Community friendly arterial: redesigning urban arterials to support redevelopment initiatives

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Abstract

This case study shows how balancing community character, access to local retail, and regional mobility can lead to efficient infrastructure investments that support redevelopment and reuse.

Glatting Jackson worked with the City of Winter Park, Florida and the Florida Department of Transportation (FDOT) to develop a design plan for Orlando Avenue (US 17/92), a five-lane regional arterial that serves as a community street for local businesses and residents. The solution acknowledges regional transportation needs while providing access to businesses and addressing safety concerns of pedestrians and cyclists. Through a combination of pedestrian and bicycle facilities, new local roadways, streetscape improvements, and access management, the design promotes redevelopment, reduces travel delays, and improves safety.

Unique from conventional FDOT projects, the Orlando Avenue project encouraged the department to work outside the conventional process to create a context-sensitive design. Through an integrated urban design and transportation solution, FDOT and the City of Winter Park redefined “access management” by identifying a number of driveway consolidations, cross access easements, roadway connections, and new parallel roadways. To reduce delays at major intersections while supporting local redevelopment, FDOT agreed to construct a network of local roads designed to leverage redevelopment. As part of the partnership, the City of Winter Park agreed to construct other local investments, such as parallel roadways and bicycle facilities.

Keywords: access management, corridor design, network, pedestrian enhancements, bicycle facilities, urban design.
1 Introduction

This project evaluated a two mile section of Orlando Avenue (US 17/92), a five-lane major arterial roadway, through historic Winter Park. US 17/92 is the only major north/south arterial roadway in Winter Park. Historically a significant roadway connecting communities across the state, US 17 traverses most of Florida, from Jacksonville in the northern part of the state, south of Central Florida where it terminates near Naples. Through Central Florida, US 17 is co-signed with US 92. The construction of Interstate 4 in the mid-1960's diminished the regional significance of US 17/92. Through Winter Park, US 17/92 developed as a commercial corridor, with retail uses located along the length of the roadway. Recently, regional through trips and the intensity of adjacent development have increased along this aging arterial roadway. As a result, the quality of service for all users has diminished. Vehicular travelers experience increasing delays at major intersections. Continuous curb cuts, signage clutter, narrow sidewalks, and lack of landscaping create a hostile environment for walking, biking, and transit. Due to the visual clutter, difficult access and unfriendly pedestrian environment, the avenue has unrealized potential for redevelopment and intensification of retail uses along the corridor.

FDOT sought to improve mobility and enhance safety along Orlando Avenue. The City of Winter Park wished to enhance the visual character of the corridor, support commercial redevelopment and improve pedestrian and bicycle circulation. The challenge for this project was to develop an infrastructure investment plan that addressed both regional mobility and local redevelopment. The proposed design did not just find a balance between these at time competing interests, but developed solutions that improved the quality of service for all stakeholders.
2 Existing conditions

The five-lane arterial is heavily traveled, with annual average daily traffic ranging between 31,000 trips per day in the southern portion of the study area to 47,000 trips per day in the northern portion of the study area. As with most congested commercial corridors in urban centers, traffic volumes are high throughout the day, with the highest number of hourly trips experienced during the midday peak. Several intersections along the avenue become congested during the peak travel times.

US 17/92 is hostile to pedestrians and transit. Spacing between signalized intersections offers few crossing opportunities. Utility poles, lighting or signal arms block the narrow sidewalks. There is no separation between the vehicular travel lane and the sidewalk.

Figure 2: Bidirectional hourly traffic volumes [1].

Figure 3: Existing conditions.
3 Balancing mobility and accessibility

Transportation engineers categorize roadways by the level of mobility vs. accessibility provided, with arterials defining one end of the spectrum and local streets defining the other end. While such categorization can be useful, it is necessary to further refine the categories by evaluating the environment served. Urban arterials function differently than suburban or rural arterials because of two factors:

1) Roads that begin as main streets in historic centers and grow up to be arterials continue to serve as the front doors for pre-existing commercial uses.
2) Roads originally designed to serve as arterials attract big box development due to the number of trips they carry.

![Diagram showing the relationship of functionally classified systems to mobility, land access, and land use.]

Figure 4: Relationship of functionally classified systems to mobility, land access, and land use [2].

As they exist in developed urban centers, urban arterials serve as main streets and as regional connectors. Due to the often constrained right-of-way and diversity of roadway users, urban arterials must be evaluated and designed in context, looking beyond the right-of-way to the adjacent land uses, surrounding street network, and broader community. By looking outside of the right-of-way, investment alternatives – including private/public partnerships, redevelopment, and network begin to offer cost-effective investment alternatives to roadway widening or traditional access management.
3.1 Redefine access management

Engineers often ignore the complexity of the urban arterial and attempt to follow design guidelines that focus on moving traffic through an area. Access management becomes a blunt instrument by which the roadway imposes a hierarchy of service favoring vehicles moving through a site rather than to it. Medians are imposed as barriers, with median breaks located at fixed spacing with little regard for adjacent uses.

Traditional access management often creates hardships for existing businesses. To ensure continued economic success of developed areas, access management must evolve beyond the median. An alternative access management system involves a series of investments in the right-of-way and on private property, including:

- consolidation or joint use of curb cuts and cross access easements,
- rear access roads, and
- short median islands controlling turning movements at dangerous locations.

Figure 5: Cross access easements and rear access roads.

This alternative access management plan requires public and private investments and evolves over time as an area redevelops. Such a system can only be implemented through close negotiations with existing property owners as well as supported by land development regulations.

3.2 Network

It is generally understood that a network of narrow streets functions more efficiently than the consolidation of lanes on one roadway.

Whenever possible, additional roadway network should be incorporated to fill in gaps in the existing fabric. In this case, to reduce delays at major intersections, FDOT agreed to construct a quarter mile of local road to eliminate turning movements on US 17/92. Additionally, the City of Winter Park agreed to invest in other construct projects, such as parallel roadways and bicycle facilities along a parallel roadway.
3.3 Focus on quality of place

While enhancements can be made to improve safety and reduce delays in the short term, arterial roadways located in urban centers will continue to feel the
stress of regional development. New demand will consume gains in vehicular capacity. Therefore, engineers and planners must work with the community to develop broad goals of livability and economic development and ensure that transportation investments reinforce these broader goals and provide alternatives to vehicular travel. Land development regulations, landscaping, streetscaping, and bicycle facilities integrated with transportation investments can increase vehicular capacity, provide safe and inviting alternatives to vehicular travel, and support broader community goals.

In this case, the City of Winter Park entered into a partnership with the Florida Department of Transportation to provide wide sidewalks, landscaping, pedestrian crossings, parallel roadway network, and parallel bicycle facilities to support multimodal travel in and parallel to the corridor. In addition, these investments will support commercial reinvestment in the corridor in a form consistent with broader community goals.

Figure 8: Proposed sidewalks, landscaping and pedestrian crossings.

4 Integrating urban design and transportation investments

Public investments, such as streets, parks, and civic buildings, provide the structure for private investments, the frame on which development is oriented. Therefore, transportation investments should be evaluated and refined in terms of broader goals of economic development, community character, and urban form.

In this case, the opportunity to reduce congestion at the intersection of two major arterials by introducing additional roadway network was designed to leverage commercial development. The additional network introduced the challenge of improving vehicular circulation while preserving the character of existing neighborhoods.
4.1 Redevelopment

The new roadway will provide additional access to underutilized properties. The site is located north of a vibrant commercial infill project which houses a movie theater, shops, restaurants, office space and apartments. Using the roadway design as a catalyst, the City is developing a vision for the site.
4.2 Neighborhood preservation

Introducing street network into a developed area requires extensive analysis of possible shifts in travel patterns that may impact existing neighborhoods. Such concerns can be addressed through the design of the new facilities and through traffic calming in the neighborhoods. In this case, the design team identified and addressed a series of concerns raised by adjacent neighborhoods through careful design of intersections, street alignments, and possible traffic calming. This design was reached through an iterative, interactive design process consisting of a series of large public meeting and small work sessions.

![Unique intersection design](image)

Figure 11: Unique intersection design.

5 Partnerships

This study began as a standard access management plan to be developed by the Florida Department of Transportation (FDOT). As such, having no support from the affected property owners or the City, the project would have completed with a no-build alternative. As it stands, by working in partnership with the City, FDOT was able to redefine the scope of the study and evaluate investments outside of the right-of-way that support mobility goals along the corridor. Due to the constrained right-of-way, FDOT was also willing to provide exceptions to their standard guidelines, allowing for 11 foot travel lanes, narrower medians, and wider sidewalks. The City of Winter Park will participate in the investment plan as full partners, working with property owners to consolidate driveways, invest in new local streets, provide a parallel bicycle facility, and fund and maintain landscaping within the right-of-way.

Four elements of the study process made this unique partnership and investment plan possible:
• defining the study goals and study corridor broadly;
• obtaining input from broad range of stakeholders early in the process;
• continuously re-evaluating and refining design elements based on public input; and
• looking for alternative funding sources and partnership opportunities.

6 Findings

As urban corridors mature, they often face the duel goals of managing congestion while maintaining access to existing uses and supporting redevelopment and reuse. In this case, FDOT and the City of Winter Park were able to form a unique partnership to accomplish these goals. Three elements of the study made this unique partnership and investment plan possible:

• **Evaluating alternatives based on land use and community context** - Obtaining input from broad range of stakeholders early in the process allowed the engineers to evaluate alternatives against community goals and development objectives.

• **Creating local partnerships** – By working in partnership with the City, the FDOT was able to look at parallel investments outside of their direct control. This allowed for the development of a unique access management plan and parallel bicycle facility. The partnership also allowed the City to use transportation investments to leverage redevelopment.

• **Continuously re-evaluating and refining design elements** – Modifications to built environments have spillover effects not often identified at first glance. Continuously obtaining public input allows for these impacts to be identified and mitigated through the design process.

References

