

Context-Sensitive Design Case Study No. 6 Smith Creek Parkway – Wilmington, North Carolina

Location:

Smith Creek Parkway (also known as Martin Luther King Jr. Parkway) is on the north side of Wilmington, NC in New Hanover County.

Project Description:

The Smith Creek Parkway project of seven plus miles has been a priority since 1972 with the original environmental impact study of alternatives being completed in the 70's. The project was divided into four sections and the two eastern most sections (C and D) were designed, constructed and opened to traffic. However, the two western most sections (A and B) required further alternative investigation in final design to minimize impacts. The two highway sections open to traffic are six-lane with median. The alignment and designs for the remaining sections were altered significantly to minimize environmental impacts. The alignment for the remaining sections had to take into consideration a myriad of issues and has resulted in a controlled access 4-lane divided facility which bridges a significant amount of wetland. Specific issues included noise impact at a film studio, hazardous materials at a waste site, vibration of instruments at a manufacturing facility, an existing and possible future spur railway corridor, significant wetland area, tying into the Northeast Cape Fear River Bridge adjacent to the proposed expansion of the downtown historic area (4th Street), and finally a 75 year-old magnolia tree. Numerous meetings and discussions were necessary to satisfactorily resolve the issues with city officials, special interest groups, businesses, residents, and the numerous resource agencies involved. And a high level of coordination was required within the NCDOT among those responsible for project planning, design and construction.

Purpose and Need Summary: (abstracted from the project's Final Supplemental Environmental Impact Statement of 1998)

The primary purpose of the project is to relieve traffic congestion on Market Street (US 17) in Wilmington. The project will reduce traffic on Market Street by approximately 25 percent and will reduce traffic congestion and travel time delays at several key intersections. The project will also delay the year Market Street reaches traffic operations breakdown and reduce the accident rate related to congestion along Market Street. A secondary purpose is to provide a continuous east-west link between US 74 and downtown Wilmington.

History of the Project:

The engineering and environmental issues related to the development of the Smith Creek Parkway corridor were extremely complex. Numerous alternatives have been studied since the 1970's. Every alternative considered which satisfied the project need had potential environmental impacts associated with its implementation. NCDOT began developing construction plans for individual

sections with the eastern-most sections being developed first. These two eastern sections have been built and are open to traffic. During the final design of the two western-most sections the NCDOT determined that the noise impacts on a film/TV studio, potential hazardous material impacts from abandoned landfills, and significant wetland incursion warranted evaluation of additional alternative alignments that could minimize these impacts.

In 1992 NCDOT initiated a feasibility study to evaluate alternative alignments to reduce the potential impacts. This produced a shift of the design alignment to the north. During the study of alternatives the NCDOT's Rail Division expressed interest in protecting the potential of future rail service on an abandoned downtown spur rail corridor. The preferred 'Northern Alternative' design alignment reduced unknown impacts and clean-up costs associated with landfills, reduced noise on the film/TV studio, reduced potential impacts to the Downtown Historic District (and its proposed expansion), and preserved the abandoned downtown spur for future rail service. It also included a reduction of typical section from a 6-lane divided roadway to a 4-lane divided roadway and expanded the bridge lengths and replaced a proposed box culvert with a bridge in the wetland areas that reduced impact. This alternative (for the two western-most sections) was approved for final design and subsequent construction in 2001-2002.

Context-Sensitive Factors:

- *Wetlands avoidance/mitigation – impact was reduced from 14.4 acres to 5.35 acres by reducing the roadway section design from six to four lanes and increasing the amount of bridging (the goal is to accomplish compensatory mitigation by restoring the tidal swamp forest adjacent to Smith Creek).*
- *Noise and vibration avoidance – while possible mitigation approaches were considered the final design alignment was adjusted to accommodate the existing location of Wilmington's 'premier film industry studios' and a nearby industry's measuring equipment that was sensitive to vibration.*
- *Hazardous waste and hazardous materials storage/distribution avoidance – the alignment was readjusted to minimize use of landfill areas with a high probability of hazardous materials that could adversely impact the wetland and create a significant additional cost for the NCDOT.*
- *Railway corridor accommodation – the existing active CSX corridor and the abandoned rail spur corridor being considered for possible future use has been accommodated with bridging structures and alignment.*
- *Historical area mitigation/enhancement – impact was mitigated for the future expansion of the historic district and enhancements include land for mini-parks and parking lots, lighting and landscaping coordinating with the North 4th Partnership, SHPO, and the Memorial Committee of the 1898 Centennial Foundation.*

- *Protect matriarchal magnolia tree (variously reported to be from 73 to 100 years old) – at this writing it is the expressed interest of the NCDOT that this tree be saved. However, a decision has not been made as to how that can best be accommodated (discussion of alternatives with the local community is ongoing).*

Highway Agency Involvement (Partnerships):

Development of the last segments of Smith Creek Parkway have involved a high degree of teamwork with the NCDOT and a close working relationship with numerous resource agencies, local government officials and agencies, and local special interest groups along with the area's businesses and citizens.

Resource Agencies Involved:

- *US Corps of Engineers*
- *US Coast Guard*
- *NC Division of Coastal Management*
- *NC Department of Environmental Health and Natural Resources*
- *NCDOT Rail Division*
- *Federal Aviation Administration*

Community Involvement:

- *Wilmington Mayor and City Council*
- *Metropolitan Planning Organization*
- *City of Wilmington Planning Department*
- *City of Wilmington Engineering Department*
- *North fourth Street Revitalization Group (now North 4th Partnership, Inc.)*
- *Residents and Business Owners in the Project Vicinity*

Significant Environmental Issues:

Natural Environment:

The most significant natural environmental factor was the protection of the wetlands and the potential of contamination from hazardous waste at landfills on or near the alignment.

No threatened and endangered plant or animal species have been found.

Human Environment:

There were two areas of significance in the human environment: 1) noise that could adversely impact film and TV studios and vibration that could impact sensitive measuring instruments at a manufacturing facility and 2) impacts to the developing historic downtown area immediately adjacent to the project's western terminus.

No residential relocations were required, but several businesses and two government facilities are to be relocated.

Public Education and Involvement:

Numerous forms of communication were used including workshops, small group meetings, hearings, and newsletters along with various forms of visualization including maps, photographs, renderings and computer animation. The following list is illustrative of some of the coordination and meetings that have taken place over the more recent years in the development of the project:

- Citizens Informational Workshop (1994)
- Meetings with Planning Staff and North 4th Partnership Representatives (1996-2001)
- Status Newsletter and Public Meeting Schedule (1996)
- Public Hearing in Wilmington (1996)
- Meeting with SHPO and Wilmington Planning Staff (re: Historic District, 1996)
- Meetings with Housing Authority, North 4th Partnership, and community members (1997)
- Meetings with the Memorial Committee of the 1898 Centennial Foundation (1999-2001)

Note: Meetings and coordination continues relating to historic area mitigation and enhancement as well as construction issues for Sections A & B into 2002 and beyond as necessary.

Design Issues and Special Features:

Design Speed:

60 mph for Sections C & D; 80 km/h (50 mph) for Sections A & B

Right-of-Way:

100 meters (328 feet)

Clear Zones:

ASSHTO Design Guide (30' rule or barrier protected)

Number of Lanes:

4-lane divided (Sections A & B) and 6-lane with median (Sections C & D)

Lane Width:

12 feet

Adjacent Land Use:

Predominate uses adjacent to the sections of the alignment are indicated below:

	<u>Section</u>			
	<u>A</u>	<u>B</u>	<u>C</u>	<u>D</u>
<i>Residential</i>	X		X	
<i>Commercial</i>	X	X		X
<i>Industrial</i>	X	X		
<i>Open Space (wetland)</i>		X	X	
<i>Open Space (scrub)</i>	X		X	X
<i>Historic District</i>		X		
<i>Institutional (gov't)</i>		X		

Special Features:

Special features include: significant wetlands bridging; some landfill clean-up required, but avoided the most hazardous areas; preserved future rail spur corridor; minimized noise and vibration to business/industry; and enhanced downtown historic area.

Project Development Schedule/Milestones:

Project development is in four sections (see attached diagram and photos):

- Section A (Cape Fear Bridge to US 117 [Castle Hayne Rd.]*
- Section B (US 117 to 23rd Street)*
- Section C (23rd Street to NC 132 [College Road])*
- Section D (NC 132 to US 17/74 [Market Street])*

Status:

- Section A – 2.37 km (1.47 miles) let for construction 2/2001*
- Section B – 1.98 km (1.23 miles) let for construction 5/2002*
- Section C – 2.95 miles open to traffic 8/1996*
- Section D – 1.24 miles open to traffic 8/1994*

Costs:

Construction:

- Section A -- \$61 million*
- Section B -- \$41 million*
- Sections C & D -- \$30 million (approximately)*

Design costs were not available.

Project Outcome and Lessons Learned:

One WilmingtonStar.com news article quotes Wilmington city councilwoman and chairwoman of the local Transportation Advisory Committee Laura Padgett with saying: 'This project has come up with every possible holdup...everything that could go wrong with a highway project did go wrong.' The project's development spanned some three decades that saw new environmental concerns arise (wetlands protection, hazardous materials site mitigation, noise/vibration avoidance, and historic preservation). This resulted in the need to develop a new northern alignment and cross-section for the unfinished segments. In addition, new opportunities had to be accommodated including the future use of an abandoned railroad right-of-way and the proposed expansion of the downtown historic district. For the NCDOT the Smith Creek Parkway was a unique learning experience that required an extra measure of internal teamwork for planning, design and construction as well as significant outreach and cooperation with various stakeholder agencies, special interest groups, businesses and citizens. Beyond the councilwoman's comments, the fact that the Smith Creek Parkway's remaining sections are finally under construction, though significantly modified from the original design, has to be considered a success for modern day road building and the NCDOT.

Route Diagram and Photographs:

See attached.

Information Contact(s):

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Newspaper Coverage:

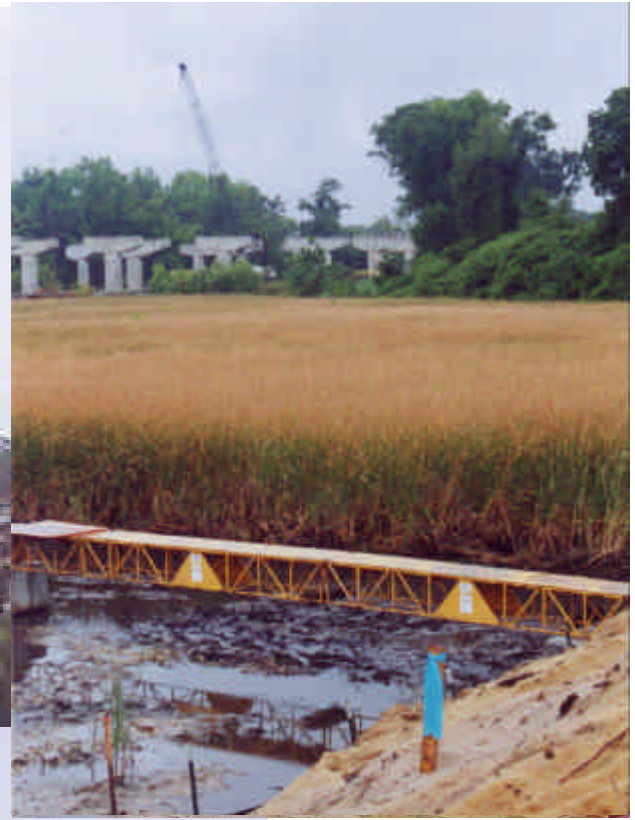
Numerous articles and letters to the editor in the Wilmington Morning Star (wilmingtonstar.com) including:

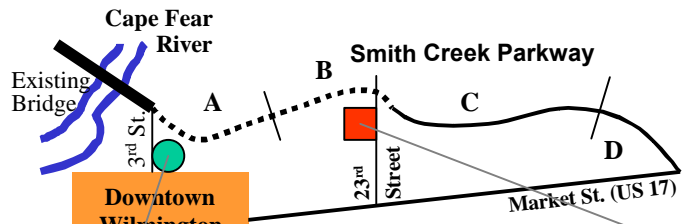
- *Designer says magnolia worth saving despite cost, Si Cantwell, December 13, 2001*
- *Parkway passes its final financial test, should finish in '05, Gareth McGrath, June 7, 2002*

Smith Creek Parkway Wilmington, NC



NE Cape Fear Bridge





Location Diagram
(not to scale)



75 year old Magnolia Tree



Film & TV Studio

