



Dawson & Wooster



Prepared for: **NC Department** of Transportation **Highway Division 3**



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In conjunction with: **City of Wilmington, NC**

Wilmington Urban Area MPO

Final Report



Corridor Plan



October 2007



EXECUTIVE SUMMARY

The US 76 corridor in South Wilmington — better known as Dawson and Wooster Streets — is an important east-west connection for the region. The route links residents and visitors in the eastern areas of Wilmington and Wrightsville Beach to Brunswick County and areas farther west via the Cape Fear Memorial Bridge.

In its 2006 Highway Safety Improvement Program report, NCDOT ranked the intersections of Wooster/8th Streets and Wooster/6th Streets as the 56th and 120th most "potentially hazardous intersection locations" in the state. NCDOT considered options for improving the two intersections to reduce the potential for angle crashes like those occurring at the intersection. In conjunction with a routine resurfacing project, a T-shaped "longhorn" median was installed on the north side of the Wooster/6th intersection and a signal at S 8th Street. The median installed at S 6th Street was intended to be constructed of concrete as typical by NCDOT, but contractor delays forced NCDOT to utilize a temporary installation using Dura-Curb[™], a molded plastic modular system used as a traffic separator.

The Dura-Curb[™] median was met by opposition by many neighborhood residents. Many voiced that the measure has cut off an important northsouth route used by locals to avoid delays on S 5th Avenue as well as to access small community businesses. The lack of public input and notice before the installation also rekindled social and equity issues for the community of long-term residents. These concerns were raised to the City Council and local officials on the Wilmington Urban Area Metropolitan Planning Organization's (MPO) Transportation Advisory Committee (TAC) requested MPO staff and NCDOT to complete this study.

STUDY AREA

While the intersection conditions at S 6th and Wooster Streets is the main issue prompting this study, the corridor plan study area included Dawson and Wooster Streets from S 3rd to 17th Street and the neighborhood directly adjacent to and between this one-way pair.



PLANNING PROCESS

The purpose of this plan is to evaluate measures to improve safety for the short term for the entire study area, but particularly S 6th Street at Wooster Street, and to identify opportunities and constraints in an effort to define a longrange future vision for the roadway couplet. Public involvement – considered crucial to the success of the study - was accomplished during a four-day public design charrette. The design charrette was held July 23 through 26, 2007 at Williston Middle School, located near the study area. The charrette was intended to solicit input from community members and local stakeholders. The ultimate goal of this charrette is to develop the transportation improvements needed along the corridor to serve both the residents of the City of Wilmington and the neighborhoods adjacent to the study area. NCDOT Division 3 staff and the Wilmington MPO provided oversight for the Dawson and Wooster Corridor Plan charrette.

The activities at the charrette progressed as follows:

Day 1: Project team members kicked off the process by conducting stakeholder interviews with business owners and developers, local staff, elected officials, community activists, and public transportation staff.

Day 2: Events throughout the day helped orient the project team with the area and integrate the public into the planning process. In the morning, the project team toured the study area and brainstormed design concepts in the afternoon. A workshop held the evening of July 24 at Williston Middle School began with an open house during which participants viewed a variety of maps that detailed existing conditions in the area and were introduced to the project process. A large-group discussion revealed concerns for the planning process, safety improvements, bike/pedestrian facilities, traffic calming, and the schedule and funding for implementation.





Navassa

Leland

17 Belville

Wooster and Dawson Streets are crucial transportation links in the Wilmington area network



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Participants then formed small groups around maps to provide location-specific issues and recommendations. The workshop allowed the public to help identify key issues and discuss ways to improve connectivity, aesthetics, and travel safety within the Dawson and Wooster study area.

Day 3: The third day of the charrette allowed the design team to continue exploring underlying issues relevant to the Dawson and Wooster Corridor Plan. The main concerns expressed during the first two days of the charrette were as follows:

- Wooster Street at S 6th Street: crashes and traffic improvements
 - Perception that "low income" community was deliberately uninformed
 - Community uninformed about Dura-Curb[™] recommendation
 - Dura-Curb[™] not aesthetically pleasing
 - Dura-Curb[™] divides community 0
 - Will the Dura-Curb[™] increase traffic on 7th as well as crashes?
 - o If 6th Street Dura-Curb[™] is removed, can the signal remain on 8th Street?
- Businesses
 - Will this affect businesses?
 - Too many pawn shops at 6th and 17th Streets on Wooster
 - Need new businesses to employ local residents
- Public Transit
 - Good ridership for schools
 - Need to look at getting paratransit
 - Would like to see a bus shelter at the local Eckerds
- Neighborhood and Roadway Safety
 - Handicap accessibility
 - Bike lanes needed with increased ridership as a result of high gas prices
 - Safe in homes and not just on the streets 0
 - Crosswalks needed between 13th and 17th 0
 - Sidewalks needed on 8th through 10th and 16th on Dawson 0
 - Streets are too wide promoting higher speeds 0
 - S 3rd/Wooster highest accident location in the city 0



- Aesthetics
 - Not enough green along the corridors (tree-lined streets)
 - Establish character though streetscape/lighting and design
 - Protect neighborhood/historic character

Once they clarified the concerns of the interested parties, the charrette team worked to address the comments and generate responses in the plan. The team worked collaboratively with MPO and NCDOT officials to develop an overall vision for the corridor and to start developing measures and improvements that would fit into the context of the vision and the neighborhood.

Day 4: The project team finalized the recommendations and introduced them at the last workshop, once again held at Williston Middle School. Citizens were invited to review maps illustrating the recommendations. The maps and accompanying diagrams displayed both large scale concepts (such as an area-wide street plan) and location-specific improvements (such as intersection treatments for the 6th/Wooster intersection). At the conclusion of the workshop, the participants were given dots to identify their most and least preferred alternatives of those presented.

Comments and concerns on the final night addressed several issues, including the following:

- Wooster Street at S 6th Street
 - Why all the options at S 6th street when a signal is the solution?
 - What if all options/alternatives are rejected by the majority?
 - Is this project legal?
 - This project was never approved by Wilmington City Council.
 - Blocking this street will not unify the neighborhood.
- Signage needed coming from Cape Fear Memorial Bridge directing drivers to Historic District, malls, beaches, and downtown
- Truck route signage needed
- Police station signs
- NCDOT should reduce number of lanes to two and install more stop lights for the protection of the community members















EXISTING CONDITIONS

The existing transportation network, land use framework, environmental features, and social characteristics of the Dawson and Wooster Streets area all were considered during the development of this corridor plan. Examining these elements have helped establish a foundation for determining critical improvements in the context of current growth and development pattern.

Traffic Operations: The two streets carry approximately 22,000 vehicles a day each.

All of the intersections along the Dawson and Wooster corridor currently operate at an acceptable level-of-service (LOS D or better) except for the following intersections:

- Dawson Street at S 7th Street during the PM peak hour
- Wooster at S 12th Street during the PM peak hour
- Dawson at S 12th Street during the AM and PM peak hours
- Wooster Street at S 17th Street during the AM and PM peak hours

Crashes: Five years of crash data — from June 2002 to May 2007 — were analyzed for the major roads in the study area. Corridor crash rates could not be compared to the North Carolina state averages because the study roads were one-way multi-lane facilities, a very small subset of the US routes category therefore providing limited data for comparison. Intersections with more than 25 crashes per year were considered high crash or "hot spot" locations. Almost one-third of the intersections in the study area fall under the high crash location category. Of these intersections, only those with a distinct crash pattern were addressed by proposed safety improvements.

During the analysis period, 236 total crashes occurred on Wooster Street from S 3rd Street to 17th Street and another 199 within 150 feet (½ block) of Wooster on the side street approaches. Out of the 435 total crashes, there were no fatalities, 4 major injury crashes, 207 minor injury crashes, and 224 PDO crashes. The total crash rate was 780.37 crashes per 100 million vehicle miles traveled. This segment of roadway had six "hot spot" locations including the intersections of Wooster Street with S 3rd Street, 5th Avenue, 6th Street, 8th Street, 16th Street, and 17th Street. During the analysis period, 383 total crashes occurred on Dawson Street from S 3^{rd} Street to 17^{th} Street and another 73 within 150 feet ($\frac{1}{2}$ block) of Dawson on the side street approaches. Out of the 456 total crashes, there were no fatalities, 5 major injury crashes, 172 minor injury crashes, and 279 PDO crashes. The total crash rate was 993.83. This segment of roadway had three "hot spots": S 3^{rd} Street, 16^{th} Street, and 17^{th} Street.

Transit: Currently, the Independence/Long Leaf Malls/UNCW route (Route 6) runs in the eastern portion of the study area, with four stops on Dawson and Wooster Streets. The Oleander route (Route 3) also runs just north of the study area on Castle Street. Routes 1 (East Wilmington/Long Leaf Park) and 5 (New Hanover Medical Center) runs across the corridors at S 3rd Street and S 5th Avenue respectively.

Wave Transit is currently developing a route restructuring plan to be implemented in 2008. Based on recommendations provided in the 2004 Wave Short-Range Transit Plan, the system's Route Committee has preliminarily developed new routes based on service to key

focal activity centers, along primary suburban corridors, and to new park-and-ride locations. The plan is currently set for public comment to help finalize revisions and validate the routes. The

system looks to increase service in the study area; the South Loop route will run eastbound on Dawson before turning south toward New Hanover Medical Center. The route will return to Downtown on nearby Castle Street. Four additional routes will cross the corridor: the West Loop, Medical Center Loop, Monkey Junction, and Brunswick Connector routes.

Land Use: The *Dawson and Wooster Corridor Plan* study area is located in an area of southern Wilmington that is very community-oriented. Apart from the commercial area east of S 16th Street, the area is predominantly small, single-family homes, most of which are older housing stock, potentially historic in nature. Interspersed in the neighborhoods are numerous small churches and businesses frequented by the local residents. Two affordable multi-family housing complexes are located on Dawson Street. The Hillcrest Community, located





Table ES-1. Intersection Crash Statistics – High Crash Locations (June 2002 – May 2007)

Road	Total Crashes	Crash Rate*	Severity Index**
Wooster at S 3 rd	143	174.57	4.52
Dawson at S 17 th	87	104.80	3.72
Dawson at S 16 th	74	95.36	3.30
Dawson at S 3 rd	73	87.85	3.43
Wooster at S 16 th	66	94.27	4.36
Wooster at S 17 th	67	88.37	3.98
Wooster at S 5 th	41	87.37	4.25
Wooster at S 8 th	35	N/A*	7.82
Wooster at S 6 th	34	N/A*	4.92

* Crashes per 100 million vehicles entering the intersection; crash rates unavailable at S 6th and 8th Streets because lack of average daily traffic counts on those two side streets ** Severity index reflects average equivalent property damage only (EPDO) rate; fatal and Type A injury crashes



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between S 13th and 16th Streets and constructed in the early 1940s, was converted from a WWII-era apartment complex for Army officers and shipyard employees into subsidized housing. Robert S. Jervey Place, located between S 8th and 10th Streets, is a Hope VI redevelopment community composed of four newly-developed mixed-income communities with a total of 100 garden apartments and numerous single family homes and townhomes.

The neighborhood along Dawson and Wooster Streets was originally known as Dry Pond. Established in the early 1900s, the blocks west of S 8th Street are part of a historic area designated in the National Register of Historic Places. As part of the district, homes and businesses in those blocks are subject to review by the City's Historic Preservation Commission for all proposed changes to the exterior of structures, demolition of structures, new construction, signage, and changes to the surrounding grounds, including landscaping. A Certificate of Appropriateness is issued by the Commission for exterior changes to the property approved based on the Wilmington Design Guidelines for Historic Districts and Landmarks.

FINDINGS AND RECOMMENDATIONS

After reviewing the comments and data collected during the study process, four goals were evident as the main points in evaluating improvement options for the Dawson and Wooster corridor:

- Preserve neighborhood and historic character
- Address corridor safety
- Identify opportunities for aesthetic enhancements
- Provide recommendations that are implementable

In addressing these four goals, any improvements would balance the interests of the parties involved: the local residents and business owners, traveling public, NCDOT, and the City of Wilmington.

The improvements recommended for the study area logically fit into three distinct timeframes for action based on their size and scope. Three principal purposes were identified as key issues to be resolved by the Dawson and Wooster Corridor Plan:



Figure ES-1. Street Features







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- In the present term and with neighborhood collaboration, evaluate the measures to improve the safety of the intersection of S 6th Street and Wooster Street:
- In the short term, evaluate measures to improve safety along the Dawson and Wooster corridor.
- In the long term, identify opportunities and constraints to define a long-range vision for the corridor.

Immediate Recommendations

South 6th Street Improvements – Based on these observations, it is recommended that the NCDOT replace the Dura-Curb[™] median with one of the alternatives developed during the charrette with input from NCDOT engineers, City staff, and the general public at the workshop. NCDOT made clear the following points concerning options for the intersection:

- The crash patterns occurring on southbound S 6th Street are an identified safety problem. Not acting to rectify the situation represents a liability for NCDOT.
- The diversion of traffic from S 6th Street provided the traffic volumes needed to justify a signal at S 8th Street. Therefore, removing all measures at S 6th Street would result in the removal of the S 8th Street signal.
- NCDOT was willing to entertain alternatives to the "longhorn" median design.
- Funding already is allocated to construct a permanent traffic calming measure at the S 6th Street intersection.
- Improvements should be within the current rights-of-way.

Early decisions were made to eliminate the following options based on the criteria set above:

- "Do Nothing" Alternative
- Removal of the Dura-Curb[™] Median
- Signage Prohibiting S 6th Street Through Movements



Property Purchases

The remaining alternatives were further developed and were presented to NCDOT and MPO representatives, who offered comments to help improve or modify the concepts. The following five alternatives were then presented in the second public workshop:

- Longhorn T-shaped Median
- Pork Chop Half Median
- Splitter Island / Median
- Dead-end S 6th Street
- One-way S 6th Street northbound

The alternatives were met with mixed reviews from area residents. The planned longhorn median, deadend, one-way, and median island options were

unacceptable to a majority of the neighbors, who expressed concern that they restricted mobility and damaged the connectivity of the street network. The half median was met with some positive responses in that it marked a middle ground between NCDOT's and the neighborhood's positions, prohibiting the problematic southbound through movement but still allowing the northbound connection.

Based on the evaluation of the alternatives and the understanding of the stakeholders' positions on the intersection improvements, it is recommended that the "pork chop" half median be installed at the intersection, with the yield-controlled exit. This option represents a compromise between the various parties involved, and has the advantage of supporting safety with only moderate sacrifices to mobility. The alternative also can be constructed with the monies currently reserved to install the longhorn median. The



existing grid system of neighborhood streets allows motorists to divert to adjacent streets to reach their destinations. Southbound traffic wishing to cross Wooster Street will have three primary options for diversion — S 5th Avenue and 8th Street, where signals provide right-of-way to cross, or S 7th Street, where sight distances are better because of less topography



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and operations are less affected by queuing from the S 5th Avenue signal.

Probable construction cost for this improvement is \$15,000 to \$20,000.

Sidewalk Implementation – The City should follow through on their commitment to construct sidewalks along Wooster Street corridor from the commercial center located at S 17th Street to 3rd Street. This project is scheduled for construction in 2008. Total cost of this project is \$150,000.

Policy Measures – NCDOT should reevaluate their public notification policies to include providing information regarding planned intersection improvements prior to implementation.

Short-Term (2–5 Years) Recommendations

Short-term recommendations represent small, cost-effective projects that could easily be implemented with little to no additional effort. In some cases, additional engineering analysis or design is necessary. Ultimately, securing funding for the following short-term projects will enhance the safety and aesthetics of the local community.

Intersection "Spot Safety" Improvements – The City and NCDOT should secure funding to implement safety countermeasures at the high-crash pattern locations along the corridor. Chapter 3 describes crash analysis that was performed for the nine worst intersections over the five-year period from June 1, 2002 to May 31, 2007. Specific remedies are suggested for improving the intersection to help reduce the crash potential and future accidents.

The following are recommended as short-term intersection improvements:

Wooster Street and S 3rd Street:

- Relocate stop bars for southbound right-turn approach forward to improve sight distance
- Install lane markers further upstream to supplement overhead signing
- Install skip lines to delineate turning movements

Dawson Street and S 16th Street:

 Install high visibility crosswalks and pedestrian signal heads at intersection to improve pedestrian conditions

Dawson Street and S 17th Street:

 Install high visibility crosswalks and pedestrian signal heads at intersection to improve pedestrian conditions

Wooster Street and S 16th Street:

- Install high visibility crosswalks and pedestrian signal heads at intersection to improve pedestrian conditions
- Install a bulb-out on SW corner to eliminate weave problem and delineate parking
- Trim vegetation on NW corner to improve sight distance

Wooster Street and S 17th Street:

 Install high visibility crosswalks and pedestrian signal heads at intersection to improve pedestrian conditions

Streetscape Improvements – By establishing a typical intersection improvement approach as well as incorporating pedestrian scale improvements and gateway features, the neighborhood identity will be improved and beautified while providing additional safety for pedestrians. Applying a typical design standard to each of the intersections will allow the corridors to become more uniform, and pedestrian crossings will be channelized to the signalized intersections. Simple treatments as described below in each intersection type are fairly cost-effective and easy to implement in the short term.

Implementation of the intersection improvements can be phased as funds become available, starting at locations with the highest need (based on crash history, LOS, or adjacent land use) and progressing along the corridor in a uniform fashion. Probable construction cost for each intersection typically ranges from \$75,000 - \$150,000 without modifications to the existing signals.

The following three-phase implementation is recommended:

 Phase 1 projects would start with resurfacing and restriping the Dawson Street corridor for three lanes of traffic and full width parking on both sides of the street from S 5th Avenue to 15th Street







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as well as lane transitions one block in either direction. The other projects would involve specific intersections with an identified priority need. Beginning with existing signal locations, the S 5th Avenue, 8th Street, and 10th Street corridors are recommended as a priority because of the high level of pedestrian activity due to its proximity and direct connection between two neighborhood schools, the Hillcrest Community, and Jervey Place. South 5th Avenue is recommended as it is part of the Cape Fear Scenic Byway and connects to a historic district. The following intersections should be considered priority improvements:

- Wooster and Dawson Streets and S 5th Avenue
- Wooster and Dawson Streets and S 8th Street
- Wooster and Dawson Streets and S 10th Street
- **Phase 2** projects represent a continuation of the streetscape improvements along Dawson and Wooster Streets. Improvements should focus on existing signal locations located along S 13th and 16th Street corridors due to the high level of pedestrian activity, and include the following intersections:
 - Wooster and Dawson Streets and S 13th Street
 - Wooster Street and S 16th Street (west side only)
- **Phase 3** projects represent a continuation of streetscape improvements along Dawson and Wooster Streets. Improvements should focus on unsignalized locations beginning at S 4th Street and moving eastward and S 15th Street moving westward. The following intersections are recommended for this phase of improvements:
 - Wooster and Dawson Streets and S 4th Street
 - Wooster and Dawson Streets and S 6th Street 0
 - Wooster and Dawson Streets and S 7th Street
 - Wooster and Dawson Streets and S 9th Street 0
 - Wooster and Dawson Streets and S 11th Street 0
 - Wooster and Dawson Streets and S 12th Street 0
 - Wooster and Dawson Streets and S 14th Street 0
 - Wooster and Dawson Streets and S 15th Street 0



These four intersection plans represent the typical treatments that could be provided at signalized and unsignalized intersections along Wooster (top row) and Dawson Streets (bottom row).





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Gateway and Historic District Treatments – The City should aggressively pursue grant funding to provide gateway treatments at select intersections associated with the existing historic district.

As a way to identify the Dry Pond neighborhood not only as an entryway, but also as a historic neighborhood, gateway features should be added to the following key intersections to help give the neighborhood the identity it has earned since the early 20th century.

- Dawson Street west of S 5th Avenue
- Wooster Street at S 8th Street

Simple brick pillars and landscaping will enhance the visual appeal of the community. Probable construction cost typically ranges from \$5,000 - \$10,000. Additional gateway features may be considered at Wooster and S 16th Streets to help provide visual cues that motorists are exiting a commercial area and entering a residential area.

Parking Modifications: Based on field visits, public input, and engineering perspective, the project team developed a break-down of qualitative advantages and disadvantages of existing on-street parking facilities in the study area. Going through this evaluation, it became clear that there is a need to retain parking in the corridor as it is essential to the activities of the Dry Pond neighborhood. The parking modifications recommended in Chapter 3 will be implemented throughout the three phases of the streetscape improvements, with initial restriping included in Phase 1. As parking on individual blocks are bracketed by the intersection bulb-outs, NCDOT can determine if they wish to leave the lane marked as continuous or whether they wish to mark individual 22-foot spaces. It is important though that when marking the parking lanes prior to the bulb-outs that the end of the designated parking zones located approximately 40 feet from the intersection to provide sight lines for motorists on side streets.

Transit – Space on Dawson Street should be provided east of S 5th Avenue, 9th Street, and 14th Street for pull-outs at bus stops with shelters for the new routes. The system should strive to provide the following amenities at bus stops, but particularly at transfer locations and high-demand stops: a level concrete pad, reliable pedestrian access with direct access to the bus loading area, adequate lighting, benches, trash receptacles, and system information.



Assuming the construction of the Cape Fear Skyway, NCDOT should work with the City of Wilmington to conduct additional feasibility studies to determine if converting the Dawson and Wooster corridors to two-way operation is feasible and desirable. The ultimate improvements would include converting Wooster Street to a two-way, two-lane neighborhood street and Dawson Street to a two-way, four-lane divided arterial. This option presents a long-term vision to minimize the traffic impacts to one street through the neighborhood and reconnect the homes in the block between Dawson and Wooster Streets with the neighborhood to the north.

Planning, design, and implementation are all critical components of a successful corridor plan. The citizens involved with this study have expressed a desire to implement safe and reasonable improvements that will add to the quality of life and character of their community. However, with limited funding, full implementation of the corridor improvements can be challenging and timeconsuming. With this in mind, policy recommendations and an action plan have been developed to help local staff focus their efforts and seek strategic opportunities to expedite the implementation of this plan.

> Conceptual Historic Gateway Feature













FUNDING OPPORTUNITIES

The construction of corridor-wide improvements can occur through adoption of local policies and programs and state programs, as well as through the receipt of private contributions. With this in mind, it will be important for the City of Wilmington and NCDOT to identify funding sources to implement the recommendations of this plan. While some projects and programs will be funded by the City or NCDOT, alternatives are available to provide financial support for implementing corridor recommendations. The following funding opportunities should be considered to implement the recommendations presented in this plan:

- Lobby NCDOT and members of the State Board of Transportation (BOT) to include funding of the design and implementation of recommended improvements in the next Transportation Improvement Program (TIP).
- Leverage NCDOT District Office "Spot Safety" improvement monies to implement safety improvements at key intersections along the Dawson and Wooster corridors.
- Consider providing a tax incentive to existing property owners and developers located along the Dawson and Wooster Street corridor for converting to shared driveways and constructing cross-access connections.
- Pursue NCDOT STP-Enhancement Grant funding to install pedestrian and bike provisions along the corridor and at key signalized intersection locations (e.g., pedestrian lighting, crosswalks, and countdowns). These funds are administered through a grant program with a 20% local match requirement.
- Pursue Economic Development funding through NCDOT Division 3 for recommended improvements near S 3rd and 17th Street commercial centers.
- Pursue NCDOT Division 3 Small Construction Funds and Contingency Funds. These funding programs are typically requested by NC House or Senate representatives for their local districts.

Additional funding programs may be available at the following levels:

Local Programs

- Powell Bill
- Transportation Bonds
- Real Estate Transfer Tax (as part of a citywide program)
- Local Option Sales Tax (as part of a citywide program)
- Rental Car Fee (as part of a citywide program)
- Vehicle Registration Fee (as part of a citywide program)
- Adequate Public Facilities Ordinances (as part of a citywide program)

State and Federal Programs

- NCDOT Transportation Improvement Program (TIP)
- NCDOT Hazard Elimination Program
- Governor's Highway Safety Program (GHSP)

Public/Private Initiatives

- Developer Contributions
- Impact Fees









CONCLUSION

The pubic design charrette and corridor plan development process have reinforced the idea that the local neighborhoods surrounding the Dawson and Wooster corridors have reached a tipping point with transportation changes in their area. Frustrated with misinformation and limited public notification, the community is demanding changes in the way they are communicated with and treated.

In response, NCDOT, the Wilmington MPO, and the City have addressed safety and communication issues head-on. In some cases, they have had to make needed policy changes to the way they do business to better serve the needs of their constituents.

Ultimately, decision-makers will need to partner with the local advocates and community leaders to make this plan a reality. Traditional efforts of relying on public investments to enhance safety and mobility within the Dawson and Wooster corridors have become less desirable and reliable. If change is to occur and sustainable development is to be realized for the study area, it will have to be accomplished through a meaningful and cooperative effort between local and state agencies.

With this future prospect in mind, it is clear that the most critical steps toward implementation will be carried by "champions" or leaders identified within the community. While NCDOT has committed to fixing the safety problem at Wooster and S 6th Street, continued collaboration between state, local agencies, and the general public will provide more opportunity to creating a safe, aesthetically-pleasing community through the heart of the Dry Pond community.









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1 — BACKGROUND AND PLANNING PROCESS

The US 76 corridor in Wilmington — better known as Dawson and Wooster Streets — is an important east-west connection for the region. The route links residents and visitors in the eastern areas of Wilmington and Wrightsville Beach to Brunswick County and areas farther west via the Cape Fear Memorial Bridge. The two streets carry approximately 22,000 vehicles a day each, and are an important component in the City of Wilmington's transportation network.

BACKGROUND AND HISTORY

The history of Wilmington is directly tied to its roots as a key transportation hub. Started as Brunswick Town in 1725, Wilmington was officially founded in 1739 as a port city for the Cape Fear River. Fortyone years later, the town had established itself as North Carolina's largest, with riverfront industry and shipping fueling its economy. The 1800s brought railroads to town and during the Civil War, Wilmington became the "lifeline of the Confederacy." Defenses at Fort Fisher kept the port open for blockade runners long after others in the South had been captured. The railroads kept carrying supplies inland through January 1865, when the fort was defeated and the town became the last port in the South to close during the war.

After becoming a city in 1866, Wilmington and the railroad companies in town flourished. The economy boomed again in the 1940s, when area

residents and workers took up the war cause by increasing shipbuilding activities in the area. The city was dealt an economic blow, however, when the Atlantic Coast Railroad headquarters moved to Florida in 1961. The City's economy declined through the 1970s until the redevelopment of downtown business began to pick up. Wilmington established itself as the third largest film industry city in the US. The completion of the I-40 corridor to Wilmington in 1990 furthered recent economic surges for the City, luring important corporate and port business back to the area.

Dry Pond

By the turn of the 20th century, the City was considered by residents to be informally split into three communities along the Cape Fear riverfront. Downtown Wilmington was flanked by the Brooklyn neighborhood to the north and the Dry Pond neighborhood to the south. The Dry Pond area was named for the large depression located at present day 4th and Wooster Streets that was once a shallow pond. The residents of the neighborhood were predominantly poor immigrant laborers living in small homes. The boys of the area, commonly referred to as "Dry Ponders," were notorious for their bullying ways. Opinions differ on the exact limits of the Dry Pond area, but the boundaries generally include the neighborhoods south of Castle Street and west of S 17th Street.









Mr. J.M. "Doc" Hall, Sr., owner and proprietor of Hall's Drug Store, was commonly known as the "Mayor of Dry Pond" in the early to mid 1900s. Hall's Tropicana on Castle Street is located in the old drug store building.

Photo Credits Top: Hall's Drug Store from "Beginnings of familiar people, places, *Wilmington.* 5/8/06. Middle: J.M. Hall filling prescription from Photograph #491 of Dr. Robert M. Fales Collection at New Hanover County Public Library. Left: Panorama of Wilmington, N.C.. c. 1918. Part of Panoramic photographs. Library of Congress.



Cape Fear Memorial Bridge

Completed in 1969, the Cape Fear Memorial Bridge became the second river crossing for Wilmington and carries US Highways 17 Business, 76, and 421 from Brunswick County 3,033 feet across the Cape Fear River into the city. The bridge serves approximately 65,000 vehicles a day, and serves as the western terminus of Dawson and Wooster Streets at S 3rd Street. The bridge is a center-span lift bridge, with a 108-foot length that rises between its two steel towers from 69 to 135 feet above the river when signaled by ships in the port. The bridge is owned and operated by the North Carolina Department of Transportation.



Photo Credits Above: Cape Fear Memorial Bridge, photographer; John Golden Center top to bottom: Photograph #316 - Bellwill Cotton Mill at 0 block Wooster St., Photograph #151 - Dry Pond neighborhood at 800 block of S 3rd St., Photograph #175 - Dry Pond neighborhood at 1000 block of S 5th St., and Photograph #597 - May Day celebration at Bellamy Park (S 17th Street between Dawson and Wooster Sts.), all from Louis T. Moore Collection at New Hanover County Public Library





PROJECT ORIGINS

Early in 2007, NCDOT funded a routine maintenance project along Dawson and Wooster Streets, including resurfacing and updating the striping and markings. The project progressed from S 16th Street to 3rd Street and various safety projects were implemented during the construction period. From S 16th to 9th Streeton Wooster Street, rightturn lanes were added to the westbound approaches at the existing signalized intersections by replacing the on-street parking for half of the block upstream.

In its 2006 Highway Safety Improvement Program report, NCDOT had ranked the intersections of Wooster and 8th Streets and Wooster and 6th Streets as the 56th and 120th most "potentially hazardous intersection





2

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locations" in the state. NCDOT considered options for improving the two intersections to reduce the potential for crashes like those occurring at the intersection. In conjunction with the resurfacing project, a T-shaped longhorn median was installed on the north side of the Wooster/6th intersection and a signal at S 8th Street. A right-turn lane similar to those discussed above was added at S 8th Street with the installation of the new traffic signal. The median installed at S 6th Street was intended to be constructed of concrete as typical by NCDOT, but contractor delays forced NCDOT to utilize a temporary installation using Dura-Curb[™], a molded plastic modular system used as a raised traffic separator.

The Dura-Curb[™] median was met by strong opposition by many neighborhood residents. Many voiced that the measure has cut off an important northsouth route used by locals to avoid delays on S 5th Avenue as well as to access small community businesses. The lack of public input and notice also rekindled social and equity issues for the community of long-term residents. These concerns were raised to the City Council and local officials on the Wilmington Urban Area Metropolitan Planning Organization's (MPO) Transportation Advisory Committee (TAC) requested MPO staff and NCDOT to complete this study.

STUDY AREA

While the conditions of the intersection at S 6th and Wooster Streets is the main issue prompting this study, the corridor plan study area included Dawson and Wooster Streets from S 3rd to 17th Street and the neighborhood directly adjacent to and between this one-way pair. **Figures 1** and **2** highlight this study area.

Figure 1. Project Vicinity Map 🕨

Figure 2. Corridor Study Area 🔻

Wooster and Dawson Streets are crucial transportation links in the Wilmington area network









PLANNING PROCESS

The Wilmington MPO Transportation Advisory Committee and NCDOT initiated the Dawson and Wooster Corridor Plan to respond to neighborhood concerns over the median installation at S 6th Street. The purpose of this plan is to evaluate measures to improve safety for the short term for the entire study area, but particularly S 6th Street at Wooster Street, and to identify opportunities and constraints in an effort to define a long-range future vision for the roadway couplet. Public involvement - considered crucial to the success of the study - was accomplished during a four-day public design charrette. The design charrette was held July 23 through 26, 2007 at Williston Middle School, located near the study area. The project team was housed at the City of Wilmington Planning Department for the four-day period. The charrette was intended to solicit input from community members and local stakeholders. The ultimate goal of this charrette is to develop the transportation improvements needed along the corridor to serve both the residents of the City of Wilmington and the neighborhoods adjacent to the study area. NCDOT Division 3 staff and the Wilmington MPO provided oversight for the Dawson and Wooster Corridor Plan charrette.

THE CHARRETTE

The project team tailored the Dawson and Wooster corridor charrette to develop a vision and recommendations for the plan in a collaborative and time-sensitive fashion.

Days 1 and 2: Who and Why?

On the first day, project team members kicked off the process by conducting stakeholder interviews with business owners and developers, local staff, elected officials, community activists, and public transportation staff. These interviews allowed stakeholders to comment on the needs for the Dawson and Wooster Street areas and identify characteristics they either wanted to retain or develop in the future. The information gained from the stakeholder interviews was considered during the development of the conceptual designs.

The second day of the charrette was designed to help participants create a vision for making the Dawson Street and Wooster Street area safer and more sustainable. Events throughout the day helped orient the project team with the area and integrate the public into the planning process. In the morning, the project team toured the study area and brainstormed design concepts. A work session was held in the afternoon in preparation for the first public

the afternoon in preparation for the first public workshop.

The workshop, held the evening of July 24 at Williston Middle School, aimed to identify issues and opportunities and establish a vision for the area. The evening began with an open house during which participants viewed a variety of maps that detailed existing conditions in the area.

An overview presentation introduced the purpose of the charrette, described the planning process, defined the Dawson and Wooster corridor study area, and offered ways for the public to remain involved throughout the planning process. Following the presentation, a large-group







WHAT IS A CHARRETTE?

The term "charrette" is a French word that means "cart." Initially, the term referred to the intense sessions by artists to finish works before they were collected by proctors and carted to salons for viewing and sale.

Today, the term is commonly used to refer to an intense, interactive community-based planning process. The process brings together citizens, stakeholders, local officials, and design professionals to work as a collective group to develop a shared vision and translate it into viable solutions. The benefits of a charrette include:

- Diverse participation ensures thorough discussion of issues, relationships, and alternatives
- Multidisciplinary design teams create realistic alternatives without having to revise work through multiple iterations
- Compact time frame challenges participants and facilitators to quickly and openly examine issues and progress toward a collective vision



- Public involvement occurs in a transparent, supportive environment conducive to the open discussion of issues and alternatives
- On-site locations enhance the design team's understanding of local issues and provides the context to the project's vision
- Creative illustrations convey complex solutions
- Team produces visual results that are viable

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discussion revealed concerns for the planning process, safety improvements, bike/pedestrian facilities, traffic calming, and the schedule and funding for implementation. Participants then formed small groups around maps to provide location-specific issues and recommendations. The workshop allowed the public to help identify key issues and discuss ways to improve connectivity, aesthetics, and travel safety within the Dawson and Wooster study area.





Public comments focused on

these five main subjects at

the first public workshop





CORRIDOR -WIDE

- Make safety a priority
- Catalyst for long-range planning
- Limit right-of-way takings
- Protect neighborhood/historic character
- Trade-offs between safety improvements
- Incorporate traffic calming into plan
- Reinforce speed through design
- strike a balance between commercial and
- residential Reconnect neighborhoods and existing
- residents
- Establish character through streetscape/lighting/design
- Red-Light tickets (3 intersections) how
- many violations · Parking on wrong side of Wooster
- causing problems . How will the skyway impact the traffic
- along the corridor
- Need a light at Dawson and 7ª
- · Have a plan to bring to NCDOT and the
- City that is aesthetically pleasing

Opportunities for future bicycle and pedestrian facilities · Provide good bicycle and pedestrian connections to activity centers (library and schools) and cross connections SAFETY/TRAFFIC CALMING · Make safety a priority · Crashes at 8ª Wooster - head-ons

- sight distance w/ funeral home "Built-in" traffic calming with
- design features

BIKE/PEDESTRIAN





Day 3: What and Where?

The third day of the charrette allowed the design team to continue exploring underlying issues relevant to the Dawson and Wooster *Corridor Plan.* The charrette team reviewed the comments brought up at the meeting, and compared those with the issues identified by stakeholders the previous day. The main concerns expressed during the first day of the charrette involved several categories:

- Wooster Street at S 6th Street: crashes and traffic improvements
 - Perception that "low income" community was deliberately uninformed
 - Community uninformed about Dura-Curb[™] median recommendation
 - Dura-Curb[™] median not aesthetically pleasing 0
 - Dura-Curb[™] median divides community 0
 - Will the Dura-Curb[™] median increase traffic on 7th as well as crashes?
 - o If 6th Street Dura-Curb[™] median is removed, can the signal remain at 8th Street?
- Businesses
 - Will this affect businesses?
 - Too many pawn shops at 16th and 17th streets on Wooster
 - Need new businesses to employ local residents
- Public Transit
 - Good ridership for schools
 - Need to look at getting paratransit
 - Would like to see a bus shelter at
 - the local Eckerds
- Neighborhood and Roadway Safety
 - Handicap accessibility
 - Bike lanes needed with increased ridership as a result of high gas prices
 - Safe in homes and not just on the streets 0
 - Crosswalks needed between 13th and 17th 0



- Sidewalks needed on 8th through 10th and 16th on Dawson
- Need bike lanes with its increased ridership 0
- Streets are too wide, promoting higher speeds 0
- S 3rd/Wooster highest accident location in the city 0
- S 10th Street along Dawson has perception of being dangerous
- Aesthetics
 - Not enough green along the corridors (tree-lined streets)
 - Establish character though streetscape/lighting and design
 - Protect neighborhood/historic character

Once they clarified the concerns of the interested parties, the charrette team worked to address the comments and generate response in the plan. The team worked collaboratively with MPO and NCDOT officials to develop an overall vision for the corridor and to start developing measures and improvements that would fit into the context of the vision and the neighborhood.





"I think we have lives (at risk) and public safety is an issue." -- Alan Gilbert, Carolina Beach town councilman and Wilmington MPO TAC member, on the crash potential at S 6th Street before the median

"I'm offended that you can come and change my community and then tell me you have no plans or money to fix it."

- Resident at public meeting



Day 4: How and When?

The fourth day of the charrette focused on blending the comments and ideas from the previous two days into a coherent plan that captured the community's vision and core principles. The project team finalized the recommendations and introduced them at the last workshop, once again held at Williston Middle School.

Citizens were invited to review maps illustrating the recommendations. The maps and accompanying diagrams displayed both large scale concepts (such as an area-wide street plan) and location-specific improvements (such as intersection treatments for the 6th/ Wooster intersection). A more structured public review and comment period followed a formal presentation of the week's findings, conclusions, and recommendations. Citizens asked questions that clarified specific components of the *Dawson and Wooster Corridor Plan*. At the conclusion of the workshop, the participants were given dots to identify their most and least preferred alternatives of those presented.

Comments and concerns on the final night addressed several issues, including the following:

- Wooster Street at S 6th Street
 - Why all the options at S 6th Street when a signal is the solution?
 - What if all options/alternatives are rejected by the majority?
 - Is this project legal?
 - This project was never approved by Wilmington City Council.
 - Blocking this street will not unify the neighborhood.
- Signage needed coming from Cape Fear Memorial Bridge directing drivers to Historic District, malls, beaches, and downtown
- Truck route signage needed
- Police station signs
- NCDOT should reduce number of lanes to two and install more stop lights for the protection of the community members

The public input gained from the charrette process helped make sure that citizen voices were heard, and the concerns of stakeholders were considered as the *Dawson and Wooster Corridor Plan* was developed.







A number of alternatives for the 6th/Wooster intersection and streetscape opportunities were presented at the final public workshop





2 – EXISTING CONDITIONS

The existing transportation network, land use framework, environmental features, and social characteristics of the Dawson and Wooster Streets area all were considered during the development of this corridor plan. Examining these elements have helped establish a foundation for determining critical improvements in the context of current growth and development pattern.

TRANSPORTATION

Functional Classification

Grouping roadways by functional classification helps policy makers, planners, engineers, and citizens communicate the existing conditions and future needs of the transportation system. Classifying streets in terms of design and operational characteristics of the movement of vehicles also provides a general notion of the type of traffic each street is intended to serve.

Distinguishing the function of a roadway requires consideration of its access and mobility. Arterials provide the most mobility and least access when compared with collectors and locals. The functional classifications explained in this chapter include local examples within Wooster and Dawson study area.

Roadway classified as "arterials" provide high mobility, operate at higher speeds (45 mph and above), provide significant roadway capacity, may have access control, and serve longer distance travel. While most arterials connect to one another or to collector streets, a few arterials connect to local streets. Arterials can be subdivided into expressways and freeways, principal arterials, and minor arterials. These subcategories can be further defined by urban and rural settings. Wooster, Dawson, S 16th, and 17th Streets are classified as urban principal arterials.

Roadways classified as "collectors" provide the most balance between access and mobility. Compared with arterials, these streets usually

operate at lower speeds (35 mph or lower) and serve shorter distance travel. Collectors connect with major and minor arterials, other collectors, and local streets. The main purpose of collectors is to gather traffic from neighborhoods and distribute it onto the system of arterials. S 3rd Street, 5th Avenue, and 10th Street are classified of streets serving as urban collectors.

Compared with arterials and collectors, "local" streets provide the most access and least mobility. These facilities usually connect to collectors and other locals. Because of the low posted speeds (25 to 35 mph) and high level of access to adjacent parcels, locals serve short distance travel. In the study area, the majority of the streets between S 6th through 15th Streets are local streets.

Traffic Volumes

Traffic volumes signify the total number of vehicles traveling along a roadway segment on an average day. **Table 1** shows historic NCDOT average annual daily traffic (AADT) for 2003 and 2005. The 2006 volumes in the table and **Figure 3** were observed in traffic counts performed by the Wilmington MPO and reflect seasonal and weekday variations. As can be expected, the highest existing

traffic volumes along the Dawson and Wooster corridor are Dawson Street east of S 3rd Street near Cape Fear Memorial Bridge.







affic Volumes (2003, 2005, 2006)							
	2003 AADT ¹	2005 AADT ¹	2006 ADT ²				
ge	51,000	N/A	64,900				
e-Wa	ay, 35 mph)						
	11,000	16,000	19,200				
	17,000	17,000	23,600				
	18,000	17,000	23,400				
	18,000	17,000	21,200				
	19,000	14,000	24,200				
	19,000	19,000	23,400				
e-wa	y, 35 mph)						
	17,000	18,000	27,700				
	18,000	19,000	23,600				
	18,000	19,000	23,500				
	19,000	20,000	24,400				
	21,000	18,000	23,300				
	24,000	24,000	24,600				

Sources:

¹ NCDOT 2003 and 2005 Urban AADT Maps, available at <u>b://www.ncdot.org/it/img/DataDistribution/TrafficSurveyMaps/default.html</u> ² Wilmington MPO 24-Hour Traffic Counts, November/December 2006 (no factors applied for seasonal/weekday variations)





Level-of-Service

Capacity analyses were performed for the AM and PM peak hours for the existing (2007) traffic conditions using Synchro Version 7 software to determine the operating characteristics of the adjacent road network.

Capacity is defined as the maximum number of vehicles that can pass over a particular road segment or through a particular intersection within a set time duration. Capacity is combined with Level-of-Service (LOS) to describe the operating characteristics of a road segment or intersection. LOS is a qualitative measure that describes operational conditions and motorist perceptions within a traffic stream. The Highway Capacity Manual defines six levels-of-service, LOS A through F, with A representing the shortest average delays and F representing the longest average delays. LOS D is the typically accepted standard for signalized intersections in urbanized areas. For signalized intersections, LOS is defined for the overall intersection operation.

For unsignalized intersections, only the movements that must yield rightof-way experience control delay. Therefore, LOS conditions for an intersection are best represented by reporting the delay to the side street approaches and movements . Results between LOS A and LOS C for

the side street approach are assumed to represent short delays. For descriptive purposes, results between LOS D and LOS E for the side street approach are assumed to represent moderate delays, and LOS F for the side street approach is assumed to represent long delays. It is typical for stop sign controlled side streets and driveways intersecting major streets to experience long delays during peak hours, while the majority of the traffic moving through the intersection on the major street experiences little or no delay. Table 2 lists the LOS control delay thresholds published in the Highway Capacity Manual for signalized and unsignalized intersections, as well as the unsignalized operational descriptions assumed herein.

Table 2. Intersection Level-of-Service Control Delay Thresholds						
Level-of- Service	Average Control Delay (sec/veh)					
	Signalized	Signalized Unsignalized				
А	≤ 1 0	≤ 10				
В	> 10 - 20	> 10 - 15	Short Delays			
C	> 20 - 35	> 15 - 25				
D	> 35 - 55	> 25 - 35	Moderate			
E	> 55 - 80	> 35 - 50	Delays			
F	> 80	> 50	Long Delays			



Source: Wilmington MPO 24-Hour Traffic Counts, November/December 2006, (no factors applied for seasonal/weekday variations)

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Table 3. Inte	Table 3. Intersection Level- of-Service (based on 2007 intersection counts)															
Street			Peak Hour LOS													
		Signalized									Unsig	nalized				
		3 rd	5 th	8 th	10 th	13 th	16 th	17 th	4 th	6 th	7 th	9 th	11 th	12 th	14 th	15 th
Wooster	AM	С	Α	А	Α	А	В	F	A	С	С	А	С	С	С	С
Street	PM	D	В	Α	В	А	В	F	А	В	D	С	D	Е	С	С
Dawson	AM	С	А	А	А	А	В	В	А	D	D	А	С	Е	С	А
Street	PM	С	В	Α	Α	Α	С	С	А	С	Е	Α	С	Е	D	А

All of the intersections along the Dawson and Wooster corridor currently operate at an acceptable LOS except for the following intersections (**Table 3**):

- Dawson Street at S 7th Street during the PM peak hour
- Wooster Street at S 12th Street during the PM peak hour
- Dawson Street at S 12th Street during the AM and PM peak hours
- Wooster Street at S 17th Street during the AM and PM peak hours

Based on the traffic counts provided by the City of Wilmington and signals coordinated to 90-second cycle lengths in the AM and PM peak hours, the intersections along the corridor all operated at acceptable levels-of-services excluding the intersection of S 17th and Wooster Streets. Two unsignalized intersections experience long delays and LOS E on the minor approaches in the PM peak hour — S 7th and 12th Streets — but the delays are limited to one approach in the peak hour only.

Crashes

A key component of this study involves addressing traffic safety. A thorough examination of crash history and traffic patterns can usually

predict key locations where an improvement in traffic safety will be beneficial to both the traveling public and the community as a whole. According to data published by the NCDOT, the average cost of a crash to the community is approximately \$42,000. This cost includes medical care, emergency services, victim work loss, employer cost, traffic delay, property damage, and the overall quality-of-life.

Five years of crash data — from June 2002 to May 2007 — were analyzed for the major roads in the study area (**Figure 4**). The following sections describe the crash history for the major roadway facilities within the study area, inclduing specific rates and trends. Corridor crash rates were not be compared to the North Carolina state averages because the study roads were one-way multi-lane facilities, atypical in the US routes category therefore providing limited data for comparison. The analysis places consideration on the severity index rating for crashes at the intersection. The rating reflects the average severity of crash at the intersection based on driver injuries relative to a crash with property damage only (PDO), with PDO crashes rated

1.0, minory injury crashes 8.4, and major injury and fatality crashes 76.8.

Intersections with more than 25 crashes per year were considered high crash or "hot spot"

Narrow on-street parking lanes, streetside features obstructing sight distance, and congestion are three contributing factors to crashes in these corridors





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locations (Table 4). Almost one-third of the intersections in the study area fall under the high crash location category. Only those with a distinct crash pattern were addressed by proposed safety improvements.

Wooster Street — During the analysis period, 236 total crashes occurred on Wooster Street from S 3rd Street to 17th Street and another 199 within 150 feet (1/2 block) of Wooster on the side street approaches Out of the 435 total crashes, there were no fatalities, 4 major injury crashes, 207 minor injury crashes, and 224 PDO crashes. The total crash rate was 780.37 crashes per 100 million vehicle miles traveled.

This segment of roadway had six "hot spot" locations, containing clusters of more than 25 crashes during the analysis period. The "hot spots" include the intersections of Wooster Street with S 3rd Street, 5th Avenue, 6th Street, 8th Street, 16th Street, and 17th Street.

Dawson Street — During the analysis period, 383 total crashes occurred on Dawson Street from S 3rd Street to 17th Street and another 73 within 150 feet (1/2 block) of Dawson on the side street approaches Out of the 456 total crashes, there were no fatalities, 5 major injury crashes, 172 minor injury crashes, and 279 PDO crashes. The total crash rate was 993.83.

This segment of roadway had three "hot spots": S 3rd, 16th, and 17th Streets.

NCDOT 6th and 8th Street Study

As mentioned earlier, the 2006 NCDOT Highway Safety Improvement Program report ranked the intersections of Wooster/8th Streets and Wooster/6th Streets as the 56th and 120th most "potentially hazardous intersection locations" in the state. With the resurfacing project, the NCDOT considered options for improving the two intersections to reduce the potential for crashes like those occurring at the intersection. Upon investigation of the crash reports for the two locations, it was evident to engineers that there was a disproportionate number of angle crashes caused by motorists on the side street pulling in front of vehicles on Wooster (see crash diagrams on the following page). This realization prompted NCDOT engineers to weigh options for improving the two locations to improve the crossing conditions or eliminate the vehicular conflicts causing the predominant angle crash pattern.

* Crashes per 100 million vehicles entering the intersection; crash rates unavailable at S 6th and 8th Streets because lack of average daily traffic counts on those two side streets ** Severity index reflects average equivalent property damage only (EPDO) rate; fatal and Type A injury crashes rated 76.8, Type B and C injury and injury crashes rated 8.4, and PDO crashes rated 1.0

Wooster at





Figure 4. Corridor and Intersection Crashes (2002-2007)



Table 4. Intersection Crash Statistics – High Crash Locations (June 2002 - May 2007)

Road	Total Crashes	Crash Rate*	Severity Index**
Wooster at S 3 rd	143	174.57	4.52
Dawson at S 17 th	87	104.80	3.72
Dawson at S 16 th	74	95.36	3.30
Dawson at S 3 rd	73	87.85	3.43
Wooster at S 16 th	66	94.27	4.36
Wooster at S 17 th	67	88.37	3.98
Wooster at S 5 th	41	87.37	4.25
Wooster at S 8 th	35	N/A*	7.82
Wooster at S 6 th	34	N/A*	4.92

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The block length on Dawson and Wooster Streets is approximately 300 to 350 feet, with signals spaced every two to three intersections, with the exception of a five-block section between S 10th and 5th on Wooster Street (prior to the resurfacing project). This led to the evaluation of placing a signal at 8th and Wooster Streets to match the one located at 8th and Dawson Street. The intersection did not warrant a signal based on traffic counts performed for the study, just short of the peak hour volume threshold.

The S 6th Street intersection is too close to the signal one block downstream to consider the installation of another signal, therefore NCDOT engineers looked to create a coordinated solution. If S 6th Street motorists were prohibited from crossing Wooster Street, reasoning stood that a certain percentage of the north/south volume would divert to S 5th Avenue to the west, where there is an existing signal, or S 7th and 8th Streets to the east. That diverted volume could then aid in meeting warrants at 8th Street. Assuming a 20% diversion to 8th Street, the peak hour volume warrant was met, allowing for a signal installation. A "longhorn" T-shaped median was designed to be placed at the north side of the S 6th and Wooster intersection to prevent the crossing movements and eliminate the crash potential.

Both improvements were planned for installation in coordination with the spring 2007 resurfacing project, with the signal placement occurring first since the project progressed east to west. Delays involving the contractors retained to construct the concrete median forced NCDOT to utilize the temporary Dura-Curb[™] median for the installation based on inventory on hand. While NCDOT fully intended to put the concrete median in place once contractor issues were solved, neighborhood controversy halted such a measure until consensus could be resolved over what had become a divisive project.



NCDOT aimed to prevent the numerous right-angle crashes (highlighted in orange) happening at 6th and 8th Streets on Wooster.



A traffic signal should not be installed unless one or more of the warrants are met, but the satisfaction of one of more warrants does not in itself require the installation of a signal.





The Manual on Uniform Traffic Control Devices, or MUTCD, defines the standards used by road managers nationwide to install and maintain traffic control devices on all streets and highways. The MUTCD is published by the Federal Highway Administration (FHWA) under 23 Code of Federal Regulations (CFR), Part 655, Subpart F.

The MUTCD calls for an engineering study of traffic conditions, pedestrian characteristics, and physical characteristics of an intersection to be performed to determine whether a traffic signal installation is justified.

The study is governed by eight warrants outlined in the manual:

Eight-Hour Vehicular Volume: Must meet minimum volume criteria for any eight-hour period

 Four-Hour Vehicular Volume: Must meet minimum volume criteria for any four-hour period

Peak Hour Volume: Must meet minimum volume criteria for any single-hour period

 Pedestrian Volume: Must meet minimum pedestrian volume criteria for any four- or one-hour periods

School Crossing: Lacks the frequency and adequacy of gaps in the vehicular traffic stream as related to the number and size of groups of school children at an established school crossing

Coordinated Signal System: Must necessitate installing traffic signals at intersections where they would not otherwise be needed in order to maintain proper platooning of vehicles

• Crash Experience: Applied where the severity and frequency of crashes are the principal reasons to consider installing a traffic control signal

Roadway Network: Justified where a signal would encourage concentration and organization of traffic flow on a roadway network





Intersection conditions at S 6th and Wooster Streets before the temporary median was installed

Intersection with Dura-Curb[™] median as observed during charrette ►

Intersection rendering of proposed T-shaped longhorn median









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Transit

US Census data shows that 13.5% to 28.0% of the households in the study area do not own an automobile in 2000. Many area residents rely on Wilmington's Wave Transit system to get to work and to perform daily errands and shopping. Figure 5 displays the existing transit routes throughout the study area, provided by the Wave Transit sytem. Currently, the Independence/Long Leaf Malls/UNCW route (Route 6) runs in the eastern portion of the study area, with four stops on Dawson and Wooster Streets. The Oleander route (Route 3) also runs just north of the study area on Castle Street. Routes 1 (East Wilmington/Long Leaf Park) and 5 (New Hanover Medical Center) run across the corridors at S 3rd Street and 5th Ávenue respectively.

Wave Transit is currently developing a route restructuring plan to be implemented in 2008. Based on recommendations provided in the 2004 Wave Short-Range Transit Plan, the system's Route Committee has preliminarily developed new routes based on service to key focal activity centers, along primary suburban corridors, and to new park-and-ride locations. The plan is currently set for public comment to help finalize revisions and validate the routes. The system looks to increase service in the study area; the South Loop route will run eastbound on Dawson before turning south toward New Hanover Medical Center. The route will return to Downtown on nearby Castle Street. Four additional routes will cross the corridor: the West Loop, Medical Center Loop, Monkey Junction, and Brunswick Connector routes.

Figure 5. Existing and Future Transit Routes







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Other Street Elements

Several other street elements actively affect operations in the Dawson and Wooster corridors (Figure 6):

- Sidewalks: Sidewalks are present along the length of Dawson Street with a few missing lengths, but are scattered and disconnected on Wooster Street.
- **On-street parking:** Many of the homes and businesses fronting Dawson and Wooster Streets have very small driveways, if any. On-street parking is valuable to the people who live and work in these properties. The parking is marked with a solid white line beside the travel lane, in some cases 6 feet or less from the curb.
- Bike lane: There is a short segment on Dawson Street from S 3rd Street to S 5th Avenue that includes a bike lane. The lane was created with a streetscaping project on the segment and connects to S 5th Avenue, a designated scenic byway.

Red Light Running

The Dawson and Wooster corridors are equipped with several red light cameras to record motorists who illegally run red lights. These stations are designed to improve the safety at signalized intersections. Table 5 displays the intersection with red light cameras as well as shows the typical number of violations occur in a recent month. Crash data from three years before and three years after the installation of the red light cameras has been evaluated to determine their effectiveness. The table clearly shows that red light cameras have been successful in the reduction of collisions and therefore injuries along the corridors.

Table 5 Red Light Running Violations (2007)

Road	Violations	Collisions			Injuries		
	month	Before	After	%Δ	Before	After	%Δ
Wooster at S 17th	273	45	30	-33%	38	24	-37%
Wooster at S 3rd	236	83	66	-20%	63	56	-11%
Wooster at S 5th	185	-	-	-	-	-	-
Wooster at S 16th	167	-	-	-	-	-	-
Dawson at S 3rd	133	64	27	-58%	52	12	-77%
Dawson at S 17th	91	53	40	-25%	28	21	-25%
Dawson at S 16th	35	69	51	-31%	47	47	0%

Figure 6. Street Features







Dawson & Wooster **Corridor** Plan

LAND USE

The Dawson and Wooster Corridor Plan study area is located in an area south of downtown Wilmington that is very community-oriented. The only exceptions are the areas on the eastern and western edges of the study area zoned CS (Community Services), containing a mixture of light manufacturing, wholesale, storage, commercial service and repair, and distributive business type uses. Areas under this zoning are intended to be supportive districts to more intensive industrial and commercial uses found nearby, such as the industrial waterfront. CS zones are generally found near major roadways such as Oleander Drive and S 17th Street.

Areas zoned as community business districts are found adjacent the CS districts (see Figure 7) and recognize the neighborhood-oriented businesses within. Apart from the commercial zones, the remainder of the area is predominantly small, single-family homes, most of which are older housing stock if not historic in nature. Interspersed in the neighborhoods are numerous small churches and businesses frequented by the local residents. These areas are zoned R-3 and R-5, with development standards aimed at preserving the nature and density of residential areas as they existed within the City's 1945 corporate limits.

Two multi-family housing complexes are located on Dawson Street. The Hillcrest Community, located between S 13th and 16th Streets, were

constructed in the early 1940s and later converted from a WWII-era apartment complex for Army officers and shipyard employees into subsidized housing. Robert S. Jervey Place, located between S 8th and 10th Streets, is a privately-managed, Hope VI redevelopment community composed of four mixed-income communities with a total of 100 garden apartments and numerous single family homes and townhomes.

The S 10th Street Corridor serves as an educational corridor, with three schools located within eight blocks: Howe Pre-Kindergarten School two blocks south of Dawson Street and Gregory Elementary and Williston Middle Schools five blocks north of Wooster Street.

As discussed in the report introduction, the neighborhood along Dawson and Wooster Streets was originally known as Dry Pond. Established in the early 1900s, the blocks west of 8th Street are part of a historic area designated in the National Register of Historic Places. As part of the district, homes and businesses in those blocks are subject to review by the City's Historic Preservation Commission for all proposed changes to the exterior of structures, demolition of structures, new construction, signage, and changes to the surrounding grounds, including landscaping. A Certificate of Appropriateness is issued by the Commission for exterior changes to the property approved based on the Wilmington Design Guidelines for Historic A large portion of downtown Districts and Landmarks.

Wilmington is designated a historic area.



Figure 7. Study Area Zoning









Figure 8. Study Area Land Uses and Examples











SOCIAL ELEMENTS

Based on interviews with stakeholders and discussion with citizens at the public meetings, it was apparent that a majority of area neighbors were concerned about the installation of the Dura-Curb[™] median at S 6th Street, but equally unhappy t they had not been informed of its installation. Public input and involvement has always been an important component to successful transportation projects, as facilities and measures constructed have a direct effect on those who live near and travel on the roadway daily. NCDOT acknowledged their oversight in not involving the community and, in return, provided funding for this study in hopes of resolving the issue cooperatively.

Locals feel that the movement restrictions at S 6th Street have "cut the neighborhood in two." South 6th Street has long served them as a north-south alternative to S 5th Avenue and its signals. The route is also the only continuous two-way street between S 3rd and 17th Street that runs from Market Street to Dawson Street with only unsignalized traffic control. The corridor also links residents and workers to several key businesses near S 6th Street and to the local union hall for the longshoremen.

A review of demographic data available through the 2000 Census shows that a majority of the residents are minority, predominantly African-American (**Figure 9**) and the area has a relatively low Hispanic population (**Figure 10**). A large portion of the households make less than poverty level wages (**Figure 11**). Historically, minority and lowincome populations have been disproportionately impacted by roadway projects until Environmental Justice regulations were put in place by President Clinton in 1994 (Executive Order 12989, "Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations."). Many community residents indicated that their parents and grandparents dealt with those exact issues when the Cape Fear Memorial Bridge was built and Dawson and Wooster Streets were turned into major thoroughfares through their neighborhood.

In addition, neighborhoods south of downtown Wilmington have been experiencing a recent surge of urban gentrification, in which low-cost, deteriorated homes are being renovated by an influx of wealthier residents and property owners, displacing the long-time residents via buy-outs, increasing property values, and, in turn, property taxes. Many residents expressed opinions that they felt the improvements being made to the streets in the area are a direct effect of this gentrification and renewed interest in a neglected area based on a few affluent voices.



Figure 9. Percent Population Minority (2000 Census)





"Regulations for the preservation of historic districts were created without regard to affordability for construction, rehabilitation or maintenance. Funding from the City of Wilmington is minimal and is limited to houses being rehabilitated through the Community Development Block Grant program. Other residents and potential residents will be priced out of the market. There is a potential for their homes to become extremely dilapidated, or the residents will have to move to a more affordable area. The regulations concentrate on structures not cultures creating gentrification."

- From "Analysis of Impediments To Fair Housing Choices In Wilmington, North Carolina," August, 2003, City of Wilmington, Community Services Department, Community Development Division



Figure 10. Percent Population Hispanic (2000 Census)



Figure 11. Percent Population Below Poverty (2000 Census)









3 — FINDINGS AND RECOMMENDATIONS

After reviewing the comments and data collected during the study process, four goals were evident as the main points in evaluating improvement options for the Dawson and Wooster corridors:

- Preserve neighborhood and historic character
- Address corridor safety
- Identify opportunities for aesthetic enhancements
- Provide recommendations that are implementable

In addressing these four goals, any improvements would balance the interests of the parties involved: the local residents and business owners, traveling public, NCDOT, and the City of Wilmington.

The improvements recommended for the study area logically fit into three distinct timeframes for action based on their size and scope. The three principal purposes were identified as key issues to be resolved by the *Dawson and Wooster Corridor Plan*:

- In the present term and with neighborhood collaboration, evaluate the measures to improve the safety of the intersection of S 6th Street and Wooster Street: Resolution of the S 6th/Wooster intersection issues is necessary to remedy NCDOT's safety issues, to satisfy public concerns, and to move the process forward.
- In the short term, evaluate the measures to improve safety along the Dawson and Wooster corridors: Present roadway conditions and geometry can be improved to enhance both vehicular and pedestrian safety as well as the visual aesthetics of the neighborhood. The improvements should be within the existing right-of-way, based on the proximity of the roadway to numerous homes and businesses located mere feet beyond the edge of the curb.
- In the long term, identify the opportunities and constraints to define a long-range vision for the corridors: The future of the corridors is directly tied to the future of the Cape Fear Skyway Bridge and other crossings of the Cape Fear River. Therefore, options must remain open for potential future scenarios.

IMMEDIATE RECOMMENDATIONS

6th Street Improvements

Causational Factors – Residents provided numerous suggestions for replacing the temporary Dura-Curb[™] median in place at the intersection. But to truly determine the appropriate measure for the location, the project team had to determine the nature of the crashes at the intersection, particularly the predominant southbound angle crashes. The crash diagrams show 32 of the 45 crashes (71%) involved collisions between southbound and westbound vehicles. In addition, the crash report shows that 26 of the crashes (57%) occurred between 4:00 and 6:00 PM. This data, in conjunction with the number of rear-end crashes, led the project team to believe the crashes were the result of two potential scenarios:

- Scenario 1: Motorists traveling southbound on S 6th Street arrive at Wooster Street to find afternoon peak traffic queuing back from the S 5th Avenue signal past S 6th Street. Motorists stopped in the right (and possibly center) lanes on Wooster Street provide space for the southbound motorist to cross and wave the motorist through. The motorist pulls out from S 6th Street and is hit in the left side by a vehicle in the center or left lane of Wooster Street.
- Scenario 2: Cars parked on the corner of S 6th and Wooster Streets obstruct the view of a southbound motorist wishing to cross Wooster Street. The driver pulls across Wooster Street and is struck by a vehicle in the rightmost lane that was not visible because of the parked vehicle.

Field Observations – To best understand the current dynamics of the temporary installation, the project team evaluated the site firsthand and found that the current design creates several safety issues, including:

 The length of the median beyond S 6th Street and its continuation to S 5th Avenue creates a dilemma for motorists attempting to continue southbound by turning left onto S 5th Avenue if another





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vehicle is behind them (i.e., vehicles must weave across three lanes of traffic to accommodate the turn).

- The vertical paddles set upon the medians actually obstruct drivers' view of traffic in the adjacent lane — in their side mirrors and when checking blind spots. Drivers sounded their horns to alert oncoming vehicles when coming out from the median as they looked to merge left into Wooster Street traffic.
- Drivers on Wooster Street wanting to turn right onto northbound S 5th Avenue and drivers merging left from behind the median must do so in a short segment (approximately 150 feet).

Based on these observations, it is recommended that the NCDOT replace the Dura-Curb[™] median with the one of the alternatives presented in the following sections.

Alternatives Analysis – As mentioned previously, the residents came to the public workshops with a variety of options for replacing the current temporary median, as well as demands to simply remove it. Other suggestions included the installation of a traffic signal, signage to prohibit S 6th Street through movements, the removal of adjacent parking, and buying properties on the corner of S 6th Street for demolition.

Before developing additional options and analyzing those proposed at the meetings, the project team members discussed with NCDOT engineers their study methodology and goals. They made clear the following points concerning options for the intersection:

- The crash patterns occurring on southbound S 6th Street are an identified safety problem. Not acting to rectify the situation represents a liability for NCDOT.
- The diversion of traffic from S 6th Street provided the traffic volumes needed to justify a signal at 8th Street. Therefore, removing all measures at S 6th Street would result in the removal of the 8th Street signal as well.
- NCDOT was willing to entertain alternatives to the "longhorn" median design.
- Funding already is allocated to construct a permanent traffic calming measure at the S 6th Street intersection.
- Improvements should be within the current rights-of-way.



Understanding these perspectives, the project team began to evaluate options, several of which were initiated by the charrette participants. For each option, consideration was given to safety, mobility/connectivity, access, maintenance of the 8th Street signal, funding, traffic operations, aesthetics, and social impacts. All alternatives will be compliant with ADA regulations.

Early decisions were made to eliminate the following options:

- Do Nothing: Based on field observations, concerns existed about the inability to see oncoming vehicles from behind the medians because of the vertical paddles. The community's dissatisfaction with the temporary median based on aesthetics and the available funding for a permanent concrete version also aided in this option's removal.
- Remove the Dura-Curb[™] Median: The simple removal of the current median eliminates the safety improvements and reintroduces the crash potential at S 6th Street and at 8th Street, as the signal would no longer be warranted.
- Install Signage Prohibiting S 6th Street Through Movements: City of Wilmington transportation planners cited several locations around the city where signed turn prohibitions are widely ignored. In addition, numerous workshop attendees stated they would disregard traffic laws and drive over more substantial measures such as raised concrete medians to cross Wooster Street.
- Install a Traffic Signal at the Intersection : The S 6th/Wooster intersection would meet only one signal warrant (Warrant 7: Crash Experience) and is located too close to the existing S 5th Avenue signal. Therefore, this intersection should not be considered for signalization. The downstream intersection already produces queues back to the S 6th Street intersection.
- Purchase Corner Property: The purchase and demolition of local properties to improve sight distances would be financially irresponsible and outside the existing right-of-way.

The remaining alternatives were further developed and are presented in **Table 6** in matrix format. In a working session on Day 3 of the charrette, the first five alternatives were presented to NCDOT and MPO representatives, who offered comments to help improve or modify the



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concepts. The project team originally produced two options for the halfmedian design, one with free-flow merge conditions downstream of the median and one with the channelized right turn controlled by a yield sign. The team selected the yield-controlled option based on the fact that it eliminated the merge conflicts experienced with the temporary median installation and the 8th Street signal creates adequate gaps in traffic for vehicles to enter the traffic stream. The design carries the median east of the intersection and directs S 6th Street traffic westbound. This design feature should prevent motorists from trying to navigate around the island and continue southbound on S 6th Street and encourage motorists to merge into traffic rather than cross to a desired lane.

The first five alternatives were presented in the second public workshop and were met with mixed reviews from area residents. The planned longhorn median, dead-end, one-way, and median island options were unacceptable to the neighbors, who expressed concern that they restricted mobility and damaged the connectivity of the street network. The half-median was met with some positive responses in that it marked a middle ground between NCDOT's and the neighborhood's positions, prohibiting the problematic southbound through movement but still allowing the northbound connection.

At the end of the workshop, participants were given green and red dots to place on displays of their respective "most favored" and "least favored" options. Of the 22 attendees who used the dots before leaving the meeting, all 22 selected the half-median as the most favored and 17 selected the dead-end as the least favored. A select group of residents were reluctant to place their dots on a preferred choice, citing that they only favored the removal of the Dura-Curb[™] median or signalization.

After the charrette, a sixth option was added to the analysis that entailed the removal of the temporary median and the construction of bulb-outs extending along Wooster Street at the expense of on-street parking adjacent to the S 6th Street intersection. Similar designs are presented in the next section as an option to provide streetscapes while improving sight distances by removing adjacent on-street parking. This measure rectifies the second scenario discussed as a causational factor for S 6th Street intersection crashes, in which a parked vehicle may obstruct a driver's view of a vehicle approaching the S 6th Street intersection in the right lane on Wooster Street. The option does not rectify the first scenario under congested conditions, however, where drivers may be



and has the advantage of supporting safety with moderate sacrifices to mobility. The alternative also can be constructed with monies currently reserved to install the longhorn median. Southbound traffic wishing to cross Wooster Street will have three options for diversion — S 5th Avenue and 8th Street, where signals provide right-of-way to cross, or S 7th Street, where signt distances are better due to less topography and operations are less affected by queuing from the S 5th Avenue signal.

at the intersection may result in the removal of the 8th Street signal. The alternative does maintain north-south mobility along S 6th Street, and

most likely would have garnered all the most preferred votes. Although

favorable to the local neighborhood, construction of bulb-outs and

removal of on-street parking would not rectify the crash problem;

As an initial step towards recognizing this recommendation, NCDOT altered the Dura-Curb[™] median as originally installed. After the charrette, Division 3 personnel removed the eastern potion of the median to change the median configuration to match that of the pork chop design and allow northbound crossings of Wooster Street. NCDOT removed several vertical paddles from the other portion to correct the sight distance problem for motorists behind the median.

Public Involvement Policy

Despite public debate regarding the type of measure that should be used at the S 6th Street intersection, local residents and City Council members alleged that NCDOT had failed to inform them of the planned intersection improvements. In a *Wilmington Star News* article published in July 2007, NCDOT officials "acknowledged they made a mistake by not involving the residents and said they changed their public notification policies so it doesn't happen again." Discussions with NCDOT Division 3 personnel involved in the project confirmed that the agency has changed their policies after the incident.





Dawson & Wooster Corridor Plan

Alternative	Pros	Cons	Plan View	Rendering
Longhorn T-shaped Median	 Mitigates southbound crashes Maintains signal at 8th Street Has committed funding 	 Limits north-south mobility on S 6th Street Retains difficult weave between S 6th Street and S 5th Avenue Provides no landscaping opportunities 3 "Least Favored" Votes 	WOOSTER OT.	
Pork Chop Half Median	 Mitigates southbound crashes Allows northbound movement Maintains signal at 8th Street Improves visibility Creates small plantable area Solves weave section with yield/stop sign 22 "Most Favored" Votes 	 Limits southbound mobility on S 6th Street Allows determined drivers to illegally drive around 		







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Alternative	Pros	Cons	Plan View	Rende
Splitter Island/ Median	 Mitigates southbound crashes Maintains signal at 8th Street Has committed funding Provides plantable median May slow traffic on Wooster 	 Limits north-south mobility on S 6th Street Retains difficult weave between S 6th Street and S 5th Avenue Creates potential obstacle in Wooster Street Creates crash potential at S 6th Street approach 2 "Least Favored" Votes 	WOOMTER OFFICET	
Dead-end	 Mitigates southbound crashes Maintains signal at 8th Street Provides plantable area Increases on-street parking 	 Eliminates north- south mobility on S 6th Street Limits effective turn- around area Potentially creates area conducive to criminal activity 17 "Least Favored" Votes 		





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Table 6. S 6th and V	Table 6. S 6th and Wooster Intersection Alternatives (cont'd).								
Alternative	Pros	Cons	Plan View	Rende					
One-Way Northbound Lane	 Mitigates southbound crashes Maintains signal at 8th Street 	 Eliminates southbound mobility on S 6th Street Limits neighborhood mobility if replicated on other north/south streets 	Constructions of the state of t						
Parking Removal with Bulb-outs	 Maintains north- south mobility on S 6th Street Provides better sight distance for southbound vehicles Provides plantable area 	 Maintains potential for crashes where motorists were "waved out" and then hit in center or left lane Triggers removal of 8th Street signal May not eliminate NCDOT liability for crashes 	WOOGTER STREET						





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Intersection Spot Safety

As part of the crash analysis for the corridor, the project team investigated seven of the nine high crash locations identified in the previous chapter where more than 25 crashes had occurred in the past five years. Improvements already have been made at the other two hot spots — the S 6th and 8th Street intersections on Wooster Street therefore, further evaluation of these intersections is not necessary.

 Table 7 outlines the seven remaining locations and trends in the crash
 data. During field visits, project team members looked for potential causational factors and, if possible, suggested ways to improve the intersection to help reduce the crash potential and future accidents. For most of the intersections, there were no identifiable features to suggest

causation for the specific crash types or specific directional distributions by vehicles at fault. Operations are congested and extensive queuing is present at all locations. In these conditions, drivers experience sudden braking due to traffic delays or try to speed through signals when the phases are changing.

The last column on the following table presents recommendations for intersection improvements and reasonings for those measures. Primarily, the improvements are minor and do not include major changes to the intersection operations. The recommendations are aimed to improve both motorist and pedestrian safety and are outlined in following sections of the report.

Road	Total Crashes	Most Prevalent Crash Type	Trends of Note	Potential Causes	
Wooster at S 3 rd	143	Angle (74%)	SB-WB Angle: 84/102 (82%) NB-WB Angle: 18/102 (18%)	 Congestion/traffic delay Downhill grade upstream of westbound approach Limited sight distance from southbound right turn Last-second lane changes on westbound approach just before intersection 	
Dawson at S 17 th	87	Rear-end (39%)	-	 No specific causations identified in the field beyond congestion/traffic delays, crash patterns typical for intersection type 	
Dawson at S 16 th	74	Angle (46%)	-	 No specific causations identified in the field beyond congestion/traffic delays, crash patterns typical for intersection type 	
Dawson at S 3 rd	73	Angle (45%)	SB-EB Angle: 6/25 (24%) NB-EB Angle: 19/25 (76%)	 No specific causations identified in the field beyond congestion/traffic delays to cause predominant northbound/eastbound pattern 	
Wooster at S 17 th	67	Angle (66%)	-	 No specific causations identified in the field beyond congestion/traffic delays, crash patterns typical for intersection type 	
Wooster at S 16 th	66	Angle (46%)	_	 No specific causations identified in the field beyond congestion/traffic delays, crash patterns typical for intersection type 	
Wooster at S 5 th	41	Angle (49%)	SB-WB Angle: 6/17 (35%) NB-WB Angle: 11/17 (65%)	 No specific causations identified in the field beyond congestion/traffic delays to cause predominant northbound/westbound pattern 	





Recommendations

Relocate stop bars for southbound right-turn approach forward to improve sight distance Install lane markers further upstream to supplement overhead signing Install high visibility crosswalks and ped-heads at signal to improve pedestrian conditions Install high visibility crosswalks and ped-heads at signal to improve pedestrian conditions

Install high visibility crosswalks and ped-heads at signal to improve pedestrian conditions Install high visibility crosswalks and ped-heads at signal to improve pedestrian conditions Install a bulb-out on SW corner to eliminate weave problem and delineate parking Trim vegetation on NW corner to improve sight distance



SHORT-TERM IMPROVEMENTS

Streetscape and Corridor Safety

Dawson and Wooster Streets serve not only as major thoroughfares for the Wilmington area, but also as a gateway for the City as they are linked with the Cape Fear Memorial Bridge and the US 76 corridor. Currently, the two streets provide little evidence of Wilmington's rich history beyond the nature of the homes fronting the street. The yards of these homes have numerous trees and plantings, but there is minimal streetscape. As outlined in the **Existing Conditions** section, narrow on-street parking exists along Dawson Street and is scattered along Wooster Street.

The one-way pair of Dawson and Wooster has become unsafe due to the repeated increase in width and inconsistency of sidewalks along the roads. Just under 900 crashes occurred along the study streets in the past five years, costing Wilmington residents and visitors \$4.5 million in property damages alone. Of these crashes, 55% were angle crashes involving vehicles crossing each others' paths, 19% involved rear end collisions, 9% were sideswipes, and 7% involved vehicles making left turns. The remainder is a mix of crash types, but 10 crashes involved pedestrians or cyclists and 8 crashes involved parked cars.

By establishing a typical intersection improvement approach as well as incorporating pedestrian-scale improvements and gateway features, the neighborhood identity will be improved and beautified while providing additional safety for pedestrians, including ADA-compliant ramps and pedestrian crossings. The project team evaluated traffic operations — travel patterns and intersection operations — and concluded that the capacity of the corridor is governed by the intersections at either end: at S 3rd, 16th, and 17th Streets. The 13-block segments between those points will be able to operate at acceptable levels-of-service (LOS) under most conditions with average daily traffic volumes of 22,000 or possibly higher with three-lane facilities. The signals at S 5th Avenue and S 8th, 10th, and 13th Streets all operate with simple two-phase, coordinated phasing, enabling efficient mainline operations and platooning. **Table 8** outlines the intersection LOS with the lane reduction on Dawson Street.

The project team proposed three-lane cross-sections for both Wooster and Dawson Streets, as an opportunity to enhance these two corridors in a way that not only improves aesthetics but also improves vehicular and pedestrian safety. NCDOT and the City of Wilmington could improve the intersections from S 4th to 15th Streets in a systematic program that retrofits each intersection with the designs presented on the following page. The current 65-foot could be transformed from four 12-foot lanes, two 6-foot parking lanes with curb and gutter to three 12-foot lanes, two full 9-foot parking lanes with 3-foot buffers, and curb and gutter. The two buffers could also be used to create a 6-foot bike path adjacent to the right parking lane. If four lanes of traffic had to be maintained, four 11foot lanes with two 8-foot parking lanes would also fit within the current cross-section without disturbing the existing curb and gutter location.

After analyzing the one-way pair corridors, all of the intersections fall into one of four typical intersection types: Dawson Signalized, Dawson

Street								Ре	ak Hour I	LOS						
					Signalize	d						Unsig	nalized			
		3 rd	5 th	8 th	10 th	13 th	16 th	17 th	4 th	6 th	7 th	9 th	11 th	12 th	14 th	15 th
Dawson	АМ	С	Α	Α	Α	Α	В	В	Α	С	C	Α	С	D	С	Α
Sucel	РМ	С	В	Α	Α	В	С	С	Α	С	C	Α	С	Е	D	Α

Table 8. Future Intersection Level-of-Service on Dawson Street with Lane Reduction











Typical intersection corner treatments for signalized intersections without parking (top) and with parking (middle) as well as unsignalized intersections (bottom)

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Unsignalized, Wooster Signalized, and Wooster Unsignalized. By applying a typical design standard to each of the intersections, the corridors will become more uniform, and pedestrian crossings will be limited to the signalized intersections. Simple treatments like those described below for each intersection type are cost-effective and easy to implement in the short term if funding is made available.

Dawson Signalized Intersection – Crossing the four lanes of Dawson Street is improved through an intersection treatment that incorporates simple bulb-outs to shorten the crossing distance for pedestrians while controlling the proximity of parked cars to the intersection. Planted areas of flowers and low shrubs fill the additional area created by the bulb-outs. The narrowing of the roadway at the intersection will slow traffic speeds.

Dawson Unsignalized Intersection – The elements of the Dawson unsignalized intersection are similar to the signalized example; however, pedestrian movements are limited to crossing the side streets. Bulb-outs still function as traffic calming devices, especially in the absence of a signal. If street trees were desired throughout the corridor, the road would require narrowing to provide enough planting room. Smaller ornamental trees, shrubs, and flowers should be used due to overhead utility conflicts.

Wooster Signalized Intersection – The typical intersection for Wooster Street shares many characteristics with the Dawson intersections, but the Wooster Street signalized intersection lacks parking on both side of the road. A bulb-out implemented on the side of the street with parking will reduce the crossing length across Wooster, while also providing traffic calming and delineation of onstreet parking. Even though one side of the intersection lacks a bulbout, plant material can be incorporated into the verge area between the back of curb and sidewalk.

Wooster Unsignalized Intersection – To favor safe pedestrian crossings only at signalized intersections, this intersection type only provides an ADA ramp for crossing side streets. Other intersection features are synonymous with the Wooster signalized intersection.

Implementation of the intersection improvements can be phased as funds become available. Also, determining the intersections that receive upgrades can be governed by need — some intersections, such as



These four intersection plans represent the typical treatments that could be provided at signalized and unsignalized intersections along Wooster (top row) and Dawson Streets (bottom row). All four intersection types will feature improved pedestrian crossings and ADA-compliant wheelchair ramps.



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S 10th Street, have much higher pedestrian traffic because it acts as a connector between two neighborhood schools.

Other Streetscape Enhancements – The residential character of the Dawson and Wooster area is unique because the street pattern is an urban grid with two thoroughfares bisecting it. The streetscape must respond to this conflict between vehicles and pedestrians. During the public meeting, it was determined that pedestrian safety was of pressing concern. Despite limited funding, there are streetscape elements that would greatly impact safety in the corridors. While the intersection improvements increase pedestrian safety at crossings, small projects such as adding sidewalks to portions of Wooster Street, creating safe access to bus stops, and adding night lighting are additional streetscape enhancements that would improve safety throughout the corridor.

The City of Wilmington is committed to providing sidewalks to both sides of Wooster Street as a City-funded project from S 17th to 3rd Street. In addition, sidewalks should be installed on the east side of S 17th Street between Dawson & Wooster Streets. Pedestrian-scale lighting would make both corridors much safer for pedestrians. In the short term, pedestrian lighting could be added to supplement the existing cobra



head fixtures and, if phasing were to extend into the long term, the street lighting could be replaced with more aesthetically-pleased poles and fixtures. Pedestrian crossing improvements are also needed at the intersection of Dawson Street and Oleander Drive to accommodate nearby residents walking to the grocery and other businesses on the east side of Oleander Drive.

Historic District Gateway Element

- As a way to identify the Dry Pond neighborhood not only as a entryway, but as a historic district, a gateway feature could be added at a few key intersections within the historic district to help give the neighborhood the identity it has earned since the early 20th century. Simple brick pillars could mark the entry to the area so that visitors and residents alike understand the importance of the neighborhood as a part of the City of Wilmington. It is recommended that these gateway features be placed on Dawson Street west of S 5th Avenue, where the residential neighborhood begins, and on Wooster Street west of 8th Street, at the boundary of the historic district. The markers could be located in the proposed bulb-out extensions if the City is unavailable to obtain an easement at any of the corners.

Additional gateway features may be considered at Wooster and S 16th Streets to help provide visual cues that motorists are exiting a commercial area and entering a residential area.

Parking

With small lots and older homes from a less auto-oriented time period, the neighborhood residences and businesses depend on parking on Dawson and Wooster Streets when they lack adequate driveways and parking lots. Based on field visits, public input, and engineering perspective, the project team developed a breakdown of qualitative advantages and disadvantages of existing onstreet parking facilities in the study area (**Table 9**). Going through this evaluation, it became clear that there is a need to retain parking in the corridor as it is essential to the activities of the Dry Pond neighborhood. It is also evident that the designs eliminate several of the disadvantages (shown in *grey italics*) as well as provide additional advantages (shown in *dark red italics*). Yet, there is the opportunity to remove and improve the parking conditions to enhance safety and operations.

Dawson Street – On Dawson Street, narrow on-street parking exists on both sides of the street from S 5th Avenue to 15th Street. With the reduction from four to three lanes, full-width parking can be provided on both sides of Dawson Street with bulb-outs bracketing the spaces on either end of the intersection. If parking is not needed for one or both sides of the street, the additional width can be used for the verge area and provide greater





Table 9. Qualitative Evaluation of On-Street Parking

Advantages

- Provides vehicle parking for residences and businesses without adequate driveways or offstreet parking
- Provides buffer between street traffic and pedestrian areas
- Calms traffic and reduce speeds as a friction factor and by reducing effective street width
- Fits with neighborhood character; is more typical for neighborhood/residential area
- Reduces number of access points/driveways on corridors
- Provides haven and shortens effective crossing distance for pedestrians
- Alleviates parking pressure on side streets
- Provides landscaping and gateway opportunities

Disadvantages

 Reduces sight distance for vehicles approaching the intersection when parked too close to intersection

Reduces corridor capacity as friction factor

- Creates crash potential for sideswipes and rearends with through traffic on corridor
- Provides inadequate width for parking based on standard 7-8' width (existing)
- Creates atypical situation with parking on left side of street (primarily Dawson Street)
- Creates potential for vehicle and bicycle crashes with motorists opening car doors into travel lanes
- Occupies space that could be used for improved streetscape, transit, and pedestrian facilities

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separation between pedestrians and vehicular traffic. Based on a land use analysis of the eastbound facility, parking should be retained on the north side of the street from S 5th Avenue to S 6th Street, on both sides of the street from S 6th to 11th Street, and on the south side from S 11th to 12th Street. Parking should not be needed from S 3rd Street to S 5th Avenue or from S 12th to 17th Street. If NCDOT determines turn lanes are needed at the signalized intersections, the design of the intersections can be revised to move the bulb-outs upstream to provide the necessary storage for each signal.

Wooster Street – On-street parking of varying widths exists on the north side of Wooster Street from S 5th Avenue to 15th Street, interrupted by right-turn lanes approximately a half block in length east of each signalized intersection and S 6th Street. A short parking area exists on the south side of Wooster Street between S 16th and 15th Streets. A bulb-out should be installed at the southwest corner of S 16th & Wooster to help delineate on-street parking and eliminate the awkward weave occurring from errant drivers maneuvering from the dedicated left-turn lane back into through traffic.

Transit

Pending public comments and revisions, the route restructuring plan is proposed to be implemented in 2008. With new routes preliminary shown for Dawson Street and many adjacent streets, the Committee has acted on the recommendations proposed in the 2004 Wave Short-Range Transit Plan that the new routes should focus on serving key population subgroups and areas, including those with low-income households, high senior and/or handicapped populations, households with low automobile ownership, high population density, public housing, and high proportion of minorities. For Dawson Street in particular, space should be provided east of S 5th Avenue, 9th Street, and 14th Street for pull-outs at bus stops with shelters for the new routes.

Adequate pedestrian accessibility and enhanced passenger amenities at stops and stations are critical to attracting people to transit. For the public to perceive the Wave Transit System as a first-class transportation operation, it must include facilities that provide customers with protection from inclement weather and information about service. The system



should strive to provide all the following amenities at bus stops, but particularly at transfer locations and high-demand stops:

- A level concrete pad, consisting of a 20- by 6-foot clear zone at each stop, unobstructed by street furniture, landscaping, or signage
- Reliable pedestrian access with clear sidewalks providing • direct access to the bus loading area
- Adequate lighting
- A bench
- A trash receptacle
- Route, schedule, and system information

Rider amenities should be added to routes where the highest number of boardings and alightings occur as funding becomes available.









Improvements to existing transit stops (shown above) and the creation of more stops throughout the study area will better serve the neighborhood residents dependent on the Wave Transit System and potentially increase ridership.



LONG-TERM VISION

"After the Cape Fear Skyway"

Consideration for a long-term vision was noted as one of the reasons for the study. The vision will help guide incremental and intermediate steps toward improving the corridor. The project team realized the importance of Dawson and Wooster Streets — not just to the City of Wilmington's transportation system, but also to the regional mobility of southeastern North Carolina as part of US Highway 76. The two streets connect Brunswick County and fast-growing areas to the west and south to regional activity centers such as Wrightsville Beach, the UNC-Wilmington campus, and New Hanover Regional Medical Center.

Currently, Dawson Street is a four-lane, one-way facility, and Wooster Street a three-lane, one-way facility, both carrying approximately 22,000 vehicles a day and linking drivers to the Cape Fear Memorial Bridge. This bridge presently is operating at or above capacity in terms of traffic operations, with nearly 65,000 cars a day crossing the Cape Fear River on the bridge. While the current laneage along the two streets can handle a greater capacity than existing volumes, future traffic conditions on the two streets will be directly affected by two factors: 1) the proposed construction of the Cape Fear Skyway and the I-140 corridor in Brunswick County, and 2) regional growth in population and employment in New Hanover and Brunswick Counties (see **Table 10**¹).

The project team considered the possibility of returning Wooster Street to a two-way, two-lane neighborhood street in the long term, pending the completion of the Cape Fear Skyway and other regional transportation projects. These projects could reduce traffic volumes to a level that Dawson Street could possibly be converted to a two-way, four-lane arterial. The conversion would also require reconfiguration of the ramps from the Cape Fear Memorial Bridge. The option presents a long-term vision to minimize the traffic impacts to one street through the neighborhood and reconnect the homes in the block between Dawson and Wooster Streets with the neighborhood to the north.

Of note, the MPO has investigated reverting S 16th and 17th Street to two-way traffic but such a conversion would result in unacceptable delays and queuing at the intersection of the two streets with Dawson



Table 10. Regional Population and Employment Forecasts¹

		Popula	tion			Employ	ment	
	2000	2030	Change	% Change	2000	2030	Change	% Change
MPO Areas								
Central New Hanover	92,306	132,936	+40,630	+44%	69,430	111,315	+41,885	+60%
North New Hanover	39,786	82,126	+42,340	+106%	16,553	38,876	+22,323	+135%
South New Hanover	28,215	54,613	+26,398	+94%	6,571	16,823	+10,252	+156%
Northeast Brunswick	12,015	35,297	+23,282	+194%	4,856	13,111	+8,255	+170%
Outlying Areas								
Central & S Brunswick	58,663	139,360	+80,697	+138%	20,953	46,719	+25,766	+123%
Columbus & N Brunswick	57,214	95,224	+38,010	+66%	20,170	28,040	+7,870	+39%
Central & N Pender	27,264	65,095	+37,831	+139%	6,705	15,227	+8,522	+127%
Southeast Pender	13,818	42,541	+28,723	+208%	3,440	12,784	+9,344	+272%
Total Region	329,281	647,192	+317,911	+97%	148,678	282,894	+134,216	+90%

and Wooster Streets. Traffic forecasting for such a scenario with Dawson and Wooster Streets was not intended to be part of this study and currently would be difficult with the status of the Cape Fear Skyway undetermined. The regional travel demand model was used to estimate the level of traffic expected on Dawson and Wooster corridors over a 20-year period. The analysis showed that the level of traffic along both corridors would essentially be the same as it is today. That being said, the current capacity along Dawson and Wooster Streets is more than adequate to handle this traffic, but intersection operations at S 3rd, 16th, and 17th Streets would need to be scrutinized.



¹ Hammer, Tommy, Ph.D., "Summary Document: Demographic and Economic Forecasts for the Wilmington Region and Component Areas," Wilmington Urban Area Metropolitan Planning Organization, 2004.



4 – IMPLEMENTATION PLAN

INTRODUCTION

Planning, design, and implementation are all critical components of a successful corridor plan. The citizens involved with this study have expressed a desire to implement safe and reasonable improvements that will add to the quality of life and character of their community. However, with limited funding, full implementation of the corridor improvements can be challenging and time-consuming. With this in mind, policy recommendations and an action plan have been developed to help local staff focus their efforts and seek strategic opportunities to expedite the implementation of this plan.

Completion of the *Dawson and Wooster Corridor Plan* represents an important step toward implementing multimodal improvements that will affect travel safety, mobility, development patterns, and the aesthetics along the corridor. Some of the recommended improvements will be implemented through the local development review process, the City Capital Improvement Program (CIP), the NCDOT Highway Safety Improvement Program, or enhancement grants. Major infrastructure improvements most likely will be a product of state and federal funding; however, transportation improvement funds are limited and competition for them is great.

This chapter presents an action plan, provides general policy recommendations, and reviews funding opportunities to assist local decision-makers and planning staff in the implementation of the recommendations presented in the previous chapter.

Responsible Agencies – To successfully implement this plan, responsible agencies have been identified that can influence and authorize recommendations. Policy and program initiatives will, for the most part, occur at the local level. Some improvements will occur as a result of development and redevelopment opportunities. The majority of responsibility for implementing these recommendations will be a coordinated effort between NCDOT, the City of Wilmington, and the Wilmington Urban Area Metropolitan Planning Organization (WMPO).

ACTION PLAN

This section discusses the appropriate steps for local leaders to implement the recommendations of this plan and key agencies that should be involved with the task. It is not expected that all of the listed items would be completed over the next 2 years; however, the process should be initiated to best take advantage of the momentum gained with the development of this plan. The following identifies a summary of the immediate, short-, and long-term action items that should be considered to implement the *Dawson and Wooster Corridor Plan.*

Beyond the tasks listed below, it is vital to the success of this plan that the City, MPO, and NCDOT continue to work with and educate local citizens and businesses about the importance of safety and mobility, as well as the impact they have on local quality of life. While public opposition can significantly delay a project, it is important to keep in mind that public support can encourage implementation.

Immediate Recommendations

Based on the consistent issues voiced by local residents, the following recommendations are presented in order to address the most immediate safety and neighborhood concerns. A delay in the implementation process may further public distrust.

South 6th Street Improvements –The crash patterns occurring on southbound S 6th Street have been identified as a significant safety problem. Not acting to rectify the situation represents a liability for NCDOT.

Based on the evaluation of the alternatives and the understanding of the stakeholders' positions on the intersection improvements, it is









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recommended that the half-median be installed at the intersection, with the yield-controlled exit. This option represents a compromise between the various parties involved, and has the advantages of supporting safety with only moderate sacrifices to mobility. The half-median design was met with some positive responses and was seen as a middle ground between NCDOT's and the neighborhood's positions. This solution prohibits the problematic southbound through movement, but still allows the northbound connection. The recent changes to the Dura-Curb[™] median to make it function like the half-median has received several approving comments from local motorists and citizens.

Probable construction cost for this improvement is \$15,000 to \$20,000.

Sidewalk Implementation – The City should follow through on their commitment to construct sidewalks along Wooster Street corridor from the commercial center located at S 17th Street to 3rd Street. This project is scheduled for construction in 2008. Total cost of this project is \$150,000.

Policy Measures – NCDOT should reevaluate their public notification policies to include providing information regarding planned intersection improvements prior to implementation.

Short-Term (2–5 Years) Recommendations

Short-term recommendations represent small, cost-effective projects that could easily be implemented with little to no additional effort. In some cases, additional engineering analysis or design is necessary. Ultimately, securing funding for the following short-term projects will enhance the safety and aesthetics of the local community.

Intersection "Spot Safety" Improvements – The City and NCDOT should secure funding to implement safety countermeasures at the high-crash pattern locations along the corridor. Chapter 3 describes crash analysis that was performed for the nine worst intersections over the five-year period from June 1, 2002 to May 31, 2007. Specific remedies are suggested for improving the intersection to help reduce the crash potential and future accidents.

The following are recommended as short-term intersection improvements:

Wooster Street and S 3rd Street:

- Relocate stop bars for southbound right-turn approach forward to improve sight distance
- Install lane markers further upstream to supplement overhead signing
- Install skip lines to delineate turning movements

Dawson Street and S 16th Street:

 Install high visibility crosswalks and pedestrian signal heads at intersection to improve pedestrian conditions

Dawson Street and S 17th Street:

 Install high visibility crosswalks and pedestrian signal heads at intersection to improve pedestrian conditions

Wooster Street and S 16th Street:

- Install high visibility crosswalks and pedestrian signal heads at intersection to improve pedestrian conditions
- Install a bulb-out on SW corner to eliminate weave problem and delineate parking
- Trim vegetation on NW corner to improve sight distance

Wooster Street and S 17th Street:

 Install high visibility crosswalks and pedestrian signal heads at intersection to improve pedestrian conditions

Streetscape Improvements – The residential character of the Dawson and Wooster area is unique because the street pattern is an urban grid. What was once united as a community, however, is now bisected by two major thoroughfares. To stitch back the urban fabric and protect the character of the Dry Pond community, local decision-makers should invest the time and resources to improving the safety and pedestrian elements of the Dawson and Wooster corridor.

By establishing a typical intersection improvement approach as well as incorporating pedestrian scale improvements and gateway features, the neighborhood identity will be improved and beautified while providing additional safety for pedestrians. Applying a typical design standard to







Since the repaving project, motorists sometimes have difficulties determining what lane to get in as Wooster Street approaches 3rd Street

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each of the intersections will allow the corridors to become more uniform, and pedestrian crossings will be channeled to the signalized intersections. Simple treatments as described below in each intersection type are fairly cost-effective and easy to implement in the short term.

Implementation of the improvements can be phased as funds become available, starting at locations with highest need (based on safety, LOS, or adjacent land use) and progressing along the corridor in a uniform fashion. Probable construction cost for each intersection typically ranges from \$75,000 - \$150,000 without modifications to the existing signals.

The following three-phase implementation is recommended:

- Phase 1 projects would start with resurfacing and restriping the Dawson Street corridor for three lanes of traffic with lane transitions one block in either direction and full width parking on both sides of the street from S 5th Avenue to 15th Street. The other projects would involve specific intersections with an identified priority need. Beginning with existing signal locations, the S 5th Avenue, 8th Street, and 10th Street corridors are recommended as a priority because of the high level of pedestrian activity due to its proximity and direct connection between two neighborhood schools, the Hillcrest Community, and Jervey Place. South 5th Avenue is recommended because it is part of the Cape Fear Scenic Byway and connects to a historic district. The following intersections should be considered priority improvements:
 - Wooster and Dawson Streets and S 5th Avenue
 - Wooster and Dawson Streets and S 8th Street
 - Wooster and Dawson Streets and S 10th Street
- Phase 2 projects represent a continuation of the existing streetscape improvements along Dawson and Wooster Streets. Improvements should focus on existing signal locations corridors due to the high level of pedestrian activity, and include the following intersections:
 - Wooster and Dawson Streets and S 13th Street
 - Wooster Street and S 16th Street (west side only)
- Phase 3 projects represent a continuation of streetscape improvements along Dawson and Wooster Streets. Improvements

should focus on unsignalized locations beginning at S 4th Street and moving eastward and S 15th Street moving westward. The following intersections are recommended for the third phase of improvements:

- Wooster and Dawson Streets and S 4th Street
- Wooster and Dawson Streets and S 6th Street
- Wooster and Dawson Streets and S 7th Street
- Wooster and Dawson Streets and S 9th Street
- Wooster and Dawson Streets and S 11th Street
- Wooster and Dawson Streets and S 12th Street
- Wooster and Dawson Streets and S 14th Street
- Wooster and Dawson Streets and S 15th Street

Gateway and Historic District Treatments – The City should aggressively pursue grant funding to provide gateway treatments at select intersections associated with the existing historic district.

As a way to identify the Dry Pond neighborhood not only as an entryway, but also as a historic neighborhood, gateway features should be added to the following key intersections to help give the neighborhood the identity it has earned since the early 20th century. Simple brick pillars and landscaping will enhance the visual appeal of the community. Probable construction cost typically ranges from \$5,000 - \$10,000.

- Dawson Street west of S 5th Avenue
- Wooster Street at S 8th Street

Additional gateway features may be considered at Wooster and S 16th Streets to help provide visual cues that motorists are exiting a commercial area and entering a residential area.

Parking Modifications: The parking modifications recommended in Chapter 3 will be implemented throughout the three phases of the streetscape improvements, with initial restriping included in Phase 1. As individual blocks are bracketed by the intersection bulb-outs, NCDOT can determine if they wish to leave the lane marked as continuous parking or whether they wish to mark individual 22-foot spaces. It is important though that when marking the parking lanes prior to the bulbouts that the end of the designated parking zones be located





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approximately 40 feet from the intersection to provide sight lines for motorists on side streets.

Long-Term (5–20 Years) Recommendations

Assuming the construction of the Cape Fear Skyway, NCDOT should work with the City of Wilmington to conduct additional feasibility studies to determine if converting the Dawson and Wooster corridors to two-way operation is feasible and desirable. The ultimate improvements would include converting Wooster Street to a two-way, two-lane neighborhood street and Dawson Street to a two-way, four-lane divided arterial. Any redesign would also have to consider modifications to access for the Cape Fear Memorial Bridge. This option presents a long-term vision to minimize the traffic impacts to one street through the neighborhood and reconnect the homes in the block between Dawson and Wooster Streets with the neighborhood to the north.

POLICY MEASURES

The City should work with the NCDOT to ensure that the Dawson and Wooster corridors are preserved as development applications are considered. During the last 20 years, the neighborhood community was impacted by a few development projects, primarily associated with the commercial intersections of S 3rd and 17th Streets. This trend is expected to continue "inward" toward the neighborhoods as infill and redevelopment projects become more prevalent. The City should work cooperatively with the NCDOT by providing combined review and comment on proposed development applications.

General Considerations – The following recommendations apply to the overall vision for the corridor as expressed by the local planning and engineering staff, NCDOT staff, neighborhood community members, business representative, and elected officials. These recommendations can be initiated throughout the planning process and prior to any physical infrastructure improvements.

 Pursue plan adoption by implementation agencies, including the City and the North Carolina Department of Transportation (NCDOT).

- Use the corridor plan as a tool to review proposed development projects and plans as they locate and are implemented within the named corridors.
- Integrate future bikeways and sidewalk networks with the *Dawson and Wooster Corridor Plan* to create an interconnected network.
- As the transportation corridor is improved and expanded, minimize impacts that negatively affect the character and integrity of adjacent neighborhoods by introducing gateways or traffic calming improvements.

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shall contain at least or	ne shade tree that may count toward
required the number of	trees for the site.
(d) For every two full parking	ng bays (each including two aisles of
parking and a lane) or a	as required in the table, a 5-foot wide
divider median is requir	red. The number of divider medians
are required as follows	(See Figure 2):
Number of Parking Bays	Number of Required Divider Median
2	0
3-4	1
5-8	2
7-9	3
More than 10	1 divider median for every 3 bays
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- Promote alternative modes of transportation through better street design and developer participation.
- Utilize the MPO Technical Coordinating Committee (TCC) and Transportation Advisory Committee (TAC) to meet regularly and aid in the implementation process.
- Adopt a land development ordinance that requires developers to implement the "intent" of recommended improvements for the *Dawson and Wooster Corridor Plan*, building in flexibility for access and design to fit their individual development schemes.

The City may also consider adopting an access management overlay ordinance. The ordinance will provide a legal framework for the City to administer and enforce consistent access management standards along the corridor. The ordinance should contain rules and requirements for the "core" components of a comprehensive access management strategy, including minimum spacing standards for traffic signals, median openings, and driveways; provisions for corner clearance, joint access, and connectivity; and design requirements for building access connections. The ordinance also should require cross access between adjacent commercial properties, consolidation/ elimination of excessive driveways, and retrofitting site access to the side and rear portions of the site.

Transit Improvements – It is important that Wave Transit, as it continues to develops the route restructuring plan, base its service





Special overlay district sample

Kimley-Horn and Associates

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routes and operations on recommendations provided in the 2004 Short-Range Transit Plan. Providing public transportation options to key population subgroups is crucial, and the routes should reflect connections that link those population to places of work, commerce, and community services. In addition, bus stop facilities should accommodate the needs of Wave's rider while waiting for transit vehciles, and not discourage use because of impediments to access, lack of information, fear of safety, or inadequate protection from the elements. Accommodating these changes through the proposed streetscape improvements, space should be provided east of S 5th Avenue, 9th Street, and 14th Street for pull-outs and bus shelters at bus stops for the new routes to be finalized after the public involvement process.

FUNDING OPPORTUNITIES

The construction of corridor-wide improvements can occur through adoption of local policies and programs and state programs, as well as through the receipt of private contributions. With this in mind, it will be important for the City of Wilmington and NCDOT to identify funding sources to implement the recommendations of this plan. While some projects and programs will be funded by the City or NCDOT, alternatives are available to provide financial support for implementing corridor recommendations. The following funding opportunities should be considered to implement the recommendations presented in this plan:

- Lobby NCDOT and members of the State Board of Transportation (BOT) to include partial funding of the design and implementation of recommended improvements in the next Transportation Improvement Program (TIP).
- Leverage NCDOT District Office "Spot Safety" improvement monies to implement safety improvements at key intersections along the Dawson and Wooster corridors.
- Consider providing a tax incentive to existing property owners and developers located along the Dawson and Wooster Street corridor for converting to "shared" driveways and constructing cross-access connections.

- Pursue NCDOT STP-Enhancement Grant funding to install pedestrian and bike provision along the corridor and at key signalized intersection locations (e.g., pedestrian lighting, crosswalks, and pedestrian countdown signals). These funds are administered through a grant program with a 20% local match requirement.
- Pursue Economic Development funding through NCDOT Division 3 for recommended improvements near S 3rd and 17th Street commercial centers.
- Pursue NCDOT Division 3 Small Construction Funds and Contingency Funds. These funding programs are typically requested by NC House or Senate representatives for their local districts.

Local Programs

Local funds should be used for strategic corridor improvements identified by the plan as being necessary to improve the safety, mobility, and aesthetics of the Dawson and Wooster Street corridors. Usually these projects are most successful when additional funding can be secured to help lessen the burden to the City. Local funding sources tend to be flexible and in some communities can include general revenue expenditures, local bond programs, and proceeds from bond programs.

Powell Bill – Powell Bill funds are collected by the state in the form of a gasoline tax. The amount of these funds distributed to a municipality is based on the number of street miles to be maintained and the City's population. These monies can be used for maintenance-related improvements or sidewalk construction.

Transportation Bonds – Wilmington has had a successful history of utilizing transportation bonds in the strategic implementation of local roadways, transit, and non-motorized travel throughout the region. Voters in communities both large and small regularly approve the use of bonds in order to improve their transportation system. Some improvements identified in this plan could be candidates for funding from a future transportation bond program.





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If the Wooster and Dawson Street improvements are implemented as part of a city-wide Transportation Improvement Program with special local funding, the following sources may also be applicable:

Real Estate Transfer Tax or **Local Option Sales Tax–** The NC Legislature in 2007 gave counties the authority to ask voters for permission to levy a 0.4 percent land transfer tax or an additional quarter-cent sales tax. Counties may put both on the ballot, but if both pass may levy only one. A real estate transfer tax is a surcharge levied on the sale of certain classes of property – residential, commercial or industrial – that increases with the size of the property being sold, as is currently in place in six NC counties.

Rental Car Fee – A rental car fee is a surcharge added to all rental car bills within a defined jurisdiction. The fee, usually a fixed dollar amount, is often levied on both visitors and local residents, who may be renting a car as a replacement for a disabled/damaged personal vehicle. The City must request enabling legislation from the NC General Assembly to ask voters for permission to levy such a tax.

Vehicle Registration Fee – A vehicle registration fee is a surcharge collected by the Division of Motor Vehicles at the time of vehicle registration and registration renewal within a defined jurisdiction. It is usually a fixed dollar amount. The fee can be levied on any combination of vehicle types (private, commercial, etc.). Similar fees are currently levied in Wake, Orange, and Durham counties and the City of Charlotte.

Adequate Public Facilities Ordinances (APFOs) – Also referred to as Concurrency Regulations, adequate public facilities ordinances allow local governments to deny or delay new developments if existing government services (water and sewer, roads, schools, fire and police) cannot support it. APFOs place the burden on developers to ensure adequate services are in place for new developments they propose, fund such improvements or postpone plans until such services are in place. State legislation allows municipalities to enact such regulations.

State and Federal Programs

In comparison with local funds, state and federal funds are not as flexible in terms of their use. Projects funded by these programs usually focus on the needs required by vehicles, either in terms of capacity or safety for example, widening projects. It can be difficult to secure these funds for alternative transportation projects (i.e., streetscape, safety or bike/pedestrian).

On August 10, 2005, the President signed into law the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU). With guaranteed funding for highways, safety, and public transportation totaling \$244.1 billion, SAFETEA-LU represents the largest surface transportation investment in our nation's history. Provisions address specific safety issues, including pedestrian and bicycle safety.

NCDOT Transportation Improvement Program (TIP) – The state's Transportation Improvement Program (TIP) supports communities through an array of funding resources including Federal Aid Construction Funds and State Construction Funds. As part of the application process, strict criteria must be met before project selection. Criteria include providing right-of-way information, meeting a set of design standards, showing a need for a project, local support of the project, and the inclusion of the project in the community's planning processes.

NCDOT Hazard Elimination Program – These funds are a subset of the State Transportation Improvement Program (STIP) funding, constituting 10% of a state's funds. This program is intended to inventory and correct the safety concerns of all travel modes.

Governor's Highway Safety Program (GHSP) – The Governor's Highway Safety Program is committed to enhancing the safety of North Carolina roadways. To achieve this, GHSP funding is provided through an annual program, upon approval of specific project requests, to undertake a variety of safety initiatives. Communities may apply for a GHSP grant to be used as seed money to start a program to enhance highway safety. Once a grant is awarded, funding is provided on a reimbursement basis and evidence of reductions in crashes, injuries, and fatalities is required.





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Other funding options such as Grant Anticipation Revenue Vehicles (GARVEE bonds), tax increment financing (TIF), and funding from the Transportation Infrastructure Finance and Innovation Act of 1998 (TIFIA) were reviewed but are not applicable to this project due to the project size and type.

Public/Private Initiatives

Developer Contributions – Through diligent planning and early project identification, regulations, policies, and procedures could be developed to protect the Dawson and Wooster corridors and require contributions from developers when property is subdivided and/or developed. To accomplish this goal, it will take a cooperative effort between local planning staff, NCDOT planning staff, and the development community.

Impact Fees – Developer impact fees and system development charges are another funding option for communities looking for ways to pay for transportation infrastructure. They are used most commonly for water and wastewater system connections or police and fire protection services, but they have been used recently to fund school systems and pay for the impacts of increased traffic on existing roads. Impact fees place the costs of new development directly on developers and indirectly on those who buy property in the new developments. Impact fees free other taxpayers from the obligation to fund costly new public services that do not directly benefit them. Although other states in the country use impact fees, they have been controversial in North Carolina and only a handful of communities have approved the use of impact fees. The use of impact fees requires special authorization by the North Carolina General Assembly.

5 - CONCLUSION

The pubic design charrette and corridor plan development process have reinforced the idea that the local neighborhoods surrounding the Dawson and Wooster corridors have reached a tipping point with transportation changes in their area. Frustrated with misinformation and limited public notification, the community is demanding changes in the way they are communicated with and treated.

In response, NCDOT, MPO, and the City have addressed safety and communication issues head-on. In some cases, they have had to make needed policy changes to the way they do business to better serve the needs of their constituents.

Ultimately, decision-makers will need to partner with the local advocates and community leaders to make this plan a reality. Traditional efforts of relying on public investments to enhance safety and mobility within the Dawson and Wooster corridor have become less desirable and reliable. If change is to occur and sustainable development is to be realized for the study area, it will have to be accomplished through a meaningful and cooperative effort between local and state agencies.

With this future prospect in mind, it is clear that the most critical steps toward implementation will be carried by "champions" or leaders identified within the community. While NCDOT has committed to fixing the safety problem at Wooster and S 6th Street, continued collaboration between state, local agencies, and the general public will provide more opportunity to creating a safe, aesthetically-pleasing community.



