CUTRlines [January 2006]

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Transit emergency response management is a vitally important part of transit agency operations nationwide and has been in the forefront of many of the nation’s news stories in 2004 and 2005. From Florida’s two worst hurricane seasons on record, to the devastation of Hurricane Katrina, to the impact of the transit strike in New York City, transit’s role in pre-event and post-event emergency management has been critical to protecting the public and moving the masses.

With the world’s eyes focused on the areas where emergency evacuation was necessary, the effects of both good and bad transit emergency response management became apparent. In 2004, after Florida was tested by four major hurricanes in less than two months, the Florida Department of Transportation (FDOT) contracted with CUTR to conduct an evaluation and assessment of the Florida public transportation industry’s emergency planning efforts and responses to Hurricanes Charley, Frances, Ivan and Jeanne. This research effort included surveying all of Florida’s public transit agencies, conducting interviews with key personnel, and participating in four statewide forums and presentations. This research project is documented in a CUTR report entitled “Transit Emergency Planning and Response Assessment Initiative.”

**Challenges identified**

FDOT’s Public Transit Office acts as the primary statewide coordinator for public transit systems and Community Transportation Coordinators (CTCs) during emergencies and natural disasters. To effectively communicate with and coordinate the public transportation systems and their responses to these emergencies and natural disasters, several challenges were identified within Florida:
Communicating with multiple State agencies: The FDOT Public Transit Office must communicate with the State Emergency Operations Center (SEOC), the Department’s Emergency Operations Center (TEOC), the FDOT Central Office, the seven FDOT District offices, and the Florida Commission for Transportation Disadvantaged (FCTD).

Communicating with multiple Florida transit properties and CTCs: Florida has more than 24 fixed route systems and 67 counties with Community Transportation Coordinators. Both FDOT and FCTD have direct involvement and relationships with the state transit agencies.

Communicating with multiple Florida transportation agencies: Florida has numerous public transportation agencies, including county governments, city governments, independent authorities, private non-profit agencies, and private for-profit agencies.

Addressing multiple operating environments: Florida’s public transportation systems operate in both urban and rural communities, each presenting different operating environments, perspectives, and capabilities.

Coordinating inter-agency planning: While most individual transit agencies have made some preparations and plans for themselves, little thought or formal structure exists for communication between transit providers, particularly post-event.

Addressing multiple events: With four major hurricanes impacting Florida within six weeks, the need to address the challenges of coordinating and responding to two or more disaster sites at the same time became readily apparent.

Lessons learned
An evaluation of what went right, what went wrong, and things not anticipated was undertaken. While most individual systems were prepared to handle their own needs, the research revealed several deficiencies and some common areas of concern in the responses received from the state’s transit systems from a regional and statewide perspective.

Communication: Pre-planning for communication among transit agencies, community transportation coordinators, and FDOT is vitally important, including maintenance of up-to-date personal contact information and the ability to access computer databases due to the lack of electricity.

Coordination: Systems must be in place to coordinate information among transit agency personnel, CTCs, FCTD, and FDOT.

Education: Involvement in and understanding of the state and local Emergency Operations Center (EOC) organizational structure and processes must be consistent.

Specialized Needs: Transit agencies must pre-plan their unique role in dealing with people who have special transportation needs.

Accounting and Record Keeping: Fiscally-responsible accounting procedures and record keeping and mutual aid agreements must be in place.

Resource Planning and Deployment: At a minimum, agencies need to address the provision of adequate communication devices, fuel, power supplies, parts and supplies for vehicles and other equipment, human resources (such as backup staff), extra buses and repair vehicles, and portable command centers.

Public Relations: Public relations for transit agencies are often an afterthought during an emergency event. Good public relations should include telling
transit’s story and its critical and positive community impacts before, during, and after an event.

**Best practices**

From the project, 23 best practices were identified to aid Florida with its transit emergency response management:

1. Develop and update complete and specific emergency plans.
2. Establish Memorandums of Agreement or Mutual Aid Agreements with neighboring counties and transit agencies.
3. Coordinate with local school board transportation.
4. Clarify and communicate staff expectations and duties.
5. Conduct staff emergency response training.
6. Conduct mock training drills.
7. Provide and disseminate hurricane preparedness information to employees, their families, and agency passengers.
8. Establish a maximum wind level policy that governs at what wind speed your personnel and vehicles should be removed from service.
9. Develop bus parking and deployment strategies to protect your bus fleet.
10. Establish procedures for fueling fleet and staff vehicles prior to a storm event.
11. Be prepared for disruptions in your communication systems during and immediately following storm events.
12. Stock extra batteries for cell phones, two-way radios, flashlights, and other electrical devices.
13. Install emergency electrical generators.
14. Develop procedures to protect transit facilities to allow them to remain functional during and after storm events.
15. Develop a fare suspension policy for enactment during emergencies to facilitate quicker loading, as well as eliminate security and money handling issues.
16. Establish and publicize evacuation routes.
17. Develop procedures for homeless and transient population evacuation.
18. Pre-plan for the transport of people with special needs.
19. Develop procedures for use of volunteers on evacuation buses.
20. Establish shelter management practices.
22. During and after storm events, develop and establish employee assistance programs and support for employees and their families.
23. Conduct debriefings after the event and use that information to update and improve your emergency response plans.

For more information on this study, contact CUTR Research Associates Jay Goodwill, (813) 974-8755, jaygoodwill@cutr.usf.edu, or Amber Reep, (813) 974-9823, reep@cutr.usf.edu.
Florida is fairly sophisticated in its emergency response management, including a strong State Emergency Operations Center (EOC) and duplicate EOCs at the county level for each of the 67 counties. Most use the Incident Command Structure organization that functions around 17 common Emergency Service Functions (ESFs). Additionally, strong coordination exists among the public bus systems and the school bus fleets since most school bus transportation is operated by county school boards.

In Florida, each county’s EOC is the coordinating mechanism at the local level in cooperation with the State EOC, FEMA, and the Department of Homeland Security. Transit agencies are represented in ESF-1 (transportation) and are assigned the responsibility of supporting emergency transportation needs, working closely with ESF-6 (mass care) and ESF-8 (health and medical services).

Florida evacuation plans are based upon the severity of each hurricane, with different levels of evacuations implemented based upon the need. With the exception of Key West and other communities within the Florida Keys, evacuations are focused on areas subject to flooding and on residents of mobile homes. Residents are directed toward safe areas, including private residences, hotels, and public shelters in areas not anticipated to be impacted. Public shelters are well-advertised, staffed with responsible and trained personnel, and pre-inspected to ensure an acceptable level of safety.

Each county has identified evacuation zones that would be expected to be impacted for each of the five categories of hurricanes. In almost all significant storm events, the first groups evacuated are low lying coastal areas (due to potential flooding), mobile homes (due to probable wind damage) and people with special needs (residents that require some type of medical assistance and frail elderly that could not survive alone after a storm event), who are evacuated to special shelters equipped to meet their unique needs. As a storm approaches, counties open evacuation shelters based upon the predicted storm intensity and the estimated number of evacuees.

Transit evacuation plans are included each county’s Comprehensive Emergency Management Plan, which addresses the community’s sheltering and evacuation needs. Similar plans are developed at the State and Federal levels. All levels are organized around similar principles and are based upon the Incident Command System of response.

Each Florida transit system develops and maintains evacuation plans that are detailed and well-rehearsed. These plans detail exactly when regular service would shut down, when evacuation services would start, and how long the service would continue during a storm (usually until winds reach a sustained 40 mph strength). In most cases, evacuation routes and shelter locations to which each bus would take people are included.

For more information, contact CUTR Research Associates Jay Goodwill, (813) 974-8755, jaygoodwill@cutr.usf.edu, or Amber Reep, (813) 974-9823, reep@cutr.usf.edu.
In 2005, Florida’s growth management act was amended to create a “pay and go” option for transportation concurrency called proportionate fair-share mitigation. The legislation directed local governments to enact concurrency management ordinances by December 1, 2006, that allow for proportionate fair-share mitigation of concurrency impacts. The intent of the proportionate fair-share option was to provide applicants for development an opportunity to proceed under certain conditions, notwithstanding the failure of transportation concurrency, by contributing their share of the cost of improving the impacted transportation facilities.

To help local governments comply with the new mandate, the Florida Department of Transportation (FDOT) contracted with CUTR to produce a model proportionate fair-share ordinance by the legislated deadline. With a short timeframe for ordinance development, and widespread interest in the project, CUTR and FDOT worked closely to maximize opportunities for outside input. A Technical Advisory Committee of practitioners with experience in concurrency management was established, and a discussion “roundtable” was held with a cross section of Florida developers and their consultants. FDOT also established a project website with frequent updates throughout the project, and information updates were sent out via the Florida Department of Community Affairs listserv.

The resulting model ordinance was shaped through this collaborative process, as well as through comments and suggestions received from a host of interested parties that contributed informally. The model ordinance was subsequently refined based on input received at a statewide workshop for local governments and interested parties on December 15, 2005, in Orlando. Following is an overview of the key provisions of the final model.

**Intent and application**

The basic intent of the model ordinance is to establish a process for mitigating the transportation impacts of development through the cooperative efforts of the public and private sectors. A corresponding intent is to strengthen local capital improvements planning by tying developer contributions more closely to the transportation planning and improvement process.

Under the process, development may proceed despite a lack of adequate transportation capacity for concurrency, provided applicants contribute their fair-share toward resolving the transportation impacts of their development projects. The option would apply only to development that has been denied transportation concurrency by the local government, pursuant to certain conditions discussed below. It would also...
apply to all transportation facilities that are relied upon for transportation concurrency determinations, including those maintained by FDOT or another local government.

The model ordinance implements the provisions of Section 163.3180(16), F.S., which establishes conditions whereby developers may satisfy transportation concurrency requirements through proportionate fair-share contributions. The primary condition is that the transportation facilities or facility segments identified as mitigation for the development’s traffic impacts must be specifically identified for funding in the five-year schedule of capital improvements in a local government’s (CIE) or in an adopted long-term concurrency management system.

A local government may also choose to allow a developer to “pay and go” if it is willing and able financially to add the necessary improvement project to its five-year capital improvement schedule in the next annual CIE update. If sufficient funding is not available for a major improvement, the community may choose to add new projects to the local capital improvement element that incorporate developer contributions where, in the opinion of the governmental entity or entities maintaining the transportation facilities, they significantly benefit the impacted system. These options are entirely at the local government’s discretion and, if pursued, local governments are granted by legislation up to 10 years to demonstrate that the new project(s) would be financially feasible.

Although the emphasis of proportionate fair-share mitigation is on major facility improvements to address transportation needs, the ordinance does not preclude short-term operational improvements in advance of a larger capacity project. The ordinance also would allow for mitigation in the form of parallel reliever routes, improved network development and connectivity, transit facility improvements, or other major mobility improvements. The intent, however, is that any improvement to a facility be aimed at advancing a planned improvement project or at least be reflected in an adopted corridor management plan which addresses operational improvements in a comprehensive manner.

**Intergovernmental coordination**

Intergovernmental coordination is a key element of the proportionate fair-share process. The legislation requires local governments to incorporate state and regional transportation improvements into their capital improvements element, thus making these improvements eligible to receive developer contributions. Section 163.3180(16) (e), F.S. also requires FDOT concurrence on developer mitigation to the Strategic Intermodal System (SIS).

Local governments are advised to work with other affected agencies to establish a process for applying developer contributions to the impacted facilities. This could be accomplished through cooperative agreements or some other method, such as participation in pre-application meetings and subsequent input throughout the application process.

Another intergovernmental feature of the ordinance is an optional section for addressing cross-jurisdictional impacts and contributions. If adopted, the option would extend an opportunity for a local government to address the transportation impacts of a proposed development in an adjacent community that is at or near its border. Each participating local government would first enter an agreement to incorporate the provision into their land development regulations. Where a permitting local government finds a significant transportation impact may occur across its border, using the methodology provided, it would inform its neighbor who...
would determine if the development traffic would cause a concurrency deficiency in their jurisdiction. If so, the adjacent local government would determine the applicant’s proportionate fair-share obligation to them and provide that information to the permitting agency, who would condition their approval on the fulfillment of all proportionate fair-share obligations.

**Methodology**

The 2005 growth management legislation mandated that the proportionate fair-share contributions for concurrency be based on the same proportionate share formula used for Developments of Regional Impact (DRIs). The model ordinance, therefore, applies the formula specified in statute. Unlike the DRI requirements, however, the impact area would be determined by the local concurrency management system and not by the “significance test” provided in Rule 9J-5 for multi-use DRIs.

The formula is used to calculate each development’s share of a future improvement cost based on the number of trips that would exceed available capacity under the local CMS. The planned improvement used as the basis for the contribution would be that improvement specified as eligible as discussed above. It is critical that the cost used for the proportionate fair-share calculation reflect actual costs of the improvement as closely as possible. Because the development may precede construction of the improvement by a number of years, the ordinance includes a sample method for determining an inflation factor.

A concept is also provided for applying the proportionate fair-share process toward mobility improvements within a transportation concurrency exception area (TCEA), transportation concurrency management area (TCMA), or a multimodal transportation district (MMTD). Because these areas are intended to incorporate significant multimodal improvements and often have constrained roadways, an area-wide approach is suggested. This option would advance Section 163.3180, F.S., which requires local governments to adopt and implement strategies to support and fund mobility within these areas, including alternative modes of transportation.

**Impact fee credits**

As required by statute, applicants will be eligible to receive impact fee credit for proportionate fair-share contributions to the extent the improvement was considered in the impact fee calculations. A complicating factor is that impact fees are assessed on a system-wide basis, whereas concurrency determinations for proportionate fair-share address improvements related to a specific site. Therefore, the model suggests that local governments determine how their impact fee revenues are distributed across the various planned improvements. Impact fee credits would then be prorated based on the amount of impact fees being used.
to fund the same improvements that are the subject of the proportionate fair-share contribution.

The legislation also limits eligibility for impact fee credits to facilities contemplated in the impact fee ordinance. Therefore, if a development would impact a state road and the impact fee rate is calculated based on trip lengths that include state roads, then there would be a credit. If the calculation included only trip lengths on non-state roads there would be no credit. In addition, impact fee credits would be administered pursuant to the requirements of the local impact fee ordinance and would be provided as they are earned and not necessarily at the time of the proportionate fair-share contribution.

Agreements and appropriation of revenues
The model ordinance includes a suggested process for executing proportionate fair-share agreements and a timeline for payment of contributions. This process allows applicants to move forward with their development plans pursuant to an agreement, and final payment must be received prior to final approval of the development order or recording of a final plat. However, applicants would need to apply for a development permit within one year, or as otherwise required by a local government’s concurrency management system. It also provides an incentive for early payment by establishing that the local government will recalculate the fair-share obligation to capture any changes in improvement costs where an applicant submits their payment more than one year after execution of the agreement.

The ordinance suggests that revenues be applied to the facilities for which they were collected, unless the terms of the agreement dictate otherwise. It also establishes parameters for re-appropriating revenue if an improvement is removed from the CIE. Specifically, another improvement must be identified and added to the CIE to mitigate transportation deficiencies within that same corridor or sector. At the discretion of the local government, proportionate fair-share revenues may be used for operational improvements prior to construction of the capacity project for which the proportionate fair-share contribution was collected. Revenues may also be used as the 50 percent local match for funding under the FDOT Transportation Regional Incentive Program (TRIP).

CUTR is now undertaking a new project to identify and document transportation concurrency management best practices.

Another option in the ordinance allows local governments to establish a method to reimburse an applicant who constructs a major improvement that exceeds his proportionate fair-share obligation. This could be addressed in the terms of the proportionate fair-share agreement and/or provided for in the proportionate fair-share ordinance using the model language provided, which allows for special accounts or impact fee credit accounts for this purpose.

Conclusion
Although it has been 20 years since concurrency was mandated in Florida, local governments are still struggling with the concurrency issue and many have yet to establish a systematic method of tracking transportation concurrency. The need for effective concurrency management systems at the local level was made even more urgent by the creation of the proportionate fair-share option for concurrency. To help local governments with this issue, CUTR is now undertaking a new project to identify and document transportation concurrency management best practices. The results of this project will be reported in a future issue.

For further information, contact CUTR Planning and Corridor Management Program Director Kristine M. Williams, AICP, at (813) 974-9807, kwilliams@cutr.usf.edu or Senior Research Associate Karen E. Seggerman, AICP, at (813) 974-5723, seggerman@cutr.usf.edu.
To improve the planning, implementation, and maintenance of bicycle and pedestrian facilities, the Florida Department of Transportation needs to periodically assess the knowledge, attitudes, and perceptions of Florida residents in regard to bicycling and walking facilities. In 2005, CUTR assisted FDOT in this endeavor by designing and implementing a telephone survey of 1750 respondents, 250 from each FDOT district. The results and recommendations of this research were compiled in a final report that will help FDOT in its future efforts to address the needs of Florida pedestrians and bicyclists.

Research design
The survey instrument was designed with input from state and district bicycle/pedestrian coordinators to ensure that the results would be maximally beneficial to them. The survey questions pertained to satisfaction with and perception of facilities that were rated by respondents on a 5-point scale of Strongly Agree to Strongly Disagree. Other questions allowed for respondents to provide open-end responses.

The survey section related to pedestrian facilities asked general questions about the value of pedestrian facilities, safety, and needed improvements. In a second section, respondents who were familiar with a specific U.S. or state road in their area were asked to evaluate the road.

The bicycle section of the survey contained separate sets of questions related to satisfaction with bike lanes and multi-use paths and a section assessing general satisfaction with local bicycle facilities. Respondents who bicycled once per month or more on average were additionally asked a series of questions regarding their satisfaction with bike lanes in their area. These select respondents also provided information about their bicycling behavior such as trip frequency, distance, and purpose—the kind of exposure data that is generally lacking in bicycle safety research despite its importance in determining risk. Finally, both bicyclists and non-bicyclists with children were asked a series of questions pertaining to the use of and satisfaction with local facilities used by children walking and bicycling to school.

Research findings
Overall, survey respondents were highly supportive of pedestrian facilities, with 93 percent of respondents agreeing that such facilities add value to a community and the majority contending that they would like to live in a place where more of their daily needs could be met by walking and would walk more if better facilities existed. Respondents were also supportive of government expenditures on such facilities. Respondents, however, were largely dissatisfied with local roads in terms of pedestrian facilities, with only 25 percent of respondents agreeing that it is safe to walk, and only 30 percent agreeing that these roads are safe to cross. The most commonly identified pedestrian needs were more/better sidewalks, safer/better crosswalks, and better lighting.
The vast majority of bicyclists (95%) and non-bicyclists (85%) also agreed that good bicycle facilities add value to their community and were supportive of government expenditures on such facilities. Overwhelming majorities of respondents agreed that bike lanes should be standard features on Florida roads and that all bike lanes should be signed and marked. Nearly half of non-bicyclists agreed that a greater network of bike lanes and paths would encourage them to bicycle more.

The survey revealed that Floridians bicycle for a wide variety of purposes, but most commonly for exercise or recreation. Over half of bicyclists biked between 6 and 20 days per month, with an average of 73 miles per month. Approximately 43 percent of these miles are traveled on roads without bike lanes. Approximately 41 bicyclists had been involved in a total of 76 bicycle-motor vehicle crashes in the last five years. Bicyclists that averaged over 100 miles per month were less likely to be in crashes with motor vehicles, despite their increased exposure.

Approximately 82 percent of children of respondents neither bicycle nor walk to school. The most common reasons given by parents were distance (35%), safety issues (23%), and the age of children (14%). To make a child's bicycling or walking trip to school safer, parents called for more/better sidewalks (26%), safer crossing facilities (21%), and greater law enforcement (13%).

**Conclusions**

Floridians highly value bicycle and pedestrian facilities and want to bicycle and walk more. However, bicycling and walking are not viewed as the safest modes of transportation. As a result, many look to government to invest more money to provide more and better facilities to improve bicycling and walking safety.

For more information on this study, contact CUTR Research Associate Chris Hagelin at (813) 974-2977, hagelin@cutr.usf.edu.

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**Summer 2006 transportation classes**

CUTR and the USF College of Engineering are offering the following transportation classes in the Summer 2006 semester:

- Transportation Engineering I, Mondays and Wednesdays, 3:30-5:30pm, Dr. Lin
- Transportation and Society, Mondays and Wednesdays, 1:00-3:00pm, Mr. Cain and Ms. Thole
- Advanced Geometric Design of Highways, Tuesdays and Thursdays, 4:00-6:50pm, Dr. Behzadi

For further information, contact the USF Department of Civil & Environmental Engineering at (813) 974-2275.
**Public transit in America**  
*Results from the 2001 National Household Travel Survey*

CUTR has a long history of working with the National Household Travel Survey (NHTS) data set and recently completed a report titled “Public Transit in America—Results from the 2001 National Household Travel Survey” that updates the popular 1995 report with data from the 2001 NHTS. The report, funded by the Florida Department of Transportation, provides a comprehensive reporting of travel behavior as it relates to public transportation.

**Transit and vehicle availability**

A critical factor in the use of public transportation is the presence of alternative travel options for the individuals in households. A most striking change is the 181 percent increase in household vehicles since 1969. The nation went from a society of one car per household in 1969 to a society of close to two cars per household in 2001, in a time during which household size declined by 17 percent. The most dramatic increase in household vehicle ownership occurred between 1969 and 1977, with steady growth since then. Data indicate that nearly 75 percent of households below the poverty line have at least one household vehicle. Having as many vehicles as workers is very common, and having at least one vehicle per licensed driver is increasingly the norm.

In households where adequate cars are available (where adequacy is defined as being as many or more cars than workers), transit use is very modest, below national averages. As vehicle availability declines, the share of trips on transit increases significantly. While some share of the lower-vehicle-availability households may be that way by choice (they have chosen an urban residential location and chosen not to own a car due to the availability of transit and walk access to desired locations), income and other data suggest that this share is modest.

Forty-five percent of all transit trips are made by persons in zero-car households. An additional 24 percent are made by households with more workers than vehicles. The balance includes households where cars are as or more numerous than workers (but not necessarily than adults or drivers). This does not mean that vehicle availability is the determinant of all transit demand, as there are certainly situations where vehicle ownership is influenced by the availability of transit services. However, the significance of vehicle availability should not be underestimated as a factor in transit use.
The rapid growth of auto availability has made it difficult to for the transit industry to sustain and increase ridership. Over the past several years, transit has been able to replace riders lost to increasing auto availability by persons who selected transit even though a household vehicle existed. Going forward, stabilization in auto availability should reduce the downward pressure on transit use.

**Transit user characteristics**

Contrasting the characteristics of the general population with characteristics of the population that uses public transportation reveals that low income persons are more prevalent among transit users than the general population, and that moderate income users are less prevalent. Interestingly, high income households are as or more prevalent among transit users than the general population. Renters are more prevalent among users of public transit than they are in the general population. As homeownership has grown and more multi-family living options involve ownership, such as in condominiums, this trend may change.

**Transit mode share**

This research initiative also included an extensive in-depth look at the trend in transit ridership and mode share over time. In the accompanying figure, a compilation of transit mode share information from various survey data sources is presented. Each of the sources has subtle differences in the sampling methodology and definitions; however, collectively, they portray the most current information on transit mode share trends. The historic declines in transit mode share have dampened dramatically. Depending on the data source, the downward trend has either been reversed or perhaps continues but at a far more modest rate.
Observations

Both anecdotal data and the NHTS reveal the diversity in the population that uses public transportation. Persons in all locations, socio-economic conditions, household structures, ages, and physical conditions use public transportation. Yet, at the national scale, use remains concentrated in population segments that are less likely to have auto travel options. Transit’s largest group of passengers need transit service. This is both good—by revealing the importance of transit to the quality of life and economic contributions of this segment of the population—and unfortunate, in that transit is not able to be a mode of choice for large segments of the population for many of their trips.

Many of today’s senior public transportation professionals entered the industry two or three decades ago at a time when they anticipated that the combination of natural resource constraints and environmental considerations, population growth, and growing congestion were such that a renaissance of public transit was just around the corner. Several decades later, while transit continues to play a very important role in both individuals’ lives and the overall economy, transit remains a modest and arguably stable provider of transportation. The NHTS data make it clear that transit is indeed very critical to mobility for many segments of the population that do not have options, and that it is a choice mode for a diverse set of individuals who find value in using public transportation. Clearly, the industry can feel proud of its accomplishments and contributions.

The NHTS also makes it clear that the role of public transportation in the overall system of transportation is important but modest and has not shown a meaningful breakout. There are no obvious or easy new markets that can dramatically grow transit use and, absent significant deterioration in economic conditions, energy crises, or significant changes in land use development patterns and intensity, growth will require attracting travelers that have auto choices. To grow, transit will have to offer competitive services by using technology, sound planning, disciplined execution, and additional resources to improve services. Transit has to be sustained to serve those in need, keep up with general population and travel growth, and provide a valuable contingency mode. Increasing the share of travel on transit, however, will remain challenging.


For more information on this study, contact CUTR Mobility Program Director Steve Polzin, (813) 974-9849, polzin@cutr.usf.edu.
Transportation professionals seek ways to reduce traffic congestion, including use of commuter choice (trip reduction) programs implemented at the level of individual work sites. What conditions make commuter choice programs effective? Results of a recent study, funded by CUTR’s National Center for Transit Research, suggest that the organizational culture of a work site has a strong influence on program effectiveness.

Commuter choice programs provide combinations of incentives to employees, such as transit subsidies, rideshare matching, and flexible work hours. Incentives are intended to convince commuters to travel earlier or later than the morning peak period of travel or to enable commuters to use alternative modes of travel. Under what conditions are these types of programs effective?

To answer this question, CUTR previously developed the Work Site Trip Reduction Model using a neural network, built with thousands of trip reduction plans. Each plan provided the commuter travel characteristics of the work site before and after the trip reduction program was in place. Model application found that the commuter choice program incentives themselves explain only about 18 percent of the variance in effectiveness between one program and another. Other circumstances affect the ability of a work site program to reduce trips besides the actual program incentives; evidence suggests that organizational culture affects work site program effectiveness.

Study results showed that management support and an effective ETC are not necessary for a successful work site trip reduction program if the work site is located in an area with access to high-quality public transportation and employs lower-income staff who must choose transportation cost savings over time savings and convenience; however, they are necessary for a successful work site trip reduction program if the work site is not located in an area with access to high-quality public transportation. Study conclusions also suggest that there are attributes of the ETC that appear to be associated with higher-performing trip reduction programs. Work site attributes that indicate a supportive organizational culture include the following:

- Most of the affected employees remain in an office setting during the work day and usually work routine predictable hours.
- Work location is downtown.
- ETC and supervisor have access to a budgetary decisionmaker.
- Management discourages upper-level employees from driving alone.
- ETC thinks top managers believe trip reduction program is important.
- ETC believes there is adequate program funding.
- ETC has high “influencing” personality, volunteered to be ETC, and is in a mid-level position.
ETC duties are acknowledged as part of the job.
ETC served longer than 5 years and reports to one person only.
Motivation of the work site is not solely regulatory compliance.
ETC duties require coordination with others.
Work site “champions” of alternative travel modes are present.
ETC cites no distinction in trip reduction activities by salary level.
Trip reduction program compliance by work site is voluntary.
Full transit subsidy is offered; no parking is subsidized.

The final report includes recommendations for actions by employers interested in improving trip reduction programs and suggestions for ETCs who are uncomfortable with their duties as ETC, as well as suggested areas on which TDM professionals should focus their marketing efforts, such as toward organizations that may be more receptive to the message and benefits of work site trip reduction strategies.

For further information on the methodology of this study, a summary can be found in *Transportation Research Record* No. 1924. The complete report can be found at [www.nctr.usf.edu/publications.htm](http://www.nctr.usf.edu/publications.htm), “Commuter Choice Program Case Study Development and Analysis.” For further information, contact CUTR Research Associate Sara J. Hendricks at (813) 974-9801, hendricks@cutr.usf.edu.

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**NCTR hosts 2006 STEP program for high school students**

The National Center for Transit Research (NCTR) at CUTF will host the 2006 Student Transportation Education Program (STEP) in July, designed to introduce high school students to careers in the field of public transportation. Now in its 4th year, the program provides an overview of areas of study and activities related to the transportation industry, including planning, engineering, safety, research, training, management, maintenance and policy making.

STEP, a one-week session conducted on the USF-Tampa campus, offers high school students an overview of transportation systems, field trips, hands-on projects, and the opportunity to meet and talk with transportation professionals. Field trips are planned to several of Florida’s local transportation facilities, including Tampa International Airport, the Tampa Port Authority, and Hillsborough Area Regional Transit.

The STEP program provides an ideal opportunity for students ages 14-17 to learn about a thriving industry. “With more transportation degree programs available and the industry’s needs growing, it is critical to introduce students to potential transportation careers,” said Cheryl Thole, STEP coordinator. “Involving them at a young age will help influence their professional futures and introducing them to public transit will help concentrate and solidify those efforts.”

“As our roads, ports, airports, and public transportation systems increase in use, a proportional increase in the number of transportation-related jobs as well as professionals needed to create innovative solutions is occurring,” said Dennis Hinebaugh, NCTR Administrative Director. “This program encourages students to choose transportation as a career.”

For more information about the STEP program, visit the NCTR web site at [www.ncetr.usf.edu](http://www.ncetr.usf.edu) or contact CUTR Research Associate Cheryl Thole at (813) 974-9920, thole@cutr.usf.edu.
Georges Darido has joined the CUTR Transit team as a Senior Research Associate specializing in Bus Rapid Transit, planning and implementation of public transportation services, Intelligent Transportation Systems (ITS) technologies, and energy and environmental impacts. He has a master’s degree in Economics and Management of Energy and Environment from Scuola Enrico Mattei/ENI in Italy, a master’s degree in Transportation from the Massachusetts Institute of Technology, and a bachelor’s degree in Civil Engineering from the University of Central Florida.

Jennifer Flynn has joined the CUTR Transit team as a Research Associate specializing in urban planning, geographic information systems (GIS), urban transit circulator systems, data compilation and analysis for transit development plans. She has a bachelor’s degree in Urban Geography from USF and will complete her master’s degree in Urban Geography in December 2006.

Christina Hopes has joined the CUTR Planning and Corridor Management team as a Research Associate specializing in access management, public involvement, geographic information systems (GIS), and survey design and statistical analysis. She has a Master of Public Administration degree and a bachelor’s degree in International Relations, both from USF.