FEASIBILITY STUDY

SR 1573 (Dow Road) from US 421 (Lake Park Blvd.) in Carolina Beach to US 421 (Fort Fisher Blvd.) in Kure Beach

New Hanover County

Division 3

FS-0103 A

Prepared by the
Program Development Branch
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SR 1573 (Dow Road) from US 421 (Lake Park Blvd.) in Carolina Beach to US 421 (Fort Fisher Blvd.) in Kure Beach

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I. General Description

This feasibility study describes the widening of SR 1573 (Dow Road) from US 421 (Lake Park Blvd.) in Carolina Beach to K Avenue, and the extension of SR 1573 (Dow Road) from K Avenue to US 421 (Fort Fisher Blvd.) in Kure Beach, a total distance of approximately 5.3 miles. The project location is shown on Figure 1. As part of this study several different cross-sections were investigated. The details of each are as follows:

- ***TWO LANE SECTION:*** Two-lane shoulder section on 100' of right of way.
- ***TWO LANE ASYMMETRICAL SECTION:*** Two-lane shoulder section constructed asymmetrically on 150' of right of way.
- ***THREE LANE SECTION*:** Three-lane shoulder section on 120' of right of way.
- ***FOUR LANE SECTION*:** Four-lane divided shoulder section with a raised grass median on 150' of right of way.

This study is the initial step in the planning and design process for this project and is not the product of exhaustive environmental or design investigations. The purpose of this study is to describe the proposed project including costs, and to identify potential problems that may require consideration in the planning and design phases.

II. Background

The purpose of this project is to provide improved north-south access in both Carolina Beach and Kure Beach by widening SR 1573 (Dow Road) from US 421 (Lake Park Blvd.) in Carolina Beach to K Avenue, and extending SR 1573 (Dow Road) from K Avenue to US 421 (Fort Fisher Blvd.) in Kure Beach. This widening/extension is also expected to reduce traffic congestion on US 421, which currently operates at or above capacity during peak periods. Further, multimodal access is expected to improve between various facilities in and around Carolina Beach and Kure Beach, such as the Central Business Districts, Carolina Beach State Park, Fort Fisher State Recreation Area, etc. This project was originally requested by both the Town of Carolina Beach and the Town of Kure Beach.

SR 1573 (Dow Road) is designated as a major collector in the North Carolina Statewide Functional Classification System, and as a major thoroughfare in the Carolina Beach and Kure Beach Thoroughfare Plan. SR 1573 is currently a two-lane undivided facility, with a varying width of 22 to 24 feet from edge of pavement to edge of pavement. With the exception of one municipal fire station, SR 1573 (Dow Road) is virtually undeveloped.

There is one existing traffic signal within the project limits, at SR 1573 (Dow Road) and US 421 (Lake Park Blvd.).

The current year Average Daily Traffic (ADT) along Dow Road within the project limits is 8,000 vehicles per day (vpd) in Section 1 (from US 421/Lake Park Blvd. in Carolina Beach to Ocean Blvd.) and 4,000 vpd in Section 2 (from Ocean Blvd. to K Avenue). There are no current year ADTs available for Section 3 (from K Avenue to US 421/Fort Fisher Blvd.) because this section of roadway does not yet exist. For the design year 2025, the traffic volumes on Dow Road were estimated to be 15,400 vehicles per day (vpd) in Section 1; 10,500 vpd in Section 2; and 7,100 vpd in Section 3. Truck traffic is estimated to make up approximately seven percent of the daily traffic.

If no improvements are made to SR 1573 (Dow Road), this corridor is anticipated to operate at a Level of Service (LOS) "E" in design year 2025; however with the proposed widening and extension of Dow Road, a Level of Service "C" or better in the design year is expected.

III. Description of Project

It is proposed to widen SR 1573 (Dow Road) from US 421 (Lake Park Blvd.) in Carolina Beach to K Avenue, and to extend SR 1573 (Dow Road) from K Avenue to US 421 (Fort Fisher Blvd.) in Kure Beach, a distance of approximately 5.3 miles. The project location is shown on Figure 1. For evaluation purposes the project was divided into three segments, and different cross sections for each segment were studied. The details of each are below:

SECTION #1: This segment on SR 1573 (Dow Road) is from US 421 (Lake Park Blvd.) in Carolina Beach to Ocean Blvd., a distance of approximately 1.9 miles.

***Option A*:** Three-lane section, 44' from edge of traveled way to edge of traveled way, with shoulders (4' of which are paved) on 120' of right of way.

With this proposed cross-section, it is anticipated there will be six (6) residences and three (3) businesses relocated due to this project. The total cost of this alternative, including construction and right-of-way, is estimated to be $ 7,400,000.

Construction..... $ 3,500,000
Right-of-Way..... $ 3,900,000

Total Cost (Section 1, Option A).....$ 7,400,000

Option B: Four-lane divided section, 74' from edge of traveled way to edge of traveled way, with an 18' raised grass median and shoulders (4' of which are paved) on 150' of right of way.

With this proposed cross-section, it is anticipated there will be eight (8) residences and four (4) businesses relocated due to this project. The total cost of this alternative, including construction and right-of-way, is estimated to be $ 10,400,000.

Construction..... $ 5,700,000
Right-of-Way..... $ 4,700,000

Total Cost (Section 1, Option B).....$ 10,400,000

SECTION #2: This segment on SR 1573 (Dow Road) is from Ocean Blvd. to K Avenue, a distance of approximately 1.5 miles.

Option A: Two-lane section, 32' from edge of traveled way to edge of traveled way, with shoulders (4' of which are paved) on 100' of right of way.

With this proposed cross-section, it is anticipated there will be no residences and no businesses relocated due to this project. The total estimated cost of this alternative, including construction and right of way, is estimated to be $ 2,450,000.

Construction..... $ 1,800,000
Right-of-Way..... $ 650,000

Total Cost (Section 2, Option A).....$ 2,450,000

Option B: Three-lane section, 44' from edge of traveled way to edge of traveled way, with shoulders (4' of which are paved) on 120' of right of way.

With this proposed cross-section, it is anticipated there will be no residences and no businesses relocated due to this project. The total cost of this alternative, including construction and right-of-way, is estimated to be $ 3,600,000.

Construction..... $ 2,700,000
Right-of-Way..... $ 900,000

Total Cost (Section 2, Option B).....$ 3,600,000

Option C: Four-lane divided section, 74' from edge of traveled way to edge of traveled way, with an 18' raised grass median and shoulders (4' of which are paved) on 150' of right of way.

With this proposed cross-section, it is anticipated there will be no residences and no businesses relocated due to this project. The total cost of this alternative, including construction and right-of-way, is estimated to be $ 5,800,000.

Construction..... $ 4,600,000
Right-of-Way..... $ 1,200,000

Total Cost (Section 2, Option C).....$ 5,800,000

SECTION #3: This segment is for the proposed extension of SR 1573 (Dow Road) from K Avenue to US 421 (Fort Fisher Blvd.), a distance of approximately 1.9 miles.

Option A: NEW two-lane section, 32' from edge of traveled way to edge of traveled way, with shoulders (4' of which are paved) on 100' of right of way.

With this proposed cross-section, it is anticipated there will be three (3) residences and no businesses relocated due to this project. The total estimated cost of this alternative, including construction and right of way, is estimated to be $ 6,900,000.

Construction..... $ 3,700,000
Right-of-Way..... $ 3,200,000

Total Cost (Section 3, Option A).....$ 6,900,000

Option B: NEW three-lane section, 44' from edge of traveled way to edge of traveled way, with shoulders (4' of which are paved) on 120' of right of way.

With this proposed cross-section, it is anticipated there will be three (3) residences and no businesses relocated due to this project. The total cost of this alternative, including construction and right-of-way, is estimated to be $ 8,100,000.

Construction..... $ 4,800,000
Right-of-Way..... $ 3,300,000

Total Cost (Section 3, Option B).....$ 8,100,000

Option C: NEW two-lane section, 32' from edge of traveled way to edge of traveled way, with shoulders (4' of which are paved) constructed asymmetrically on 150' of right of way. Should the ultimate section be desired in the future (a four-lane divided shoulder section with a raised grass median), the asymmetrical placement of the proposed two-lane section will allow for ease in retrofitting.

With this proposed cross-section, it is anticipated there will be three (3) residences and no businesses relocated due to this project. The total estimated cost of this alternative, including construction and right of way, is estimated to be $ 7,200,000.

Construction.....	$ 3,700,000
Right-of-Way.....	$ 3,500,000
Total Cost (Section 3, Option C).....	$ 7,200,000

It should be noted that the Planning Division of New Hanover County originally requested four foot marked bicycle lanes. However, the paved shoulders included in all of the above alternatives would provide adequate bicycle accommodations consistent with current departmental "Share the Road" standards. Because of this, costs for marked bicycle lanes were not provided in this Feasibility Study.

IV. Recommendations

***SECTION 1 - Option A*:** The analysis for the three-lane shoulder section showed it would not be able to accommodate the projected 2025 design year volumes with an acceptable level of service. For this reason, Option A was not recommended.

SECTION 1 - Option B: The analysis for the four-lane divided section showed it would be able to accommodate design year 2025 volumes, therefore ***Option B was the preferred alternative in Section 1***.

SECTION 2 – Options A and B: The analyses for the two-lane shoulder section (Option A) and the three-lane shoulder section (Option B) showed neither would able to accommodate the projected 2025 design year volumes with an acceptable level of service. For this reason, neither Option A nor Option B were recommended.

SECTION 2 – Option C: The analysis for the four-lane divided shoulder section showed it would be able to accommodate design year 2025 volumes, therefore ***Option C was the preferred alternative in Section 2.***

SECTION 3 – Options A, B and C: It was found that both the two-lane shoulder sections (Options A and C), and the three-lane shoulder section (Option B) would all be able to accommodate the projected 2025 design year volumes with an acceptable level of service. However, the two-lane shoulder section constructed asymmetrically on 150' of right of way (Option C) helps to control access and continuity for the entire length of the project, especially if future widening improvements are desired after Design Year 2025. Widening from a two-lane section to a four-lane section would be uncomplicated, since the asymmetrical alignment provides ease of construction to one side, preserves the existing alignment and would not require acquisition of new right of way. ***Option C, therefore, was the recommended alternative for Section 3.***

The total combined cost for the preferred alternatives in Sections 1, 2 and 3 is $ 23,400,000. Please see the attached table for a comprehensive breakdown of these alternatives and costs.

V. Additional Comments

A detailed environmental screening was not conducted for this feasibility study, however this project falls in an environmentally sensitive area. Impacts to wetland areas are expected, and permitting with the Corps of Engineers will likely be necessary. In addition, based on maps at the Department of Environment, Health and Natural Resources – National Heritage Section, several endangered species were identified in the project corridor. Finally, the proposed extension of SR 1573 (Dow Road) falls within the Sunny Point Military Ocean Terminal, which is an identified Department of Defense Superfund Area, Hazardous Substance Disposal Site. Although remediation and permitting with the Corps of Engineers will likely be necessary for this Superfund Area, no costs associated with this cleanup were included in this feasibility study.

Conflicts with Section 4F are also anticipated with this project, since SR 1573 (Dow Road) currently crosses a portion of Carolina Beach State park at the north end of the project. Further, should the extension of Dow Road be built, the proximity to the Fort Fisher State Recreation Area at the south end of the project could also be of concern.

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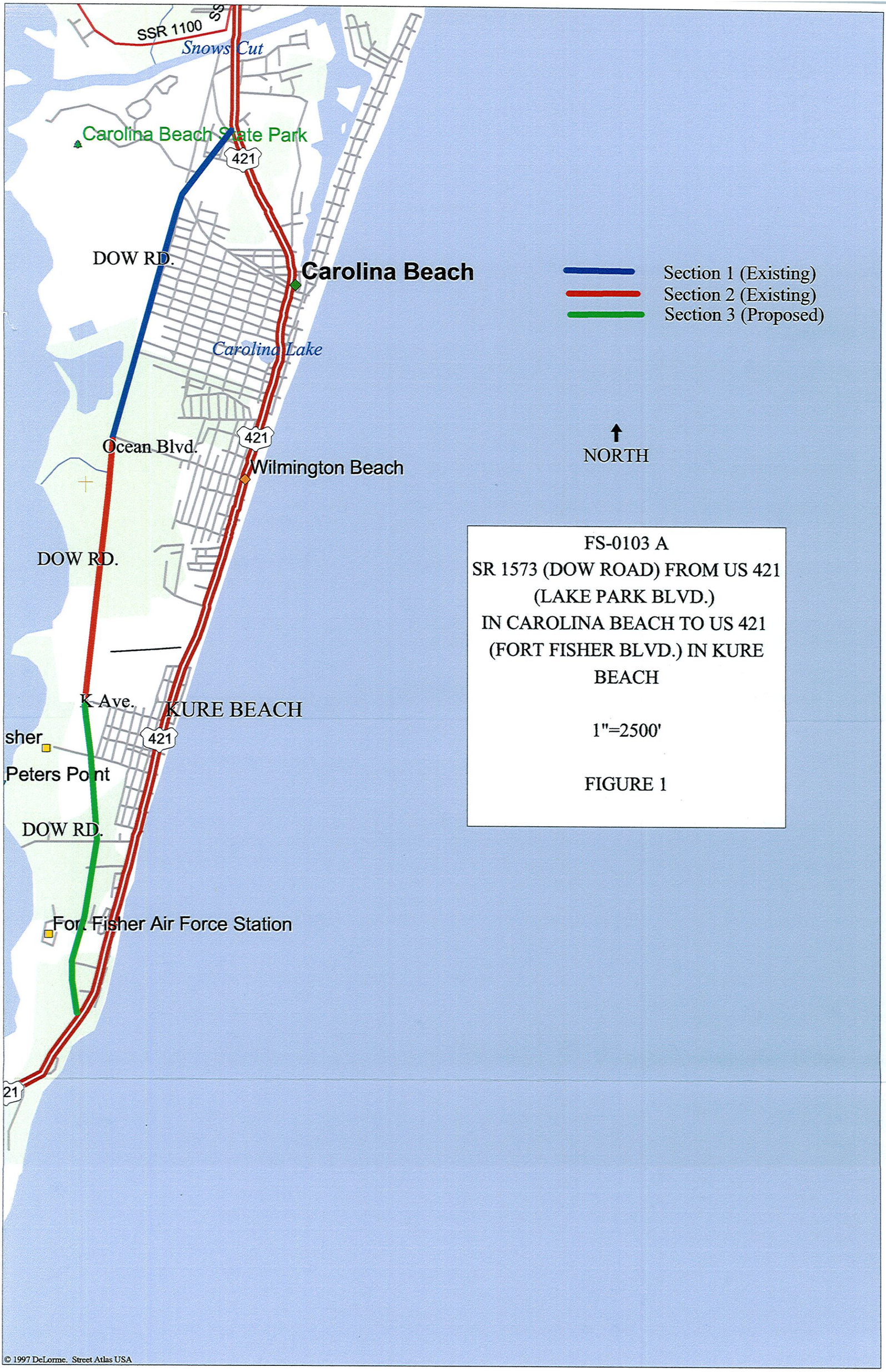
SECTION	DESCRIPTION	LENGTH OF SEGMENT	NO. OF RESIDENTIAL RELOCATIONS	NO. OF BUSINESS RELOCATIONS	RIGHT OF WAY COST	ROADWAY CONSTRUCTION COST	TOTAL
SECTION NO. 1 - Dow Rd. from Lake Park Blvd. to Ocean Blvd.	***Option A -*** Three-lane section, 44' from edge of traveled way to edge of traveled way with shoulders (4' of which are paved) on 120' of right of way.	1.9 miles	6	3	$3,900,000	$3,500,000	$7,400,000
	Option B - Four-lane divided section, 74' from edge of traveled way to edge of traveled way with an 18' raised grass median & shoulders (4' of which are paved) on 150' of right of way.	1.9 miles	8	4	$4,700,000	$5,700,000	$10,400,000
SECTION NO. 2 - Dow Rd. from Ocean Blvd. to K Avenue	***Option A -*** Two-lane section, 32' from edge of traveled way to edge of traveled way, with shoulders (4' of which are paved) on 100' of right of way.	1.5 miles	0	0	$650,000	$1,800,000	$2,450,000
	Option B - Three-lane section, 44' from edge of traveled way to edge of traveled way with shoulders (4' of which are paved) on 120' of right of way.	1.5 miles	0	0	$900,000	$2,700,000	$3,600,000
	Option C - Four-lane divided section, 74' from edge of traveled way to edge of traveled way with an 18' raised grass median & shoulders (4' of which are paved) on 150' of right of way.	1.5 miles	0	0	$1,200,000	$4,600,000	$5,800,000
SECTION NO. 3 - Dow Rd. from K Avenue to Fort Fisher Blvd.	***Option A -*** NEW two-lane section, 32' from edge of traveled way to edge of traveled way, with shoulders (4' of which are paved) on 100' of right of way.	1.9 miles	3	0	$3,200,000	$3,700,000	$6,900,000
	Option B - NEW three-lane section, 44' from edge of traveled way to edge of traveled way with shoulders (4' of which are paved) on 120' of right of way.	1.9 miles	3	0	$3,300,000	$4,800,000	$8,100,000
	Option C - NEW two-lane asymmetrical section, 32' from edge of traveled way to edge of traveled way, with shoulders (4' of which are paved) on 150' of right of way.	1.9 miles	3	0	$3,500,000	$3,700,000	$7,200,000
					TOTAL COST WITH RECOMMENDED OPTIONS		**$23,400,000**

DENOTES RECOMMENDED ALTERNATIVE



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SR 1573 (DOW ROAD) FROM US 421 (LAKE PARK BLVD.) IN CAROLINA BEACH TO US 421 (FORT FISHER BLVD.) IN KURE BEACH

1"=2500'

FIGURE 1