Effective Strategies for Comprehensive Corridor Management

October 2004

Prepared by:

Kristine M. Williams, AICP
Program Director, Planning & Corridor Management
Center for Urban Transportation Research

Karen E. Seggerman, AICP
Senior Research Associate
Planning & Corridor Management
Center for Urban Transportation Research

Prepared for:

Florida Department of Transportation
FDOT Project Manager: David C. Blodgett

State of Florida
Department of Transportation
605 Suwannee Street, MS-49
Tallahassee, FL 32399-0450
(850) 410-5700

Project Manager:
David C. Blodgett
Office of Policy Planning

Center for Urban Transportation Research
University of South Florida
4202 E. Fowler Avenue, CUT100
Tampa, FL 33620-5375
(813) 974-3120
http://www.cutr.usf.edu

---

1. Report No. FDOT: BD 544 - 06	2. Government Accession No.	3. Recipient's Catalog No.	
4. Title and Subtitle Effective Strategies for Comprehensive Corridor Management		5. Report Date October 2004 6.Performing Organization Code	
7. Author(s) Kristine M. Williams, AICP, Karen E. Seggerman, AICP		8.Performing Organization Report No. 2117-1005-00	
9. Performing Organization Name and Address Center for Urban Transportation Research University of South Florida 4202 E. Fowler Avenue, CUT100, Tampa FL 33620-5375		10. Work Unit No. 11. Contract or Grant No. BD 544 Project Work Order 6	
12. Sponsoring Agency Name and Address Florida Department of Transportation Office of Project Management, Research & Development 605 Suwannee Street, MS 30, Tallahassee, FL 32399		3. Type of Report and Period Covered 14. Sponsoring Agency Code	
15. Supplementary Notes Supported by a grant from the Florida Department of Transportation			
16. Abstract Despite the increasing importance of comprehensive corridor management at the state and local government level, questions remain regarding effective methods for developing and implementing corridor management plans. Further insight is also needed into how best to coordinate FDOT and local government policies and procedures. Obtaining answers to these questions is important to managing land development and access on the Florida's newly design Strategic Intermodal System (SIS) and other state highways. This study documents success stories in comprehensive corridor management and identifies best practices that can be applied by the Florida Department of Transportation, metropolitan planning organizations, and local governments. The emphasis is on policy, regulatory, and funding strategies to accomplish alternative access and other important corridor management objectives.			
17. Key Words Access management, corridor management, corridor access management plan, intergovernmental agreements, intergovernmental coordination	Distribution Statement Available to public through the National Technical Information Service (NTIS), 5285 Port Royal, Springfield, VA 22181 ph (703) 487-4650		
19. Security Classif. (of this report) Unclassified	20. Security Classif. (of this page)	21. No. of pages 135	22. Price

Form DOT F 1700.7 (8-69)

ACKNOWLEDGMENTS

This report is prepared by the Center for Urban Transportation Research, College of Engineering, University of South Florida, through the sponsorship of the Florida Department of Transportation.

FDOT Project Manager:

David C. Blodgett, Office of Policy Planning, Florida Department of Transportation

CUTR Project Team

Principal Authors:

Kristine M. Williams, AICP, Program Director, Planning & Corridor Management
Karen E. Seggerman, AICP, Senior Research Associate, Planning & Corridor Management

Research Assistant:

Irene Nikitopoulos, Research Assistant, Planning & Corridor Management

Contributors and Reviewers:

Holly Alderman, Program Assistant, CUTR
Crystal Allred, Planner, Sarasota County, Florida
Gary P. Amig, Access Management Manager, Florida Department of Transportation
Chanda Bennett, Polk County, Florida
Larry G. Boone, P.E., Area Maintenance Engineer, Florida Department of Transportation
John Braun, Assistant Public Works Director, Hayes, Kansas
John Czerepak, District One, Florida Department of Transportation
David Dahlstrom, South Florida Regional Planning Council
Celeste Deardorff, City of Lakeland, Florida
Dennis Dix, AICP, Transportation Planning Coordinator, Hernando County, Florida
Charles S. Dixon, Community Development Director, Citrus County, Florida
Jerry Greif, Chief Planner, Hernando County, Florida
Brenda Herrman, Public Works Director, Hayes, Kansas
Cynthia L. Jones, E.I., Planner, Citrus County, Florida
Greg Kern, AICP, MBA, DRMP, Inc.
John Kilkenny, Permits & Contract Engineer, Florida Department of Transportation
James King, Planner II, Hernando County, Florida
Leon Kotecki, Principal Planner, Manatee County, Florida
Jeff Kramer, AICP, Senior Research Associate, Planning & Corridor Management, CUTR
Mark P.Kuhn, P.E., Jacksonville Assistant Maintenance Engineer, Florida Department of Transportation
Thomas C. Polk, Senior Planner, Sarasota County, Florida
Gary Sokolow, Systems Planning Office, Florida Department of Transportation
Wendy Teague, Graphics, CUTR
Clark D. Turberville, P.E., C.P.M., District Permits and NPDES Engineer, Florida Department of Transportation
Doug Uden, Pasco County
Will Watts, P.E., District Two Maintenance, Florida Department of Transportation
Bob Wiegers, Planning Director, City of Bartow, Florida

TABLE OF CONTENTS

INTRODUCTION

The Florida Transportation Plan directs the Florida Department of Transportation (FDOT) to maintain the efficiency, capacity and safety of the state highway system. In 2003, the Florida Legislature formally established the Florida Strategic Intermodal System (SIS) and provided for its development and implementation. The SIS is composed of facilities of statewide and interregional significance and is intended to efficiently serve the mobility needs of Florida's citizens, businesses, and visitors and help Florida become a worldwide economic leader. As the backbone of the state's interregional transportation system, the SIS will provide the primary means for long-distance movement of residents, tourists and goods. FDOT has also adopted a systems management goal for the Florida transportation system aimed at applying corridor management strategies to extend the life and improve the operation of the existing system. Such strategies are of particular importance in light of constrained budgets and escalating transportation improvement costs.

In recognition of the safety and operational benefits of access management, several corridor access management plans have been or are currently being prepared by FDOT Districts in coordination with local governments and metropolitan planning organizations (e.g. US Highway 19 in Citrus County, FDOT District 7 and US Highway 98 in Polk County, FDOT District 1). These plans address median openings, auxiliary lanes, and typically call for the provision of alternative access via service roads, supporting street networks, shared driveways, and inter-parcel connections.

Despite the increasing importance of comprehensive corridor management at the state and local government level, questions remain regarding effective methods for developing and implementing corridor management plans. Of particular importance is the need for further insight into how best to coordinate FDOT and local government policies and procedures to accomplish alternative access and other important corridor management objectives. Obtaining answers to these questions is important to managing land development and access on the SIS as well as the remainder of Florida's State Highway System (SHS).

This study documents success stories in implementing comprehensive corridor management and identifies best practices that can be applied by FDOT, MPOs, and local governments throughout the state. The emphasis is on policy, regulatory, and funding strategies for comprehensive corridor management that can be directly applied by communities alone, or in coordination with state transportation agencies and MPOs. The study also addresses policy issues in comprehensive corridor management and recommends changes in current practice that will assist the FDOT, MPOs and local governments in managing access to the SIS and other important state highways.

METHODOLOGY

The project involved the following research approach:

- Review the literature and current policies in Florida and other states, if applicable, as they relate to the implementation of comprehensive corridor management and other corridor issues.
- Identify and document specific case studies of successful corridor management practices, with an emphasis on practices used by various FDOT Districts and local governments in Florida with regard to implementing comprehensive corridor management.
- Summarize lessons learned and best practices techniques that can benefit FDOT and local governments throughout the state.

REVIEW OF CURRENT PRACTICE

As communities grapple with development or redevelopment pressures on their major arterials, many of them are turning to corridor management strategies to maintain or improve the safety and operation of their roadways. Strategies include redesign of medians allowing full or restricted turning movements, establishing driveway connection spacing, and promoting alternative access through shared driveways, service roads and street connectivity. Newer techniques include roundabouts and ITS improvements—specifically network surveillance, surface street control, traffic information dissemination, and incident management. Implementing comprehensive corridor management is dependent on authorizing policies, intergovernmental coordination, and implementation techniques.

Policy and Planning in Corridor Management

The cases reviewed for this study indicate that corridor management in Florida takes on a variety of forms tailored to the policies and desires of the affected local governments and each respective FDOT District. Some local governments have worked independently or with FDOT to create individual local ordinances, others have worked with FDOT to prepare corridor management plans, while still others combine these approaches. Alternatively, most FDOT Districts have pursued corridor management through project development and access permitting, but some Districts have pursued the development of corridor access management plans in coordination with local governments. The impetus for developing corridor access management plans in these Districts appears to have come largely from the local government level in the context of an impending roadway improvement project or development pressure.

In Florida, specialized corridor access management plans for state highways may be developed in conformance with the procedural requirements of Rule 14-97.004(5) (Rule). The Rule provides for the development of corridor access management plans by the FDOT, in cooperation with affected local governments, for specific segments of the state highway system. These plans allow for site-specific access management classifications based on engineering analysis, special circumstances of the roadway, and adjacent land use characteristics. When completed, the Rule requires plans to “specify the highway, termini, and the specific standards for connections, medians, intersections, and signals that shall apply.”

The Rule establishes the following procedural requirements. The Department must formally notify the affected local governments and abutting property owners prior to adoption of the plan and hold a public hearing. After consideration of public input, "the Department shall, in cooperation with the affected local government, finalize the plan." When the plan is adopted, through signature of the District Secretary, then the Department must notify each of the affected local governments that it has been adopted.

Upon adoption, the plan would serve as the official set of access management standards for that section of the state highway system and would guide District connection permitting decisions accordingly. In practice, this process is highly interactive with the FDOT, local governments and affected property owners participating. The corridor access management plan has been slowly gaining local government attention in Florida as communities begin to see it as a way to reduce traffic congestion, improve safety and maximize roadway capacity.

The FDOT has had success in restricting the number and location of new median openings and closing nonconforming median openings during reconstruction projects, as well as controlling driveway connection spacing using the Florida State Highway System Access Management Classification System and Standards (Rule 14-97 or Access Management Rule). However, the case examples reveal that corridor management plans offer benefits not available through reconstruction projects and access permitting alone. For example, corridor management plans provide the ability to integrate land use and transportation plans for the corridor and thereby to locate and design access features so they provide the most safety and operational benefits in light of actual characteristics of the corridor. They also create an opportunity for local governments to work proactively with the FDOT to create alternative access throughout the corridor.

Perhaps the greatest benefit of developing a corridor access management plan is a stronger ability to control connections or access points on the corridor. Connection spacing objectives are often difficult to achieve as existing property lines and lot size dictate driveways in many cases. FDOT is constrained in its ability to accomplish alternative access through the driveway connection permit process, due to lack of authority over land use and transportation decisions beyond the right-of-way of the state highway system. In addition, 1992 amendments to the Florida Access Management statute constrain the ability of the Department to "deny reasonable access" to the state highway system, as follows:

> *Florida Statute 335.181*
>
> *(2) It is the policy of the Legislature that:*
>
> *(a) Every owner of property which abuts a road on the State Highway System has a right to reasonable access to the abutting state highway but does not have the right of unregulated access to such highway. The operational capabilities of an access connection may be restricted by the department. However, a means of reasonable access to an abutting state highway may not be denied by the department, except on the basis of safety or operational concerns as provided in s. 335.184.*
>
> *(b) The access rights of an owner of property abutting the State Highway System are subject to reasonable regulation to ensure the public's right and interest in a safe and efficient highway system. This paragraph does not authorize the department to deny a means of reasonable access to an abutting state highway, except on the basis of safety or*

operational concerns as provided in s. 335.184. Property owners are encouraged to implement the use of joint access where legally available.

FDOT District permitting officials indicated that the statutory changes have limited their ability to deny access to nonconforming lots, even where secondary access to an off-state system roadway is available. In such cases, a District will often permit a driveway onto the state system in the absence of an official corridor access management plan or local government frontage road ordinance which requires alternative access.

Intergovernmental Coordination in Corridor Management

Implementing comprehensive corridor management requires proactive coordination between governmental agencies. Communication gaps occur between corridor management plans and the implementation mechanisms at the state level. While the Access Management Rule is implemented at the time connection permits are issued through FDOT District operations offices, corridor management plans are developed by District planning offices. Connection permits are issued through an engineer in the operations and maintenance functional area of the FDOT. On the other hand, an engineer in the systems planning functional area is responsible for access management. These factors make internal coordination important.

An additional concern regarding future coordination within the state regarding the issuance of connection permits is the current trend toward outsourcing maintenance and operation of the State Highway System (SHS) to the private sector. Because FDOT access permitting is housed in District maintenance offices, it is slated for outsourcing as well. Outsourcing the access permitting function raises additional coordination concerns,

Under the statewide access management program, FDOT Districts have a general, informal understanding that local governments will not issue a building permit without a valid connection permit from the FDOT. This avoids situations where developers insist on a driveway permit based on site plans/building plans already permitted by local governments. Similarly, FDOT will not issue a final access permit without evidence of development approval from the local government.

Although the Access Management Rule 14-97 provides specific standards for median openings and access connections, these decisions are still highly influenced by existing conditions and development pressures. Corridor access management plans are providing FDOT Districts and local government staff with a tool to address those pressures, while benefiting developers by providing greater predictability as to planned access locations. An added benefit of a corridor-specific plan is increased communication and coordination between the local government(s) and the appropriate FDOT District.

Although FDOT District field offices do the majority of driveway permitting, each District has a consistent number of cases that must be decided by the District Access Review Committee or Variance Committee, which is made up of various District representatives such as the Traffic Operations Engineer, the Design Engineer, the Maintenance Engineer and/or a member of the Planning Office. The Access Review Committee meets regularly to review all disputed access issues within the respective Districts. Developers unable to obtain a permit through the normal driveway permitting process may present their case before this Committee followed by FDOT

staff who presents their opposition. The Committee then renders an opinion or offers a compromise position allowing the developer access to the state system. An example of a District 4 Variance Committee finding is located in Appendix A1 in which the variance request was disapproved and the applicant was provided with an alternative limiting the requested vehicular access connection to right-in only.

Officials interviewed for the study indicated that developers commonly complain about feeling blindsided by FDOT requirements for mitigation after spending months working out access compromises with a local government. District officials indicated that they work with local governments to minimize developer confusion. For example, in FDOT District 2, a task team, made up of representatives from the District and the City of Jacksonville, has developed a formal process to spell out expectations from both the FDOT and the city very early in the development process (Appendix A2). This PUD/Site Impact Analysis & Review Process, still in draft form at the time of this writing, includes a coordination process, guidelines for submittal of traffic studies, and driveway connection permit application guidelines.

Another example is in FDOT District 4, where a written Permit Application Procedure has been in place since 1995. District 4 also has an informal website to assist developers with the process that begins with the Pre-application Review, a 25-minute meeting to establish:

(1) The category and general location and design of VACs [Vehicular Access Connection],
(2) whether or not a traffic engineering study is required, and
(3) whether or not approval of the VAC permit request may be contingent upon the findings of the District Variance Committee (*1*).

To prevent scheduling problems, these meetings are held back-to-back on Thursdays only. Key to the success of the Pre-application Review concept is the documentation of the meeting that is provided to the applicant outlining comments and findings from the meeting (Appendix A3). The documentation states that the Pre-application Finding is not a permit and expires after one year.

Implementation Techniques in Corridor Management

Effective corridor management is implemented throughout Florida using a variety of strategies. Case studies for this report revealed the use of corridor management plans, an action plan, "frontage road" ordinances, and intergovernmental agreements. A key element of these strategies is alternative access. Many communities have developed corridor management plans and programs that involve the provision of service roads, shared driveways, and inter-parcel or inter-roadway connections that reduce the need for individual sites to have direct, driveway access to a major arterial. In addition, roundabouts are now being considered as an effective corridor management tool. Although accomplishing alternative access can be challenging in today's development environment, outlined below are policy, regulatory, and funding strategies for alternative access that can be used by communities alone, or in coordination with FDOT and MPOs.

Roundabouts

Used in Europe for decades, roundabout use is now on the rise in the United States. In 2000, the Federal Highway Administration (FHWA) published Roundabouts: An Informational Guide to "provide a comprehensive source of information on modern roundabouts (*2*)." The Florida Department of Transportation had already taken the lead in this area when it published the Florida Roundabout Guide in 1998 to provide guidance for the installation of roundabouts in Florida.

Roundabouts are an alternative form of traffic control that usually takes the place of traffic signals or stop signs. Benefits attributable to roundabouts include increased safety (reduction of conflict points), increased vehicular capacity (up to 50%), reduced fuel consumption and improved air quality, lower cost (construction, operation, and maintenance), aesthetics (landscaped median), easy U-turns, and traffic calming (*3*). In light of their many benefits, roundabouts are another important corridor management tool.

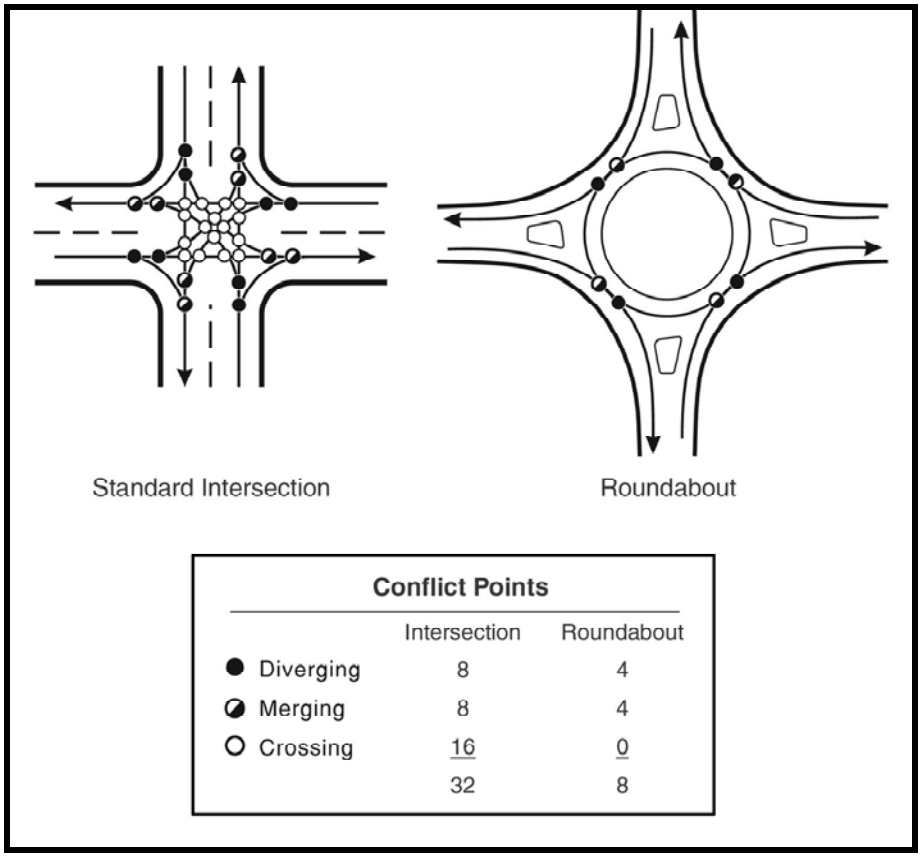

Figure 1: Vehicle conflict point comparison (*2*).

Roundabouts also reduce conflict points, defined by FHWA as "a location where the paths of two vehicles, or a vehicle and bicycle or pedestrian, merge, diverge, cross or queue behind each other (*4*)." A conventional intersection may contain up to 32 conflict points (Figure 1), whereas a single-lane roundabout contains only eight conflict points, including diverging and merging conflicts that can result in slow-speed sideswipes and rear end crashes. By eliminating the need

for left turns, which account for the majority of access-related crashes, roundabouts can offer clear safety benefits over traditional intersection designs.

When roundabouts are combined with raised median treatments, the safety and operational benefits can be extended to an entire corridor. Because even large vehicles can safely make a U-turn at the roundabout, all access to uses along the corridor can be accommodated using safe right-in/right-out driveways. For example, a roundabout having an outside diameter of 130 feet can accommodate semi trailer trucks with a wheel base of up to 60 feet. The use of a roundabout rather than a signalized intersection can better accommodate the U-turns created by a median. The raised median removes the opportunity to make left-turns across travel lanes thereby eliminating severe right angle crashes and greatly reducing the potential for head on crashes.

Another benefit of roundabouts is that vehicles must slow down on the approach to check for circulating vehicles. This slower speed contributes to the lower rate and severity of crashes as well as to increased pedestrian safety. The FHWA estimates up to a 90% reduction in fatalities, a 76% reduction in injury crashes, and a 30-40% reduction in pedestrian-related crashes is possible with the use of roundabouts (*4*). The slow speeds and right-turning movements are also safe and easy for drivers with slower reflexes, such as the elderly.

In addition to safety benefits, an increase in traffic capacity as well as a decrease in corridor travel time may be attributed to roundabouts. The FHWA estimates that roundabouts can provide a 30-50% increase in traffic capacity at a given intersection allowing a per lane volume increase from 800 to 1,200 vehicles per lane (*4*).

Between 1998 and 1999, the City of Golden, Colorado installed a series of four roundabouts on South Golden Road (*5*). Despite merchant and public opposition in the beginning, most users have grown to appreciate the roundabouts. The facility has experienced a decease in both the number (-40%) and severity of accidents, as well as a decrease in average speed and corridor travel time. The South Golden Road roundabouts are discussed in the case studies section of this report.

Service Roads

Service roads are local or collector roads that generally provide alternative access to small commercial tracts along a major roadway (*6*). They are often referred to as frontage roads, reverse frontage roads or even backage roads. Frontage roads are a type of service road that parallels an arterial roadway or freeway between the roadway right-of-way and the front building setback line. Frontage roads can work well for light office or single family residential developments, where they begin and end between major road intersections. However, continuous frontage roads can lead to crashes and operational problems if they connect too close to a major roadway intersection. Providing buildable sites between the service road (or reverse frontage/backage road) and the major road right-of-way thereby moving the service road to the rear of individual sites creates a safer condition.

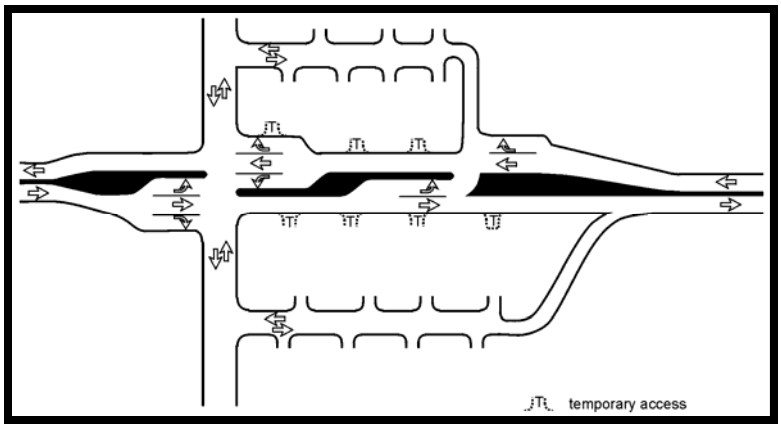

Figure 2: Sample service road configuration (6).

Some local governments have successfully implemented alternative access on major roads through "frontage road" ordinances. In the case studies that follow, the Hernando County (FL) Frontage Road Ordinance is discussed in detail. The Board of County Commissioners adopted a frontage road ordinance in 1986 (Ordinance 86-8), due to concerns about rapid development and future traffic congestion on U.S. 19. The ordinance applies to U.S. 19 and several other major roads within the county, and requires each developer of property adjacent to major arterial highways to provide for the funding and construction of frontage roads upon demonstration of need and demand by the County (*7*).

The double median or "Parisian Boulevard" is another type of road where local traffic is separated from through traffic. This road "has a central roadway for through traffic separated on either side from local traffic and pedestrian ways by tree-lined medians (*8*)." While this "livable" style of street provides good access and a pedestrian-friendly environment, there are some safety issues at intersections. "The Boulevard Book" by Allan B. Jacobs, Elizabeth Macdonald, and Yodan Rof details this type of street including design and safety guidelines.

Opportunities to partner with the state transportation agency or MPO can increase the ability of smaller communities to create service roads on state highways. The small City of Hays, Kansas, located at the crossroad of Interstate 70 and US Highway 183 (Vine Street), is one example. Discussed later as a detailed case study, city officials and KDOT developed a Corridor Master Plan that called for the creation of alternative access for existing and future development, installation of parallel facilities and reverse access roads (*9*).

Street Network and Connectivity

Many communities have developed in strips or ribbons along major arterial roadways. Local and collector street networks are often underdeveloped and major highways are used as access roads. The resulting conflicts between higher speed traffic and turning vehicles, bicycles, and pedestrians, have led not only to unsafe conditions but also to greater dependence on driving. These problems can be addressed through policies that promote activity centers and a connected network of local and collector streets.

Smaller blocks and a balanced, connected network of streets and sidewalks make an area more pedestrian, bicycle, and transit friendly, while increasing opportunities for alternative access. Therefore, corridor access management plans should include measures to improve the connectivity of local street networks. Although local streets help reduce the need for driveway access, too many minor street connections on major roadways can lead to the same safety and operational problems as having too many driveways. One way to address this issue is to evaluate all proposed street connections to major arterial roadways to assure that they conform to adopted access spacing standards or would otherwise pose no safety or operational concerns.

Existing local street systems provide a framework for a corridor access management plan. Where the local street system is not adequate, a long-range plan could be developed to identify preferred future street locations. Side streets may be laid out in a general grid pattern or branch out to accommodate terrain or other natural features. A system of parallel roads or service roads could run behind corridor properties with side streets intersecting the arterial at reasonably spaced intervals.

An example in practice is Fort Collins, Colorado, which promotes a supporting street network on arterials through street spacing and connectivity requirements in its land development code (*10*). The requirements are implemented mainly in developing areas through the development review process and applicants are required to submit an access management plan that advances the standards. The code ties street spacing with access spacing criteria, as follows:

> *Spacing of Full Movement Collector and Local Street Intersection with Arterial Streets. Potentially signalized, full-movement intersections of collector or local streets with arterial streets shall be provided at least every one thousand three hundred and twenty (1,320) feet or one-quarter (¼) mile along arterial streets, unless rendered infeasible due to unusual topographic features, existing development, or a natural area or feature. State Highway Access Control Code or specific access control plan adopted according to that code shall determine the location of collector or local street intersections with state highways [Section 3.6.3 (C)].*
>
> *Spacing of Limited Movement Collector or Local Street Intersections with Arterial Streets. Additional non-signalized, potentially limited movement, collector or local street intersections with arterial streets shall be spaced at intervals not to exceed six hundred and sixty (660) feet between full movement collector or local street intersections, unless rendered infeasible due to unusual topographic features, existing development, or a natural area or feature [Section 3.6.3 (D)].*

The Model Regulations and Plan Amendments for Multimodal Transportation Districts (MMTDs) applies concepts similar to those of Fort Collins (*11*). The model is aimed at achieving a more walkable, transit friendly environment, but has the added benefit of improving street networks and connectivity. Although these policies and regulations are designed for application in multimodal transportation districts, as defined in Florida law, they can be used as strategies to reinforce alternative modes of transportation, while helping to reduce traffic conflicts and congestion on major roadways.

Alternative Access in Subdivision Regulations

Alternative access is best accomplished when new lots are being created on major roadways or land is being subdivided for development. Unmanaged subdivision activity on major roadways is a key constraint to accomplishing alternative access. Even communities with effective subdivision regulations can face access problems from minor land divisions that are exempted from plat requirements.

Platting exemption problems can be avoided by enacting a few basic changes to common development requirements. One such change is to increase the minimum lot frontage requirement for properties abutting major transportation routes. A variation of this technique is to tie minimum lot frontage to connection spacing standards, where they exist. (Note – the term "connection" includes spacing standards for driveways and street connections.) Property owners could then be allowed to further subdivide the parcel into smaller frontages, but only where each lot is served by alternative access (e.g. a local street, cross access easement, or service road).

For example, Levy County, in rural west central Florida, established a requirement for its primary arterial (U.S. Highway 19), by tying minimum lot frontage to the 660 ft access spacing requirement of the Florida Department of Transportation. A similar example is a prohibition on the creation of new lots that fail to meet adopted access spacing criteria, as in the following regulation currently under consideration in Tallahassee, Florida:

> *Section 2.3 New lots or parcels on arterial and collector roadways.*
>
> *No new lot or parcel shall be created along arterial or collector roadways in the City of Tallahassee or Leon County that would result in connection spacing that does not comply with the connection spacing or corner clearance standard(s) for the abutting roadway(s) due to inadequate lot frontage, or the lack of alternative access where smaller lots are proposed.*
>
> *All lots and parcels that are proposed on or after the effective date of this ordinance must be reviewed for conformance with this section by the jurisdiction where they are proposed and approved, prior to being recorded in the property records of Leon County.*

Another important provision common to most subdivision ordinances is a requirement that residential subdivisions on major roads provide access to individual lots from a local street rather than the major arterial. Most communities require all new lots to have access to a public road and to meet minimum lot size and frontage requirements. Reviewing new lots for conformance with these provisions is an opportunity to evaluate whether the proposed lots should provide for alternative access in accordance with other local policies. A streamlined review process for lot splits and other minor subdivision activity that may otherwise be exempted from subdivision review helps assure that lots have appropriate access, without placing an unnecessary review burden on the property owner.

Unified Access to Shopping Center Sites

Another alternative access issue relates to shopping center outparcels – lots created along thoroughfare frontage of shopping center sites and leased or sold separately due to their high

value location. If treated separately in development review and site planning, these lots could each have individual driveways on a major road, sometimes with no internal connection to the surrounding development resulting in a great number of conflict points (Figure 3).

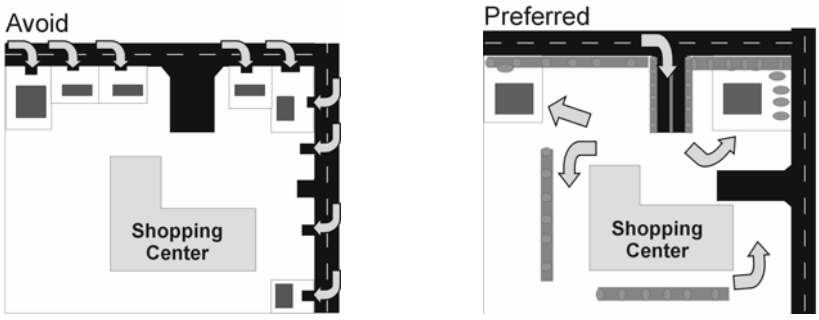

Figure 3: Promote internal access to shopping center outparcels (*6*).

To avoid this problem, local governments can establish a requirement that properties consolidated for development or those under common ownership, will be treated as one property for the purposes of access review. Citrus County (FL) limits access to one per ownership unless the properties meet spacing requirements (*12*). Regulations should also require outparcels to be tied into the on-site circulation system of the larger shopping center.

Funding

Although corridor management strategies can positively influence safety and capacity on major arterials, funding for gaps in street networks or to facilitate service roads continues to be a challenge for local governments. The FDOT, through the maintenance of its active and widely applied access management program, recognizes the benefit of applying appropriate access management strategies and techniques as individual roadway and other conditions allow. The FDOT also routinely funds access management related improvements as part of broader corridor improvement projects such as road widening or resurfacing.

Funding improvements off of the state system is what proves most challenging. Most federal and state funding sources do have provisions for the expenditure of funds off of the state highway system; however, scarce funding for major improvements makes off-system expenditures rare. Local governments will need to continue the exploration and use of local funding sources. The following review of funding sources touches on federal and state sources and highlights local funding possibilities for off-system improvements. While there are a number of possibilities discussed, the case studies examined for this report reveal that many local governments rely on direct construction by the developer to accomplish most off-system improvements.

The 2004 Legislature enumerated guidelines for designating Strategic Intermodal System (SIS) components as well as its funding. Since components of the SIS and SIS connectors can include facilities owned and operated by public and/or private entities other than the FDOT (off-system), the Legislature modified state laws to allow the use of State Transportation Trust Fund (STTF) monies to be used to pay the cost of projects on the SIS and to match federal-aid funds allocated for projects not located on the State Highway System. Additionally, STTF funds can be used to pay the cost of county or municipal road projects selected in accordance with the Small County

Road Assistance Program and the Small County Outreach Program (75% of project costs on a county road). Funds from the STTF and/or federal-aid funds could be used to purchase advance right-of-way for preservation purposes for a facility identified in a Comprehensive Plan or an MPO LRTP as a planned future SIS connector and a funding priority.

Other state funding sources occasionally used for funding off-system improvements include the County Incentive Grant Program (35% of project costs for local projects that relieve congestion on the SHS) which receives sporadic funding in the FDOT work program and the Economic Development Transportation Fund, managed by a public-private partnership consisting of the Governor's Office of Tourism, Trade and Economic Development (OTTED) and Enterprise Florida, also provides funding for transportation-related projects such as access roads.

For example, the City of Brooksville has taken a proactive role in working with property owners and the local economic development department to implement a frontage road on SR 50, using right-of-way donations, economic development funds, and Community Development Block Grant funds. The City has also been successful in obtaining State money for the project through the now-defunct Transportation Outreach Program (TOPS).

Perhaps more feasible is the use of the myriad of funding options provided by the Florida Legislature to local governments for capital improvement needs, particularly transportation. Potential funding sources available to Florida counties and municipalities include the Local Option Gas Tax, the local Government Infrastructure Surtax, the Ninth Cent Gas Tax, transportation impact fees and developer contributions.

A local option gas tax of up to six cents per gallon (by a simple majority vote of county commissioners) may be levied for transportation expenditures on state or local highway systems with proceeds of the tax to be shared with municipalities. An additional five cents per gallon local option gas tax was adopted by the 1993 legislature requiring a majority plus one vote of the county commissioners with the caveat that local governments may only use revenues from the tax for transportation expenditures needed to meet the requirements of the capital improvement element of an adopted comprehensive plan.

The Ninth-Cent Gas Tax (one cent per gallon on highway fuels) can be adopted by a county's governing body to impose the tax by a majority plus one vote of its membership. The Local Government Infrastructure Surtax or Local Option Sales Tax can be levied by county governing bodies at a rate of .5% or 1% and applies to only the first $5000 in value of all purchases subject to the regular 6 percent sales tax. Tax proceeds can be expended ONLY to plan and construct infrastructure, or to acquire land for public recreation, conservation or for the protection of natural resources.

Finally, transportation impact fees or developer contributions, implemented by ordinance, require new development to pay a fair share fee for costs of improving existing roads or constructing new roads made necessary by developments. An impact fee schedule is typically based on trip generation, the cost of additional lane construction and existing capacity. In reviewing case studies, it can be noted that the majority of local governments rely on transportation impact fees and developer contributions or outright construction to fund incremental corridor management improvements, particularly alternative access off the state highway system.

CASE STUDIES

Eight case examples from four FDOT Districts in Florida, one from Colorado and one from Kansas were documented for this report. The first case study briefly documents the installation of a series of roundabouts in Golden, Colorado. The next three cases are on U.S. 19 in Pasco, Hernando and Citrus Counties in FDOT District 7 with each county pursuing a different method for managing the corridor including an action plan and concurrency rules, a frontage road ordinance and a corridor management plan. The fifth case study is a non-state facility, University Parkway, located in Sarasota and Manatee Counties in District 1. These counties employed a series of interlocal agreements and corridor studies to construct and manage the corridor. The sixth example is on U.S. 98 in Polk County, also in FDOT District 1, where a corridor access management plan was recently adopted.

The seventh case study is in FDOT District 4 where 14 local government jurisdictions and seven agencies have established a collaborative for the economic and aesthetic improvement of S.R. 7 in Broward County. The final case study looks at U.S. Highway 183 in Hayes, Kansas where a partnership between the city and the state led to a corridor master plan. Details of these corridor management programs are provided below.

South Golden Road

Golden, Colorado

(Note: This case study is adapted from "Roundabouts for Urban Design" by Alex Ariniello and Dan Hartman.)

Figure 4: South Golden Road prior to reconstruction (*5*).

One of Golden, Colorado's primary commercial roads is South Golden Road. Until 1998, the road was a standard four-lane arterial with a center turn lane and wide shoulder with some sidewalks adjacent to the road. South Golden Road had standard corridor problems including excessive driveways leading to left-turn conflicts, significant signalized intersection delay, speeding and a generally poor aesthetic and pedestrian environment. In fact, as early as 1993, the City of Golden sought ways to improve the corridor design but failed due to "access concerns of businesses." Development pressure (a grocery store) in 1998 caused citizens to demand improvements to ease traffic concerns at the South Golden Road/Utah Street intersection where the store was proposed.

The City of Golden developed the following objectives for improvements to the road:

- *Reduce vehicular conflicts and increase safety;*
- *Create a more aesthetically pleasing area;*

- *Create a more pedestrian-friendly environment;*
- *Reduce delays for entering traffic at Utah Street;*
- *Reduce queue delays to reduce travel time (5).*

One of the alternatives for meeting the objective was "narrow the roadway, provide medians and wide detached sidewalks, and install a new signal at Utah Street." The other alternative was to "narrow the roadway, provide medians and wide detached sidewalks, and construct two roundabouts at Utah Street and Ulysses Street." Eventually, two more roundabouts at Johnson Road and Lunnahaus Drive were added to this plan. The City, residents and even businesses embraced the roundabout concept after an extensive public education campaign by city staff and project consultants. Only the proposed grocery store owners that instigated the road improvement discussion were skeptical of the roundabout concept; finally, the City's offer to tear out the roundabout in front of the store if sales were affected prompted their agreement with the plan.

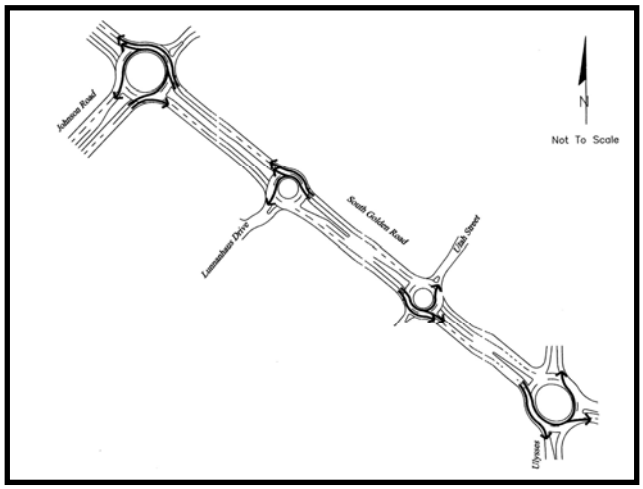

Figure 5: South Golden Road plan (*5*).

The single-lane roundabout at Ulysses Street was constructed and opened to traffic in late 1998. Public reaction was so positive that the City accelerated construction of the remaining three two-lane roundabouts, opening for traffic in late 1999. This time, however, public reaction was very mixed due to driver confusion in navigating the roundabouts that had no final pavement, striping or directional signs. Buses and other large vehicles had the most difficulty causing the school and emergency services officials to complain to the City. Buses and other large vehicles found it difficult to stay in one lane through a roundabout, however, once the final pavement was added, "the road felt 3' to 4'wider because the lip at the concrete curb was eliminated." Improvements to this 3/4 –mile stretch of South Golden Road included four roundabouts, roadway reconstruction, medians, detached sidewalks, utility relocation, design and landscaping.

From an operational perspective, the South Golden Road roundabouts showed improvements in several areas when data from prior to the installation was compared with data 23 months after the roundabouts were in operation (*13*). The 85th percentile speed was reduced from 47 mph to 33 mph while the average travel time between Johnson Road and Ulysses Street was reduced from 78 seconds to 68 seconds. It had been estimated that if an additional signal were installed, travel time for the segment would have increased to 103 seconds. Additional data from three years prior to the installation was compared to data from 3-1/2 years afterwards by the Public Works Director showing continued positive operational results (*14*). Accidents were reduced by 40% from 4.39 per month to 2.66 per month; additionally, accident severity decreased. Accident injuries were reduced from 31 to just 2, a 95% reduction. Even bicycle and pedestrian injuries have been reduced from 1 per year prior to the roundabouts to none since their installation.

Figure 6: South Golden Road reconstructed (*5*).

Another measure pointing to the positive results of the roundabout installation on the South Golden Road corridor is the increase in tax revenue during 2003. Operational improvements could be attributed to the improvements made to South Golden Road because no other parallel facilities received significant improvements over the time period. Installation of the roundabouts allowed the City to meet its objectives for a more aesthetically pleasing and pedestrian-friendly environment, a reduction in vehicle conflicts and delays, and an overall increase in safety.

U.S. 19

U.S. 19, a corridor in the Florida Strategic Intermodal System, is well-known for its traffic congestion and high crash history throughout the Tampa Bay region. Various local governments, through which U.S. 19 passes, grapple with ways to ease congestion and to increase safety on the facility. Each one has chosen slightly different methods.

U.S. 19 is a six-lane highway that serves regional travel along the west coast of Florida. Due to tremendous residential and commercial growth along the corridor over the past twenty years, many segments of U.S. 19 have evolved into highly urbanized areas serving both commuter traffic and local trips. Commercial development within the urban counties, Pinellas and Pasco Counties, has largely occurred along the 4-6 lane facility without adequate access management, and has resulted in numerous curb cuts, entry signs, and median openings that have adversely affected the safety, efficiency, and character of this important highway. U.S. 19 also serves as the primary artery for commercial activity in some smaller cities and rural counties in west central Florida, including Hernando, Citrus, and Levy Counties, where the roadway is predominately a 4-lane divided arterial.

U.S. 19 in Pasco County, Florida

FDOT District 7

In Pasco County, sections of this 19.7-mile stretch of U.S. 19 are considered "strip commercial" and have been plagued with traffic problems and safety concerns due to high speed, high volume commuter traffic competing with tourist and local traffic entering and exiting the roadway. Between 1999 and 2001, U.S. 19 has accounted for approximately 21 percent of all Pasco County crashes and accident rates were consistently higher than the statewide average for six-lane divided urban arterials (*15*).

Figure 7: U.S. 19 in Pasco County (*15*).

In response to growing concerns, the Pasco County Metropolitan Planning Organization (MPO) created the U.S. 19 Task Force in 2003. Charged with identifying problems and possible solutions, the Task Force was composed of state and local transportation representatives, local enforcement agencies, elected officials, concerned citizens, and businesses owners. The Task Force detailed many issues contributing to safety and operational problems along U.S. 19, including aggressive driving, lack of readable address numbers and signs, unsafe turns, traffic stacking in the medians, and lack of joint/cross access between properties. Solutions to each issue were identified and prioritized within the US 19 Task Force Action Plan. Many solutions have funding

commitments over the next five years or are being addressed on an ongoing basis by local agencies.

Currently, ITS improvements, specifically network surveillance, surface street control, traffic information dissemination, and incident management are being applied along the entire corridor. Funding was obtained through an $8 million loan from Pasco County to the Florida Department of Transportation. Results are expected to improve traffic flow and yield a travel time savings of 10%. Other programmed improvements include roadway widenings on nearby north-south corridors and median improvements along congested segments. Over $13 million is reserved for these improvements with funds being generated from the county's local option sales tax.

Other actions were identified by the Task Force as Tier One "top priority" or a Tier Two "lesser priority" in the US 19 Task Force Traffic Management Project Chart (*15*). Tier One recommendations included installing additional signage, eliminating specific median openings, and channelizing other medians. Tier Two actions included developing joint/shared driveways between proposed and existing developments, constructing pedestrian bridges and related facilities, and constructing urban interchanges at feasible locations.

Figure 8: Pedestrian on U.S. 19 in Pasco County (*15*).

The Action Plan also called for a review of the county's transportation concurrency management system. In 2004, Pasco County adopted Ordinance 04-07 (Appendix B1), essentially revising their concurrency management ordinance, to further correct existing capacity and safety deficiencies, accommodate future development, and encourage redevelopment. The County allows property owners along U.S. 19 to proceed with development even though transportation concurrency requirements may not be met and adopted level of service standards are exceeded. In these cases, property owners are assessed "a fair share of the cost, or provide a binding commitment to Pasco County to pay the fair share of the cost of providing the transportation facilities to serve the proposed development." Certain developments are exempt, including vested developments and projects that involve the replacement or redevelopment of existing structures having the same or lesser impact on public facilities as the original structure (*16*).

According to Ordinance 04-07, all developments along U.S. 19 must obtain a transportation concurrency certificate in conjunction with final plat or construction approval. Certificates are issued to developments that do not degrade the adopted level of service standard or "mitigate concurrency impacts (*16*)." For those developments that generate less than 2,500 trips, "mitigation" is defined as:

- payment of a "fair share fee" established by the County;
- designing and constructing all transportation facilities necessary to restore any intersection or link impacted by the development to the adopted levels of service (for example, a retail space less than 50,000 square feet in size would have to contribute $2,206 per 1,000 square feet); or
- a combination of both.

For those single developments that exceed 2,500 trips or 5% of the average existing capacity, development may only proceed "upon design and construction of all transportation facilities necessary to restore any intersections or links impacted by the development to adopted levels of service." All concurrency mitigation measures are to be outlined in a local government development agreement approved by the Board of County Commissions. All fair share fees are deposited into a fund that is earmarked solely for capacity and safety improvements along the corridor.

Using a combination of the U.S. 19 Task Force Action Plan and Ordinance 04-07, Pasco County is taking decisive steps to implement comprehensive corridor management. Involving a myriad of state and local government agencies, public officials and citizens, the Task Force is responding to concerns regarding traffic congestion and safety along the corridor.

Transferring the Practice

Key to the effectiveness of Pasco County strategies is cooperation of all entities through the MPO process. By establishing a Task Force through the Pasco County Metropolitan Planning Organization, all affected parties could influence the process that resulted in the Action Plan, and remain involved through the implementation process. This collaboration has taken the burden of managing U.S. 19 off of local jurisdictions and allowed them to pool their resources toward corridor-wide solutions to traffic congestion.

One direct result of the Action Plan was the revision of the county's concurrency management ordinance (Ordinance 04-07) that now specifically addresses the U.S. 19 corridor. Other local governments seeking ways to meet concurrency requirements can look to the county's ordinance as an example for requiring new development to contribute to the cost of improving a specific roadway.

U.S. 19 in Hernando County, Florida

FDOT District 7

U.S. 19 also runs through Hernando County, which was ranked as the second fastest growing county in the U.S. during the late 1980's. Visionary members of the Hernando County Commission took note of the rapid development and resulting traffic congestion on U.S. 19 in Pasco County to the south and were compelled to take action to prevent the same problems from happening in Hernando County. The county teamed up with the Florida Department of Transportation to establish frontage roads along several state roads throughout the county and is seeing results from its 18-year-old frontage road ordinance. In fact, the frontage road concept has become such an accepted practice that

Figure 9: U.S. 19 frontage roads in Hernando County (*17*).

some developers show frontage roads in their plans along facilities where they are not required. One of the U.S. 19 frontage roads in Hernando County, Exaltant Drive (Figure 9), has been in place for nearly 18 years and serves as evidence that the frontage road ordinance works. It is the longest frontage road connecting two signalized intersections and extending to a third intersection. In addition, the road connects residential and commercial development.

Managing the Corridor through Policy

The Hernando County's concerns about rapid development and pending traffic congestion on U.S. 19 inspired the county to draft a frontage road ordinance. On May 6, 1986, the Hernando County Board of County Commissioners adopted Ordinance 86-8 establishing frontage roads not only for U.S. 19, but also U.S. 301, U.S. 98, U.S. 41, C.R. 485 and S.R. 50 within the county.

Ordinance 86-8

Ordinance 86-8, "enacted under the Home Rule power of the County for the purpose of providing transportation improvements in the interest of the public health, safety, and welfare of the citizens of Hernando County," requires each developer of property adjacent to Hernando County's major arterial highways to provide for the funding and construction of frontage roads upon demonstration of need and demand by the County (Appendix B2) (*7*).

Hernando County's initial concerns were echoed in the beginning of the ordinance as a part of the very reason for adopting it:

> *"…WHEREAS, the major arterial grid is becoming congested by increased traffic and the provision of more and more driveway cuts with little regard to the overall effect upon the major transportation arterials; and …*
>
> *WHEREAS, development adjacent to major arterials are a prime generator of local traffic…"(7).*

The portion of the ordinance now codified in Section 24.2 of the Hernando County Code of Ordinances is short and to the point containing less than 1,000 words. Beginning with definitions, the ordinance places responsibility for frontage roads on the developer; the developer is "the person or entity responsible for increasing the traffic demand upon the arterial system by either building a new building, expanding the capacity of an existing building, changing of the approved use, or subdividing real property to create additional building lots"(*7*). The frontage road requirement is triggered when development causes the daily trip generation to increase by more than ten trips per day as determined using the Institute of Transportation Engineers (ITE) Trip Generation Manual.

The 'meat' of the ordinance is located in the General Requirements where developers are required to install frontage roads at their expense and road specifications are outlined. The section further requires that funds are to be provided to the County for the construction of the frontage road with construction occurring at the county's discretion. Finally, it establishes that any driveway permits directly connecting to the arterial are considered interim and will be revoked when the frontage road is constructed. The actual wording in the ordinance is as follows:

"General Requirements. Developers of properties adjacent to the major arterial highway grid must provide at the developer's expense a frontage road from property line to property line parallel to the arterial highway upon demonstration of need and demand by the county.

The frontage road is to be designed to county designated specifications. The developer shall furnish to the county sufficient funds for the engineering and construction of the frontage road across the property when the county indicates that sufficient length is available to construct a link in the frontage road system.

All driveway cuts issued to developers of properties adjacent to arterial highways shall be considered temporary and subject to removal when the frontage road link is constructed across the property"(7).

Comprehensive Plan

Furthering the frontage road concept, the Hernando County Comprehensive Plan adopted in 1989 addresses the frontage road ordinance in Section A, Chapter 3: Transportation in an objective under Goal 2.04: "To assure the adequacy of transportation capacity in order to accommodate the anticipated growth of Hernando County." The objective and related policies state:

OBJECTIVE 2.04D: FULLY IMPLEMENT A FULLY INTEGRATED FRONTAGE ROAD SYSTEM IN THE URBAN SECTIONS OF THE FLORIDA INTRA-STATE HIGHWAY SYSTEM (FIHS) ARTERIAL NETWORK.

POLICY 2.04D(1): Continue to require new development adjacent to state arterials to comply with the County's Frontage Road Ordinance.

POLICY 2.04D(2): Provide for the completion of missing links in the frontage road network by incorporating these projects into the Short and Long Range Elements MPO's cost affordable Long Range Transportation Plan.

Policy 2.04D(2) is a key feature that ties the development of the frontage road system into the MPO process, and, therefore, possible funding where needed.

A Legal Challenge

The frontage road ordinance was upheld under court scrutiny in *Hernando County v. Budget Inns of Florida, Inc.*, 555 So. 2d 1319 (Fla. 5th DCA 1990). In this case, Budget Inns claimed that the Hernando County requirement – to dedicate right-of-way and build the frontage road as a condition of granting a building permit - constituted a taking. The court did not determine that a taking occurred; however, it found that there was no demonstrated present or reasonable immediate future need for the frontage road. In other words, there was no rational nexus for requiring the improvement. Although the frontage roads are specifically shown in the adopted comprehensive plan, the County has developed no other method of showing present or future need of the frontage roads.

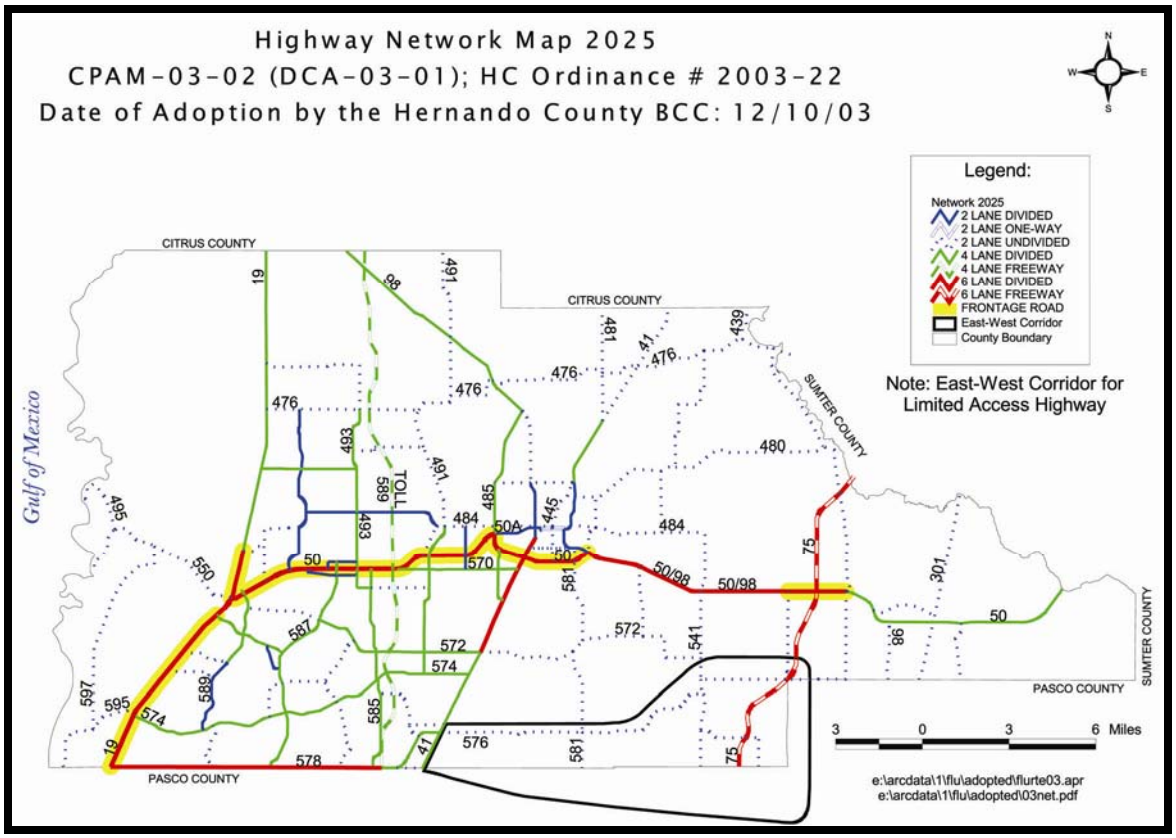

Figure 10: Hernando County Highway Network Map 2025 showing frontage roads (*17*).

According to staff, the frontage road concept was envisioned in segments (*18*). At the time, the Florida Department of Transportation was requiring one-quarter mile intersection spacing, so the county mimicked this practice requiring construction of one-quarter mile segments of frontage road (*18*). This practice created a logical segment size that related to intersections on the facility. The Board approved a frontage road concept map early in the process; these were aerial photographs with conceptual frontage roads highlighted in marker. Today, the Highway Network Map 2025 in the comprehensive plan illustrates the frontage road locations as shown in Figure 10.

Managing the Corridor through Practice

The frontage road ordinance is implemented on a day-to-day basis through the Hernando County Zoning Regulations and the Facility Design Guidelines as applied to each building permit application. The frontage road typical section and driveway spacing illustrations are in Appendix B3. The property owner is required to obtain a County driveway permit prior to applying for the state permit. The Hernando County Zoning District Regulations require a one hundred twenty-five (125) feet front yard setback along U.S. 19, S.R. 50, U.S. 41, U.S. 98, U.S. 301, C.R. 578, C.R. 485 and C.R. 50 in order to accommodate the frontage roads. This works well for established lots in partially developed areas. In commercial areas, the first developer can choose whether to locate the frontage road in the front of the property or to the rear; later developers must follow suit.

The County's Facility Design Guidelines contain a frontage road cross-section to be used in designing the facilities. If a property is developed in a location where no adjacent properties are developed, the developer must show the future frontage road location on the site plans; interim access is granted directly to the state facility. At such time, adjacent properties are developed providing frontage road access off of the state facility, the interim driveway permit is revoked and the property owner must build the required access road.

Frontage roads held in private ownership must be maintained by the property owner in accordance with County road maintenance standards; alternatively, the property owner may dedicate the frontage road to the County to include the private frontage road in the County roadway maintenance system.

FDOT Perspective

The Florida Department of Transportation (FDOT) worked with Hernando County in the developing stage of the frontage road ordinance in 1986 and, today, remains a partner in the implementation of the ordinance. In accordance with Chapter 14-96 FAC, each developer must obtain a permit to access the state highway system consistent with the standards outlined. The FDOT may issue a Notice of Intent to Approve or deny a request for access (*19*). In Hernando County, the FDOT reviews each request to determine if the property abuts a highway where frontage roads are required. If it does not, the request is processed pursuant to the Access Management Rule. If it does and a frontage road exists, access is permitted on the frontage road only. If the property abuts a highway where a frontage road is required but does not yet exist, an interim permit is issued that includes conditions requiring the property owner to remove the driveway connection to the frontage road when it is constructed. Any permitted connections are required to share access with adjacent properties. An example of a shared access easement agreement is in Appendix B4.

The FDOT District 7 Permits and Contracts Engineer for Hernando County has established good communication with the Engineering Department and the Transportation Planning Coordinator in the County. The FDOT requires the developer to submit a site plan acceptable to the local government then checks with the County to ensure that each of them is reviewing identical plans from the applicant. Any site plan or development proposal received by one of the parties is shared with the other as soon as possible to avoid attempts by a developer pit to one agency against the other.

New Issues

The gradual construction of frontage roads is evidence of the ordinance's success, although along with the frontage road system are new challenges. For example, traffic stacking at intersections with U.S. 19 has become a problem. County staff has noticed that the longer a frontage road segment, the more likely it will experience a stacking problem at intersections with the arterial.

In the past, the County required 125 feet of spacing from the edge of pavement on the arterial to the edge of pavement on the frontage road. Currently, the county is asking for 300 feet in hopes of warding off future stacking problems.

Another issue is the difficulty in connecting frontage road segments. Because the frontage roads often do not connect, the county connects them using a zigzag pattern (*18*). The frontage road system that resulted from implementation of the ordinance is irregular; some roads have commercial frontage with residential uses in the rear and others are all residential or all commercial.

Because no funds were earmarked to acquire additional right-of-way or build gaps in frontage roads or to provide enhancements like turn lanes or sidewalks where necessary, funding is an ongoing issue (*18*). Another issue is the lack of a specific frontage road plan or map which staff believes would actually help to guide development (*18*). A waiver of frontage road requirements to non-profit organizations, such as churches, is another issue identified (*18*). This practice can compound the very problems the frontage roads were designed to mitigate, such as congestion problems from daycare centers, schools, and mid-week evening activities, and contributes to costly gaps in the system.

Hernando County staff has drafted an access management ordinance that addresses some of the issues identified. Although the draft ordinance has made little progress toward adoption, the discussion of access management issues has served to further educate county staff regarding the benefits of access management and, thus, increased implementation of existing requirements.

One question looming before the County is in regard to the frontage road system—because the frontage roads are planned and designed to run parallel to the existing system and provide access to parcels, is it necessary to break up the system at intervals to prevent through traffic? Are the frontage roads local roads providing access to residences and businesses, or collector roads running parallel to the arterial for long distance traffic movement? Hernando County staff recommends defining the purpose of frontage roads early in the process to avoid confusion later. In addition, it is necessary to determine how frontage roads will be classified in the county's functional classification system. Inclusion in the functional classification system makes them eligible for funding through impact fees as well as any applicable FDOT funding.

Transferring the Practice

Many local governments believe that service roads could help prevent congestion problems on their arterial system but are at loss regarding how to implement them. In order for service roads to be constructed, the local government must first and foremost adopt an implementing ordinance. It does not have to be perfect, it just has to exist. Hernando County had the will and foresight to adopt an ordinance in 1986 that established a frontage road system along U.S. 19 and other state roads in the County despite resistance and obstacles. Issues such as gaps in the system will inevitably arise, but can be addressed through a variety of funding and partnering measures.

The state and local government must have a close and cooperative relationship to prevent developers from circumventing the system. Hernando County worked closely with the FDOT to develop their ordinance, creating buy-in from both parties and the communication avenues needed for continued coordination. Other areas may benefit from a cooperative agreement or a written protocol to formalize the coordination process.

In this case, the practice has already been transferred to the City of Brooksville, Florida located within Hernando County. The City adopted a frontage road ordinance on June 18, 2003 that emulates the Hernando County ordinance. According to Bill Geiger, the Community

Development Director, using the Hernando County ordinance as a guide not only made sense because the city is located within the county but, more importantly, because the ordinance works.

The Brooksville ordinance includes provisions that are notable additions to the Hernando ordinance. One addition is a provision to exempt developers from the frontage road requirement if the City has not made a determination of need within ten years. Another provision extends frontage road requirements to some collector roads stating: "The frontage road requirement may also be applied to collector roads for a distance of up to 600 feet from their intersection with an arterial highway, which will provide for greater safety by effectively looping frontage road traffic away from the intersection of the collector road and the arterial highway system." Finally, there are several provisions outlining specific amendments to the Land Use/Zoning Regulations establishing building setbacks for new development and providing for joint access for redevelopment. The ordinance also specifically states: "Frontage road standards and setbacks will not be applied to property located within the Central Business District as delineated in the City's adopted Comprehensive Plan."

The City is taking a proactive role to work with property owners, the city economic development department, and Community Development Block Grant (CDBG) funds to implement a frontage road on SR 50. Coordination with the FDOT is limited to where the frontage road intersects with the state road. The city has been successful in receiving state money for the project through Florida's now-defunct Transportation Outreach Program (TOPS). The city hopes to obtain future funding through the MPO process as well.

U.S. 19 in Citrus County, Florida

FDOT District 7

U.S. 19 is the major north-south route running along the western portion of Citrus County, traveling through Crystal River and Homosassa Springs, and connecting Levy County to the north with Hernando County to the south. Except for six-lanes within the City of Crystal River and the two-lane segment bridging the Cross Florida Barge Canal, it is a four-lane divided arterial. It is within Crystal River in Citrus County that U.S. 19 changes from being a part of the SIS to being a part of the Emerging SIS.

Throughout the County, U.S. 19 currently has regular median openings at 900-1000-foot intervals and few left-turn lanes. As with Hernando County, Citrus County officials feared that U.S. 19, if left alone, would become a traffic congestion problem as it had in Pasco County. In an effort to protect the corridor through Citrus County, officials elected to prepare an access plan for the entire length of the U.S. 19, with the exception of the 4-mile segment within the City of Crystal River.

They engaged the expertise of a consultant to assist them with an access management plan. According to the project consultant, Citrus County has been experiencing development pressure along the U.S. 19 corridor, especially with vacant large parcels. Rather than address each property and median access incrementally, the County chose to develop and implement a comprehensive approach to controlling access as well as to maintaining and improving safety on the corridor. The objectives of the plan were:

- Provide safe property access while maintaining highway capacity;
- Focus on vacant properties or properties with high potential for redevelopment;
- Minimize access to environmentally sensitive areas; and,
- Provide direction to property owners and developers regarding acceptable access criteria.

Although U.S. 19 runs through Crystal River, that segment was not included in the study area for U.S. 19. Officials were primarily interested in future development and redevelopment in the unincorporated county rather than the developed portion within the city.

Managing the Corridor through Policy and Practice

Ordinance 2003-A19

The Citrus County Board of County Commissioners adopted the Access Management Plan (Access Plan) in September 2003 in Ordinance 2003-A19 (Appendix B5) addressing U.S. 42, U.S. 19/98, U.S. 98, S.R. 200 and S.R. 44 with general access standards and specific standards for U.S. 19. The Access Plan and accompanying maps for Phases 1 and 2 on U.S. 19 describe the "locations for planned median openings, auxiliary turn lanes and planned frontage/reverse frontage roads along the U.S.-19 corridor" (*20*).

The regulations, outlined in the Access Plan and codified in the County's Land Development Code, are divided between the property abutting the 8-mile segment of U.S. 19 north of Crystal River to the Levy County Line and the 13-mile segment south of Crystal River to the Hernando County Line. The Plan specifies that "Annexation by a municipality of any property shall not affect the applicability of the Access Plan." FDOT Access Management Standards are included in the Plan to establish the minimum spacing of access points.

The Plan then establishes a number of general standards for the segment north of Crystal River. All proposed developments, expansion of existing uses, or changes in use, must prepare an access management plan that addresses "access improvements, driveway spacing, and turning movement safety." As an incentive, the County awards an increase in the density and intensity of development permitted on lots of record that eliminate existing access points or to developers that dedicate cross access easements that eliminate additional access to U.S. 19.

Notably, the number of access points is limited by ownership and required access spacing rather than property boundaries as stated in the Ordinance, "Access to US-19 is limited to one access per ownership existing as of the effective date of adoption of CPA-BCC 92-05, Ordinance 92-A72 (December 8, 1992), unless said ownership is of sufficient size to meet the spacing requirements. This also applies to multiple lots of record, as defined by Citrus County, such that only one access is granted per ownership" (*12*). In addition, the Ordinance states, "No new or additional access rights will be permitted for properties that are created as the result of parcel or lot splits subsequent to the enactment of this Ordinance." The lot split provisions and other subdivision measures have effectively stopped U.S. 19 from being stripped with individual residential lots.

Cross-access easements are required "allowing general cross-access to and from adjacent properties" (*12*). A boilerplate agreement is in Appendix B6. Along planned frontage roads abutting U.S. 19, individual sites must be designed to provide for coordinated or joint parking

areas, unified access and circulation systems, and stub-outs that make it "visually obvious" that the abutting properties may eventually be tied in.

Ownership is used again as criteria for requiring a master plan, "Where abutting properties are in the same ownership, no subdivision or site plan shall be approved without a master plan. All building sites within the affected area shall be made subject to the necessary easements, agreements and stipulations as required and the same shall be recorded as binding" (*20*). On the other hand, if abutting properties are under different ownership, "cooperation is encouraged" through the use of "easements, agreements, and stipulations" to "promote a unified access and circulation system."

To the south of Crystal River, the Access Plan sets forth specific guidelines not only for the placement of driveways, medians, median openings, and auxiliary turn lanes, but also frontage and reserve frontage roadways (access roads) along this 13-mile segment. The Access Plan also clarifies the intent and purpose among other things as "a peremptory planning instrument to mitigate future traffic congestion and vehicular safety concern resulting from future development and background traffic growth along the US-19 corridor, among other things, by limiting and minimizing the number of traffic conflict points and locations."

For those properties that are "adjacent to or in close proximity" to a frontage or reverse frontage road as depicted in the Plan, a development plan "must provide for the construction of the section of frontage road or reverse frontage road that provides access to US 19 …" Other criteria established for this segment include provisions for joint and cross access including stub-out construction. Continuous right turn lanes access several properties are prohibited while the use of shared, joint, or cross access and interconnected parking lots and frontage roads is required. The Plan calls for specific throat distances based on trip generation:

> *Driveway Throat Distances: The minimum length of driveways, or throat distance, shall vary based upon the proposed land use for the particular parcel of land and the projected daily and peak hour traffic volumes for the proposed development on the property. To minimize potential vehicle stacking that would present a traffic operational or safety concern on US-19, the minimum throat distance for any driveway subject to the Access Plan shall be the following (20):*
>
> *a. Sites generating up to 50 peak hour trips and with a right-turn lane - 40 feet;*
> *b. Sites generating up to 50 peak hour trips and no right-turn lane - 60 feet;*
> *c. Sites generating from 51 to 99 peak hour trips and with a right-turn lane - 75 feet;*
> *d. Sites generating from 51 to 99 peak hour trips and no right-turn lane - 100 feet;*
> *e. Sites generating 100 or more peak hour trips with a right-turn lane - 150 feet;*
> *f. Sites generating 100 or more peak hour trips and no right-turn lane - 200 feet.*

Another notable aspect of the Access Plan is its control of access on corner properties stating, "Properties located at the intersection of a roadway and U.S.-19 are considered isolated corner properties and development on such properties may be permitted to have only right-in and right-out driveway access on U.S.-19 with all driveways located as far as feasible, consistent with sound and generally accepted engineering practices and principles, away from the roadway intersection" (*20*).

The Access Plan has accommodated commercial nodes and avoided wetland/environmentally sensitive areas stating, "Environmentally sensitive areas have been tentatively identified in the Access Plan and access to these areas has been reasonably limited" with specific procedures for disturbing any environmentally sensitive lands. The Plan establishes also minimum lot widths of 100 feet for residential lots and 150' for nonresidential lots, and limits the lot depth stating, "The dept of any lot shall not exceed three times its width." Any access point or median opening that does not comply with the Access Plan is labeled as an "Interim Access." At the time the property is capable of being served by an alternate means of access, the interim access point is eliminated or altered at the developer's cost. Adopted via Ordinance 2003-A19 were Phase 1 and 2 maps of the Access Management Plan consisting of aerial photographs with median locations and planned frontage roads clearly depicted. The County will use these as a guide for implementing the Access Plan.

FDOT Perspective

The Florida Department of Transportation District 7 Median Review Committee reviewed the Access Plan and provided comments to the County. Some modifications were made based on their comments. FDOT District 7 did give formal approval to the Access Plan as well as Phases 1 and 2 of the map and will review Phase 3 of the Access Plan when it becomes available. As part of the State of Florida effort to privatize many of its functions, all FDOT maintenance functions on federal and state roads in Citrus County are in the process of being transferred to an asset management contractor. Therefore, the asset management contractor will also be in charge of access permits to U.S. 19 in Citrus County.

Implementation

All developers are required to comply with the Access Plan through the commercial site plan review process in Citrus County. Large developers participate with the county and the FDOT in a pre-application conference to discuss access issues as well as other impacts to the transportation system. According to project consultant Greg Kern, DRMP, "Any future modifications or variance requests by property owners or developers will go through the County's variance procedures, then be forwarded to the District's variance procedures."

New Issues

As of this writing, Phase 3 (from north of Crystal River to the Levy County Line) of the Access Plan is being developed (Note: Adoption hearing is scheduled for September 14th – final results will be incorporated). A revised ordinance is being developed that eliminates the general standards for that segment that were established as a stopgap measure in Ordinance 2003-A19. The more specific provisions that were laid out for the segment south of Crystal River to the Hernando County Line are recommended for the remaining segment.

The revised ordinance also contains a provision designed to directly address the potential future connection of a portion of the Suncoast Parkway (part of Florida's Turnpike). This provision states (*21*):

> *Interchange Management Area: At the time of adoption of this ordinance, Florida's Turnpike Enterprise is evaluating the feasibility of the extension of the Suncoast*

Parkway, which currently terminates at US 98 in south Citrus County. The feasibility evaluation includes the termination of the proposed Suncoast Parkway extension at US-19 north of County Road 488 near Basswood Avenue. If this proposed termination is determined to be feasible, and subsequent planning and design activities are funded by Florida's Turnpike Enterprise, Citrus County will implement sound and generally accepted growth management and transportation engineering practices to this interchange area to mitigate potential traffic congestion and vehicular safety concerns resulting from the interchange and potential development within the interchange area. The specific provisions to be utilized within the generally defined boundary of the Suncoast Parkway and US-19 Interchange Management Area will be consistent with the provisions stated in this ordinance for the US-19 corridor. For purposes of access management planning, the limits of the Interchange Management Area shall be a minimum of 2,640 feet north and south of end of the interchange ramp tapers at US-19.

Of particular interest is the requirement placing "the limits of the Interchange Management Area" at "a minimum of 2,640 feet north and south of end of the interchange ramp tapers at US-19."

Neither Citrus County nor the FDOT have plans to make immediate physical changes to the U.S. 19 medians outside of the development process. In the long term, however, the FDOT is preparing a project development and environmental study (PD&E) for the eventual six-laning of U.S. 19 from south of U.S. (8 to CR 488. If the FDOT moves forward with this project in the future, some aspects of the plan such as median closures may be implemented as part of the project. In addition, any other projects, such as safety projects, intersection improvements or resurfacing may also include some of the median closures indicated in the plan.

According to Cynthia Dixon, a planner in the Citrus County Community Development Department, the county has not yet had to enforce the frontage road provisions of the ordinance because no developer has come forward on any of the affected parcels. The cross access easement requirements have been in place for some time and are regularly shown on site plans. In addition, the adjacent property owners affected by the cross-access easement enter into a written agreement.

Transferring the Practice

Local governments anticipating major road widening, reconstruction or future development pressures would benefit from a corridor access management plan that establishes specific median opening locations. The development of a corridor access management plan, with FDOT support, also provides a legally defensible framework for accomplishing alternative access along state highway corridors to accommodate desired development. Limiting access to one per existing parcel or lots under common ownership is an effective way of forcing the issue of internal streets and cross access easements.

University Parkway

FDOT District 1

University Parkway to the west of Interstate 75, bordering Sarasota and Manatee Counties, is a major arterial in a nearly built-out area that serves as a gateway to both counties. Formerly a short, two-lane road known as County Line Road, University Parkway today is a six-lane facility with full signalized intersection locations 1/2-mile apart. University Parkway is 5.5 miles in length and meanders along the line between Sarasota and Manatee Counties in southeastern Florida.

While these Counties have spent over two decades guiding all aspects of development along this important roadway corridor, this discussion will focus on those aspects directly related to access. Although University Parkway is not a state road, the methods used to control access to the facility are transferable to any roadway within any jurisdiction. Methods of control, ultimately contained in each County's development control tools, directly result from a series of interlocal agreements between the Counties. A chronology of events in the development of this corridor is in Appendix C1.

Managing the Corridor through Policy

In the early 1980's, the governments of Sarasota and Manatee Counties could see that the land and, therefore, the incomplete and partially paved road between the two counties was ripe for development. In addition, it was apparent that because the road meandered in and out of each County that the involvement of both Counties was crucial not only to the construction of the roadway but to its successful operation as a major arterial.

Interlocal Agreements

On October 19, 1982, Sarasota and Manatee Counties entered into an Interlocal Agreement "assigning Manatee County maintenance responsibilities for University Parkway and requiring Sarasota County to reimburse Manatee County for one-half the cost of said maintenance, and providing for restrictions to direct access to University Parkway by adjoining land uses…" (*22*). The second Interlocal Agreement followed shortly thereafter on June 14, 1983, providing for an overall plan for the construction of improvements to University Parkway. These Interlocal Agreements were the beginning of an evolving process for guiding the development of the University Parkway corridor.

In 1988, the Sarasota Board of County Commissioners adopted Sector Plan 87-01-SP specifically related to the University Parkway/Lockwood Ridge Road Village Activity Center. The Sector Plan outlined specific access allowed to the Activity Center including, "one full-movement intersection and two right-turn in/right-turn out driveways along Lockwood Ridge Road – all located within 880 feet of the intersection" (*23*). The Sector Plan also required the dedication of right-of-way for the future extension of 59th Street which would serve as access to parcels to the east of the Activity Center (*23*). This was the first sector plan specifically implementing the access restrictions set forth in the December 19, 1982 Interlocal Agreement.

On December 3, 1991, the Counties adopted an Interlocal Agreement to reconstruct University Parkway as a six-lane facility from new U.S. 301 to Interstate 75 assigning specific duties and responsibilities to each County.

Section 8 of the Interlocal Agreement, key to controlling access on the facility, established specific guidelines for access to University Parkway, stating, "Manatee and Sarasota Counties agree that no permanent street intersections other than those listed in Table 1 and/or depicted on the construction plans and specifications attached hereto as Exhibit "A" to this Agreement, shall be constructed along University Parkway between new U.S. 301 and Interstate 75." The contents of Table 1 referenced in the Interlocal Agreement are illustrated in Figure 11.

Approved Intersections With University Parkway

Street Intersection	Improvement Status
Shade Avenue	intersection exists (south approach only)
Tuttle Avenue	intersection exists
Lockwood Ridge Road	intersection exists
Conservatory Road	intersection exists
Whitfield Road	intersection exists (north approach only)
DeSoto Road	intersection exists
(northerly extension through Longwood Run Development; Formerly McIntosh Road)	
Saunders Road (ext)	no improved approaches
Honore Avenue	no improved intersection approaches
Coopers Creek Road	intersection under construction (north approach only)

Figure 11: List of University Parkway intersections from the Interlocal Agreement (*23*).

The Section further required both counties to "maintain the function of University Parkway as a controlled access facility through enforcement of the access limitations specified herein and through their respective Comprehensive Plans, Land Development Regulations or Codes, and other appropriate regulations…" Intersections (access points) not specified in the agreement would stay in place "unless and until such time as traffic generated by the existing development or activity (if any) served by such street intersection(s) is significantly increased." The intersection could then stay in place "until such time as a development permit authorizing construction or commencement of any portion of the development or activity precipitating the increase in traffic has been issued."

Finally, Section 8 provided for instances where intersections with University Parkway not included in this Agreement could be constructed requiring demonstration that "no legal and reasonable means of access to University Parkway by way of those approved street intersections can be utilized or developed" (*24*) New access connections are limited to right-in/right-out movements. This straightforward Section clearly established where each intersection on University Parkway would be located before the construction of the facility had even begun.

Another important element of the Interlocal Agreement is contained in Section 11. that calls the for University Parkway Corridor Study, previously authorized by the joint Commissions on October 24, 1989, to "be prepared expeditiously" because over two years had passed since the study was initially authorized (*24*). The pending six-laning of the roadway necessitated the

completion of the corridor study to guide forthcoming development. The Corridor Study was to be prepared by Sarasota and Manatee County staffs with a status report due to both the Sarasota and Manatee County Boards of County Commissioners by April 1, 1992.

In addition to the original elements to be addressed by the study including future land use, transportation and related infrastructure and service needs, access control, architectural and landscaping design concepts, environmental and drainage systems, and development impacts and mitigation requirements and opportunities, the Boards added signage, level-of service, capacity allocation, and impact fee credits.

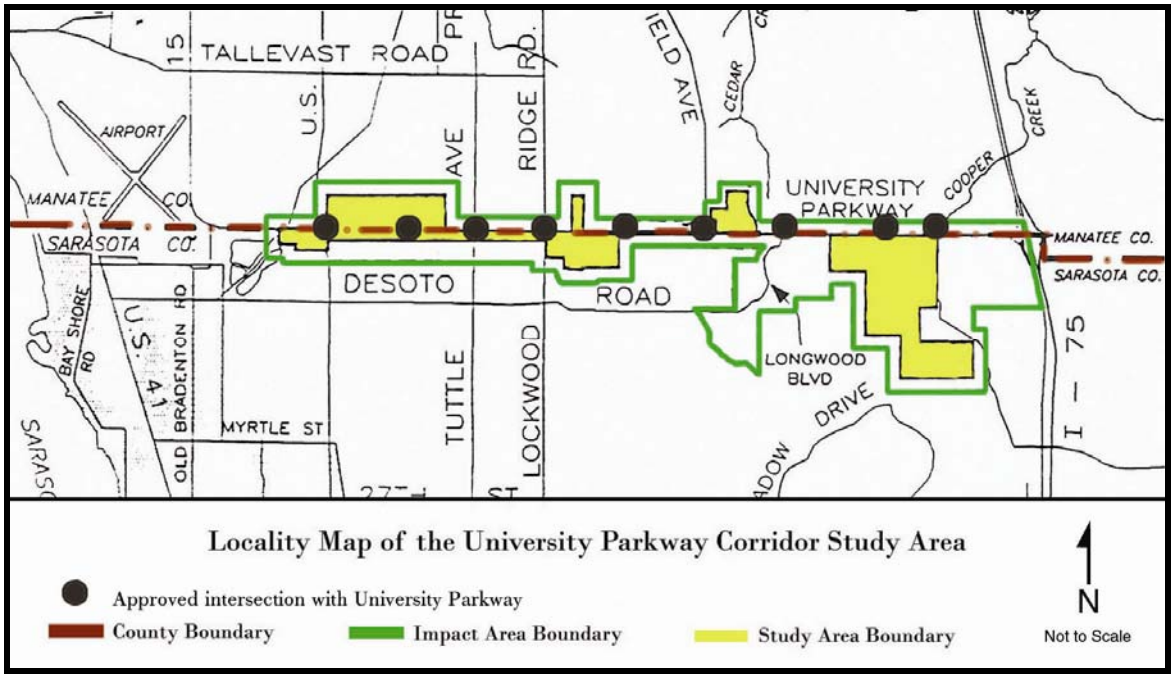

Figure 12: Locality Map of the University Parkway Corridor Study Area (*25*).

Boundaries and Criteria Report

On July 28, 1992, the Sarasota County Board of County Commissioners officially adopted the Boundaries and Criteria Report as the precursor to the Sarasota County and Manatee County University Parkway Corridor Study (Corridor Study No. 92-01-SP), hereinafter Boundaries and Criteria Report. The Boundaries and Criteria Report set up the parameters for the pending corridor study which would encompass "a five and five tenths (5.5) mile segment of the University Parkway corridor (approximately one quarter mile wide on each side of the corridor), located in northern Sarasota County and southern Manatee County, extending from five tenths (.5) mile west of New U.S. 301 to Interstate 75…" that would become known as the Primary Study Area (*25*).

Of particular importance to managing access to the corridor, the Boundaries and Criteria Report acknowledges that, as a major arterial, University Parkway would need to move large volumes of traffic, and in order to accomplish that traffic movement, direct access to the roadway must be limited. Access to land uses would have to be provided off of the major arterial at key locations.

To that end, the Report specified a Transportation Impact Area beyond the Primary Area of the Corridor Study. Various Study Issues were identified in the Report, including to, "Develop criteria to provide adequate and coordinated access and circulation to serve existing and future land uses within the Primary Area" (*25*).

With the December 3, 1991 Interlocal Agreement and the subsequent Boundaries and Criteria Report complete, the Counties simultaneously worked on the construction of University Parkway as a six-lane facility and the corridor study to guide its development. Construction of the roadway was completed in early 1993 with access being controlled by Section 8 the December 3, 1991 Interlocal Agreement.

Corridor Studies

Each jurisdiction carried out their own corridor studies for their respective sides to University Parkway. In January 1994, Manatee County completed the University Parkway Corridor Study, Manatee County, Florida (hereinafter Manatee Study). The Manatee Study "generally set forth the development plans and actions required for the coordination of development within the University Parkway Corridor" (*26*). Both Manatee County and Bi-County findings were included in the report. Manatee County Transportation findings and subsequent solutions included identifying locations within the study area where alternative access would be needed and identifying potential facilities such as Broadway and Shade Avenue, Conservatory Drive, and an additional right-in, right-out access point to the University Parkway Shopping Center (*26*). In addition, Manatee County Urban Design findings and solutions also addressed provision of bicycle and pedestrian facilities including bike lanes and sidewalks (*26*).

Sarasota County Corridor Study-West

On April 5, 1994, the Sarasota County Board of County Commissioners adopted the University Parkway Corridor Plan – West (No. 92-01-SP-West) (hereinafter UPCP – West) that encompassed the 2.4 mile segment from West University Parkway/Old US 301 and the western boundary of Cedar Creek subdivision (*23*).

At the time the UPCP-West was being written, Sarasota County staff was in the process of developing access management standards for the entire county. In the meantime, access management standards developed by the Florida Department of Transportation and spelled out in Administrative Rule 14-97 were used as a guideline (*23*). Staff decided that the "FDOT access standards for class three arterials provide the most restrictive spacing of median openings and direct access to adjacent parcels of land" (*23*).

Staff's review of the existing development patterns and lot depth along the roadway resulted in a determination that construction of a service road was not feasible (*23*). After determining that "access limitations are significant barriers to the development and redevelopment of parcels fronting University Parkway, between U.S. 301 and Lockwood Ridge Road," staff made specific recommendations for access providing "for internal access easements and widely spaced marginal access points along University Parkway" (*23*). Application of these standards would require the staff of each county to recommend a specific amendment to the Interlocal Agreement to ease congestion problems at the Lockwood Ridge Road intersection (*23*).

Perhaps the most important feature of the UPCP- West was the establishment of Conditions for Development Approval (Appendix C2) "intended to be used in evaluating and coordinating all future development requests within the Primary Study Area." Some of the conditions are designed for use at the time of a rezoning request while others are applicable later in the development review process. The study further stated, "The implementation of access management techniques within the University Parkway Corridor will be addressed through the development review process. For example, as a condition of rezoning, an applicant may be responsible for the installation and all associated costs for acceleration and deceleration lanes along University Parkway" (*23*).

One drawback to the University Parkway Corridor Plan occurred when the Plan was split into a West portion and an East portion; some properties were not included in either plan, essentially, because it was assumed that there would be no change in use for those properties. Additional driveways resulted from this unfortunate omission.

Sarasota County Corridor Study-East

Three years after the UPCP-West was adopted the University Parkway Corridor Study – East was adopted. This study established a plan for this segment of University Parkway including future land uses. The plan provided for temporary driveways to University Parkway to be permitted "where no other legal and reasonable means of access to University Parkway could be developed." The plan also provided for the protection of the extension of Honore Avenue and the future extension of DeSoto Road through the use of "internal access easements and widely spaced access connections" (*27*).

Amendments to the Interlocal Agreement

Only five amendments have been made to the Interlocal Agreement adopted in 1991. Upon adoption of the UPCP-West in 1994, an amendment to the Interlocal Agreement was adopted allowing right-in/right-out access at specific locations outlined in the study "providing that minimum spacing criteria are met and cross access is provided to adjoining properties." (*27*). These temporary right-in/right-out driveways would be provided until new development on the parcel generates traffic that exceeds 75 vehicle trips per day. Developments that generate more than 75 vehicle trips per day must grant cross access easements to adjacent parcels and any temporary right-turn intersection must be eliminated when access is available to a median opening or a permanent access point (permanent right-turn intersection). Approved median openings and allowable permanent right-turn intersection locations were identified by tables within the Amendment. The remaining amendments address specific adjustments to the Tables and/or temporary right-in/right-out driveways.

Managing the Corridor through Practice

Coordination

Having the Interlocal Agreement and their respective corridor studies, the staff of both Sarasota and Manatee County set about implementing their plans. Sarasota County reviews all development applications against the University Parkway Corridor Studies while Manatee County has incorporated provisions directly into its Land Development Code (Appendix C3). Per joint

recommendations to *"allow each County to determine the possible impact, if any, on the roads and/or resources within the other County"* the responsible staff members keep in regular contact regarding any development plans along the facility (*27*).

Although development within the Primary Study Area has occurred more slowly than the Counties had anticipated, positive changes are occurring over time. For example, the section of land along the south side of University Parkway between US 301 and Lockwood Ridge Road was designated for Office use in the UPCP-West to provide a buffer between the roadway and existing homes. These office uses were each required to provide an access road for connection to a major access point designated in the Agreement. Many of these access roads have been constructed and are now in service. In addition, Lockwood Ridge Road, 3¾-mile, $19.5 million county project from University Parkway to SR 70, was completed by Manatee County in May 2002. This roadway provided much needed perpendicular access from University Parkway to the north.

DRI Approval Process

Development continues to occur along University Parkway to the east of Interstate 75. At this point, the road frontage on both sides is located within Sarasota County. Most development occurs within Developments of Regional Impact that have development orders with specific provisions regarding access to the facility.

Transferring the Practice

Local governments can that this series of Interlocal Agreements, Corridor Plans, land development regulations and conditions of development approval provide for an effective means of corridor management for University Parkway. With only five amendments to the Interlocal Agreement adopted in 1991, the local governments have remained steadfast in their commitment to controlling access through the development process. The University Parkway case study once again illustrates that one of the most important factors of implementing a corridor management plan of this magnitude is to establish the first legal document furthering the goal; in this case, it was the initial interlocal agreement. Documentation and methods can be adapted to changing circumstances over time.

Further, the creation of the interlocal agreements, corridor studies, level-of-service analysis and even initial road construction took consistent and sometimes intense coordination between the local governments. This coordination continues today as staffs from both counties regularly contact one another regarding proposed developments along the corridor.

U.S. 98 in Polk County, Florida

FDOT District 1

US 98 between SR 60A in Bartow, FL and East Main Street in Lakeland, FL is a 4-lane divided highway with an abandoned railroad right-of-way running adjacent to the east side of the highway. The access management needs and requirements of US 98 vary significantly within the study area. From SR 60A in Bartow to the Polk Parkway (SR 570), US 98 is part of the Florida Intrastate Highway System (FIHS), which requires higher access management standards than does the remainder of the study corridor. South of SR570, with the exception of approximately a one-mile segment through Highland City, adjacent land is predominantly vacant. North of SR 570, adjacent properties along the US 98 study corridor are generally developed with commercial, industrial or residential land-uses.

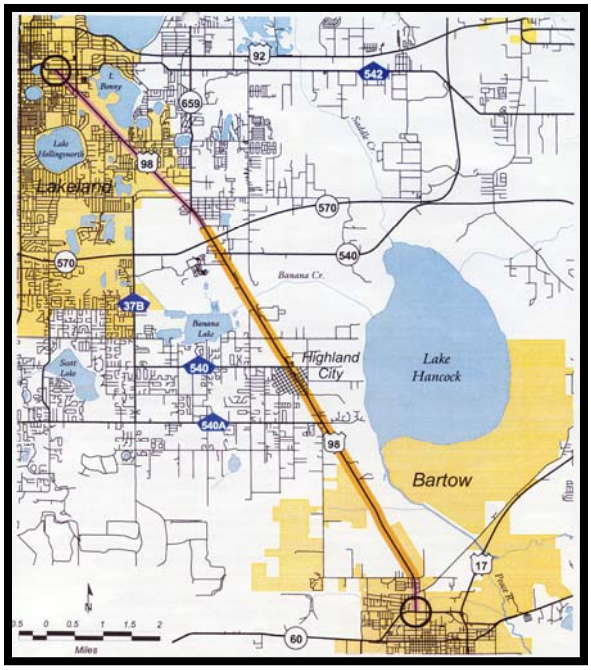

Figure 13: U.S. 98 CAMP Study Area (*28*).

In 2001, as development pressures began north of the long-established city limits of Bartow on US 98 (Bartow Road), local government officials saw the need to take action to prevent access and congestion issues along the previously undeveloped corridor. The Polk County Transportation Planning Organization (TPO), the metropolitan planning organization for the region, drafted a Memorandum of Understanding (MOU) in response to the TPO Board's recognition of the need to provide orderly and efficient access to a portion of US 98 (Appendix D1). The MOU led to a Corridor Access Management Plan for the facility.

Managing the Corridor through Policy

Memorandum of Understanding

This MOU, signed by the Florida Department of Transportation (FDOT), the City of Bartow, the City of Lakeland, and Polk County first establishes the basis for the widening of US 98 to six lanes, provision of transit service and development of a multi-use recreational trail along the US 98 corridor. These improvements are detailed in the Polk County 2025 Long-Range Transportation Plan. The MOU also outlines state and local objectives that can be met for the roadway through land development and subdivision regulations. Finally, the MOU discusses Florida Statues in relation to corridor management. Section 337.273, Florida Statutes, provides that local governments may designate a transportation corridor for management by including the corridor in the transportation element of the local comprehensive plan, and may thereafter adopt a

corridor management ordinance to include criteria to manage the land uses within and adjacent to the transportation corridor.

The MOU then outlined four areas of cooperation:

- The intention of all three local government parties (the City of Bartow, the City of Lakeland and Polk County) to amend their respective comprehensive plans designating US 98/Bartow Road from SR 60 to East Main Street (in Lakeland) as the US 98 Transportation Corridor pursuant to Section 337.273, Florida Statutes;
- The FDOT would develop and adopt a Corridor Access Management Plan (CAMP);
- The local governments agreed to amend their respective land development regulations to implement the CAMP; and,
- All land development and permitting activities within the corridor will be reviewed by a committee comprised of representatives of all parties prior to the adoption of the CAMP.

Corridor Access Management Plan

A Steering Committee consisting of appointees from each party was formed to oversee the development of the CAMP after the adoption of the MOU in December of 2001. The CAMP was developed through a lengthy process that included a review of national and Florida examples, a review of local comprehensive plans; meetings with the public, and workshops with staff from the FDOT, the Turnpike Authority, the Cities of Bartow and Lakeland, and Polk County. Issues causing delay included lack of agreement between property owners regarding proposed median openings and a need for technical assistance on how to implement service road requirements in the plan. The document was adopted in accordance with Rule 14-97.004(5) by the Florida Department of Transportation on July 6, 2004.

While the FDOT's preference is to merely adopt a series of maps as the actual plan, local government Steering Committee members pushed for more details of implementation to be contained in the CAMP. Key to the usefulness of the final document is a series of tables that provide convenient reference regarding median openings and driveway connections that do not meet the standards (Appendix D2 and D3) for city and county staff. In addition, the CAMP contains recommended policies for local government comprehensive plans. These proposed policies address substandard driveways and joint access, as well as, provision for service road right-of-way. These proposed policies specifically state (*29*),

> *"New and redevelopment proposals for properties with in the US 98 Transportation Corridor shall be reviewed for conformity with the Adopted US 98 CAMP, including opportunities to close substandard driveways as identified in the CAMP and opportunities to promote shared or joint access."; and*
>
> *"New or redevelopment proposals along US 98 (Bartow Road) between Lyle Parkway and CR 540A shall dedicate adequate right-of-way for the development of a continuous service road system as delineated by the City of Bartow and Polk County. Right-of-way dedications for service roads shall be eligible for impact fee credits."*

The CAMP requires that all nonconforming driveways be closed at the time of redevelopment and further states, "…when parcels are too narrow to provide a driveway connection that meets

the minimum spacing standards, cross-access easements should be required such that a shared use (joint use) driveway connection that meets the standards can be implemented." Access to US 98 is provided via interim driveway connections to be removed at such time "the service road system is sufficiently developed to provide individual developments with access to and from US 98."

In establishing future service roads on the west side of US 98, the CAMP requires two-way traffic movement, a minimum 450-foot separation from US 98 at intersections and a minimum 40-foot roadway separation (between service road and US 98).

Managing the Corridor through Practice

With the adoption of the US 98 CAMP in July, 2004, all parties are moving forward toward updating appropriate plans and policies to implement the Plan. The City of Lakeland is currently drafting changes to the Transportation Element of the City of Lakeland Comprehensive Plan and also intends to update the city's land development regulations (LDRs). In addition, the City is in the process of preparing access management standards for incorporation into their LDRs. Although they had begun the access management standards prior to the commencement of the US 98 CAMP, they have found that the discussions surrounding the CAMP have provided much-needed education on the topic to both elected officials and the general public.

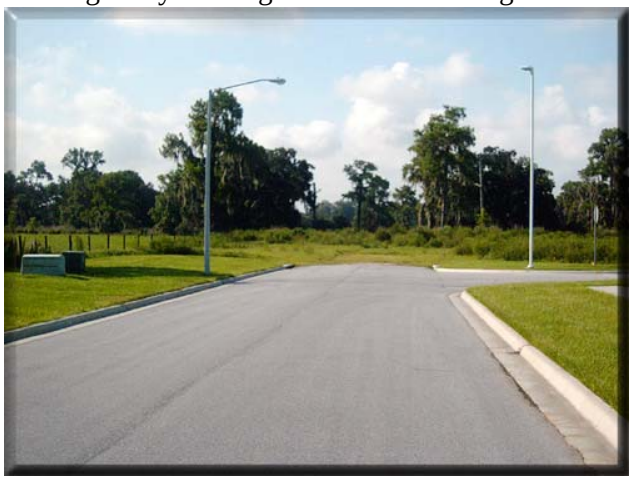

Figure 14: Planned Wilson Avenue Extension (*30*).

Polk County has incorporated the CAMP into their US 98 Selected Area Study and is currently developing appropriate land development regulations. Finally, the City of Bartow is in the process of implementing the first frontage road along the east side of US 98. The frontage road will be an extension of Wilson Avenue, a city street paralleling US 98, to the north accessing the new hospital and the car dealership. Because the original access driveway to be constructed by the hospital had a less than ideal connection to the city street system, Community Redevelopment Agency (CRA) funds were used to purchase some right-of-way that allowed the connection to become the extension of an existing street. As a result, a very functional frontage road is anticipated.

Transferring the Practice

The Corridor Access Management Plan for US 98 (SR 35) sets a good example for other communities to follow. A good portion of the corridor is not yet developed, providing the opportunity for implementation of the CAMP as properties are developed or redeveloped from low traffic generators to high generators. The proposed service road system will provide access to and between businesses accommodating more "local traffic" while allowing through traffic on the arterial.

There is some concern that the length of time it took to adopt the CAMP caused it to lose some of its momentum. In retrospect, more education and communication with both elected officials and property owners may have prevented delays. In one recent instance, it was discovered that emergency rescue operations weren't all aware of the plan and that some median closures may pose problems.

Notwithstanding, all parties consider the continued operation of the Steering Committee to be an important element to implementing the CAMP. The Committee meetings are held when one of the parties asks the FDOT to call the group together to discuss specific details regarding how a proposed development should comply with the CAMP. Support from the committee is crucial to staff members experiencing political pressure to deviate from the CAMP.

SR 7/US 441 in Broward County, FL

FDOT District 4

State Road 7/ US 441 in Broward County links 14 jurisdictions and was the focus of major commercial investment during the 1970s, but has been deteriorating and suffering from disinvestment since the 1990s. This 26-mile north-south arterial roadway in Florida that runs through the center of Broward County has become the focus of an effort to improve the aesthetics and the economics of the corridor.

Managing the Corridor through Policy

Local governmental leaders formed the State Road 7/U.S. 441 Collaborative in 2000, with technical assistance and organizational support from the South Florida Regional Planning Council, in a desire to reverse the negative image of the corridor and to coordinate their improvement efforts.

The State Road 7/ U.S. 441 Collaborative formalized its efforts by entering into the State Road 7 Partnership Agreement in 2001 (Appendix E1). The agreement was signed by 14 participating jurisdictions and seven agencies, including the Florida Department of Transportation District 4, the Broward County Metropolitan Planning Organization, the South Florida Regional Planning Council, the Broward County School Board, the South Florida Water Management District, the Treasure Coast Regional Planning Council and the Florida Department of Community Affairs. The purpose of this cooperative agreement for the State Road 7 Partnership (Florida) was to provide a framework for multi-jurisdictional cooperation on the redevelopment and revitalization of this corridor and to "*signify the cooperative intent of the parties"* with a common goal "to coordinate local resources and planning to promote the economic vitality, aesthetic improvement, community redevelopment, and safety of the corridor.

The Partnership Agreement outlined twelve issues designed to be the focus of cooperative activities ranging from establishment of the Partnership Committee to creating a collective vision to cultivating "a link between redevelopment, access and expansion of public transit systems."

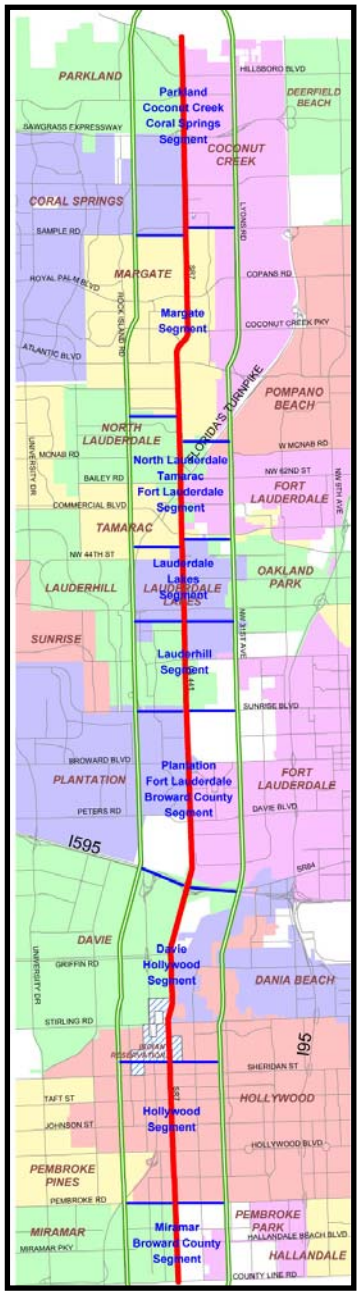

Figure 15: S.R. 7/U.S. 441 in Broward County (*31*).

The Collaborative set about achieving these goals through a membership and meeting process designed to ensure that:

- All jurisdictions who want to be involved in the redevelopment and upgrade of the corridor have a seat at the table and an equal voice in discussions;
- Decisions are made by collaboration and consensus, not by single rule;
- Citizens are empowered through inclusion in the development of a Corridor Master Plan and have a voice in the decision-making process;
- Discussions and decisions are in full view of the public and recorded in reports that are in the public record.

The Collaborative was successful in obtaining federal funding for the creation of a Strategic Master Plan for the corridor, along with a variety of other grants and resources. The Master Plan process that began in 2003 includes design charrettes to identify redevelopment potential along the corridor and to gather feedback on the desires of corridor residents with completion scheduled for June 2005. According to the August 2004 State Road 7 Newsletter, "The plan will create a vision for each of the fourteen independent jurisdictions that share the corridor and reflect local style, character and preference" (*32*).

Figure 16: Bus stop on SR 7/US 441 (*32*).

The Strategic Master Plan will address a myriad of issues including land use, economic development, redevelopment, schools, beautification and trafficways. Currently supporting the County's highest transit-ridership rates, the Plan will capitalize on further development of the system by implementing a Rapid Bus System by 2006 and a Bus Rapid Transit System (BRT) by 2012. In addition, the FDOT is seeking an east-west transit route through the county and further west and plans to work with the Collaborative to interconnect this route with the Bus Rapid Transit System thereby providing transit access to an even greater area.

Road expansion is also in the plans; however, members of the Collaborative are currently reconsidering the amount of future right-of-way actually needed. The Broward County Trafficways Plan reserves up to 200 feet along the corridor even thought there are constrained areas where the maximum right-of way may be limited to 120 feet. The Collaborative wants to strike a balance between providing appropriate transportation, providing land for development, and creating a pedestrian- and transit-friendly community.

Managing the Corridor through Practice

The Collaborative has done a tremendous amount of work to date that includes obtaining $1.5 million from the Broward County Metropolitan Planning Organization MPO for the initial development of Bus Rapid Transit for the corridor. In 2003 and 2004, as a result of joint submission and support of all 14 jurisdictions, the MPO awarded the Collaborative a total $1,000,000 for landscaping through the FDOT Transportation Enhancement Program.

In March 2004, the Collaborative commissioned the Urban Land Institute (ULI) to conduct a market assessment and development review for the State Road 7 Corridor in Broward County. Broward County government has also agreed to proceed with a new mixed-use land use category that will guide State Road 7 redevelopment as transit-oriented development. One of the ULI recommendations is "the formation of a more prominent Collaborative that would facilitate planning, infrastructure funding, coordination of land uses and allocations, and financial assistance while maintaining local control, authority, and character." This would involve the creation of a special regional district (SRD) per Chapter 189 of the Florida Statutes. This multi-jurisdictional district would be able to deal with issues across boundaries including applying for an Areawide Development of Regional Impact. These sweeping recommendations would take the Collaborative to a new level and open the door for redevelopment to occur with fewer regulatory impediments.

Transferring the Practice

The State Road 7 Collaborative is an extensive partnership attempting to tackle an issue that is common to many areas—the need to revitalize and redesign older arterial highways serving declining commercial corridors. To date, the Collaborative has proven successful in marshalling resources and individual efforts toward a common goal. This success can be attributed to the parameters established in the original partnership agreement—the use of a single source for coordination (the South Florida Regional Planning Council) and the desire of each jurisdiction to improve the corridor and work toward a common vision. This is an effort that local governments and agencies should be watching for ideas and innovations.

U.S. Highway 183 (Vine Street)

KSDOT District 3

Figure 17: Welcome to Hays (*33*).

Located in northwest Kansas, the City of Hays is the largest municipality in the region with a population of 20,000 residents. The City centers at the crossroad of two major roadways, Interstate 70 and US Highway 183 (Vine Street) (*33*). Being the only major north/south corridor in the region, U.S. Highway 183 plays a critical role in the regional movement of traffic.

Within the City of Hays, U.S. Highway 183 is a 4-lane road serving an intensely developed commercial zone with numerous signalized and unsignalized intersections. As early as 1997, the City of Hays, Ellis County and the Kansas Department of Transportation has entered into a Memorandum of Understanding regarding necessary changes to U.S. Highway 183 to improve the safety and operation of the facility.

Managing the Corridor through Policy

In 1998, city, county and state officials developed and adopted the Corridor Master Plan, US-183/US-183 Alternate Corridor, Ellis County, Kansas (Appendix F1) augmenting a previous Memorandum of Understanding "by defining parameters for transportation management, access management, land use and development characteristics" (*9*). General standards for corridor management were laid out for defined segments of the corridor specifically addressing planning, through zoning and site plan requirements and access, and operations, through retrofits and improvements. Notably, the Corridor Master Plan called for the creation of alternative access for existing and future development (*33*). The Plan also specified implementation parameters including, "The City and County agree to adopt all necessary ordinances and/or resolutions and to take such legal steps as may be required to give full effect to the terms of this Plan."

The City and the Kansas Department of Transportation took measures to improve conditions along U.S. Highway 183 in 1999. Improvements were made to a one-mile segment from of the roadway 27th Street to I-70 that included curb and gutter replacement, concrete pavement, median landscaping, storm sewer installation, street lighting, and the addition of three traffic signals with the costs shared by the City and KDOT (*34*). However, state and local officials concluded without some retrofitting and a higher level of management, greater development pressure would "jeopardize operational efficiency and would likely increase the magnitude of safety issues" (*35*).

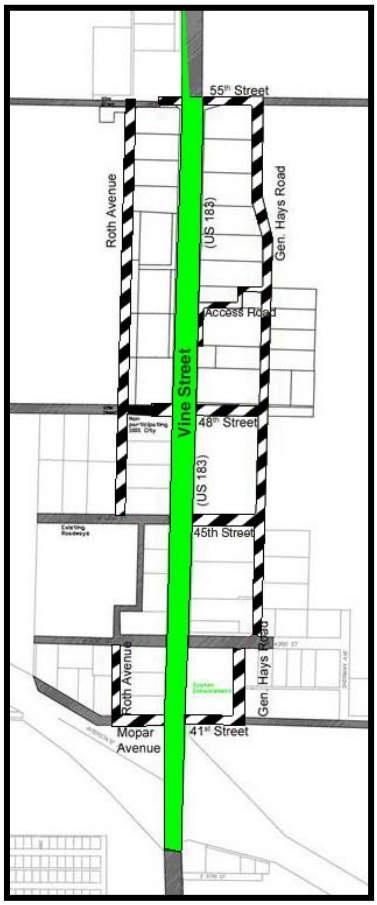

Figure 18: U.S. 183 alternative access projects (*36*).

With support from city officials, the Kansas Department of Transportation identified the corridor as a "Protected Corridor" within the agency's Corridor Management Plan in May 2000 (Appendix F2). The designation defines corridors "in need of an increased level of management to preserve capacity and functional integrity." As stated in the Corridor Management Plan, US Highway 183 was designated "because of its critical role in north-south movement of people and goods in the region and because of the pressures of development in the city of Hays." To formalize coordination efforts, KDOT implemented Kansas Statute (KSA) 68-169 that authorizes the Kansas Secretary of Transportation's "to enter into written agreements with political subdivisions of the State for highway purposes, including establishment of access control" (*35*). This partnering agreement establishes a mutual commitment to management of the corridor, particularly in relation to access and right-of-way issues. Most importantly, with the previously adopted Corridor Master Plan in place, the roadway was eligible for state project funding under the System Enhancement Program and the Corridor Management Program.

Managing the Corridor through Practice

U.S. Highway 183 widening from I-70 north to 55th Street was funded as part of the state's System Enhancement Program in which projects are selected based on potential economic impact, traffic volume, safety and design. Funding responsibilities are shared by both state and local agencies. In 2003, the Hays City Commission passed Resolution No. 423 authorizing the City to participate in KDOT's Corridor Management Grants Program that would outline funding sources for acquiring additional right-of-way and associated improvements to US Highway 183.

Concurrent with the U.S. Highway 183 System Enhancement project, the City of Hays, Ellis County, and KDOT also worked to create alternative access along the corridor. Development pressures on the corridor north of I-70 required the City to devise alternative access approaches.

Using KDOT Corridor Grant funding, the City will construct a reverse access road between 45th and 55th Street (Roth Avenue). Forty-eighth Street will also be extended to the east to intersect with the extension of General Hayes Road. The few businesses abutting US Highway 183 will gain temporary access through frontage roads along the roadway. By 2006, KDOT plans to remove the frontage roads and allow access solely from the newly constructed reverse frontage access roads. Roth Avenue, General Hays Road and 48th Street were designated "main trafficways" by the City of Hays to comply with Corridor Grant guidelines.

In order to provide the 1/3 local match required by the Corridor Grant, the City persuaded property owners to dedicate public right-of-way across their property for the purpose of constructing reverse access roads. With a project cost of $4.6 million; the City's $515,000 share would be offset by the dedicated land value combined with some inspection services to be

provided by the city. Although there is a cap of $250,000 per grant, the City made numerous grant applications to obtain the necessary funding. Another alternative access road located further south along the U.S. Highway 183 corridor is the extension of General Hays Road from 22nd Street to Cody Avenue and is also funded through Corridor Grants.

Improvements to U.S Highway 183 were important to the City of Hayes from traffic congestion and safety perspectives as well as an economic perspective. From the experience, the City has proceeded to take on smaller corridor management projects along other roadways within the City.

Transferring the Practice

The Kansas Department of Transportation has developed a grant program to monetarily assist communities in managing transportation corridors, including the provision of alternative access. Using a variety of transportation funding programs provided by the state, the City of Hayes is able to move forward with a number of transportation improvements that improve the operation of the U.S. Highway 183 corridor, provide alternative access to existing and developing areas surrounding a major interchange, and improve the economic viability of properties within the corridor. In particular, local matching funds made up of property contributions and ad valorem taxes allowed Hayes to take advantage of the Corridor Grant Program to provided significant off-system improvements through a series of service roads that connect to and expand the existing street network.

The Corridor Management Policy and Program adopted on July 1, 1997, led to a procedure for designating highway corridors in high growth areas as critical corridors by the District Engineer. A Memorandum of Understanding, that identifies the partners and the protected corridor, first affirms this partnership. Next, a Corridor Master Plan is signed that establishes a vision for the future of the corridor and identifies phases of developments and retrofits to achieve that vision. The Corridor Master Plan is a contract document, binding upon all signatory parties and their successors in office.

A set-aside fund created by legislative mandate and codified in the Kansas State Code supports small-scale improvement and retrofit projects off the Kansas State Highway System within corridors covered by a Corridor Master Plan. The set-aside funding started in Fiscal Year 1998 at $1 million, topped out at $5 million in Fiscal Year 2002, and will be funded on a continuing basis at that funding level. The corridor management program has proven popular and successful with local partners. This program has helped the KDOT meet its access management goals and objectives by creating a reliable and convenient source of funds for off-system improvements that improve on-system access conditions.

KDOT has several other grant programs to assist municipalities. The “KLINK” Resurfacing Program provides funds for resurfacing roads that connect state highways but are maintained by the municipality, called City Connecting Links. The Geometric Improvements Program provides funds for geometric improvements to City Connecting Links. Finally, the Economic Development Program provides funds for highway and bridge construction for promoting economic development throughout the state. More detailed information regarding these grant programs is available on the KDOT website (http://www.ksdot.org/burlocalproj/BLPdocuments/blpdocuments.html).

As in the Kansas case example, FDOT could consider seeking legislative authority to establish a special fund to implement service roads and make other access improvements off the SHS that advance state access management goals and objectives. Metropolitan planning organizations could also consider earmarking funds for such purposes. Even small grants and limited financial assistance could serve as important leverage in facilitating the ability of local governments to accomplish alternative access on major highway corridors.

CONCLUSIONS AND RECOMMENDATIONS

A major barrier to effective corridor management is the often cited disconnect between land use and transportation planning. Yet through intergovernmental agreements, joint planning, and coordinated review and permitting, the FDOT, Florida Department Community Affairs (DCA), metropolitan planning organizations, regional planning councils, and local governments are accomplishing lasting solutions to seemingly insurmountable transportation and land use problems.

The case studies reviewed for this research reveal that significant steps have been made in Florida and other states toward more comprehensive approaches to corridor management. They also offer numerous lessons. Key among these is the importance of proactive planning and state and local coordination in accomplishing alternative access and other corridor management objectives. Comprehensive corridor management clearly cannot be achieved without transportation *and* land use solutions and therefore requires both state and local government involvement.

The corridor access management plans discussed in several of the case studies are an excellent tool to facilitate such coordination. Through this process FDOT and local governments work together on a common plan for improving the safety and operation of the primary roadway. The planning process generally begins with a cooperative agreement indicating mutual support for development of a corridor management plan, and proceeds with a detailed evaluation of transportation and development issues and needs. A plan is then developed through extensive stakeholder involvement and education on needed changes in access and development. Such changes may involve medians, signal location, auxiliary lanes, site access, land use concepts, and improvements to the supporting roadway network.

As established in state access management policy [Rule 14-97.004(5)], the final plan must be ratified through a formal adoption process and signed by the FDOT District Secretary. It is also adopted by each participating local government. Once adopted, the corridor access management plan provides an official basis for future permitting and roadway improvement decisions. The plan also serves as a vehicle for changes to land development regulations needed to implement corridor management, such as subdivision controls and service road requirements.

These corridor access management plans can help overcome limitations of the FDOT access permitting process that were identified in the current practice review. Specifically, FDOT has no authority at present to review and influence decisions related to subdivision of land along state highways, and access permitting staff indicated they generally cannot deny access to lots of record under separate ownership that do not conform with access spacing standards – even if alternative access is available. Exceptions are where a corridor access management plan is in place to guide state and local permitting or where a local government has enacted the necessary policies and ordinances to require alternative access, as in the Hernando County example.

Local service road ordinances that implement state access management standards can also provide a basis for FDOT to incorporate alternative access conditions in the access permit and facilitate proactive coordination in development review and access permitting. In the case study of Hernando County, however, the lack of a comprehensive corridor management plan to identify the desired location and design for service roads on state highways was identified as an

impediment to accomplishing a continuous network and has also resulted in design problems in some locations.

An added benefit of the planning process, noted in the case studies, was that it educated stakeholders on the importance of corridor management and helped staff and officials better understand how best to refocus their policies or practices to achieve lasting solutions to identified problems. Corridor management planning can also lead to multi-jurisdictional partnerships for tackling more sweeping corridor management issues, such as that demonstrated in the SR7/US 441 case study.

Ultimately, the defining characteristic of a successful corridor access management plan is the level of cooperation achieved among affected property owners and agencies involved in managing the corridor. The planning process can be a vehicle for effective stakeholder involvement, which can reduce the potential for adverse community impacts and increase public support. Where a state highway is involved, local government cooperation is necessary to accomplish needed changes to land use and subdivision practices and street networks. It is best, therefore, if the cooperation and agreement of each local government is secured at the onset and that each participating agency commits to assisting with public involvement for the plan.

A continuing impediment to corridor management on the SIS and other important highways is the lack of adequate local street networks. Examples abound in Florida of where local governments have allowed land division and development along important state highways without new collector and local streets. Local traffic in these areas has contributed to traffic congestion on major roadways due to a poorly connected street network off the arterial system. Today many communities now realize the importance of access management and yet it will be difficult to correct past mistakes through (re)development alone. Local governments will need to incorporate some improvements to local street networks into their capital improvement plans and programs or identify other funding mechanisms.

Through corridor access management planning, local governments can evaluate the need for improvements to their street network along major roadways, and identify gaps and needed connections or parallel relievers. They can also adopt policies and regulations requiring new development to contribute to the local street network or obtain alternative access. Many (real-world or workable or effective) examples of local government ordinances and policies can be found in the appendices of this report. Another resource on street network standards for Florida local governments is the report Model Regulations and Plan Amendments for Multimodal Transportation Districts (*11*).

The construction of service roads or interconnecting streets is often difficult for local governments, however, due to a lack of funding sources. Although a few programs exist to support capital improvements, (i.e. County Incentive Grant Program, Economic Development Transportation Trust Fund), funding is extremely limited. The Kansas example showed how FDOT or other state agencies could also assist by providing modest matching grants to local governments to help in developing alternative access on major roadways. Another Kansas example of earmarked funds is the “KLINK” or Geometric Improvements Funds that dedicate funds for resurfacing and geometric improvements to city streets that connect portions of the state highway system.

Regardless of state funding possibilities, local governments must also look to other sources and the private sector to accomplish this important corridor management objective. The Florida Legislature has provided local governments with a number of options to be used for major capital improvements including gas taxes, sales taxes, and impact fees. It is incumbent on local government to exercise these options to accommodate local transportation needs. Although some local governments have exercised these options to obtain funding for necessary transportation expenditures, many still have not.

It is also within the purview of local government to require new development to pay a fair share of costs. Through such vehicles as impact fee and concurrency ordinances, developers can be required to make fair share contributions to the alternative access system as a condition of development approval. In addition, impact fee credits can be provided to facilitate private contributions to the network.

In sum, corridor management will be increasingly important for the Strategic Intermodal System (SIS) and other important highways in Florida, particularly in light of funding constraints and rapid growth. The SIS provides the primary means for long-distance movement of residents, tourists and goods and includes intrastate highways that are essential to the state's economy—these highways must be effectively managed. Effective strategies for comprehensive corridor management are also critical for non-SIS arterials which, although important to local and regional transportation, are of less priority for state funding. The FDOT, DCA, MPOs, regional planning councils and local governments in Florida would benefit greatly from the development of corridor access management plans for SIS/FIHS roadways and other important arterials as well as specific guidance for developing effective corridor management plans.

REFERENCES

1. District 4 Permit Process. Florida Department of Transportation, District 4. December 1995.
2. *Roundabouts: An Informational Guide*. US Department of Transportation, Federal Highway Administration. June 2000.
3. R. Ewing. *Traffic Calming: State of the Practice.* US Department of Transportation, Federal Highway Administration and Institute of Transportation Engineers. August 1999.
4. Roundabouts Brochure. US Department of Transportation. Federal Highway Administration. Retrieved October 25, 2004 from http://www.fhwa.dot.gov/resourcecenter/teamsafe_mdabout.htm
5. Ariniello, A. and Hartman, D. *Roundabouts for Urban Design.*
6. *Access Management Manual*. Transportation Research Board, National Academy Press: Washington, DC, 2003.
7. *Ordinance 86-8.* Hernando County, Florida. Adopted May 6, 1986.
8. *Creating Livable Streets*. Metro Regional Services. November 1997, p.58.
9. *Corridor Master Plan, US-183/US-183 Alternate Corridor*. Ellis County. February 6, 1998.
10. *Fort Collins Land Use Code*, Section 3.6.3. City of Fort Collins, Colorado.
11. Williams, KM and Seggerman, KE. *Model Regulations and Plan Amendments for Multimodal Transportation Districts.* National Center for Transit Research/Center for Urban Transportation Research, 2004.
12. *Ordinance No. 2003-A19.* Citrus County, Florida. Adopted September 23, 2003.
13. *South Golden Road 23 Month Summary*. Golden, Colorado.
14. *Roundabouts.* Memo from Dan Hartman to City Council, Golden, Colorado, November 7, 2003.
15. US 19 Task Force. *US 19 Task Force Action Plan,* Pasco County, 2003.
16. Section 420.10.B. *Pasco County Land Development Code.*
17. Hernando County Planning Department.
18. Meeting with Hernando County Staff, April 13, 2004.
19. Meeting with Florida Department of Transportation, District 7 staff, April 13, 2004.
20. *Citrus County Land Development Code*. Section 4224.
21. *Draft Revision to Ordinance 2004-A19*. Citrus County, FL.
22. Interview with Crystal Allred, Planner, Sarasota County, June 2, 2004.
23. *University Parkway Corridor Plan—West*. Adopted by the Sarasota Count Board of County Commissions, April 5, 1994.
24. *Interlocal Agreement for University Parkway*.

25. *Boundaries and Criteria Report* for the Sarasota County and Manatee County University Parkway Corridor Study (Corridor Study No. 92-01-SP), adopted by the Sarasota County Board of County Commissioners, July 28, 1992.

26. *University Parkway Corridor Study*, Manatee County Planning, Permitting & Inspections Department in coordination with the Public Works Department, January 1994.

27. *University Parkway Corridor—East*.

28. Adapted from Study Area, US 98 Transportation Corridor Brochure, May 2001.

29. *Corridor Access Management Plan for SR 35 (US 98) from SR 60A to E. Main St.* Adopted by the Florida Department of Transportation, July 6, 2004.

30. Retrieved August 12, 2004 from http://bartow.govoffice.com/index.asp?Type=B_BASIC&SEC={C5500E23-A379-4ECB-A8CF-

31. Adapted from *Broward's State Road 7/US 441 Collaborative*. Community Planning, Spring 2004.

32. State Road 7. [Electronic version.] Newsletter, August 2004.

33. http://www.haysusa.com

34. www.bwrcorp.com/news.html#hays%20proj

35. *District Three Corridor Management Plan*, Kansas Department of Transportation, May 2000.

36. City of Hays, Kansas, 2004.

BIBLIOGRAPHY

Broward's State Road7/US 441 Collaborative. Community Planning, Spring 2004.

Corridor Master Plan, US-183/US-183 Alternate Corridor, Ellis County. February 6, 1998.

Creating Livable Streets, Street Design Guidelines for 2040. Metro Regional Services. November 1997.

Kramer, Jeff. Memo: *Funding Access Improvements Off the State Highway System that Advance State Access Management Goals*. November 26, 2002.

Florida Department of Transportation. *Corridor Access Management Plan for SR 35 (US 98) from SR 60A to East Main Street.*

Florida Legislative Committee on Intergovernmental Relations. *Local Government Financial Handbook, 2003 Edition.* December 2003.

Kansas Department of Transportation. *Corridor Management Policy*. Adopted January 13, 2003.

Manatee County Planning, Permitting, & Inspections Department in coordination with the Public Works Department. *University Parkway Corridor Study*. January 1994.

Pasco County. US 19 Task Force. *US 19 Task Force Action Plan*. 2003.

Sarasota County. *Boundaries and Criteria Report for the Sarasota and Manatee County University Parkway Corridor Study (Corridor Study No. 92-01-SP).* Adopted July 28, 1992.

Sarasota County Planning Department. *University Parkway Corridor Plan – East (No. 92-01-SP-East)*. Adopted October 21, 1997.

Sarasota County Planning Department. *University Parkway Corridor Plan – West (No. 92-01-SP-West)*. Adopted on April 5, 1994. Sarasota County Planning Department.

State Road 7. [Electronic Version]. Newsletter, August 2004.

State Road/U.S.441Corridor Broward County, Florida. [Electronic Version]. An Advisory Services Panel Report, Urban Land Institute, March 14-19, 2004.

The State Road 7/US 441 Collaborative. Retrieved September 8, 2004 from http://www.sfrpc.com/sr7/reports/sr7quarterly.pdf

The State Road 7/US 441 Collaborative. Retrieved September 8, 2004 from http://www.sfrpc.com/ftp/pub/institute/Collaborative%20Report.pdf

Steering Committee Final Report: Recommendations for Designating Florida's Strategic Intermodal System, Appendix G. December 2002.

Urban Land Institute Advisory Panel Gives High Marks for State Road 7/U.S. 441 Corridor. Retrieved September 29, 2004 from http://www.sfrpc.com/sr7/reports/ULI%20One%20Pager.pdf

U.S. Department of Transportation, Federal Highway Administration. Roundabouts: An Informational Guide.[Electronic Version]. June 2000 from http://www.tfhrc.gov/safety/00068.htm

APPENDICES

See original document for appendix at www.cutr.usf.edu