak utilization). A 2001 survey of employees nationwide found that employees who have commuter assistance programs (such as discounted transit passes) were nearly eight times more likely to use public

transportation than those employees that did not have such assistance (15 percent versus 2 percent), (Zylo, 2001, from ACT, 2004).

- *Parking Management*. Parking management refers to the management of parking through supply, pricing, and/or time-based measures. Parking management can also include provision of parking incentives, such as reserved, preferential parking spaces for vanpools.

- *Policies*. Policies refer to the existence of an overarching policy framework supporting development and implementation of TDM measures. Such policy frameworks can range in scale from an individual employer (where policies such as flexible work hours or parking cash out programs can support the use of non-SOV travel options), or may relate to an entire region or state (such as the commute trip reduction law in the state of Washington). Figure 4, below, illustrates the impact of employer policies on the percentage of California TOD residents using transit.

- *Program Management.* Unlike the physical attributes, TDM programs require continual implementation. As such, "having someone in charge," is an essential attribute of success. This can mean a dedicated program coordinator and/or an area transportation management association

Table 4 below demonstrates the degree to which each of the TOD Peer Review sites examined exhibit the various attributes of success, and the available results from each project.

Table 4: Peer Project Comparison Analysis

Site	Site	Location	Transit Service	Traditional TOD Physical Attributes of Success				TDM Attributes of Success				Results
				High-Capacity Transit Service	Intensity of Uses	Diversity of Uses	Design / Ped-Transit Friendly	Promotion	Pricing / Incentives	Parking Mgmt	Policies	
National Best Practices	**Metropolitan Place**	Seattle, WA	Bus	◉	◉	●	●	○	○	◉	◉	Approximately 33% transit mode share for resident commute trips, about three times higher than surround areas.
	Pleasant Hill	Contra Costa County, CA.	Heavy Rail - BART	●	◉	◉	●	○	○	○	○	49% commute SOV rate for residents. 45% transit use, three times higher than the average rate within the city.
	Lloyd District	Portland, OR	Light Rail	●	●	◉	●	●	●	●	●	41% commute SOV rate for employees. 41% of employee commute trips are on transit.
	Redmond Ridge	Redmond, WA	Minimal Bus Service	○	◉	●	◉	●	◉	○	●	70% commute SOV rate for residents, about 2-3 higher non-SOV rates than surrounding areas.
	Warner Center (17 million SF office, 5,000 residents)	San Fernando Valley, CA	Bus, connections to rail transit	◉	●	●	○	●	●	◉	●	Approximately 33% of commuters to the area arrive my non-SOV modes.
	Roslyn-Ballston Corridor	Arlington County, VA	Heavy Rail - MetroRail / Bus	●	●	●	◉	●	◉	●	◉	41.7% commute SOV rate for employees working in the 5-station corridor.
Regional Peers	**Fairfax County**	Fairfax County, VA	Heavy Rail - MetroRail / Bus	●	◉	○	○	◉	○	○	○	65% commute SOV rate for residents in a 1/2 mile radius of Dunn Loring Station.
	Buckhead Activity Center	Atlanta, GA	Heavy Rail - MARTA / Bus / Shuttle	●	●	●	◉	●	◉	◉	◉	n/s

● = Exhibits high level of success factor
◉ = Exhibits some elements of success factor
○ = Exhibits few or no elements of success factor

Table 4: Peer Project Comparison Analysis

Site	Site	Location	Transit Service	Traditional TOD Physical Attributes of Success				TDM Attributes of Success				Results
				High-Capacity Transit Service	Intensity of Uses	Diversity of Uses	Design / Ped-Transit Friendly	Promotion	Pricing / Incentives	Parking Mgmt	Policies	
Local Examples	**Town of Cary**	Wake County, NC	Bus	○	◉	◉	◉	◉	○	○	○	n/a
	Downtown Raleigh	Raleigh, NC	Bus	◉	●	◉	●	◉	◉	○	○	19.8 non-SOV mode usage
	Town of Chapel Hill	Orange County, NC	Bus	◉	◉	●	●	◉	●	●	●	38.3% non-SOV mode usage
	Downtown Durham	Durham County, NC	Bus	◉	●	◉	◉	◉	○	◉	●	22.4% non-SOV mode usage
	Research Triangle Park	Wake / Durham Counties, NC	Bus	◉	○	○	○	◉	◉	○	◉	12.7% non-SOV mode usage
University Peers	**University of Colorado - Boulder**	Boulder, CO	Bus	●	◉	◉	●	◉	●	●	●	31% non-SOV mode usage
Local Universities	**North Carolina State University**	Wake County, NC	Bus	◉	◉	◉	◉	◉	◉	◉	◉	29.2% non-SOV mode usage
	University of North Carolina - Chapel Hill	Orange County, NC	Bus	◉	◉	◉	◉	●	●	●	◉	38.3% non-SOV mode usage
	Duke University	Durham County, NC	Bus	◉	◉	◉	◉	◉	◉	◉	○	22.4% non-SOV mode usage

● = Exhibits high level of success factor
◉ = Exhibits some elements of success factor
○ = Exhibits few or no elements of success factor

Findings

While the table outlines the degree to which the case examples exhibit each of the key characteristics of successful TOD developments, it also, by implication, highlights the degree to which a majority of TOD examples nationwide fail to integrate both the physical attributes and the TDM attributes. This is a clear shortcoming of many TOD projects, highlighting that good design alone is not enough to achieve the highest possible levels of trip reduction. "If You Build It They Will Come" is not the formula for TOD projects delivering on their full potential for reducing vehicle trips.

Conversely, TDM programs nationally have experienced a wide range of implementation success and failure. More often than not, where TDM programs can fall short of expectations, one or more of the following types of elements are missing: (a) available alternatives to the automobile, (b) sustainable program funding, (c) a dedicated program manager or organization, or (d) programmatic support by key implementing institutions (i.e., employers).

Based on comparisons with national peers, Table 4 helps identify where greatest success in use of TDM strategies and corresponding trip reduction is likely to occur in the Triangle Region. More specifically, those areas that exhibit the greatest number of TOD and TDM attributes of success will provide the greatest return on investment of resources expended.

These findings will be used in the Market Analysis to be conducted as part of Task D and the TDM Investment Scenario Development and Analysis in Task E.

Task C: Web-based VMT Growth Reduction Toolkit

There are a significant number of proven TDM strategies available to governments, property owners, employers, and others to reduce vehicle trips and corresponding vehicle miles traveled. The effectiveness of the various strategies will vary depending on the types of land use and travelers they are directed toward. This document provides a summary of typical TDM strategies and their likely effectiveness when applied to various land uses that are found within the Triangle region.

The analysis is presented as a matrix and contains six TDM categories covering 17 total strategies and six land use types. The land use types were selected in an attempt to represent the major land use categories found within the Triangle region. Each TDM strategy and land use category is assigned a score ranging between one and four stars, the higher the number of stars, the greater the potential of the TDM strategy to reduce single-occupancy-vehicle (SOV) travel.

The effectiveness of TDM programs and strategies can vary significantly based on the level of employer support, target group demographics, funding, messaging, level of transit service, and other factors (Hendricks 2005). The scores assigned within the matrix represent potential reductions based on typical programs or infrastructure. The scores are meant to be used as a reference to guide decision making and to help in the selection of potential TDM programs at various employment sites.

Following are brief descriptions of the TDM strategies contained within the matrix:

High Capacity Transit within ¼ mile:

While not generally considered TDM, having rail within close proximity to a work site can significantly increase transit use. The closer a site is to a rail station, the more likely workers are to use the service.

High Capacity Transit within ½ mile:

Similar to "rail within ¼ mile" but located farther from the employment site, making use less likely.

Bus within ¼ mile:

Indicates bus is available within ¼ mile of the work site. For individuals traveling to work, bus headways are not as important as on-time performance, as commuters tend to arrive at stops according to a running schedule (Peng, Dueker and Stratham 1996).

Enhanced Bus Stop Amenities:

Items that improve the experience of waiting at a bus stop and simplify the use of transit, such as route maps and schedules, covered seating areas, bike racks, trash cans, and landscaping

Bike station:

Generally these are store front facilities that have changing rooms, showers, bicycle storage, commute information, and bicycle equipment.

Bike facilities:

Bicycle paths, lanes, racks, and lockers.

Pedestrian facilities:

Sidewalks that connect buildings, transit stops, off-site uses, and provide a safe environment in which pedestrians can travel.

Paid parking:

Programs that require workers to pay for parking. Charges should be equal to or greater than the cost of a transit fare to achieve the reductions shown. Higher rates will achieve larger reductions.

Preferential parking:

Close-in parking and desirable spaces for individuals who choose to carpool or vanpool to work or school.

Free transit passes:

No cost transit passes for employees and students.

Generalized marketing:

Programs that promote all alternative modes of transportation through the use of transportation fairs, bulletin boards, mailings, access guides, and other similar techniques.

Cash incentive programs:

Campaigns that offer individuals cash or cash-equivalent incentives to leave their cars at home and use alternative modes for getting to work or school.

Individualized marketing:

Workers and students are presented with information regarding specific travel alternatives based on their individual commutes and needs.

Carpool/Vanpool program:

Help commuters locate other individuals with whom to carpool or vanpool. Vanpools are generally operated by third parties and riders pay a fare to ride in the van. Subsidies and generally provided and fares typically do not cover the full cost of van operation.

Car sharing:

Allows individuals to rent cars for short periods of time at prices significantly lower than those that would be charged at a typical rental car agency. Worksite based car sharing programs may allow employees to use cars for free.

Bike sharing:

Allows individuals to use bicycles for short periods of time for free. In some cases the bicycles must be returned to the same location from which they were

checked out, while in other instances the bicycles may be picked up at one location and left at another.

Telework programs:
Allow individuals to work from home or sites located very near their homes.

Compressed work weeks:
Allow individuals to work four ten-hour days or eighty hours in nine days, thus reducing their commutes by one trip per one or two weeks.

Not all strategies are applicable to all land use types. In some cases the strategy may be a normal accompaniment to the land use type, such as pedestrian facilities in central business districts (CBDs) or paid parking at airports. In other situations the strategy may have little potential to reduce travel, such as telework programs at shopping centers. In these situations an "n/a" is placed in the matrix.

Table 5.

	Land Use Category						
	Airport[1]	Suburban Office Park	Medical Campus[2]	University	Shopping Center[2]	CBD	TOD
Transit Service							
High Capacity Service within 1/4 mile	☆☆☆	☆☆☆	☆☆☆	☆☆☆☆	☆☆☆	☆☆☆	n/a
High Capacity Service within 1/2 mile	n/a	☆☆	☆☆	☆☆☆	☆☆	☆☆	n/a
Bus within 1/4 mile	☆☆	☆☆	☆☆	☆☆☆	☆☆	n/a	n/a
Enhanced bus stop amenities	☆	☆	☆☆	☆☆☆	☆	☆	☆☆☆
Bike and Pedestrian Infrastructure[3]							
Bike Station	☆	☆	☆	☆☆	☆	☆	☆☆
Bike Facilities	☆	☆	☆	☆☆☆☆	☆	☆	☆☆
Pedestrian Facilities	n/a	☆	☆	☆☆☆☆	☆	n/a[4]	☆☆☆
Parking Management							
Paid Parking (Price ≥ Cost of Transit)	n/a	☆☆☆☆	☆☆☆☆	☆☆☆☆	n/a	☆☆☆☆	☆☆☆☆
Preferential Parking	☆☆	☆☆	☆☆	☆	☆	☆	☆
Outreach/Incentives							
Free Transit Passes	☆☆	☆☆	☆☆	☆☆☆	☆☆	☆☆	☆☆☆☆
Generalized Marketing	☆	☆	☆	☆	☆	☆	☆
Cash Incentive Program	☆☆	☆☆	☆☆	☆☆☆	☆☆	☆☆	☆☆☆
Rideshare/Vehicle Share							
Carpool/Vanpool Program	☆☆☆	☆☆☆	☆☆	☆☆	☆☆☆	☆☆	☆☆
Car Sharing	☆	☆	☆	☆	n/a	☆	☆☆
Bike Sharing	n/a	☆	☆	☆	n/a	☆	☆
Alternative Work Schedules							
Telework Programs	n/a	☆☆	☆	☆	n/a	☆☆	☆☆
Compressed Work Weeks	n/a	☆	☆☆	☆	n/a	☆	☆

Potential Trip Reduction	
1 to 4 percent	☆
5 to 9 percent	☆☆
10 to 14 percent	☆☆☆
15 percent or more	☆☆☆☆

(1) All reductions, other than transit service, represent potential reductions for employee trips only rather than total site trips.
(2) All reductions represent potential reductions for employee trips only rather than total site trips.
(3) Adequate bike and pedestrian facilities are integral to the success of TDM. While such facilities do not result in significant trip reductions in all areas, they drive the success of other TDM strategies.
(4) Bike and pedestrian facilities must be present in CBDs for the other TDM strategies to achieve the trip reductions noted in the CBD portion of this table.

Data contained within the matrix are based on information from authors listed in Appendix C, UrbanTrans surveys of medical facilities, and professional judgment.

Next steps in the development of this Growth Management TDM Toolkit involved providing sample ordinance language that encourages the provision of TDM Strategies in corresponding Land Use Categories. In order to make the Toolkit more user-friendly an on-line application was developed and posted on www.triangletdmplan.com/LandUseTable.html. Users of the on-line Toolkit can select those strategies that will best apply to the land uses they represent and are directed to a description of types of TDM ordinance that they can use to encourage their implementation. Where available, ordinance descriptions include links to an example of a location that has implemented that tool and the language they used for it.

Task D: Market Analysis

Introduction

The Market Analysis utilized existing data from a variety of sources to identify a range of market segments as potential targets for TDM programs. The process of identifying and detailing market opportunities within the region begins with the assumption that unlimited funding for TDM initiatives is not available. Given this assumption, achieving the goals of the regional TDM program requires understanding which markets represent the best opportunities for "selling" the TDM "product" – that is, achieving shifts away from single-occupant vehicle trips. The identification and analysis of the best market opportunities is essentially a process of outlining the markets with the best potential for travel behavior change ("who are our most likely customers?"), and detailing the most appropriate trip types (e.g., work trips) within these markets.

The market analysis explored the following areas:

- Travel Pattern Analysis – Geographic mapping and assessment of the location of trip origins and destinations. This included analysis by travel modes, trip durations, and work clusters.
- Trip Type Analysis – Analysis of travel mode and trip distance by different trip types, including work trips, shopping trips, primary school and university trips (including analysis of home locations for primary school and university trips).

Please see **Appendix D – Market Analysis** for all details and maps from this task.

Market Factors

The factors included in the market analysis included a range of characteristics which describe both the potential for travel behavior change as well as the magnitude of the impact a change within the market segment could have. The factors included:

- Geography (travel patterns) – Where are the geographic opportunities for TDM programs? Which areas within the region represent potential targets, based on existing data sets regarding travel patterns (trip origin and destination points)?
- Competitiveness of travel options – Which areas within the region offer the best opportunities for non-SOV travel, factoring in elements such as transit service, pedestrian/bicycle facilities, etc.?
- Market size – How large are each of the market opportunities, in terms of number of people, number of trip origin/destinations, etc.?
- Trip purposes, length, and frequency – What are trip types (e.g., work trips) included within the market opportunity? Are these trip types more or less suitable for non-SOV travel modes?
- External support factors – What other TDM-supportive factors are in place within a market, such as free/discounted transit passes, parking management or pricing, supportive institutions (such a strong TMA or BID), or other key factors?

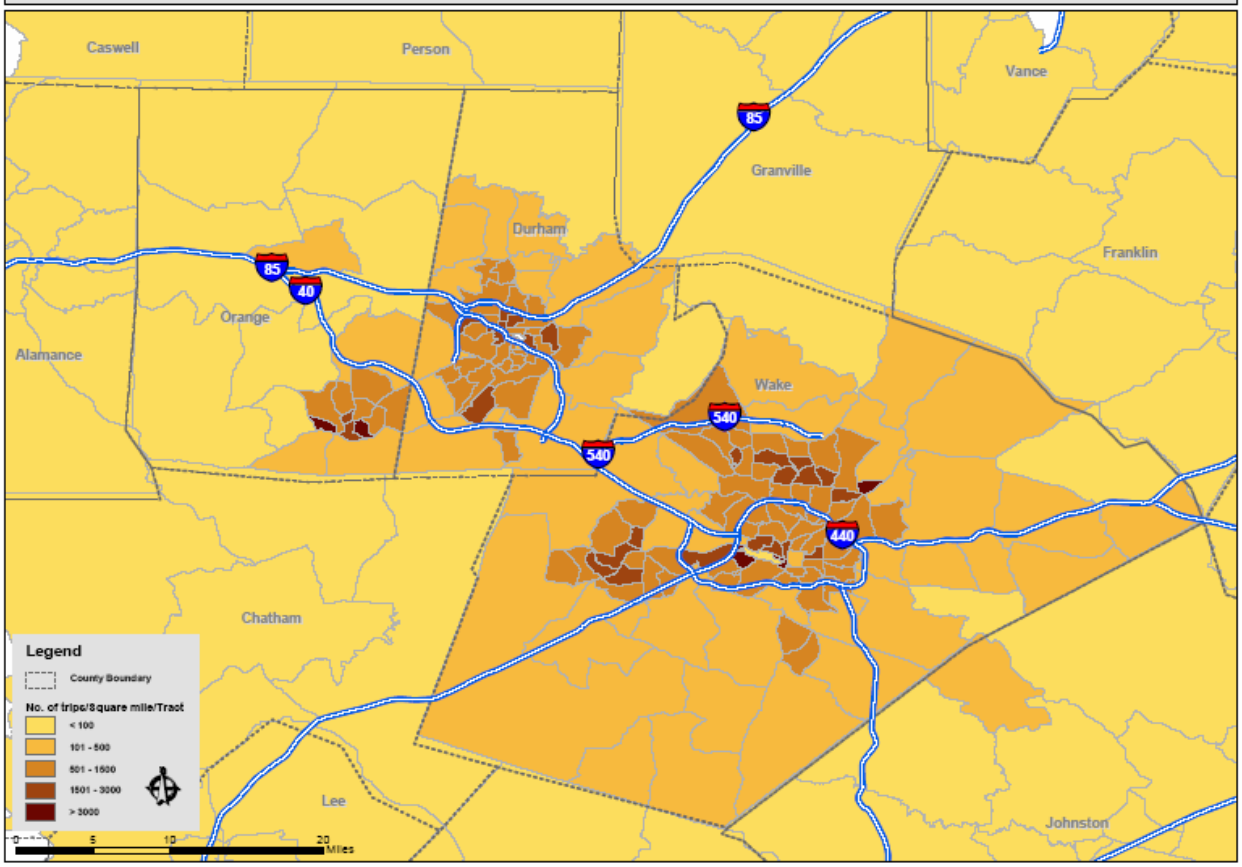
Travel Pattern Analysis

The Travel Pattern Analysis utilized the full Part I and Part II data sets for the region from the 2000 U.S. Census Transportation Planning Package. The data sets used represent only commute trips, and all trip patterns shown are detailed down to the census tract level. The maps below (as well as those shown in Appendix D) use a "trip density" color scheme, whereby darker colors represent a higher density of trips origins or destinations (all densities are normalized to account for the geographic size of the census tracts, so all densities are "trips per square mile").

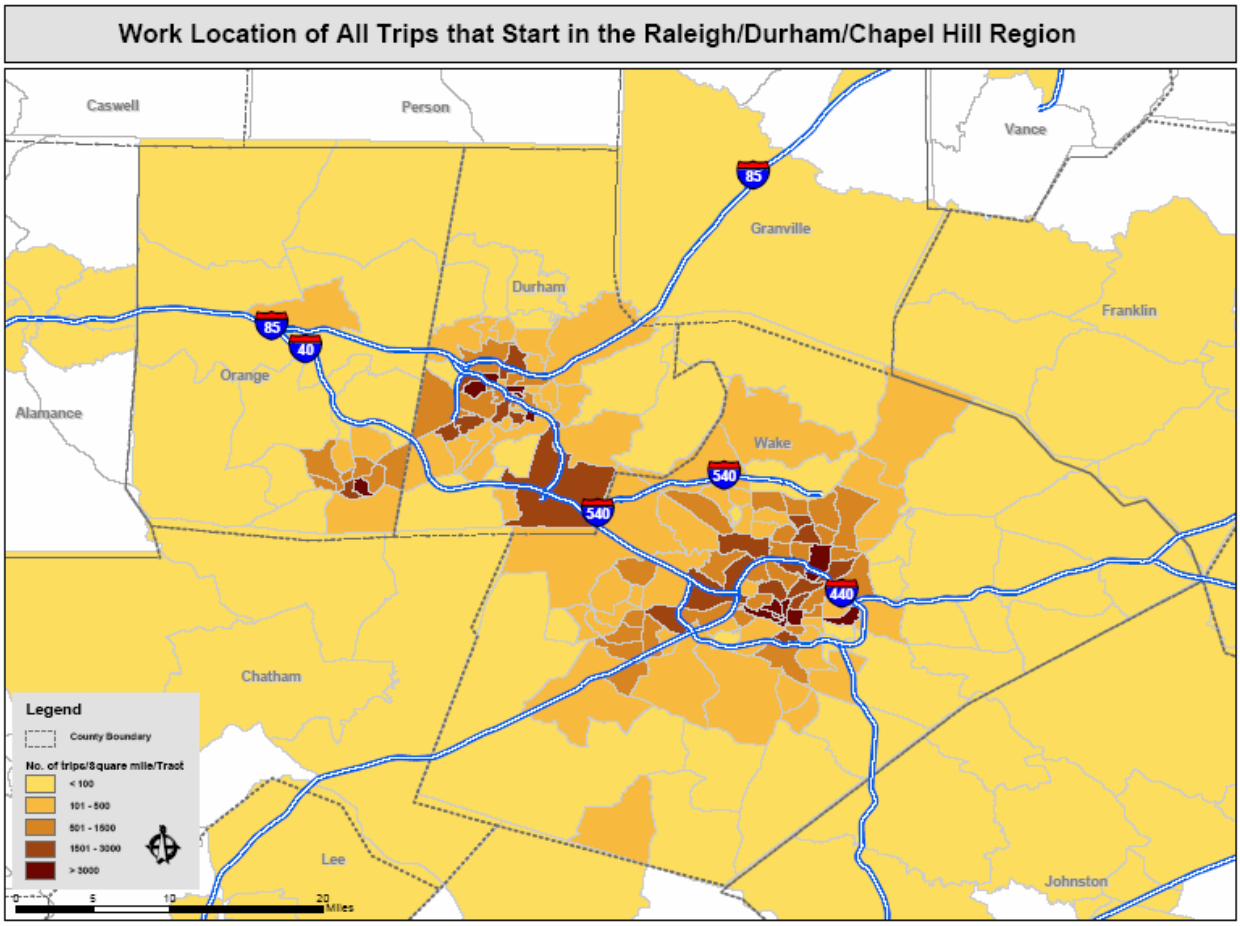
The first two maps developed simply show the home location and the work locations (respectively) for all trips that start and end in the three-county region.

MAP 1:

Home Location of All Trips that End in the Raleigh/Durham/Chapel Hill Region



MAP 2:



The following maps illustrate the **HOME LOCATION** of trips ending within the three-county region, for three travel modes groupings:

1. All Trips (shown above as Map One)
2. Carpool Trips (2-3 person carpools)
3. Transit Trips

These maps also display (as grey lines) the transit routes serving the region, including all routes for the TTA, CAT, DATA, and Chapel Hill systems.

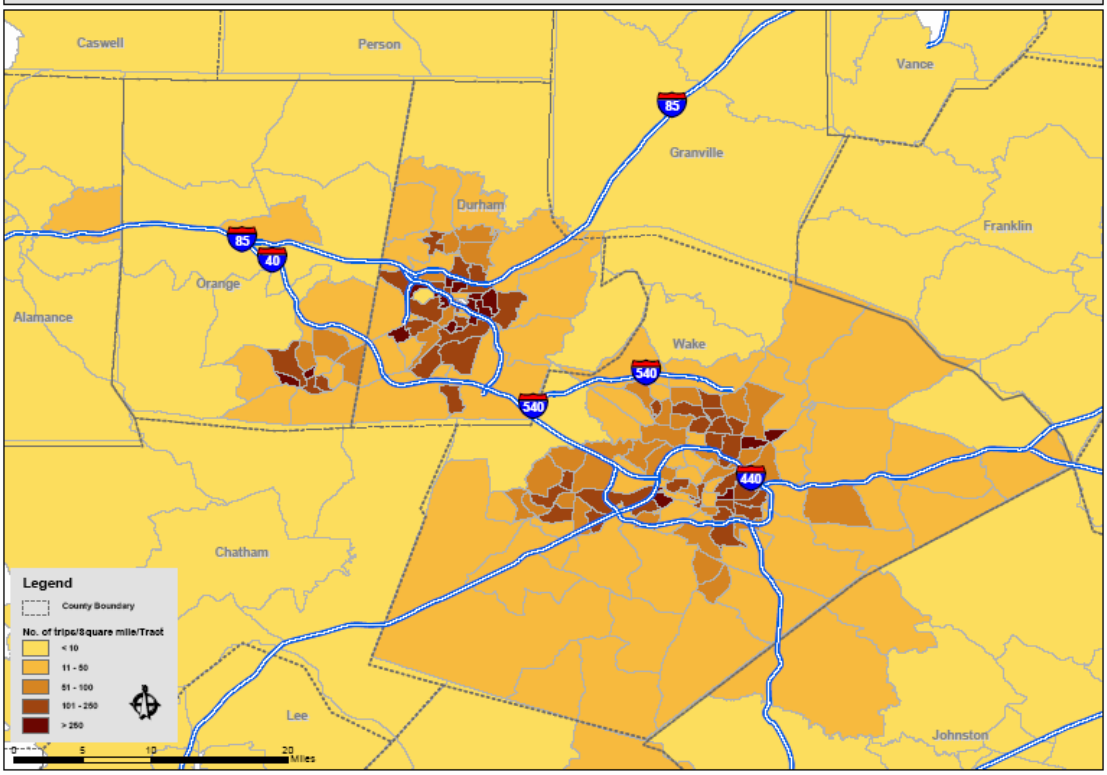
For reference, the following table shows the mode share for commute trips ending within the three-county area (per CTPP data, 2000):

Table 6.

MODE SHARE	Region
SOV	78.7%
Carpool	13.2%
Transit	1.6%
Bicycle	0.4%
Walk	2.2%
Other	3.9%

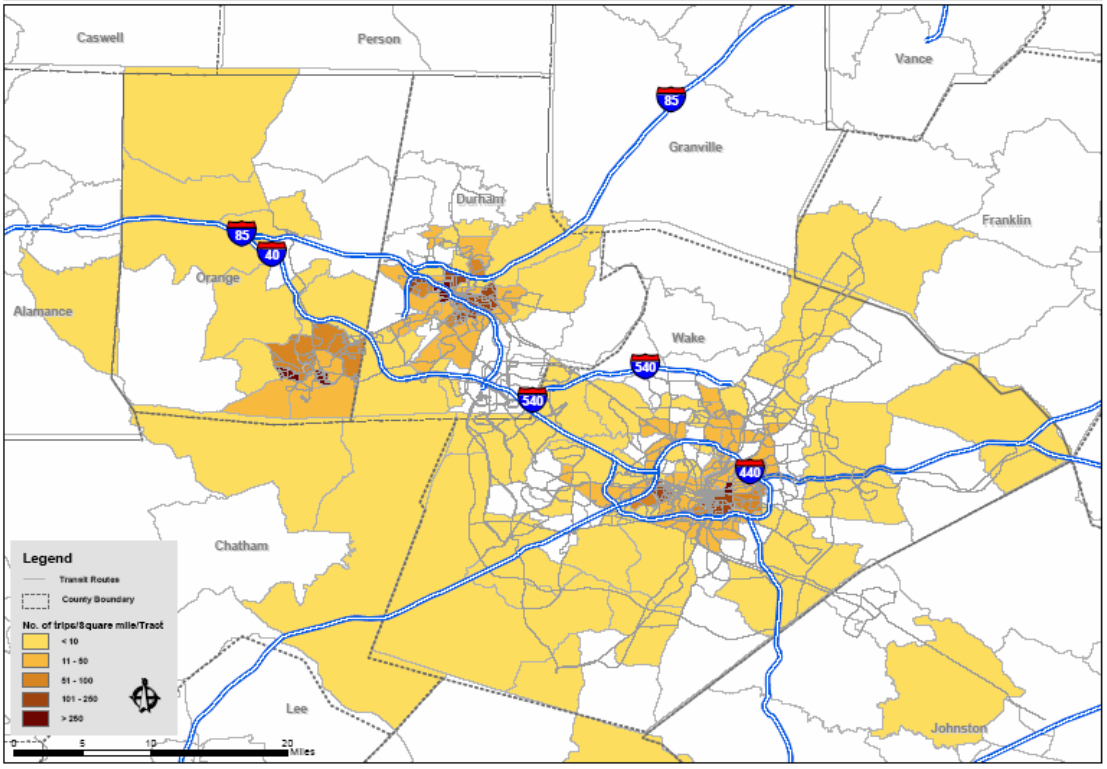
MAP 3:

Home Location of All Carpool Trips that End in the Raleigh/Durham/Chapel Hill Region



MAP 4:

Home Location of All Transit Trips that End in the Raleigh/Durham/Chapel Hill Region

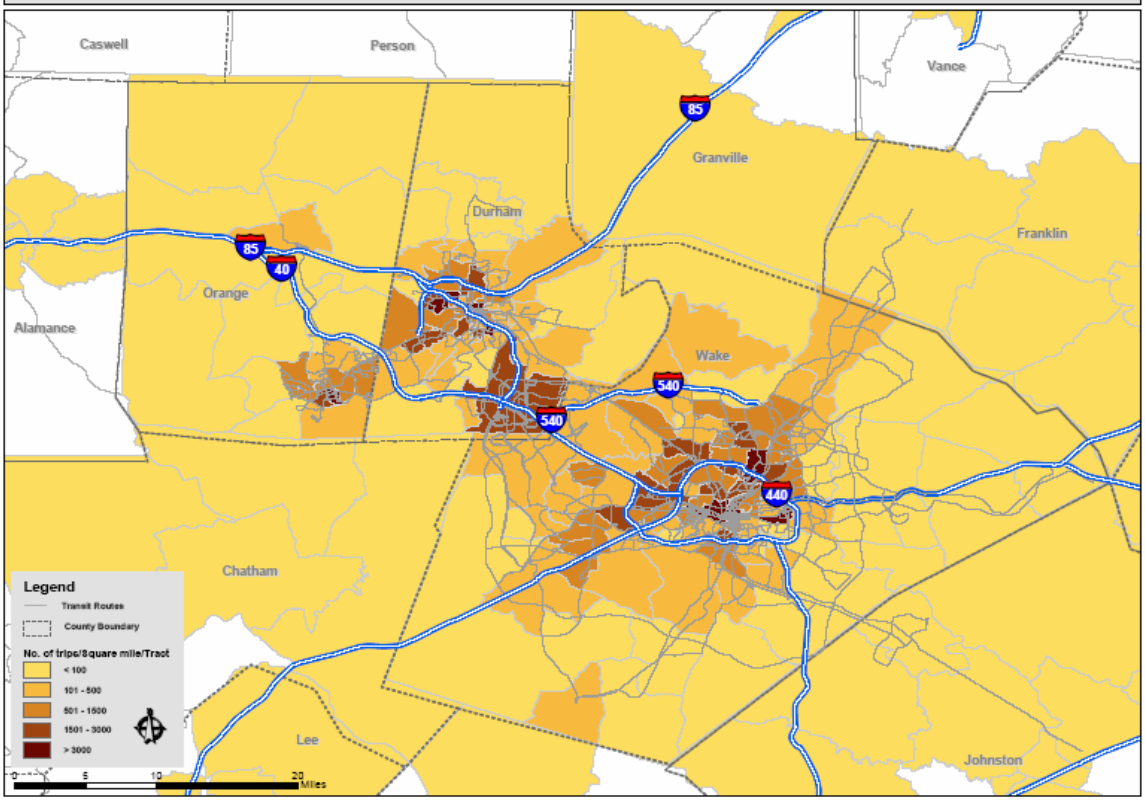


The following maps illustrate the **WORK LOCATION** of trips starting within the three-county region, for three travel modes groupings:

1. All Trips (shown above as Map One)
2. Carpool Trips (2-3 person carpools)
3. Transit Trips
4. Bike Trips
5. Walk Trips

MAP 5:

Work Location of All Trips that Start in the Raleigh/Durham/Chapel Hill Region



The following chart, providing further analysis of the data, displays **SOV MODE SHARE** by five different commute travel time durations (as reported by census respondents). For example, for all commutes under five minutes in duration, ~65% travel by SOV.

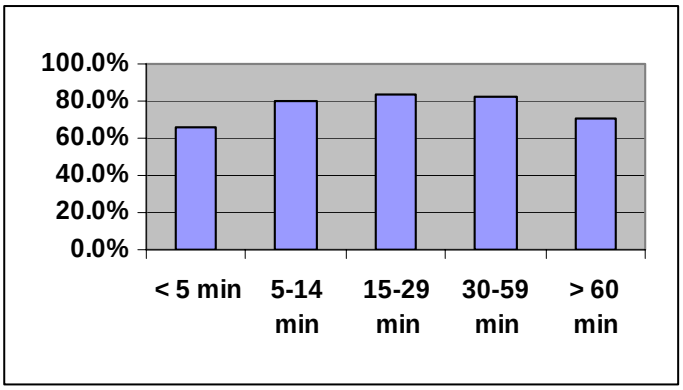
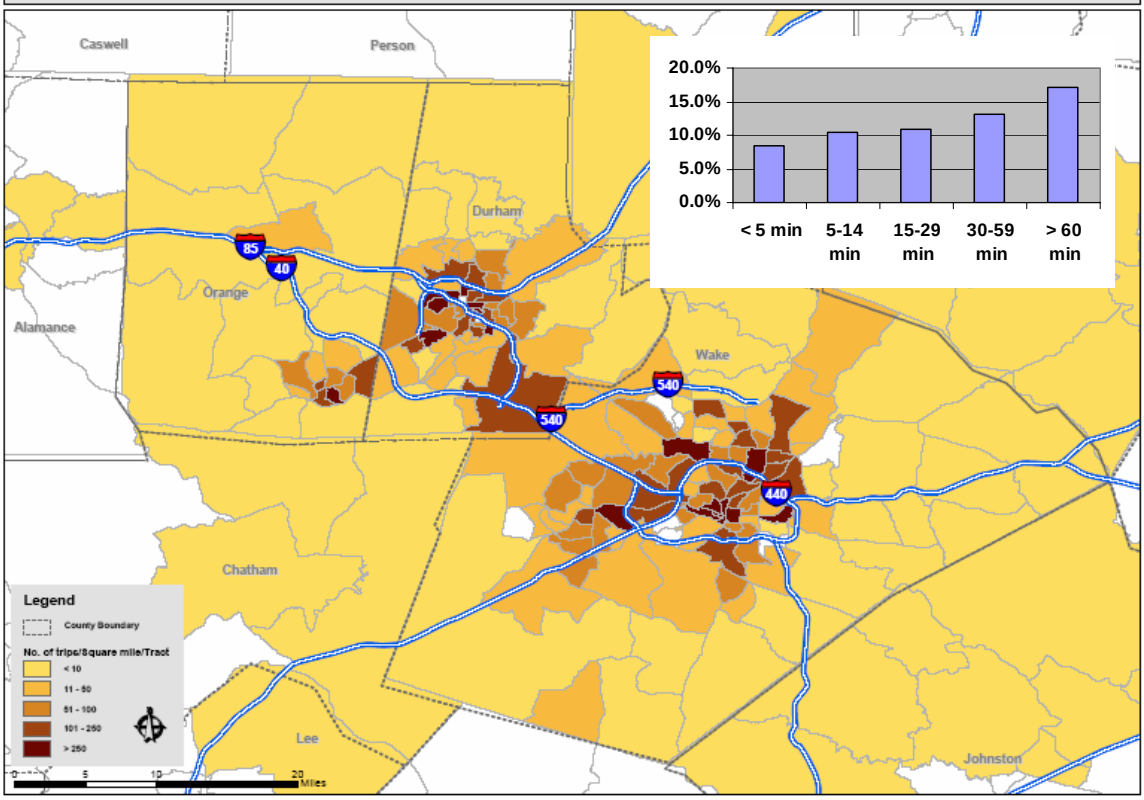


Figure 3. SOV Mode Share, by Travel Time

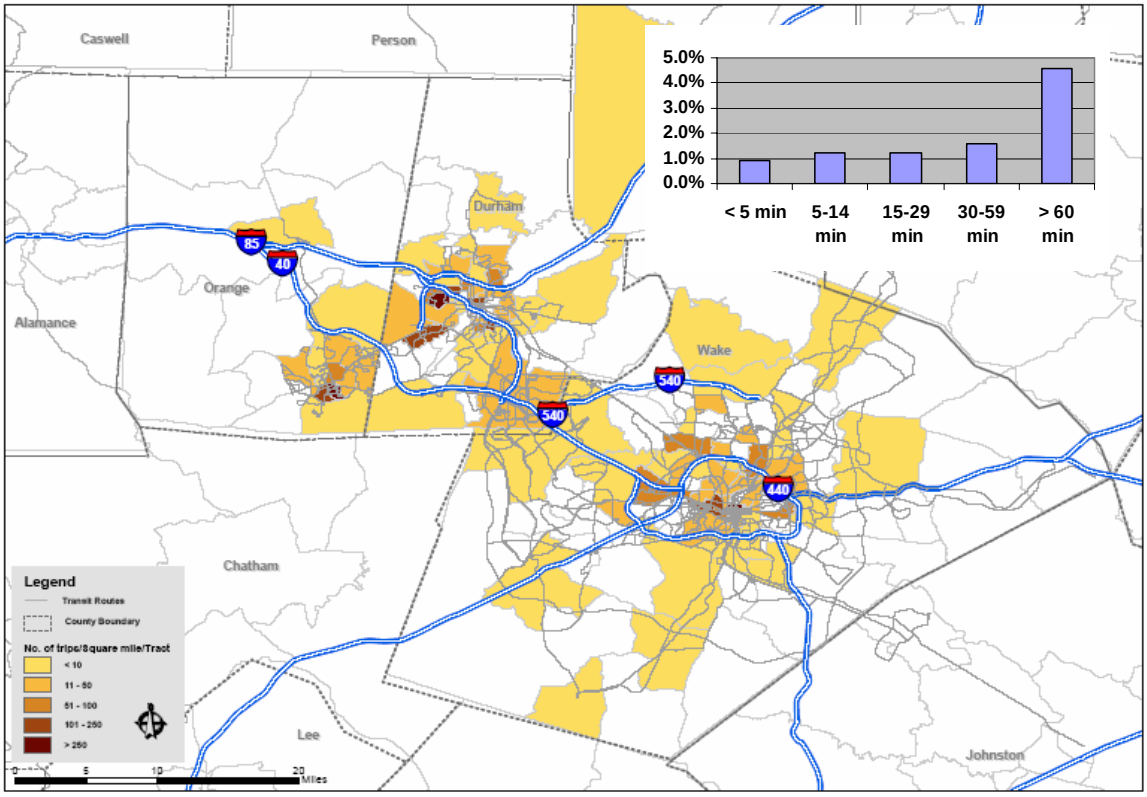
MAP 6:

Work Location of All Carpool Trips that Start in the Raleigh/Durham/Chapel Hill Region



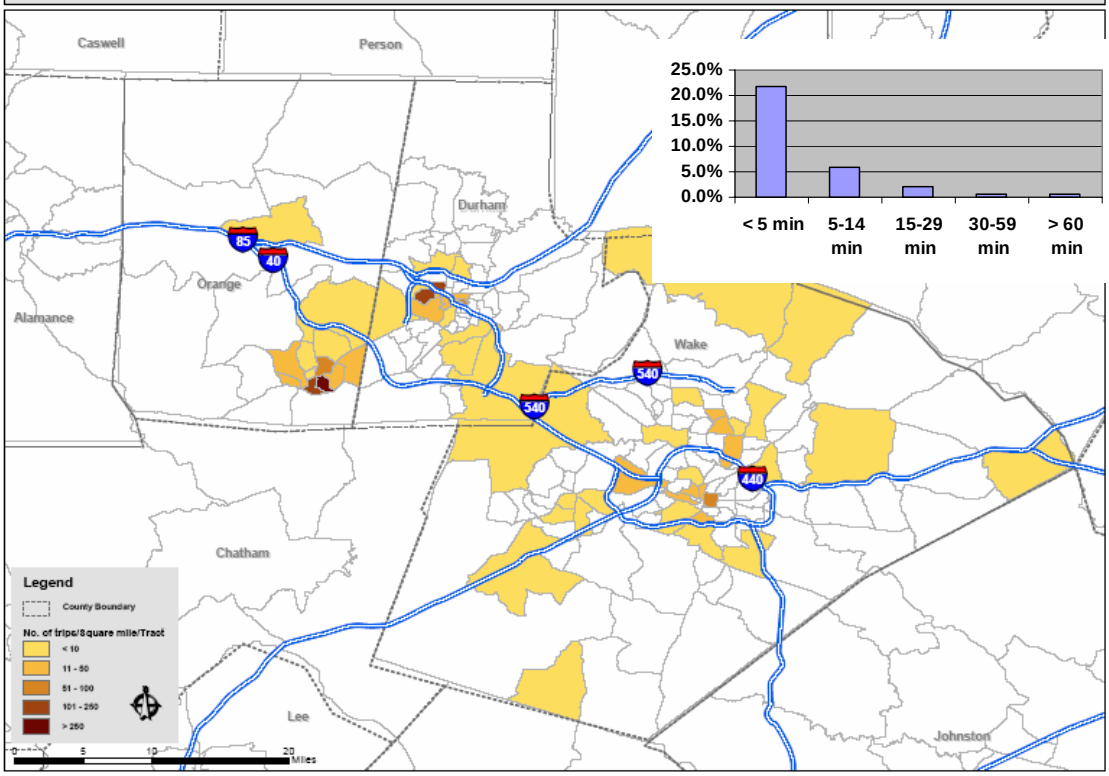
MAP 7:

Work Location of All Transit Trips that Start in the Raleigh/Durham/Chapel Hill Region



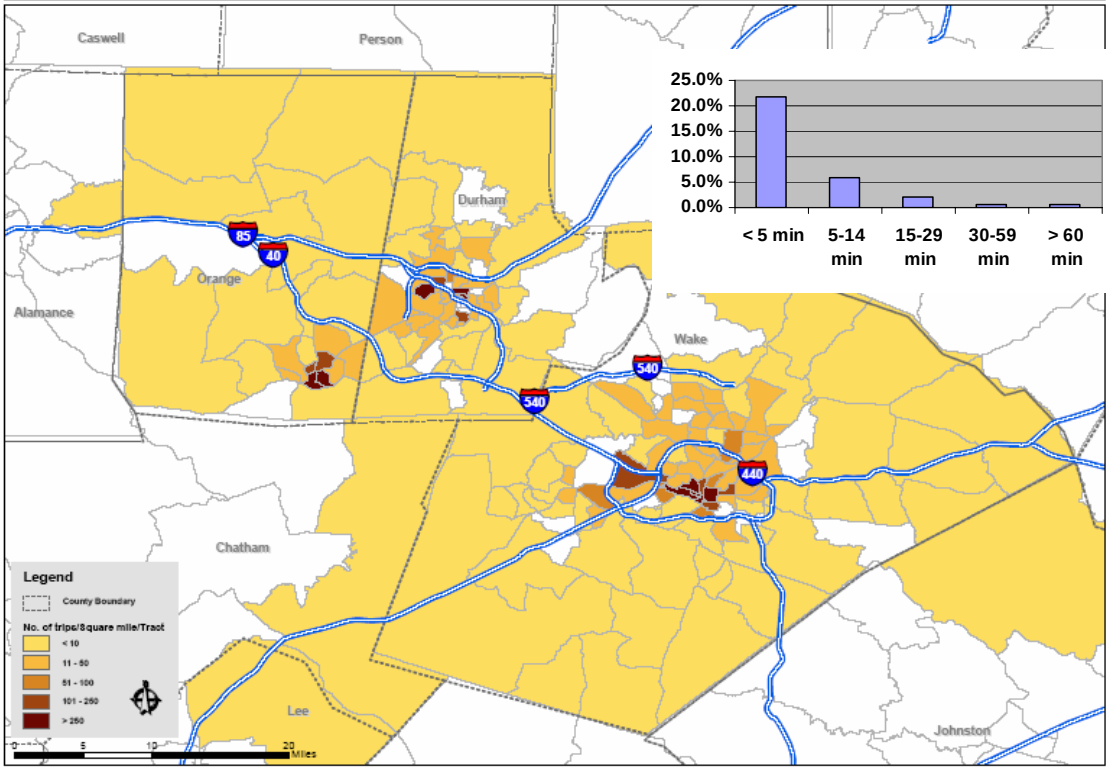
MAP 8:

Work Location of All Bike Trips that Start in the Raleigh/Durham/Chapel Hill Region



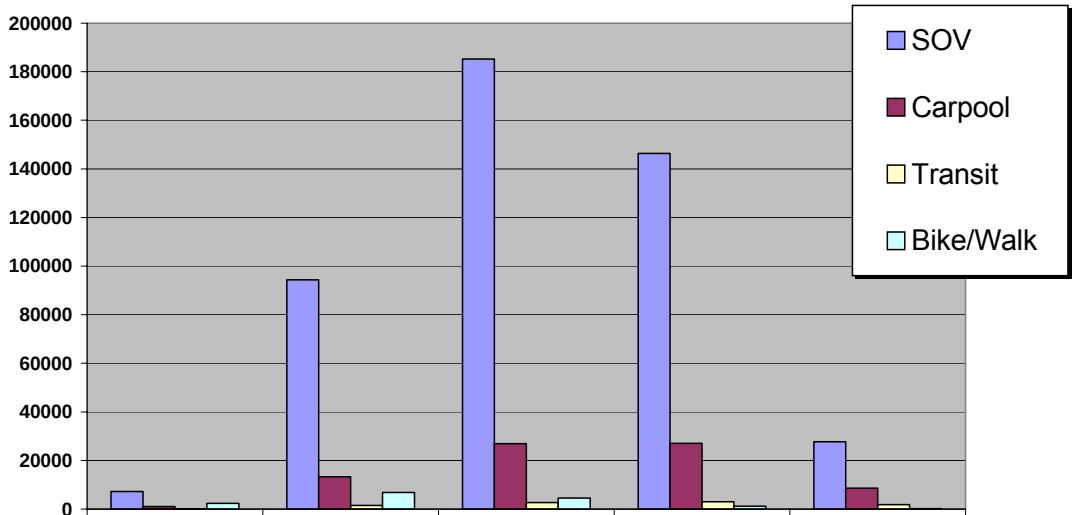
MAP 9:

Work Location of All Walk Trips that Start in the Raleigh/Durham/Chapel Hill Region



The following chart summarizes mode split information for each of five travel time duration categories. The data within the table, below the chart, shows the actual number of trips represented. All data is from the CTPP, 2000.

Figure 4.



	< 5 min	5-14 min	15-29 min	30-59 min	> 60 min
SOV	7200	94300	185200	146400	27700
Carpool	1000	13300	26900	27000	8600
Transit	100	1500	2700	3000	1800
Bike/Walk	2400	6800	4500	1200	180

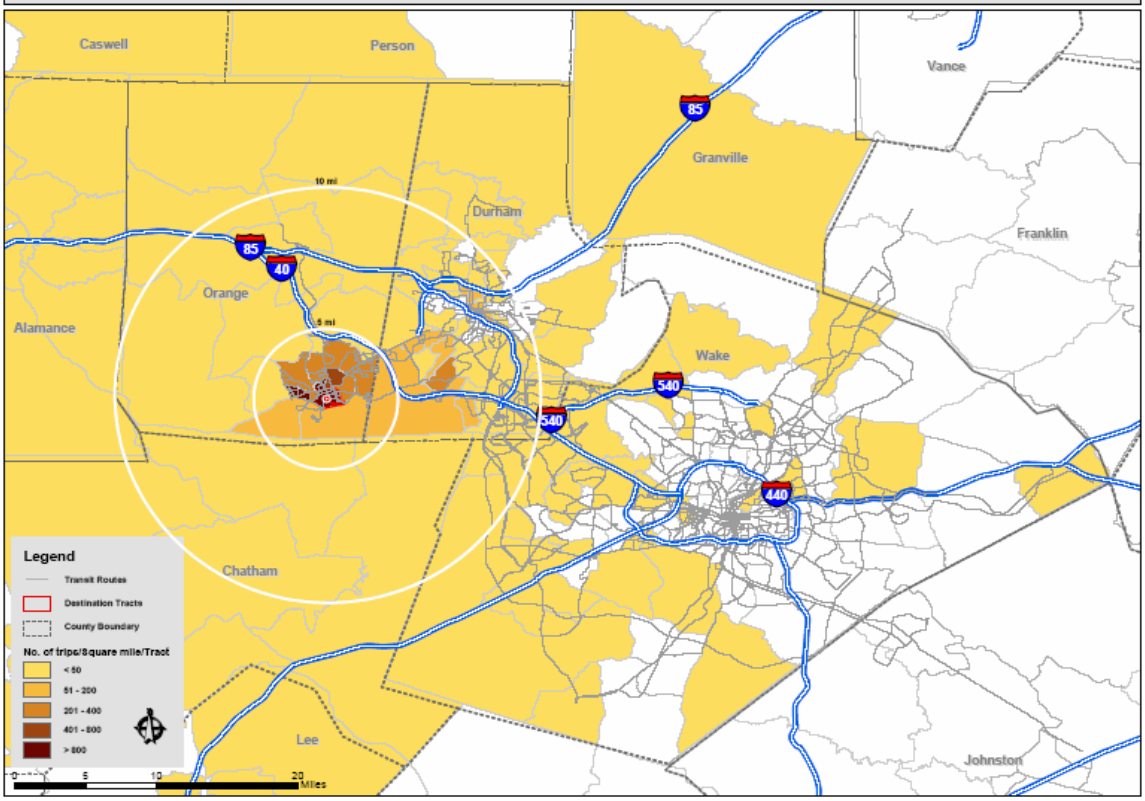
The maps on the following pages show the home location of employees working in six different working clusters within the three-county region:

- Central Chapel Hill
- Central Durham
- Research Triangle Park
- I-440 North Corridor (Raleigh)
- Raleigh, CBD
- Raleigh, NCSU

For each map, concentric circles showing five mile and ten mile radii out from the center of the work cluster shown. Mode splits for each of the work clusters is shown in the table at the end of this section.

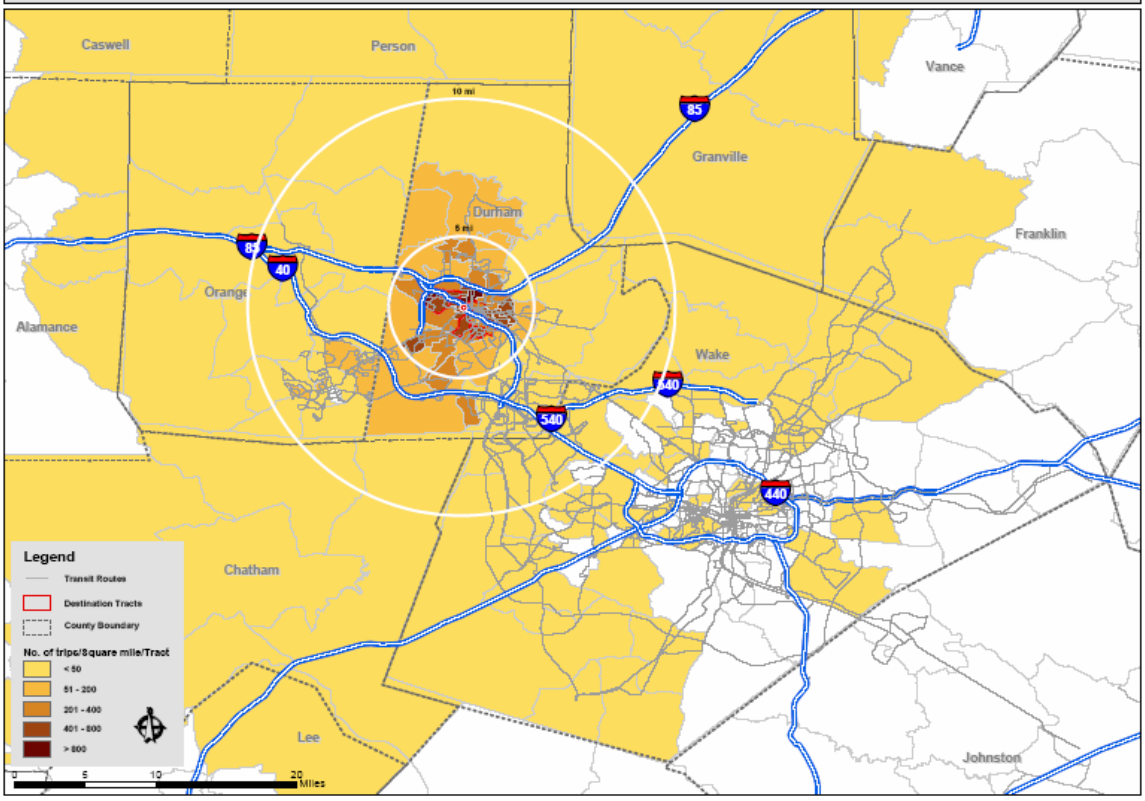
MAP 10:

Home Location of Employees from Work Cluster 1



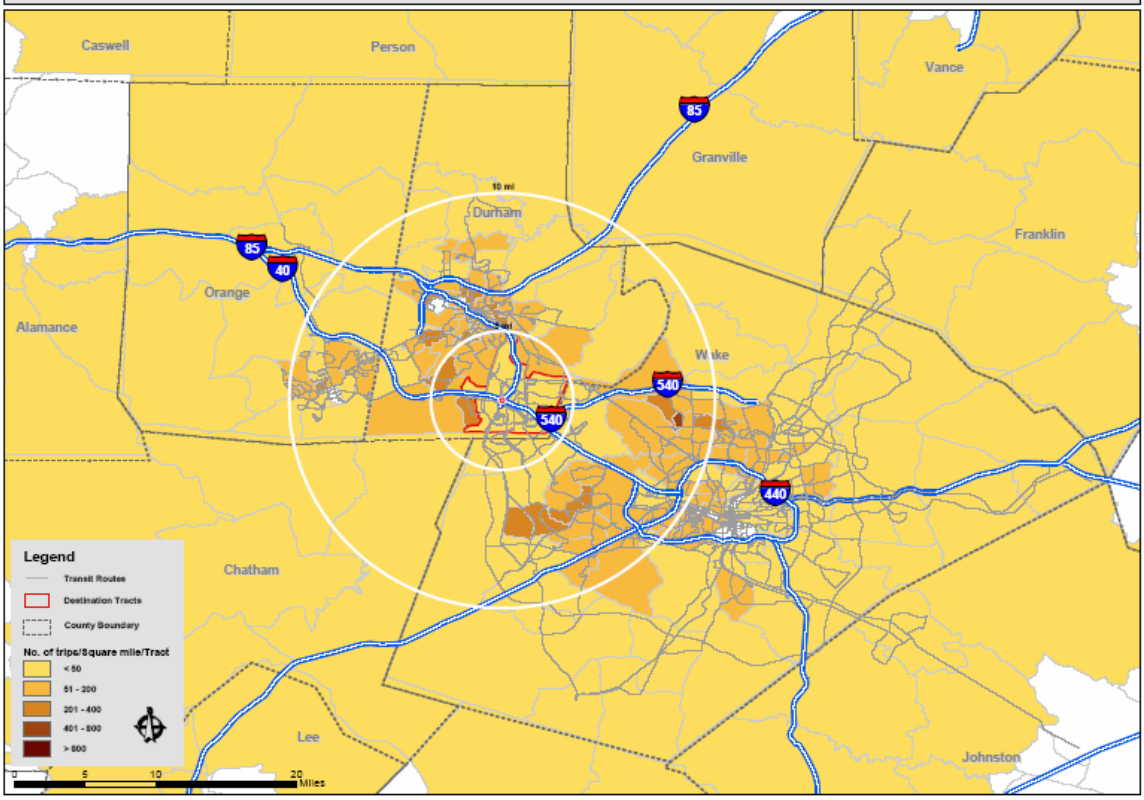
MAP 11:

Home Location of Employees from Work Cluster 2



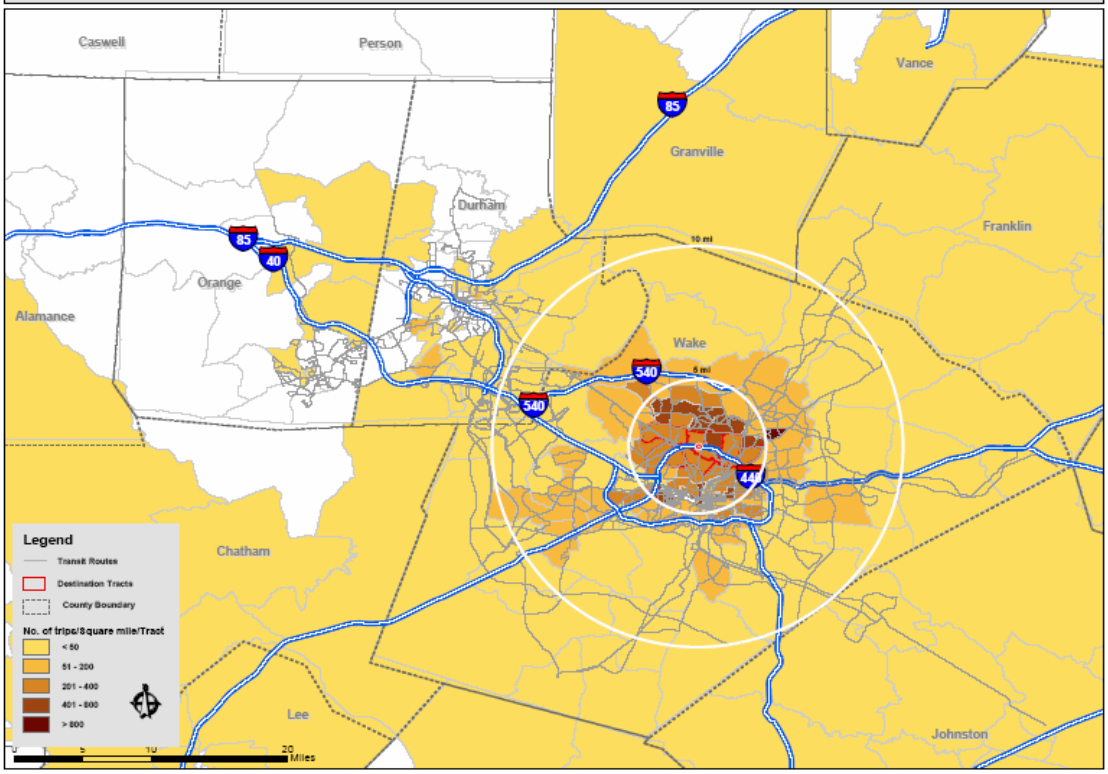
MAP 12:

Home Location of Employees from Work Cluster 3



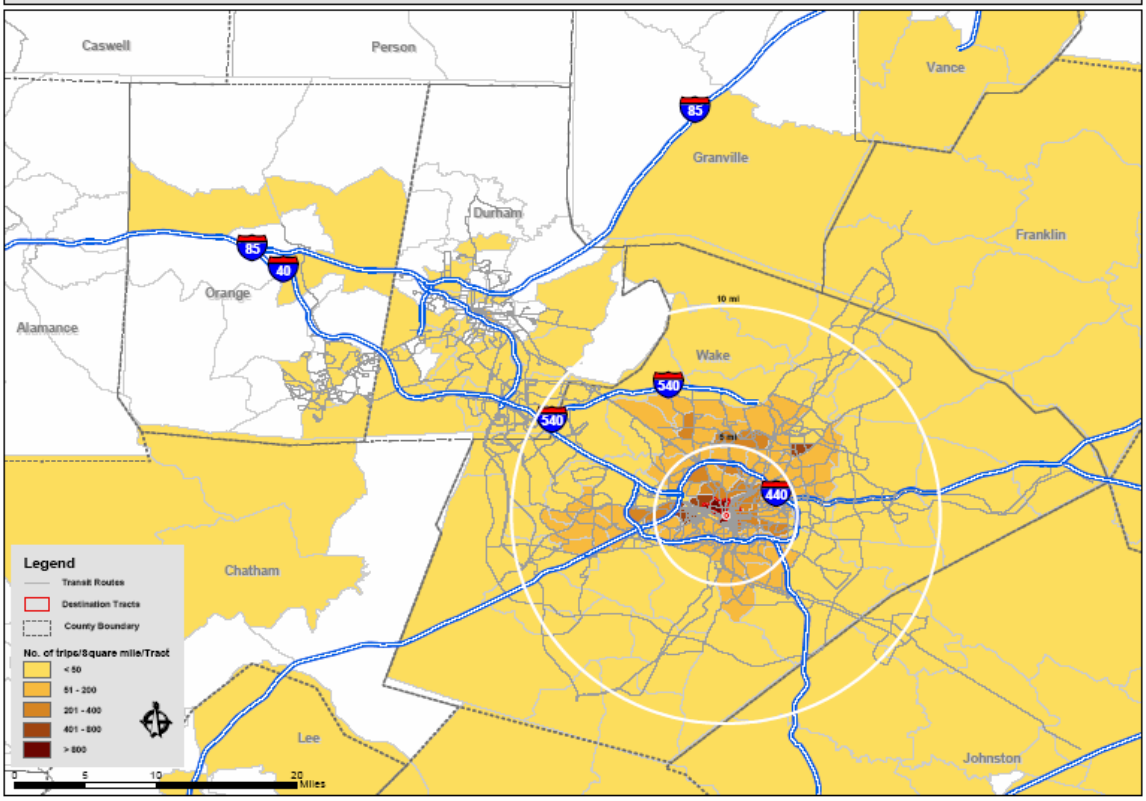
MAP 13:

Home Location of Employees from Work Cluster 4



MAP 14:

Home Location of Employees from Work Cluster 5



MAP 15:

Home Location of Employees from Work Cluster 6

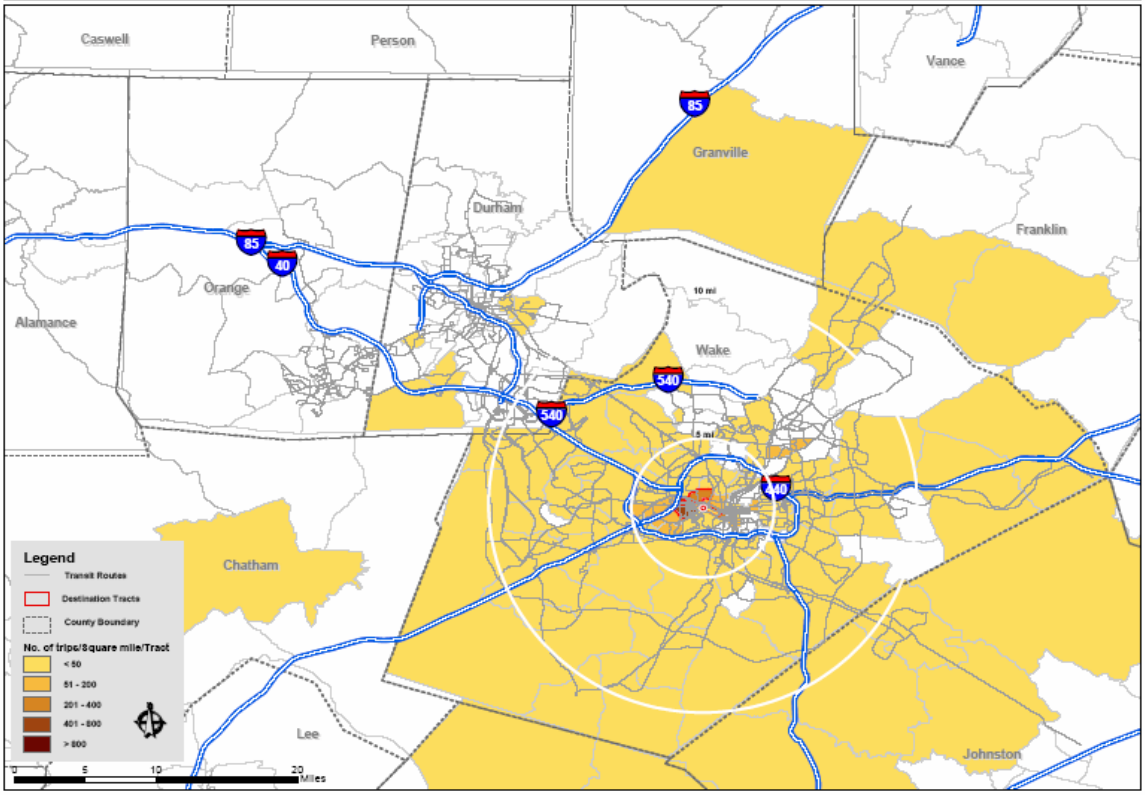


TABLE 7: MODE SPLIT FOR REGION, AND WORK CLUSTERS

	Region	Chapel Hill	Durham	RTP	I-440 North	Raleigh CBD	NCSU
SOV	78.7%	61.7%	77.6%	87.3%	84.0%	81.2%	70.8%
Carpool	13.2%	11.5%	14.0%	10.9%	11.8%	13.4%	11.3%
Transit	1.6%	8.7%	2.6%	0.9%	1.1%	1.6%	2.5%
Bicycle	0.4%	3.3%	0.6%	0.1%	0.2%	0.2%	0.3%
Walk	2.2%	12.9%	4.0%	0.2%	0.8%	2.0%	6.1%
Other	3.9%	1.9%	1.2%	0.5%	2.1%	1.5%	8.9%

Trip Type Analysis

In addition to the analysis of trip patterns, by geography, travel mode, trip duration, and market size, the market analysis also looked at trip types, using two data sets:

1. Greater Triangle Travel Study. This survey of households, conducted in 2006, involved the following:
   - 5,107 households completed 24-hour travel surveys
   - 51,007 trips recorded
   - Results weighted and corrected via Census data
   - Data expanded to 548,500 households; 5.48 million trips
   - All trips unlinked

   The data presented from this data set looks at inter-county travel patterns by trip type, including the total number of trips in each inter-county market segment, as well as trip distance and mode share. Using this data, a "SOV trip distance is calculated, in order to represent the total "market size" as it relates to the number of trips, the length of the trip, and the percentage of these trips completed by SOV mode. Comparing these figures across trip types allows for initial assessment of market size and TDM opportunities.

2. School Data Sets and Surveys. These included:
   - Wake County Public School System Distance Analysis (2003-2004)
   - NCSU Employee & Student Data and Employee Survey (2005-2006)

TABLES 8 AND 9

ALL TRIPS

ORIGIN COUNTY	Number of Trips	Average Trip Distance	DESTINATION COUNTY			
			Orange	Durham	Wake	Other
Orange	**478,712**	**4.3**	**73.2%**	12.9%	3.6%	10.3%
Durham	**905,304**	**4.6**	7.1%	**76.5%**	10.1%	6.3%
Wake	**2,607,432**	**5.1**	0.5%	3.5%	**89.8%**	6.2%

ALL TRIPS – MODE SPLIT

ORIGIN COUNTY	Driver	Passenger	Transit	Non-Motorized	Other	Driver Trip Distance*
Orange	56.6%	19.4%	2.9%	17.7%	3.4%	**1,353,255**
Durham	59.2%	24.2%	2.9%	9.1%	4.6%	**2,882,011**
Wake	62.9%	25.2%	1.2%	6.7%	4.1%	**8,712,981**
Inner Region Total	61.9%	24.4%	1.6%	8.0%	4.1%	

* (Number of Trips Starting or Ending in County * Avg. Trip Distance) * SOV Mode Share

TABLES 10 AND 11

HOME-BASED WORK TRIPS

ORIGIN COUNTY	Number of Trips	Average Trip Distance	Percent of All Trips	DESTINATION COUNTY			
				Orange	Durham	Wake	Other
Orange	**46,367**	**8.6**	**10.5%**	**46.4%**	24.9%	8.1%	20.6%
Durham	**129,495**	**7.2**	**13.2%**	9.7%	**54.9%**	23.1%	12.3%
Wake	**323,785**	**8.7**	**12.9%**	1.1%	10.0%	**78.1%**	10.8%

HOME-BASED WORK TRIPS – MODE SPLIT

ORIGIN COUNTY	Driver	Passenger	Transit	Non-Motorized	Other	Driver Trip Distance*
Orange	80.5%	5.1%	1.6%	12.0%	0.8%	**432,616**
Durham	86.0%	8.8%	1.8%	3.3%	0.1%	**1,073,810**
Wake	88.8%	7.1%	0.5%	3.3%	0.3%	**2,761,547**
Inner Region Total	87.8%	7.2%	0.8%	3.9%	0.2%	

* (Number of Trips Starting or Ending in County * Avg. Trip Distance) * SOV Mode Share

TABLES 12 AND 13

HOME-BASED SHOPPING TRIPS

ORIGIN COUNTY	Number of Trips	Average Trip Distance	Percent of All Trips	DESTINATION COUNTY			
				Orange	Durham	Wake	Other
Orange	41,943	3.9	8.6%	**76.4%**	10.0%	4.9%	8.7%
Durham	93,314	4.2	11.0%	6.1%	**83.1%**	6.5%	4.3%
Wake	268,158	4.0	9.8%	0.2%	3.1%	**90.8%**	5.9%

HOME-BASED SHOPPING TRIPS – MODE SPLIT

ORIGIN COUNTY	Driver	Passenger	Transit	Non-Motorized	Other	SOV Trip Distance*
Orange	71.6%	17.7%	0.2%	10.4%	0.0%	**134,514**
Durham	64.1%	27.8%	2.5%	5.5%	0.0%	**284,892**
Wake	69.8%	25.5%	0.6%	3.3%	0.8%	**771,370**
Inner Region Total	68.8%	25.6%	0.9%	4.3%	0.5%	

* (Number of Trips Starting or Ending in County * Avg. Trip Distance) * SOV Mode Share

TABLES 14 AND 15

HOME-BASED SCHOOL (Daycare – K12) TRIPS

ORIGIN COUNTY	Number of Trips	Average Trip Distance	Percent of All Trips	DESTINATION COUNTY			
				Orange	Durham	Wake	Other
Orange	33,270	2.7	6.5%	**90.8%**	5.9%	0.0%	3.3%
Durham	68,904	4.0	8.2%	2.6%	**90.8%**	4.6%	2.0%
Wake	227,094	4.1	8.7%	0.0%	1.2%	**96.5%**	2.3%

HOME-BASED SCHOOL (Daycare – K12) TRIPS – MODE SPLIT

ORIGIN COUNTY	Driver	Passenger	Transit^	Non-Motorized	Other	SOV Trip Distance*
Orange	7.5%	52.8%	27.3%	11.8%	0.7%	**7,100**
Durham	3.2%	50.6%	42.3%	3.9%	0.0%	**9,420**
Wake	6.2%	59.5%	29.4%	4.1%	0.7%	**58,533**
Inner Region Total	5.8%	56.3%	33.1%	4.4%	0.5%	

* (Number of Trips Starting or Ending in County * Avg. Trip Distance) * SOV Mode Share
^ Includes school buses

TABLES 16 AND 17

HOME-BASED UNIVERSITY TRIPS

ORIGIN COUNTY	Number of Trips	Average Trip Distance	Percent of All Trips	DESTINATION COUNTY			
				Orange	Durham	Wake	Other
Orange	3,633	12.0	1.2%	**19.5%**	28.2%	2.3%	50.0%
Durham	9,020	4.5	1.0%	11.3%	**59.7%**	7.9%	21.1%
Wake	13,093	9.1	0.6%	1.6%	6.1%	**60.9%**	31.4%

HOME-BASED UNIVERSITY TRIPS – MODE SPLIT

ORIGIN COUNTY	Driver	Passenger	Transit	Non-Motorized	Other	SOV Trip Distance*
Orange	50.0%	3.7%	11.1%	33.3%	1.9%	**29,170**
Durham	62.4%	15.3%	10.6%	11.8%	0.0%	**30,448**
Wake	70.5%	8.6%	1.4%	12.9%	6.5%	**89,106**
Inner Region Total	68.4%	9.5%	5.2%	14.1%	2.8%	

* (Number of Trips Starting or Ending in County * Avg. Trip Distance) * SOV Mode Share

Looking at all of the trip type data tables, three core summary points emerge:

- Home-based work trips are of longer average distance with high drive-alone share, and likely occur during peak-periods.
- Large number of short distance home-based school trips not via bus/bike/walk; potential links to parents also driving to work.
- University trips more likely to be non-SOV, yet fewer in total number.

WAKE COUNTY PUBLIC SCHOOLS

Wake County developed an analysis of school travel distances in 2003-2004. Results included the following:

- Of 52,100 total elementary students (81 schools):
  - 15,000 (28.8%) students live within 1 mile of school
  - 27,300 (52.4%) students live within 2 miles of school

Though such a high percentage and total number of school children live within 2 miles of their school, according to the Triangle Travel Study, only 33.5% of home-based school (pre-school, K12) trips in Wake occur via bus, bike, or walk modes.

NCSU DATA

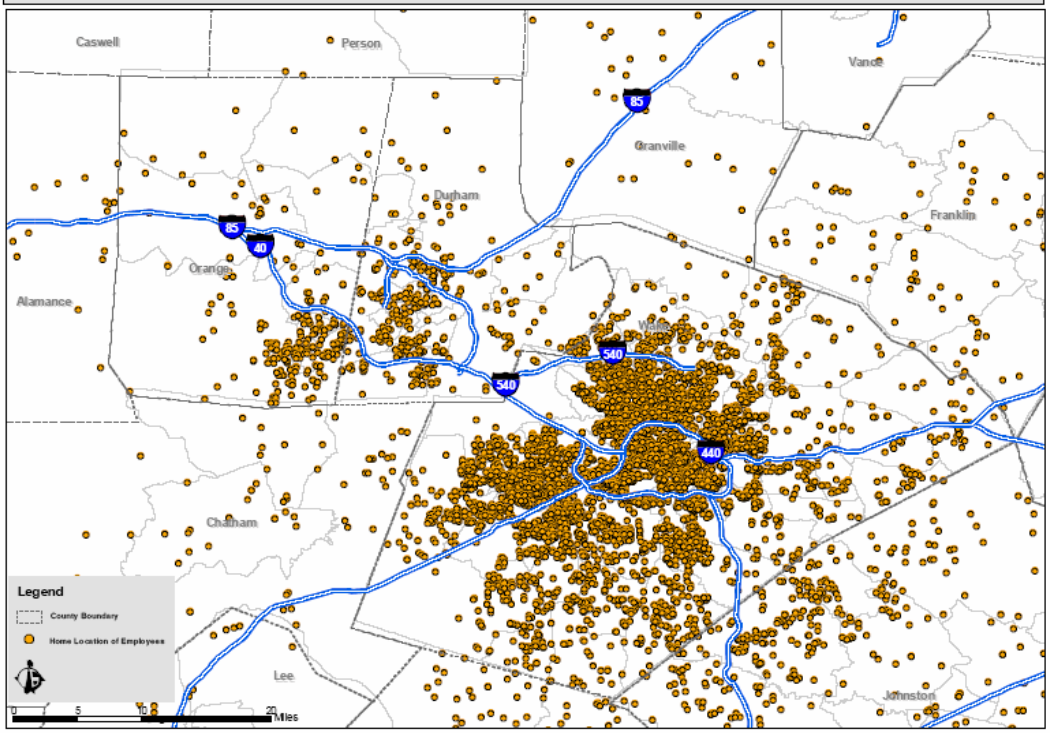
NCSU conducted a survey of employees in 2005-2006. Results:

- 874 employees from the main campus responded
- Only 3.1% live within 2 miles of job; 18.1% live within 5 miles
- 81.7% normally drive alone to work; 8.9% carpool
- 16.6% park free; 60.5% pay $21-30/month to park

Project analysis also mapped the home location of NCSU employees and students from the 2005-2006 academic year (approximately 60% of addresses were geo-coded):

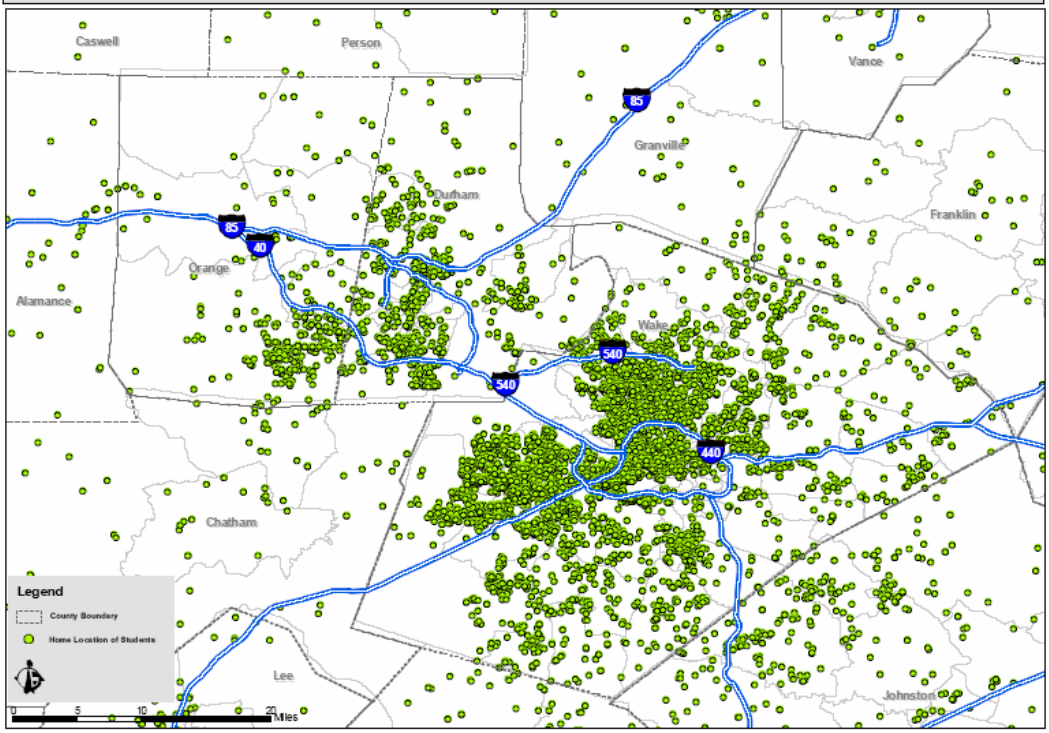
MAP 16:

Home Location of All NCSU Employees



MAP 17:

Home Location of All NCSU Students



TDM Market Opportunities

The Market Analysis concluded with recommendations on eight primary market opportunities to move forward for further assessment as part of Task E.

The primary market opportunities included six "targeted" markets, defined as both geographic areas (or types of areas), as well as by trip type. Additionally, two more general "regional" markets were identified, one land use type (schools, regardless of location) and one market defined by its high-efficiency, region-wide nature.

Targeted:

- Central urban areas (3): Chapel Hill, Durham, Raleigh:
    - Trip Types: Work, School, University, Shopping
- Research Triangle Park
    - Trip Types: Work
- Major non-central workplace clusters (e.g., hospital districts)
    - Trip Types: Work
- Northern Beltline, I-440 Raleigh
    - Trip Types: Work

Regional:

- K-12 Schools
    - Trip Types: School
- High-efficiency region-wide programs (e.g., online tools)
    - Trip Types: All

EVALUATION FACTORS:

Through the Market Analysis process, the initial "market factors" were refined into the following evaluation factors, recommended for use (as appropriate), in Task E:

- Effectiveness, cost-effectiveness
- Confidence in achieving outcomes
- Impact on peak-periods or congestion hot-spots
- Market size (trips, trip lengths)
- Transit-service and bike/pedestrian quality
- Parking pricing
- Public policy support (ordinances, transit fare subsidy)
- Organizational and funding support (University, BID, TMA)
- Synergies between trip types (e.g., school-work)

These evaluation factors will be applied to each of the aforementioned targeted geographies to develop an initial list of TDM strategies. These will be examined in greater depth for the regional TDM scenarios as part of Task E: TDM Investment Scenario Development and Analysis in the section that follows.

Task E: TDM Investment Scenario Development and Analysis

Introduction

TDM strategies not only work best when combined with complementary strategies, but they also can be analyzed for effectiveness in summary packages. In order to leverage regional opportunities and be cognizant of limitations in analysis and implementation, Task E endeavored to develop a range of TDM possibilities and evaluate their effectiveness upon key performance metrics.

Key measures of effectiveness in the performance analysis included:

- Reduction in Vehicle Miles Traveled (VMT)
- Reduction in vehicular trips
- Modal shift for person throughput

Analytic Foundation

Two tools provide the ability to examine the effects of TDM upon local and regional travel:

- Environmental Protection Agency's COMMUTER (version 2.0) model
- Texas Transportation Institute Traffic Congestion Index model

The COMMUTER model is not a micro-simulation model with pinpoint accuracy for specific TDM strategies. Rather, COMMUTER aggregates the effects of various TDM strategies and models how those effects translate into the performance metrics identified above. To the extent individual strategies are not effectively evaluated, TDM packages are deployed for analysis. Furthermore, TDM strategies have the most application and demonstrable success when actively implemented at worksites. As national evidence shows, employers can be very successful at reducing vehicular trips on-site. When aggregated into employment nodes, as done in Task D, these worksite trip reductions can have an impact on not only local trips, but also regional commute trips. The program elements contained within the national evidence is used to synthesize TDM strategies for the three primary transportation scenarios to be analyzed per employment node.

The Traffic Congestion Index model, when used in concert with COMMUTER, shows the effects of a commute-based TDM program upon the overall system. This includes regional VMT impacts, travel time impacts, and congestion effects, using time series data and linear extrapolation from COMMUTER outputs.

Commute trips, it should be noted, account for only 25 percent of all vehicular trips in the Raleigh/Durham area. As such, affecting residential and visitor trips is important towards reducing the overall impact of vehicular use growth on traffic in the region. Unfortunately, non-commute TDM programs have limited effectiveness. Although work-

based-other (WBO) trips (such as an employee who travels at noon for lunch) are technically considered non-commute, they are affected by TDM programs at the employer. Furthermore, the COMMUTER model (as the name implies) only evaluates commute trips. For universities, this means that staff and faculty trips to work are evaluated, but student trips are not.

Allocation of TDM Strategies

A variety of strategies can be used to influence the demand for travel in the Raleigh / Durham area. Many efforts are already at play throughout the region and have generated demonstrable improvements to mobility and travel options. TDM strategies focus on encouraging different forms of commute travel and alternative work arrangements. Primary transportation modes include carpooling, vanpooling, public transit, bicycling, and walking. Alternative work arrangements include flex-time, compressed work weeks, and teleworking.

Using the opportunities developed under Task D, the following is an initial list of TDM strategies that will be examined in greater depth for the regional TDM scenarios. Each scenario package is introduced in three levels of potential application. The level demonstrates both the intensity of application and resource commitment needed. Additional expectations for effectiveness are included.

The three levels are defined as:

- Basic – using generally existing regional financial and staff resources to implement the scenario. Most elements that fall under "basic" implementation have already been successfully applied in the Triangle region.
- Moderate – applying strategies from successful applications around the country and adding resources to the basic services. These resources may come from either the public or private sectors. Generally, moderate strategies tend to be those that are accomplished within existing statutory guidance, but require a formal commitment of resources and mindset to demand management.
- Aggressive – moving beyond current experiences from around the country to create a new level of implementation. In some cases, concepts may be experimental or require new statutory authorization. In many regards, an aggressive stance would place the Triangle region at the forefront of demand management in the United States.

It should be noted that the "Basic" strategy package is applied to the Triangle region-as-a-whole, without consideration to sub-regional differences. This is an important distinction from the "Moderate" and "Aggressive" packages, as one of the principal efforts for this project is to provide eventual TDM guidance and strategy for different sub-regions in the Triangle area. For example, it is likely that TDM options for the Chapel Hill area will be different from those recommended and applied in North Raleigh, due to differing extent of commuter services and expectations.

Basic Strategy Package: All Geographies

The following table identifies the strategies that were analyzed under the Basic package.

TABLE 18

	Cost to Implement	Cost Effectiveness	Confidence in Achieving Outcomes	Market Size	Political Palatability	Organizational and Funding Support	Synergies Between Different Types of Trips	VMT Reduction	Air Quality Benefits
Basic Strategies: All Geographies									
Ridematching tool enhancements	◐	◐	◐	●	●	●	○	○	○
Travel/trip planning tool enhancements	◐	◐	●	●	●	●	●	○	○
ERH program enhancements	●	●	◐	●	●	●	○	○	○
General marketing support	◐	◐	○	●	●	◐	◐	○	○
Annual regional "try it" marketing campaign	◐	◐	◐	◐	●	◐	○	○	○
Regional telework program & pilots (also addressing alternative work hours)	◐	◐	●	○	◐	◐	○	◐	◐
Regional reward/incentive based program for alternative commuters	○	◐	◐	●	◐	◐	○	◐	◐
Regional awards program for employers and developers	●	◐	◐	○	●	●	●	○	○
Regional K-12 schoolpool and Saferides program	◐	●	●	◐	●	◐	◐	○	◐
Regional assistance with trip reduction programs and development of growth management strategies	●	●	○	○	◐	◐	●	◐	○
Improvements to vanpool product	○	◐	◐	◐	◐	◐	○	○	○
Regional transit pass program	●	●	○	◐	◐	○	●	◐	◐
Regional trainings and workshops	●	◐	◐	○	●	◐	◐	○	○

● = Strategy exhibits high level of success in its impact on this measurement ◐ = Strategy exhibits some level of success in its impact on this measurement ○ = Strategy exhibits few or no level of success in its impact on this measurement

Moderate and Aggressive Strategy Packages

The following tables identify the moderate and aggressive TDM strategy packages per key sub-regional geography. It should be noted that the specific mix of strategies are different per employment zone; however, there are substantial similarities between geographies that leverage regional resources.

TABLE 19

	Cost to Implement	Cost Effectiveness	Confidence in Achieving Outcomes	Market Size	Political Palatability	Organizational and Funding Support	Synergies Between Different Types of Trips	VMT Reduction	Air Quality Benefits
Downtown Chapel Hill+UNC Chapel Hill									
MODERATE PACKAGE									
Increased marketing, promotion and outreach targeted to downtown Chapel Hill employers	◐	◐	◐	◐	●	●	○	◐	◐
Increased marketing, promotion and outreach at University (students, staff and employees)	◐	◐	◐	◐	●	●	◐	◐	◐
TDM Ordinances & Park N Ride Ordinances	●	◐	◐	◐	●	◐	◐	◐	◐
Mandatory site design improvements (for new and re-development) and trip reduction strategies	●	●	◐	◐	●	◐	◐	●	●
Formalize downtown travel options program	◐	●	●	◐	◐	●	◐	◐	◐
Development of ETC Network	●	●	●	◐	●	●	○	○	○
Carsharing promotion and subsidy	◐	●	◐	◐	◐	◐	●	○	○
Special events assistance	◐	◐	◐	◐	◐	◐	●	○	●
Improve network of bicycle lanes and sidewalks	○	◐	◐	◐	●	◐	●	◐	◐
AGGRESSIVE PACKAGE									
Individualized employer outreach	◐	●	●	◐	◐	◐	○	○	◐
Individualized student, faculty and staff outreach and promotions	○	●	●	◐	◐	◐	◐	◐	○
Financial incentives for alternative transportation strategies	○	◐	◐	◐	◐	◐	◐	●	◐
Parking Management Downtown (including promotion of unbundled leases, cash out programs and fees in lieu of programs)	◐	●	◐	◐	◐	◐	◐	●	●
Improved connections between CAT and regional transit	◐	◐	◐	◐	◐	◐	●	●	◐
HOV lanes on I-40 (Construction)	○	●	○	●	◐	○	○	◐	●
HOV lanes on I-40 (Carpool/Vanpool Incentives)	◐	●	◐	◐	◐	◐	○	●	●
Commuter Store	◐	◐	◐	◐	◐	◐	○	○	○

● = Strategy exhibits high level of success in its impact on this measurement ◐ = Strategy exhibits some level of success in its impact on this measurement ○ = Strategy exhibits few or no level of success in its impact on this measurement

TABLE 20

	Cost to Implement	Cost Effectiveness	Confidence in Achieving Outcomes	Market Size	Political Palatability	Organizational and Funding Support	Synergies Between Different Types of Trips	VMT Reduction	Air Quality Benefits
Downtown Raleigh									
MODERATE PACKAGE									
Increased marketing, promotion and outreach targeted to downtown Raleigh employers	◐	◐	◐	●	●	●	○	◐	○
Voluntary site design improvements (preferential parking, bike lockers, transit amenities, etc) and other trip reduction strategies	●	◐	◐	●	◐	●	●	◐	○
Formalize downtown travel options program (through TCA and BID)	◐	●	●	●	◐	●	◐	○	○
Development of ETC Network	●	●	●	●	●	●	○	○	○
Carsharing promotion (attracting carshare company and infrastructure)	●	●	◐	●	◐	◐	●	○	○
Special events assistance	◐	◐	◐	●	◐	◐	●	○	○
AGGRESSIVE PACKAGE									
Individualized employer outreach	○	●	●	●	◐	◐	○	○	○
Financial incentives for alternative transportation strategies	○	◐	◐	●	◐	◐	◐	●	◐
TDM Ordinances & Park N Ride Ordinances	●	◐	◐	●	○	◐	◐	◐	◐
Mandatory site design improvements (for new and re-development) and trip reduction strategies	◐	●	○	●	○	◐	◐	●	●
Parking Management (including promotion of unbundled leases, cash out programs and fees in lieu of programs)	◐	●	◐	●	◐	◐	●	●	●
Develop public-private shuttles connecting to transit	○	◐	○	●	○	◐	◐	◐	○
Improved transit service and signal prioritization	○	◐	◐	●	◐	◐	◐	●	●
HOV lanes on I-40 (Construction)	○	●	○	●	◐	○	○	◐	●
HOV lanes on I-40 (Carpool/Vanpool Incentives)	◐	●	◐	●	◐	◐	○	●	●
Fare-Free Transit Policies	◐	●	○	●	◐	○	●	●	●
Improve network of bicycle lanes and sidewalks	○	◐	◐	●	●	◐	●	◐	◐
Commuter Store	◐	◐	◐	●	◐	◐	◐	○	○

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TABLE 21

	Cost to Implement	Cost Effectiveness	Confidence in Achieving Outcomes	Market Size	Political Palatability	Organizational and Funding Support	Synergies Between Different Types of Trips	VMT Reduction	Air Quality Benefits
Downtown Durham + Duke									
MODERATE PACKAGE									
Increased marketing, promotion and outreach targeted to downtown Durham employers	◐	◐	◐	●	●	●	○	◐	○
Increased marketing, promotion and outreach at University (students, staff and employees)	◐	◐	◐	●	●	●	◐	◐	○
TDM Ordinances & Park N Ride Ordinances	●	◐	◐	●	○	◐	◐	◐	◐
Mandatory site design improvements (for new and re-development) and trip reduction strategies	◐	●	○	●	○	◐	◐	●	●
Formalize downtown travel options program (through BID)	◐	●	●	●	◐	●	◐	○	○
Development of ETC Network	●	●	●	●	●	●	○	○	○
Carsharing promotion (attracting carshare company and set aside parking)	●	●	◐	●	◐	◐	●	○	○
Special events assistance	◐	◐	◐	●	◐	◐	●	○	○
Improve network of bicycle lanes and sidewalks	○	◐	◐	●	●	◐	●	◐	◐
AGGRESSIVE PACKAGE									
Individualized employer outreach	○	●	●	●	◐	◐	○	○	○
Financial incentives for alternative transportation strategies	○	◐	◐	●	◐	◐	◐	●	◐
Parking Management Downtown (including promotion of unbundled leases, cash out programs and fees in lieu of programs)	◐	●	◐	●	◐	◐	◐	●	●
Fare-Free Transit Policies (beyond University)	◐	●	○	●	◐	○	●	●	●
Improved transit service & signal prioritization	○	◐	◐	●	◐	◐	◐	●	●
HOV lanes on I-40 (Construction)	○	●	○	●	◐	○	○	◐	●
HOV lanes on I-40 (Carpool/Vanpool Incentives)	◐	●	◐	●	◐	◐	○	●	●
Commuter Store	◐	◐	◐	●	◐	◐	○	○	○

● = Strategy exhibits high level of success in its impact on this measurement ◐ = Strategy exhibits some level of success in its impact on this measurement ○ = Strategy exhibits few or no level of success in its impact on this measurement

TABLE 22

	Cost to Implement	Cost Effectiveness	Confidence in Achieving Outcomes	Market Size	Political Palatability	Organizational and Funding Support	Synergies Between Different Types of Trips	VMT Reduction	Air Quality Benefits
N. Raleigh/ I-440 Beltline Corridor									
MODERATE PACKAGE									
Increased marketing, promotion and outreach targeted to employer along I-440	◐	◐	◐	◐	●	◐	○	◐	○
Voluntary site design improvements (preferential parking, bike lockers, transit amenities, etc) and other trip reduction strategies	●	◐	◐	◐	◐	◐	●	◐	○
Development of ETC Network	●	●	●	◐	●	●	○	○	○
AGGRESSIVE PACKAGE									
Improve network of bicycle lanes and sidewalks	◐	◐	◐	◐	◐	◐	●	◐	◐
Individualized employer outreach	○	●	◐	◐	◐	○	○	◐	○
Financial incentives for alternative transportation strategies	○	◐	◐	◐	◐	○	◐	●	◐
Develop public-private shuttles connecting to transit	○	◐	○	◐	○	○	◐	◐	○
Fare-Free Transit Policies	○	◐	○	◐	◐	○	◐	●	●
Improved transit service & signal prioritization	○	◐	○	◐	◐	○	◐	●	●
HOV lanes on I-440 (Construction)	○	●	○	◐	◐	○	○	◐	●
HOV lanes on I-440 (Carpool/Vanpool Incentives)	◐	●	◐	◐	◐	◐	○	●	●

● = Strategy exhibits high level of success in its impact on this measurement ◐ = Strategy exhibits some level of success in its impact on this measurement ○ = Strategy exhibits few or no level of success in its impact on this measurement

TABLE 23

	Cost to Implement	Cost Effectiveness	Confidence in Achieving Outcomes	Market Size	Political Palatability	Organizational and Funding Support	Synergies Between Different Types of Trips	VMT Reduction	Air Quality Benefits
Research Triangle Park									
MODERATE PACKAGE									
Increased marketing, promotion and outreach targeted to RTP employers	◐	◐	◐	●	●	●	○	○	○
Voluntary site design improvements (preferential parking, bike lockers, transit amenities, etc) and other trip reduction strategies	●	◐	◐	●	◐	●	◐	◐	○
Full time TMA coordinator	◐	●	●	●	●	◐	◐	○	○
Development of ETC Network	●	●	●	●	●	●	○	○	○
Carsharing at Major Transfer Points or Hubs	◐	◐	○	●	◐	◐	◐	○	○
AGGRESSIVE PACKAGE									
Improve network of bicycle lanes to nearby residential and commercial	○	◐	◐	●	●	◐	◐	◐	◐
Individualized employer outreach	○	●	●	●	◐	◐	○	◐	○
Financial incentives for alternative transportation strategies	○	◐	◐	●	◐	◐	◐	●	◐
Develop public-private shuttles connecting to transit	○	◐	◐	●	◐	○	◐	◐	○
Fare-Free Transit Policies	○	◐	○	●	◐	○	◐	●	●
Improved transit service & signal prioritization	○	◐	○	●	◐	◐	◐	●	●
HOV lanes on I-40 (Construction)	○	●	○	●	◐	○	○	◐	●
HOV lanes on I-40 (Carpool/Vanpool Incentives)	◐	●	◐	●	◐	◐	○	●	●
Commuter Store	◐	○	◐	●	◐	◐	○	○	○

● = Strategy exhibits high level of success in its impact on this measurement ◐ = Strategy exhibits some level of success in its impact on this measurement ○ = Strategy exhibits few or no level of success in its impact on this measurement

TABLE 24

	Cost to Implement	Cost Effectiveness	Confidence in Achieving Outcomes	Market Size	Political Palatability	Organizational and Funding Support	Synergies Between Different Types of Trips	VMT Reduction	Air Quality Benefits
Raleigh-NCState									
MODERATE PACKAGE									
Increased marketing, promotion and outreach at University (students, staff and employees)	◐	◐	◐	◐	●	●	◐	◐	○
Voluntary site design improvements (preferential parking, bike lockers, transit amenities, etc) and other trip reduction strategies	●	◐	◐	◐	◐	●	●	◐	○
Improve network of bicycle lanes and sidewalks	◐	◐	◐	◐	◐	◐	●	◐	◐
Full time travel option program coordinator	◐	●	●	◐	◐	◐	●	◐	○
Carsharing promotion (attracting carshare company and set aside parking)	●	●	◐	◐	◐	◐	●	○	○
AGGRESSIVE PACKAGE									
Individualized student, faculty and staff outreach and promotions	○	●	●	◐	◐	◐	◐	◐	○
Financial incentives for alternative transportation strategies	○	◐	◐	●	◐	◐	◐	●	◐
TDM Ordinances & Park N Ride Ordinances	●	◐	◐	◐	○	◐	◐	◐	◐
Mandatory site design improvements (for new and re-development) and trip reduction strategies	◐	◐	○	◐	○	◐	●	●	◐
Commuter Store	◐	◐	◐	◐	◐	◐	◐	○	○

● = Strategy exhibits high level of success in its impact on this measurement ◐ = Strategy exhibits some level of success in its impact on this measurement ○ = Strategy exhibits few or no level of success in its impact on this measurement

TABLE 25

	Cost to Implement	Cost Effectiveness	Confidence in Achieving Outcomes	Market Size	Political Palatability	Organizational and Funding Support	Synergies Between Different Types of Trips	VMT Reduction	Air Quality Benefits
Large Employers-Medical Campuses									
MODERATE PACKAGE									
Increased marketing, promotion and outreach targeted to types of employer	◐	◐	◐	○	●	◐	○	◐	○
Voluntary site design improvements (preferential parking, bike lockers, transit amenities, etc) and other trip reduction strategies	●	◐	◐	○	◐	◐	●	◐	○
Development of ETC Network	●	●	●	○	●	◐	○	○	○
AGGRESSIVE PACKAGE									
Improve network of bicycle lanes and sidewalks	◐	◐	◐	●	◐	◐	●	◐	●
Individualized employer outreach	○	●	◐	○	◐	○	○	◐	○
Financial incentives for alternative transportation strategies	○	◐	◐	○	◐	○	◐	●	◐
Fare-Free Transit Policies	○	◐	○	○	◐	○	◐	●	●
Improved transit service & signal prioritization	○	◐	○	○	◐	○	◐	●	●
Develop public-private shuttles connecting to transit	○	◐	○	○	◐	○	○	◐	○

● = Strategy exhibits high level of success in its impact on this measurement ◐ = Strategy exhibits some level of success in its impact on this measurement ○ = Strategy exhibits few or no level of success in its impact on this measurement

TDM Market Analysis

Each of the employment zones was modeled to reflect a range of potential effectiveness from each TDM strategy package. Some notes on the model results pertain to all employment zones:

- **Commute trips only**. Trip reductions were modeled against commute trips only, with the basis being the U.S. Census for Transportation Planning Package (2000) Part 2 database, extrapolated to 2006. As a result, the following results do provide commute trip reductions for university faculty and staff, but not students.
- **Parking charges**. There are existing parking charges in many of the employment zones, with average municipal parking rates between $50 and $85 per month (with university parking ranging from $25 to $140). The effect of this existing parking pricing is an amplification of pricing effectiveness in the model, as the model assumes no parking costs when pricing is imposed. As a result, in order to reduce the net impact of parking pricing and/or parking cash-out in the aggressive packages, parking pricing rates were lower-than-market-rate.
- **Range of effectiveness**. From a forecasting perspective, the model represents 1) adoption rate of TDM by employers (e.g., 35% of employers participating on the low end of an aggressive package to 60% participating on the high end), and, 2) applicability of TDM (e.g., 20% access to telework on the low end to 40% on the high end). As the COMMUTER model already adjusts results based upon office and non-office employment, much of the effectiveness on employees is already reflected in the results. These adjustments only pertain to the participation rates of employers directly.
- **Similar results**. The results for each employment zone will look similar, as the strategies selected are likewise similar. Differences will primarily be found in those areas were strengths compound the strategies deployed.

For each target area the market analysis generated the following:

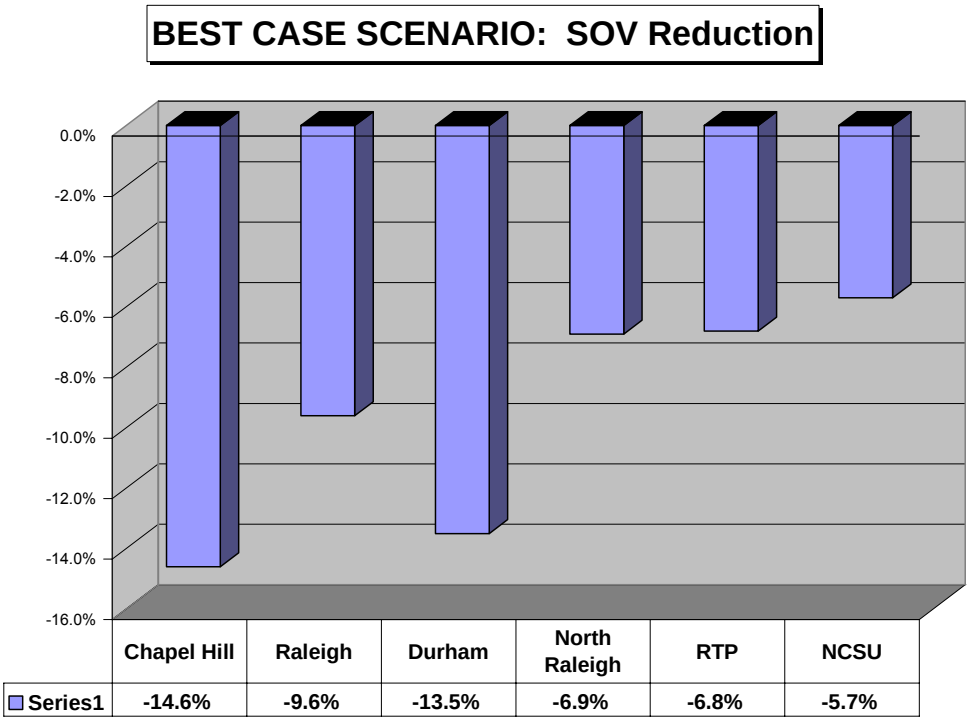
- Current Mode Share
- Forecasts of SOV Reduction from TDM Packages
- Forecasts of Carpool Mode Share Increase from TDM Packages
- Forecasts of Vanpool Mode Share Increase from TDM Packages
- Forecasts of Transit Mode Share Increase from TDM Packages
- Forecasts of Peak Trips Reduced from TDM Packages
- Forecasts of VMT Reduced from TDM Packages

See Appendix E for detailed results by targeted area.

Comparative Results

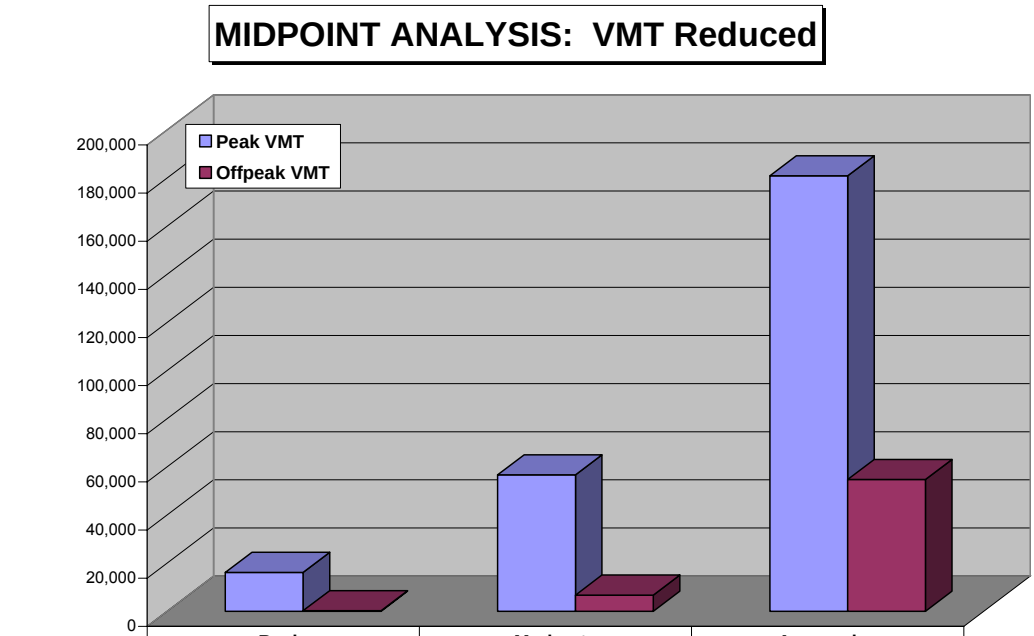
When all employment zones are compared to one another, those employment zones with characteristics conducive for multimodal transportation (primarily, central business districts and universities) tend to have greater effectiveness as a result of TDM program implementation. In particular, Chapel Hill and Durham had the highest potential single-occupant vehicle mode shift. As shown in Figure 10, which compares the highest range of the aggressive package scenarios, these two employment zones have the greatest potential for reducing single-occupant vehicles.

Figure 5: Maximum Likely Potential Reduction in Single Occupant Vehicle Mode Share



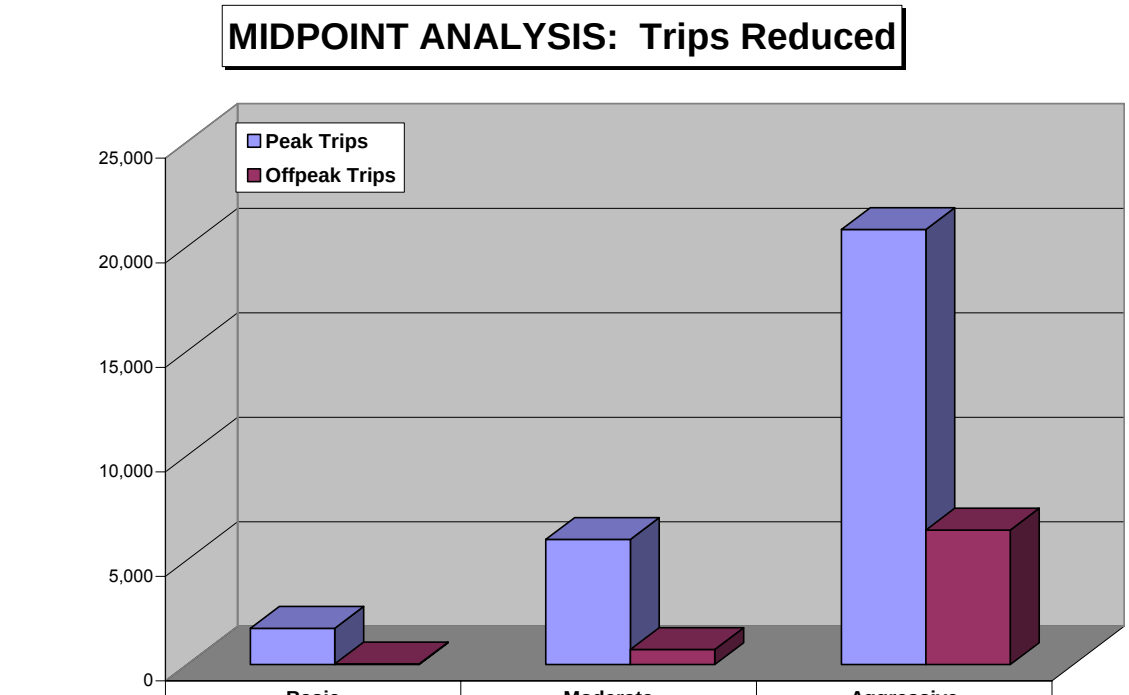
Furthermore, when comparing the TDM strategy packages to one another, it is apparent there is a multi-fold benefit to VMT and trip reduction as a result of implementing the aggressive packages over the moderate packages, as shown in Figures 11 and 12. Here, each package assumes an effectiveness rating midpoint between the low and high range of effects with each strategy type. However, to the extent that the aggressive package also significantly reduces off-peak trips (something that the moderate package does not tend to do), one could argue that these strategies may be punitive towards mobility.

Figure 6: Combined Midpoint Reduction of Vehicle Miles Traveled



	Basic	Moderate	Aggressive
Peak VMT	16,142	56,680	180,960
Offpeak VMT	229	6,692	54,719

Figure 7: Combined Midpoint Reduction of Trips



	Basic	Moderate	Aggressive
Peak Trips	1,725	5,980	20,804
Offpeak Trips	25	707	6,427

Strategic Analysis of TDM Possibilities

The next step in the evaluation process is to evaluate the TDM Packages against metrics for effectiveness in the Raleigh / Durham region. In particular, the moderate package of TDM strategies is evaluated against VMT reduction, the primary metric as a consequence of state statute, vehicular trip reduction, and modal shift.

By state statute (SB 953), the Raleigh / Durham region is required to reduce 25% of the growth in Vehicle Miles Traveled. Whereas a variety of tactics (such as new transit investments, mixed-use developments, etc.) can affect the range of trips conducted in the region, TDM remains primarily effective in reducing single-occupant vehicle commute trips. In order to evaluate the strategies' ability to comply with this mandate upon commute trips, it is first necessary to identify the likely VMT rates in the coming years with no deviation due to TDM strategies.

In the Triangle region, VMT has grown (on average) at a rate of 3.02 percent per year through 2003 (Texas Transportation Institute, *Urban Mobility Study*, 2005). Furthermore, in the region, 92.3 percent of all VMT can be attributed to passenger vehicles, and of those passenger vehicles, 27.3 percent is comprised of commute trips. Hence, of total VMT, commute trips make up 25.2 percent of all VMT. This provides the initial basis for analysis.

Table 26: VMT Projections and Commute Trip Reduction Targets, FY 2008 – FY 2009

	2008	**2009**
Total Daily VMT in Raleigh / Durham Metro Area	43,170,000	44,478,000
Total Daily **Commute** VMT	10,874,000	11,204,000
Growth in Daily **Commute** VMT	319,000	329,000
25% of Daily Commute VMT	**80,000**	**82,000**
Average Number of Daily Commuters to Reach 25% of Daily Commute VMT	**4,800***	**5,000**

* This number includes commute trip reductions achieved through current TDM efforts in the Triangle Region. New commute trip reductions required would be derived by subtracting currently achieved trip reductions from the goal number of 4800 trips reduced.

In order to shift 4,800 regional commuters on a daily basis to non-single occupant vehicle modes in FY 2008, the regional TDM program must shift approximately 1.0 percent of all peak-period travelers or 0.6 percent of all workers in the Raleigh-Durham area. Furthermore, to keep pace over time with the 25 percent reduction mandate, the program must net an additional 200 shifted commuters in FY 2009, assuming attrition in shifted commuters in FY 2008. This is represented in the following table.

Table 27: New Travelers Shifted from SOV Modes to Meet Mandate for Commuters

	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014	FY 2015
Target Daily Commute VMT Reduced	79,700	82,300	85,100	87,900	90,900	93,900	97,100	100,400
Travelers to Shift Mode	4,800	5,000	5,100	5,300	5,500	5,700	5,800	6,000**
New Travelers to Shift Mode (5-day equivalents)	**4,800**	**1,600**	**1,700**	**1,700**	**1,800**	**1,800**	**1,900**	**2,000**

**** It is important to note that the Advisory Committee's goal is to achieve the 25% reduction in growth of VMT by the end of the seven year Long Range TDM plan period. The interim fiscal year goals are designed to help keep the region on track to achieving a 6,000 commute trip reduction by 2015. If interim year goals are not met it will require additional effort to ensure that final year goals are achieved.**

Employment in the region was escalated on an annual basis to match average growth from 1998 – 2003. Inputted in the model, the midpoint range of the moderate package of TDM strategies is well suited to accomplishing the state mandate for commute trips, as indicated below.

Table 28: Model Results for Midpoint Range of Moderate TDM Package, FY 2008 – 2015

	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014	FY 2015
Chapel Hill	10,510	10,801	11,100	11,408	11,724	12,049	12,383	12,726
Downtown Raleigh	15,873	16,313	16,765	17,229	17,706	18,197	18,701	19,219
Durham	14,510	14,912	15,325	15,750	16,186	16,634	17,095	17,569
NCSU	2,578	2,649	2,723	2,798	2,876	2,955	3,037	3,121
RTP	17,152	17,627	18,116	18,617	19,133	19,663	20,208	20,768
North Raleigh	21,012	21,594	22,192	22,807	23,439	24,088	24,756	25,442
TOTAL	**81,635**	**83,897**	**86,221**	**88,610**	**91,065**	**93,588**	**96,180**	**98,845**
Percent of Target	**102.4%**	**101.9%**	**101.3%**	**100.8%**	**100.2%**	**99.6%**	**99.1%**	**98.5%**

As a result, the moderate package for each employment zone meets the reduction goal (within 2 percent on either side of target). However, there is slow degradation over time as a result of VMT growth outpacing employment growth. Given the model does not represent additions to transit or highway capacity besides that which were expressly identified in the moderate packages, any increase in transit capacity may serve to reduce this degradation.

Although VMT is easy to measure on the roadway network, it is difficult to measure within a TDM program. Mode share is a more appropriate measurement for TDM program planning and evaluation. Meeting and maintaining mode share targets over time will serve to proxy VMT

attainment. The COMMUTER model was next used to identify the necessary modal shifts from Single Occupant Vehicles to alternatives for each employment zone in order to achieve the VMT reduction. It should be noted that *to what* mode these shifted users go to is not important. To the extent that carpools serve as the dominant alternative in the model, and, carpools are the least efficient mode from a VMT perspective, any increase to modes other than carpools would serve to benefit the achievement of the VMT goal.

Table 29: Chapel Hill Mode Shift Target

Mode	Existing	Target	% Change
Drive Alone	**61.7%**	**59.4%**	**-2.3%**
Carpool	10.6%	11.7%	+1.1%
Vanpool	0.9%	1.1%	+0.2%
Transit	8.7%	9.4%	+0.7%
Bicycle	3.3%	3.4%	+0.1%
Pedestrian	12.9%	12.9%	+0.0%
Telework / Other	1.9%	2.1%	+0.2%

Table 30: Durham Mode Shift Target

Mode	Existing	Target	% Change
Drive Alone	**77.6%**	**75.4%**	**-2.2%**
Carpool	13.4%	14.9%	+1.5%
Vanpool	0.6%	0.8%	+0.2%
Transit	2.6%	2.9%	+0.3%
Bicycle	0.6%	0.7%	+0.1%
Pedestrian	4.0%	4.0%	+0.0%
Telework / Other	1.2%	1.5%	+0.3%

Table 31: Downtown Raleigh Mode Shift Target

Mode	Existing	Target	% Change
Drive Alone	**81.2%**	**79.0%**	**-2.2%**
Carpool	12.4%	13.8%	+1.4%
Vanpool	1.0%	1.2%	+0.2%
Transit	1.6%	1.8%	+0.2%
Bicycle	0.2%	0.3%	+0.1%
Pedestrian	2.0%	2.0%	+0.0%
Telework / Other	1.5%	1.9%	+0.4%

Table 32: North Carolina State University Mode Share Target

Mode	Existing	Target	% Change
Drive Alone	**70.8%**	**69.0%**	**-1.8%**
Carpool	10.7%	11.9%	+1.2%
Vanpool	0.7%	0.9%	+0.2%
Transit	2.5%	2.7%	+0.2%
Bicycle	0.3%	0.3%	+0.0%
Pedestrian	6.1%	6.2%	+0.1%
Telework / Other	8.9%	9.0%	+0.1%

Table 33: North Raleigh Mode Share Target

Mode	Existing	Target	% Change
Drive Alone	**84.0%**	**82.0%**	**-2.0%**
Carpool	11.1%	12.4%	+1.3%
Vanpool	0.7%	0.9%	+0.2%
Transit	1.1%	1.2%	+0.1%
Bicycle	0.2%	0.2%	+0.0%
Pedestrian	0.8%	0.8%	+0.0%
Telework / Other	2.1%	2.4%	+0.3%

Table 34: Research Triangle Park Mode Share Target

Mode	Existing	Target	% Change
Drive Alone	**87.3%**	**85.2%**	**-2.1%**
Carpool	10.8%	12.1%	+1.3%
Vanpool	0.2%	0.3%	+0.1%
Transit	0.9%	1.0%	+0.1%
Bicycle	0.1%	0.2%	+0.1%
Pedestrian	0.2%	0.2%	+0.0%
Telework / Other	0.5%	1.0%	+0.5%

Generally, achieving the state mandate for VMT reduction for commuters is possible with the moderate package of TDM strategies. However, doing so will require a sustained shift of approximately 2.2 – 2.4 percent of single occupant vehicles, and, acquiring 1,600 – 2,000 new customers per year. It is important to note that the Advisory Committee's goal is to achieve the 25% reduction in growth of VMT by the *end* of the seven year Long Range TDM plan period. The interim fiscal year goals are designed to help keep the region on track to achieving a 6,000 commute trip reduction by 2015. If interim year goals are not met it will require additional effort to ensure that final year goals are achieved.

Tasks F&G: Final Recommendations

The tasks leading up to the development of Final Recommendations involved extensive stakeholder and market research analysis and revealed that the Triangle Region currently has numerous TDM activities that are effective in encouraging alternative transportation use.

The Final Recommendations, based on a moderate TDM program, are designed to maximize the efficiency of the existing programs and encourage new alternative mode users. In order to build a foundation for success, there are five key activities that are critical:

- Enhancing the brand and role of GoTriangle.org for regional marketing initiatives, development and warehouse for on-line tools and as a one stop information source for transportation
- Defining regional and local marketing and outreach roles and responsibilities
- Implementing a competitive call for projects
- Establishing an evaluating and monitoring program
- Increasing levels and sources of funding

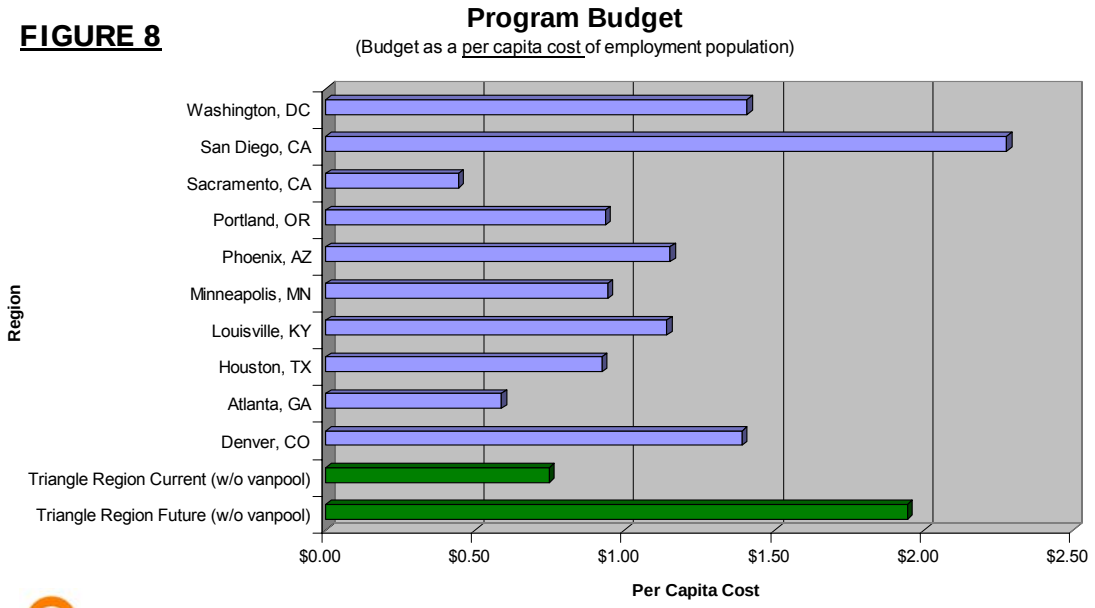
These key activities are further explored in the sections that follow.

Budget

The action items detailed in the previous sections of the work plan will provide the essential elements of a moderate regional TDM package that can help achieve a 25 percent reduction in the growth of VMT in the Triangle Region between 2007 and 2015. The budget required to implement a moderate TDM varies from year to year depending on the action items implemented. But the order of magnitude of budget required to achieve these results can best be seen by looking at other regional programs and their budgets as a per capita cost of employment population.

As the TDM peer comparison with other regions reveals in the chart below, the Triangle region allocates less per capita for it TDM budget than most other regions reviewed.

FIGURE 8



What this indicates is that there is a need to increase the Triangle region's TDM budget as a per capita cost of employment population in order to achieve its goal of a 25 percent reduction in the growth of VMT in the Triangle Region between fiscal years 2007 and 2015. The details of this budget increase should be applied are itemized in table included in Appendix G: Final Plan; along with responsibilities, schedules, and staffing for each task. A more detailed spreadsheet distributed to the TDM Advisory Committee breaks this information out by fiscal year and identifies which tasks are new and add cost to budget with each year.

Work Plan

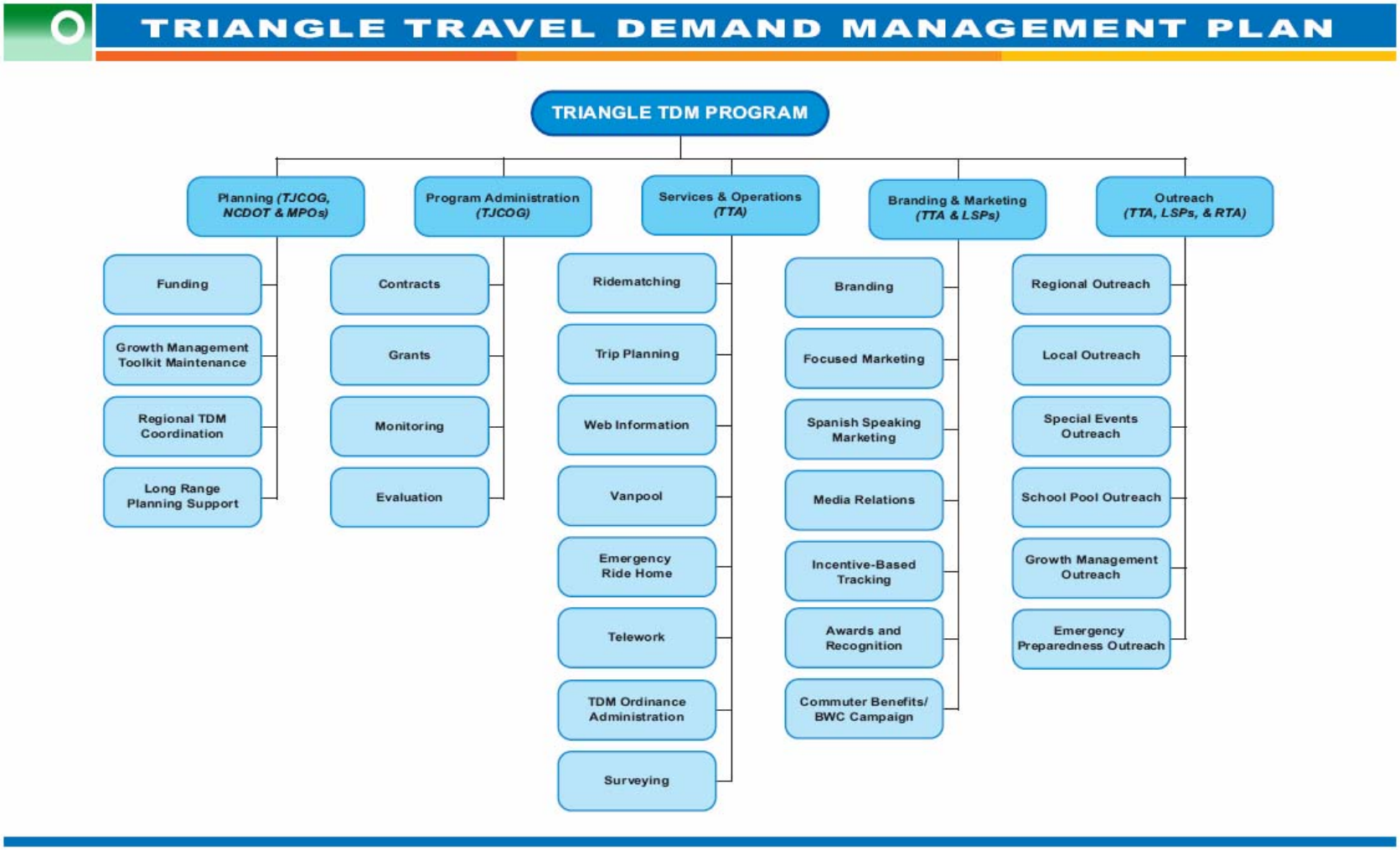
This section presents an activity-by-activity work plan for each of the seven fiscal years between 2008 and 2015. The work plan, which is based on the Scenario Development Analysis in Task E, was developed following review of existing operations, stakeholder interviews, peer program review, and staff interviews. It reflects realistic expectations of program activities during the seven year period.

The work is organized under five performance areas, with extensive interaction between all five: 1) services/operations, 2) program administration, 3) marketing and branding, 4) outreach, and 5) planning. For each area, the plan identifies specific performance elements, and corresponding activities. Appendix G contains a detailed spreadsheet identifying responsibilities, schedules, staffing and budgets for completing each task. A more detailed spreadsheet distributed to the TDM Advisory Committee breaks this information out by fiscal year and identifies which tasks are new and add cost to budget with each year. Section 2.2 of the plan identifies key interactions between performance areas and performance measures.

In order to most efficiently and effectively implement the five performance areas of the work plan several modifications to the regional TDM responsibilities are critical. The Regional Triangle TDM Program organizational chart that follows, shows who is predominantly responsible for each of the five performance areas as well as what broad responsibilities they will have in those areas. It exhibits a modified organizational structure where the following changes occur:

- TTA remains regional outreach, marketing and implementation agency
- TJGOG assumes responsibility of contracting, call for projects, evaluation and monitoring
- TJCOG and MPOs assume Growth Management Toolkit Promotional responsibilities
- MPO roles are increased thru funding, selecting projects and integrating TDM into transportation plans

FIGURE 9


TRIANGLE TRAVEL DEMAND MANAGEMENT PLAN
TRIANGLE TDM PROGRAM
Planning (TJCOG, NCDOT & MPOs)
Program Administration (TJCOG)
Services & Operations (TTA)
Branding & Marketing (TTA & LSPs)
Outreach (TTA, LSPs, & RTA)
Funding
Growth Management Toolkit Maintenance
Regional TDM Coordination
Long Range Planning Support
Contracts
Grants
Monitoring
Evaluation
Ridematching
Trip Planning
Web Information
Vanpool
Emergency Ride Home
Telework
TDM Ordinance Administration
Surveying
Branding
Focused Marketing
Spanish Speaking Marketing
Media Relations
Incentive-Based Tracking
Awards and Recognition
Commuter Benefits/ BWC Campaign
Regional Outreach
Local Outreach
Special Events Outreach
School Pool Outreach
Growth Management Outreach
Emergency Preparedness Outreach

Once this proposed re-organization is orchestrated, the Performance Areas described in the above organization chart and their corresponding TDM Strategies and activities can be most effectively implemented.

This proposed re-organization has the largest impact on TJCOG, TTA and NCDOT and merits elaborating on what their new roles will be.

NCDOT. NCDOT will continue to provide the overall policy framework for TDM in North Carolina. Their involvement is guided by the Statewide Transportation Demand Management Plan (April 2004) and administered by the Public Transportation Division. Under this reorganization a new role for NCDOT will be to take on the role of North Carolina BWC Program sponsor and be responsible for certification for program previously administered by EPA.

TJCOG. As the Triangle Region's TDM Program Coordinator, TJCOG continues to serve as the link between state policy and funding on the one hand and local/regional service providers on the other. Its tasks include working with NCDOT in reviewing and coordinating annual work plans and budgets for TDM efforts, and convening the region's TDM partners to coordinate efforts. One of its most significant new roles will be providing funding and fiscal oversight for TDM programs implemented regionally and by Local Service Providers.

TTA. As the regional TDM Service Provider, TTA continues to provide direct services and outreach to specific employers and travelers in its regional service area; covering Durham, Orange and Wake Counties. Among the services provided are:

Support for existing employers, commuters and Local Service Providers:

- Rideshare matching program
- Vanpool program administrator
- Emergency ride home
- On-line transit trip planning software
- New Best Workplaces for Commuters start-up incentive funding

Current employer recruitment and direct marketing and promotion activities:

- Establishing new Transportation Management Associations
- Enlisting employers as Best Workplaces for Commuters
- Durham Commute Trip Reduction Ordinance and Wake and Orange worksite outreach
- Bike to Work Day Promotions

New employer recruitment and direct marketing and promotion activities:

- Overseeing the Triangle Best Workplaces for Commuters annual campaign and website
    - Includes the annual TBWC kickoff and celebration events and a coordinated marketing program.

More specific details of roles and responsibilities for all Triangle TDM Partners are described in the sections that follow.

1.0 Planning

1.1 Expand Funding Opportunities

Description

To meet new goals for the Triangle Region TDM program, the region will need to seek new funding sources. A variety of sources are available for TDM programs ranging from private grants to federal dollars.

Activities

Pursue new funding opportunities. Through regularly scanning prospective grant and other prospective funding sources, funding opportunities will be identified to attract new financial resources to support TDM efforts in the region. *Planning* staff will regularly monitor the *Federal Register* for new solicitations. Additionally, staff will network with federal contacts at FHWA, FTA, and EPA for TDM funding leads. Funding sources may include, but are not limited to, local funding, CMAQ, STPDA, etc. Funding applications will be developed and submitted for those opportunities deemed most promising by the selection committee. (See Section 2.1 for more information on selection committee and call for projects process.)

1.2 TDM Growth Management Strategies Toolkit Technical Assistance

Description

TDM must become a common element of local and regional land use and transportation plans. Yet, planners, developers, and policy makers in many communities do not have the technical basis from which to incorporate TDM strategies elements into their planning processes. Working in collaboration with *Planning* staff, TJCOG will host forums and provide technical assistance as learning opportunities for planners and developers interested incorporating TDM local plans. In 2008, TJCOG will serve on committees advising or conducting transportation plans and studies where TDM strategies can be applied.

Activities

Refresh TDM Growth Management Strategies On-Line Tool Kit. As part of this contract, an online TDM Design Guidelines Tool Kit will be developed. This application will be reviewed and refreshed to incorporate relevant information for land use planners and developers throughout the metropolitan area.
Conduct outreach on the TDM Growth Management Strategies to local communities. *Planning* staff will conduct outreach to local planning officials and others to raise awareness about the new Design Guidelines pamphlet and as a means of encouraging adoption of long-term TDM strategies
Serve on Technical Advisory Committees for Major Transportation Projects Studies. TDM should be integrated into all aspects of major transportation projects, from planning to construction mitigation to marketing the new transportation service.
Produce a TDM Design Forum. Working collaboratively with CAMPO and DCHC, TJCOG Planning & Operations personnel, *Planning* staff will produce a TDM design forum designed for Triangle metro area planners and developers. An internal workshop, coinciding with development of a TDM White Paper, will be conducted as preparation for the TDM Design Forum to promote a common knowledge base about TDM.

1.3 Regional TDM Coordination

Description

By establishing a more concerted coordination effort regionally, TJCOG work to provide tools and resources that can be used by all TDM partners.

Activities

Re-establish and maintain the TDM Coordinating Committee. The TDM Coordinating Committee will meet quarterly and be staffed by TJCOG. The Committee will address issues of regional importance as they pertain to TDM and commute alternatives.
Plan, develop and conduct quarterly workshops. These quarterly workshops will be developed as "continuing education" opportunities for regional TDM partners, including training about regional products and services. These may be conducted in conjunction with quarterly coordinating committee.
Develop two community case studies per year. Communities throughout North Carolina and the country have experiences to share in terms of incorporating and implementing TDM strategies. TJCOG will develop two brief case studies to share with its TDM partners and other Triangle members in 2008.

1.4 Long-range Planning Support

Description

During the period of the Seven –Year plan, CAMPO and DCHC staff will support activities to update the Regional Transportation Plans and any corresponding visioning and development plans. These activities offer opportunities to develop commitment to TDM strategies throughout the region. TTA and TJCOG will be integral partners in the process, incorporating TDM, transportation options, and specific TDM strategies and programs into the Regional Plan updates.

Activities

Research Case Studies Promoting TDM in Regional plans and programs. Various metropolitan areas, including the Puget Sound area (Seattle) and Washington, DC have incorporated TDM into their regional transportation planning process. These plans and their processes will be researched for relevance to the CAMPO and DCHC planning processes.
Prepare White Paper for long-range TDM strategies. The white paper will provide the basis for TDM strategies within the Regional Transportation Plans.
Research TDM Ordinances & Park & Ride Ordinances.
Advocate for HOV Lanes. As corridors are reviewed for major transportation improvements, such as managed lanes, truck only lanes, widening and HOV lanes, TDM service providers must have a voice. There are major policy implications to TDM programs that are affected by these investments.
Research Fare-Free Transit Policies.
Opportunity to tie TDM Program funding to provision of local growth policies.

Advocate for one regional transit pass. Work with local transit providers to identify issues and solutions in implementing one regional transit pass. Currently transit riders in the Triangle Region need to have a different transit pass for each system that they ride. This makes the transit transfer experience more cumbersome. A regional transit pass program would allow transit riders to transfer between the regions' various service providers seamlessly. It would also facilitate a more automated region-wide transit pre-tax program. The TDM community has a responsibility to advocate for the easiest transit pass systems available.
Explore public-private shuttles connecting to transit or improved connections between local transit service and regional transit service. Use vanpool ridership and wait lists to demonstrate demand for new shuttle/transit routes.

2.0 Program Administration

2.1 Triangle TDM Program Administration

Description

This performance area incorporates all administrative activities required to support program partners and the program itself. These include administration of pass-through funds and contracts administration.

Activities

Administer State contracts and grants. The State will contract with one service provider (TJCOG) for all Triangle region grants. This service provider will then allocate funding based on call for projects. A portion of this funding will be set-aside for on-going regional program activities.
Serve as an ombudsman for TDM partners. TJCOG management will initiate efforts to improve communication with partners and funding organizations regarding the status of contracts, new grant opportunities, and program funding. The ombudsman is charged with representing the interests of the TDM partners by investigating and addressing their reported complaints.
Conduct bi-annual organizational reviews to assess achievement of performance measures and deliverables as well as overall program goals.
Regional commuter survey processing– Commuter survey processing and employer monitoring should be transitioned from TTA to TJCOG in year one.
Provide on going monitoring of Durham County TDM Ordinance – Ordinance monitoring should be transitioned from TTA to TJCOG in year one.
Coordinate call for projects process and selection team – The Triangle Regional TDM Call for Projects will occur annually in much the same way that it does now. TDM Service Providers will continue to submit their applications for state funding. Instead of submitting application to NCDOT for review, they will now be submitted to TJCOG and reviewed at the regional level by a selection committee consisting of NCDOT, MPOs, EPA/DENR, FHWA and TJCOG. TJCOG's role on the selection committee will be that of coordinator. TTA will serve on the selection committee as a non-voting member. See Appendix F under the Administration section for more details on the revised call for projects process.
Ensure that receipt of all funds is contingent on measurement so that TJCOG can do effective evaluation.
Review work plans as well as monitoring/evaluation reports.

2.2 Triangle TDM Program Monitoring & Evaluation

Description

This performance area incorporates all administrative activities required to measure the success of the regional TDM program. This includes monitoring and evaluating Program Impacts, Program Participation, Program Awareness, Customer Satisfaction, and Outreach Activities.

Activities

Program Impacts. The long-range plan has determined that meeting the VMT reduction goals will require converting approximately 5,000 commuters to alternative modes in year one and approximately 2,000 commuters to alternative modes in subsequent years. If the region would like to account for these shifts entirely within the surveys conducted at employment and institutional sites, it will need to have a large sample. TDM providers can often expect to achieve mode shifts of approximately 5 percent at companies and institutions with which they work directly. This would translate to working with and surveying companies and institutions representing approximately 100,000 commuters in year one and 40,000 commuters in subsequent years. Survey samples could come from employers subject to the Durham County TDM Ordinance, employers who wish to keep their BWC status, and any other local trip reduction ordinances that can be developed. Regardless of where survey samples comes from, there should be core questions that are consistent throughout all survey tools used to ensure that the data analyzed is the same.

Program Participation. Programs cannot achieve results unless individuals participate in them, and this section discusses the participation measurements that should be collected to determine the success of TDM programs.

- Number of participants enrolled in carpool, vanpool, and school pool programs
- Number of participants in campaigns such as Bike to Work Day
- Number of participants in programs such as Guaranteed/Emergency Ride Home
- Number of participants or companies participating in telework programs
- Number of companies participating in training and assistance programs

Program Awareness. Successful TDM programs will increase individuals' awareness of and willingness to use alternative transportation modes. To understand how successful TDM programs are at accomplishing these goals, the follow items should be tracked:

- Proportion of the population that is aware of the program being offered or promoted
- Proportion of the population that know how to use or take advantage of the program being offered or promoted
- Willingness of the community and businesses to use services being offered or promoted

Customer Satisfaction. While not a direct measure of program impacts, customer satisfaction should be measured to encourage that the highest level of service is being provided to the public. Items that should be measured within this category are:

- Satisfaction with travel tools such as websites and maps
- Level of satisfaction with the following customer service measurements:

- Time to obtain assistance
- Usefulness of information provided
- Knowledge level of staff
- Staff understanding of needs
- Overall satisfaction with programs and staff
- Whether individuals or businesses would recommend programs and services to a friend or another business.

Outreach Activities. Time spent on outreach activities can provide information on the level of effort expended by agencies in order to generate program impacts. Information from the tracking of outreach activities combined with program impact data can provide a clearer picture of public interest in TDM programs. Certain programs may require significantly higher levels of outreach effort to encourage program participation. Outreach activities that should be tracked are:

- Number of outreach calls
- Number of commuter fairs and community events attended
- Billboard ads placed (where appropriate)
- Number of mailings and pieces per mailing
- Website hits (unique visitors)
- Press coverage
- Number of radio and TV ads placed
- Number of print ads placed

3.0 Services/Operations

The Services/Operations and Program Administration performance area focuses on basic TDM strategies that apply to all geographies and can achieve efficiencies of scale by being centralized under one primary regional agency.

3.1 Ridematch Service Enhancements

Description

The Share the Ride NC Ridematch Service provides a basic and important commuter service – referral to possible rideshare partners. This work plan assumes a continuation of the existing service, with enhancements to advance use of the tool by Triangle region commuters. Records in the rideshare matching file will continue to be updated semi-annually to promote high-quality matches, keep participant information current, and eliminate those who no longer want to participate.

Activities

Activity
Continued operations and maintenance of the statewide ridematch database and 485-RIDE This includes continuing to purge the database every 6 months to ensure it is up to date.
Develop ridematch applications in multiple languages. Ensure that online ridematch application is in Spanish. As demographics shift translate the application into appropriate languages.
Ridematching Tool Enhancements. Enhance ridematch operations by integrating or developing tools that can track participation and provide incentives as well as provide instant messaging capability. (See 3.1.6 Focused Marketing for detailed information on this task)
SchoolPool Ridematching. Ensure that the database and corresponding forms are set up to accommodate school pool matches. More information on a detailed SchoolPool program is included in the Outreach section.
Create closed matching pools. Closed matching pools will assist with outreach for individual large employers or business parks and for carpool pilot programs, including the Emergency Preparedness RideMatching pilot programs.
Evaluate RidePro as a Ridematching Tool. As ridematching is upgraded it may be necessary to evaluate RidePro's ability to deliver real-time matches via the web, function as a ridematching tracking tool, and provide greater integration with TTA's other GIS resources.
Assess the value of a SchoolPool application on the GoTriangle website. If determined to be favorable, this task will require the interaction with the Website Development element to architect online access to the SchoolPool database.

3.2 Travel/Trip Planning Service

Description

The GoTriangle.org door-to-door Trip Planner provides a basic and important commuter service –advice on the best public transportation connection to destinations within the Triangle region. Durham Area Transit (DATA), Raleigh Transit (CAT), Chapel Hill Transit (CHT), NCSU Wolfline, Cary Transit (CTran), and TTA regional services are included.

Ongoing monitoring and maintenance of the GoTriangle.org trip planning tool integral to operations and marketing strategies contained in this plan. *Services/Operations and Administration* staff will function as Webmaster for the websites.

Activities

Activity
Continued operations and maintenance of trip planning software application, including answering customer service calls to 485-RIDE
Integrate real-time bus arrival information. Integrate real time bus information into trip planning tool as technology is made available by transit agencies. Start with information available through Chapel Hill Transit. Encourage funding for real time information through regional transit planning activities.
Enhanced Trip Planning Tool. Vanpool routes and bike paths are logical first steps to including additional transportation modes to the trip planning tool, possibly through Interactive Mapping Systems. Eventually the tool can include information on trip planning alternatives to special events
Provide access to real-time traveler information. Traffic cameras and ITS technologies are often used by TDM providers to provide commuters with alternative route information or special event goers with the best routes of travel to special event venues. This information can be supplemented by information on how to take transit or bike to work/events.

3.3 GoTriangle.org Website Enhancements

The GoTriangle.org website is critical to the enhanced operation and marketing of all TTA programs and services. This work plan assumes a continuation of the existing service, with enhancements to advance use of the tool by Triangle region travelers. In 2009, *Planning and Program Development* staff will upgrade the GoTriangle.org website to meet client, partner, and staff expectations, including service as the primary conduit of commuter information, as a viable connection into the ridematch database, and as a survey and tracking tool to better evaluate the effectiveness of TTA's programs.

As the brand GoTriangle.org is further enhanced the website will need to be reviewed for its existing effectiveness and future enhancements. The following tasks should be coordinated closely with the marketing and branding tasks.

Activities:

Evaluate GoTriangle.org. Working in conjunction with TTA web developers, and a regional subcommittee of the local service providers, TJCOG staff will evaluate the effectiveness of the GoTriangle.com and redefinetravel.org websites from both the administrative and user side and recommend development options. As part of the evaluation conduct focus groups to determine the user experience and hold in-depth stakeholder meetings with providers to determine program tracking needs. TJCOG will relay this user feedback to TTA web programmers.
Develop Website Development Plan. The recommendations resulting from the evaluation process will constitute a website development plan and will address development of on-line surveying and tracking tools for employer participants, an on-line database of employers and services for use internally and by TDM partners, connectivity between the TTA, GoTriangle.org, redefinetravel.org, and partner websites, and other features. The plan will include assessment of resources needed to implement recommended development options.
Redesign and implement enhanced web site in accordance with the website development plan.
Support Website evaluation and development in close cooperation with *Planning* staff.
Maintain Website content and functionality on an ongoing basis. *Services/Operations and Administration* staff will review and update GoTriangle.com websites regularly to ensure content accuracy and full website functionality.

3.4 Vanpool Program

Description

The TTA Vanpool Program experienced moderate growth from its inception in the mid-1980s through 2007 based on marketing and subsidies made possible through partnerships with TTA. For FY 2008-2015, the program will sustain program expansion by working to streamline the van acquisition process, continuing aggressive marketing, and maintaining high quality customer service.

Activities

Continued support for vanpool group formation. Interface with *Marketing and Outreach* staff to ensure a seamless transition once a vanpool has been "sold" to a new vanpool group. Provide first-class customer service to drivers and riders to ensure satisfaction and promote vanpool group retention.
Facilitate Automated Pre-Tax Payment Collection. This includes allowing employees to make electronic payments through their payroll to TTA for vanpool fees.
Explore automated reporting systems. Explore the use of an on-line reporting system where vanpool users can sign up for, pay for and manage their trips automatically. On the administrative side, TTA will require less staff time to manage the vanpool program with automatic invoice generation, users updating data, etc.
Explore new pricing structures and subsidies for vanpool program. Explore offering reduced and flat fare pricing as a means to increase vanpool formation and ridership. Explore reallocating a larger percentage of 5307 funds that the vanpool program generates

back into the vanpool program to increase amount of funding for the program.

3.5 Emergency Ride Home Program Enhancements

Description

The Emergency Ride Home (ERH) program is a service designed to encourage the use of alternative transportation to the worksite by providing employees with a free back-up taxi ride home in the event of an emergency or unplanned schedule change. In FY 2008-2015, *Services and Operations* staff will work closely with taxi service and car rental providers to assure customer satisfaction with ERH services and will collaborate with *Marketing and Branding* as well as *Outreach* staff to retain existing ERH patron companies and attract new ones. ERH is most effective when managed regionally, but administered and promoted locally.

Activities

Continue maintenance of day-to-day ERH operations, including payment processing and contracts administration. This task will involve close communication with taxi services and car rental providers to monitor operations and resolve any customer complaints.
Continued support and marketing of ERH services to existing and prospective patron companies. This task involves continuing to track customer satisfaction and working with *Marketing and Branding* as well as *Outreach* staff to promote retention of ERH patron companies.
Link ERH Registration to Ridematching Registration to reduce duplicative data entry on the part of TTA staff and the commuter.
Explore automated ERH service. Explore an on-line service that includes registration and the ability to receive vouchers electronically. The user would register and be maintained in a database. When they are ready to use ERH, they simply log in, state their reason for needing the ride home and a voucher is generated electronically along with a list of local taxi companies and/or car rental agencies. Checks and balances are put in place to ensure honest use of this system at all times. See Appendix F: Services and Operations under Automated GRH Administration for a description of how this program is applied in Atlanta, GA.
Maintain automated ERH service. If exploration of automated ERH service is successful, periodic maintenance of that service/system will be required to ensure its ongoing efficiency and effectiveness.
Assess ERH service enhancement strategies. Specifically, market survey research will be conducted to assess whether ERH clients perceive difficulties in accessing ERH service, and the value of incentives for improving taxi driver response to ERH service calls will be evaluated.

3.6 Telework Program

Description

GoTriangle Telework will be developed to serve as a one-stop resource for developing, implementing, evaluating and gaining information on telework. *Services/Operations and Program Administration* staff will focus on delivery of telework technical consulting services to employers that have expressed an interest in or have committed to establishing telework programs within their organization.

Activities

Refresh and conduct new, quarterly telework training workshops. These workshops, identifying lessons learned and relating operational guidelines, will provide information on overcoming management resistance, how to write a management proposal, how to develop telework programs for non-profit and public sector employers, technology considerations, and cost / benefit analyses of telework. The workshops will also serve as a tool to provide emergency preparedness outreach.
Deliver ongoing GoTriangle Telework consulting services through delivery of technical assistance upon request or through unsolicited follow up contact with existing GoTriangle Telework client companies.
Support development and tracking of two Telework pilot programs. Working in collaboration with *Planning* staff, two pilot programs will be conducted to evaluate options for enhancing the GoTriangle Telework program. The pilots should assess better ways to help be a resource to develop, implement, evaluate or gain information on telework.
Publish quarterly telework e-newsletter targeting GoTriangle Telework partners, client companies, and the public. The e-newsletter will provide specific tips and stories for teleworkers. This activity will require interaction with *Marketing and Branding* staff.
Solicit GoTriangle Telework sponsorships. Seek private-sector partners willing to commit to an ongoing investment of financial resources to GoTriangle Telework in future years.

4.0 Marketing and Branding

4.1 TDM Branding

Description

Many metropolitan areas have established a regional brand for commuter programs. Regional TDM providers operate under the regional brand, thereby establishing long-term recognition and awareness of program services. Internally, this process allows for a unifying relationship between the TDM organizations throughout the region and enhanced communication levels. Externally, this leverages and enhances the attractiveness of alternative commute options in the region.

Two elements are critical in enhancing GoTriangle.org to serve as a strong umbrella for TDM in the Triangle region. First, the brand has to remain "flexible in application" allowing each local organization the ability to implement and apply the brand's benefits based on their unique program needs and goals. By ensuring this flexibility, each local organization can supply a level of strength and integrity to the brand while also obtaining a greater number of qualified prospective commuters. The second element involved developing "relevancy" towards the commuter. Relevancy includes everything from messaging, the brand's promise, as well as its brand "personality." Keeping these two critical elements as guiding factors, an umbrella brand can easily amplify the awareness of the services to Triangle target markets.

Activities

Solicit the involvement of the TDM community in enhancing the GoTriangle.org as a regional brand for TDM services. This task requires the continuation of the TDM coordinating/advisory committee.
Appoint a Brand Manager. This person will be responsible for ensuring the required branding tasks are carried out in a timely and professional fashion as well as maintaining a consistent brand identity throughout the brand implementation. This person must understand the brand's mission and will subsequently become the ambassador to guaranteeing its execution.
Create and Implement a Brand Development Plan. Working with the TDM advisory group; a regional TDM branding plan will be developed. The plan should take into consideration the branding needs of both regional and local stakeholders. Although TTA should play a lead role in the development of this plan, LSPs need to be a part of the Brand Development planning process to ensure it takes into consideration local needs. Concepts for messaging and possibly updated imaging will be developed, with attention paid to how these concepts will be developed into marketing collateral and whether retaining strategy-specific brands, such as GoTriangle for carpool services, has value. The plan will address collateral transitioning, cost distribution, and other messaging elements. In short the plan will: • Act as a reference guide and marketing plan for the umbrella brand. • Give guidance in the subsequent steps of implementing the brand name. • Offer tactical direction in various communication strategies.

4.2 Focused Marketing

Description

Triangle marketing activities will be refocused in FY 2008 with emphasis on developing targeted, localized campaigns to complement broad, regional campaigns. Partnerships for service delivery will be actively pursued. Marketing collateral will be structured to support these targeted campaigns (either location or product-specific).

Activities

Develop and implement detailed campaign- and program- specific marketing plans. TTA staff will work in collaboration with TDM Marketing and Outreach staff to develop detailed marketing plans that specify implementation steps and accountabilities for 2008 marketing activities.
Annual Regional "try it" marketing campaign. Continue survey work related to SmartCommute Challenge. SmartCommute Challenge still has support and momentum, but the program will run the risk of stagnation if continued for too many years without reinvention. Future plans should allow for program flexibility to make changes or improvements, as necessary.
General Marketing Support. Update the most recent knowledge of area target markets, demographics and relevant messaging used to reach these groups. Have staff and talent available to offer marketing, communications, and media relations questions.
Awareness Campaign. Develop a regional marketing campaign that focuses on awareness. This campaign would deliver a unified message and a single reference point for more commuters to find detailed information (i.e. GoTriangle.org) Develop a marketing plan that identifies the messages, a single contact point for more information on commuting (web), and media outlets to use. Media purchases should be strategic to obtain the most qualified prospects.
Develop BWC replacement program for employers and developers. Replace BWC with an employer recognition program that stimulates a competitive environment amongst corporations by encouraging employers to win regionally promoted awards. Ensure that includes a precursor program, to engage employers who either find the former BWC minimum requirements difficult or overwhelming to achieve. NCDOT should explore taking over the sponsorship of BWC program from EPA and manage it as a statewide program. NCDOT could also coordinate with other regions in the United States that promote BWC, to ensure that there is an objective and independent third party to review BWC applications**.**
Develop an Annual Report. This marketing piece (either electronic and/or print) will be used to highlight the collective efforts of the regional brand as a whole and the localized organizations that contribute to its success. This document would also highlight the information collected during evaluation and monitoring.
Develop and distribute Spanish-language carpool marketing materials. Use these materials to support marketing and outreach to the Spanish speaking population in the Triangle region who is not currently targeted. See Appendix F: Targeted Marketing for research on Spanish Speaking population in NC.

Best Work Places for Commuters (BWC) Campaign and Awards Ceremony – Transition BWC campaign and awards ceremonies as well as the BWC breakfast, newsletter and support to existing BWC members from TJCOG to TTA. Increase participation in replacement program by 10% annually. Continue to acknowledge those BWC employers in the Triangle region to meet the EPA's standard of excellence for BWC as well as the precursor BWCs.
Seek out partnership opportunities for local campaigns. For each campaign, GoTriangle will attempt to leverage local resources to offset costs and/or staff resources.
Build Awareness of vanpool fares including gas costs. As gas prices continue to increase, the value of free gas provided as part of a vanpool lease also increases.
Regional Bike to Work Day – Continue to promote cycling as a commute mode and educate commuters how to do it safely.

4.3 Media Relations

Description

Through Public Information & Communications division staff, *Marketing and Branding staff* will provide Triangle-area print and electronic media with newsworthy stories related to regional TDM issues and commuter benefits programs. Stories will be selected for their potential to raise public awareness about GoTriangle's programs and services and to influence public opinion regarding the role of TDM in improving mobility now and in the future.

Activities

Support contacts with Triangle-area news media. TTA staff will support contacts with Triangle area news media. This support will include providing information or serving as subject matter experts in response to news media inquiry.
Seek media placements for four current events stories. Current events stories report on a timely event or development affecting commuters, such as a planned special event, a new construction mitigation measure, or announcement of a new commuter benefit (e.g., passage of tax incentive legislation).
Seek media placements for four feature stories. Feature stories pertain to interesting but not time-sensitive stories about commuting life in Triangle, such as a "day in the life" story.
Identify newsworthy TDM successes throughout the region and develop these successes into news releases or story pitches. Resulting news coverage will complement marketing activities in raising the profile and level of awareness of GoTriangle and the importance of TDM in addressing the region's overall mobility needs. Effectiveness measures include target market response and awareness of TDM among opinion leaders.

4.4 GoTriangle TDM Financial Incentives

Description

The GoTriangle TDM Financial Incentives program is designed to achieve three main goals, which are as follows:

1) Motivate SOV travelers to try an alternative mode of transportation and reward them for doing so.
2) Motivate existing non-SOV travelers to continue using their mode of transportation and reward them for doing so.
3) Establish a tool to track region wide participation in alternative modes of transportation that are often difficult to otherwise track.

Activities

Develop regional commute tracking and rewards based program. The program would be administered regionally, but promoted locally.
Develop and track up to three targeted area incentive programs. These incentive programs will be developed locally to test the feasibility of applying the incentive programs region wide. This task will be conducted in close coordination with *Services/Operations* staff.
Develop regional reward/incentive based program for alternative commuters. Develop a points based accrual campaign that encourages the repeat usage of alternative modes. The program will rely on the internet to ensure it is easy to manage internally as well as promote and participate in externally. Rewards would reinforce local business relationships with corporate sponsors and gift cards.
Fund regional reward/incentive based program for alternative commuters. Ensure there are funds to operate the regional incentive system and provide awards.

5.0 Outreach

5.1 Regional Outreach

Description

Employers are motivated by bottom line results and attracting the best employees. Accordingly, GoTriangle.org must focus messages and outreach on commuter benefits in terms of tax incentives and employee retention. This can be enhanced by building on corporate acceptance of "green" strategies and increasing desire to be a good corporate citizen through measures like TDM.

The region has an excellent base of employer clients. These must be maintained and new employers recruited. Regional outreach vs. local outreach must be carefully integrated. Where a local program exists, regional outreach staff will collaborate on the best outreach strategies (see following section for local outreach activities).

Activities

Develop strategy for regional program implementation that supports local programs. Regional TDM programs must be sensitive to the desire to have local programs that highlight the specific needs and unique characteristics of individual activity centers. A well thought out strategy to regional program implementation that supports local programs, as appropriate, will be critical.
Maintain relations with existing employer clients. To promote client retention regional *Outreach* staff will maintain regular follow up contact with clients. Leveraging resources developed in the website redesign, opportunities will be taken to touch employer clients through electronic messaging and "check-in" calls.
Conduct individualized employer outreach to targeted employers. A "Top 20" list of large metro area employers not in targeted areas will be established. These employers should have TDM Programs on paper that could be better utilized by their employees. Survey their employees to identify what programs they are aware of and what they would like as well as identify which employees are most likely to use them.
Assist with vanpool group formation. Working primarily through employers and local TDM providers, regional *Outreach* staff will act as technical experts to assist with recruiting vanpool drivers and forming vanpool groups to keep pace with van acquisition and vanpool group turnover.
Empower local service providers with marketing regional products and services. Regional *Outreach* staff will provide technical and outreach support, as needed in efforts to market regional products and services, including providing collaterals, accompanying partner personnel on outreach visits, and conducting follow up as requested.
Commuter Benefits outreach – Continue to work with targeted employers in the Triangle region to achieve the EPA's former standard of excellence for BWC. **Increase participation in BWC replacement program by 10% per year.**
Reorganize Regional Outreach Staff. TTA outreach staff will focus outreach efforts in those target areas that lack local staff resources. Once local staff resources have been allocated, TTA outreach staff can shift focus to specialty based outreach. (e.g. telework,

vanpools, pre-tax, etc.) They will also address self-generated employer interest outside of target areas.
Development of ETC Network. Regional *Outreach* staff will create an online and in person forum for Employee Transportation Coordinators to share ideas on how to implement TDM programs at their sites. At least 3 forums per year.
Develop one employer case study per quarter. Case studies are an effective tool for outreach and education. TTA will leverage staff resources directed towards evaluation and tracking of employer outreach activities to develop brief employer case studies, to be used by all regional TDM partners.

5.2 Local Outreach

Description

Regional *Marketing and Outreach* staff will work with its local service providers to clearly define each other's roles and responsibilities in employer outreach, service delivery and measurement and reporting. Expectations will be established cooperatively and formalized in writing. These agreements are intended to encourage closer cooperation and coordination among partners toward mutually shared goals for TDM effectiveness. Those goals are based on targeted efforts in Downtown Raleigh, Raleigh-NC State, Downtown Chapel Hill, Downtown Durham, and Research Triangle Park. Maps defining the geographies of these target areas can be found in Appendix F, under the Targeted Marketing section of Branding and Marketing.

Activities

Clarify existing relationships between regional and local service providers. *Planning* staff will enter into discussions with each TDM partner to identify mutual interests, establish performance goals, and define roles and responsibilities for reaching these goals. *Planning* staff will seek agreement with each provider on contributions toward achieving regional TDM performance goals in FY 2008-15 (e.g., number of carpool registrants added to the carpool database, number of vanpool groups formed) in exchange for NCDOT and/or CMAQ/STPA financial or in-kind support. Agreements will be finalized by contract, implemented, and tracked for compliance.
Increased marketing, promotion and outreach to target areas Local *Outreach* staff will be accountable for maintaining regular contact and communication with their local employers, collaborating on projects, supporting partner activities, and tracking and reporting progress. For universities this is also targeted to students, faculty and staff. Specific recommendations for each Local Service Provider (LSP) can be found in Appendix F under the Existing Local Service Provider TDM Guides section of Services and Operations.
Establish service relationships with new local service providers. Regional *Outreach* staff will initiate contact with possible local service providers in target areas to explore opportunities for increased, localized service delivery. Prospective partners include major regional chambers of commerce, business improvement districts and TDM-oriented municipal agencies or departments.
Development of Local ETC Networks. Local *Outreach* staff will create an online and in person forum for Employee Transportation Coordinators to share ideas on how to implement TDM programs at their sites.

Conduct individualized employer outreach to targeted employers. A "Top Five" list of large target area employers for each targeted area will be established. These employers should have TDM Programs on paper that could be better utilized by their employees. Survey their employees to identify what programs they are aware of and what they would like as well as identify which employees are most likely to use them.
Commuter Stores. Whether an on-line store or an actual store that commuter can come into to access transportation information, these tools are extremely effective in getting messages to commuters. Serving as one stop shops for transportation resources the stores or even kiosks can be integrated into chamber, municipal or improvement district lobbies and/or websites.
Encourage property mangers and new development sites to incorporate parking management and TDM friendly site design. These measures include: • Bike Racks and showers • Pedestrian entrances • Parking Management including transportation allowances instead of paid parking spaces, preferential parking for carpools and vanpools and • Carsharing program More information on specific strategies is included in the Trip Reduction and Growth Management Toolkit.
Additional targeted outreach through new LSPs. Regional *Outreach* staff will initiate contact with possible local service providers in target areas to explore opportunities for increased, localized service delivery. Prospective partners include major regional chambers of commerce, business improvement districts and TDM-oriented non-profit organizations. Private sector participation should be sponsored by a non-profit organization.

5.3 Special Events Outreach

Description

Planned special events, like a sporting event, the circus, county fair, or concert, often generate high concentrations of traffic congestion during a relatively short period of time before and after the event. Attendees can be more likely to try an alternative mode of transportation to special event, because it is a more discretionary trip. Once they try alternative transportation for a planned special event it increases the likelihood that they will use it during peak hours.

Activities

Local Special Events Assistance. Work with local event venues and organizers to identify means to communicate with patrons about travels alternatives when attending events.
Regional Special Events Assistance. Work with regional event venues and organizers to identify means to communicate with patrons about travels alternatives when attending events.

5.4 SchoolPool Outreach

Description

Outreach personnel will provide support services for a regional SchoolPool Program. Throughout the United States, driving children to school or allowing teenagers to drive themselves to school is as routine as the commute to work. The results are school sites that are severely congested during peak hours, overflowing parking lots and communities that have become unfriendly to bicyclists and pedestrians.

The objectives of a SchoolPool project are to educate students, faculty and staff on transportation alternatives and their benefits, reduce traffic congestion, air pollution and parking demands and make the commute to school easier for parents and students—in many ways similar to employer outreach.

Activities

The following activities have been identified for the SchoolPool Program element:

Conduct outreach to schools. Similar to employer outreach, a "Top 40" list of metro area school prospects will be established to guide SchoolPool outreach efforts. SchoolPool outreach will be conducted to leverage specific events in the school year, including school registration, commencement of classes, and International Walk Your Kid to School Day.
Develop SchoolPool pilot program. Develop a pilot program to provide technical services to three regional schools (can also be administered locally if there is a willing implementer). The pilot program should include transportation surveys, ridematching and site analysis, resulting in transportation and marketing program that will eventually be turned over to the school to administer. Once the pilot program is found successful, develop SchoolPool handbook and expand services to all schools.
Safe Routes to School. The safe routes program should be integrated into any SchoolPool program.

5.5 Trip Reduction and Growth Management Outreach

Description

There are a significant number of proven transportation demand management (TDM) strategies available to cities, property owners, employers, and others to reduce vehicle trips. The effectiveness of the various strategies will vary depending on the types of land use and travelers they are directed toward. UrbanTrans Consultants developed an online TDM Growth Management Tool Kit that provides a summary of typical TDM strategies and their likely effectiveness when applied to various land uses that are found within the Triangle region.

Activities

Work with local jurisdictions and developers to use TJCOG and MPOs as a resource with Growth Management Tool Kit. Encourage the following as part of toolkit outreach: • TDM Ordinances & Park N Ride Ordinances. • Voluntary Site design improvements

- Mandatory site design improvements and trip reduction strategies.
- Parking Management
- Carsharing promotion
- Develop public-private shuttles connection to transit or improved connections between local transit service and regional transit service.
- Improve local transit service and signal prioritization.
- Local Fare Free Transit Policies.
- Improve network of bicycle lanes and sidewalks.

5.6 Emergency Preparedness Outreach

Description

General marketing messages appeal to employers to adopt commuter benefits programs to help reduce traffic congestion and improve air quality. Updated messaging has the opportunity to emphasize the value of commuter benefits to the company's bottom line and to invite participation in patriotic causes through "Emergency Preparedness."

Employers and employees are encouraged to take the precaution of registering for carpool matching as a means of ensuring the employer's continuing operation in the event of an "emergency." Emergencies can include:

Fuel shortages or high prices
War
Travel restrictions
National Security Alerts
Extreme Weather Conditions

Activities

Create two pilot programs for Emergency Preparedness Ridematching. Working with *Services/Operations and Program Administration* as well as *Planning* staff, *Outreach* staff will develop and deliver an outreach campaign aimed at encouraging targeted employers to register at least 50percent of their employees into a carpool database for use in the case of "emergencies". Emergencies can be interpreted broadly, including inclement-weather, severe congestion, high gasoline price increase, or other external factors that may create a hardship for the employer due to inability of employees to arrive for work. The first tier of employers that will be contacted are government and military organizations, followed by public service companies, electric, fuel, transportation and finally Triangle Region's largest employers. Marketing messages will connect with current events related to extreme weather conditions and the war on terrorism.

Appendix A: Triangle Region Business Leader Survey Results

The Triangle Region Business Leader Survey results provide insight to business leader issues and interests that will assist in the development of a long-range Travel Demand Management (TDM) Plan for the region.

There were thirty seven responses. The respondents stated the leading transportation issues affecting area business are traffic congestion, length of commute and transit convenience. These issues affect the Region's ability to conduct business through challenges in recruiting businesses, businesses selecting locations based on traffic congestion and businesses not able to attract the employees they need from within the region.

The respondents were most interested in advocating for new and/or improved transit services, promoting ridematching services for carpools / vanpools and assisting with marketing and educational services on transportation options.

The following includes the questions and responses.

What, in your opinion, are the major transportation issues affecting area businesses? Respondents chose all that applied.

Response	Count	Percentage
Traffic congestion	36	97.30%
Length of commute	19	51.35%
Transit convenience	18	48.65%
Lack of sidewalks	9	24.32%
Lack of bike lanes/bike parking	9	24.32%
Traffic safety	8	21.62%
Access from local roads or arterials	7	18.92%
Lack of parking	5	13.51%
Other: • lack of funding • unpredictability of commute times	2	5.41%

How do these transportation issues impact the region's ability to conduct business? Respondents chose all that applied.

Response	Count	Percentage
Challenging to recruit businesses to the area	23	62.16%
Businesses are selecting locations based on traffic congestion	18	48.65%
Business cannot attract the employees they need from within the region.	15	40.54%
Businesses are selecting locations based on transit accessibility	10	27.03%
Transportation issues do not affect the Region's business	3	8.11%
Business leaving the area due to transportation	2	5.41%

Response	Count	Percentage
issues		
Other: • Reduced quality of life in attracting new employees • Rare occasions where people will not commute more than 30 - 40 minutes • Difficult to convene across region meetings. Truck delivery schedules impacted by traffic jams.	3	8.11%

Would your organization be interested in promoting any of the following? (Not all respondents replied to all questions.)

Response	5=not likely	4	3	2	1=very likely
Advocacy for new and/or improved Transit services	2	2	8	**9**	**11**
Employee trip-assistance programs	3	5	5	**9**	**6**
Ridematching services for carpools / vanpools	4	4	5	**10**	**7**
Marketing and educational services on transportation options	1	1	8	**13**	**8**
Parking management assistance	**6**	**7**	7	2	2
Parking Cash Out	**12**	**4**	4	1	2
Transit Subsidies	**7**	3	**8**	5	3

Additional Comments:

- Full completion of I-540 should be a significant priority.
- A number of our employees have attempted to use the bus service in RTP. Drop off distance from the building (over 1 mile) made it impractical for many of them.
- Expand 540 more quickly
- Plan needs to be more regional based, less specific to counties, towns, etc.
- Need to solve the revenue gap issues that are choking infrastructure projects in the urban areas. Toll Roads are one answer.
- Require the DOT to include cleanliness in construction projects throughout the term of the project itself, not just upon completion. It's unsightly and gives a negative impression.
- Work to make transit options time-competitive - managed lanes, rail, express service, variety of conveniences/attractions at transit stops.

Triangle Region Long Range Travel Demand Management Plan

Business Leader Survey

Part 1

1. What, in your opinion, are the major transportation issues affecting area businesses?

Check any that apply

- ☐ Traffic congestion
- ☐ Traffic safety
- ☐ Lack of parking
- ☐ Length of commute
- ☐ Access from local roads or arterials
- ☐ Transit convenience
- ☐ Lack of sidewalks
- ☐ Lack of bike lanes/bike parking

Other:

2. How do these transportation issues impact the region's ability to conduct business?

Check any that apply

- ☐ Challenging to recruit businesses to the area
- ☐ Business cannot attract the employees they need from within the region.
- ☐ Business leaving the area due to transportation issues
- ☐ Businesses are selecting locations based on traffic congestion
- ☐ Businesses are selecting locations based on transit accessibility
- ☐ Transportation issues do not affect the Region's business

Other:

3. Are you familiar with the local programs/organizations that assist commuters and travelers by providing information about bus, vanpooling and carpooling?

- ○ Yes
- ○ No

4. Which of the following organizations do you think assist commuters with commute options:

Check any that apply

- ☐ State Department of Transportation
- ☐ Transit Agencies
- ☐ City Government
- ☐ County Government
- ☐ Metropolitan/Regional Government
- ☐ Employers/Universities
- ☐ Business Organizations
- ☐ Neighborhood Associations/HOAs

5. In your opinion, is it important for a community to provide information/education/services to promote and provide multiple modes of transportation (i.e. bus, vanpool, carpool, bicycling)?

- ○ Yes
- ○ No

Part 2

6. Would your organization be interested in promoting any of the following? 5=very likely to 1=not likely.

	1-Not likely	2	3	4	5-Very likely	N/A
Advocacy for new and/or improved Transit services	○	○	○	○	○	◉
Employee trip-assistance programs	○	○	○	○	○	◉
Ridematching services for carpools / vanpools	○	○	○	○	○	◉
Marketing and educational services on transportation options	○	○	○	○	○	◉
Parking management assistance	○	○	○	○	○	◉
Other	○	○	○	○	○	◉

7. Would your organization consider providing any financial support to improving alternative transportation options in the Triangle Region?

- ○ Yes
- ○ No
- ○ Don't Know

8. What is the primary nature of your business?

Choose only one of the following

- ○ Chamber
- ○ Improvement District
- ○ Business Association
- ○ Other

9. Please provide contact information:

Company Name

Contact Person

Address 1

Address 2

City

State

Zip Code

Phone

Email

10. Do you have any additional transportation related comments?

THANK YOU FOR COMPLETING THE SURVEY!

submit

[Exit and Clear Survey]

This survey is not currently active. You will not be able to save your responses.

Appendix B: TTA Employer Survey Results

The Triangle Region Employer Survey summary provides employer needs and preferences to assist in the development long-range Travel Demand Management (TDM) Plan for the region. The survey was sent to approximately 200 employers, identified by the Advisory Committee. Sixty eight employers completed the survey. A $50 Target Gift Card was offered as an incentive.

Employer Information

Of the employers responding 34 percent were in the public/government sector, 16 percent office, 15 percent nonprofit organizations, and 14 percent research and technology related businesses. Respondents were primarily located in Raleigh, 22 respondents (32 percent), Research Triangle Park (RTP), 22 respondents (32 percent), and Durham, 18 respondents (26 percent). When appropriate, analysis was done on each of these locations separately.

The number of employees at each respondent's worksite ranged from seven to 23,000 with an average of 1,550 employees. Given the large range, when appropriate, analysis was done for small (7-100 employees), medium (101-500) and large businesses (over 500). There were 19 small (27 percent), 29 medium sized (43 percent) and 20 large (29 percent) employers.

Forty-four percent of employers reported plans to expand their workforce and 44 percent reported staying at the same number of employees.

Transportation Problems

All of the respondents thought there were at least some transportation problems affecting the Triangle Region. The top problems identified were traffic congestion, inadequate transit services, inadequate roadway capacity, lack of bike lanes and lack of sidewalks (see Table 1). The identified problems sometimes varied by geographic location. Notably, inadequate transit service was a higher concern for employers in the Research Triangle Park area.

Table 1: Key Transportation Problems Affecting the Region

Problem	Overall	Durham	Raleigh	RTP
Traffic congestion	89.71%	94.44%	90.91%	86.36%
Inadequate transit service	66.18%	50.00%	63.64%	81.82%
Inadequate roadway capacity	47.06%	55.56%	54.55%	40.91%
Lack of bike lanes	35.29%	33.33%	31.82%	31.82%
Lack of sidewalks	32.35%	33.33%	31.82%	31.82%
Traffic safety	29.41%	44.44%	36.36%	27.27%
Rising costs of driving	26.47%	38.89%	22.73%	31.82%
Lack of affordable housing near jobs	20.59%	22.22%	22.73%	9.09%
Other	4.41%	0.00%	9.09%	4.55%
None	0.00%	0.00%	0.00%	0.00%

Note: Respondents were able to choose more than one selection

Respondents who selected 'other' cited concerns about inadequate parking, the need for more convenient bus routes to Research Triangle Park and the need for more bike facilities, not just bike lanes.

There was less agreement on the top transportation problems affecting the respondents' worksites. Key concerns were traffic congestion, length of employee commutes, transit access,

and transit frequency. Lack of parking was a greater concern in Raleigh, while length of commutes was a greater concern in Research Triangle Park. See Table 2 for full results.

Table 2: Key Transportation Problems Affecting Worksites

Problem	Overall	Durham	Raleigh	RTP
Traffic congestion	55.88%	50.00%	59.09%	63.64%
Length of employee commutes	45.59%	38.89%	36.36%	72.73%
Transit access	38.24%	38.89%	31.82%	36.36%
Transit frequency	35.29%	38.89%	31.82%	36.36%
Lack of parking for employees	27.94%	27.78%	59.09%	4.55%
Cost of employee commutes	25.00%	27.78%	22.73%	27.27%
Lack of bike lanes near worksite	23.53%	27.78%	18.18%	22.73%
Lack of parking for customers	20.59%	22.22%	36.36%	4.55%
Traffic safety	17.65%	16.67%	22.73%	27.27%
Lack of sidewalks near worksite	8.82%	16.67%	0.00%	9.09%
None	7.35%	11.11%	0.00%	9.09%
Other	7.35%	0.00%	9.09%	13.64%
Accessibility to customers	5.88%	11.11%	9.09%	0.00%
Access from local roads or arterials	4.41%	5.56%	0.00%	4.55%

Note: Respondents were able to choose more than one selection

Four out of five of the 'other' concerns were specific problems involving the ability to commute using mass transit. Respondents cited the lack of transit access at the home end of the trips, overall trip length and lack of direct routes.

Despite identifying these problems, 46 percent of respondents stated that transportation problems do not affect their organization. The remaining 54 percent identified multiple problems. Thirty percent of all respondents agreed that transportation problems cause more challenging employee recruitment and 28 percent find transportation problems reduce employee productivity (see Table 3).

Table 3: How Transportation Problems Affect Organization

Problem	Overall	Durham	Raleigh	RTP
Transportation problems do not affect the organization	45.59%	50.00%	36.36%	45.45%
More challenging employee recruitment	29.41%	27.78%	40.91%	22.73%
Reduced employee productivity	27.94%	22.22%	27.27%	31.82%
Higher employee turnover	7.35%	5.56%	9.09%	4.55%
Other	5.88%	11.11%	0.00%	9.09%

Note: Respondents were able to choose more than one selection

The 'other' responses included convenience of transit options enhances employee's job experience, increased cost of employee's commutes, and the inability of second shifts to use public transportation because of limited hours.

Modes to Work

Table 4 includes the percentages respondents estimated for each mode employee's use as a primary means to work. Overall, one to five percent is the most common bracket for employees using alternative modes.

Table 4: Primary Modes to Work

Percentage Using	Transit	Carpool	Vanpool	Bicycle	Walk	Work from Home	Drive Alone
No answer	21.54%	21.54%	29.23%	21.54%	32.31%	29.23%	0.00%
0% (1)	13.85%	6.15%	33.85%	27.69%	33.85%	16.92%	0.00%
1-5% (2)	46.15%	53.85%	32.31%	41.54%	27.69%	38.46%	0.00%
6-10% (3)	10.77%	12.31%	3.08%	3.08%	4.62%	9.23%	0.00%
11-20% (4)	4.62%	4.62%	1.54%	3.08%	1.54%	1.54%	0.00%
21-40% (5)	1.54%	1.54%	0.00%	1.54%	0.00%	4.62%	1.54%
41-60% (6)	0.00%	0.00%	0.00%	1.54%	0.00%	0.00%	13.85%
> 61% (7)	1.54%	0.00%	0.00%	0.00%	0.00%	0.00%	84.62%

Transit Service

Respondents were asked about convenience of transit service to their worksite. Eighty percent report that transit is not or not very convenient (see Table 5).

Table 5: Convenience of Majority of Employees to Use Transit

Answer	Overall	Durham	Raleigh	RTP
Not very convenient	47.06%	27.78%	63.64%	50.00%
Not convenient	33.82%	44.44%	18.18%	31.82%
Somewhat convenient	14.71%	22.22%	13.64%	13.64%
Convenient	2.94%	0.00%	4.55%	4.55%
Very convenient	1.47%	5.56%	0.00%	0.00%

The inconvenience is not from the lack of bus stops near worksites; 87 percent of respondents report that there is a bus stop within a quarter mile of their worksite. Respondents suggest that more routes, minimal transfers, and increased frequency are most likely to encourage employees to use transit. Table 6 shows the full results, along with the differences by major locations.

Table 6: Ways to Encourage Transit Commutes

Answer	Overall	Durham	Raleigh	RTP
More Routes	67.69%	38.89%	68.18%	95.45%
Minimal Transfers	55.38%	38.89%	50.00%	81.82%
Increased Frequency	53.85%	55.56%	50.00%	59.09%
Faster Service	50.77%	38.89%	40.91%	72.73%
Free Service	27.69%	38.89%	22.73%	22.73%
Subsidies	20.00%	22.22%	13.64%	27.27%
Emergency Ride Home	20.00%	33.33%	22.73%	13.64%
Financial Incentives	20.00%	5.56%	27.27%	27.27%
Other	15.38%	27.78%	9.09%	9.09%
Charging for parking	4.62%	0.00%	9.09%	9.09%

Note: Respondents were able to choose more than one selection

The 'other' responses varied from respondents indicating that nothing could encourage transit commutes to suggestions for 24 hour transit service, light rail instead of buses, increased accessibility, shorter headways, more routes, and increased safety.

Carpooling/Vanpooling

Financial incentives were the top suggestion for encouraging car and vanpooling (59 percent) followed by emergency ride home programs (40 percent). A number of respondents commented that they already provide free matching services, emergency ride home programs and preferred parking for carpooling.

Parking

Two-thirds of respondents report adequate parking at their worksite; however, these results vary by location (see Table 7). All of the respondents in Research Triangle Park have adequate parking while only 27 percent of respondents in Raleigh think their parking is adequate.

Table 7: Parking Availability to Employees

Answer	Overall	Durham	Raleigh	RTP
Adequate (no parking shortages)	67.65%	77.78%	27.27%	100.00%
Somewhat adequate (occasional parking shortages or other difficulties)	19.12%	16.67%	36.36%	0.00%
Not adequate (parking shortages are common)	13.24%	5.56%	36.36%	0.00%

Free parking is offered at 73 percent of the worksites reporting; however there is free parking at all of the worksites in Research Triangle Park and only 36 percent of sites in Raleigh (see Table 8).

Table 8: Type of Parking Available to Employees

Answer	Overall	Durham	Raleigh	RTP
Free parking for employees	73.53%	77.78%	36.36%	100.00%
Employees pay for their own parking	22.06%	22.22%	50.00%	0.00%
Subsidized parking for employees	4.41%	0.00%	13.64%	0.00%

Transportation Programs and Incentives

Fifty-four percent of the respondents reported that their company offered some sort of transportation program or incentives to assist their employees' commutes. This varied by employer size: 80 percent of the large, 48 percent of medium, and 37 percent of small employers offer some kind of transportation program. The most offered programs and incentives were flexible hours, emergency rides home and carpool matching. The full results are given in Table 9.

Over half of responding organizations allow some flexibility in work schedules. Forty-four percent allow employees to flex their arrival and/or departure time by one to two hours. A third of the respondents have at least one employee who helps other employees with their commutes. Of that third, 84 percent are large, 39 percent are medium and 13 percent are small companies. On average 4.8 hours per week of staff time are spent on this task.

Table 9: Transportation Programs and Incentives Offered

Of those offering programs	Count	Percentage
Flexible work schedules (varying start and ending times)	34	91.89%
Emergency ride home in case of emergencies	28	75.68%
Bicycle amenities (bike racks, lockers, showers, etc.)	25	67.57%
Telecommuting options / working from home	23	62.16%
Matching employees to form carpools	22	59.46%
Bus pass subsidies	19	51.35%
On-site amenities (cafeteria, drycleaners, child care, etc.)	19	51.35%
Assigning an employee to help and encourage employees to use alternative forms of transportation	18	48.65%
Preferred parking for carpools /vanpools	17	45.95%
On-site bus pass distribution	16	43.24%
Vanpool subsidies	16	43.24%
Compressed work scheduling (40 hours in 4 days or 80 hours in 9 days)	14	37.84%
Providing pre-tax bus pass purchase options for employee	5	13.51%
Rewards for employees who use alternative forms of transportation	5	13.51%
Other	3	8.11%
Parking cash out (cash in lieu of parking spot)	0	0.00%

Note: Respondents were able to choose more than one selection

The 'other' responses included an annual transit fair and student transit passes.

Commute Options Information

Twenty-five percent of respondents are interested in receiving more information on commute options and 37 percent are unsure. Of those wanting to receive more information, 47 percent are large, 41 percent are medium and 12 percent are small companies.

Over 70 percent of respondents were aware of any organizations that provide information on commute options. Respondents were then asked to indicate all of the organizations they think currently provide information. The organizations most recognized for providing commute information were transit providers (78 percent), local government (50 percent) and regional government (41 percent).

Triangle Region Long Range Travel Demand Management Plan

Triangle Region Employer Survey

The Triangle Transit Authority is interested in learning about employer needs and preferences as part of the development long-range Travel Demand Management (TDM) Plan for the region. We appreciate your time and look forward to your response.

Surveys reponses are due December 1, 2006. As a thank you we will be having a drawing for a $50 Target Gift Card.

If you have any questions, please contact Fleming El-Amin at (919) 485-7521.

Part 1: Business Background

1. What is the primary nature of your business?

Check any that apply

- ☐ Office
- ☐ Public Sector/Government
- ☐ Education
- ☐ Manufacturing
- ☐ Warehousing
- ☐ Retail
- ☐ Service
- ☐ Healthcare
- ☐ Non-Profit

Other:

2. Where is your business located?

Check any that apply

- ☐ Raleigh
- ☐ Durham
- ☐ Chapel Hill
- ☐ Research Triangle Park

Other:

3. Approximately how many employees are employed at this worksite?

4. Is your worksite currently or in the near future expanding or reducing its workforce size?

Check any that apply

- ☐ Growing or expanding (increasing the total number of employees)
- ☐ Reducing (reducing the total number of employees)
- ☐ Staying the same
- ☐ Not sure

Part 2: Transportation Issues

5. In your opinion, what are the key transportation problems affecting the Triangle Region?

Check any that apply

- ☐ Traffic congestion
- ☐ Traffic safety
- ☐ Lack of sidewalks
- ☐ Lack of bike lanes
- ☐ Inadequate roadway capacity
- ☐ Inadequate transit service
- ☐ Rising costs of driving
- ☐ Lack of affordable housing near jobs
- ☐ None

Other:

6. What are the key transportation problems affecting your worksite(s)?

Check any that apply

- ☐ Traffic congestion
- ☐ Traffic safety
- ☐ Lack of parking for employees
- ☐ Lack of parking for customers
- ☐ Length of employee commutes
- ☐ Cost of employee commutes
- ☐ Accessibility to customers
- ☐ Access from local roads or arterials
- ☐ Transit access
- ☐ Transit frequency
- ☐ Lack of sidewalks near worksite
- ☐ Lack of bike lanes near worksite
- ☐ None

Other:

7. How do transportation problems affect your organization?

Check any that apply

- ☐ More challenging employee recruitment
- ☐ Reduced employee productivity
- ☐ Higher employee turnover

☐ Transportation problems do not affect the organization

Other:

Part 3: Commuting and Transportation Assistance

8. Does your company offer transportation programs or incentives to assist your employees get to work?

◉ Yes
○ No

Which of the following transportation related programs or incentives does your company offer?

Check any that apply

☐ Bus pass subsidies
☐ On-site bus pass distribution
☐ Matching employees to form carpools
☐ Flexible work schedules (varying start and ending times)
☐ Company sponsored vanpool service
☐ Vanpool subsidies
☐ Emergency ride home in case of emergencies
☐ Telecommuting options / working from home
☐ Bicycle amenities (bike racks, lockers, showers, etc.)
☐ On-site amenities (cafeteria, drycleaners, child care, etc.)
☐ Preferred parking for carpools /vanpools
☐ Compressed work scheduling (40 hours in 4 days or 80 hours in 9 days)
☐ Providing pre-tax bus pass purchase options for employee
☐ Rewards for employees who use alternative forms of transportation
☐ Assigning an employee to help and encourage employees to use alternative forms of transportation

Other:

9. To the best of your knowledge, how do your employees PRIMARILY commute to work? Please select an appropriate percentage range for each mode, even if 0%.

	0%	1-5%	6-10%	11-20%	21-40%	41-60%	> 61%	N/A
Transit	○	○	○	○	○	○	○	◉
Carpool	○	○	○	○	○	○	○	◉
Vanpool	○	○	○	○	○	○	○	◉
Bicycle	○	○	○	○	○	○	○	◉
Walk	○	○	○	○	○	○	○	◉
Work at Home	○	○	○	○	○	○	○	◉
Drive alone	○	○	○	○	○	○	○	◉

10. In your estimation, how convenient is it for the majority of your

employees to use public transit to commute to work?

- ○ Not convenient
- ○ Not very convenient
- ○ Somewhat convenient
- ○ Convenient
- ○ Very convenient

11. Is there a bus stop within ¼ mile of your worksite?

- ◉ Yes
- ○ No

12. How frequently does the bus arrive during morning and evening rush hour? (If there are several bus routes, what is the minimum frequency.)

- ○ 0-30 minutes
- ○ 30-60 minutes
- ○ One hour or more
- ○ Don't know
- ◉ No answer

13. What do you think would encourage your employees to use public transit to commute to work?

Check any that apply

- ☐ Minimal Transfers
- ☐ Increased Frequency
- ☐ Subsidies
- ☐ Free Service
- ☐ Charging for parking
- ☐ Emergency Ride Home
- ☐ More Routes

Other:

14. What would encourage your employees to use carpool or vanpool to commute to work?

Check any that apply

- ☐ Free Ridematching Services
- ☐ Emergency Ride Home
- ☐ Preferred Parking for carpools and vanpools
- ☐ Financial Incentives

Other:

16. Which of the following best describes parking availability to employees?

- ○ Adequate (no parking shortages)
- ○ Somewhat adequate (occasional parking shortages or other difficulties)
- ○ Not adequate (parking shortages are common)

17. What type of parking is available for employees at this location?

- Free parking for employees
- Subsizied parking for employees
- Employees pay for their own parking

18. How are work schedules arranged at your worksite?

- Arrival and departure times are set by the company
- Employees can shift arrival / departure times with prior approval
- Employees can shift arrival / departure times at their discretion
- Varies depending on the Department

19. How much time is allowed for employees to "flex" their arrival and/or departure times on an individual basis?

- None
- 1 – 15 minutes
- 16 – 30 minutes
- 1 – 2 hours
- More than 2 hours
- No policy for flexing start/end times

20. Does your company have an employee(s) with responsibilities to help other employees with their commute?

- (●) Yes
- No
- Not sure

If your company has an employee(s) with responsibilities to help other employees with their commute, how many staff hours per week are dedicated to this, on average?

Only numbers may be entered in this field

Part 4: Employer Participation

21. Would your company be interested in receiving more information on commute options?

- (●) Yes
- No
- Not sure

What type of commute options are you interested in?

22. Are you aware of any organizations that provide employers information on commute options?

Yes
No

23. Please check the organizations that you think currently provide commute information to employers:

Check any that apply

- Local government
- Regional government
- State government
- Local Chamber
- Transit provider
- Business/Downtown Improvement District
- University

Other:

24. Please provide contact information:

Company Name:

Contact Person:

Address 1:

Address 2:

City:

State:

Zip Code:

Phone:

Email:

25. Do you have any additional transportation related comments?

THANK YOU FOR COMPLETING THE SURVEY! You will be entered into our drawing for a $50 Target Gift Card.

submit

[Exit and Clear Survey]

This survey is not currently active. You will not be able to save your responses.

Appendix C: VMT Growth Reduction Toolkit

Data contained within the matrix are based on information from the following authors, UrbanTrans surveys of medical facilities, and professional judgment.

Boyd, Brend, Melissa Chow, Robert Johnson, and Alexander Smith. 2003. Analysis of effects of fare-free transit program on student commuting mode shares: BruinGo at University of California Los Angeles. *Transportation Research Record 1835*: 101-110.

Denver Regional Council of Government. 2004. *Review of the RTD FasTracks Plan*. Denver, Colorado.

Dill, Jennifer. 2003. Transit Use and Proximity to Rail: Results from Large Employer Sites in the San Francisco, California, Bay Area. *Transportation Research Record 1835:* 19-24.

Hendricks, Sara J. 2005. Effectiveness of Programs for Work Site Trip Reduction: The Influence of Organizational Culture. *Transportation Research Record 1924*: 207-214.

Hess, Daniel Baldwin. 2001. Effect of Free Parking on Commuter Mode Choice: Evidence from Travel Diary Data. *Transportation Research Record 1753*: 35-42.

Miller-Ball, Adam, Gail Murray, Jessica Ter Schure, Christine Fox, and Jon Burkhardt. 2005. Car-Sharing: Where and How It Succeeds. *TCRP Report 108*.

Pagano, Anthony M., and JoAnn Verdin. 1997. Employee Trip Reduction Without Government Mandates: Cost Effectiveness Estimates from Chicago. *Transportation Research Record 1598*: 43-48.

Peng, Zhongren, Kenneth J. Dueker, and James G. Strathman. 1996. Residential Location, Employment Location, and Commuter Response to Parking Charges. *Transportation Research Record 1556*: 109-118.

Pollution Probe. 2001. North American Workplace-based Trip Reduction Programmes. <www.pollutionprobe.org.>

San Francisco County Transportation Authority. 1996. San Francisco Survey Established Relationship Between Transit Usage, Parking Cost, and Transit Fares. *The Urban Transportation Monitor*. 10.

Willson, Richard, W., and Donald C. Shoup. 1990. Parking subsidies and travel choices: Assessing the evidence. *Transportation*. 17:141-157.

Willson, Richard, W. 1992. *Estimating the travel and parking demand effects of employer-paid parking*. *Regional Science and Urban Economics*. 22:133-145.

Appendix D: Market Analysis

Appendix E: Investment Scenario

Chapel Hill + University of North Carolina

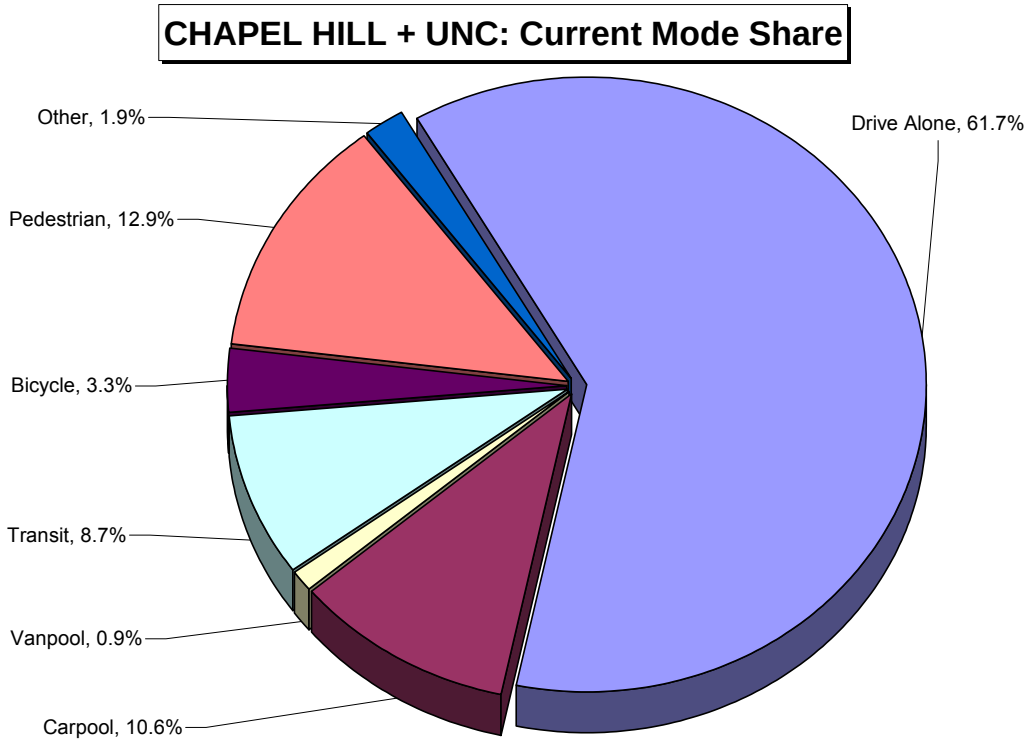
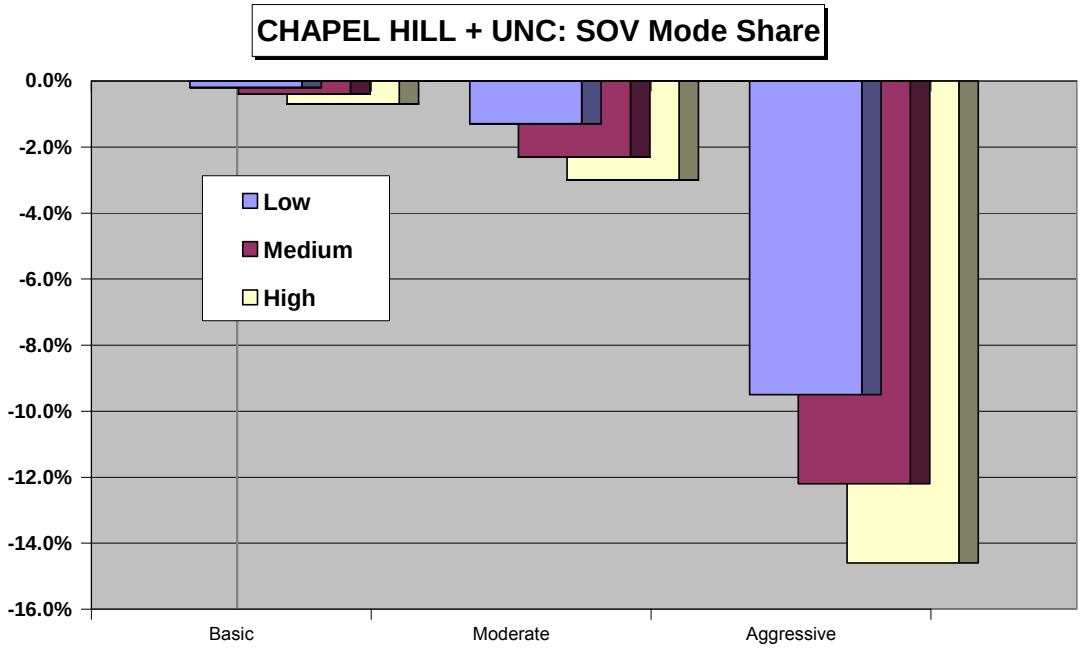
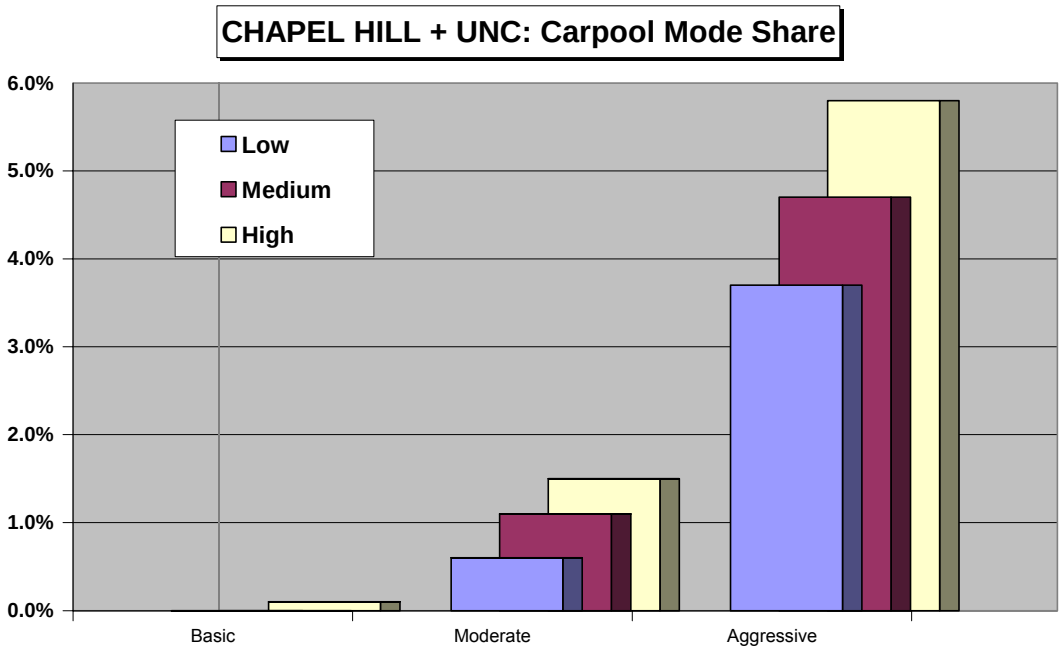


Figure 1: Chapel Hill Mode Share (2000)



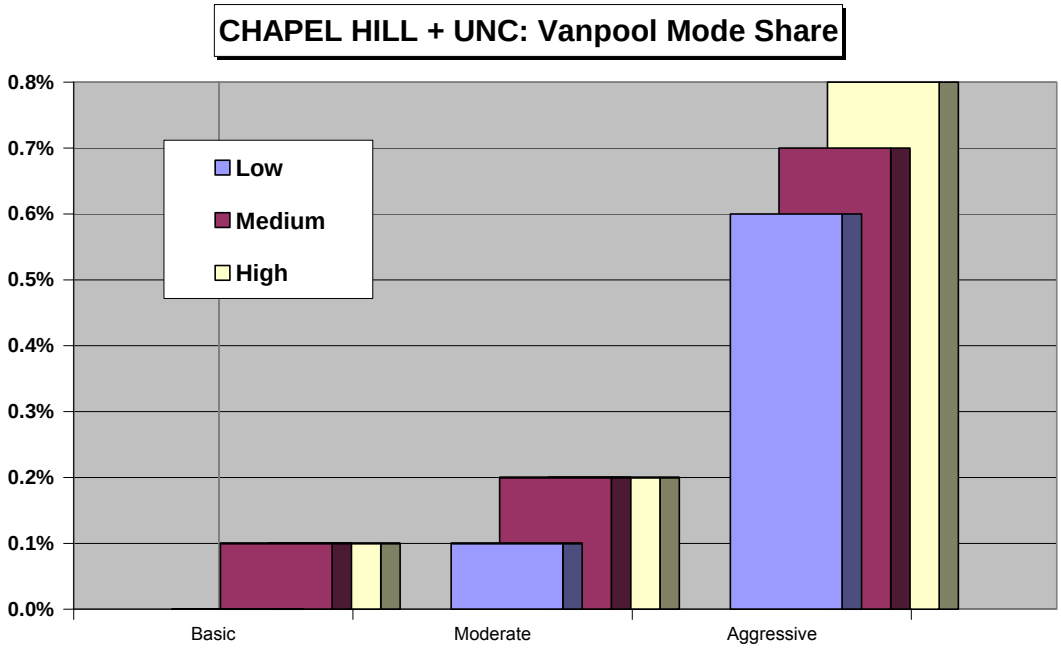
	Basic	Moderate	Aggressive
Low	-0.2%	-1.3%	-9.5%
Medium	-0.4%	-2.3%	-12.2%
High	-0.7%	-3.0%	-14.6%

Figure 2: SOV Reduction from TDM Packages



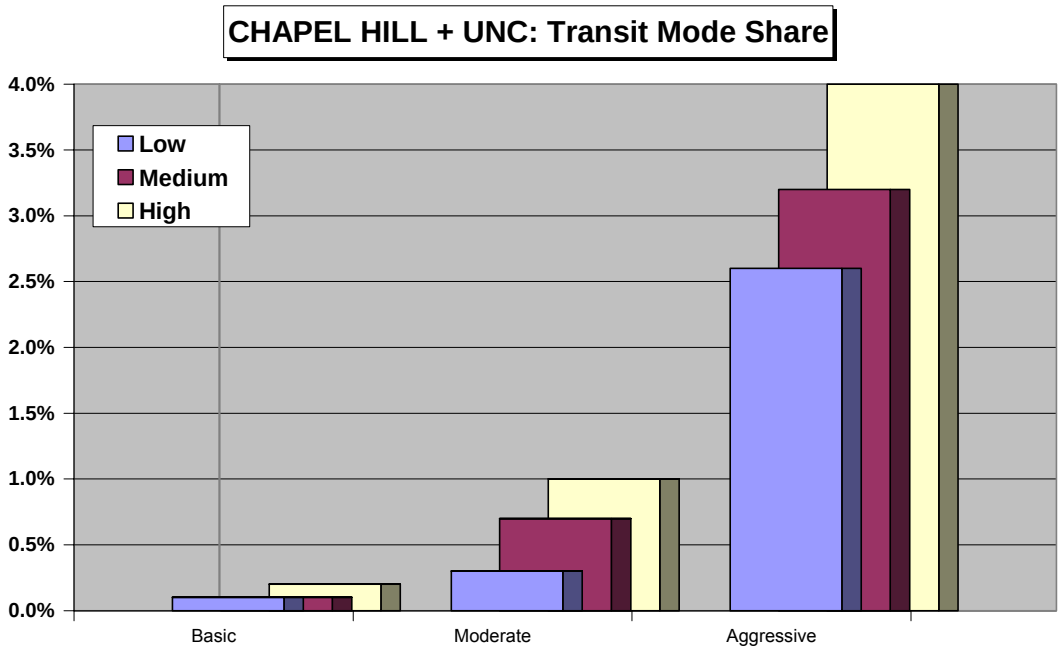
	Basic	Moderate	Aggressive
Low	0.0%	0.6%	3.7%
Medium	0.0%	1.1%	4.7%
High	0.1%	1.5%	5.8%

Figure 3: Carpool Mode Share Increase from TDM Packages



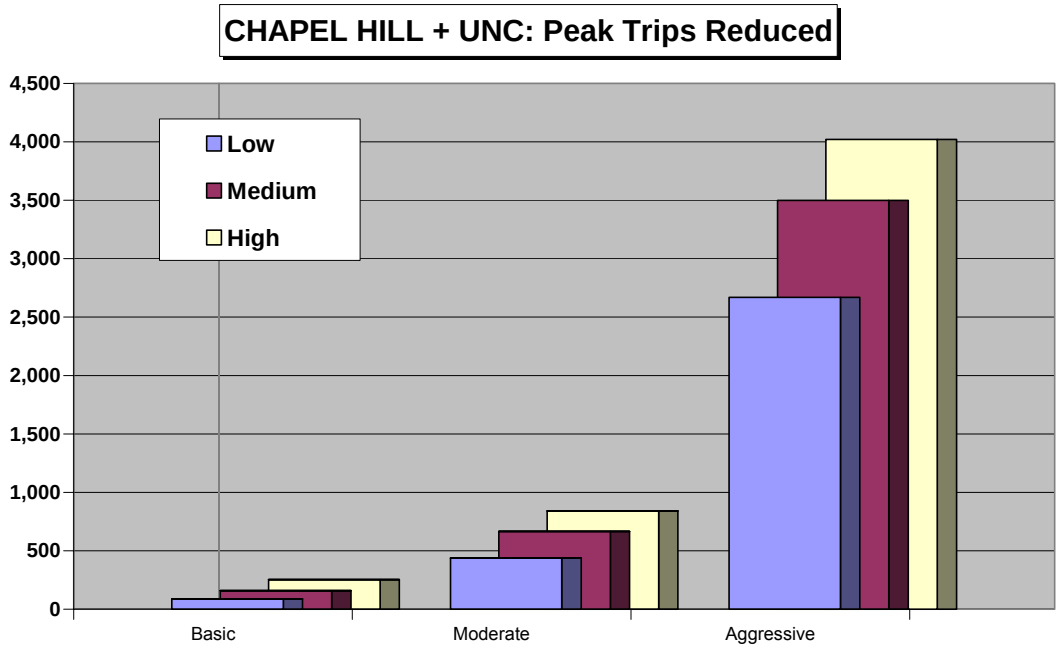
	Basic	Moderate	Aggressive
Low	0.0%	0.1%	0.6%
Medium	0.1%	0.2%	0.7%
High	0.1%	0.2%	0.8%

Figure 4: Vanpool Mode Share Increase from TDM Packages



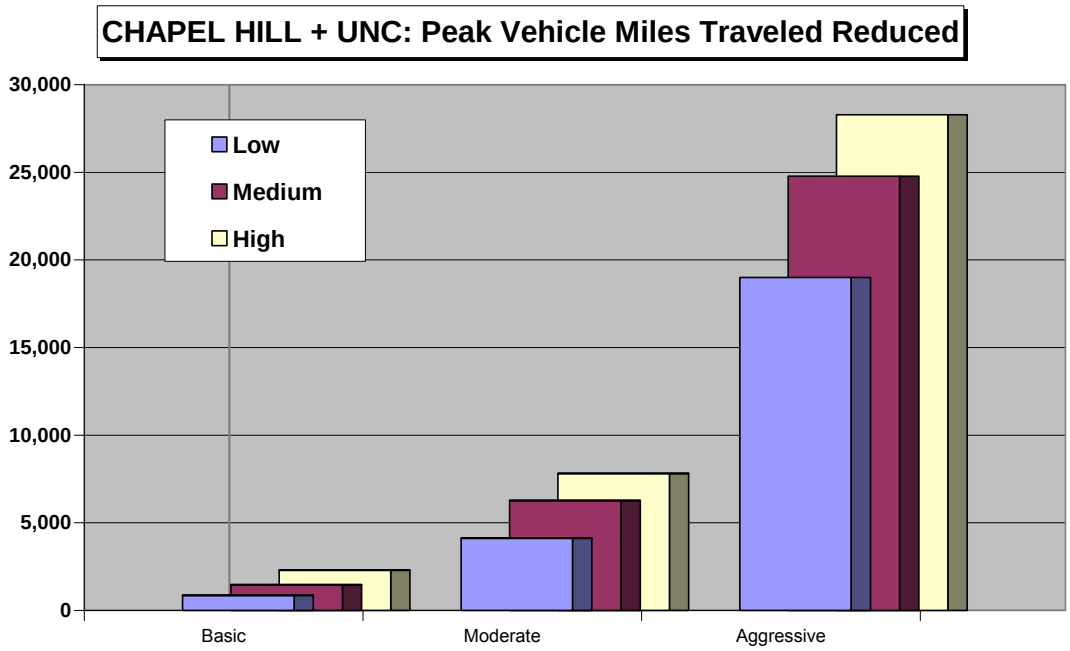
	Basic	Moderate	Aggressive
Low	0.1%	0.3%	2.6%
Medium	0.1%	0.7%	3.2%
High	0.2%	1.0%	4.0%

Figure 5: Transit Mode Share Increase from TDM Packages



	Basic	Moderate	Aggressive
Low	88	438	2,668
Medium	159	666	3,498
High	254	840	4,021

Figure 6: Peak Trips Reduced from TDM Packages



	Basic	Moderate	Aggressive
Low	869	4,116	18,999
Medium	1,478	6,277	24,781
High	2,289	7,812	28,278

Figure 7: Peak VMT Reduced from TDM Packages

Downtown Raleigh

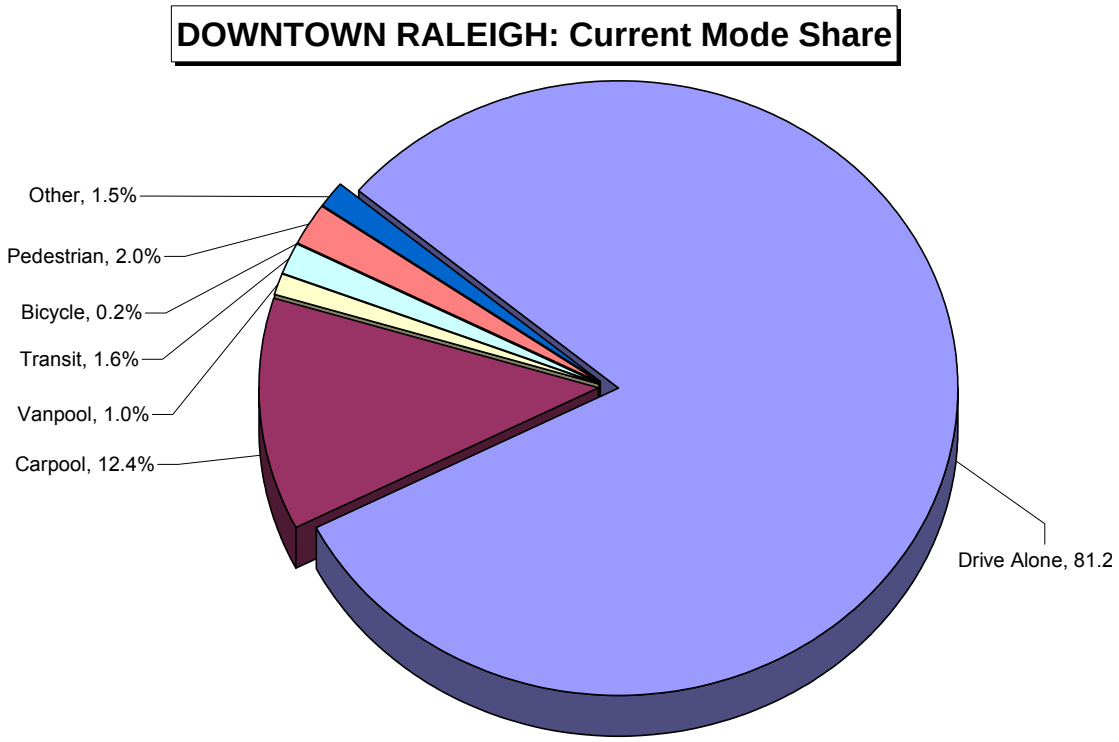
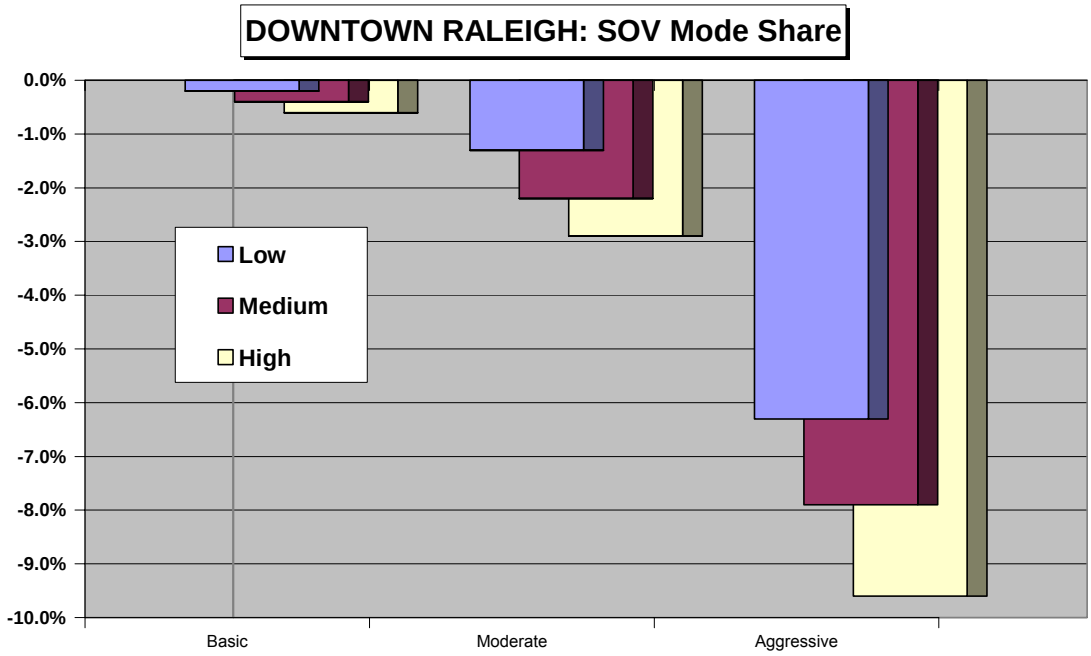
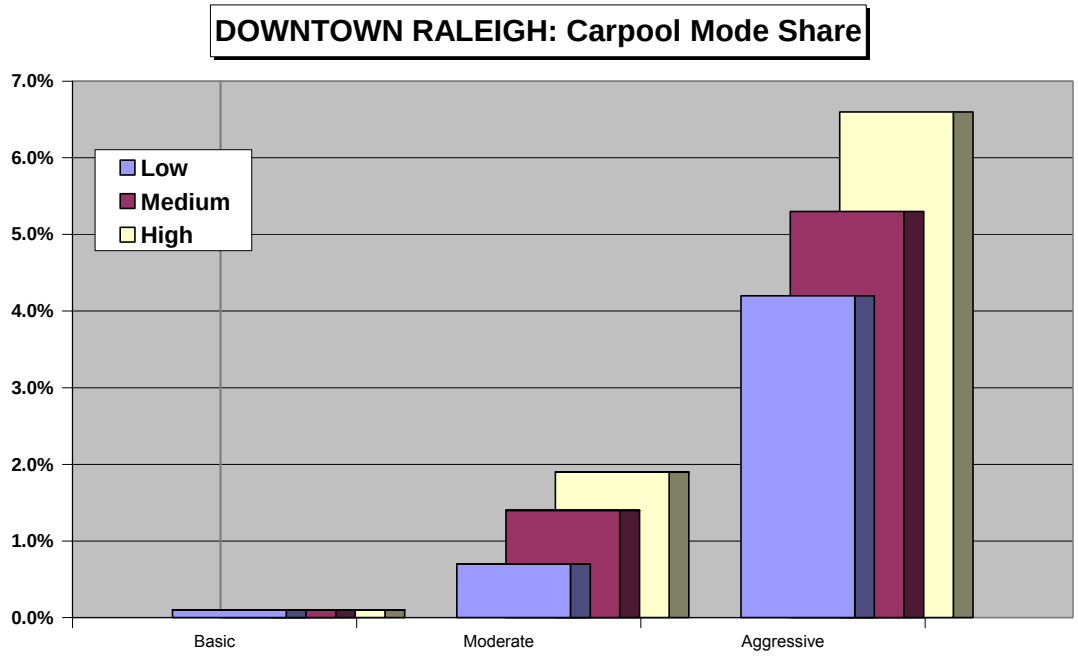


Figure 8: Downtown Raleigh Mode Share (2000)



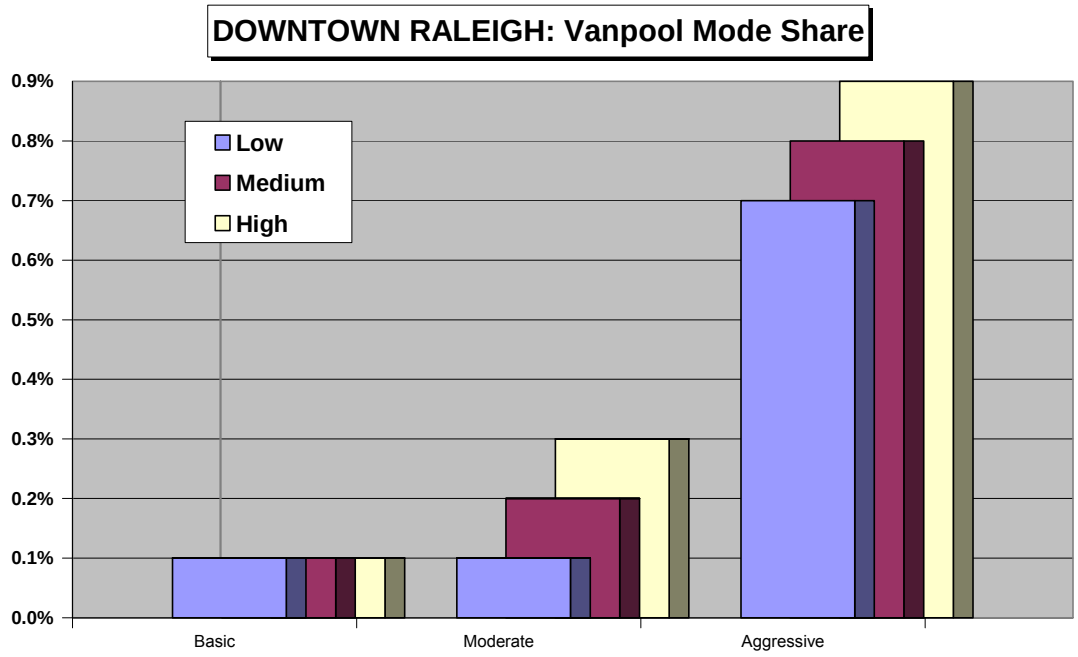
	Basic	Moderate	Aggressive
Low	-0.2%	-1.3%	-6.3%
Medium	-0.4%	-2.2%	-7.9%
High	-0.6%	-2.9%	-9.6%

Figure 9: SOV Reduction from TDM Packages



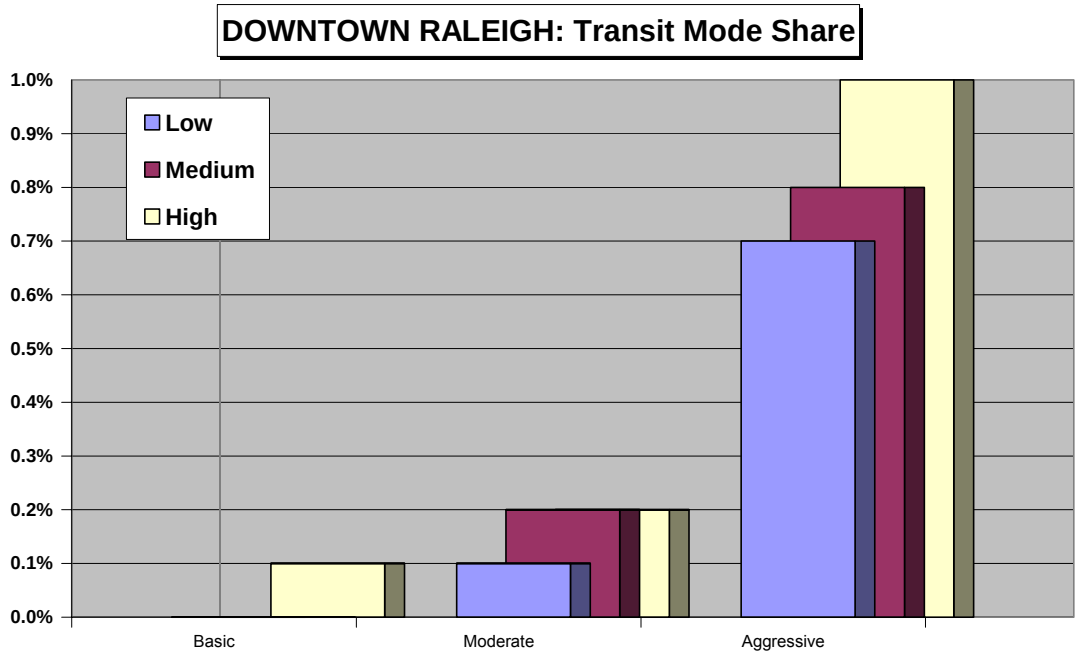
	Basic	Moderate	Aggressive
Low	0.1%	0.7%	4.2%
Medium	0.1%	1.4%	5.3%
High	0.1%	1.9%	6.6%

Figure 10: Carpool Mode Share Increase from TDM Packages



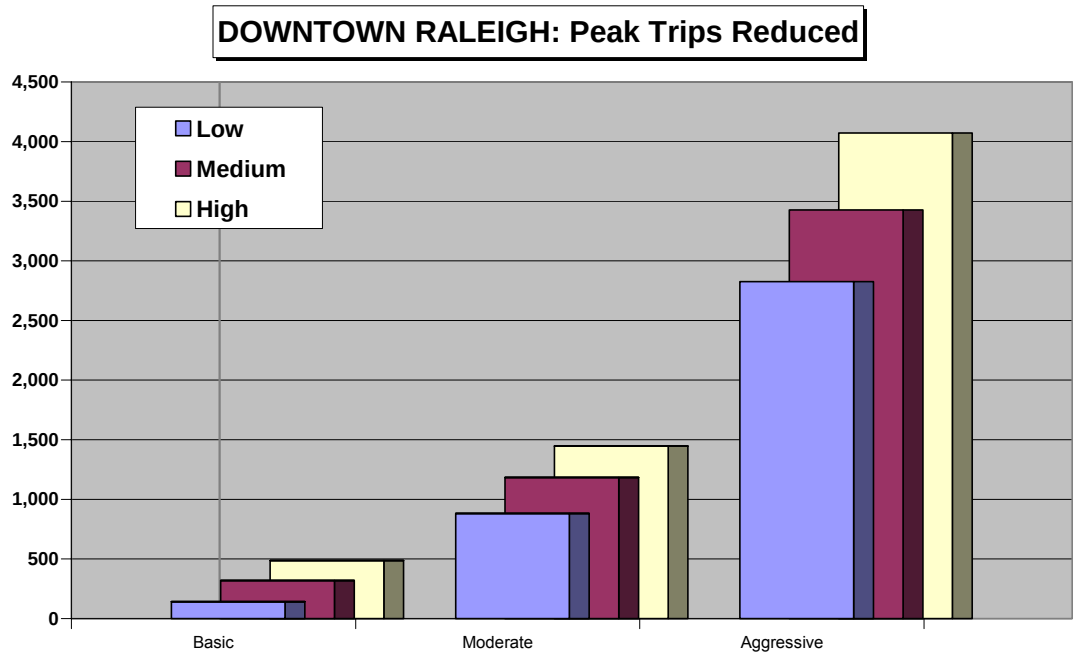
	Basic	Moderate	Aggressive
Low	0.1%	0.1%	0.7%
Medium	0.1%	0.2%	0.8%
High	0.1%	0.3%	0.9%

Figure 11: Vanpool Mode Share Increase from TDM Packages



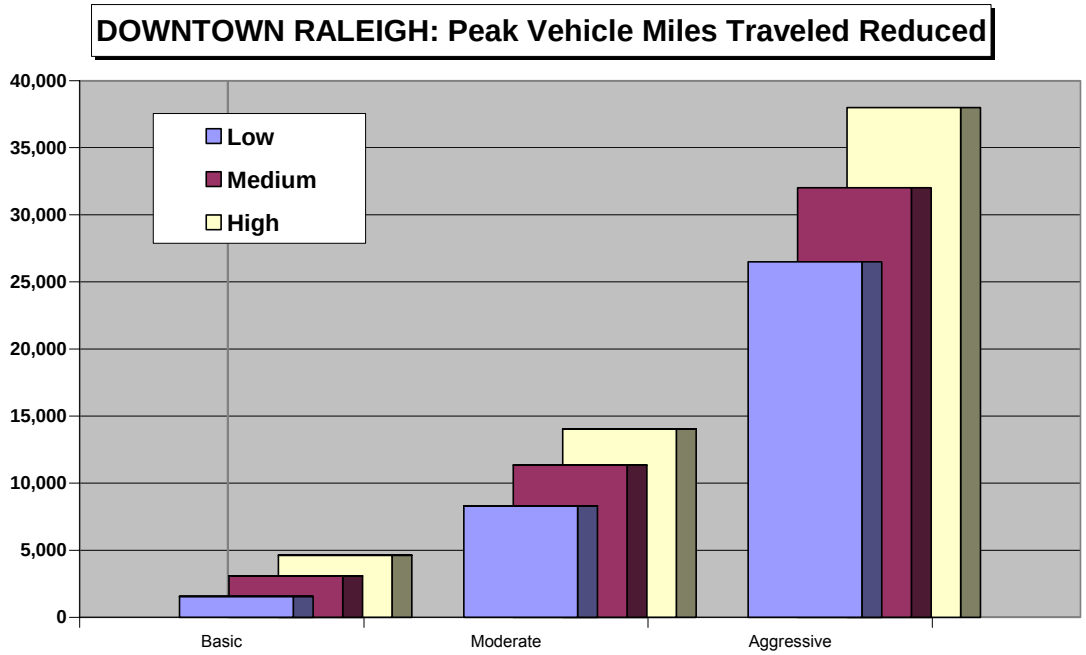
	Basic	Moderate	Aggressive
Low	0.0%	0.1%	0.7%
Medium	0.0%	0.2%	0.8%
High	0.1%	0.2%	1.0%

Figure 12: Transit Mode Share Increase from TDM Packages



	Basic	Moderate	Aggressive
Low	141	880	2,824
Medium	318	1,183	3,426
High	486	1,445	4,072

Figure 13: Peak Trips Reduced from TDM Packages



	Basic	Moderate	Aggressive
Low	1,556	8,302	26,490
Medium	3,086	11,330	32,026
High	4,619	14,026	37,985

Figure 14: VMT Reduced from TDM Packages

Downtown Durham + Duke

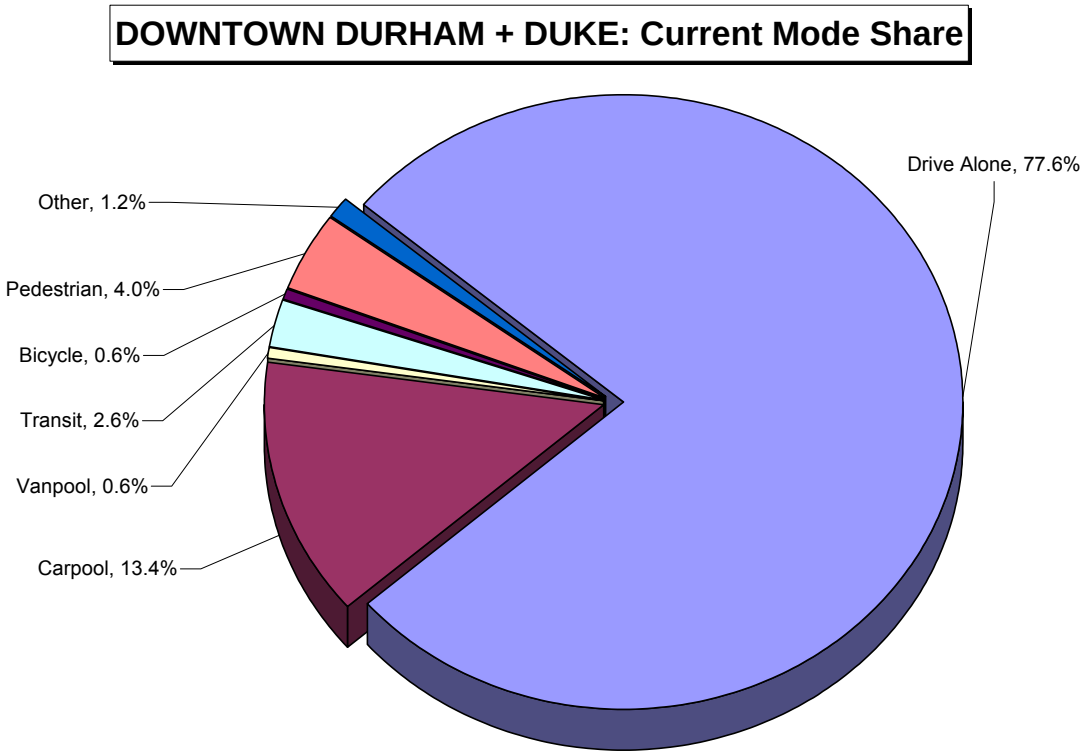
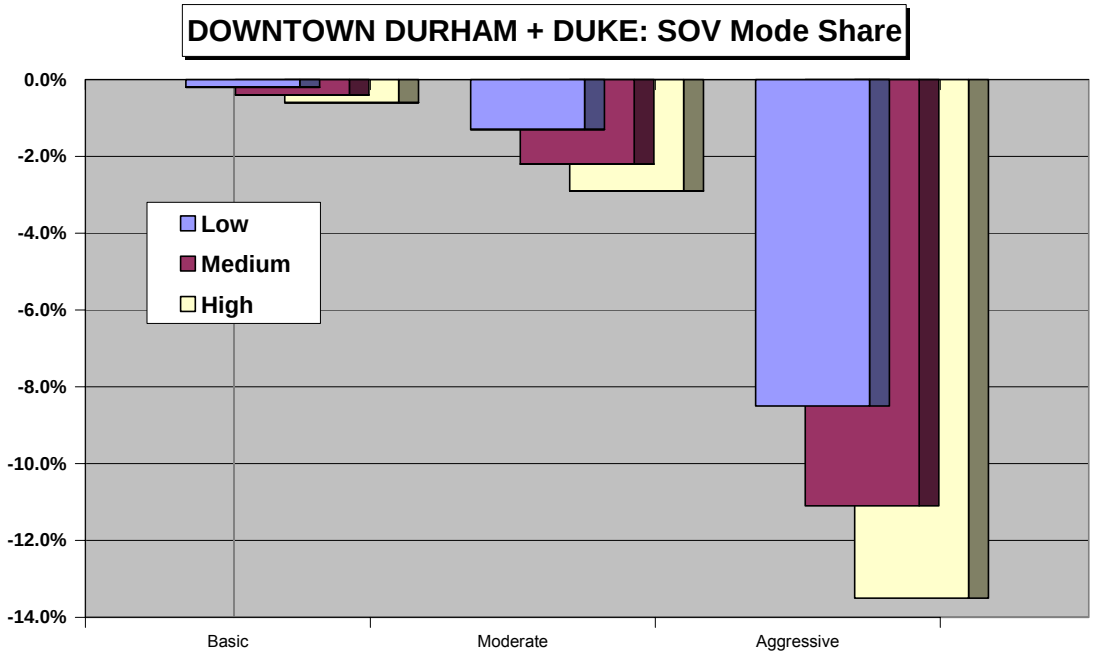
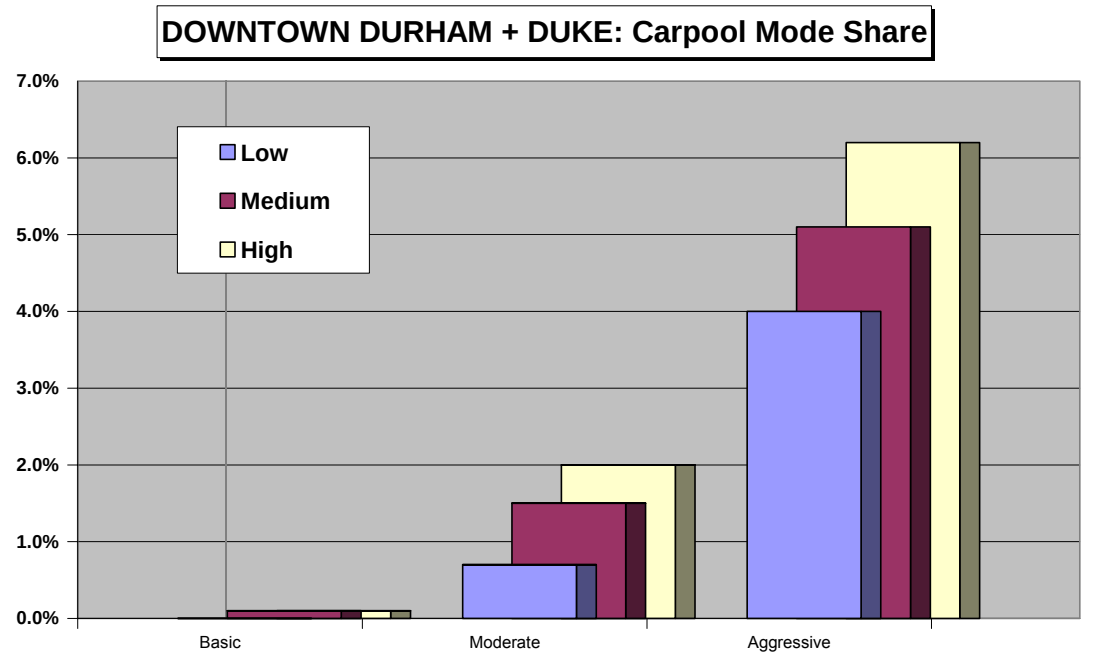


Figure 15: Downtown Durham Mode Share (2000)



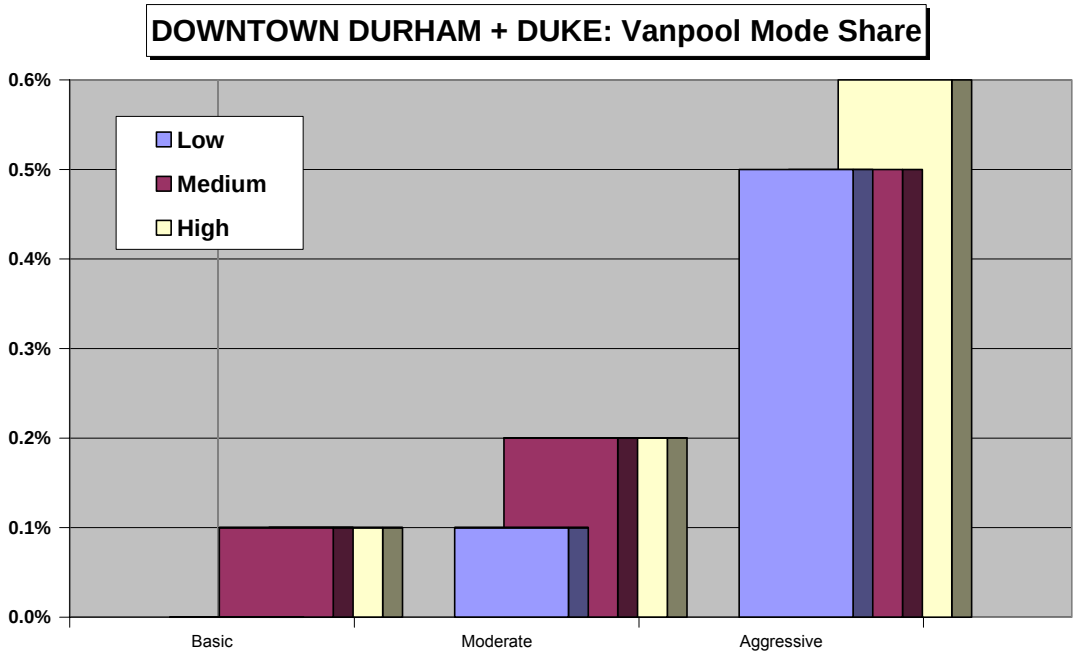
	Basic	Moderate	Aggressive
Low	-0.2%	-1.3%	-8.5%
Medium	-0.4%	-2.2%	-11.1%
High	-0.6%	-2.9%	-13.5%

Figure 16: SOV Reduction from TDM Packages



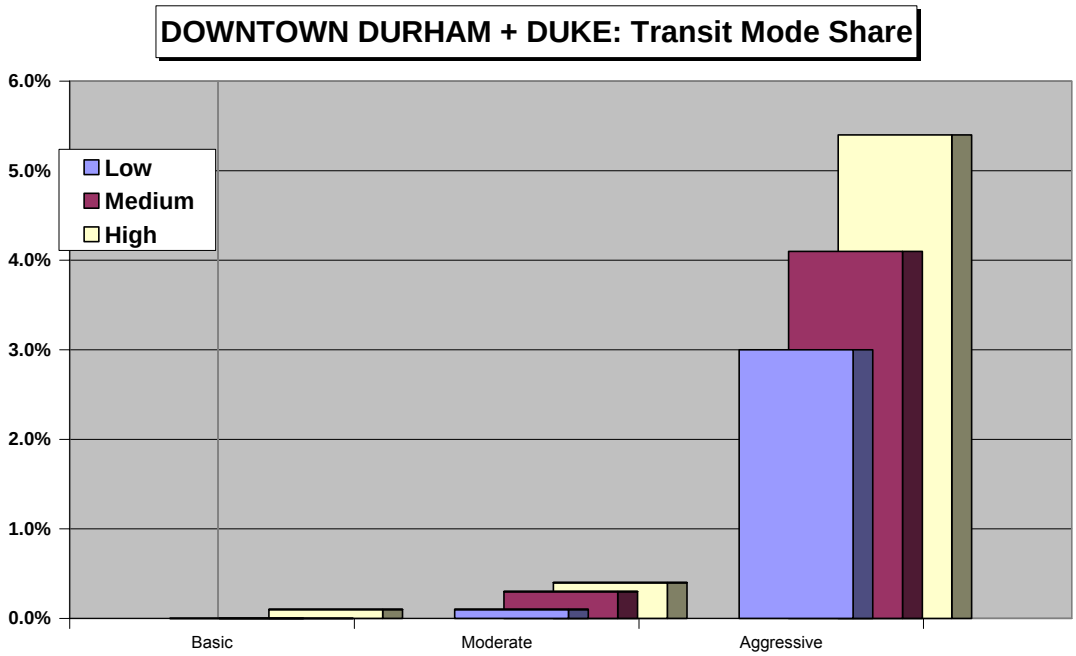
	Basic	Moderate	Aggressive
Low	0.0%	0.7%	4.0%
Medium	0.1%	1.5%	5.1%
High	0.1%	2.0%	6.2%

Figure 17: Carpool Mode Share Increase from TDM Packages



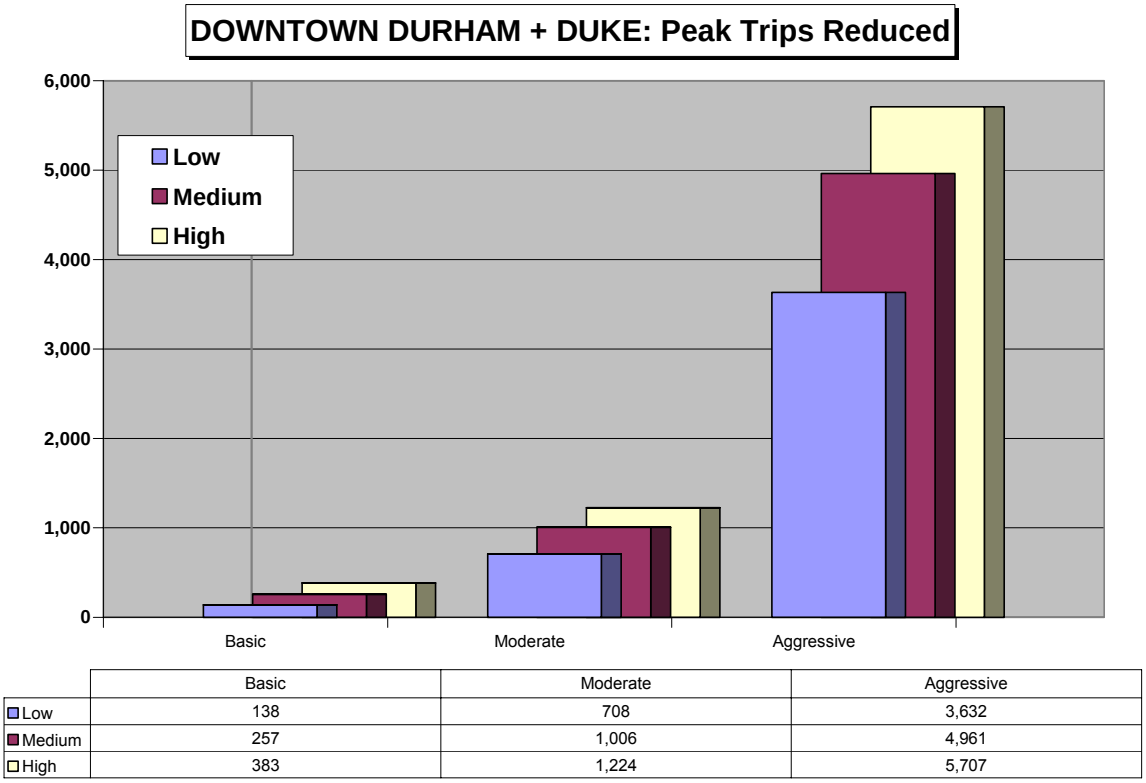
	Basic	Moderate	Aggressive
Low	0.0%	0.1%	0.5%
Medium	0.1%	0.2%	0.5%
High	0.1%	0.2%	0.6%

Figure 18: Vanpool Mode Share Increase from TDM Packages



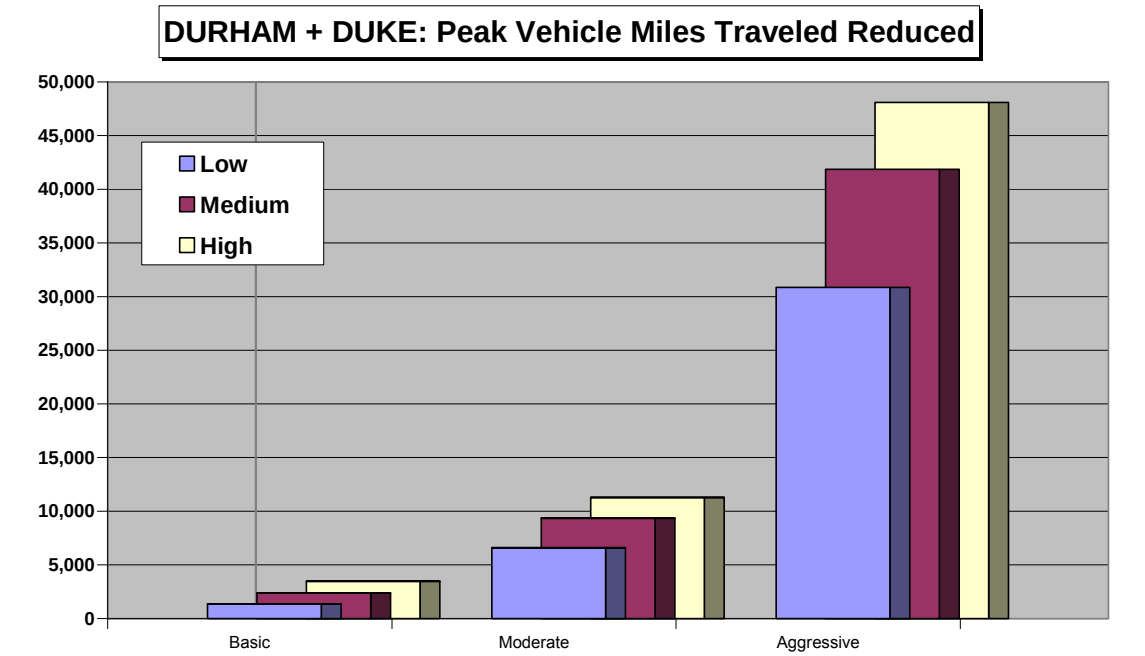
	Basic	Moderate	Aggressive
Low	0.0%	0.1%	3.0%
Medium	0.0%	0.3%	4.1%
High	0.1%	0.4%	5.4%

Figure 19: Transit Mode Share Increase from TDM Packages



	Basic	Moderate	Aggressive
Low	138	708	3,632
Medium	257	1,006	4,961
High	383	1,224	5,707

Figure 20: Peak Trips Reduced from TDM Packages



	Basic	Moderate	Aggressive
Low	1,365	6,601	30,856
Medium	2,373	9,327	41,863
High	3,453	11,267	48,091

Figure 21: Peak Vehicle Miles Traveled Reduced by TDM Packages

North Raleigh / I-440 Corridor

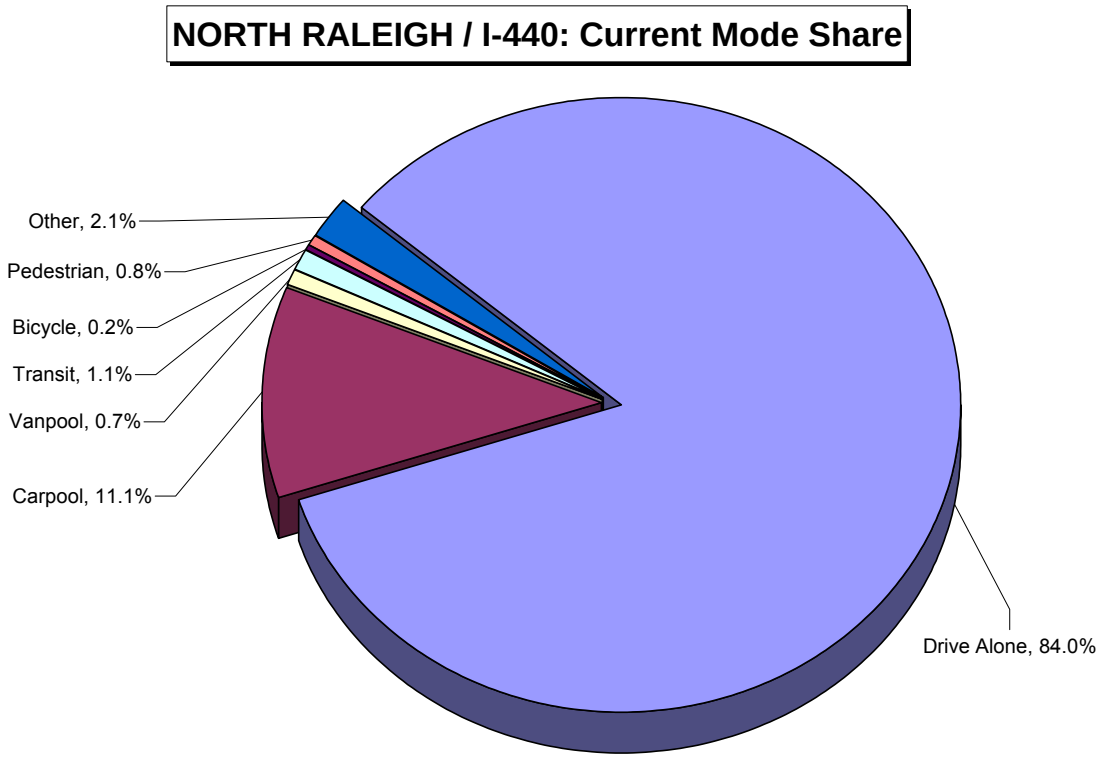
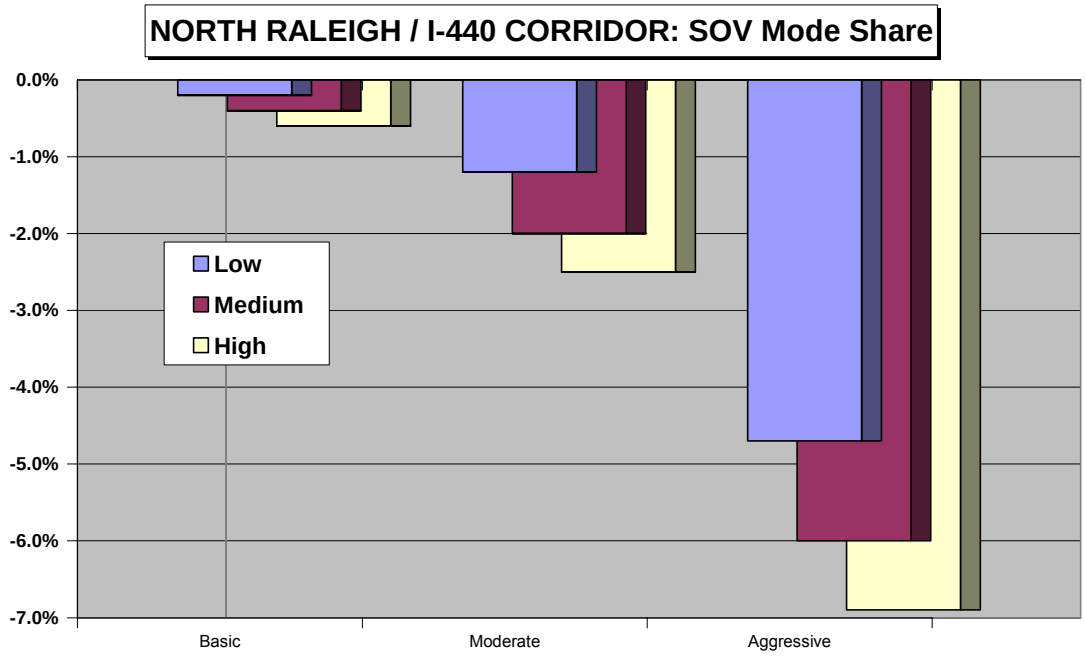
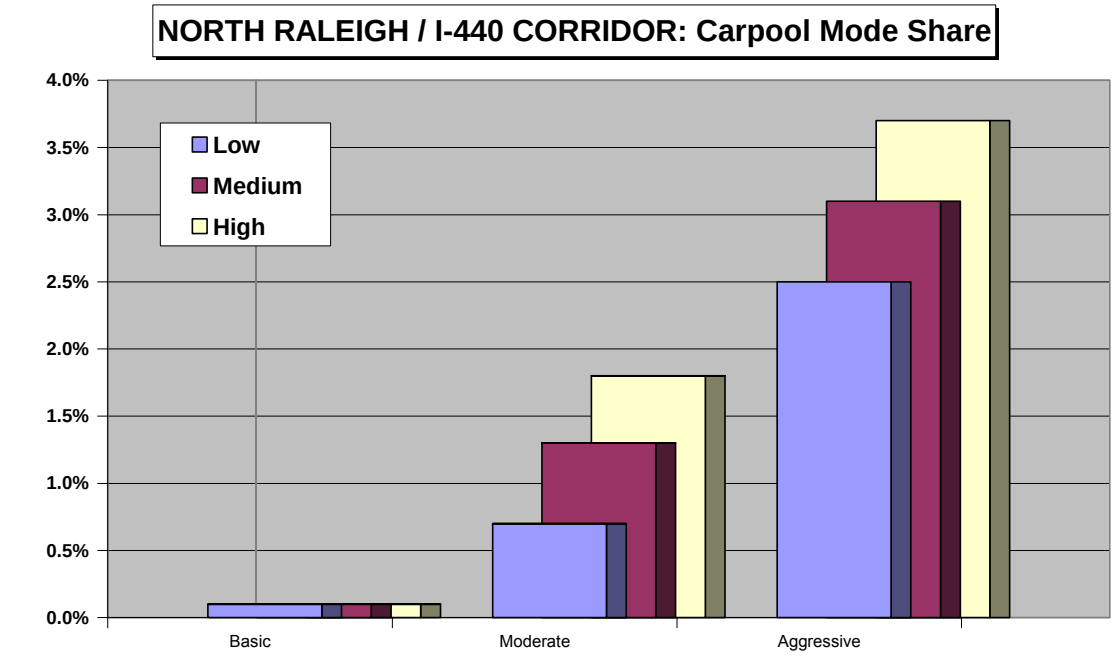


Figure 22: North Raleigh / I-440 Mode Share (2000)



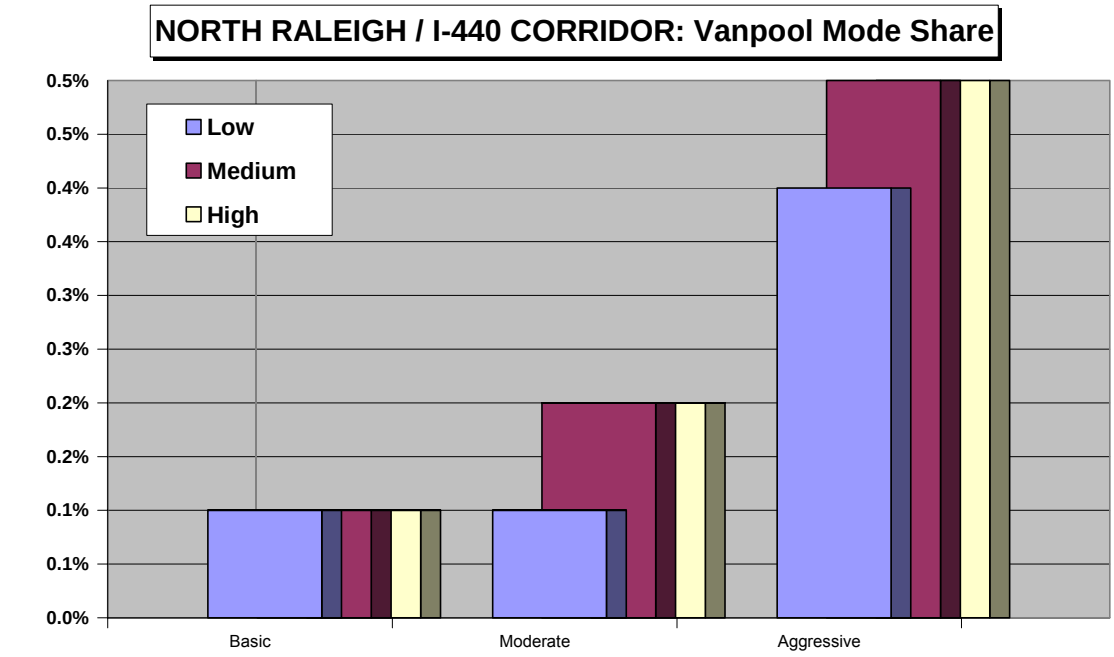
	Basic	Moderate	Aggressive
Low	-0.2%	-1.2%	-4.7%
Medium	-0.4%	-2.0%	-6.0%
High	-0.6%	-2.5%	-6.9%

Figure 23: SOV Reduced by TDM Packages



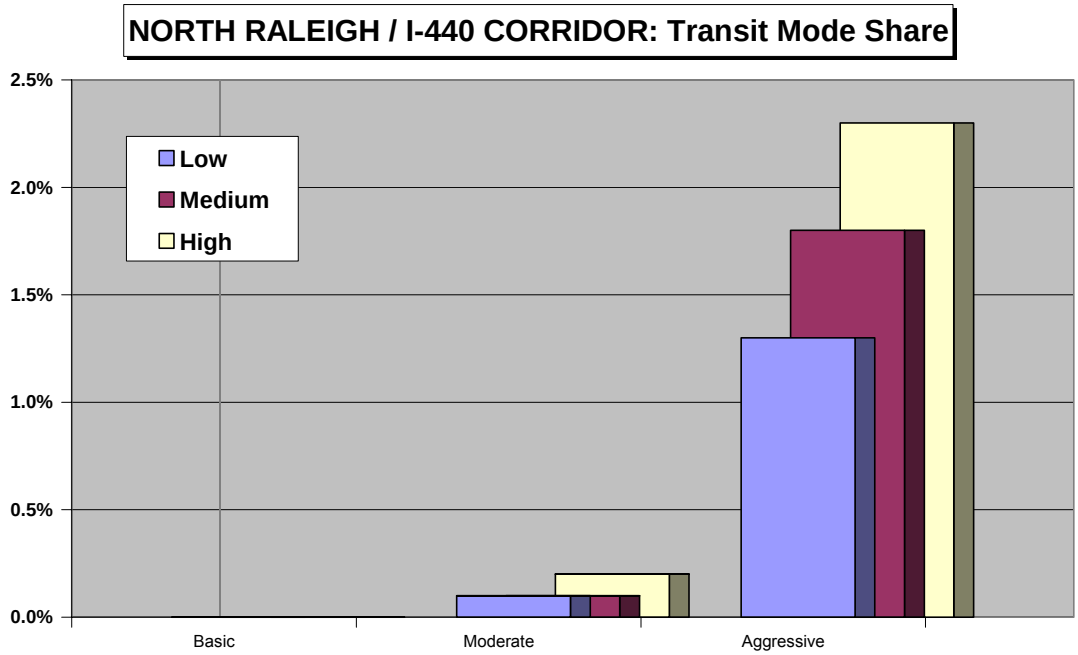
	Basic	Moderate	Aggressive
Low	0.1%	0.7%	2.5%
Medium	0.1%	1.3%	3.1%
High	0.1%	1.8%	3.7%

Figure 24: Carpool Mode Share Increased by TDM Packages



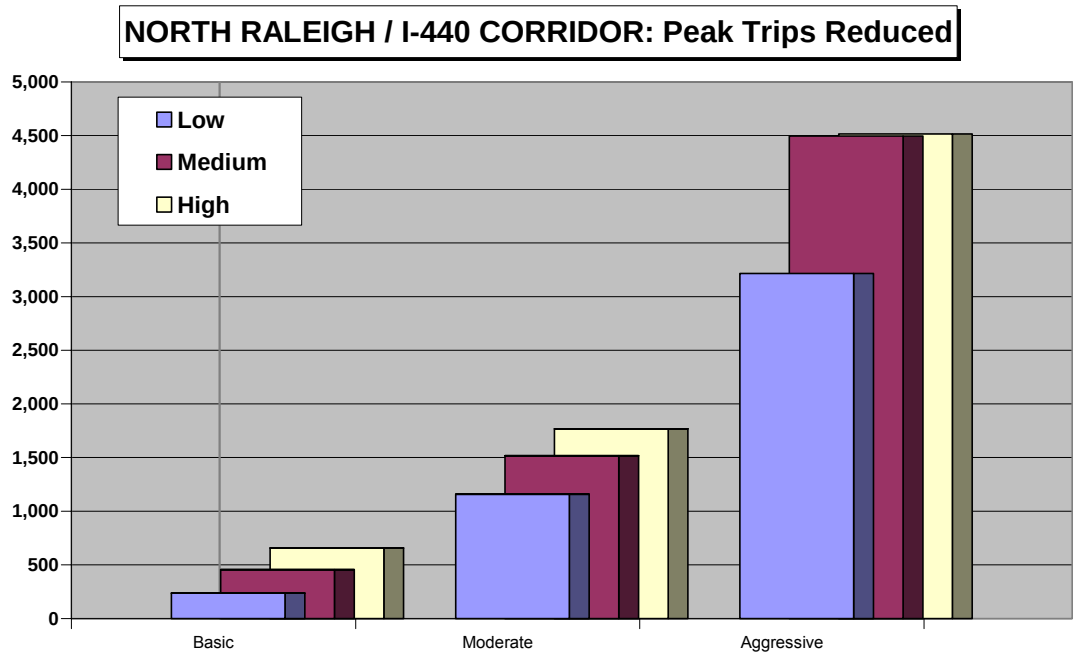
	Basic	Moderate	Aggressive
Low	0.1%	0.1%	0.4%
Medium	0.1%	0.2%	0.5%
High	0.1%	0.2%	0.5%

Figure 25: Vanpool Mode Share Increased by TDM Packages



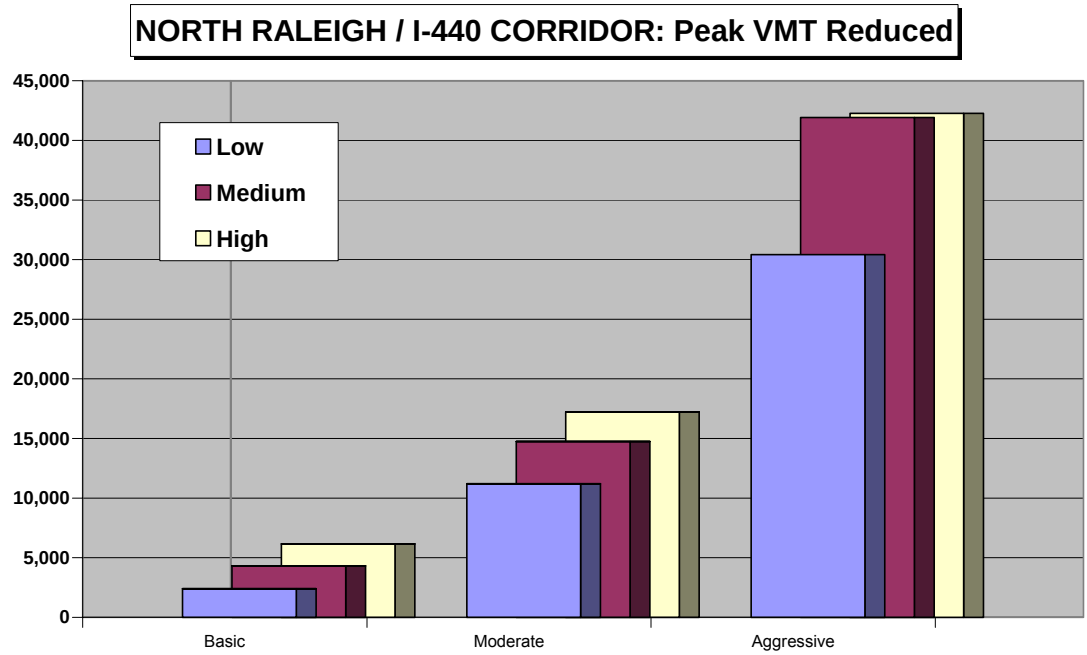
	Basic	Moderate	Aggressive
Low	0.0%	0.1%	1.3%
Medium	0.0%	0.1%	1.8%
High	0.0%	0.2%	2.3%

Figure 26: Transit Mode Share Increased by TDM Packages



	Basic	Moderate	Aggressive
Low	237	1,158	3,215
Medium	455	1,517	4,496
High	656	1,767	4,515

Figure 27: Peak Trips Reduced by TDM Packages



	Basic	Moderate	Aggressive
Low	2,406	11,193	30,417
Medium	4,307	14,744	41,913
High	6,151	17,208	42,270

Figure 28: Peak VMT Reduced by TDM Packages

Research Triangle Park

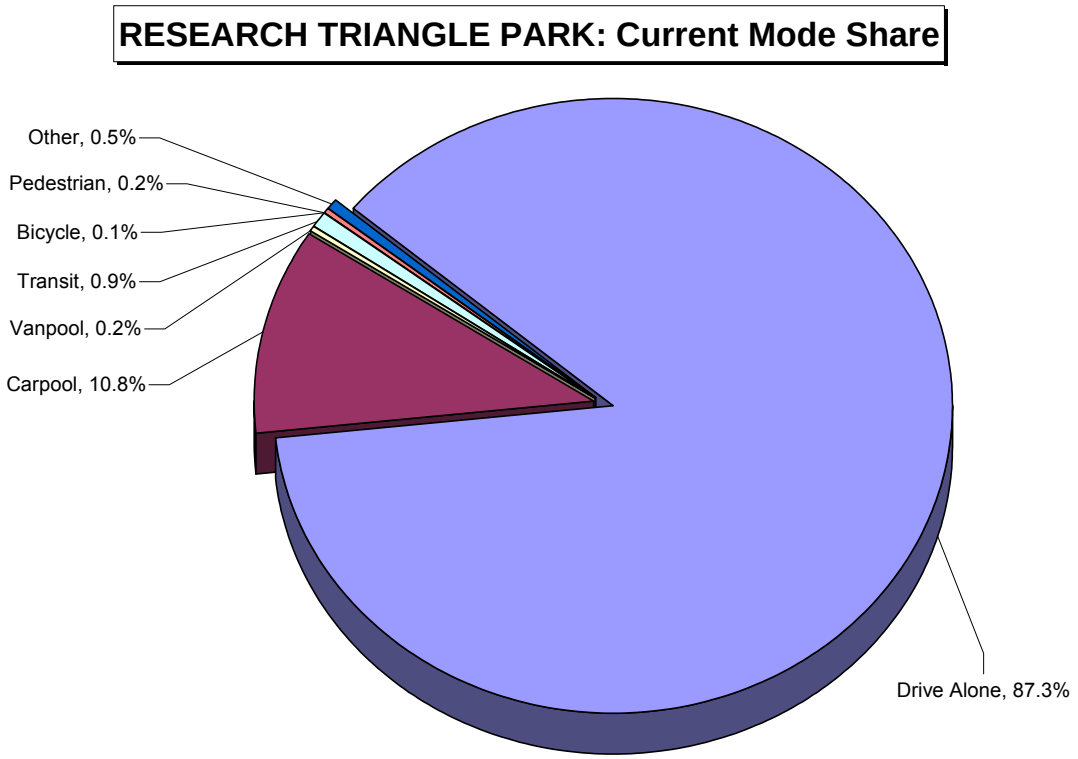
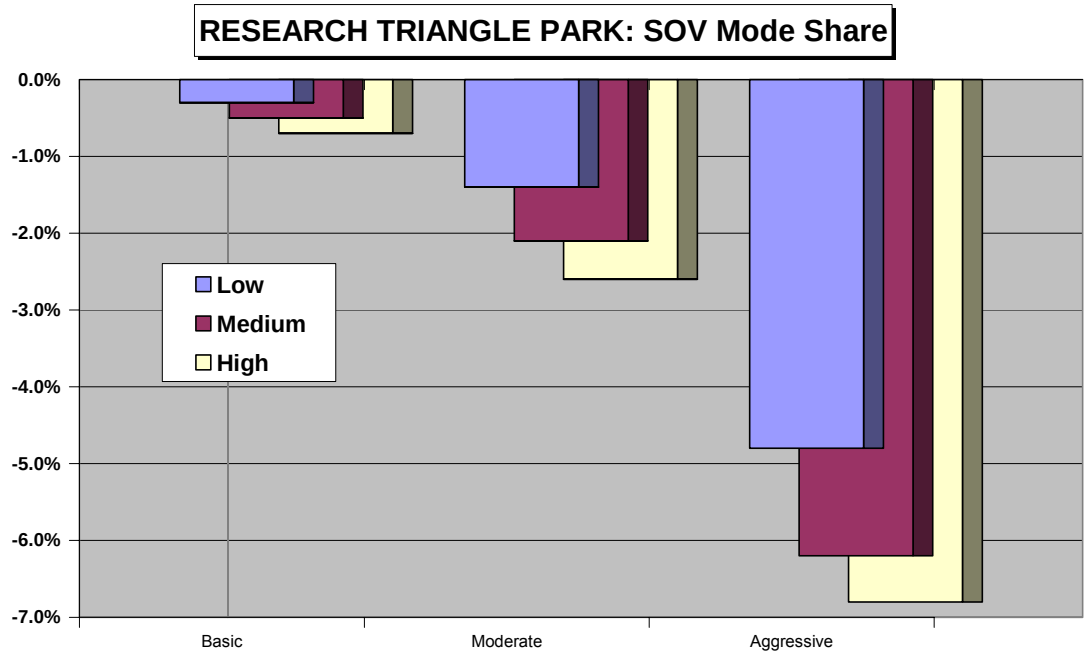
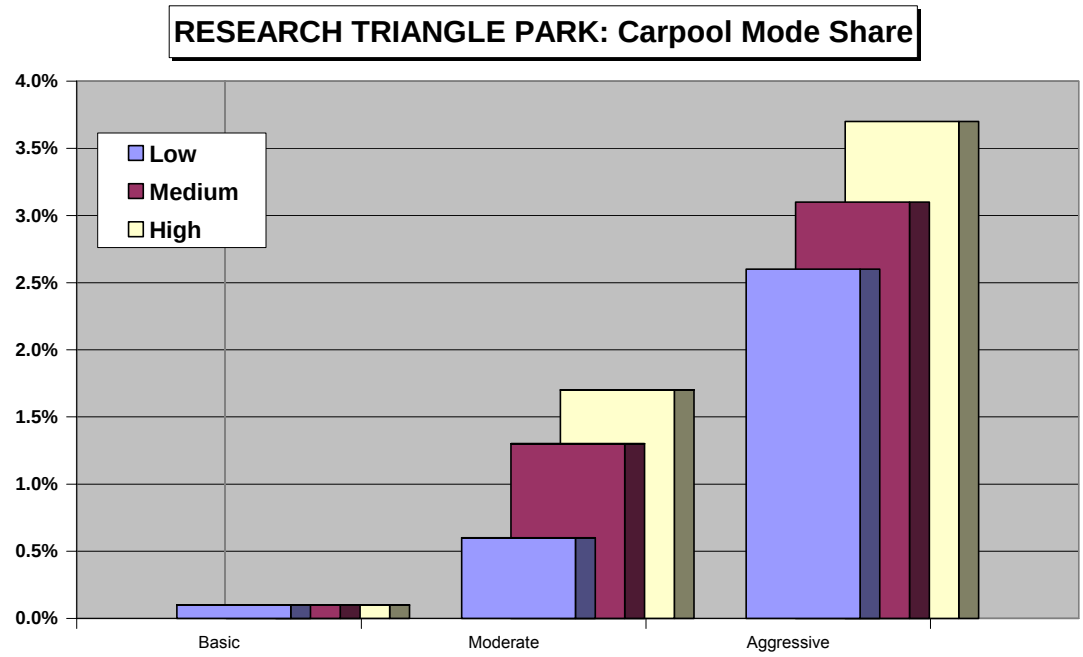


Figure 29: Research Triangle Park Mode Share (2000)



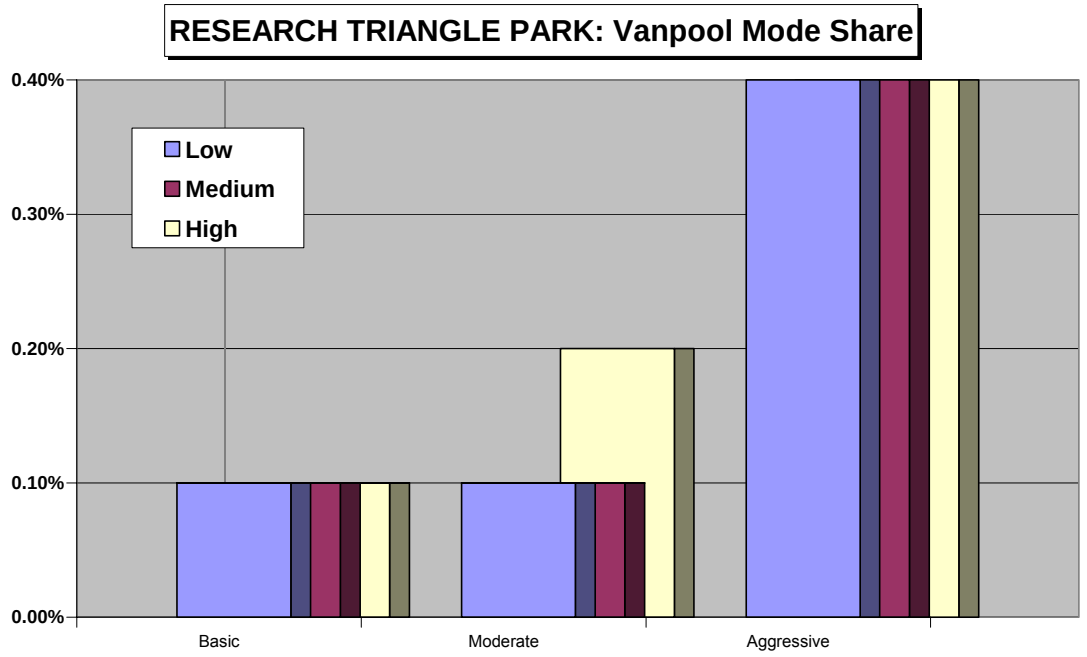
	Basic	Moderate	Aggressive
Low	-0.3%	-1.4%	-4.8%
Medium	-0.5%	-2.1%	-6.2%
High	-0.7%	-2.6%	-6.8%

Figure 30: SOV Reduced by TDM Packages



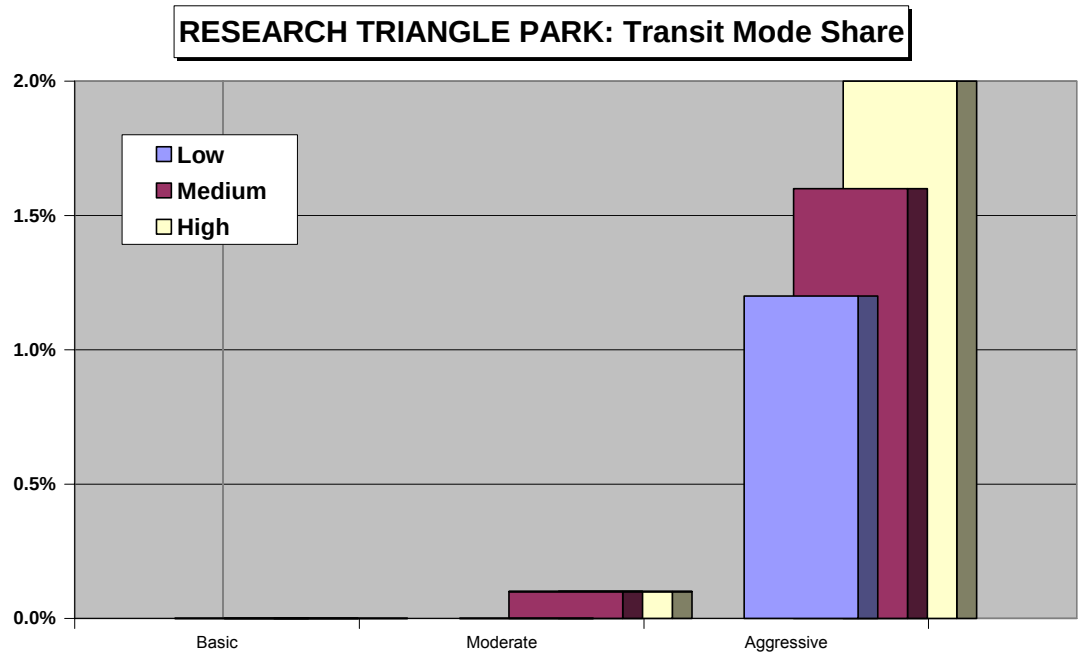
	Basic	Moderate	Aggressive
Low	0.1%	0.6%	2.6%
Medium	0.1%	1.3%	3.1%
High	0.1%	1.7%	3.7%

Figure 31: Carpool Mode Share Increased by TDM Packages



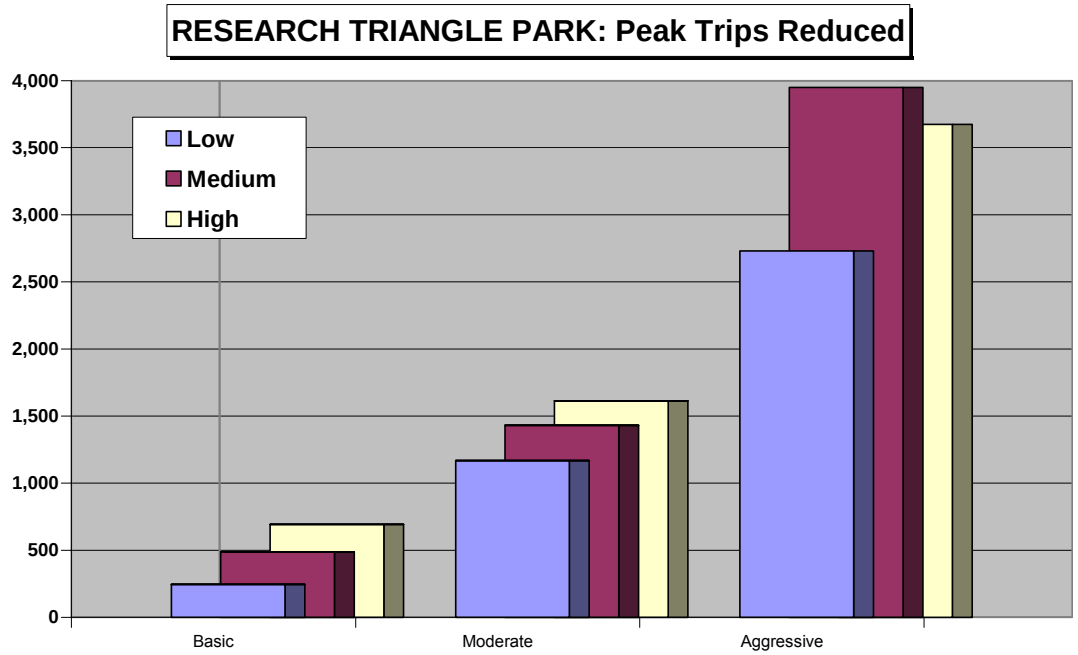
	Basic	Moderate	Aggressive
Low	0.1%	0.1%	0.4%
Medium	0.1%	0.1%	0.4%
High	0.1%	0.2%	0.4%

Figure 32: Vanpool Mode Share Increased by TDM Packages



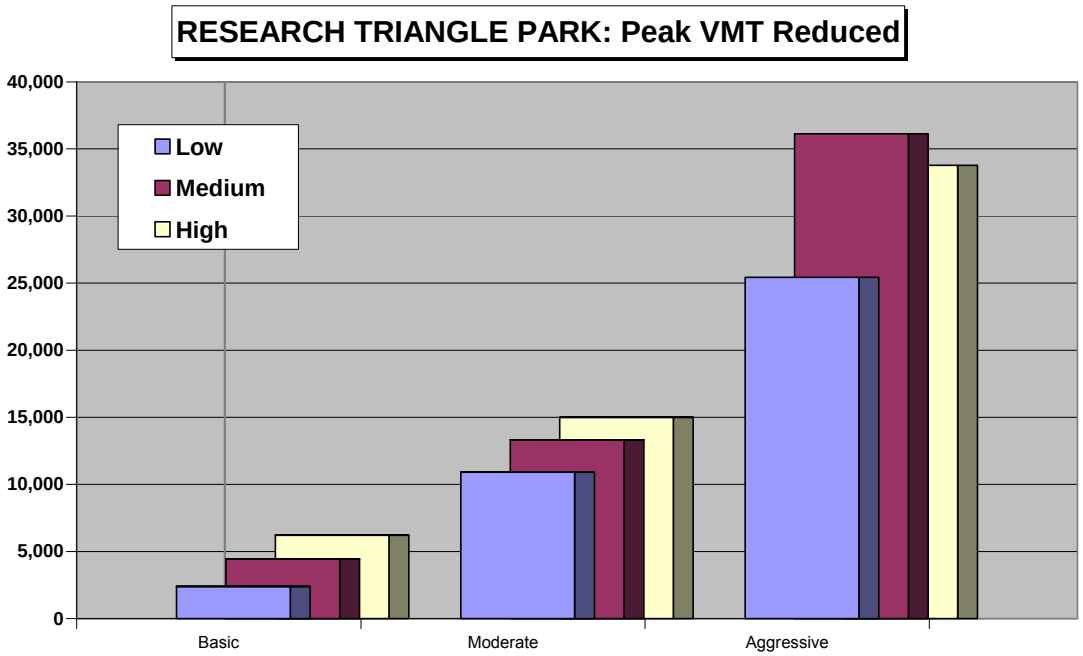
	Basic	Moderate	Aggressive
Low	0.0%	0.0%	1.2%
Medium	0.0%	0.1%	1.6%
High	0.0%	0.1%	2.0%

Figure 33: Transit Mode Share Increased by TDM Packages



	Basic	Moderate	Aggressive
Low	245	1,168	2,730
Medium	487	1,430	3,950
High	692	1,613	3,674

Figure 34: Peak Trips Reduced by TDM Packages



	Basic	Moderate	Aggressive
Low	2,393	10,902	25,432
Medium	4,443	13,317	36,137
High	6,201	15,001	33,783

Figure 35: Peak Vehicle Miles Traveled Reduced by TDM Packages

North Carolina State University

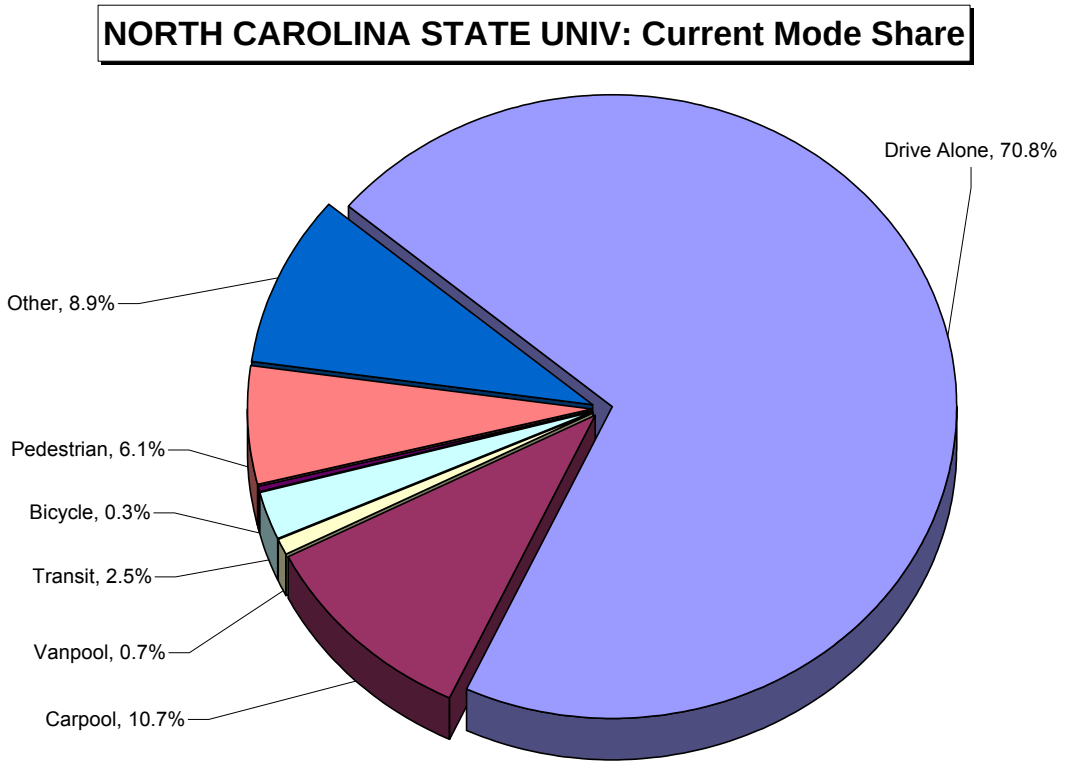
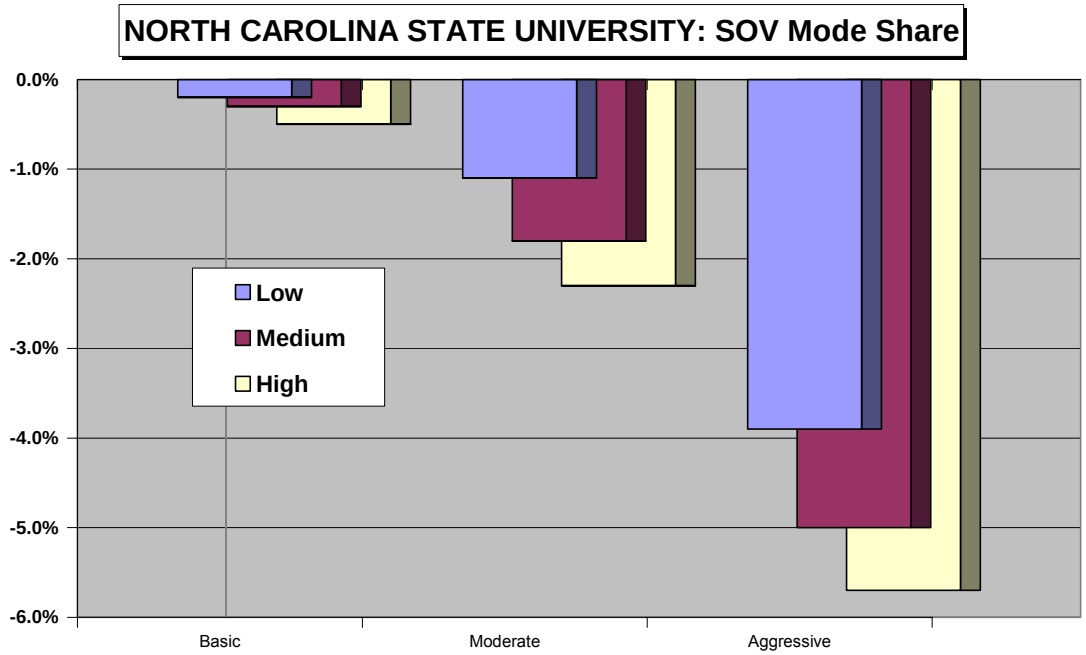
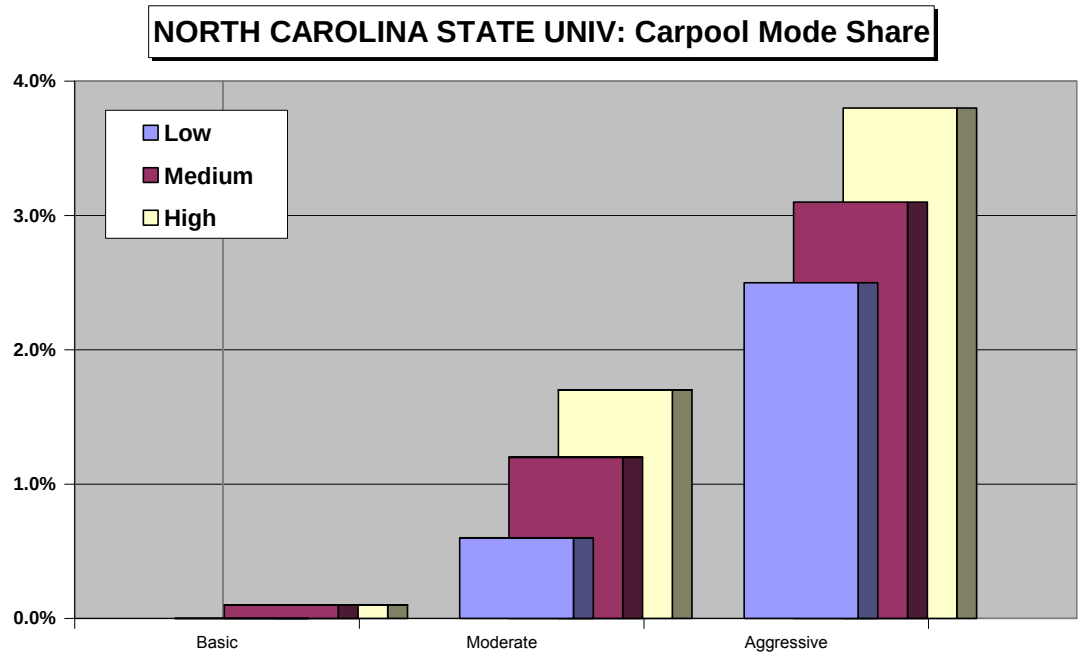


Figure 36: North Carolina State University Mode Share (2000)



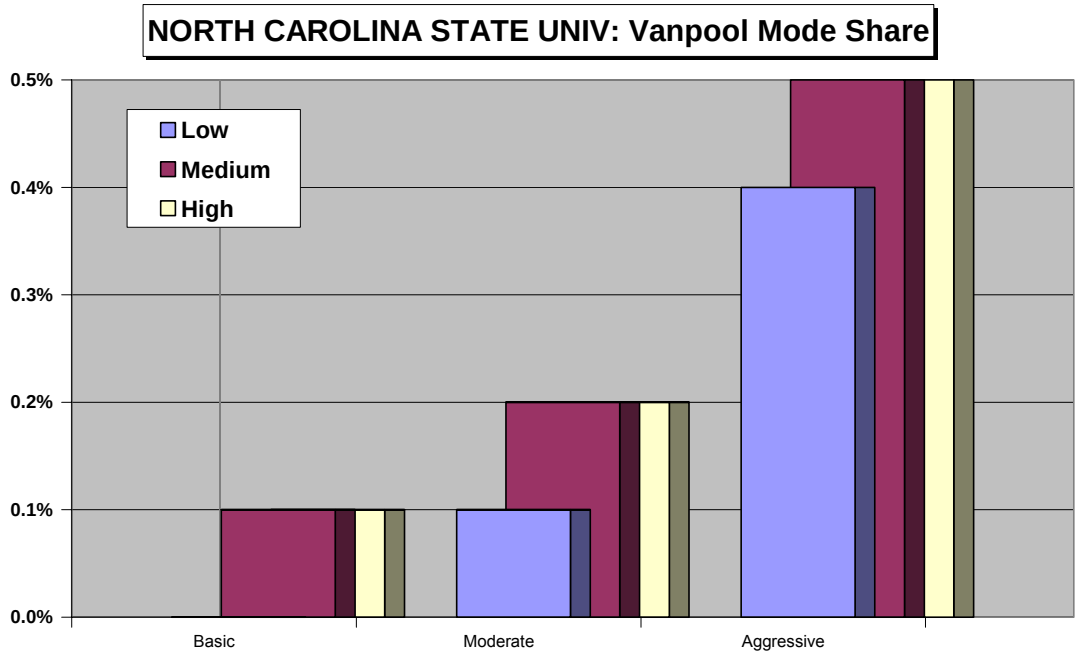
	Basic	Moderate	Aggressive
Low	-0.2%	-1.1%	-3.9%
Medium	-0.3%	-1.8%	-5.0%
High	-0.5%	-2.3%	-5.7%

Figure 37: SOV Reduction from TDM Packages



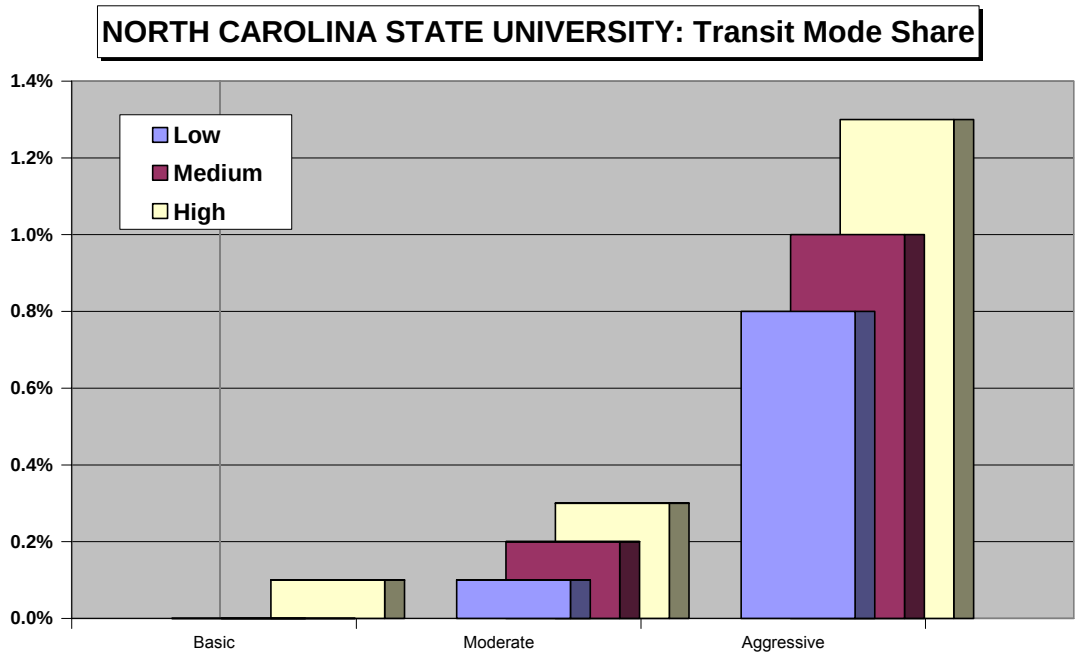
	Basic	Moderate	Aggressive
Low	0.0%	0.6%	2.5%
Medium	0.1%	1.2%	3.1%
High	0.1%	1.7%	3.8%

Figure 38: Carpool Mode Share Increase from TDM Packages



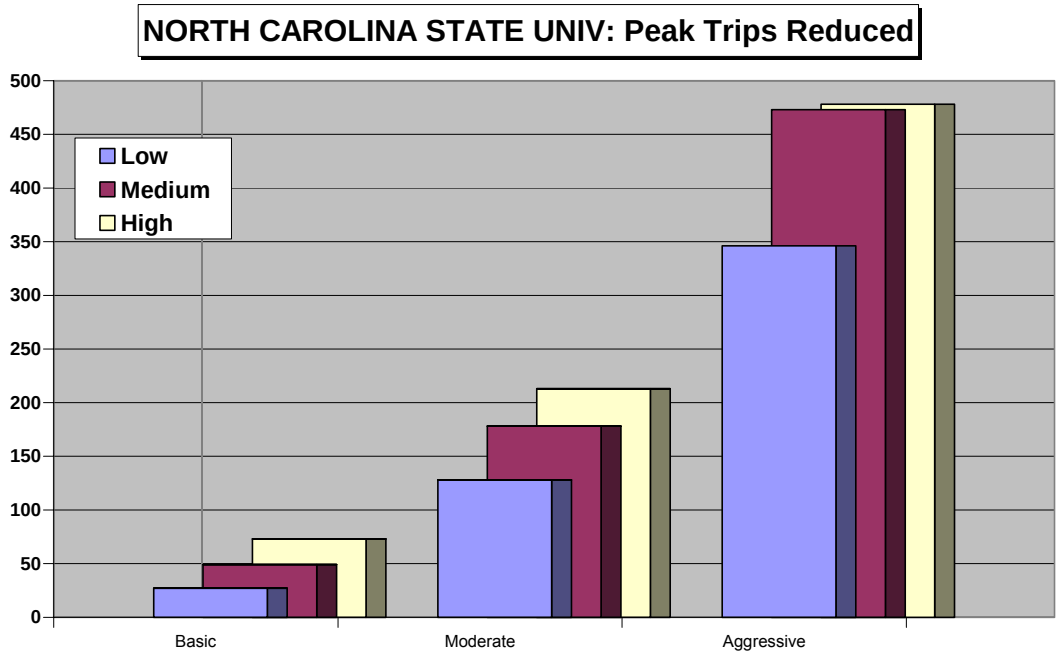
	Basic	Moderate	Aggressive
Low	0.0%	0.1%	0.4%
Medium	0.1%	0.2%	0.5%
High	0.1%	0.2%	0.5%

Figure 39: Vanpool Mode Share Increase from TDM Packages



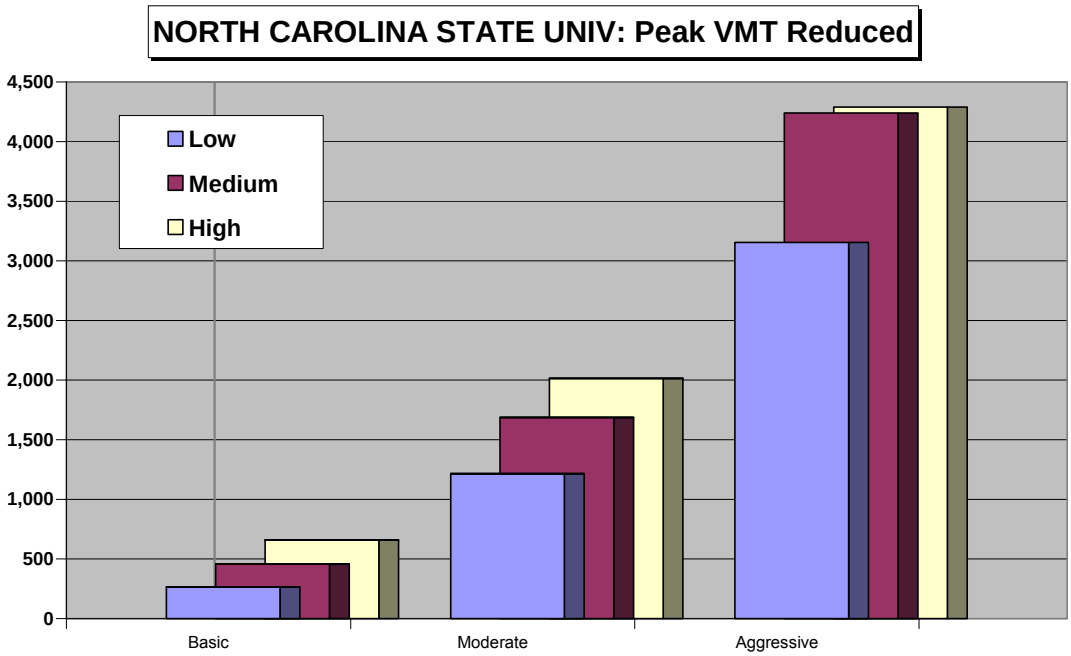
	Basic	Moderate	Aggressive
Low	0.0%	0.1%	0.8%
Medium	0.0%	0.2%	1.0%
High	0.1%	0.3%	1.3%

Figure 40: Transit Mode Share Increase from TDM Packages



	Basic	Moderate	Aggressive
Low	27	128	346
Medium	49	178	473
High	73	213	478

Figure 41: Peak Trips Reduced from TDM Packages



	Basic	Moderate	Aggressive
Low	264	1,215	3,153
Medium	455	1,685	4,240
High	659	2,012	4,289

Figure 42: Peak Vehicle Miles Traveled Reduced from TDM Packages

Appendix F: Final Report

Program Administration

TDM Monitoring and Evaluation Recommendations/Analysis

INTRODUCTION

This plan outlines a framework and methodology for evaluating the activities and impacts of commuter and employer assistance services provided in the Triangle Transit Authority (TTA) service area. The plan recommends guidelines for tracking the region's success in achieving its goal of reducing the growth of vehicle miles of travel (VMT) by 25 percent through the implementation of transportation demand management (TDM) services. In addition, the plan makes recommendations for tracking outreach efforts and community and business perceptions of transportation issues and programs.

The plan's recommendations are generalized so that they can be applied to multiple TDM programs: those that are currently in operation and may be implemented in the future.

This evaluation plan will discuss the following five items:

- Performance measures
- Report and evaluation schedule
- Evaluation methodology
- Supplemental data that can be collected

PERFORMANCE MEASURES

The primary measures of TDM program performance are generally VMT, trip, and pollution reductions. These measures coincide with the regional TDM goal of reducing VMT commute growth by 25 percent. Tracking the region's success in achieving this goal will require careful measurement of the VMT reduction benefits associated with regional TDM programs; however, limiting program measurements to those few categories fails to acknowledge the full purpose of TDM activities, which are intended to not only provide individuals with travel alternatives but to also change community perceptions of alternative transportation modes and to build support and identify funding for such modes.

Five areas must be measured to fully understand the impacts and success of TDM activities: 1) program impacts, 2) program participation, 3) program awareness, 4) customer satisfaction, and 5) outreach activities.

Program Impacts

Program impacts, as discussed in this document, are those items that result in direct benefits to the region. The following measurements represent program impacts:

- Vehicle miles of travel (VMT) reduced
- Trips reduced
- Emissions reductions
- Parking demand reductions

- Cost effectiveness (number of VMT, trips, or emissions reduced per dollar)
- Placement rates in carpool, vanpool, and school pool programs. Placement rates differ from participation rates; placement rates measure the number of people who actually form carpools or begin riding in vanpools while participation rates measure the number of people who enroll in carpool, vanpool, and school pool programs.

To determine if TDM activities in the region are reducing VMT commute growth by 25 percent, all program trip and VMT reductions must be carefully measured. While commute surveys often provide an excellent method of measuring TDM program performance, a regional survey would be unable to measure program performance at the necessary level. The seven-year plan aims to reduce the number of commute trips taken in single occupancy vehicles by approximately 0.3 percentage points per year and 2 percentage points over seven years. The survey sample size necessary to measure these levels of change would be so large that it would be unaffordable.

Instead of attempting to measure mode shifts at the regional level, program success should be measured at a more micro level. Many TDM activities in the City of Durham are already being measured through an ordinance requiring companies employing more than 100 workers to annually survey their employees about their commute behavior. In addition, companies participating in the Best Workplaces for Commuters (BWC) program are also required to survey their employees about their commute behavior. These surveys should serve as the foundation for the region's VMT and trip reduction measurements. Mode split information from the surveys can be measured from year to year to determine if changes in commute behavior are occurring.

The questions asked in the Durham and BWC surveys regarding commute modes should be standardized so that results from the two surveys can be compared and tracked. In addition, other TDM service providers, such as universities and transportation management organizations, should perform annual or biennial surveys of the companies or individuals with whom they work. These surveys should utilize the same standardized mode split questions used in the Durham and BWC surveys. The results from all of these surveys can be easily combined and analyzed to determine the direct VMT and trip reduction impacts of TDM programs in the region. While this methodology will not measure the complete VMT and trip reduction impacts of the various programs, it should capture a large proportion of their benefits.

The long-range plan has determined that meeting the VMT reduction goals will require converting approximately 5,000 commuters to alternative modes in year one and approximately 2,000 commuters to alternative modes in subsequent years. If the region would like to account for these shifts entirely within the surveys conducted at employment and institutional sites, it will need to have a large sample. TDM providers can often expect to achieve mode shifts of approximately 5 percent at companies and institutions with which they work directly. This would translate to working with and surveying companies and institutions representing approximately 100,000 commuters in year one and 40,000 commuters in subsequent years.

As noted earlier, some benefits from TDM activities are likely to accrue beyond commuters to whom the TDM service providers have direct access. This means that benefits and mode share shifts will be greater than those measured within the surveys conducted by the regional TDM programs.

While the program measurements discussed above are important, the measurements discussed in the following section of this report will also provide significant information on program performance and benefits and should not be overlooked.

Program Participation

Programs cannot achieve results unless individuals participate in them, and this section discusses the participation measurements that should be collected to determine the success of TDM programs.

- Number of participants enrolled in carpool, vanpool, and school pool programs
- Number of participants in campaigns such as Bike to Work Day
- Number of participants in programs such as Guaranteed/Emergency Ride Home
- Number of participants or companies participating in telework programs
- Number of companies participating in training and assistance programs

It should be noted that high program participation does not necessarily result in significant reductions in VMT, trips, and pollution. In addition to attracting participation, programs must also drive participants to modify their travel behavior, thus yielding program impacts.

Program Awareness

Successful TDM programs will increase individuals' awareness of and willingness to use alternative transportation modes. To understand how successful TDM programs are at accomplishing these goals, the follow items should be tracked:

- Number of people or proportion of the population that is aware of the program being offered or promoted
- Number of people or proportion of the population that know how to use or take advantage of the program being offered or promoted
- Willingness of the community and businesses to use services being offered or promoted

When measuring program awareness it is important to determine how individuals became aware of programs and services. This information can be used to improve advertising and promotional activities.

Customer Satisfaction

While not a direct measure of program impacts, customer satisfaction should be measured to encourage that the highest level of service is being provided to the public. Items that should be measured within this category are:

- Satisfaction with travel tools such as websites and maps
- Level of satisfaction with the following customer service measurements:
    - Time to obtain assistance
    - Usefulness of information provided
    - Knowledge level of staff
    - Staff understanding of needs
- Overall satisfaction with programs and staff
- Whether individuals or businesses would recommend programs and services to a friend or another business

Outreach Activities

Time spent on outreach activities can provide information on the level of effort expended by agencies in order to generate program impacts. Information from the tracking of outreach activities combined with program impact data can provide a clearer picture of public interest in TDM programs. Certain programs may require significantly higher levels of outreach effort to encourage program participation. Outreach activities that should be tracked are:

- Number of outreach calls
- Number of commuter fairs and community events attended
- Billboard ads placed (where appropriate)
- Number of mailings and pieces per mailing
- Website hits (unique visitors)
- Press coverage
- Number of radio and TV ads placed
- Number of print ads placed

In addition to measuring the number of ads placed, it is important to track their benefits. This can be done more easily when ads have a call to action that drives individuals to call a specific number, visit a certain website, use a coupon or pass, register for an event, or take another similar action.

REPORT AND EVALUATION SCHEDULE

Successful reporting will require the participation of many entities and individuals. Reporting requirements that are overly onerous or require data that cannot be easily collected are likely to be ignored. Reporting schedules should account for the level of effort required to obtain data and can be divided into two main categories: data that can be continually tracked and data that must be obtained through the use of surveys.

Participation, outreach activities, and program impacts associated with vanpool programs can be tracked continually and without the use of surveys. Data for these types of projects can be collected and reported on either a monthly or quarterly basis.

Awareness, satisfaction, and many program impacts must be determined through the use of surveys. Typical program impacts that must be determined through the use of surveys include, carpool placement rates; travel reductions associated with many outreach campaigns, carpool and school pool programs; and transit pass programs that cannot be tracked at the fare box. To maintain high response rates and reduce costs, survey evaluations should occur annually or biennially. The higher the cost of the survey the less frequently it should occur. The surveys of Durham County and Best Workplaces for Commuters employees is an example of a survey that could potentially occur biennially to reduce staff labor, encourage higher response rates, and reduce costs.

Survey Options

Surveys can be performed via three primary methods: 1) telephone, 2) mail, and 3) web-based. Experience within the TDM community shows that the highest response rates are generally received via random-dial telephone surveys. Unfortunately, random-dial telephone surveys are often the most expensive to perform.

Mail surveys will generally generate a response rate somewhat less than a telephone survey; however, these surveys can be distributed to large numbers of people or households at relatively low costs. Successful mail surveys should include a pre-survey postcard that is mailed to respondents. The postcard should tell the respondent that a survey is coming and briefly explain why the survey is important. Shortly after the postcard is sent a letter that includes the survey should be sent to the respondent. Any individuals not responding to the survey should be sent a reminder letter.

Web-based surveys often, but not always, return lower response rates than the previously mentioned methods. The primary benefit of web-based surveys is that they are very inexpensive to distribute and collect. These surveys are often ideal for employment sites where most workers have e-mail and Internet access. Employees lacking such access can be provided with paper versions of the survey.

Any materials written to encourage survey participation should be careful to avoid biasing the sample. Phrases such as “transportation survey” should be used instead of “transit survey” or “carpool survey.” Individuals who use alternative modes should not feel more compelled to respond to a survey than individuals who drive alone. Incentives offered for survey completion should also avoid biasing the sample; do not offer items such as bus passes, gas cards, or bikes. Incentives should be desirable to all individuals regardless of their commute or general travel modes.

SUPPLEMENTAL DATA

Collection of all of the data mentioned in the previous sections of this plan will allow for effective program evaluation and monitoring; however, a unique opportunity is available to the region if it expands the type and quantity of data that it collects.

Items like transit proximity, bus frequency, the availability of bicycle parking and trails, and parking charges are likely to impact the effectiveness of TDM programs. Unfortunately, the process of predicting the effects these items are likely to have on TDM programs lacks a high level of accuracy.

When program impacts are tracked for specific businesses or neighborhoods, data regarding the availability of programs and infrastructure that are likely to affect travel choices should be collected. These items include those listed above along with the availability of incentives, free transit passes, carpool and vanpool matching, employee transportation coordinators, and parking management programs.

The data that are collected will allow for the creation of a model that can be used to estimate the impacts that various TDM programs will have at sites throughout the region. This will allow for better planning and a more effective allocation of funding. Any model that can be created by TTA and its partners will also provide significant benefits to TDM programs throughout the United States and world.

TDM Call for Projects Process

The Triangle Regional TDM Call for Projects will occur annually in much the same way that it does now. TDM Service Providers will continue to submit their applications for state funding. Instead of submitting application to NCDOT for review, they will now be submitted to TJCOG and reviewed at the regional level by a selection committee consisting of NCDOT, MPOs, EPA/DENR, FHWA and TJCOG. TJCOG's role on the selection committee will be that of coordinator. TTA will serve on the selection committee as a non-voting member. Due to the extra layer of regional review before projects are submitted to the state, the application submission process will start a few weeks earlier than it currently does, as can be seen in the table below:

Milestone	Action	Responsibility	Comments
January 1	Discuss emphasis and evaluation criteria for call for projects.	Regional Selection Committee (NCDOT, MPOs, EPA/DENR, FHWA)	Done annually
February 1	TDM application package sent to TDM Service Providers	TJCOG	Package should include same forms required by NCDOT
March 15	TDM applications due to TJCOG	TDM Service Providers	TDM Applications should include Cover Letter, Program Work Plan, Program Budget, Job Descriptions, and Rideshare Statistics Report.
April 1	Review of TDM Applications completed by regional selections committee.	Regional Selection Committee	TTA will serve on the selection committee as a non-voting member. TJCOG's role on the selection committee will be that of Coordinator and will serve as a non-voting member of the committee.
April 15	Review of TDM Applications completed by selection committee and results/comments sent to TDM Service Providers.	TJCOG	Opportunity for dialogue between TJCOG and TDM Service Providers.
May 15	Revised TDM Applications reflecting changes/corrections due back to TJCOG.	TDM Service Providers	
May 22	Revised TDM Applications reflecting changes/corrections approved by TJCOG Board and due to NCDOT.	TJCOG	
June 15	TDM Service Providers notified if their	NCDOT/TJCOG	

	revised TDM application addressed all of the concerns stated in the review and whether their TDM program funding request will be taken to the NCDOT Board.		
July 15	NCDOT Board of Transportation reviews request for TDM Program funding.	NCDOT	

When additional TDM funding opportunities (like CMAQ, STPDA, etc.) become available, TJCOG will communicate their availability, selection criteria and timelines for submission as well as distribute application forms to qualified potential TDM Service Providers. If possible, timelines for these applications will be coordinated with those of the state to minimize duplication of administrative effort on behalf the TDM Service Providers and the Selection Committee. TJCOG will review applications with Selection Committee two to four weeks prior to deadline established by funding agency to ensure that funds are used in a manner that compliments and avoids redundancy with TDM projects funded with State funds. TJCOG will then submit qualified applications to funding organization for final review consideration.

Services and Operations

Automated GRH Administration

Commuter Club (A TMA in Suburban Atlanta, GA) has taken the first step in improving the administration of the GRH program through an on-line registration form, which is linked and managed in a sequel server database. This tool can be further enhanced to manage the administration of the rides used.

When users need a taxi ride home he or she will simply log in to a "Need Guaranteed Ride Home" page. After log in, the amount of rides the user has taken in a calendar year will be displayed (if the maximum amount has been used, no voucher will be generated). The user will then select a reason for the GRH from a pull down menu and acknowledge the rules and regulations. The final screen will display the taxi company phone number, a specific code to give the taxi company and an e-voucher to be printed out with a unique bar code or identifier (similar to concert tickets) and handed to the taxi driver.

Additional copies of the voucher will be automatically sent to the regional funding agency, Commuter Club and a representative at the worksite (ETC or HR). Additional details of this program will be determined through an initial scoping process.

Automated GRH Administration Cost: $25,000. One year hosting or server maintenance included.

Existing Local Service Provider TDM Guides

This section of the overall *Triangle Region 7 Year Plan* is intended to serve as a guide for the Triangle Region's three existing TDM local service providers: North Carolina State University (NCSU), University of North Carolina (UNC) Chapel Hill and SmartCommute@RTP. The following overview and recommendations are not complete work plans with detailed activities, but rather an overall guide for directing program activities over the seven year period.

Each of these programs has successful existing work plans, as demonstrated through surveys and program participation. It is recommended that the local service providers continue at existing levels of service with recommended enhancements to basic services and operations, targeted marketing and outreach (target to the activity center and to the user groups) and TDM planning that is focused on the multi-modal transportation services that are appropriate to each area. In addition, where appropriate, specific programs and/or services are recommended as pilot programs designed to test opportunities at the local level before funding organizations invest in a regional program. Pilot programs should be encouraged and continually tested at local levels and should not be limited to the ideas in this section.

The following outlines key program recommendations for each local service provider in five areas, designed to be implemented on an on-going basis over the seven year time period.

1. Planning
2. Program Administration
3. Services/Operations
4. Marketing and Branding
5. Outreach

NCSU

Planning

Serve on Regional TDM Committee. Continue to serve on Regional TDM Committee to ensure that regional programs and services work at the local level and that, when appropriate, NCSU is positioned to pilot programs that need to be tested at the local level before regional distribution.

Parking Management. Facilitate the integration of TDM in parking management planning. For faculty, staff, and students, parking pricing may be considered too low to play a significant role in encouraging non-SOV travel to campus and further study of the impact of parking pricing on campus VMT growth management, multi-modal transportation and overall quality of campus environment may be warranted.

Improve Network of Bicycle Lanes and Sidewalks. Continue to advocate and seek funding for a campus wide network of bicycle lanes and sidewalks to facilitate multi-modal transportation.

Carsharing. Continue to explore the option of a car sharing service and to monitor the commuting population to determine when it would be appropriate to initiate a program.

VMT Growth Management. Continue to advocate for good TDM practices that will encourage the planning and infrastructure required for multi-modal transportation services. This includes an active voice in campus master planning to implement voluntary site design improvements and other trip reduction strategies.

Services/Operations and Program Administration

The following basic strategies are required to continue NCSU's TDM program and should serve as a baseline for further development of program activities.

Hire Full-Time TDM Program Administrator. The local TDM programs are designed to be a full service programs and as such will require a full time TDM Program Administrator with support staff (possibly students and/or interns).

Set Program Goals and Targets. Based on the regional analysis, NCSU should set goals and annual targets for their TDM program. Tracking program participation and outreach activities can be collected and reported either through a monthly or quarterly basis through a common reporting spreadsheet and/or on-line tracking tool, as determined by the regional monitoring agency. Awareness, satisfaction, and many program impacts can be conducted through a regional survey process.

Create Program Mission and Goals. Create a program mission and goals that provide the NCSU program will an overarching mission within the University. This will assist with the University and funding organizations understanding, succinctly what the NCSU TDM program is trying to achieve.

Develop Student Based Rideshare Program. Ridesharing is a core TDM program and many Universities have successful Rideshare programs that rely on ridematching for both students and employees. NCSU and other Triangle Region Universities should continue working with TTA on a student ridematch database that works for travel to school and vacation travel.

Marketing and Branding

Revisit NCSU Program Branding and Marketing. Based on the opportunities presented with the umbrella branding of GoTriangle.org, NCSU should revisit their branding, WolfTrails, and program materials to ensure that it is inclusive of all regional and local programs and services and yet identifies NCSU as a full service travel options service provider. Conduct market research through surveys and focus groups to determine the success of the existing branding and how it can be improved, paying particular attention to the website as a TDM marketing and outreach tool.

Website. While the current website offers a lot of information, information on parking permits and non-SOV access options should be well integrated, including information on travel options and incentives for those not getting a parking pass.

Tailor On-Campus Marketing Promotion and Media Relations. As the website, brochure, and other promotional items are updated and new pieces created the continued circulation of these materials and other information on transportation alternatives to targeted audiences on campus is critical. Utilizing the campus-wide intranet, publications, mailings, and other distribution channels, promote the website to raise awareness of the TDM programs efforts and how individuals can participate.

To increase participation, marketing materials and outreach should continue to be tailored to the specific users: faculty, staff and students.

Redefine Travel Marketing. Continue partnering with TTA on regionally developed, locally implemented marketing campaigns, such as Redefine Travel, targeted to University students. Pilot market research activities, such as surveys and focus groups, to further explore messaging that appeal to student populations.

Continued Promotion of Regional Campaigns. Continue to partner with and promote regional campaigns, such as the Smart Commute Challenge. However, seek to tailor the challenge to specifically challenge University travelers.

BWC Marketing. To the extent that it is successful, continue marketing NCSU as a BWC to campus decision makers and media.

Individualized Marketing. An aggressive strategy that has worked in University based settings is an individualized marketing program targeting employees. This program is research based and strengthens the idea of providing commuter benefits programs to recruit and retain staff, reduce parking demand, and ultimately to change travel behavior. The approach begins with a before survey to assess the travel needs of both the University and its employees and is followed by an after survey to measure the effectiveness of the both the existing and newly developed commuter benefit programs in changing travel behavior.

Pilot the TDM Marketing and Outreach to Non-Native English Speakers. Investigate how to provide marketing materials and increase outreach with non-native English speakers, possibly through web translation tools, interns from various cultural backgrounds and translation of primary marketing pieces. If this program is found successful, this can be expanded to other parts of the region.

Incentives/Rewards Based Programs. Incentives and rewards enhance any TDM program by providing the extra push required to give up driving alone. While a region wide rewards program is developed, NCSU can create a local membership based program for alternative mode users that give up their parking passes. This membership can include Guaranteed Ride Home, a "part-time" parking pass program, and a benefits card that can be used for local business discounts in addition to the regional rewards that will be made available.

Outreach

Targeted Outreach. Continue to attend orientations, campus-wide events, meetings, and fairs to spread awareness. To the extent possible, work with the individual departments on campus to promote the TDM Program and TDM tools. Make use of interns and TTA support staff to expand outreach services.

Transportation Coordinators. Continue to seek Employee and Student Transportation Coordinators to assist the TDM program coordinator and outreach assistants in getting the word out about TDM programs and services.

GoTriangle Travel Store. An aggressive strategy is the development of a one-stop commuter/travel store centrally located on campus.

UNC Chapel Hill

Planning

Serve on Regional TDM Committee. Continue to serve on Regional TDM Committee to ensure that regional programs and services work at the local level and that, when appropriate, UNC Chapel Hill can pilot programs that need to be tested at the local level before regional distribution.

Explore TDM strategies for Special Events. Special event parking strategies coupled with specific strategies to encourage special event goers to use alternatives, such as food and beverage discounts for transit users and a bike valet program for bicyclists. Messaging can be coupled with safety messages, such as find a designated driver (carpool) or take the bus instead of risking DUIs.

Improve Network of Bicycle Lanes and Sidewalks. Continue to advocate and seek funding for a campus wide network of bicycle lanes and sidewalks to facilitate multi-modal transportation and to facilitate home to University travel.

Ridesharing and Regional Transit Promotion. To assist in reducing overall parking demand and local transit service capacity, focus TDM promotion on those programs and services that encourage ridesharing, transit usage and biking and walking from the home location vs. the campus park and ride lots.

HOV and Regional Transit Advocacy. Promote improved facilities on a regional level, when appropriate. This can include HOV lanes that facilitate ridesharing and regional transit facilities that link the University to other activity centers.

Carsharing. Continue to promote Zipcar on campus. Conduct small pilot program to explore if subsidizing program will significantly increase participation levels.

VMT Growth Management. Continue to advocate for good TDM practices that will encourage the planning and infrastructure required for multi-modal transportation services. This includes an active voice in campus master planning to implement voluntary site design improvements and other trip reduction strategies.

Services/Operations and Program Administration

The following basic strategies are required to continue UNC Chapel Hill's TDM program and should serve as a baseline for further development of program activities.

Set Program Goals and Targets. Based on the regional analysis, UNC Chapel Hill should set goals and annual targets for their TDM program. Tracking program participation and outreach activities can be collected and reported either through a monthly or quarterly basis through a common reporting spreadsheet and/or on-line tracking tool, as determined by the regional monitoring agency. Awareness, satisfaction, and many program impacts can be conducted through a regional survey process.

Program Mission and Goals. Create a program mission and goals that provide the UNC Chapel Hill TDM program will an overarching mission within the University, separate from public safety.

This will assist with the University and funding organizations understanding, succinctly what the UNC Chapel Hill TDM program is trying to achieve.

Hire Full-Time TDM Program Administrator. The local TDM programs are designed to be a full service programs and as such will require a full time TDM Program Administrator with support staff (possibly students and/or interns).

Develop Student Based Rideshare Program. Ridesharing is a core TDM program and many Universities have successful Rideshare programs that rely on ridematching for both students and employees. UNC and other area Universities should continue working with TTA on a student ridematch database that works for travel to school and vacation travel.

Marketing and Branding

Revisit UNC Chapel Hill Program Branding and Marketing. Based on the opportunities presented with the umbrella branding of GoTriangle.org, UNC Chapel Hill should revisit their branding, the UNC Chapel Hill Commuter Alternative Program (CAP), and program materials to ensure that it is inclusive of all regional and local programs and services and yet identifies UNC Chapel Hill as a full service *travel* options service provider. Conduct market research through surveys and focus groups to determine the success of the existing branding and how it can be improved, paying particular attention to the website as a TDM marketing and outreach tool.

Website. While the current website offers a lot of information, it does not serve as an outreach tool, helping the TDM Program Administrator "sell" the TDM program and its tools.

Tailor On-Campus Marketing Promotion and Media Relations. As the website, brochure, and other promotional items are updated and new pieces created the continued circulation of these materials and other information on transportation alternatives to targeted audiences on campus is critical. Utilizing the campus-wide intranet, publications, mailings, and other distribution channels, promote the website to raise awareness of the TDM programs efforts and how individuals can participate.

To increase participation, marketing materials and outreach should continue to be tailored to the specific users: faculty, staff and students.

Redefine Travel Marketing. Continue partnering with TTA on regionally developed, locally implemented marketing campaigns, such as Redefine Travel, targeted to University students. Pilot market research activities, such as surveys and focus groups, to further explore messaging that appeal to student populations.

Continued Promotion of Regional Campaigns. Continue to partner with and promote regional campaigns, such as the Smart Commute Challenge. However, seek to tailor the challenge to specifically challenge University travelers.

BWC Marketing. To the extent that it is successful, continue marketing UNC Chapel Hill as a BWC to campus decision makers, local merchants and media.

Individualized Marketing. An aggressive strategy that has worked well in University based settings is an individualized marketing program targeting employees. This program is research

based and strengthens the idea of providing commuter benefits programs to recruit and retain staff, reduce parking demand, and ultimately to change travel behavior. The approach begins with a before survey to assess the travel needs of both the University and its employees and is followed by an after survey to measure the effectiveness of the both the existing and newly developed commuter benefit programs in changing travel behavior.

Incentives/Rewards Based Programs. As a region wide rewards program is developed, incorporate it into the Commuter Alternative Program. Continue to expand program rewards through additional partnerships with local merchants.

Outreach

Targeted Outreach. Continue to attend orientations, campus-wide events, meetings, and transportation fairs to spread awareness. To the extent possible, work with the various departments on campus and the local media to advertise the various TDM Programs and the Commuter Alternative Program.

Transportation Coordinators. Continue to seek Employee and Student Transportation Coordinators to assist the TDM program coordinator and outreach assistants in getting the word out about TDM programs and services.

GoTriangle Travel Store. An aggressive strategy is the development of a one-stop commuter/travel store centrally located on campus.

SmartCommute@RTP

Planning

Serve on Regional TDM Committee. Continue to serve on Regional TDM Committee to ensure that regional programs and services work at the local level and that, when appropriate, can pilot programs that need to be tested at the local level before regional distribution.

Improve Network of Bicycle Lanes and Sidewalks. Continue to advocate and seek funding for a network of bicycle lanes and sidewalks to facilitate multi-modal transportation throughout RTP.

Transit Advocacy. Continue to advocate for improved transit services to RTP. As the TMA serving the RTP, request that employers explore public-private shuttles that facilitate travel from regional transit transfer points to employer locations. Several employers could share a shuttle, reducing costs.

VMT Growth Management. Continue to advocate for good TDM practices that will encourage the planning and infrastructure required for multi-modal transportation services. This includes an active voice in requesting employers or property managers include preferential parking, bike lockers, transit amenities, etc and other trip reduction strategies to their facilities.

Services/Operations and Program Administration

The following basic strategies are required to continue SmartCommute@RTP TDM program and should serve as a baseline for further development of program activities.

Hire Full-Time TDM Program Administrator. The TDM program is designed to be a full service program and as such will require a full time TDM Program Administrator with support staff (possibly interns).

Set Program Goals and Targets. Based on the regional analysis, should set goals and annual targets for their TDM program. Tracking program participation and outreach activities can be collected and reported either through a monthly or quarterly basis through a common reporting spreadsheet and/or on-line tracking tool, as determined by the regional monitoring agency. Awareness, satisfaction, and many program impacts can be conducted through a regional survey process.

Marketing and Branding

Revisit Program Branding and Marketing. SmartCommute@RTP should identify itself as a full service travel options service provider. Marketing materials should be branded and include all relevant regional and local programs (co-branded with gotriangle.org, as appropriate). Conduct focus groups and surveys periodically to determine if website, marketing materials and messaging is recognized and well received within RTP.

Tailor Employer Based Promotion and Media Relations. As promotional items are updated and new pieces created, the continued circulation of these materials and other information on transportation alternatives to all RTP employers is critical.

Continued Promotion of Regional Campaigns. Continue to partners with and promote regional campaigns, such as the Smart Commute Challenge. However, seek to tailor the challenge to RTP travelers.

BWC Marketing. To the extent that it is successful, continue BWC marketing and outreach to employers and media.

Employer Based Individualized Marketing. An aggressive strategy that could be extremely effective for RTP employers is to pilot an employer based individualized marketing program with one to two employers. Traditional employer outreach efforts focus on assisting an employer in developing and implementing commuter benefit programs at the workplace. Such efforts result in a top-bottom approach in attempting to change the travel behavior of employees. Through an innovative and research-based approach, employer-based individualized marketing addresses questions of program effectiveness and also strengthens the idea of providing commuter benefits programs to recruit and retain staff and ultimately to change travel behavior. The goal is to work with both the employer AND employees on an individual basis to assess their travel needs, motivate them to change their commuting behavior and to actively support transportation demand management policies and strategies in the workplace.

Incentives/Rewards Based Programs. Work closely with TTA and other Local Service Providers on development of a pilot regional reward based program. As the only TMA in the Triangle Region, pilot the program to ensure that it works as desired before it is promoted to all local service providers. This would involve special project funding to develop some sort of trip tracking tool with rewards or incentives for alternative mode commuters.

Outreach

Targeted Outreach. Continue to attend owner and tenant association meetings, lunch and learns, orientations and benefits fairs to spread awareness. To the extent possible, tailor TDM tools to individual employers. If transit is not an option, don't focus on it during outreach meeting and events, unless specifically requested. Due to the high percentage of information and technology based businesses in RTP, more than likely telework is a good TDM strategy to promote amongst employers and their employees.

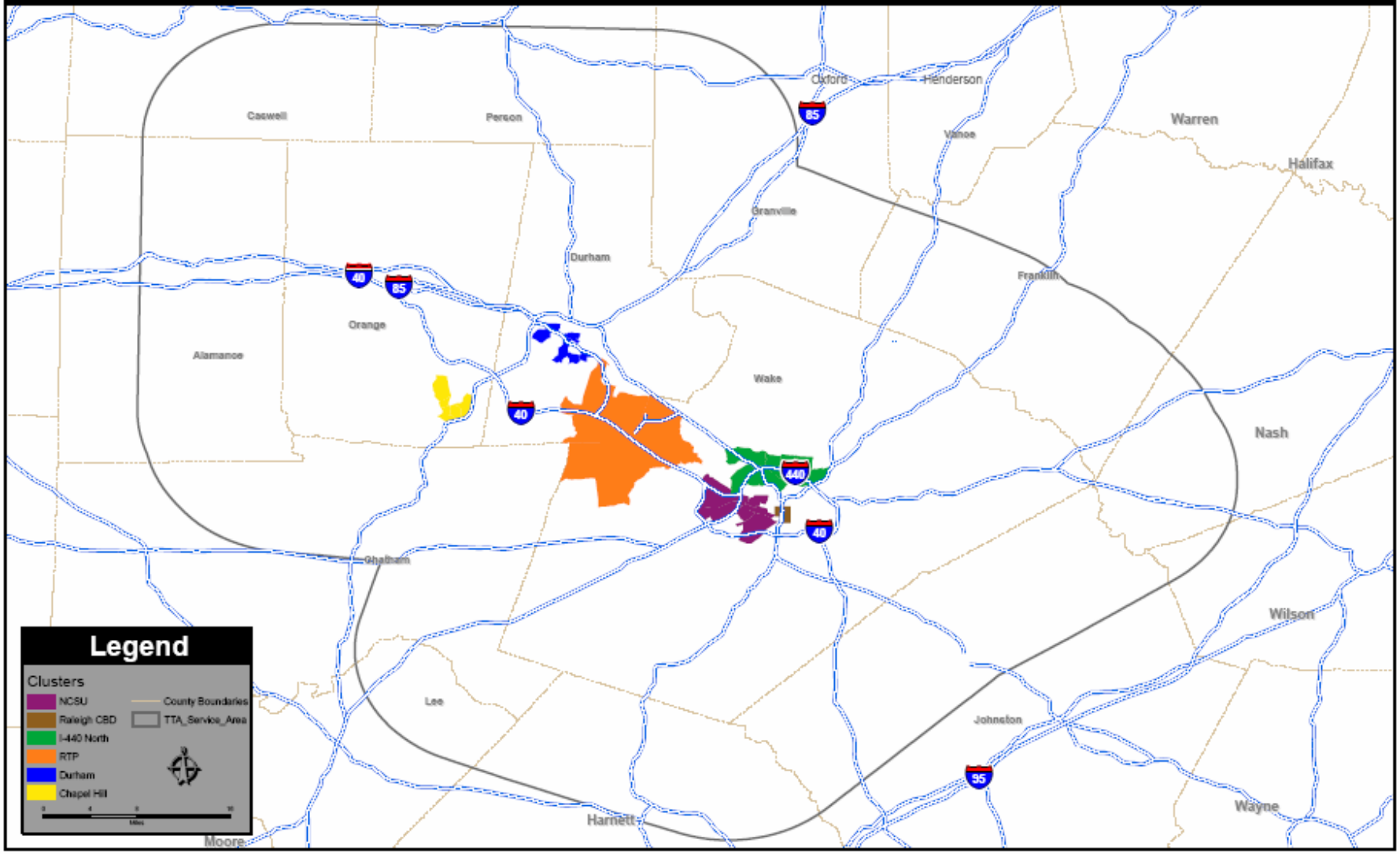
Transportation Coordinators. Continue to seek Employee Transportation Coordinators at member companies to assist the TDM program coordinator and outreach assistants in getting the word out about TDM programs and services.

Explore Virtual Travel Store as Pilot Program. A commuter/travel store provides RTP travelers with transportation information and products such as bus passes, bike gear, maps, and other necessary commuting goods. However, unlike typical bricks and mortar commuter stores, a virtual store accessible to users 24 hours a day and 7 days a week. Like other online shopping experiences, the virtual store can go beyond simple information, but also provide an online shopping cart to which they can add goods. A representative from the will deliver orders (potentially once a month), creating an opportunity for human interaction and additional outreach.

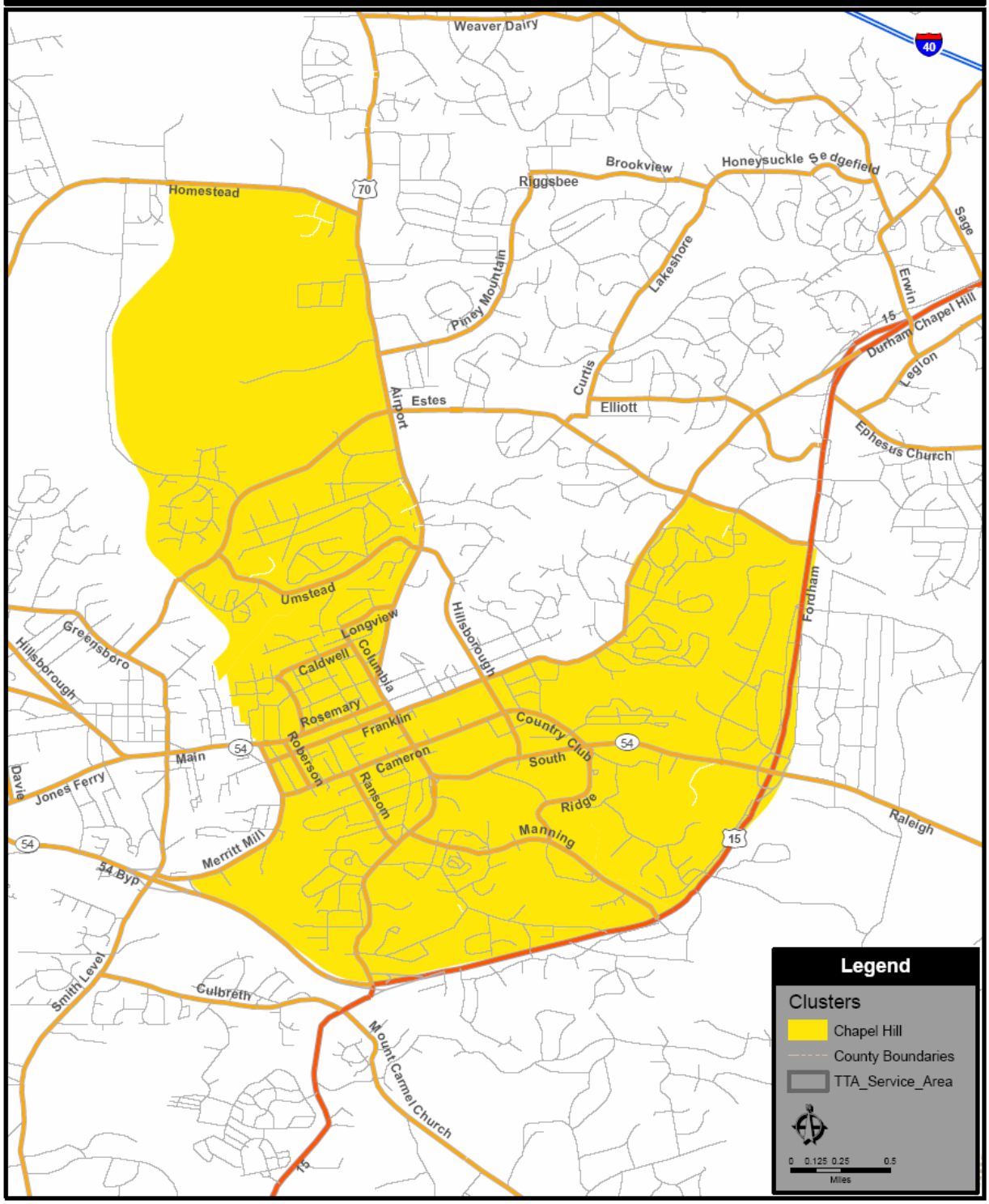
Branding and Marketing

Targeted Marketing

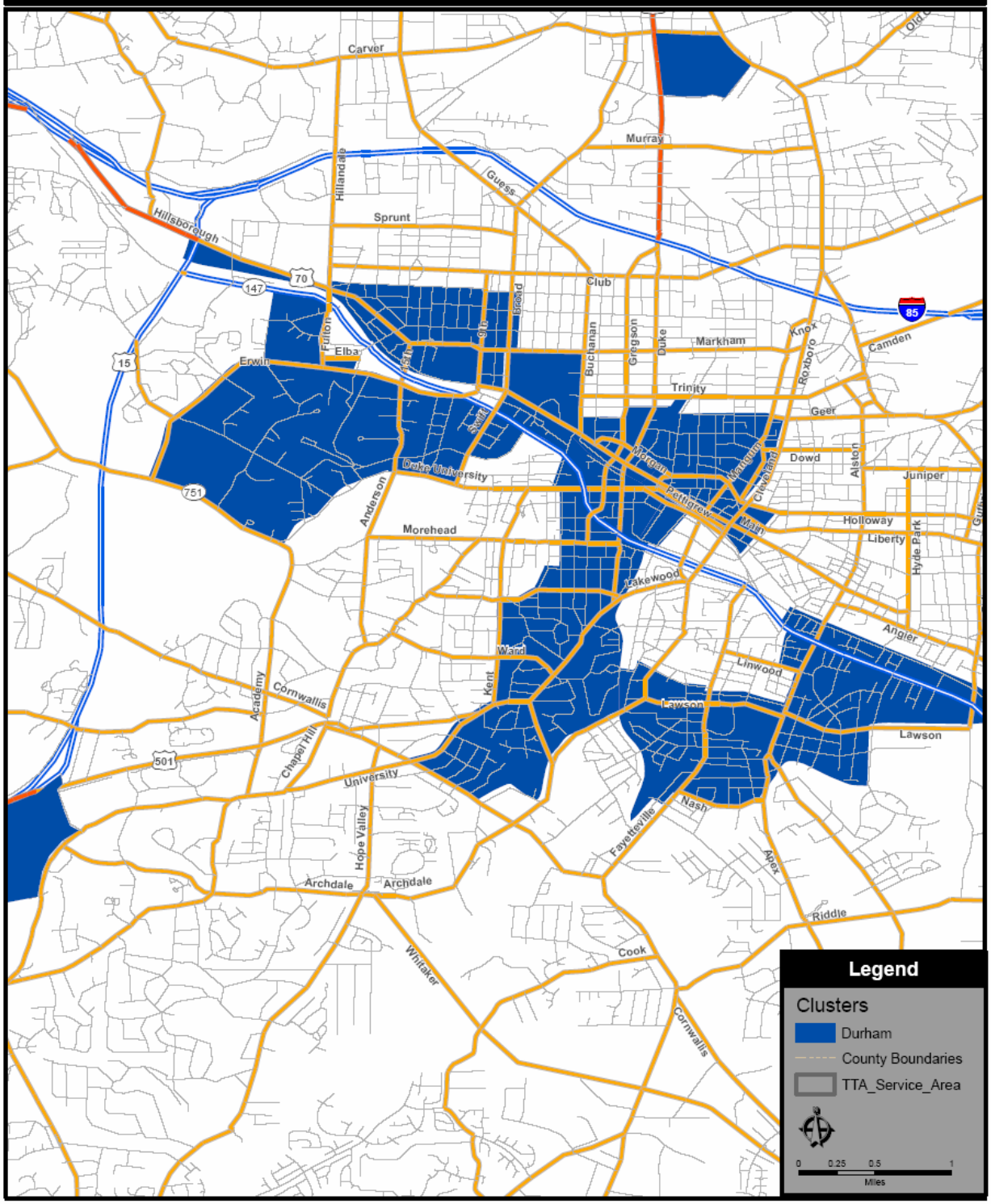
TDM Target Areas



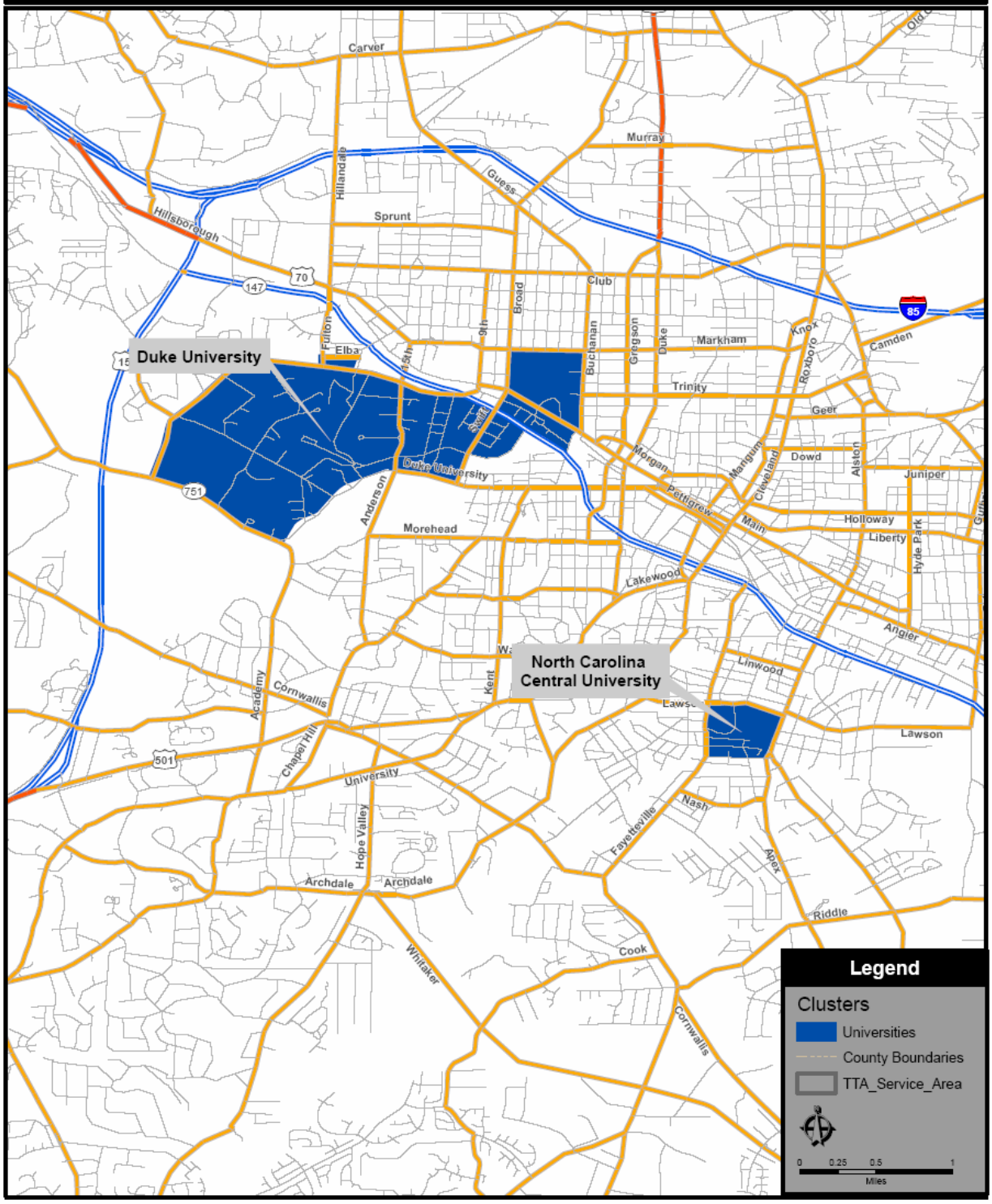
Work Cluster 1: Chapel Hill



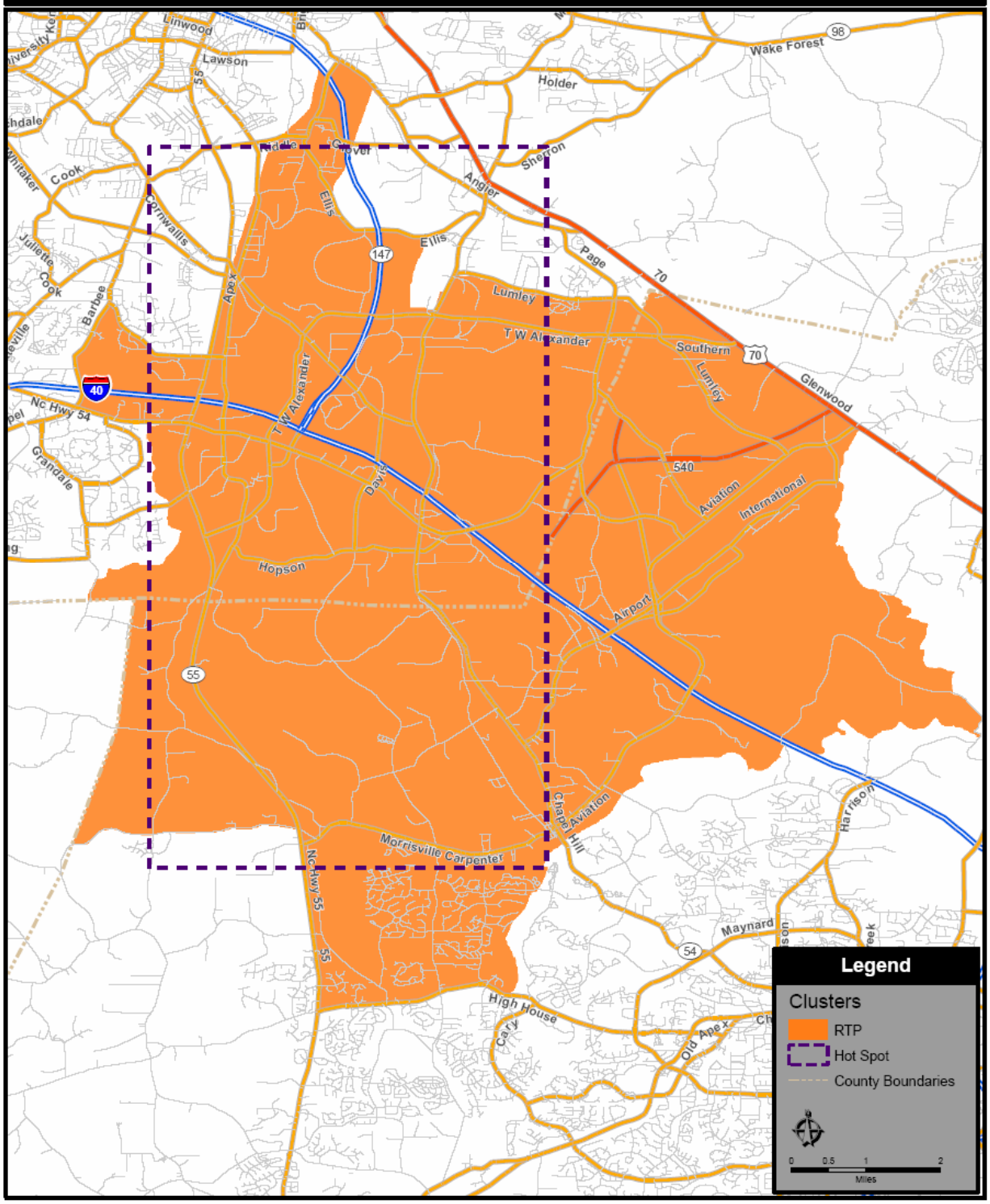
Work Cluster 2: Durham



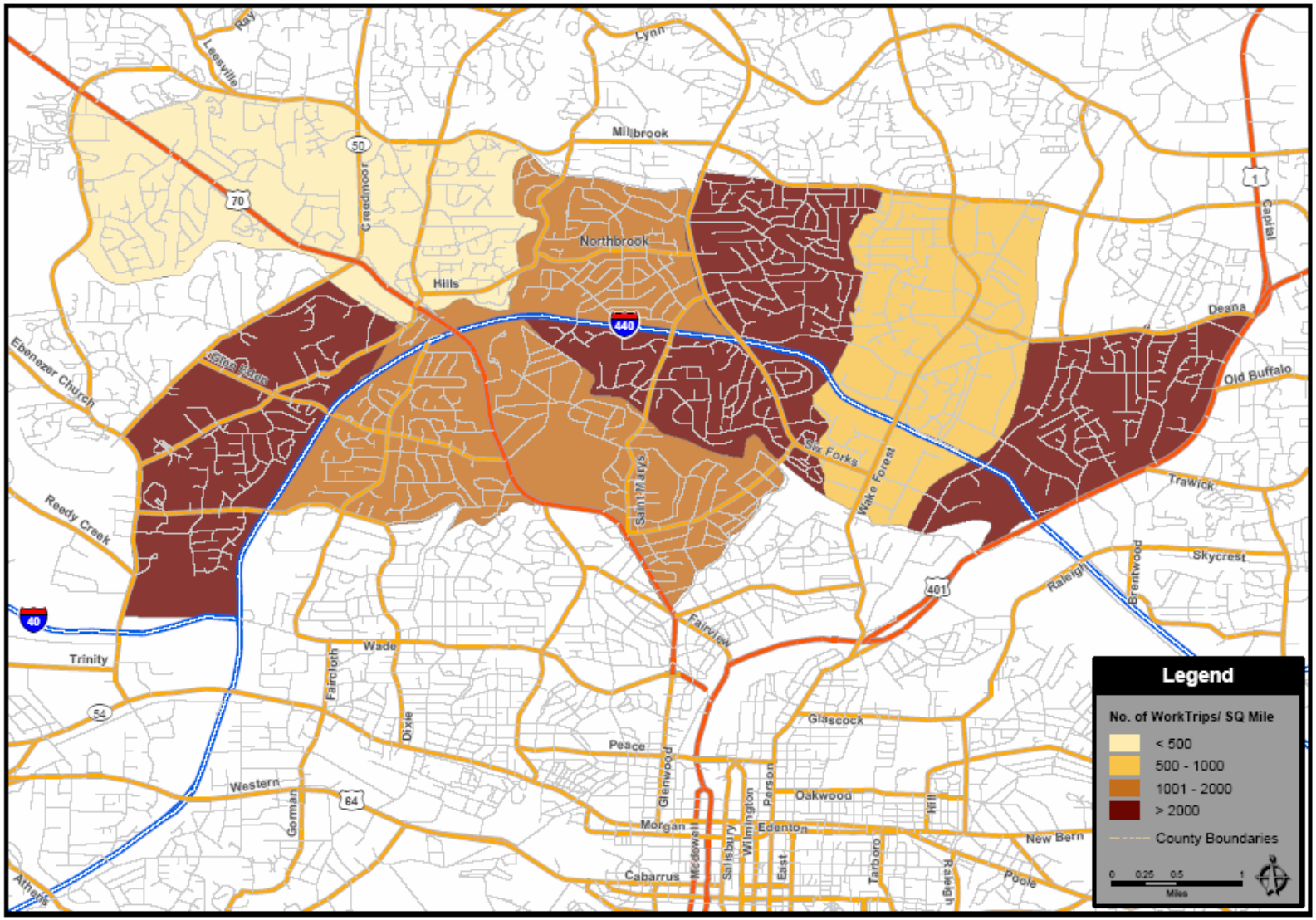
Duke and North Carolina Central Universities



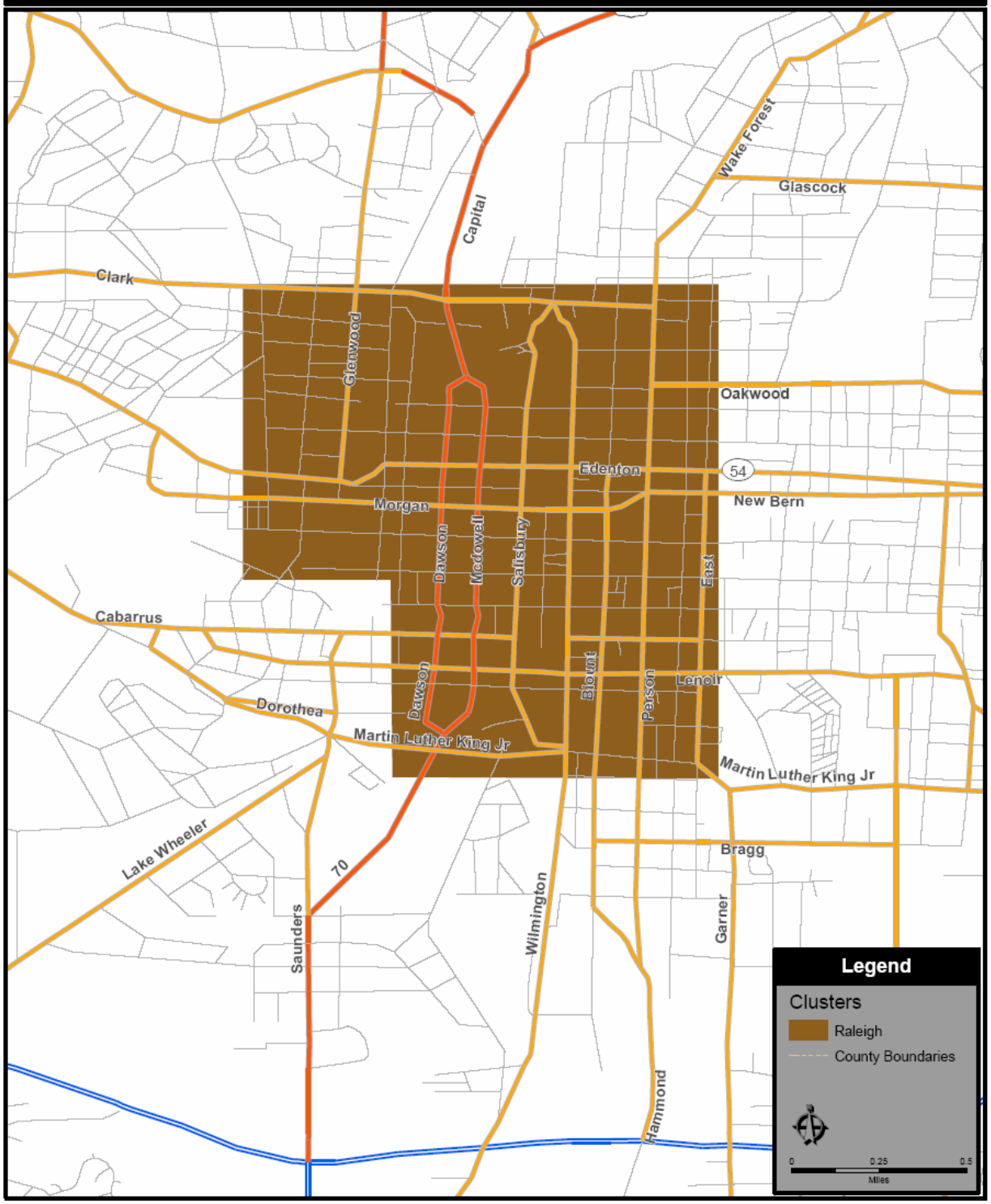
Work Cluster 3: RTP



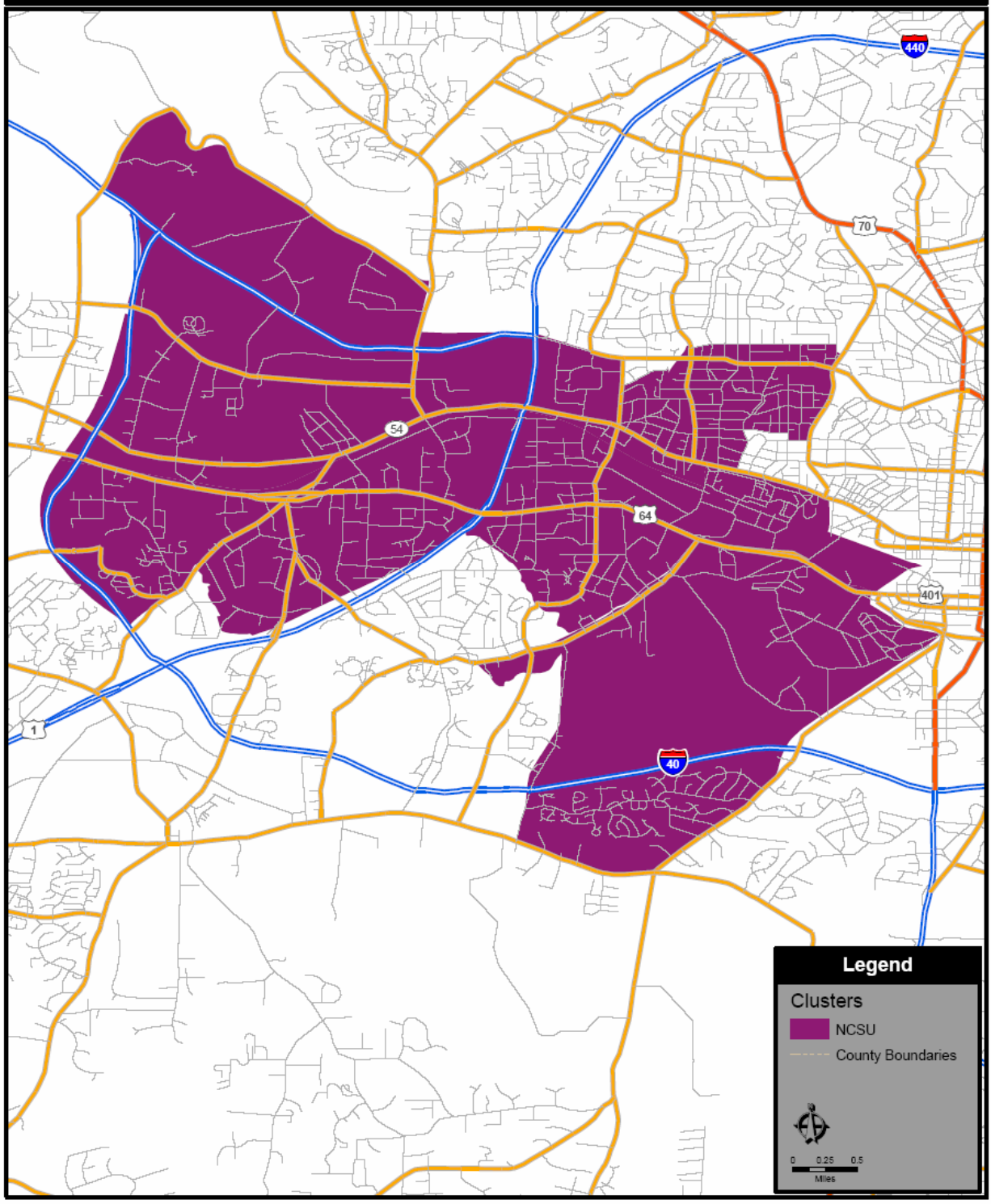
Work Cluster 4: Density of Work Trips in I-440 Northern Corridor



Work Cluster 5: Raleigh



Work Cluster 6: NCSU



Spanish-Speaking and Hispanic Community Marketing

Statistics show that use of alternative transportation is higher within the Hispanic community. GoTriangle.org does not currently market extensively to this community. A marketing/feasibility study is planned for FY 2008 which will measure interest in GoTriangle's programs and services within the Spanish speaking population. This is not a simple process. Questions regarding audience identification, message development, and media selection all must be answered before proceeding with a marketing effort.

Spanish Speaking and Hispanic Marketing in Practice:

The need for carefully conducting market research before proceeding with marketing the Hispanic community is made apparent by the experiences of Los Angeles and Houston. In Los Angeles, TDM practitioners experienced difficulties in reaching out to the Spanish-speaking markets. Based upon the large number of first-generation immigrants, there was a large level of distrust and apprehension about the methodologies used for encouraging carpooling – specifically, the need to register for services. In Houston, by comparison, the Spanish-speaking markets featured a greater proportion of second and third generation immigrants, who were more comfortable with the approach of the Commute Solutions program.

North Carolina's Latino Demographics

In his introduction to North Carolina Latino demographics, Martinez (2002) notes that over the past decade, the Hispanic population in North Carolina has grown 39 percent In 1990 Latinos accounted for 1.04 percent of the state's population. Today they number 378,963 and comprise 4.7 percent of the population (Census, 1990; Census 2000).
A significant portion of this growth can be attributed to immigration. Latinos coming to the U.S. are motivated by the same things that motivate other immigrants—an attraction to our freedom and values and/or a desire to improve their lives and the lives of their children.

This growth in the state's Latino population can also be attributed to a rising number of Hispanic births. In the 1990s annual Hispanic births in North Carolina increased more than 500 percent, from 1,752 in 1990 to 9,484 in 1999 (Martinez, 2002). It must also be noted that other Latinos, many of them migrant farm workers, also live in North Carolina and are not included in the population figures above. In 2000 it was estimated that migrant and seasonal farm workers and their families in North Carolina numbered 156,893. Of these, 24,872 were children, 60 percent of whom were under age 12 (Larson, 2000). Many of these workers and their families are Latino. The N.C. Employment Security Commission estimates there are at least 58,000 Hispanic migrants in the state.

Most of North Carolina's Latinos trace their heritage to one of three countries: Mexico (65 percent), Puerto Rico (8.2 percent), and Cuba (1.9 percent). The remaining 24.8percent are from other Central or South American countries, or other Spanish-speaking countries (Census 2000).

Nearly two-thirds of North Carolina's Hispanics are foreign born (64.2 percent). Almost all of the state's foreign-born Latinos are non-citizens (58.3 percent)—only 5.9percent

have been naturalized (Martinez, 2002). All Puerto Ricans are born U.S. citizens.
Since so many are recent immigrants, it is likely North Carolina's Latinos face significant language barriers. More than one-third of the Hispanics in North Carolina (34 percent) speak English poorly or not at all (Martinez, 2002).

Implementation

Understanding what motivates the Hispanic market is necessary before marketing is initiated. The most pressing question is "who is our target audience?" The answer seems simple – anyone who speaks Spanish. This assumption is partly true; however, many questions must be answered before marketing is initiated, including:

- Is the Triangle Hispanic market predominantly recent immigrants (first generation) or established immigrants (second or third generation)? What differences in marketing approach and messaging must be considered for each?
- What are the language barriers? Is it simply enough to translate marketing materials verbatim, or, does the messaging of the materials need to substantially differ in order to be effective?
- What demographic differences between markets need to be considered? Are income levels a consideration?
- Is there geographic consolidation in residential patterns, and if so, how is that geographic market served? Are there viable alternatives, and is GoTriangle well suited to meet those needs?

Individualized Marketing Samples

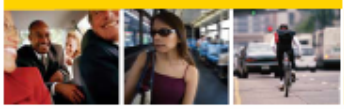
Employer Based Individualized Marketing:

Changing travel behavior at the workplace.

Traditional employer outreach efforts focus on assisting an employer in developing and implementing commuter benefit programs at the workplace. These programs include the federal pre-tax, guaranteed ride home, ridematching, carpools/vanpools, etc. Such efforts result in a top-bottom approach in attempting to change the travel behavior of employees. Employers are beginning to assess whether commuter benefit programs are a good investment. Management often asks the hard questions:

- What are the costs of these programs?
- Are these programs being utilized? What are the participation rates?
- What is our return on investment?
- What effect are we having on changing travel behavior, reducing congestion, etc?

Through an innovative and research-based approach, employer-based individualized marketing addresses these questions and also strengthens the idea of providing commuter benefits programs to recruit and retain staff, reduce parking demand, and ultimately to change travel behavior. The goal is to work with both the employer AND employees on an individual basis to assess their travel needs, motivate them to change their commuting behavior and to actively support transportation demand management policies and strategies in the workplace. Employer-based individualized marketing assists in this process by empowering the employer and employee through information and knowledge, motivating the employer/employee through incentives, and supporting the employer/employee through activities and resources. This approach begins with a before survey to assess the travel needs of both the employer and employee and is followed by an after survey to measure the effectiveness of the both the existing and newly developed commuter benefit programs in changing travel behavior. This application has been (and will be) conducted in several employer sites including George Mason University, Howard University, The World Bank, and XM Radio. The number of employees participating in such projects range from 400 to 10,000.



SATELLITE RADIO

IM PROJECT DESIGN

The following chart outlines the basic project design:

INDIVIDUALIZED MARKETING CAMPAIGN

Before Survey

- Web based survey with paper-based option where necessary
- Distribute survey link via email from management
- Incentives to participate such as a prize drawing (ex. iPod, gift cards, etc.)
- Reminder emails to fill out survey will come from management
- Promotional survey posters to be displayed in high traffic areas (ex. breakrooms, bathrooms, cafeteria, etc.)

Segmentation

- Survey respondents will be segmented by their likelihood of change
- Respondents will be segmented into three groups: Interested, Regular Users and Not Interested
- Those 'Not Interested' will be excluded from any further marketing efforts and behavior change efforts

Motivation

- Send out order forms for transportation related marketing material
- Order forms will be both web based, distributed via email and paper-based, distributed via company events
- Marketing material offered will be targeted and customized to the participating organization (such as customized bus schedules, local access maps, and commuter benefit programs/services slick sheets.)
- Incentives to return order form
- Promote an event such as a Transportation Fare, Ice Cream Party, luncheon, etc.

Information

- Only information ordered by employees will be collated and distributed in person
- Information will be packaged in a customized 'bag'
- Incentive for participating will be included along with a few trinkets promoting alternative modes of transportation and existing commuter benefit programs
- Follow-up on information received and extend invitation to receive personal trip planning and detailed commuter benefits program review.

Evaluation

- After survey will be identical to the before survey
- All initial survey participants will be asked to fill out the survey including the 'Not Interested' group
- After survey is compared against the before survey to assess change in travel behavior

COMMUTER CONNECTIONS
A SMARTER WAY TO WORK

SATELLITE RADIO

INDIVIDUALIZED MARKETING

SURVEY SAMPLE *(All Employees)*

Conduct Before Survey *(online)* Incentive: Draw for prize	Survey Posters Displayed
	Email Survey Link with Intro Letter to ALL Employees
	Email reminder letter to fill out survey to those employees who have not yet responded
	Surveys Completed
	Surveys Segmented — "I" 40% — "R" 20% — "N" 40%
Individualized Marketing "I" and "R"	Distribute Invites to Interest and Regular Users to Outreach Event
	Outreach Posters Displayed
	Outreach Event (Ice Cream Party, Luncheon, Fare, etc.)
	Order Forms Distributed/Received at Event Incentive will be provided to return order forms. In addition regular users will also receive a reward for their current travel behavior. All material will be hand-delivered in a nice bag with some promotional items.
	Order Forms emailed/distributed to those employees who could not attend the event.
	Orders Collated by staff
	Orders Delivered at XM Satellite Radio
	Commute Therapy/Personal Advice
Conduct After Survey *(online)* Incentive: Draw for prize	

COMMUTER CONNECTIONS

Branding Samples

arrive
minnesota®
...at work AHEAD of your book club.
www.arrive.org

arrive
minnesota®
...with something other than GAS PRICES on your MIND.
www.arrive.org

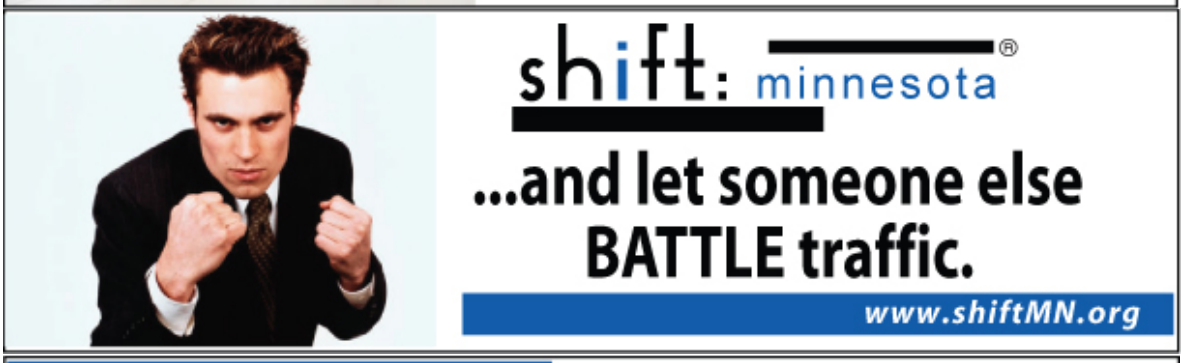
arrive
minnesota®
...at the GYM, just outside the ELEVATOR door.
www.arrive.org

arrive
minnesota®
...at home BEFORE his bedtime.
www.arrive.org

arrive
minnesota®
...at home the Dad you promised to be.
www.arrive.org

shift: minnesota®
...from DREADING to ENJOYING your commute.
www.shiftMN.org

shift: minnesota®
...to get HOME relaxed and ready to help her with HOMEwork.
www.shiftMN.org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Appendix G: Detailed Plan Activities, Responsibilities, and Budgets

Performance Area	TDM Strategy	Activity	Responsible Party	Package	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014	# of FTE	Staffing Budget*	Direct Expense	Total Budget
1. Planning	1.1 Expand Funding Opportunities	Pursue new funding opportunities. (CMAQ, STPDA, State, other?)	TJCOG	Basic		$ 18,600	$ 19,158	$ 19,733	$ 20,325	$ 20,934	$ 21,562	$ 22,209	0.20	$ 18,600		$ 18,600
1. Planning	1.2 TDM Ordinance Toolkit Technical Assistance	Refresh TDM Growth Management Strategies On-Line Tool Kit.	TJCOG	Basic		$ 7,650	$ 7,880	$ 8,116	$ 8,359	$ 8,610	$ 8,868	$ 9,135	0.05	$ 4,650	$ 3,000	$ 7,650
1. Planning	1.2 TDM Ordinance Toolkit Technical Assistance	Serve on Technical Advisory Committees for Major Transportation Projects Studies.	TJCOG	Basic		$ 2,790	$ 2,874	$ 2,960	$ 3,049	$ 3,140	$ 3,234	$ 3,331	0.03	$ 2,790		$ 2,790
1. Planning	1.2 TDM Ordinance Toolkit Technical Assistance	Produce a TDM Design Forum.	TJCOG	Basic				$ 4,650	$ 4,790	$ 4,933	$ 5,081	$ 5,234	0.05	$ 4,650		$ 4,650
1. Planning	1.2 TDM Ordinance Toolkit Technical Assistance	Conduct outreach on the TDM Growth Management Strategies to local communities.	TJCOG	Moderate			$ 4,650	$ 4,790	$ 4,933	$ 5,081	$ 5,234	$ 5,391	0.05	$ 4,650		$ 4,650
1. Planning	1.3 Regional TDM Coordination	Re-establish and maintain the TDM Coordinating Committee.	TJCOG	Basic	$ 3,720	$ 3,720	$ 3,832	$ 3,947	$ 4,065	$ 4,187	$ 4,312	$ 4,442	0.04	$ 3,720		$ 3,720
1. Planning	1.3 Regional TDM Coordination	Professional development conferences (ACT). Plan, develop and conduct quarterly workshops.	TJCOG	Basic	$ 7,290	$ 7,290	$ 7,509	$ 7,734	$ 7,966	$ 8,205	$ 8,451	$ 8,705	0.03	$ 2,790	$ 4,500	$ 7,290
1. Planning	1.3 Regional TDM Coordination	Develop two community case studies per year.	TJCOG	Basic		$ 3,720	$ 3,832	$ 3,947	$ 4,065	$ 4,187	$ 4,312	$ 4,442	0.04	$ 3,720		$ 3,720
1. Planning	1.4 Long-range Planning Support	Advocate for HOV Lanes.	TJCOG/NCD	Aggressive		$ 2,790	$ 2,874	$ 2,960	$ 3,049	$ 3,140	$ 3,234	$ 3,331	0.03	$ 2,790		$ 2,790
1. Planning	1.4 Long-range Planning Support	Explore shuttles connecting to transit service.	TTA/LSPs	Aggressive				$ 13,950	$ 14,369	$ 14,800	$ 15,244	$ 15,701	0.15	$ 13,950		$ 13,950
1. Planning	1.4 Long-range Planning Support	Research Fare-Free Transit Policies.	TTA	Aggressive					$ 1,860				0.02	$ 1,860		$ 1,860
1. Planning	1.4 Long-range Planning Support	Opportunity to tie TDM Program funding to provision of local growth policies.	TJCOG/ LSF	Aggressive				$ 7,440					0.08	$ 7,440		$ 7,440
1. Planning	1.4 Long-range Planning Support	Research TDM Ordinances & Park & Ride Ordinances.	TJCOG/MPO	Aggressive			$ 1,860						0.02	$ 1,860		$ 1,860
1. Planning	1.4 Long-range Planning Support	Advocate for one regional transit pass.	TTA	Basic		$ 2,790							0.03	$ 2,790		$ 2,790
1. Planning	1.4 Long-range Planning Support	Research Case Studies Promoting TDM in Regional plans and programs.	TJCOG/MPO	Basic		$ 4,650	$ 4,650			$ 7,440		$ 11,904	0.05	$ 4,650		$ 4,650
1. Planning	1.4 Long-range Planning Support	Prepare White Paper for long-range TDM strategies.	TJCOG/MPO	Basic			$ 4,650						0.05	$ 4,650		$ 4,650
2. Program Admini	2.1 Triangle TDM Program Administration	Conduct bi-annual organizational reviews	TJCOG/All	Basic	$ 7,440	$ 7,440	$ 7,663	$ 7,893	$ 8,130	$ 8,374	$ 8,625	$ 8,884	0.08	$ 7,440		$ 7,440
2. Program Admini	2.1 Triangle TDM Program Administration	Review workplans as well as monitoring/evaluation reports.	TJCOG	Basic	$ 7,440	$ 7,440	$ 7,663	$ 7,893	$ 8,130	$ 8,374	$ 8,625	$ 8,884	0.08	$ 7,440		$ 7,440
2. Program Admini	2.1 Triangle TDM Program Administration	Administer State contracts and grants. Facilitate Call for Projects process and review team.	TJCOG	Basic	$ 23,250	$ 23,250	$ 23,948	$ 24,666	$ 25,406	$ 26,168	$ 26,953	$ 27,762	0.25	$ 23,250		$ 23,250
2. Program Admini	2.1 Triangle TDM Program Administration	Ongoing monitoring of Durham County TDM Ordinance	TTA/TJCOG	Basic	$ 23,250	$ 23,250	$ 23,948	$ 24,666	$ 25,406	$ 26,168	$ 26,953	$ 27,762	0.25	$ 23,250		$ 23,250
2. Program Admini	2.1 Triangle TDM Program Administration	All regional commuter survey processing (Durham County, BWC, etc.)	TTA/TJCOG	Basic	$ 61,950	$ 61,950	$ 63,809	$ 65,723	$ 67,694	$ 69,725	$ 71,817	$ 73,972	0.15	$ 13,950	$ 48,000	$ 61,950
2. Program Admini	2.1 Triangle TDM Program Administration	Ensure that receipt of all funds contingent on measurement	TJCOG	Basic		$ 23,250	$ 23,948	$ 24,666	$ 25,406	$ 26,168	$ 26,953	$ 27,762	0.25	$ 23,250		$ 23,250
2. Program Admini	2.1 Triangle TDM Program Administration	Coordinate call for projects process and selection team.	TJCOG	Basic	$ 23,250	$ 23,250	$ 23,948	$ 24,666	$ 25,406	$ 26,168	$ 26,953	$ 27,762	0.25	$ 23,250		$ 23,250
2. Program Admini	2.1 Triangle TDM Program Administration	Serve as an ombudsman for TDM partners.	TJCOG	Basic		$ 2,790	$ 2,874	$ 2,960	$ 3,049	$ 3,140	$ 3,234	$ 3,331	0.03	$ 2,790		$ 2,790
2. Program Admini	2.2 Monitor & Evaluate Customer Satisfaction	Measure customer satisfactoin	TJCOG	Basic		$ 23,250	$ 23,948	$ 24,666	$ 25,406	$ 26,168	$ 26,953	$ 27,762	0.25	$ 23,250		$ 23,250
2. Program Admini	2.2 Monitor & Evaluate Customer Satisfaction	Measure outreach activities	TJCOG	Basic		$ 23,250	$ 23,948	$ 24,666	$ 25,406	$ 26,168	$ 26,953	$ 27,762	0.25	$ 23,250		$ 23,250

Performance Area	TDM Strategy	Activity	Responsible Party	Package	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014	# of FTE	Staffing Budget*	Direct Expense	Total Budget
2. Program Admini	2.2 Monitor & Evaluate Customer Satisfaction	Meaure regional awareness of and willingness to use alternative transportation modes	TJCOG	Basic		$ 23,250	$ 23,948	$ 24,666	$ 25,406	$ 26,168	$ 26,953	$ 27,762	0.25	$ 23,250		$ 23,250
2. Program Admini	2.2 Monitor & Evaluate Customer Satisfaction	Measure Program Impacts	TJCOG	Basic		$ 23,250	$ 23,948	$ 24,666	$ 25,406	$ 26,168	$ 26,953	$ 27,762	0.25	$ 23,250		$ 23,250
2. Program Admini	2.2 Monitor & Evaluate Customer Satisfaction	Implement and manage survey methodology	TTA	Basic		$ 23,250	$ 23,948	$ 24,666	$ 25,406	$ 26,168	$ 26,953	$ 27,762	0.25	$ 23,250		$ 23,250
2. Program Admini	2.2 Monitor & Evaluate Customer Satisfaction	Analyze survey results.	TJCOG	Basic		$ 23,250	$ 23,948	$ 24,666	$ 25,406	$ 26,168	$ 26,953	$ 27,762	0.25	$ 23,250		$ 23,250
2. Program Admini	2.2 Monitor & Evaluate Customer Satisfaction	Measure program participation	TJCOG	Basic		$ 23,250	$ 23,948	$ 24,666	$ 25,406	$ 26,168	$ 26,953	$ 27,762	0.25	$ 23,250		$ 23,250
3. Services and Op	3.1 Ridematch Service Enhancements	Continued operations/maintenance of the statewide ridematch database and 485-RIDE	TTA	Basic	$ 33,250	$ 33,250	$ 34,248	$ 35,275	$ 36,333	$ 37,423	$ 38,546	$ 39,702	0.25	$ 23,250	$ 10,000	$ 33,250
3. Services and Op	3.1 Ridematch Service Enhancements	Ridematching Tool Enhancements.	TTA	Basic				$ 104,650					0.05	$ 4,650	$ 100,000	$ 104,650
3. Services and Op	3.1 Ridematch Service Enhancements	Assess the value of a SchoolPool application on the GoTriangle website.	TTA	Basic				$ 4,650					0.05	$ 4,650		$ 4,650
3. Services and Op	3.1 Ridematch Service Enhancements	Develop ridematch applications in multiple languages.	TTA	Basic			$ 9,650						0.05	$ 4,650	$ 5,000	$ 9,650
3. Services and Op	3.1 Ridematch Service Enhancements	SchoolPool Ridematching.	TTA	Basic			$ 7,790						0.03	$ 2,790	$ 5,000	$ 7,790
3. Services and Op	3.1 Ridematch Service Enhancements	Create closed matching pools.	TTA	Basic			$ 7,790						0.03	$ 2,790	$ 5,000	$ 7,790
3. Services and Op	3.1 Ridematch Service Enhancements	Evaluate RidePro as a Ridematching Tool.	TTA	Basic		$ 4,650							0.05	$ 4,650		$ 4,650
3. Services and Op	3.2 Travel/Trip Planning Service	Continued operations/maintenance of trip planning software application and 485-RIDE	TTA	Basic	$ 38,250	$ 38,250	$ 39,398	$ 40,579	$ 41,797	$ 43,051	$ 44,342	$ 45,673	0.25	$ 23,250	$ 15,000	$ 38,250
3. Services and Op	3.2 Travel/Trip Planning Service	Integrate real-time bus arrival information.	TTA	Basic			$ 11,625	$ 11,974	$ 12,333				0.13	$ 11,625		$ 11,625
3. Services and Op	3.2 Travel/Trip Planning Service	Enhanced Trip Planning Tool.	TTA	Basic				$ 123,250					0.25	$ 23,250	$ 100,000	$ 123,250
3. Services and Op	3.2 Travel/Trip Planning Service	Provide access to real-time traveler information.	TTA	Basic			$ 53,250						0.25	$ 23,250	$ 30,000	$ 53,250
3. Services and Op	3.3 GoTriangle.org Website Enhancements	Maintain Website content and functionality on an ongoing basis.	TTA	Basic	$ 31,625	$ 31,625	$ 32,574	$ 33,551	$ 34,557	$ 35,594	$ 36,662	$ 37,762	0.13	$ 11,625	$ 20,000	$ 31,625
3. Services and Op	3.3 GoTriangle.org Website Enhancements	Support Website evaluation and development in close cooperation with Planning staff.	TTA	Basic		$ 2,790	$ 2,874	$ 2,960	$ 3,049	$ 3,140	$ 3,234	$ 3,331	0.03	$ 2,790		$ 2,790
3. Services and Op	3.3 GoTriangle.org Website Enhancements	Develop Website Development Plan.	TJCOG	Basic			$ 27,790				$ 30,569		0.03	$ 2,790	$ 25,000	$ 27,790
3. Services and Op	3.3 GoTriangle.org Website Enhancements	Evaluate GoTriangle.org.	TJCOG/Wel	Basic			$ 30,813				$ 33,894		0.06	$ 5,813	$ 25,000	$ 30,813
3. Services and Op	3.3 GoTriangle.org Website Enhancements	Redesign/implement enhanced web site based on website development plan.	TTA	Basic			$ 42,790				$ 47,069		0.03	$ 2,790	$ 40,000	$ 42,790
3. Services and Op	3.4 Vanpool Program	Continued support for vanpool group formation.	TTA	Basic	$ 5,813	$ 5,813	$ 5,987	$ 6,166	$ 6,351	$ 6,542	$ 6,738	$ 6,940	0.06	$ 5,813	$ -	$ 5,813
3. Services and Op	3.4 Vanpool Program	Facilitate Automated Pre-Tax Payment Collection.	TTA	Basic		$ 12,790	$ 13,174						0.03	$ 2,790	$ 10,000	$ 12,790
3. Services and Op	3.4 Vanpool Program	Explore new pricing structures and subsidies for vanpool program	TTA	Basic			$ 21,860						0.02	$ 1,860	$ 20,000	$ 21,860
3. Services and Op	3.4 Vanpool Program	Explore automated reporting systems.	TTA	Basic			$ 52,790						0.03	$ 2,790	$ 50,000	$ 52,790

Performance Area	TDM Strategy	Activity	Responsible Party	Package	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014	# of FTE	Staffing Budget*	Direct Expense	Total Budget
3. Services and Op	3.5 Emergency Ride Home Program Enhancements	Continued support and marketing of ERH services	TTA	Basic	$ 11,625	$ 11,625	$ 11,974	$ 12,333	$ 12,703	$ 13,084	$ 13,477	$ 13,881	0.13	$ 11,625	$ -	$ 11,625
3. Services and Op	3.5 Emergency Ride Home Program Enhancements	Continue maintenance of day-to-day ERH operations	TTA	Basic	$ 16,125	$ 16,125	$ 16,609	$ 17,107					0.13	$ 11,625	$ 4,500	$ 16,125
3. Services and Op	3.5 Emergency Ride Home Program Enhancements	Maintain automated ERH service.	TTA	Basic				$ 3,825	$ 3,940	$ 4,058	$ 4,180	$ 4,305	0.03	$ 2,325	$ 1,500	$ 3,825
3. Services and Op	3.5 Emergency Ride Home Program Enhancements	Link ERH Registration to Ridematching Registration	TTA	Basic			$ 11,860	$ 12,216					0.02	$ 1,860	$ 10,000	$ 11,860
3. Services and Op	3.5 Emergency Ride Home Program Enhancements	Assess ERH service enhancement strategies.	TTA	Basic			$ 11,860	$ 12,216					0.02	$ 1,860	$ 10,000	$ 11,860
3. Services and Op	3.5 Emergency Ride Home Program Enhancements	Explore development of automated ERH service.	TTA	Basic			$ 19,125	$ 19,699					0.13	$ 11,625	$ 7,500	$ 19,125
3. Services and Op	3.6 Telework Program	Refresh and conduct new, quarterly telework training workshops.	TTA	Basic		$ 9,650	$ 9,940	$ 10,238	$ 10,545	$ 10,861	$ 11,187	$ 11,523	0.05	$ 4,650	$ 5,000	$ 9,650
3. Services and Op	3.6 Telework Program	Deliver ongoing GoTriangle Telework consulting services	TTA	Basic			$ 51,860	$ 53,416	$ 55,018	$ 56,669	$ 58,369	$ 60,120	0.02	$ 1,860	$ 50,000	$ 51,860
3. Services and Op	3.6 Telework Program	Publish quarterly telework e-newsletter	TTA	Basic			$ 4,650	$ 4,790	$ 4,933	$ 5,081	$ 5,234	$ 5,391	0.05	$ 4,650		$ 4,650
3. Services and Op	3.6 Telework Program	Solicit Gotriangle Telework sponsorships	TTA	Basic				$ 4,650	$ 4,790	$ 4,933	$ 5,081	$ 5,234	0.05	$ 4,650		$ 4,650
3. Services and Op	3.6 Telework Program	Support development and tracking of two Telework pilot programs.	TTA	Basic			$ 26,625	$ 27,424	$ 28,246	$ 29,094	$ 29,967	$ 30,866	0.13	$ 11,625	$ 15,000	$ 26,625
4. Marketing and B	4.1 TDM Branding	Enhace the GoTriangle.org as a regional brand for TDM services.	TTA	Moderate	$ 11,625	$ 11,625							0.13	$ 11,625		$ 11,625
4. Marketing and B	4.1 TDM Branding	Create and Implement a Brand Development Plan.	TTA/LSPs	Moderate			$ 29,650						0.05	$ 4,650	$ 25,000	$ 29,650
4. Marketing and B	4.1 TDM Branding	Appoint a Brand Manager.	TTA	Moderate		$ 5,813	$ 5,987	$ 6,166	$ 6,351	$ 6,542	$ 6,738	$ 6,940	0.06	$ 5,813		$ 5,813
4. Marketing and B	4.2 Focused Marketing	General Marketing Support.	TTA	Basic	$ 4,650	$ 4,650	$ 4,790	$ 4,933	$ 5,081	$ 5,234	$ 5,391	$ 5,552	0.05	$ 4,650		$ 4,650
4. Marketing and B	4.2 Focused Marketing	Develop/implement detailed campaign- and program- specific marketing plans	TTA	Basic	$ 4,650	$ 4,650	$ 4,790	$ 4,933	$ 5,081	$ 5,234	$ 5,391	$ 5,552	0.05	$ 4,650		$ 4,650
4. Marketing and B	4.2 Focused Marketing	Regional Bike to Work Day	TTA/LSPs	Basic	$ 21,625	$ 21,625	$ 22,274	$ 22,942	$ 23,630	$ 24,339	$ 25,069	$ 25,821	0.13	$ 11,625	$ 10,000	$ 21,625
4. Marketing and B	4.2 Focused Marketing	Replacement for Best Work Places for Commuters (BWC) Campaign and Awards Ceremony	NCDOT	Basic	$ 123,000	$ 123,000	$ 126,690	$ 130,491	$ 134,405	$ 138,438	$ 142,591	$ 146,868	1.00	$ 93,000	$ 30,000	$ 123,000
4. Marketing and B	4.2 Focused Marketing	Vanpool Marketing Focused on Gas included in fare.	TTA	Basic		$ 10,813	$ 11,137	$ 11,471	$ 11,815	$ 12,170	$ 12,535	$ 12,911	0.06	$ 5,813	$ 5,000	$ 10,813
4. Marketing and B	4.2 Focused Marketing	Develop an Annual Report.	TTA	Basic				$ 19,650	$ 20,240	$ 20,847	$ 21,472	$ 22,116	0.05	$ 4,650	$ 15,000	$ 19,650
4. Marketing and B	4.2 Focused Marketing	Awareness Campaign.	TTA	Basic		$ 36,625	$ 37,724						0.13	$ 11,625	$ 25,000	$ 36,625
4. Marketing and B	4.2 Focused Marketing	Develop and distribute Spanish-language carpool marketing materials	TTA	Basic			$ 19,650						0.05	$ 4,650	$ 15,000	$ 19,650
4. Marketing and B	4.2 Focused Marketing	Develop BWC replacement program for employers and developers	NCDOT/TTA	Basic		$ 11,625							0.13	$ 11,625		$ 11,625
4. Marketing and B	4.2 Focused Marketing	Annual Regional "try it" marketing campaign.	TTA/NCDOT	Moderate	$ 170,800	$ 170,800	$ 175,924	$ 181,202	$ 186,638	$ 192,237	$ 198,004	$ 203,944	0.60	$ 55,800	$ 115,000	$ 170,800
4. Marketing and B	4.2 Focused Marketing	Seek out partnership opportunities for local campaigns.	TTA/LSPs	Moderate			$ 5,813	$ 5,987	$ 6,166	$ 6,351	$ 6,542	$ 6,738	0.06	$ 5,813		$ 5,813
4. Marketing and B	4.3 Media Relations	Support contacts with Triangle-area news media.	TTA	Basic	$ 2,325	$ 2,325	$ 2,395	$ 2,467	$ 2,541	$ 2,617	$ 2,695	$ 2,776	0.03	$ 2,325		$ 2,325
4. Marketing and B	4.3 Media Relations	ID newsworthy TDM successes and develop into news releases or story pitches	TTA	Basic	$ 2,325	$ 2,325	$ 2,395	$ 2,467	$ 2,541	$ 2,617	$ 2,695	$ 2,776	0.03	$ 2,325		$ 2,325

Performance Area	TDM Strategy	Activity	Responsible Party	Package	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014	# of FTE	Staffing Budget*	Direct Expense	Total Budget
4. Marketing and B	4.3 Media Relations	Seek media placements for four current events stories.	TTA	Basic		$ 2,325	$ 2,395	$ 2,467	$ 2,541	$ 2,617	$ 2,695	$ 2,776	0.03	$ 2,325		$ 2,325
4. Marketing and B	4.3 Media Relations	Seek media placements for four feature stories.	TTA	Basic		$ 2,325	$ 2,395	$ 2,467	$ 2,541	$ 2,617	$ 2,695	$ 2,776	0.03	$ 2,325		$ 2,325
4. Marketing and B	4.4 GoTriangle TDM Financial Incentives	Fund regional reward/incentive based program for alternative commuters.	TTA	Basic				$ 205,813	$ 211,987	$ 218,346	$ 224,897	$ 231,644	0.06	$ 5,813	$ 200,000	$ 205,813
4. Marketing and B	4.4 GoTriangle TDM Financial Incentives	Develop regional reward/incentive based program for alternative commuters.	TTA	Basic			$ 115,810	$ 119,284					0.17	$ 15,810	$ 100,000	$ 115,810
4. Marketing and B	4.4 GoTriangle TDM Financial Incentives	Develop and track up to three targeted area incentive programs	TTA/Local S	Aggressive			$ 86,625						0.13	$ 11,625	$ 75,000	$ 86,625
5. Outreach	5.1 Regional Outreach	Conduct individualized employer outreach to targeted employers. Minimum of three per County.	TTA	Aggressive				$ 78,750	$ 81,113	$ 83,546	$ 86,052	$ 88,634	0.75	$ 69,750	$ 9,000	$ 78,750
5. Outreach	5.1 Regional Outreach	Assist with vanpool group formation.	TTA	Basic	$ 9,300	$ 9,300	$ 9,579	$ 9,866	$ 10,162	$ 10,467	$ 10,781	$ 11,105	0.10	$ 9,300		$ 9,300
5. Outreach	5.1 Regional Outreach	Commuter Benefits Outreach	TTA/LSPs	Basic	$ 23,250	$ 23,250	$ 23,948	$ 24,666	$ 25,406	$ 26,168	$ 26,953	$ 27,762	0.25	$ 23,250		$ 23,250
5. Outreach	5.1 Regional Outreach	Maintain relations with existing employer clients.	TTA	Basic	$ 98,000	$ 98,000	$ 100,940	$ 103,968	$ 107,087	$ 110,300	$ 113,609	$ 117,017	1.00	$ 93,000	$ 5,000	$ 98,000
5. Outreach	5.1 Regional Outreach	Develop one employer case study per quarter.	TTA	Basic			$ 5,813						0.06	$ 5,813		$ 5,813
5. Outreach	5.1 Regional Outreach	Develop strategy for regional program implementation that supports local programs.	TTA	Basic		$ 9,300							0.10	$ 9,300		$ 9,300
5. Outreach	5.1 Regional Outreach	Empower local service providers with marketing regional products and services.	TTA	Moderate	$ 23,250	$ 23,250	$ 23,948	$ 24,666	$ 25,406	$ 26,168	$ 26,953	$ 27,762	0.25	$ 23,250		$ 23,250
5. Outreach	5.1 Regional Outreach	Reorganize Regional Outreach Staff.	All	Moderate		$ 5,580			$ 6,082				0.06	$ 5,580		$ 5,580
5. Outreach	5.1 Regional Outreach	Development of ETC Network.	TTA	Moderate			$ 5,813	$ 5,987	$ 6,166	$ 6,351	$ 6,542	$ 6,738	0.06	$ 5,813		$ 5,813
5. Outreach	5.2 Local Outreach	Conduct individualized employer outreach to targeted employers. Minimum of three per LSP.	LSPs	Aggressive			$ 78,750	$ 81,113	$ 83,546	$ 86,052	$ 88,634	$ 91,293	0.75	$ 69,750	$ 9,000	$ 78,750
5. Outreach	5.2 Local Outreach	Commuter Stores.	LSPs	Aggressive					$ 46,500	$ 47,895	$ 49,332	$ 50,812	0.50	$ 46,500		$ 46,500
5. Outreach	5.2 Local Outreach	Additional Targeted Outreach through New LSPs	LSPs	Moderate				$ 200,000	$ 206,000	$ 424,360	$ 437,091	$ 636,540	1.50	$ 139,500	$ 95,000	$ 234,500
5. Outreach	5.2 Local Outreach	Increased marketing, promotion and outreach to target areas	LSPs	Moderate		$ 46,500	$ 47,895	$ 49,332	$ 50,812	$ 52,336	$ 53,906	$ 55,523	0.50	$ 46,500		$ 46,500
5. Outreach	5.2 Local Outreach	Clarify existing relationships between regional and local service providers.	TJCOG	Moderate		$ 5,580		$ 5,915		$ 6,270		$ 6,646	0.06	$ 5,580		$ 5,580
5. Outreach	5.2 Local Outreach	Encourage property mangers to incorporate parking management and TDM friendly site design.	LSPs	Moderate			$ 11,625	$ 11,974	$ 12,333	$ 12,703	$ 13,084	$ 13,477	0.13	$ 11,625		$ 11,625
5. Outreach	5.2 Local Outreach	Development of Local ETC Networks.	LSPs	Moderate				$ 5,813	$ 5,987	$ 6,166	$ 6,351	$ 6,542	0.06	$ 5,813		$ 5,813
5. Outreach	5.2 Local Outreach	Establish service relationships with new local service providers.	TTA	Moderate				$ 5,813	$ 5,987	$ 6,166	$ 6,351	$ 6,542	0.06	$ 5,813		$ 5,813
5. Outreach	5.3 Special Events Outreach	Local Special Events Assistance.	LSPs	Moderate				$ 5,813	$ 11,799	$ 23,953	$ 24,671	$ 25,411	0.25	$ 23,250		$ 23,250
5. Outreach	5.3 Special Events Outreach	Regional Special Events Assistance.	TTA	Moderate				$ 5,813	$ 11,799	$ 23,953	$ 24,671	$ 25,411	0.25	$ 23,250		$ 23,250
5. Outreach	5.4 School Pool Outreach	Safe Routes to School.	TTA	Basic	$ 4,650	$ 4,650	$ 4,790	$ 4,933	$ 5,081	$ 5,234	$ 5,391	$ 5,552	0.05	$ 4,650		$ 4,650
5. Outreach	5.4 School Pool Outreach	Conduct SchoolPool outreach to schools.	TTA/LSPs	Basic				$ 23,250	$ 23,948	$ 24,666	$ 25,406	$ 26,168	0.25	$ 23,250		$ 23,250
5. Outreach	5.4 School Pool Outreach	Develop SchoolPool pilot program.	TTA	Basic			$ 41,850	$ 43,106	$ 29,295	$ 30,174	$ 31,079	$ 32,011	0.45	$ 41,850		$ 41,850
5. Outreach	5.5 Trip Reduction and Growth Management Outreach	Work with local jurisdictions and developers to use Growth Management Tool Kit.	TJCOG/MPC	Moderate			$ 11,625	$ 11,974	$ 12,333	$ 12,703	$ 13,084	$ 13,477	0.13	$ 11,625		$ 11,625
5. Outreach	5.6 Emergency Preparedness Outreach	Create two pilot programs for Emergency Preparedness Ridematching.	TTA	Basic			$ 36,625	$ 37,724	$ 38,855	$ 40,021	$ 41,222	$ 42,458	0.13	$ 11,625	$ 25,000	$ 36,625

Performance Are	TDM Strategy	Activity	Responsible Party	Package	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014	# of FTE	Staffing Budget*	Direct Expense	Total Budget
5. Outreach	5.7 University Student Outreach	Promote RedefineTravel.org regionally as well as at Universities	TTA/LSPs	Basic	$ 93,250	$ 93,250	$ 96,048	$ 98,929	$ 101,897	$ 104,954	$ 108,102	$ 111,345	0.25	$ 23,250	$ 70,000	$ 93,250
					$ 886,978	$ 1,285,123	$ 2,123,787	$ 2,539,126	$ 2,227,044	$ 2,522,461	$ 2,695,545	$ 2,866,420	17.49	$ 874,500	$ 1,447,000	$ 3,073,570

* Assumes average salary and benefits in amount c $93,000