North Carolina Department of Transportation
Transportation Planning Branch

Thoroughfare Plan Technical Report for the Caldwell County Urban Area

2005

Caldwell County Urban Area Thoroughfare Plan

Prepared by the:

Transportation Planning Branch
Division of Highways
North Carolina Department of Transportation

In Cooperation With:

The Town of Cajah's Mountain
The Caldwell County
The Town of Gamewell
The Town of Granite Falls
The Town of Hudson
The City of Lenoir
The Town of Sawmills

The Federal Highway Administration
U.S. Department of Transportation

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Chapter 1

Introduction & Executive Summary

Overview

Caldwell County is located in the northwestern section of North Carolina in the foothills of the Blue Ridge Mountains. It is bounded on the northwest by Watauga County, on the northeast by Wilkes County, on the east by Alexander County, on the south by Catawba and Burke Counties and on the west by Burke and Avery Counties. The Caldwell County Urban Area is made up of the Town of Cajah's Mountain, Caldwell County (from Lenoir south to the Catawba River), the Town of Gamewell, the Town of Granite Falls, the Town of Hudson, the City of Lenoir and the Town of Sawmills. The geographic location of Caldwell County is shown on Figure 1.1 at the end of this chapter.

Officials from the Caldwell County Urban Area, prompted by a desire to adequately plan for future transportation needs, requested that the North Carolina Department of Transportation (NCDOT) conduct a thoroughfare plan study of the area. Increased congestion along US 321 and the Smith's Crossroads intersection, rapid development in the southern part of the County, and traffic flow in the Central Business District of Lenoir were among the main concerns of the local area officials.

Thoroughfare planning enables a transportation system to be progressively developed to adequately meet the transportation needs of a community or region as land develops and traffic volumes increase. Planning for future transportation needs prevents unnecessary costs and impacts to the physical, social, and economic environment. Thoroughfare plan studies are conducted based on the principles outlined in Appendix A of this report. The mutually adopted thoroughfare plan should be used as a guide for providing a coordinated, adequate, and economical major street system for the area. It should also be used to prioritize local area needs when requesting the funding needed for project level planning, feasibility and environmental studies, right-of-way acquisition, roadway design and construction of new transportation projects. Since transportation needs throughout the state exceed available funding, local areas should aggressively pursue funding for desired projects. For planning efforts to be effective, the municipalities and the NCDOT must procure in advance or protect, by various legal means, the right-of-way needed for future roadway improvements. The North Carolina Department of Transportation, Caldwell County, and the local municipalities that make up the Caldwell County Urban Area are jointly responsible for the implementation of this plan and its recommendations. The local area officials of the Caldwell County Urban Area should follow the guidelines set forth in Chapter 3 in order for recommendations outlined in this report to be successfully implemented. The Towns of Cajah's Mountain, Gamewell, Granite Falls, Hudson and Sawmills, along with Caldwell County, adopted this plan on January 24, 2002. Lenoir adopted the plan on February 5, 2002 and the North Carolina Department of Transportation adopted the plan on March 7, 2002.

The primary purpose of this report is to present the findings and recommendations of the thoroughfare plan study conducted for the Caldwell County Urban Area. The secondary purpose of this report is to document the basic thoroughfare planning principles and procedures used in developing these recommendations. Chapter 1 provides an Introduction and Executive Summary highlighting the recommendations. Chapter 2 provides a detailed description of the Thoroughfare Plan recommendations and also Purpose and Need Statements for currently funded Transportation Improvement Program projects. Chapter 3 provides information on different methods by which these recommendations can be implemented. The next chapter, Chapter 4, provides an analysis of the area's roadway system. Chapters 5 and 6 provide a detailed description of population, land use and environmental considerations that were looked at while developing the plan. The final chapter, Chapter 7, provides information on the traffic model development.

In addition to the above-mentioned chapters, local planning staff should also find the information provided in the Appendices especially useful. The principles of thoroughfare planning are covered in Appendix A. A detailed tabulation of all routes on the Thoroughfare Plan and a schematic figure of typical road cross-sections can be found in Appendix B and C, respectively. Information related to subdivision ordinances is covered in Appendix D. Appendix E provides an index for the secondary road numbers and names. Appendix F provides a policy for pedestrian guidelines. Appendix G covers the Transportation Improvement Program (TIP) process. Appendix H provides information on US 321 improvement alternatives considered in Feasibility Study FS-9911C and in Appendix I provides a copy of the US 321 Corridor Preservation Study. Appendix J provides information on meeting dates and public involvement throughout the process and Appendix K provides contact and resource information for NCDOT.

It is important to note that the recommended plan is based on anticipated growth within the Caldwell County Urban Area as indicated by past trends and future projections. Prior to the construction of any of these projects, a more detailed study will be required to revisit development trends and to determine specific locations and design requirements.

Summary of Recommendations

Listed below are the major recommendations for the Caldwell County Urban Area. The Thoroughfare Plan map and Recommendations maps are shown in Chapter 2 on Figure 2.1 and Figures 2.2-2.2a respectively. The numbers below correspond to the recommendations map in Chapter 2 and **do not** indicate NCDOT priorities.

Six Lane Widening

1. **US-321** from the Smith's Crossroads intersection to the Catawba River (*Transportation Improvement Program U-4700 - estimated cost for section from Southwest Boulevard to Catawba River $131,060,000) Programmed for Planning & Environmental Study Only*

New Interchange

2. **Single Point Diamond Interchange** at Smith's Crossroads intersection (*Transportation Improvement Program TIP U-4435 - estimated cost $36,320,000) Programmed for Planning & Environmental Study only*
   In the interim extend the northbound right turn lane on US 321 *(TIP U-4429 - under construction - est. cost $200,000)*

Five Lane Widening

3. **Wilkesboro Boulevard** from the end of existing five-lane section to Blue Creek Road (*unfunded)*

4. **Connelly Springs Road** from Southwest Boulevard to north of Walt Arney Road and new alignment from north of Walt Arney Rd. to US-321 with new interchange at US 321
   (TIP U-2211- part under construction - estimated cost 32,126,000)

Four Lane Widening With Median

5. **Connelly Springs Road** from Southwest Boulevard to Burke County *(TIP R-3430 - construct after 2010 - estimated cost $26,000,000 - Most sections to be narrow raised medians with curb & gutter Some sections to be 5 lanes with curb & gutter)*

6. **US 64/NC 18** from Burke County to south of Calico Road with an extension of the **five lane** section from south of Calico Road to Hartland Road *(TIP R-2549 - construct 2010 - estimated cost $31,751,000)*

Three Lane Widening

7. **McLean Drive & US 321-A** from McLean Drive at US 321 to Pleasant Hill Road
   (TIP U-2543 - unfunded)

8. **US 321A** from Pine Mtn. Road to Central Avenue *(TIP U-2543 - unfunded)*

9. **Falls Avenue** from west of Crestview Street to US 321 *(TIP R-2619 - unfunded - estimated cost including interchange modifications $9,602,000)*

Two Lanes on New Location

10. **Hospital Avenue to Pennell Street** *(unfunded)*

11. **Lower Creek Drive to Wilkesboro Boulevard** (*unfunded)*

12. **McLean Drive Extension** *(TIP U-3813 - under construction - estimated cost $2,600,000)*

13. **Spruce Street to Delwood Drive** *(unfunded)*

Two Lanes on New Location Continued

14. **Southwest Blvd at US 321 to Alfred Hartley Road** *(unfunded)*

15. **Alfred Hartley Rd. to Wilkesboro Boulevard** *(unfunded)*

16. **Pleasant Hill Road to Mt. Herman Road** *(TIP U-3437 - construct 2008 - estimated cost $3,500,000)*

17. **Orchard Road to Pleasant Hill Road** *(unfunded)*

18. **Crump Road to Orchard Road** *(unfunded)*

19. **Rocky Road to Crump Road** *(unfunded)*

20. **Pine Mountain Road to US 321** *(unfunded)*

21. **Mission Road to Cajah Mountain Road** *(TIP R-4064 - under construction - estimated cost $3,150,000)*

22. **Dry Ponds Road to Goat Farm Road** *(unfunded)*

23. **Dry Ponds Road to Pinewood Road** (*unfunded)*

24. **Pinewood Road to Wyke Road** (*unfunded)*

25 **Myers Road to US 321** (*unfunded)*

26 **Duke Avenue to US 321A** (*unfunded)*

27. **Grace Chapel Road to NC 127 in Alexander County** *(TIP R-2918 - unfunded - estimated cost $6,950,000)*

28. **Grace Chapel Road to NC 127 in Catawba County** *(TIP U-3614 - unfunded - estimated cost $22,050,000)*

Improve Two Lanes

29. **Taylorsville Road (US 64/NC 90)** from Wilkesboro Boulevard to Alexander County *(TIP R-2550 - unfunded estimated cost $6,400,000)*

30. **Hibriten Drive** from Wilkesboro Blvd. to US 321 (*unfunded)*

31. **Grace Chapel Road** from US 321 to Proposed Connector into Catawba County *(TIP U-3614 - unfunded estimated cost is included with new location project # 28 above)*

Improve Two Lanes Continued

32. **Spruce Street** from Pennton Avenue to Willow Street (*unfunded)*

33. **Colletsville Road** from Valway Road to the end of the planning area boundary *(TIP R-4061 - unfunded estimated cost $22,100,000)*

Construct Urban Median (with turn lanes at existing signals)

34. **US 321** from the Smith's Crossroads intersection to Greenhaven Drive (This recommendation would be an interim improvement to an interchange at Smith's Crossroads - *unfunded)*

Convert to Two-Way Traffic (original recommendation)

35. **Main Street** from College Avenue to West Avenue
Mulberry Street from College Avenue to Ashe Avenue

See Chapter 2 for details on the more comprehensive plan for the Lenoir Central Business District streets.

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GEOGRAPHIC LOCATION FOR CALDWELL COUNTY

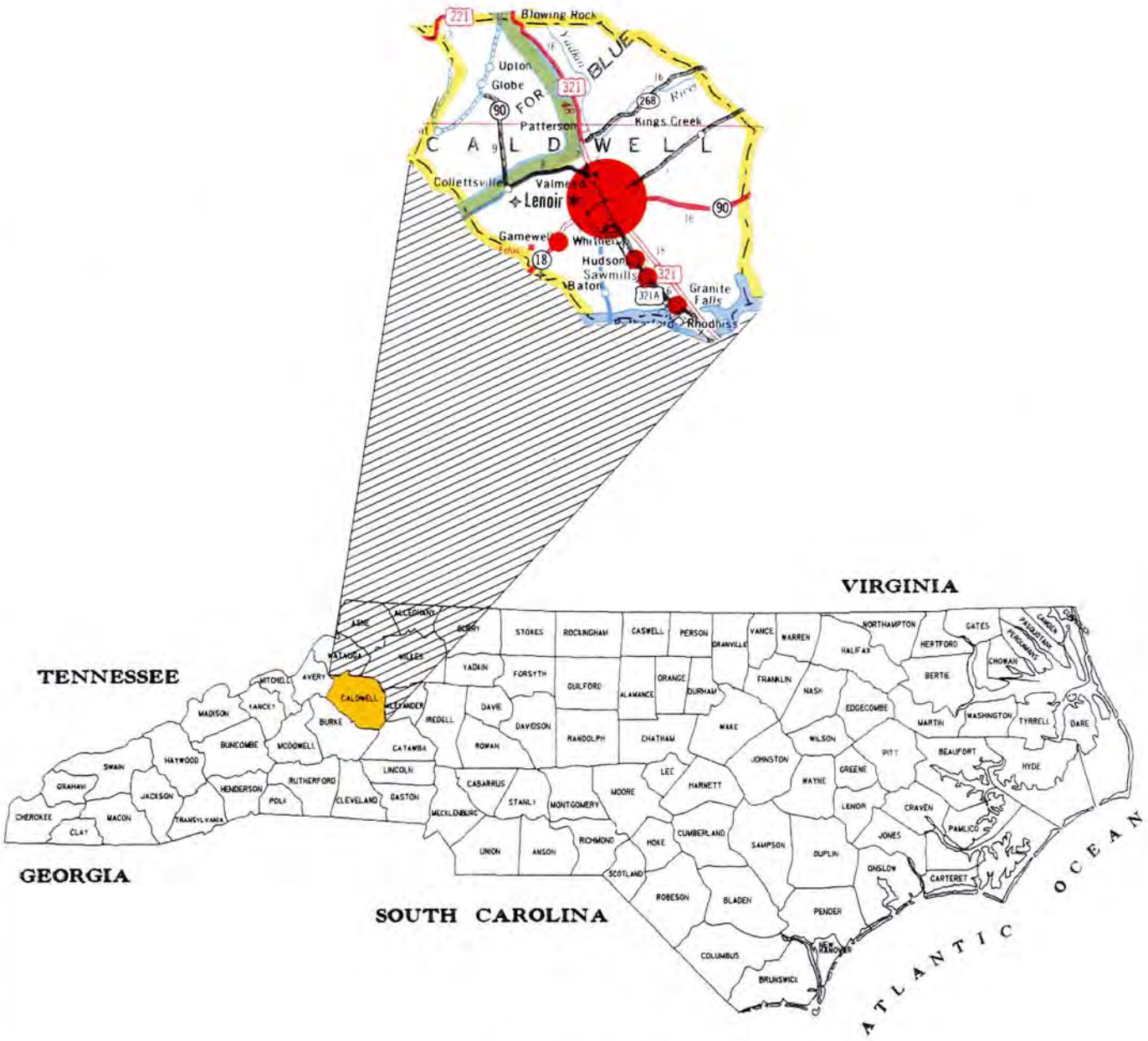


FIGURE 1.1

Chapter 2

Recommended Thoroughfare Plan

Intent of the Thoroughfare Plan

Transportation is the backbone of a region's economic vitality. Without an adequate transportation system people cannot easily reach their intended destinations, goods cannot be delivered to the market in a cost effective manner, and investors may look to invest in better served areas. Recent trends such as regional economies, "just in time" delivery, increased automobile ownership, and increased migration away from the central cities and towns are taxing our existing transportation system and requiring that we put more emphasis on planning for our transportation future.

This thoroughfare plan study identifies existing and future deficiencies in the transportation system, as well as uncovers the need for new facilities. The Travel Demand Model for use with this study has a base year of 1997 and a future year of 2025. The thoroughfare plan also provides a representation of the existing highway system by functional use. This use can be characterized as a part of the major or minor thoroughfares plus any new facilities that are needed. A full description of these various systems and their subsystems is given in Appendix A.

This chapter presents the thoroughfare plan recommendations. The adopted thoroughfare plan map is shown on Figure 2.1 and the recommendations are shown on Figures 2.2 and 2.2a. It is the goal of this study that the recommended plan set forth a transportation system that will serve the anticipated traffic and land development needs for the Caldwell County Urban Area. The primary objective of this plan is to reduce traffic congestion and improve safety by eliminating both existing and projected deficiencies in the thoroughfare system. The thoroughfare system deficiencies are discussed in Chapter 4 and are shown on Figure 4.3. See Appendix C for a schematic illustration of all of the recommended typical cross-sections.

Thoroughfare Plan Recommendations

In this chapter, all two-lane roads that are less than 20 feet in width are recommended for improvement. If the roadway width is the only concern then the recommendation will refer to cross-section "K" which is the ideal for a two-lane facility having a width of 22-24 feet. The numbers represented on Figure 2.2 and 2.2a do not represent NCDOT priorities.

Major Thoroughfares:

These are facilities that provide for the expeditious movement of high volumes of traffic within and through the urban area. The following roads are major thoroughfares that are recommended for improvement.

Abington Road (SR 1310) - Abington Road is a major thoroughfare from the western end of the planning area to Harper Avenue (Bus. NC 18) and is 20 feet in width. The highest volume of

traffic this road is projected to carry in the year 2025 is 6,800 vehicles per day (vpd). The road is able to handle this volume and because the existing road is 20 feet there is no recommendation for improvement. It is however worth mentioning that this section of road is apart of the "Carolina Emerald" section of the Mountains to Sea Bike Route. TIP Project E-4718 is a project scheduled for a feasibility study that calls for the addition of wide paved shoulders to selected bike routes. Cross-section "O" from Appendix C would be the appropriate recommendation for this roadway if it was selected and funds were available.

Blowing Rock Boulevard (US 321) - Blowing Rock Boulevard (US 321) is a five-lane facility from Smith's Crossroads north to US 321-A and from US 321-A to the end of the northern planning area is a four-lane divided facility. US 321 is a very important corridor both in and outside of Caldwell County. US 321 is a part of the North Carolina Intrastate System, the National Highway System, the National Truck Network, and both newly designated North Carolina Multi-modal Investment Network and Strategic Highway Corridors. It is extremely critical to preserve the remaining integrity of US 321 by strictly limiting if not completely deterring any further direct commercial access onto this facility. From the intersection with US 64/NC 18 north to Greenhaven Drive there are a considerable amount of driveways (curb cuts) which provide access to the varied commercial establishments along the road. The section of road between Smith's Cross roads and Hospital Avenue has approximately 27,000 vpd and 40,000 vpd projected for the year 2025. The section of road between Hospital Avenue and Greenhaven Drive has approximately 22,000 vpd and 32,000 vpd projected for the year 2025. TIP Project U-4435 calls for the construction of an interchange at the intersection of US 64/NC 18 and US 321 (Smith's Crossroads) at a cost of 36.32 million dollars. The construction of the interchange would eliminate direct driveway access along US 321 from the Smith's Crossroads intersection to the driveway for Kmart shopping plaza approximately 1900 feet north of Smith's Crossroads. The construction of service roads could potentially restore access that the interchange ramps would remove. Cross-section "H" is being recommended prior to the construction of an interchange. This recommendation calls for the construction of a median along these sections of road in order to limit the left turning traffic. With a median in place the left turning traffic would be facilitated only through existing signalized intersections. This recommendation would also require that turn lanes be lengthened for added storage capacity and signal timing adjusted. Constructing a median is an access management strategy, which increases roadway capacity and drastically improves safety without constructing additional lanes. A further explanation of the recommended interchange can be found in the Purpose and Need section of this chapter. Figure 2.3 illustrates a preliminary functional design for the interchange, which shows the potential control of access and right-of-way required for the project.

Burns Road (SR 1749) - The section of Burns Road between Cedar Valley Church Road (SR 1719) and Campground Road (SR 1751) is an unpaved facility 16 feet in width. There are approximately 200 vpd on this section of the roadway and 2,500 vpd projected for the year 2025. This section of Burns Road is one link in a series of roads being recommended for improvement between Taylorsville Road (US 64) and the southern section of US 321. The goal is to provide a well-connected system of roads each 22-24 feet in width having good roadway geometry and adequate sight distance at intersections. It is recommended that this section of Burns Road be paved to a width of 22-24 feet - typical cross-section "K".

CALDWELL COUNTY URBAN AREA THOROUGHFARE PLAN

LEGEND

THOROUGHFARES

	EXISTING	PROPOSED
MAJOR	———	·····
MINOR	———	·····
INTERCHANGE	●	◎
GRADE SEPERATION	○	○

ADOPTED BY:

TOWN OF CAJAH'S MOUNTAIN	January 24, 2002
PUBLIC HEARING	January 24, 2002
CALDWELL COUNTY	January 24, 2002
PUBLIC HEARING	January 24, 2002
TOWN OF GAMEWELL	January 24, 2002
PUBLIC HEARING	January 24, 2002
TOWN OF GRANITE FALLS	January 24, 2002
PUBLIC HEARING	January 24, 2002
TOWN OF HUDSON	January 24, 2002
PUBLIC HEARING	January 24, 2002
CITY OF LENIOR	February 5, 2002
PUBLIC HEARING	February 5, 2002
TOWN OF SAWMILLS	January 24, 2002
PUBLIC HEARING	January 24, 2002

RECOMMENDED FOR APPROVAL

STATEWIDE PLANNING BRANCH	February 8, 2002
NCDOT	March 7, 2002
PUBLIC INFORMATION MEETING	October 23, 2001

NOVEMBER 20, 2001

Figure 2.1

CALDWELL COUNTY

NORTH CAROLINA

PREPARED BY THE

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS – STATEWIDE PLANNING BRANCH

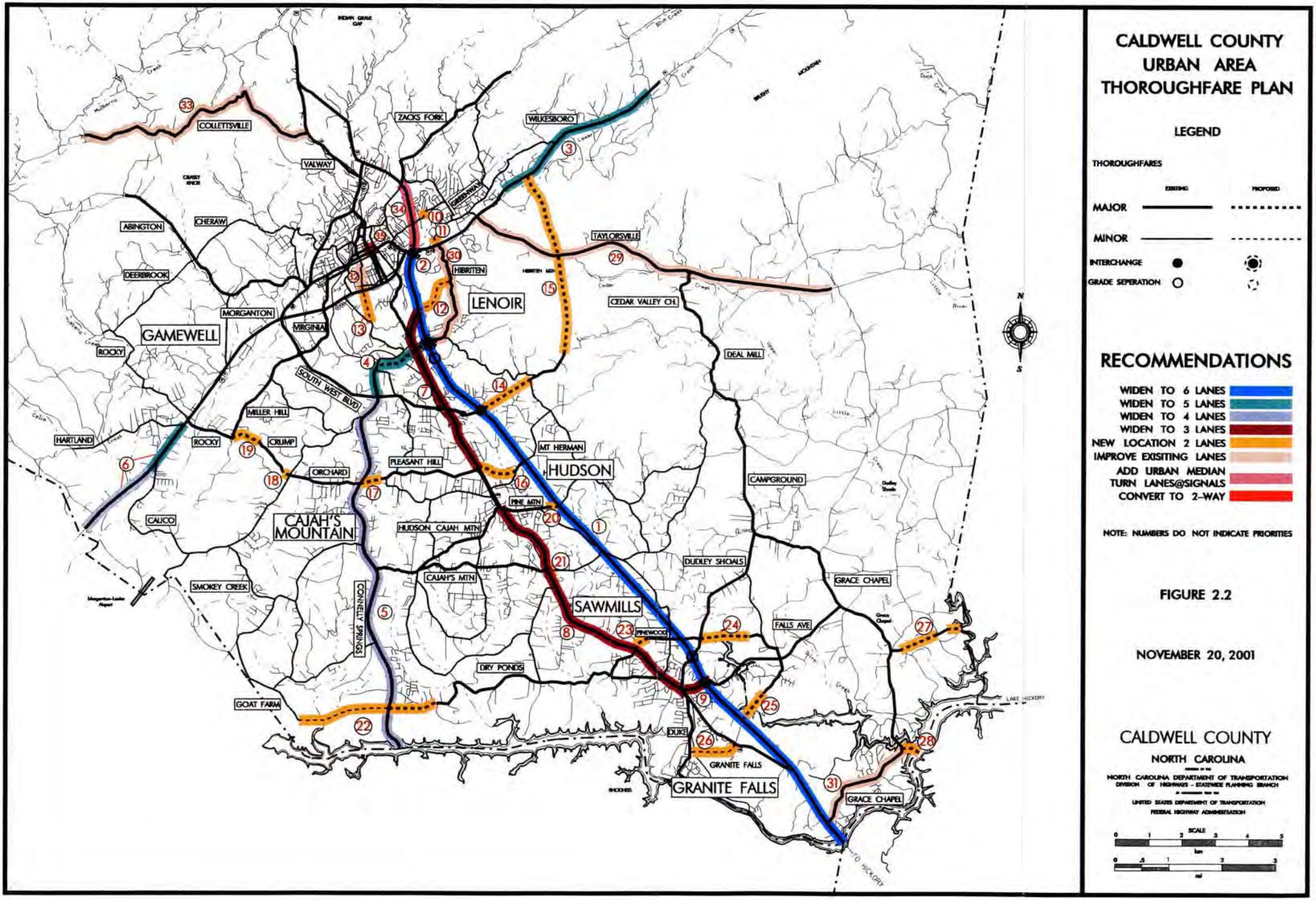
IN COOPERATION WITH THE

UNITED STATES DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION

SCALE

0 1 2 3 4 5
km

0 .5 1 2 3
mi



CALDWELL COUNTY URBAN AREA THOROUGHFARE PLAN

LEGEND

THOROUGHFARES

	EXISTING	PROPOSED
MAJOR	———	- - - - -
MINOR	———	- - - - -
INTERCHANGE	●	◉
GRADE SEPERATION	○	◌

RECOMMENDATIONS

- WIDEN TO 6 LANES
- WIDEN TO 5 LANES
- WIDEN TO 4 LANES
- WIDEN TO 3 LANES
- NEW LOCATION 2 LANES
- IMPROVE EXISITING LANES
- ADD URBAN MEDIAN TURN LANES@SIGNALS
- CONVERT TO 2-WAY

NOTE: NUMBERS DO NOT INDICATE PRIORITIES

FIGURE 2.2

NOVEMBER 20, 2001

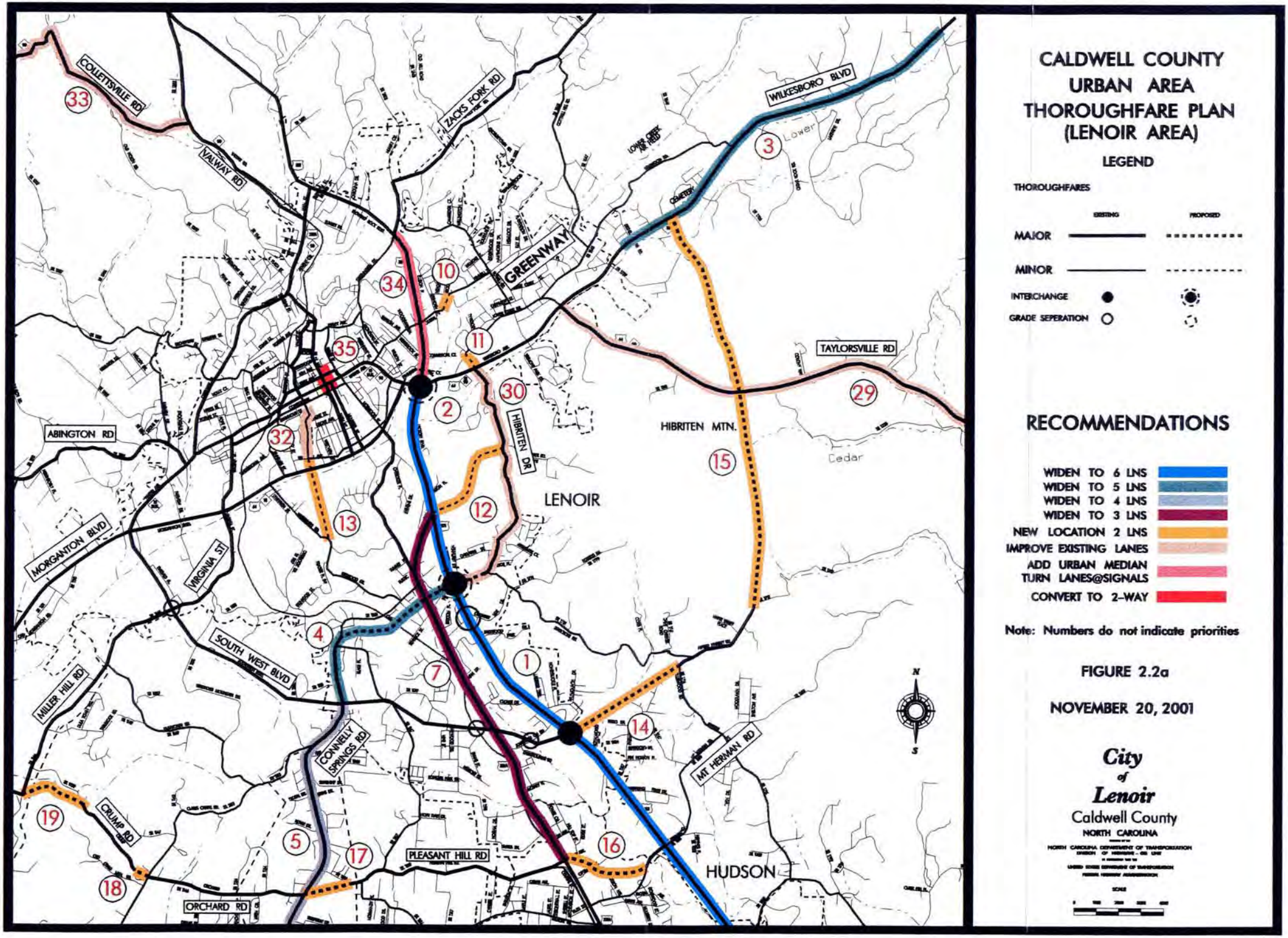
CALDWELL COUNTY

NORTH CAROLINA

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS - STATEWIDE PLANNING BRANCH

UNITED STATES DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION

SCALE
0 1 2 3 4 5
km
0 .5 1 2 3
mi



CALDWELL COUNTY URBAN AREA THOROUGHFARE PLAN (LENOIR AREA)

LEGEND

THOROUGHFARES

	EXISTING	PROPOSED
MAJOR	———	- - - - -
MINOR	———	- - - - -
INTERCHANGE	●	◉
GRADE SEPERATION	○	◌

RECOMMENDATIONS

- WIDEN TO 6 LNS
- WIDEN TO 5 LNS
- WIDEN TO 4 LNS
- WIDEN TO 3 LNS
- NEW LOCATION 2 LNS
- IMPROVE EXISTING LANES
- ADD URBAN MEDIAN TURN LANES@SIGNALS
- CONVERT TO 2-WAY

Note: Numbers do not indicate priorities

FIGURE 2.2a

NOVEMBER 20, 2001

City of Lenoir
Caldwell County
NORTH CAROLINA

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS - GIS UNIT

UNITED STATES DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION

SCALE

Colletesville Road (NC 90) - The section of Colletesville Road between Valway Road (NC 90) and Setzers Gap Road (SR 1350) is a two-lane facility 19 feet in width. There are approximately 2,000 vpd on this section of the roadway and 3,300 vpd projected for the year 2025. The section of Colletesville Road between Setzers Gap Road and the northern west end of the planning area boundary is a two-lane facility 18 feet in width. There are 1,500 vpd on this section of the roadway and 2,500 vpd projected for the year 2025. It is recommended that these sections of Colletesville Road be widened to 22-24 feet - typical cross-section "K". These sections of Colletesville road are also a part of TIP Project R-4061. R-4061 calls for improving an 8.7-mile stretch of NC 90 at an estimated cost of approximately 22.1 million dollars. The TIP project calls for the addition of guardrail, improvement of roadway geometry and resurfacing of the roadway. The Feasibility Study for this project is FS-9911F. TIP Project R-2622 (west of the planning area) calls for the paving of all unpaved sections of NC 90 to secondary roadway standards at a cost of 5.65 million dollars. Also, in the community of Colletesville, the NCDOT is constructing a kiosk, which will display pictures and information on the Chester and Lenoir Narrow Gauge Railroad of the late 1800's and early 1900's.

Connelly Springs Road (SR 1001) - The improved section of Connelly Springs Road from Southwest Boulevard to US 321-A is now open to traffic and has changed traffic patterns in the vicinity. TIP Project U-2211 calls for the continuation of Connelly Springs Road as a five-lane facility from US 321-A (Main Street) over to Hibriten Drive (SR 1178) with a new interchange at US 321 (Hickory Boulevard). The section of Connelly Springs Road from Southwest Boulevard (SR 1933) to Dry Ponds Road (SR 1115) is currently a two-lane facility. TIP Project R-3430 calls for this section of the road to be widened to multi-lanes at a cost of 26 million dollars. The section of Connelly Springs road between Southwest Boulevard and Orchard Road (SR 1146) has approximately 14,500 vpd and has 25,000 vpd projected for the year 2025. It is recommended that this section of road be widened to either a five-lane facility or a four-lane median divided facility - typical cross-section "C" or "E". The section between Orchard Road and Cajah Mtn. Road (SR 1130) has approximately 12,500 vpd and 21,000 projected for the year 2025. It is recommended that this section also be widened to either a five-lane facility or a four-lane median divided facility - typical cross-section "C" or "E". The section between Cajah Mtn. Road and Baton School Road (SR 1139) has approximately 9,500 vpd and 16,500 projected for the year 2025. It is recommended that this section also be widened to either a five-lane facility or a four-lane median divided facility - typical cross-section "C", "E" or "F" ("F" having a grass median). The section between Baton School Road and Dry Ponds Road has approximately 9,000 vpd and 15,500 projected for the year 2025. It is recommended that this section also be widened to either a five-lane facility or a four-lane median divided facility - typical cross-section "C", "E" or "F". Finally, the section of Connelly Springs Road between Dry Ponds Road and the Catawba River (end of the study area) has approximately 8,200 vpd and 14,000 projected for the year 2025. This section of road is not included with the R-3430 project but is being recommended to be widened to a four-lane median divided facility - typical cross-section "F". A further explanation of the Connelly Springs Road recommendations can be found in the Purpose and Need section of this chapter.

Dudley Avenue (SR 1002) - Dudley Avenue is a two-lane facility between Main Street (US 321-A) and Hickory Boulevard (US 321) and is 18 feet in width. There are approximately

2,700 vehicles per day (vpd) along this roadway and 5,500 vpd projected for the year 2025. It is recommended that Dudley Avenue be widened to 22-24 feet - typical cross-section "K".

Duke Avenue (SR 1106) - The section of Duke Avenue between Duke Power Road (SR 1105) and Caldwell Street (SR 1106) is a two-lane facility 18 feet in width. There are approximately 5,600 vpd on this section of the roadway and 9,000 vpd projected for the year 2025. It is recommended that this section of Duke Avenue be widened to 22-24 feet - typical cross-section "K".

Dry Ponds Road (SR 1115) - Dry Ponds Road is a two-lane facility 18 feet in width. There are approximately 2,400 vpd along the section of roadway between Main Street (US 321-A) and Sunset Street (SR 1199) and 5,000 vpd projected for the year 2025. There are approximately 1,900 vpd along the section of roadway between Sunset Street and Sawmills School Road (SR 1122) and 5,000 vpd projected for the year 2025. Finally, the section of roadway between Sawmills School Road and Liberty Road (SR 1195), where the proposed new location is to start, has approximately 2,600 vpd and 5,000 projected for the year 2025. It is recommended that these sections of Dry Ponds Road be widened to 22-24 feet - typical cross-section "K". Dry Ponds Road will work in conjunction with other existing and proposed roads to provide a continuous route between US 64/NC 18 and US 321 in southern Caldwell County. Most of the residential growth has been occurring in the southern part of the County and a system of well-connected roads would be beneficial to this area.

Falls Avenue (SR 1107) - The section of Falls Avenue between Main Street (US 321-A) and Hickory Boulevard (US 321) is a two-lane facility 34 feet in width. There are approximately 7,700 vpd along this section of the roadway and 15,500 vpd projected for the year 2025. It is recommended that this section of Falls Avenue be widened to a three-lane facility 33-36 feet in width - typical cross-section "H". This recommendation will accommodate the left turning traffic accessing the many commercial and residential driveways along this section of road and help to better handle the projected traffic. TIP Project R-2619 calls for this section of Falls Avenue to be widened to multi-lanes and also for modifications to the interchange at US 321 (Hickory Boulevard) at a cost of 9.6 million dollars. The US-321 Feasibility Study FS #9911C also calls for modifications to this interchange.

Grace Chapel Road (SR 1751) - Grace Chapel Road is a two-lane major thoroughfare 16-22 feet in width. The section of road between Dudley Shoals Road (SR 1001) and Ike Starnes Road (SR 1754) is 16 feet in width. There are approximately 1,700 vpd along this section of the road and 2,800 vpd projected for the year 2025. It is recommended that this section of Grace Chapel Road be widened to 22-24 feet - typical cross-section "K". The section of road between Ike Starnes Road and Rocky Mtn. Road (SR 1157) is 16 feet in width. There are approximately 2,400 vpd along this section of the road and 4,000 vpd projected for the year 2025. It is recommended that this section of Grace Chapel Road be widened to 22-24 feet - typical cross-section "K". The section of road between Rocky Mtn. Road and Musket Court (SR 1870) is also 16 feet in width. There are approximately 2,700 vpd along this section of the road and 5,700 vpd projected for the year 2025. It is also recommended that this section of Grace Chapel Road be widened to 22-24 feet - typical cross-section "K". The section of road between Musket Court

and Mountainside Drive (SR 1817) is 22 feet in width. There are approximately 3,300 vpd along this section of the road and 6,900 vpd projected for the year 2025. The section of road between Mountainside Drive and Northlake Drive (SR 1807) is 18 feet in width. There are approximately 4,300 vpd along this section of the road and 9,000 vpd projected for the year 2025. The section of road between Northlake Drive and Grace Drive (SR 1856) is also 18 feet in width. There are approximately 5,000 vpd along this section of the road and 11,800 vpd projected for the year 2025. The section of road between Grace Drive and Hickory Boulevard (US 321) is 20 feet in width. There are approximately 5,100 vpd along this section of the road and 12,000 vpd projected for the year 2025.

It is recommended that the sections of road between Musket Court and Hickory Boulevard be widened to 22-24 feet - typical cross-section "K" on four lanes of right-of-way. TIP Project R-3614 calls for improving the two existing lanes of Grace Chapel Road (typical cross-section "K") from Hickory Boulevard (US 321) to a point east SR 1817 and to reserve an additional two-lanes of right-of-way for a future multi-lane project. The project then calls for a route to be constructed on new location in order connect with NC 127 in Catawba County requiring a new bridge over the Catawba River. TIP R-3614 is estimated cost 22.05 million dollars. There is a Feasibility Study for this project dated 3/11/97, entitled Hickory Northside Connector from US 321 to NC 127 (N. Center Street), Caldwell and Catawba Counties - U-3614. A second TIP Project R-2918 calls for a new route from Grace Chapel Road in Caldwell County to connect with NC 127 in Alexander County. This project is currently unfunded.

Harper Avenue (NC 18 - Business) - The section of road between Hickory Boulevard (US 321) and Morganton Blvd (US 64/NC 18) is a six-lane section 64 feet in width. This short section of road facilitates turning moves both north and south onto US 321, south onto Morganton Boulevard, as well as into two commercial driveways. The road serves through movements east onto Wilkesboro Blvd and west on Harper Ave into the Lenoir Central Business District. There are approximately 25,000 vpd along this section of the roadway and 40,000 vpd projected for the year 2025. It is recommended that this section of road be realigned as part of the proposed interchange construction at Smith's Crossroads TIP Project U-4435. Figure 2.3 shows the potential location of this realignment. The section of road between Norwood Street and Boundary Street is currently a one-way 3-lane section 33 feet in width and the section of road between Boundary Street and Steel Street is a one-way 2-lane section also 33 feet in width. There are approximately 6,500 vpd along these sections of the roadway and 12,000 vpd projected for the year 2025. It is recommended that these sections of roadway be converted to two-way traffic. A copy of a letter that summarizes the recommended conversion of one-way streets in Downtown Lenoir to two-way traffic has been placed at the end of this chapter.

Hibriten Drive (SR 1178) - Hibriten Drive is a two-lane road 20 feet in width. With the construction of the McLean Drive Extension, the northern part of Hibriten Drive is anticipated to become a short cut between Wilkesboro Blvd and US 321. This anticipated short cut is the result of the congestion that occurs at the Smith's Crossroads intersection. Even with a very high future year volume projected for this section of Hibriten Drive it is not recommended that Hibriten be widened. Widening the road will only encourage more cut through or short cut traffic along this residential route. The ideal plan is to improve Smith's Crossroads with the construction of an interchange making it the more desirable and efficient route, decreasing the

attractiveness of any short cutting. There are approximately 2,800 vpd on the road at it most traveled section and 12,000 vpd projected for the year 2025. It is recommended that Hibriten Drive be widened to 22-24 feet and be realigned to eliminate the sharp curve between Wilkesboro Boulevard and the McLean Drive Extension - typical cross-section "K".

Hickory Boulevard (US 321) - Hickory Boulevard (US 231) is a four-lane divided facility from the southern end of the planning area at the Catawba River to the Smith's Crossroads intersection where US 321 intersects with US 64/NC 18. There are a considerable amount of driveways (curb cuts), which provide access to the varied commercial establishments along sections of the road. As mentioned under Blowing Rock Blvd, Route US 321 is a very important corridor both in and outside of Caldwell County. Route US 321 is a part of the North Carolina Intrastate System, the National Highway System, National Truck Network and both newly designated North Carolina Multi-modal Investment Network and Strategic Highway Corridors. It is extremely critical to preserve the remaining integrity of US 321 by strictly limiting if not completely deterring any further direct commercial access onto this facility. The Western Pediment Council of Governments has recently undertaken a study in conjunction with local municipalities to examine a zoning over-lay district, as well as access management strategies along the corridor. These two planning elements are essential to the future protection of the US 321 corridor. The section of road between the Catawba River and Grace Chapel Road has approximately 38,000 vpd and 65,000 vpd projected for the year 2025. The section of road between Grace Chapel Road and US 321-A has approximately 32,000 vpd and 55,000 vpd projected for the year 2025. The section of road between US 321-A and Falls Avenue (SR 1107) has approximately 27,000 vpd and 50,000 vpd projected for the year 2025. The section of road between Falls Ave and Mission Road (SR 1108) has approximately 30,000 vpd and 50,000 vpd projected for the year 2025. The section of road between Mission Road and Pine Mtn. Road (SR 1952/1809) has approximately 31,000 vpd and 51,000 vpd projected for the year 2025. The section of road between Pine Mtn. Road and Southwest Boulevard (SR 1933) has approximately 31,000 vpd and 47,000 vpd projected for the year 2025. The section of road between Southwest Boulevard and McLean Drive (SR 1180) has approximately 22,000 vpd and 42,000 vpd projected for the year 2025. The section of road between McLean Drive and Smith's Crossroads (US 64/ NC 18) has approximately 31,000 vpd and 46,000 vpd projected for the year 2025. It is recommended that the entire length of Hickory Boulevard be widened to a six-lane divided facility - typical cross-section "L". This recommendation is included in the TIP as Project U-4700. This project includes improvements from US 321 to US 70 in Hickory. The 17.2-mile Project is in the planning stages and is estimated to cost 131.06 million dollars (for the entire project, including south of the planning area for this study). Also in the TIP is Project U-4435 that calls for the construction of a new interchange at the Smith's Crossroads intersection. This project is currently in the planning stage and is estimated to cost 36.32 million dollars. Another TIP Project to address congestion on Hickory Blvd at the intersection of US 64/NC 18 is U-4429. TIP Project U-4429 calls for the northbound right-turn lane along Hickory Boulevard to be extended. This project is estimated to cost $200,000 dollars and is being completed by NCDOT, Division 11. A further explanation of the recommendations for Hickory Boulevard and the Smith's Crossroads interchange can be found in the Purpose and Need section of this chapter. Feasibility Study FS-9911C, entitled US 321 from US 70 in Hickory to Southwest Boulevard (SR 1933) in Lenoir, has been included in this report as Appendix H in order to provide additional information on the Hickory Boulevard improvement alternatives and cost

estimates. NCDOT Regional Traffic Engineer, Vickie Embry completed a Power Point presentation, entitled US 321 Corridor Preservation Study in Caldwell County, and has also been included in this report as Appendix I in order to provide additional traffic engineering recommendations for the corridor.

Ike Starnes Road (SR 1754) - The section of Ike Starnes Road between Falls Avenue (SR 1107) and Wyke Road (SR 1753) is 18 feet in width. There are approximately 1,000 vpd along this section of the roadway and 2,500 vpd projected for the year 2025. It is recommended that this section of Ike Starnes Road be widened to 22-24 feet - typical cross-section "K". This recommendation is a part of an overall recommendation to provide better connectivity around Granite Falls east of US 321.

Main Street (US 321-A) Granite Falls - The section of Main Street (US 321-A) through Granite Falls is a two-lane facility varying between 20 feet to 50 feet in width. In particular, the section between Falls Avenue and N. Highland Avenue (SR 1108) is 22 feet in width. There are approximately 9,300 vpd along this section of road and 15,200 vpd projected for the year 2025. The section between N. Highland Avenue and Summit Avenue is 28 feet in width. There are approximately 8,000 vpd along this section of road and 13,100 vpd projected for the year 2025. The section between Summit Avenue and Dry Ponds Road (SR 1115) is 24 feet in width. There are also approximately 8,000 vpd along this section of road and 13,100 vpd projected for the year 2025. The section between Dry Ponds Road and Hardwood Drive is also 24 feet in width. There are approximately 7,500 vpd along this section of road and 12,300 projected for the year 2025. Main Street runs parallel to US 321 and tends to have more local traffic than it does through traffic. During peak times of the day Main Street experiences congestion. Driveways and commercial development along the road provide a need for traffic to turn left. Without a center- turn lane to facilitate the left turning traffic the travel lanes become congested. To help with the congestion caused by left turning traffic and the projected future volumes it is recommended that the sections of road between Falls Avenue (SR 1107) and Hardwood Drive be widened to a three-lane facility - typical cross-section "H". TIP Project U-2543 calls for this section of US 321-A to be widened to multi-lanes, however it is currently an unfunded project.

Main Street (US 321-A) Sawmills - The section of Main Street (US 321-A) from Hardwood Drive to the Little Gunpowder Creek is a two-lane facility 24 feet in width. There are approximately 8,000 vpd along this section of roadway and 11,600 vpd projected for the year 2025. For the same reasons as the section of US 321-A immediately to the south, it is recommended that this section of Main Street also be widened to a three-lane facility - typical cross-section "H". TIP Project U-2543 calls for this section of US 321-A to be widened to multi-lanes, however it is currently an unfunded project.

Main Street (US 321-A) Hudson - The Section of Main Street (US 321-A) in Hudson is both a two and three lane facility varying between 22 feet to 39 feet in width. The section of road between Little Gunpowder Creek and Pine Mtn. Road (SR 1809) is a two-lane facility 24 feet in width. There are approximately 6,400 vpd along the section of roadway and 9,300 projected for the year 2025. The section of road between Optimist Avenue and Swanson Road is also a two-lane facility and is 22 feet in width. There are approximately 10,000 vpd along the section of

roadway and 14,500 projected for the year 2025. For the same reasons as the sections of US 321-A immediately to the south, it is recommended that this section of Main Street also be widened to a three-lane facility - typical cross-section "H". TIP Project U-2543 calls for this section of US 321-A to be widened to multi-lanes, however it is currently an unfunded project.

Main Street (US 321-A) Lenoir - The one recommendation on Main Street (US 321-A) in Lenoir is to convert the one-way section of road between College Avenue and West Avenue to two-way traffic. This section of road is a three-lane facility 46 feet in width and allows for parking. There are approximately 4,500 vpd along this section of roadway and 8,000 vpd projected for the year 2025. A copy of a letter that summarizes the recommended conversion of one-way streets in Downtown Lenoir to two-way traffic has been placed at the end of this chapter.

McLean Drive (SR 1180) - The section of McLean Drive between Norwood Street (US 321-A) and Hickory Boulevard (US 321) is a two-lane facility 20 feet in width. There are approximately 9,900 vpd along this section of roadway and 15,500 vpd projected for the year 2025. Due to the completion of the new McLean Drive Extension, projected volumes, and both commercial and residential driveways it is recommended that McLean Drive be widened to a three-lane facility - typical cross-section "H".

Miller Hill Road (SR 1145) - The section of Miller Hill Road between Rocky Road (SR 1143) and Dulatown Road (SR 1149) is a two-lane facility 18 feet in width. There are approximately 3,200 vpd along this section of roadway and 5,000 vpd projected for the year 2025. It is recommended that Miller Hill Road be widened to 22-24 feet - typical cross-section "K".

Morganton Road (US 64/NC 18) - Morganton Rd is both a five-lane and two-lane facility between the Burke County Line and Beacher Anderson Road. The section of road between the Burke County Line and Sunset Trail is a two-lane facility 24 feet in width. There are approximately 11,000 vpd along this section of the road and 18,000 projected for the year 2025. It is recommended that this section of Morganton Road be widened to a four-lane facility - typical cross-section "F". The section of road between Sunset Trail and Hartland Road (SR 1325) is also a two-lane facility 24 feet in width. There are approximately 14,000 vpd along this section of the road and 23,000 projected for the year 2025. It is recommended that this section of Morganton Road be widened to a five-lane facility - typical cross-section "C". US 64/ NC 18 is a minor arterial and is the main artery between Morganton and Lenoir. North of Lenoir, NC 18 extends to North Wilkesboro. South of Morganton, US 64 extends to the Rutherfordton area. TIP Project R-2549 calls for US 64/NC 18 to be widened to multi-lanes from north of Morganton to the existing five-lane section in Gamewell. This project is currently in the planning stage and is estimated to cost 31.751 million dollars. A further explanation of the recommendation can be found in the Purpose and Need section of this chapter.

Myers Road (SR 1754) - The section of Myers Road between Meandering Way and the Myers Road Extension is a two-lane facility 18 feet in width. There is approximately 200 vpd along this road, which has only local traffic on it. If the extension of the road were ever constructed connecting it with Hickory Blvd (US 321) the projected volume along the existing part of Myers

Road would be significantly higher. The year 2025 projection for the road is 9,000 vpd. It is recommended that this section of Myers Road be widened to 22-24 feet - typical cross-section "K". This recommendation is a part of an overall recommendation to provide better connectivity around Granite Falls east of US 321.

Norwood Street (US 321-A) - The section of Norwood Street (US 321-A) from Swanson Road to McLean Drive is a two-lane facility 22 feet in width. In particular, the section between Swanson Road and Southwest Blvd (SR 1933) has approximately 9,800 vpd and 14,200 vpd projected for the year 2025. The section between Southwest Blvd and Hibriten Drive (SR 1178) has approximately 10,000 vpd and 14,400 projected for the year 2025. The section between Hibriten Drive and McLean Drive (SR 1180) has approximately 11,500 and 16,000 vpd projected for the year 2025. For the same reasons as the other sections of US 321-A immediately to the south, it is recommended that this section of Norwood Street also be widened to a three-lane facility - typical cross-section "H". TIP Project U-2543 calls for this section of US 321-A to be widened to multi-lanes, however it is currently an unfunded project.

Oak Hill Circle (SR 1788) - The section of Oak Hill Circle between Taylorsville Road (US-64) and Cedar Valley Church Road (SR 1719) is a two-lane road 18 feet in width. There are approximately 550 vpd along this section of the road and 1200 vpd projected for the year 2025. It is recommended that this section of Oak Hill Circle be widened to 22-24 feet - typical cross-section "K".

Pinewood Road (SR 1109) - The section of Pinewood Road between Hickory Boulevard (US 321) and N. Highland Avenue is a two-lane facility 18 feet in width. There are approximately 7,500 vpd along this section of the road and 9,900 vpd projected for the year 2025. The section of Pinewood Road between Winchester Avenue and Spartan Drive is also a two-lane facility 18 feet in width. There are approximately 3,500 vpd along this section of the road and 8,800 projected for the year 2025. It is recommended that both of these sections of Pinewood Road be widened to 22-24 feet - typical cross-section "K". These sections along with the proposed Pinewood Road Extension will provide improved connectivity between Main Street (US 321-A) and Hickory Boulevard (US 321).

Scroggs Street - The section of Scroggs Street from Vance Street to Main Street has a projected volume of 10,500 vpd for the year 2025 and is considered to be adequate into the design year. The Scroggs Street Extension in Lenoir, as shown on the adopted Thoroughfare Plan, would impact the E.A. Poe Jr. House property which is on the national register of historic places. It was agreed that this small connector would be removed from the 2002 Updated Caldwell County Urban Area Thoroughfare Plan but was mistakenly included on the map. The Scroggs Street Extension is not included on the Recommendation Map and should be deleted off of the adopted Thoroughfare Plan Map at the next available opportunity.

Taylorsville Road (US 64/NC 90) - Taylorsville Road is a two-lane facility 24 feet in width. This road is a vital route between Lenoir in the center of Caldwell County and Taylorsville in the center of Alexander County. The section of Taylorsville Road closest to Wilkesboro Boulevard currently has the most traffic. There are approximately 7,300 vpd on the section of road between

Wilkesboro Blvd and Moose Lodge Road and 12,000 vpd projected for the year 2025. TIP Project R-2550, which is currently unfunded, calls for the upgrading of US 64/NC 18 from Wilkesboro Boulevard in Caldwell County to west of SR 1313 in Alexander County at an estimated cost of 6.4 million dollars. Upgrading could mean the addition of guardrail, improvement of roadway geometry (straightening out sharp curves) and resurfacing of the roadway. It is also worth mentioning that this section of road is a part of the "Carolina Emerald" section of the Mountains to Sea Bike Route. TIP Project E-4718 is a project scheduled for a feasibility study that calls for the addition of wide paved shoulders to selected bike routes. Cross-section "O" from Appendix C would be the appropriate recommendation for this roadway if it was selected and funds were available.

Vance Street - The section of Vance Street between Willow Street and Scroggs Street is a two-lane facility 19 feet in width. The section between Scroggs Street and Finley Avenue is also a two-lane facility and is 18 feet in width. There are approximately 1,600 vpd along these sections of Vance Street and 2,100 vpd projected for the year 2025. It is recommended that these sections of Vance Street be widened to 22-24 feet - typical cross-section "K".

Virginia Street (SR 1145) - The section of Virginia Street between Dulatown Road (SR 1149) and 0.14 miles south of Southwest Boulevard (SR 1933) is a two-lane facility 18 feet in width. There are approximately 3,700 vpd along this section of the roadway and 5,400 vpd projected for the year 2025. The section between 0.14 miles north of Southwest Blvd and Fairview Drive is also a two-lane facility 18 feet in width. There are approximately 3,600 vpd along this section of the roadway and 5,200 vpd projected for the year 2025. It is recommended that these sections of Virginia Street be widened to 22-24 feet - typical cross-section "K".

West Avenue (NC 18-Business) - The one recommendation on West Avenue is to convert the one-way sections of the road between Ridge Street and Harper Avenue (NC 18-Business) to two-way traffic. In particular, the section of road between Ridge Street and Main Street is a three-lane facility 49 feet in width. There are approximately 6,900 vpd along this section of roadway and 11,300 vpd projected for the design year of 2025. The section of road between Main Street and Willow Street is also a three-lane facility and is 42 feet in width. There are approximately 4,300 vpd along this section of roadway and 7,100 vpd projected for the year 2025. The section of road between Willow Street and Depot Place is a two-lane facility and is 42 feet in width. There are approximately 4,200 vpd along this section of roadway and 6,900 vpd projected for the year 2025. The section of road between Depot Place and Harper Avenue is also a two-lane facility and is 25 feet in width. There are approximately 4,000 vpd along this section of roadway and 6,600 vpd projected for the year 2025. Parking is permitted on West Avenue between Ridge Street and Boundary Street. A copy of a letter that summarizes the recommended conversion of one-way streets in Downtown Lenoir to two-way traffic has been placed at the end of this chapter.

Wilkesboro Boulevard (NC 18) *part on US 64/NC 90* **–** Wilkesboro Boulevard as its name implies is an important corridor between Lenoir and Wilkesboro/North Wilkesboro. The section of Wilkesboro Blvd within the Lenoir corporate limits has a considerable amount of commercial driveways and intersecting streets. The section between US 321 and Hibriten Drive (SR 1178) is

a five-lane facility with turn lanes and is 64 feet in width. There are approximately 22,000 vpd along this section of the road and 40,000 vpd projected for the year 2025. TIP Project U-4435 calls for the construction of a new interchange at the Smith's Crossroads intersection that will change the road's alignment as well as eliminate direct access approximately 1000 feet back from the intersection. This project is currently in the planning stage and is estimated to cost 36.32 million dollars. The section from just west of Lower Creek Drive to west of Tanglewood Drive is a three-lane facility 36 feet in width. There are approximately 8,900 vpd along this section of road and 14,500 projected for the year 2025. The section from just west of Tanglewood Drive to Blue Ridge Circle is also a three-lane facility 36 feet in width. There are approximately 8,400 vpd along this section of road and 13,800 projected for the year 2025. The section between Blue Ridge Circle and Blue Ridge Road (SR 1550) is a two-lane facility 24 feet in width. There are approximately 6,000 and 10,000 vpd projected for year 2025. It is recommended that the two and three-lane sections mentioned above be widened to a five-lane typical cross-section "C".

Willow Street - Willow Street is a two-lane facility, part of which is classified as a minor thoroughfare and part as a major thoroughfare. The major thoroughfare section between Wheeler Street and Prospect Street is 18 feet in width. There are approximately 3,000 vpd on this section of the road and 4,500 projected for the year 2025. The section between Prospect Street and Vance Street is 16 feet in width. There are approximately 3,700 vpd on this section of the road and 6,500 projected for the year 2025. It is recommended that these sections of Willow Street be widened to 22-24 feet - typical cross-section "K".

Zacks Fork Road (SR 1511) - The section of Zacks Fork Road between Old Mill Road (SR 1523) and Georgetown Road (SR 1583) is a two-lane facility 18 feet in width. There are approximately 2,000 vpd on this section of the roadway and 3,000 vpd projected for the year 2025. The section of road between Georgetown Road (SR 1583) and Cottrell Hill Road (SR 1545) is a two-lane facility 16 feet in width. There are approximately 1,500 vpd on this section of the roadway and 2,200 vpd projected for the year 2025. The section of road from Cottrell Hill Road to just northeast of St. Johns Road is also 16 feet in width. There are approximately 1,300 vpd on this section of the roadway and 2,000 vpd projected for the year 2025. It is recommended that these sections of Zacks Fork Road be widened to 22-24 feet - typical cross-section "K".

Recommended Major Thoroughfares on New Location

Connelly Springs Road Realignment (SR 1001) – The first section of this project from Walt Arney Road to Norwood Street (US 321-A) is complete, with the road having been realigned and widened to five-lanes curb and gutter - typical cross-section "C". TIP Project U-2211 calls for the continuation of the five-lane section from Norwood Street to Hickory Blvd (US 321) at Hibriten Drive and for a new interchange to be constructed at US 321. This facility when built can be expected to carry approximately 15,000 vpd in the design year 2025. TIP U-2211 in its entirety is estimated to cost 32 million dollars and the last section of the construction is to begin in 2008. The idea for this realignment was also represented on the 1992 Thoroughfare Plan, although the interchange was not.

Crump Road Realignment (SR 1929) - The Crump Road realignment is one part in a series of recommendations which is aimed at improving the connectivity between US 64/NC 18 to US 321 as well as the towns of Granite Falls, Cajah's Mountain and Hudson. The realignment is recommended on the section of road from west of Clarks Chapel Road to Orchard Drive and is proposed as a two-lane facility - typical cross-section "K". This facility could be expected to carry up to 4,500 vpd in the design year of 2025. The idea for this facility was also represented on the 1992 Thoroughfare Plan.

Dry Ponds Road (SR 1115) to Goat Farm Road (SR 1140) Connector (Eastern Part) - It is recommended that a two-lane major thoroughfare be constructed connecting Dry Ponds Road at Liberty Road with Connelly Springs Road (SR 1001) - typical cross-section "K". This improved connection would work in conjunction with other existing roads to provide a continuous route between US 64/NC 18 and US 321 in southern Caldwell County. Most of the residential growth has been occurring in the southern part of the County and a system of well-connected roads would be beneficial to this area. Considering anticipated development, this facility could be expected to carry up to 5,000 (vpd) in the design year.

Dry Ponds Road (SR 1115) to Pinewood Road (SR 1109) Connector - It is recommended that a two-lane major thoroughfare be constructed connecting Dry Ponds Road with Pinewood Road at Spartan Drive- typical cross-section "K". This connection would provide for better connectivity between US 321-A and US 321 and would also work in conjunction with the Pinewood Road Extension on the east side of Hickory Boulevard. This facility could be expected to carry up to 9,000 vpd in the design year.

Grace Chapel Road (SR 1751) to NC 127 in Alexander County Connector - TIP Project R-2918 calls for a new route from Grace Chapel Road in Caldwell County to connect with NC 127 in Alexander County. This project is estimated to cost 6.95 million dollars and would require a new bridge over the Upper Little River. This facility could be expected to carry up to 3,000 vpd in the design year of 2025.

Grace Chapel Road (SR 1751) to NC 127 in Catawba County Connector - TIP Project R-3614 calls for improving the two existing lanes of Grace Chapel Road (typical cross-section "K") from Hickory Boulevard (US 321) to a point east SR 1817 and to reserve an additional two-lanes of right-of-way for a future multi-lane project. The project also calls for a route to be constructed on new location and to connect with NC 127 in Catawba County requiring a new bridge over the Catawba River. The Connector will help to achieve a major east-west radial route between US 321 and NC 127 on the north side of Hickory. TIP R-3614 is estimated cost 22.05 million dollars. There is a Feasibility Study for this project, dated March 11, 1997 entitled Hickory Northside Connector from US 321 to NC 127 (N. Center St.) Caldwell & Catawba Counties - U-3614. This facility could be expected to carry approximately 10,500 vpd in the design year.

Myers Road (SR 1754) Extension - It is recommended that a two-lane major thoroughfare be constructed connecting Myers Road with Hickory Boulevard US 321 - typical cross-section "K". This recommendation is a part of an overall recommendation to provide better connectivity

around Granite Falls east of US 321. This connector would serve the development occurring in southeast Caldwell County and relieve southbound traffic congestion at the Falls Ave and US 321 interchange. This facility could be expected to carry up to 9,500 vpd in the design year. The idea for this facility was also represented on the 1992 Thoroughfare Plan.

Orchard Drive (SR 1146) to Pleasant Hill Road (SR 1159) Connector - The Orchard Drive Connector is one part in a series of recommendations which is aimed at improving the connectivity between US 64/NC 18 to US 321 as well as the towns of Granite Falls, Cajah's mountain and Hudson. The connector would connect Orchard Road at Connelly Springs Road to Pleasant Hill Road and is proposed as a two-lane facility - typical cross-section "K". This facility could be expected to carry up to 5,000 vpd in the design year. The idea for this facility was also represented on the 1992 Thoroughfare Plan.

Pine Mountain Road (SR 1952/1809) Realignment - The Pine Mountain Road realignment is recommended to improve the overall road geometry and safety at its intersection with US 321. The realigned section is proposed as a two-lane facility - typical cross-section "K". The road would realign Pine Mountain Road west of Meadowood Street to the point where Thompson Drive ties into US 321. This facility could be expected to carry up to 11,000 vpd in the design year.

Pinewood Road (SR 1109) Extension - It is recommended that a two-lane major thoroughfare be constructed connecting Pinewood Road at Dudley Shoals Road with Wyke Road - typical cross-section "K". This recommendation is a part of an overall recommendation to provide better connectivity around Granite Falls east of US 321. This connector would serve the development occurring in southeast Caldwell County and relieve southbound traffic congestion at the Falls Avenue and US 321 Interchange. This facility could be expected to carry up to 2,500 vpd in the design year. The idea for this facility was also represented on the 1992 Thoroughfare Plan.

Pleasant Hill Road (SR 1159) to Mt. Herman Road (SR 1160) Connector - TIP Project R-3437 calls for the construction of a two-lane major thoroughfare - typical cross-section "K" connecting Pleasant Hill Road at US 321-A with Mt. Herman Road. This project is estimated to cost 3.5 million dollars and could be expected to carry up to 5,500 vpd in the design year. The idea, for this facility although modified, was also represented on the 1992 Thoroughfare Plan.

Rocky Road (SR 1143) to Crump Road (SR 1929) Connector - The Rocky Road Connector is one part in a series of recommendations which is aimed at improving the connectivity between US 64/NC 18 and US 321 as well as the towns of Granite Falls, Cajah's Mountain and Hudson. The connector would connect Rocky Road at Miller Hill Road to Crump Road and is proposed as a two-lane facility - typical cross-section "K". This facility could be expected to carry up to 4,000 vpd in the year 2025. The idea for this facility was also represented on the 1992 Thoroughfare Plan.

Southwest Boulevard (SR 1933) to Alfred Hartley Road (SR 1712) Connector - The recommendation for this project most likely exceeds the current 2025 design year and should be considered as a "Vision Plan Project". It is recommended that a two-lane major thoroughfare be

constructed connecting Southwest Boulevard with Alfred Hartley Road - typical cross-section "K". This connection would be a part of an overall route around the eastern side of Lenoir. This overall route would provide connectivity between Hickory Boulevard (US 321) and Wilkesboro Boulevard. This facility could be expected to carry up to 8,000 vpd in the design year. The topography along the eastern side of Lenoir is mountainous and any new roads would carry a steep grade. The grade of a road dictates both its speed and facility type and for this reason a new road in this vicinity should not be perceived as a high-speed facility or a facility similar to the standards of the current Southwest Boulevard (SR 1933).

Wilkesboro Boulevard (NC 18) to Alfred Hartley Road (SR 1712) Connector - The recommendation for this connector is the same as the above recommendation with the one exception that the facility if built could be expected to carry up to 6,000 vpd in the design year.

Minor Thoroughfares

Minor thoroughfares are more land service oriented than the major thoroughfares. The main purpose of a minor thoroughfare is to collect traffic from local access streets and carry it to the major thoroughfares. The following roads are minor thoroughfares that are recommended for improvement.

Baton School Road (SR 1139) - Baton School Road is a two-lane facility 18 feet in width. There are approximately 2,100 vehicles per day (vpd) along the section of roadway between Connelly Springs Road (SR 1001) and J.M. Craig Road (SR 1137) and 4,000 vpd projected for the year 2025. There are approximately 1,400 vpd along the section of roadway between J.M. Craig Road and Goat Farm Rd (SR 1140) and 2,700 projected for the year 2025. It is recommended that Baton School Road be widened to 22-24 feet - typical cross-section "K".

Bradford Mountain Road (SR 1150) - The section of Bradford Mountain Road between Dulatown Road (SR 1149) and Clark's Chapel Road (SR 1153) is a two-lane facility 18 feet in width. There are approximately 700 vpd on this section of the roadway and 1,200 vpd projected for the year 2025. It is recommended that this section of Bradford Mountain Road be widened to 22-24 feet - typical cross-section "K".

Broadway Street - The section of Broadway Street between Southwest Boulevard (SR 1933) and the City of Lenoir's west corporate limits is a two-lane facility 18 feet in width. There are approximately 2000 vpd on this section of the roadway and 4,000 vpd projected for the year 2025. It is recommended that this section of Broadway Street be widened to 22-24 feet - typical cross-section "K".

Cedar Valley Road (SR 1192) - Cedar Valley Road is a two-lane facility between Pine Mtn. Road (SR 1952) and Hickory Boulevard (US 321) and is 18 feet in width. There are approximately 1,300 (vpd) along this roadway and 2,200 vpd projected for the year 2025. It is recommended that Cedar Valley Road be widened to 22-24 feet - typical cross-section "K".

Cheraw Road (SR 1301) - The section of Cheraw Road between the City of Lenoir's west corporate limits and Hoods Creek Road (SR 1307) is a two-lane facility 18 feet in width. There are approximately 1,000 vpd on this section of the roadway and 5,000 vpd projected for the year 2025. It is recommended that this section of Cheraw Road be widened to 22-24 feet - typical cross-section "K".

Clark's Chapel Road (SR 1153) - The section of Clark's Chapel Road between Connelly Springs Road (SR 1001) and Woodbridge Court is a two-lane facility 16 to18 feet in width. There are approximately 1,700 vpd on this section of the roadway and 3,700 vpd projected for the year 2025. It is recommended that this section of Clark's Chapel Road be widened to 22-24 feet - typical cross-section "K".

Cottrell Hill Road (SR 1545) - Cottrell Hill Road is a two-lane facility between Zacks Fork Road (SR 1511) and Wildwood Road (SR 1548) and is 16 to 18 feet in width There are approximately 1,400 vpd along this roadway and 2,000 vpd projected for the year 2025. It is recommended that this section of Cottrell Hill Road be widened to 22-24 feet - typical cross-section "K".

Deerbrook Road (SR 1301) - Deerbrook Road is a two-lane facility between Zacks Fork Road (SR 1511) and Wildwood Road (SR 1548) and is 18 feet in width. There are approximately 1,900 vpd along this roadway and 3,100 vpd projected for the year 2025. It is recommended that Deerbrook Road be widened to 22-24 feet - typical cross-section "K".

Ellerwood Road (SR 1715) - Ellerwood Road is a two-lane facility between Alfred Hartley Road (SR 1712) and Mt. Herman Road (SR 1160) and is 19 feet in width. There are approximately 2,000 vpd along this roadway and 3,300 vpd projected for the year 2025. It is recommended that Ellerwood Road be widened to 22-24 feet - typical cross-section "K".

Fairview Drive (SR 1303) - The section of Fairview Drive between Abingtion Road (SR 1310) and Cheraw Road (SR 1301) is a two-lane facility 18 feet in width. There are approximately 2,000 vpd on this section of the roadway and 3,300 vpd projected for the year 2025. It is recommended that this section of Fairview Drive be widened to 22-24 feet - typical cross-section "K".

Freezer Locker Road (SR 1715) - Freezer Locker Road is a two-lane facility between Mt. Herman Road (SR 1160) and Pine Mtn. Road (SR 1809) and is 19 feet in width. There are approximately 2,500 vpd along this roadway and 4,100 vpd projected for the year 2025. It is recommended that Freezer Locker Road be widened to 22-24 feet - typical cross-section "K".

Goat Farm Road (SR 1140) - Goat Farm Road is a two-lane facility 18 feet in width. There are approximately 860 vehicles per day (vpd) along the section of roadway between Union Grove Road (SR 1041) and Baton School Road (SR 1139) and 4,000 vpd projected for the year 2025. There are approximately 150 vpd along the section of roadway between Baton School Road and the proposed connector on new location and 4,000 vpd projected for the year 2025. It is recommended that Goat Farm Road be widened to 22-24 feet - typical cross-section "K".

Harrisburg Drive - The section of Harrisburg Drive between Overlook Drive and Delwood Drive is a two-lane facility 18 feet in width. There are approximately 3,200 vpd on this section of the roadway and 5,000 vpd projected for the year 2025. It is recommended that this section of Harrisburg Drive be widened to 22-24 feet - typical cross-section "K".

Hartland Road (SR 1325) - The section of Hartland Road between the planning area boundary and US 64/NC 18 is a two-lane facility 18 feet in width. There are approximately 3,700 vpd on this section of the roadway and 6,800 vpd projected for the year 2025. It is recommended that this section of Hartland Road be widened to 22-24 feet - typical cross-section "K".

Hickory Nut Ridge Road - The section of Hickory Nut Ridge Road between Cajah Mtn. Road (SR 1130) and Horseshoe Bend Road (SR 1127) is a two-lane facility 18 feet in width. There are approximately 2,100 vpd on this section of the roadway and 3,400 vpd projected for the year 2025. The section of Hickory Nut Ridge Road between Horseshoe Bend Road and Baton Church Road (SR 1124) is also a two-lane facility 18 feet in width. There are approximately 1,000 vpd on this section of the roadway and 1,700 vpd projected for the year 2025. It is recommended that these sections of Hickory Nut Ridge Road be widened to 22-24 feet - typical cross-section "K".

Horseshoe Bend Road (SR 1127) - The section of Horseshoe Bend Road between A.O. Wilson Road (SR 1212) and Dakota Drive is a two-lane facility 18 feet in width. There are approximately 800 vpd on this section of the roadway and 1,100 vpd projected for the year 2025. The section of Horseshoe Bend Road between Dakota Drive and Cajah Mtn Road (SR 1130) is a two-lane facility 19 feet in width. There are approximately 1,100 vpd on this section of the roadway and 1,700 vpd projected for the year 2025. It is recommended that these sections of Horseshoe Bend Road be widened to 22-24 feet - typical cross-section "K".

Legion Road (SR 1156) - The section of Legion Road between Pleasant Hill Road (SR 1159) and the Hudson Corporate limit is a two-lane facility 18 feet in width. There are approximately 1,300 vpd on this section of the roadway and 2,100 vpd projected for the year 2025. It is recommended that this section of Legion Road be widened to 22-24 feet - typical cross-section "K".

Lenoir Avenue - The section of Lenoir Avenue between Spruce Street and Willow Street is a two-lane facility 16 feet in width. There are approximately 500 vpd on this section of the roadway and 2,200 vpd projected for the year 2025. It is recommended that this section of Lenoir Avenue be realigned (straightened out) for better connectivity with Spruce Street and Willow Street and also widened to 22-24 feet - typical cross-section "K".

Lower Cedar Valley Road (SR 1108) - The section of Lower Cedar Valley Road between Hickory Boulevard (US 321) and Deal Mill Road (SR 1718) is a two-lane facility 18 feet in width. There are approximately 3,300 vpd on this section of the roadway and 7,000 vpd projected for the year 2025. The section of Lower Cedar Valley Road between Deal Mill Road to Hickory Boulevard is also a two-lane facility 18 feet in width. There are approximately 1,700 vpd on this section of the roadway and 3,600 vpd projected for the year 2025. It is recommended that Lower Cedar Valley Road be widened to 22-24 feet - typical cross-section "K".

Norwood Street - The section of Norwood Street between Morganton Boulevard (US 64/NC 18) and College Ave is a two-lane facility 18 feet in width. There are approximately 5,400 vpd on this section of the roadway and 7,200 vpd projected for the year 2025. It is recommended that this section Norwood Street be widened to 22-24 feet - typical cross-section "K".

Old Amhurst Road (SR 1134) - The section of Old Amhurst Road (SR 1134) between Calico Road (SR 1142) and the Burke County Line is currently an unpaved facility. There are approximately 100 vpd on this section of the roadway and 500 vpd projected for the year 2025. It is recommended that Old Amhurst Road be paved to a width of 22-24 feet - typical cross-section "K".

Pennell Street - The section of Pennell Street between Brookside Place and Beverly Circle is a two-lane facility 19 feet in width. The section of Pennell Street between Beverly Circle and Powell Road is also a two-lane facility 18 feet in width. There are approximately 2,600 vpd on these sections of the roadway and 6,000 vpd projected for the year 2025. It is recommended that these sections of Pennell Street be widened to 22-24 feet - typical cross-section "K".

Powell Road - The section of Powell Rd between Wellington Court and Pennell Street is a two-lane facility 18 feet in width. There are approximately 3,000 vpd on this section of the roadway and 3,900 vpd projected for the year 2025. It is recommended that this section of Powell Road be widened to 22-24 feet - typical cross-section "K".

Rocky Road (SR 1143) - The section of Rocky Road between Morganton Road (US 64/NC 18) and Ivey Stine Road (SR 1386) is a two-lane facility 18 feet in width. There are approximately 2,700 vpd on this section of the roadway and 3,900 vpd projected for the year 2025. The section of Rocky Road between Ivey Stine Road and Sheely Road (SR 1387) is a two-lane facility 18 feet in width. There are approximately 1,300 vpd on this section of the roadway and 1,900 vpd projected for the year 2025. The section of Rocky Road between Sheely Road and Deerbrook Road (SR 1301) is also a two-lane facility 18 feet in width. There are approximately 1,100 vpd on this section of the roadway and 1,600 vpd projected for the year 2025. It is recommended that these sections of Rocky Road be widened to 22-24 feet - typical cross-section "K".

Smokey Creek Road (SR 1933) - Smokey Creek Road is a two-lane facility between Clarks Chapel Road (SR 1153) and Union Grove Road (SR 1134) and is 18 feet in width. There are approximately 1,800 vpd along this roadway and 3,000 vpd projected for the year 2025. It is recommended that Smokey Creek Road be widened to 22-24 feet - typical cross-section "K".

Spruce Street - The section of Spruce Street between Pennton Ave and Howard Street is a two-lane facility 19 feet in width. There are approximately 800 vpd on this section of the roadway and 1,600 vpd projected for the year 2025. It is recommended that this section of Spruce Street be widened to 22-24 feet - typical cross-section "K".

Starcross Road (SR 1712) - Starcross Road is a two-lane facility between Hibriten Drive (SR 1178) and Ellerwood Road (SR 1715) and is 18 feet in width. There are approximately 1,000 vpd

along this roadway and 1,600 vpd projected for the year 2025. It is recommended that Starcross Road be widened to 22-24 feet - typical cross-section “K”.

Union Grove Road (SR 1134) - The section of Union Grove Road between Goat Farm Road (SR 1140) and Smokey Creek Road (SR 1134) is a two-lane facility 18 feet in width. There are approximately 1,000 vpd on this section of the roadway and 1,700 vpd projected for the year 2025. It is recommended that this section of Union Grove Road be widened to 22-24 feet - typical cross-section “K”.

Wheeler Street - Wheeler Street is a two-lane facility between Broadway Street and Willow Street and is 18 feet in width. There are approximately 700 vpd along this roadway and 1,000 vpd projected for the year 2025. It is recommended that Wheeler Street be widened to 22-24 feet - typical cross-section “K”.

Wildwood Road (SR 1548) - The section of Wildwood Road between Lower Creek Drive and 0.6 miles west of Spring Meadow Road is a two-lane facility 16-17 feet in width. There are approximately 700 vpd on this section of the roadway and 1,100 vpd projected for the year 2025. It is recommended that this section of Wildwood Road be widened to 22-24 feet - typical cross-section “K”.

Willow Street - The section of Willow Street between Spainhour Street and Lenoir Avenue is a two-lane facility 16 feet in width. There are approximately 1,500 vpd on this section of the roadway and 2,200 vpd projected for the year 2025. It is recommended that this section of Willow Street be widened to 22-24 feet - typical cross-section “K”.

Recommended Minor Thoroughfares on New Location

Dry Ponds Road (SR 1115) to Goat Farm Road (SR 1140) Connector (Western Part) - It is recommended that a two-lane minor thoroughfare be constructed connecting Goat Farm Road with Connelly Springs Road (SR 1001) - typical cross-section “K”. This connector would work in conjunction with other existing roads to provide a continuous route between US 64/NC 18 and US 321 in southern Caldwell County. Most of the residential growth has been occurring in the southern part of the County and a system of well-connected roads would be beneficial to this area. Considering anticipated development, this facility could be expected to carry approximately 5,000 vehicles per day (vpd) in the design year of 2025.

Duke Avenue (SR 1106) to US 321-A Connector - It is recommended that a two-lane minor thoroughfare be constructed connecting Duke Avenue with Main Street (US 321-A) - typical cross-section “K”. This connector would serve development along Duke Avenue as well as the Town of Rhodhiss providing better access to US 321-A and US 321. This facility if built could be expected to carry up to 2,500 vpd in the design year. The idea for this facility was also represented on the 1992 Thoroughfare Plan.

Hospital Avenue to Pennell Street Connector - It is recommended that a two-lane minor thoroughfare be constructed connecting Hospital Avenue with Pennell Street - typical cross-section "K". Building this connector would remove the offset intersection with Seehorn Street. It would also provide better connectivity from Powell Road onto Blowing Rock Boulevard (US 321) and improve access to the Caldwell County Public Library. Access onto US 321 at this location will be more critical in the future considering the plans to build an interchange at US 64 and US 321. The interchange will require full control of access along US 321 from Smith's Crossroads north to the driveway with the Kmart shopping plaza approximately 1900 feet north of the intersection. This facility if built could be expected to carry up to 6,000 vpd in the design year. The idea for this facility was also represented on the 1992 Thoroughfare Plan.

Lower Creek Drive Realignment - It is recommended that Lower Creek Drive be realigned from Eastover Circle to Wilkesboro Boulevard and aligned with the new signalized intersection at Hibriten Drive. Realigning Lower Creek Drive will remove the offset intersection with Hibriten to provide a safer movement for accessing both Wilkesboro Boulevard and Hibriten Drive and will also increase the traffic carrying capacity of Wilkesboro Boulevard between Lower Creek Drive and Hibriten Drive. This facility if built could be expected to carry up to 7,000 vpd in the design year.

McLean Drive Extension – The McLean Drive Extension (TIP Project U-3813) has been constructed as a four-lane divided minor thoroughfare. It has turning lanes to provide access to the commercial shopping area, which includes a Lowes Home Improvement Center and also at the US 321 intersection. The divided roadway continues for approximately 1,500 feet and then tapers to a two-lane road extending northeasterly from the end of the four-lane section to its intersection with Hibriten Drive (SR 1178). The extension merges into the two-lane Hibriten Drive at Haigler Road and continues north as Hibriten Drive. This connectivity will provide some relief to the congestion at the Smith's Crossroads intersection. The cost of the project was approximately 3 million dollars and is an example of project implementation through cost sharing between the private sector and public. The first 1,500 feet of the road connecting to US 321 was constructed by Lowes Home Improvements. The City of Lenoir, Caldwell County and the NCDOT shared the remaining 2 million. Broyhill Timber Resources also participated through the donation of right-of-way, grading and storm drainage. The idea for this facility was also represented on the 1992 Thoroughfare Plan. A Finding of No Significant Impact (FONSI) was completed for this project.

Mission Road Realignment (SR 1108) - Mission Road and (TIP Project R-4064) is being realigned from Ardmore Lane to the intersection with Cajah Mtn. Road (SR 1130) at a cost of 2.1 million dollars. The project is being implemented through the NCDOT Division 11 Office. Realigning Mission Road will remove the offset intersection with Cajah Mtn. Road to provide for a safer movement for accessing both Cajah Mtn. Road and US 321-A and will also increase the traffic carrying capacity of US 321-A from Mission Road to Cajah Mtn. Road. As part of the realignment, the south section of Helena Street will be realigned with Kendell Place and the north section realigned with Duff Drive (SR 1120). Curb and gutter, as well as sidewalks, will be constructed along the east side of US 321-A from Sawmills School Road (SR 1122) to the new intersection of Mission Road and Cajah Mtn. Road. The travel lanes on US 321-A will 11-feet

wide, while the travel lanes on Mission Road and Cajah Mtn. Road will be 12-feet wide. US 321-A will also be resurfaced and widened by two feet on the east side in areas where sidewalks are to be provided. Sidewalk will be constructed along the north side of Mission Road from the new intersection with US 321-A to Baird Road (SR 1215) and on Cajah Mtn. Road from US 321-A to the Mt. Zion Baptist Church parking lot. This facility when built can be expected to carry approximately 11,000 vpd in the design year. A Federal Programmatic Categorical Exclusion was completed for this project.

Spruce Street Extension - It is recommended that a two-lane minor thoroughfare be constructed to extend Spruce Street at Pennton Avenue to Delwood Drive at Harrisburg Drive - typical cross-section "K". The extension would serve as a north-south radial route and would help alleviate traffic on Norwood Street (US 321-A), which would be at its capacity to handle traffic in the design year. This facility if built could be expected to carry up to 3,500 vpd in the design year. The idea for this facility was also represented on the 1992 Thoroughfare Plan.

Purpose and Need for Funded Projects

Once an improvement recommended on the Thoroughfare Plan becomes a funded project in the State Transportation Improvement Program (TIP), NCDOT's Project Development and Environmental Analysis Branch (PEDA) begins the project planning process. Project planning involves conducting a detailed environmental analysis in accordance with the National Environmental Policy Act (NEPA). This environmental analysis includes formal consultation with state and federal environmental resource agencies and results in the production of a NEPA document, such as an Environmental Assessment (EA), a Categorical Exclusion (CE), or an Environmental Impact Statement (EIS). In North Carolina, this analysis is conducted according to an interagency agreement called the NEPA/Section 404 of the Clean Water Act Interagency Merger Process. Under these procedures, NCDOT and the Federal Highway Administration (FHWA), in cooperation with the U.S. Army Corps of Engineers, assemble a project team to start the project planning process. The project team's first objective is to review, discuss, and reach concurrence on the **"Purpose and Need"** of a given project. The purpose and need ultimately becomes part of the NEPA document. Purpose and need statements for projects have typically been developed during the project planning process, based on information from the transportation planning process as documented in the thoroughfare plan report. In an effort to more efficiently transition from transportation planning to project level planning, the Transportation Planning Branch is now providing planning level purpose and need statements for selected projects within the study area.

PURPOSE & NEED
Connelly Springs Road (SR 1001) - TIP No. R-3430

Southwest Boulevard (SR 1933) to Dry Ponds Road (SR 1115) - Widen to Multi-lanes
Estimated cost: $26,000,000.

INTRODUCTION

The 2004-2010 North Carolina Transportation Improvement Program includes a project (R-3430) to widen Connelly Springs Road (SR 1001) from Southwest Boulevard (SR 1933) in Lenoir, south to Dry Ponds Road (SR 1115) near the Caldwell and Burke County Line. Planning and environmental studies will be completed for this project that are in accordance with the National Environmental Policy Act (NEPA) of 1969, as amended. Work associated with this project will continue beyond the current TIP cycle of 2010.

PROJECT NEED

The primary needs for the project include the following:

- Congestion - SR 1001 (Connelly Springs Road) from Southwest Boulevard south to SR 1130 (Cajah Mountain Road) is currently operating at or above the practical capacity (level of service D) of the existing roadway cross-section. Levels of Service are further explained in Chapter 4. By the year 2025 all of Connelly Springs Road in the project area will be operating above the practical capacity of the existing roadway cross-section.

- Safety - Between August 1, 1998 and July 31, 2001 the 7.1 mile project area along SR 1001 (Connelly Springs Road) had 244 reported crashes. Of the 244 crashes, 1 percent resulted in fatalities, 50 percent in non-fatal injuries and 49 percent resulted in property damage only.

- Regional Travel - SR 1001 (Connelly Springs Road) is designated as a major collector on the Rural Area Functional Classification System and it was also identified on the North Carolina Multimodal Investment Network (NCMIN) as a regional tier secondary road, which was developed in establishing the Statewide Multimodal Transportation Plan. This designation infers statewide significance since the facility connects major population centers and surrounding counties. The designation also suggests that the facility should serve high levels of demand, but for distances that are typically shorter than on statewide tier facilities. Upgrading the existing two-lane facility to multi-lanes will better serve the higher demands associated with regional travel and should be considered an investment in our overall statewide road infrastructure.

PROJECT PURPOSE

The primary purpose of Transportation Improvement Program Project R-3430 is to relieve the existing and anticipated traffic congestion, improve overall safety along the roadway and to upgrade the existing facility so that it is consistent with similar roadways facilitating regional travel.

BACKGROUND INFORMATION

Project Settings and Roadway Characteristics

Project R-3430 in Caldwell County consists of widening SR 1001 (Connelly Springs Road) to multi-lanes from SR 1933 (Southwest Boulevard) in Lenoir, south to the Caldwell/Burke County Line at the Catawba River. Caldwell County, the City of Lenoir and the Town of Cajah's Mountain, all of which have parts of the project within their governing jurisdiction, have endorsed the project. The project is included in the 2004-2010 Transportation Improvement Program and is also included in the adopted Caldwell County Urban Area Thoroughfare Plan. While cooperatively developing the thoroughfare plan, the local areas stressed that they would very much like to retain a sense of community along the project corridor and try to minimize the strip development. It is for this reason the thoroughfare plan recommends that a four-lane cross-section with a narrow median be used wherever possible and that a five-lane cross-section be used only where the median section is not practical. The development along the corridor is diverse and consists of various housing developments, many businesses, churches, gas stations, a fire station, shopping center, grocery store, and golf course as well as some parts having no development at all. Traffic volumes are highest at the northern end of the project near SR 1933 (Southwest Boulevard) in Lenoir and are lowest along the less developed area near the southern end of the project at the Catawba River. The 7.1-mile project area is broken into three sections for use in describing the following:

Section 1: Burke County Line to SR 1115 (Dry Ponds Road) 1.1 miles *(this section is not included in the 2004-2010 TIP)*
Roadway - 2 lanes, 22' of pavement with 4' shoulders on 60' of right-of-way
Utilities - gas line mainly on west side of road and waterlines
Land Use - undeveloped woodland

Section 2: SR 1115 (Dry Ponds Road) to SR 1159 (Pleasant Hill Road) 4.5 miles
Roadway - 2 lanes, 22' of pavement with 4' shoulders on 60' of right-of-way
Utilities - overhead power, gas, water, underground cable and underground phone
Land Use - residential and commercial

Section 3: SR 1149 (Pleasant Hill Road) to SR 1933 (Southwest Boulevard) 1.5 miles
Roadway - 2 lanes, 22' of pavement with 4' shoulders on 60' of right-of-way
Utilities - overhead power, gas, water, underground cable and underground phone
Land Use - residential and commercial

Traffic Volumes and Capacity

The year 2000 traffic volumes on Section 1 ranges from 14,600 - 15,200 vehicles per day (vpd). The estimated traffic for the year 2025 on Section 1 ranges from 25,700 - 24,800 vpd. The existing traffic on Section 2 ranges from 9,000 - 13,500 vehicles per day vpd. The estimated traffic for the year 2025 on Section 2 ranges from 15,400 - 23,100 vpd. The existing traffic on Section 3 is 8,300 vpd. The estimated traffic for the year 2025 on Section 3 is 14,000 vpd. Calculated values for level of service (LOS) indicate the existing facility operates between LOS C and LOS E in the current year. Sections of this facility are anticipated to operate at LOS F by the year 2025.

Safety Analysis

From August 1, 1998 to July 31, 2001 there were 244 crashes reported along the project area with 2 crashes resulting with fatalities. 45.9% of the crashes were rear end, slow or stop, 11.1% of the crashes were angle and all other crash types were under 10% of the total number of crashes. Out of 217 total injuries 1.4% were fatal, 6.9% were class A, 21.2% were class B, and 70.5% were class C type injuries. Most crashes occurred during daylight hours and under dry conditions. The crashes that occurred were not concentrated on a particular day of the week or month of the year, however the largest percentage of the crashes occurred between 3:00 and 6:00 in the afternoon.

Project Status

TIP Project R-3430 calls for the widening of Connelly Springs Road at an estimated cost of $26 million. Design is scheduled to begin in 2006, right-of-way in 2008 and construction in 2010 and continuing beyond the current TIP.

System Linkages

Connelly Springs Road (SR 1001) connects US 321 and US 321-A in Caldwell County with Interstate 40 and US 70 in Burke County. In-between lie the City of Lenoir, Town of Cajah's Mountain, the community of Baton, the Town of Rutherford College and the Town of Valdese.

Transportation Plans

As mentioned above SR 1001 (Connelly Springs Road) is designated as a major thoroughfare on the adopted Caldwell County Urban Area Thoroughfare Plan. As a result of the 2000 census, the Caldwell County Urban Area has been merged into the Hickory Metropolitan Planning Organization and this project will also be included within this updated plan. It is recommended that the road be widened to four-lanes with a narrow median and five-lanes only where it is not practical to have a median.

Modal Interrelationships

The Caldwell County Area Transit System, Inc. (CCATS) is a non-profit business providing transportation service in and around Lenoir and is the only public transportation provider in the County. Currently, CCATS provides only subscription and dial-a-ride services and does not have a fixed route system in place. Connelly Springs Road (SR 1001) helps facilitate the CCATS service in southern Lenoir and into Cajah's Mountain.

Social Conditions

- Caldwell County is 469 square miles and has 156.3 persons per square mile (1995).
- The County's April 2000 population was 77,415 and in April 1990 it was 70,709.
- Growth over the past decade has been occurring at .9% a year.
- The median age in the County is 38.03 years (2000 census).
- In 1998, 47.2% of the workforce was in manufacturing jobs and 52.8% were in non-manufacturing jobs.
- In 1998 the unemployment rate was 2.4%.
- In 1998 the median family income was $44,500.

- Nearest Commercial Airport is the Hickory Regional Airport - Other airport is Morganton/Lenoir Airport.
- Caldwell County Area Transit (CCATS) is the only public transportation provider.
- Rail Service is provided by Caldwell County Railroad.
- Largest Employers: Broyhill Furniture, Bernhardt Furniture, Caldwell County Schools, Kincaid Furniture, Thomasville Furniture, Caldwell Personnel Services, Caldwell Memorial Hospital, Shuford Mills, Caldwell County, Caldwell Community College, Cambridge Industries, Paxar Corp., Sealed Air, NAACO Materials Handling, and Fairfield Chair Company

NEPA/ Section 404 Merger Agreement Process

This project is following the NEPA/ Section 404 Merger Agreement Process. Federal and state agencies that are participating in the Merger Team Meetings are listed below.

Environmental Protection Agency
Federal Highway Administration
N.C. Department of Cultural Resources
N.C. DENR - Division of Water Quality
N.C. Department of Transportation
N.C. Wildlife Resources Commission
U.S. Army Corps of Engineers
U.S. Fish and Wildlife Service

PURPOSE & NEED
US 64/NC 18 - TIP No. R-2549

US 64/NC 18 (Morganton Road in Caldwell County) from Multi-lanes North of Morganton in Burke County to Multi-lanes in Gamewell in Caldwell County - Widen to Multi-lanes
Estimated cost: $31,751,000.

INTRODUCTION

The 2004-2010 North Carolina Transportation Improvement Program (TIP) includes highway improvements for an 8-mile portion of US 64/ NC 18 in Burke and Caldwell Counties (TIP Project R-2549). The project begins at the multilane section north of the Catawba River and ends at the multilane section near Rocky Road (SR 1143) in Gamewell. Planning and environmental studies are underway for the project in accordance with the National Environmental Policy Act (NEPA) of 1969, as amended. An Environmental Assessment (EA) was completed in 2003. The final environmental document (FONSI) was completed in 2004. Right of way is scheduled to begin in fiscal year 2008, and construction is scheduled to begin in fiscal year 2010.

PROJECT NEED

The primary needs for the project include the following:

- Congestion - Portions of US 64/ NC 18 are currently operating below level of service D capacity. By the year 2025, the entire project area will operate at or below level of service D. The flow of traffic will continue to deteriorate because of increasing traffic volumes, limited sight distance, and a lack of left turn storage lanes at intersections.
- Safety - The accident rate for this facility is 29 percent higher than the statewide average rates for similar type roads. Rear end, run off of the road, angle, and left turning collisions are the primary accident types. Thirty-three percent of the total accidents occurred at five intersections along this portion of US 64/NC 18.
- Regional Travel - US 64/NC 18 is identified on the Statewide Multimodal Transportation Vision Plan as a boulevard facility that needs improvement and is considered a Strategic Corridor in North Carolina. The road is designated as a minor arterial on the Rural Functional Classification System and provides service for trips of moderate length.

PROJECT PURPOSE

The primary purpose of Transportation Improvement Program Project R-2549 is to improve travel between Morganton and Lenoir by relieving both existing and anticipated traffic congestion, improve overall safety along US 64/NC 18 and to upgrade the existing facility so that it is consistent with similar roadways facilitating regional travel.

BACKGROUND INFORMATION

Project Setting and Roadway Characteristics

US 64/ NC 18 is a minor arterial and is the main connection between Morganton and Lenoir. A four-lane divided section exists at the Morganton end of the project and a five-lane section exists at the Gamewell end. North of Lenoir, NC 18 extends to North Wilkesboro. South of Morganton, US 64 extends to the Rutherfordton and Forest City area. From the multilane section north of the Catawba River to the multilane section near Rocky Road, this facility exists as a two-lane, 24-foot roadway with 10-foot usable shoulders and 4-foot paved shoulders. The horizontal alignment is good with curves reaching a maximum of 5 degrees. The terrain is rolling with maximum grades reaching 8 percent. Crest vertical curves limit sight distance. The speed limit is generally 55 mph, reducing to 45 mph near Morganton and 50 mph near Gamewell.

Traffic Volumes and Capacity

The current (2000) average daily traffic estimate along existing US 64/ NC 18 ranges from approximately 9,400 vehicles per day (vpd) south of Antioch Road (SR 1501) to 14,600 vpd south of Rocky Road. The design year (2025) average daily traffic estimate ranges from 17,800 to 28,200 vpd in the same locations. Calculated values for level of service (LOS) indicate the existing facility operates at LOS D or below in the current year. This facility will operate below LOS D by the year 2025. These calculated values assume a 60-mph design speed, 12-foot travel lanes, and 50 to 75 percent no passing zones. The flow of traffic will continue to deteriorate because of increasing traffic volumes, limited sight distance, and a lack of left turn storage lanes at intersections.

Safety Analysis

From September 1996 to September 1999, 236 accidents were reported for the studied portion of US 64/ NC 18. Of these, 107 (45 percent) were rear end accidents, 42 (18 %) involved vehicles running off of the road, 38 (16 %) were angle accidents, and 16 (7 %) involved left turning collisions. The remaining accidents (14 %) included collisions with animals and other objects, head on and sideswipe collisions, right turn collisions, and an accident involving a bicycle. No fatalities occurred. During this period, the total accident rate was 276.0 accidents per 100 million vehicle miles (mvm) and was 29 % higher than the statewide average rate for this facility type.

1996-1999 Crash Data
Accident Rates/ per 100 million vehicle miles

Crash Type	**Rates Along US 64/ NC 18**	**Statewide Average Rates (Rural Primary Routes)**
Fatal	0.0	2.8
Non-fatal Injury	135.7	96.8
Nighttime	59.7	67.9
Wet conditions	63.2	44.2
Total rate	276.0	214.5

Seventy-seven crashes (33 %) occurred at the following intersections along US 64/NC 18: Hartland Road (SR 1430), Antioch Road (SR 1501), Calico Road (SR 1142), Old NC 18 - Hartland Road (SR 1325), and Rocky Road (SR 1143). The primary accident types at these intersections were rear end, angle, and left turn collisions. Skew angles, limited sight distance, and a lack of a storage lane for left turning vehicles contribute to these accident types.

Project Status

The TIP calls for improving US 64/ NC 18 from multi-lanes near Morganton to multi-lanes in Gamewell. The estimated TIP cost is $31,750,000, including $3,100,000 for right of way, $28,401,000 for construction and $250,000 spent in previous years. The project is currently scheduled for right of way acquisition to begin in federal fiscal year (FFY) 2008 and construction to begin in FFY 2010.

A historical summary of the project is provided as follows:

November 1989	The project was included in the NCDOT's approved 1990-1996 TIP.
March 1993	A scoping meeting was held to determine the project's scope of work.
August 1993	An Informational Workshop was held in the Chesterfield Community.
November 2000	A second scoping meeting was held to review the project's scope.
March 22, 2001	A Citizens' Informational Workshop was held in Gamewell.

System Linkages
US 64/NC 18 connects Interstate 40 in Morganton with US 321 in Lenoir. The road then splits with US 321 traveling north to both Blowing Rock and Boone and NC 18 traveling northeast to Wilkesboro and North Wilkesboro.

Transportation Plans
US 64/NC 18 is designated as a major thoroughfare on the adopted Caldwell County Urban Area Thoroughfare Plan. As a result of the 2000 census, the Caldwell County Urban Area has been merged into the Hickory Metropolitan Planning Organization and this project will also be included within this updated plan. It is recommended that the road be widened to four-lanes with a median from the Burke and Caldwell County line to a point just south of Calico Road and five-lanes from that point to the existing 5 lane section in Gamewell.

Modal Interrelationships
The Caldwell County Area Transit System, Inc. (CCATS) is a non-profit business providing transportation service in and around Lenoir, and is the only public transportation provider in the County. Currently, CCATS provides only subscription and dial-a-ride services and does not have a fixed route system in place. US 64/NC 18 helps facilitate the CCATS service in southwest Lenoir and into Gamewell.

Social Conditions
See the above Purpose and Need Statement for Connelly Springs Road (SR 1001) TIP No. R-3430.

NEPA/ Section 404 Merger Agreement Process
See the above Purpose and Need Statement for Connelly Springs Road (SR 1001) TIP No. R-3430.

PURPOSE & NEED
A new connector, SR 1159 (Pleasant Hill Rd. Connector) to SR 1160 (Mt. Herman Rd.) - TIP No. U-3437

The project description is to construct a new connector in the Town of Hudson, from SR 1159 to SR 1160, two lanes on a new location. Estimated cost: $3,500,000.

INTRODUCTION

The North Carolina Department of Transportation 2004-2010 Transportation Improvement Program (TIP) includes a project, U-3437, in the Town of Hudson, Caldwell County. The project calls for a new connector 0.8 of a mile in length, from SR 1159 (Pleasant Hill Rd.) to SR 1160 (Mt. Herman Rd.) on new location. The project will have a western terminus located at the intersection of US 321-Alternate (Main St.) and SR 1159 (Pleasant Hill Rd.) and an eastern terminus located on SR 1160 (Mt. Herman Rd.) at some point west of US 321 (Hickory Blvd.). The current thinking for the eastern terminus is to tie the connector into Mt. Herman Rd. west of

bridge No. 94, located approximately 800 feet west of US 321 (Hickory Blvd.). As a result of this project being programmed in the TIP, project level planning is being conducted, which is in accordance with the requirements set forth in the National Environmental Policy Act (NEPA) of 1969, as amended.

PROJECT NEED

The primary needs for the proposed action include the following:

- There is no direct access from SR 1159 (Pleasant Hill Road) to US 321.

- There is a lack of adequate system linkage connecting the towns of Gamewell, Cajah's Mountain and Hudson, as well as a need for a cross-county facility connecting US 64 to US 321.

- There are congestion and safety issues at the intersection of US 321-A (Main Street) with Huss Ave and Mt. Herman Road

PROJECT PURPOSE

The primary purpose of Transportation Improvement Program Project U-3437 is to provide for direct access and mobility from SR 1159 (Pleasant Hill Road) to US 321. The project will provide a vital link in a system of major thoroughfares, both existing and proposed which make up a cross-county facility connecting the towns of Gamewell, Cajah's Mountain and Hudson, as well as connecting US 64 to US 321. Finally, to relieve congestion and improve safety at the intersection of US 321-A (Main Street) with Huss Ave and Mt. Herman Road.

BACKGROUND INFORMATION

This project was originally adopted on the 1974 Lenoir-Hudson Thoroughfare Plan connecting Pleasant Hill Road with US 321 at Mt. Herman Road. It has since been adopted on the 1981 Caldwell County Plan, the 1987 Lenoir-Hudson Plan, the 1992 Caldwell County Urban Area Plan, and most recently, the 2002 Caldwell County Urban Area Plan. A feasibility study was completed for this project in 1996. Alternate "D" from this study is representative of the current locally preferred alternative. The Caldwell County Urban Area Thoroughfare Plan shows this alignment, and is supported by the Town of Hudson.

<u>Project Setting and Roadway Characteristics</u>

The proposed two-lane facility on new location will ideally have 12-foot travel lanes and 2-foot paved shoulders. Within the project area, US 321-A exists as a two-lane road with curb and gutter, having 10 to 12 foot travel lanes and various turn lanes. Mt. Herman Road (SR 1160) is a two-lane road with (10-12)- foot travel lanes and 4-foot grass shoulders. Pleasant Hill Road (SR 1159) is a two-lane road with 10-foot travel lanes and 4-foot grass shoulders.

<u>Traffic Volumes and Capacity</u>

The current average daily traffic estimates on this connector if it were built ranges from

approximately 2,500 vehicles per day (vpd) to 2,700 vpd. The design year (2025) average daily traffic estimate ranges from 5,000 to 5,500 vpd. Calculated values for level of service (LOS) indicate that the connector would operate at an acceptable LOS in both the current year and the design year.

Safety Analysis

The intersection at Main Street with Huss Ave and Mt. Herman Road is not listed as a high crash location in Chapter 4 of this report. However, the Town of Hudson considers the intersection a problem area. This intersection had 22 crashes within a three-year period between June 1, 1993 and June 30, 1996 and has had no geometric road changes to the intersection.

Project Status

The TIP calls for a new connector to be constructed from Pleasant Hill Rd. to Mt. Herman Rd. on new location at an estimated cost of $3,500,000. Design is to begin in FFY 2004, right-of-way acquisition for the project is scheduled to begin in 2006 and Construction to begin in 2008.

System Linkages

This connector is one of four proposed connections represented on the Caldwell County Urban Area Thoroughfare Plan that provides for improved connectivity between US 64/NC 18 and US 321 and 321-A. A second objective is to improve the connectivity between the Towns of Gamewell, Cajah's Mountain, and Hudson.

Transportation Plans

This new connector is designated as a proposed major thoroughfare on the adopted Caldwell County Urban Area Thoroughfare Plan. As a result of the 2000 census, the Caldwell County Urban Area has been merged into the Hickory Metropolitan Planning Organization and this project will also be included within this updated plan. It is recommended that this new connector be built with two travel lanes each 12 feet in width and with 2 foot paved shoulders.

Modal Interrelationships

The Caldwell County Area Transit System, Inc. (CCATS) is a non-profit business providing transportation service in and around Lenoir, and is the only public transportation provider in the County. Currently, CCATS provides only subscription and dial-a-ride services and does not have a fixed route system in place. The new connector with Pleasant Hill Road and Mt. Herman Road will help facilitate the CCATS service in Lenoir, Hudson and Cajah's Mountain.

Social Conditions

See the above Purpose and Need Statement for Connelly Springs Road (SR 1001) TIP No. R-3430.

NEPA/ Section 404 Merger Agreement Process

See the above Purpose and Need Statement for Connelly Springs Road (SR 1001) TIP No. R-3430.

PURPOSE & NEED
US 321 - TIP No. U-4700

The project description is to widen US 321 to six lanes from US 70 in Hickory to US 64/NC 18-90 in Lenoir. Estimated cost: $131,060,000.

INTRODUCTION

The 2004-2010 North Carolina Transportation Improvement Program (TIP) includes a widening project for a 17.2 mile portion of US 321 in Caldwell and Catawba Counties (TIP Project R-4700). The project limits are US 70 in Hickory north to US 64/ NC 18-90 in Lenoir. Planning and Environmental Studies are underway for the project in accordance with the National Environmental Policy Act (NEPA) of 1969, as amended. This project is currently only programmed for planning and environmental studies. Right of way and construction are scheduled as post years (at a point after the year 2010).

PROJECT NEED

- Congestion - Average annual daily traffic volumes along Hickory Boulevard (US 321) range form 22,000 to 38,000 vehicles per day (vpd). Design volume estimates range from 46,000 to 65,000 vpd. Currently, the major intersections along the corridor are operating at a Level of Service (LOS) E or less. If no improvements are made, Hickory Boulevard as a whole will operate at LOS F in the design year 2025.

- Safety - The Hickory Boulevard corridor has long been a safety concern of the area. From April 4, 1999 to March 31, 2002 there was a reported total of 697 crashes along the section of US 321 from Smith's Crossroads south to the county line.

- Regional Travel - Hickory Boulevard (US 321) is identified on the Statewide Multimodal Transportation Vision Plan as an expressway and an expressway needing improvement. This facility is considered a Strategic Corridor for North Carolina. The road is designated as a other principal arterial on the Federal Functional Classification System. Facilities of this type provide service for metropolitan centers, corridors with the highest traffic volume, and those with the longest trips.

PROJECT PURPOSE

The primary purpose of Transportation Improvement Program Project U-4700 is to improve the overall mobility along the Hickory Boulevard (US 321) corridor, relieve congestion and improve overall safety.

BACKGROUND INFORMATION

US 321 (Hickory Blvd) from Smith's Crossroads in Lenoir to the Catawba River is one of the main concerns of local officials in the Caldwell County Urban Area. Lenoir, Hudson, Sawmills, Granite Falls and Caldwell County all have planning jurisdiction along the corridor. The officials from these areas all are in agreement that improvements were needed along US 321.

Ideas expressed locally, in the beginning of the study process, varied from an entirely brand new facility on new location to the conversion of the existing facility over to a full control of access freeway. With cost and topography being significant prohibiting factors in those two cases, widening to a six-lane cross-section in conjunction with access management was selected as the recommendation for the corridor. With the travel demand model predicting significant roadway deficiencies, there was an immediate need to recommend both practical and attainable solutions for US 321 in order for the corridor to be considered for inclusion in the TIP. The conversion of US 321 to a full control of access freeway was estimated to cost $360,400,000 and require the relocation of 290 residences and 201 businesses. A goal for both NCDOT and the local municipalities will be to limit commercial driveway access, employ consistent zoning regulations along the corridor and incorporate access management techniques whenever and wherever feasible.

Project Setting and Roadway Characteristics

US 321, Hickory Boulevard is a 4 lane divided facility with 12-foot lanes. There is a grass median along the facility that is considerably less than the standard 46-foot width. The right-of-way along much of the roadway is 260 feet providing enough room to construct the recommended improvements. The right of way between Grace Chapel Road and the Catawba River is 180 feet and between Smiths Crossroads and McLean Drive it is the most narrow at 150 feet. Cross-section "D" from Appendix C was selected to represent the proposed widening. This cross-section has three 12-foot travel lanes in each direction with a 16-foot raised median in the center. Depending on the ultimate design of the project, the median type could vary between the raised median, a concrete barrier or a grassed median similar to what is in place now. In the two cases without the barrier, guardrail would also be put in place to enhance the safety of the facility.

Traffic Volumes and Capacity

The traffic volume varies considerably along the 13.5-mile stretch of Hickory Boulevard. The volumes are highest in the most southern section within Caldwell County. Traffic volumes here are 38,000 vehicles per day (vpd) with 2025 projections at 65,000 vpd. Traffic volumes are lowest between Southwest Boulevard and McLean Drive. Traffic volumes here are 22,000 (vpd) with 2025 projections at 42,000 vpd. Currently during peak times of the day Hickory Blvd. is operating at level of service (LOS) D or less with the majority of the major intersections operating at LOS F. If no improvements are made it will continue to operate at an unacceptable LOS in the design year of 2025. The recommendation of widening to six lanes, employing access management along the corridor and improving the major intersections will provide an acceptable LOS D in the year 2025.

Safety Analysis

Hickory Boulevard (US 321) has always been a safety concern in the County. Speed along this facility has long been a concern of the area. Although the majority of the road has a posted speed of 55 mph, the observed speeds tend to be greater. The congestion along the facility combined with the high speeds contributed to many serious accidents. From April 1, 1999 to March 31, 2002 there was a reported total of 697 crashes along the section of US 321 from Smith's Crossroads south to the county line. The corridor has 35 median crossovers and 8

signalized intersections. It will be important to minimize the number of these median crossovers as well as the driveway cuts along the corridor if the safety along the route is to be improved. Table 4.1 in Chapter 4 identifies the intersections of Smith's Crossroads, US 321 at Pinewood Rd, US 321 at Mount Herman Rd, US 321 at Mission Rd, US 321 at Pine Mountain Rd and US 321 at McLean Drive all as high crash locations for the period of time between January 1, 1997 and December 31, 1999.

Project Status

The TIP calls for Hickory Boulevard to ultimately be widened to a six-lane facility at an estimated cost of $131,060,000. Currently, funds in the amount of $960,000 have been allocated for planning and environmental project level study only. The design, right-of-way and construction are not programmed at this time. Regional Traffic Engineer, Vickie Embry, prepared a US 321 Corridor Preservation Study, which is summarized in Appendix I of this report. Feasibility Study FS-9911C completed by Derrick Lewis, P.E. of the Program Development Branch is also available in the Appendix.

System Linkages

Hickory Boulevard (US 321) extends south from Caldwell County into Hickory, connecting with both US 70 and Interstate 40. The road then continues south into Lincolnton and Gastonia and connects with Interstate 85. To the north US 321 extends out of Caldwell County into Blowing Rock and Boone connecting with US 421.

Transportation Plans

Hickory Blvd. (US 321) is designated as a major thoroughfare on the adopted Caldwell County Urban Area Thoroughfare Plan. As the result of the 2000 census, the Caldwell County Urban Area has been merged into the Hickory Metropolitan Planning Organization and this project will also be included within this updated plan. It is recommended that Hickory Blvd. be widened to a six-lane facility and that considerable efforts be focused on access management strategies along the corridor.

Modal Interrelationships

The Caldwell County Area Transit System, Inc. (CCATS) is a non-profit business providing transportation service in and around Lenoir, and is the only public transportation provider in the County. Currently, CCATS provides only subscription and dial-a-ride services and does not have a fixed route system in place. The widening of Hickory Blvd. (US 321) would help facilitate the CCATS service in Lenoir, Hudson, Cajah's Mountain, Sawmills and Gamewell.

Social Conditions

See the above Purpose and Need Statement for Connelly Springs Road (SR 1001) TIP No. R-3430.

NEPA/ Section 404 Merger Agreement Process

See the above Purpose and Need Statement for Connelly Springs Road (SR 1001) TIP No. R-3430.

PURPOSE & NEED
Construct Interchange, Intersection of US 64/NC 18-90 and US 321 (Smith's Crossroads) TIP No. U-4435

The project description is to construct a single point urban interchange at the intersection of US 321 (Hickory and Blowing Rock Boulevard) and US 64/NC 18-90 (Harper Ave and Wilkesboro Boulevard). Estimated cost: $36,320,000.

INTRODUCTION

The North Carolina Department of Transportation 2004-2010 Transportation Improvement Program (TIP) includes a road project, U-4435, in the Town of Lenoir. This project calls for the construction of a new interchange at the Smith's Crossroads Intersection. The type of interchange currently under consideration is called a single point urban interchange (SPUI). A preliminary functional design has been prepared for this project. As a result of this project being programmed in the TIP, preliminary project level planning is being conducted, which is in accordance with the requirements set forth in the National Environmental Policy Act (NEPA) of 1969, as amended.

PROJECT NEED

The primary needs for the proposed action include the following:

- Congestion - The total approach volume on the four road segments at Smith's Crossroads, based on December 1999 traffic survey field data, is 58,600 vehicles per day (vpd). The 2025 estimated total approach volume, based on the Caldwell County Urban Area Travel Demand Model (design year loaded volumes on base year network) is over 90,000 vpd. Using this data and Synchro, a computer animation and traffic analysis tool, the traffic was shown to back up approximately one mile along US 321 south of the intersection (northbound direction) during the peak travel period.

- Safety - The intersection at Smith's Crossroads had 88 reported crashes within the period of time between January 1, 1997 and December 31, 1999. Smith's Crossroads is considered to be a high crash location when compared with the other intersections in the study area during the same time period.

PROJECT PURPOSE

The primary purpose of Transportation Improvement Program Project U-4435 is to improve the overall mobility through the Smith's Crossroads intersection, relieve congestion and improve overall safety.

BACKGROUND INFORMATION

The intersection of US 64/NC 18-90 & US 321, known as Smith's Crossroads, is located in Lenoir and is one of the most congested intersections in Caldwell County. A single point urban interchange has been proposed on the adopted Caldwell County Urban Area Thoroughfare Plan.

A preliminary functional design for this proposal overlaid on aerial photography is illustrated in Figure 2.3. In this figure the yellow lines represent the centerlines for the relocation of the roads and for a signal on top of the bridge deck. The green lines represent lanes and ramps and the red lines represent needed right-of-way and where full control-of-access will be necessary. Figure 2.4 provides an example of an existing single point urban interchange located in Charlotte. Also displayed is a schematic of the left turning traffic pattern for each of the four approaches. Current traffic conditions at peak times of the day have had vehicles backing up on occasion as far back as Hillhaven Place (traveling in the northbound direction on US 321), which is approximately a half of a mile back from the intersection. Using conservative projections for the year 2025, traffic is estimated to back up as far back as McLean Drive, which is approximately 1 mile back from the intersection. This situation would require vehicles to wait through multiple traffic light cycles at the intersection, which the public has indicated is unacceptable. With dual left turn lanes on all of the intersection approaches and slip ramps facilitating the right turns there is little more that can be done to improve the functionality of the existing intersection. One final improvement being made to the existing intersection is to extend the northbound right turn lane on US 321, which facilitates traffic going east on to Wilkesboro Boulevard. This is being accomplished with Transportation Improvement Program Project U-4429 and is scheduled for construction by the NCDOT 11th Division at a cost of $200,000. During the process of developing the update to the Caldwell County Urban Area Thoroughfare Plan, local area officials and the general public have had many opportunities to learn about the proposed single point urban interchange. There have been several newspaper articles about the proposed interchange as well as two presentations made on public access television.

Project Setting and Roadway Characteristics

The recommended single point urban interchange (SPUI) is a relatively new design in North Carolina. The NCDOT is considering implementing the SPUI design in other areas throughout the state, especially in urban areas. This design functions better in areas with high traffic volumes and with a minimum amount of right-of-way. The advantages of the SPUI are that it has a compact design and requires less right-of-way than a conventional diamond interchange. The interchange can handle heavier traffic volumes more efficiently and allows for concurrent left turns. The lanes of a SPUI's ramps are curved so drivers can turn faster than on conventional diamond interchanges where left turns are at 90-degree angles. All the vehicles are funneled through a single traffic single at the center of the bridge. The traffic signal at the center of the bridge would have only three phases instead of the four-phase signal, which is currently present at the intersection. Vehicles traveling north or south on US 321 would go under a bridge unimpeded by the signal, while US 64/NC 18-90 would be served with the bridge structure and a three phase traffic signal. The intersection of Harper Avenue and Morganton Boulevard (US 64) would be realigned in conjunction with the construction of the interchange. Most of the construction would occur in and around the existing intersection location. Two culverts on the Zack's Fork Creek would need to be constructed or extended during construction of the project. The main disadvantage of the single point urban interchange is the fact that the design is so new that it is unfamiliar to the driving public. This can be countered with good signing and pavement markings. Another disadvantage is cost; it is expensive to construct this type of interchange due to the large bridge deck required. This too can be countered with the potential for savings in right-of-way costs.

Traffic Volumes and Capacity

In December of 1999 traffic counts with turning movements were recorded at the Smith's Crossroads Intersection as part of an overall analysis of the intersection. The daily traffic estimate on the Hickory Boulevard approach was 31,500 Vehicles per day (vpd) and 52,500 for the year 2025. The daily traffic estimate on the Blowing Rock Boulevard approach was 30,500 vpd and 48,500 for the year 2025. The daily traffic estimate on the Harper Avenue approach was 27,800 vpd and 42,000 for the year 2025. The daily traffic estimate on the Wilkesboro Boulevard approach was 27,400 vpd and 56,400 for the year 2025. The total 1999 volume entering the intersection was 58,600 vpd and the estimated 2025 entering volume is 99,700. As a general practice in the Transportation Planing Branch, planning level investigation is strongly recommended for major thoroughfare intersections with total approach volumes exceeding 50,000 vpd. To obtain more information about the subject of interchange justification consult the paper written by James M. Witkowski titled, "Benefit Analysis for Urban Grade Separated Interchanges" published in the Journal of Transportation Engineering Volume 114, No. 1, in January 1988. Calculated values for level of service (LOS) indicate that the Smith's Crossroads intersection left as is will be operating at an unacceptable LOS in the design year.

Safety Analysis

When considering all the approaches coming into the Smith's Crossroads intersection there were a total of 88 reported crashes within the period of time between January 1, 1997 and December 31, 1999. This intersection is considered to be a high crash location within the Caldwell County Urban Area.

Project Status

There has been a preliminary functional design completed to help with the thoroughfare planning process. Preliminary planning is currently underway. The preliminary estimate for construction of this interchange is $28,000,000, which does not include the cost of purchasing right-of-way. Right-of-way has been estimated to cost $8,000,000.

System Linkages

The Smith's Crossroads intersection links US 64/NC 18-90 with US 321 in Lenoir. It is a central point to the municipalities of Morganton, Hickory, Blowing Rock, Wilkesboro/North Wilkesboro, and Taylorsville.

Transportation Plans

The Smith's Crossroads intersection is designated as a proposed interchange on the adopted Caldwell County Urban Area Thoroughfare Plan. As the result of the 2000 census the Caldwell County Urban Area has been merged into the Hickory Metropolitan Planning Organization and this project will also be included within this updated plan.

Modal Interrelationships

The Caldwell County Area Transit System, Inc. (CCATS) is a non-profit business providing transportation service in and around Lenoir, and is the only public transportation provider in the County. Currently, CCATS provides only subscription and dial-a-ride services and does not

have a fixed route system in place. A new interchange at Smith's Crossroads would help facilitate the CCATS service in and around the City of Lenoir.

Social Conditions

See the above Purpose and Need Statement for Connelly Springs Road (SR 1001) TIP No. R-3430.

NEPA/ Section 404 Merger Agreement Process

See the above Purpose and Need Statement for Connelly Springs Road (SR 1001) TIP No. R-3430.

PRELIMINARY
Subject to change without notice
For conceptual purpose only

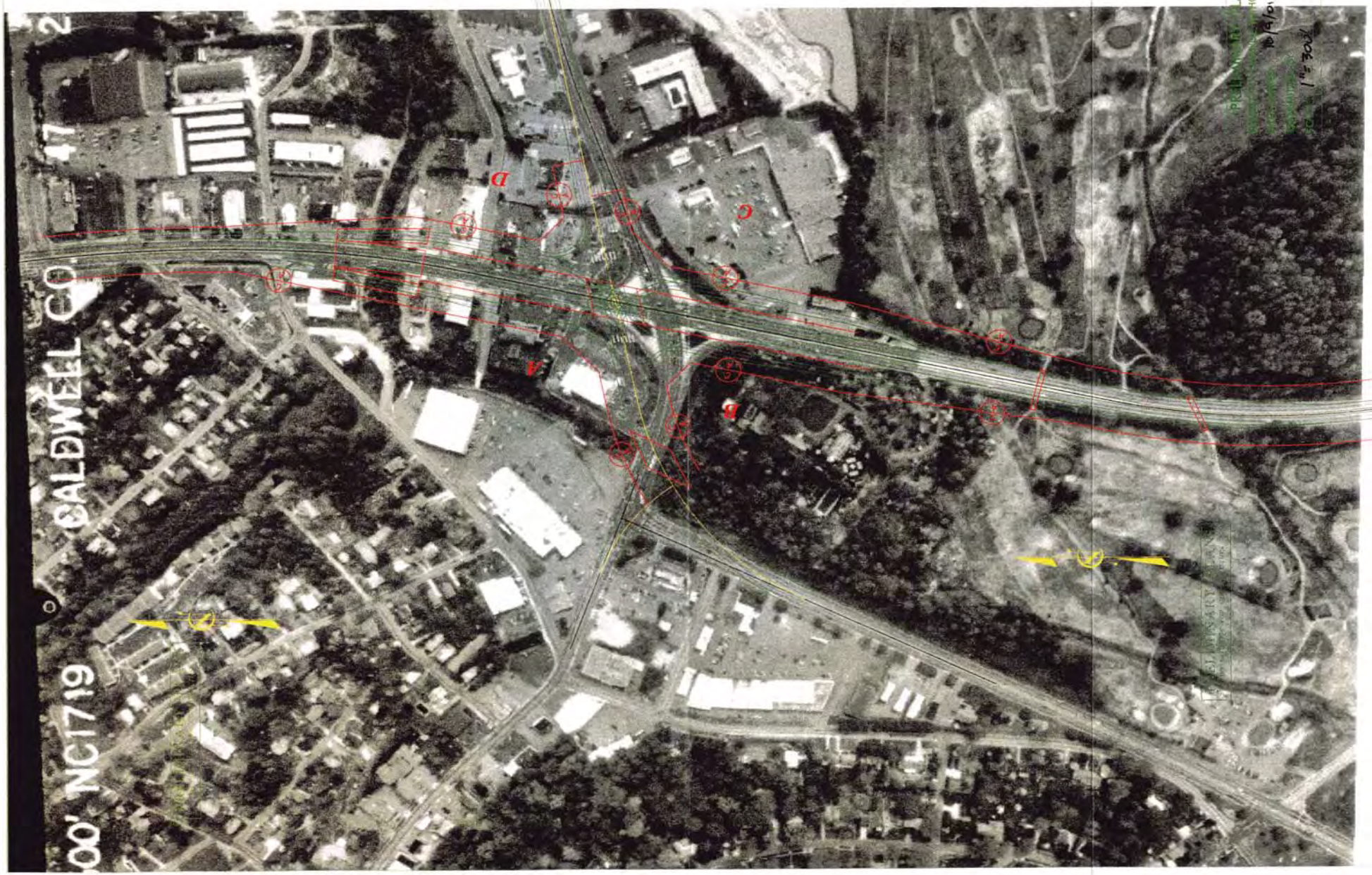
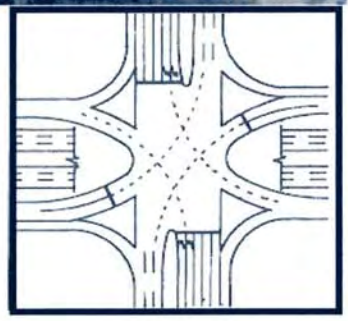


Figure 2.3

Single Point Urban Interchange

(Also referred to as a SPUI)



The dashed lines in the schematic illustration (right) represent the left turning traffic pattern for each of the four approaches.

Figure 2.4

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Alternate Modes of Transportation

Public Transit

Public transportation in Caldwell County is provided by the Caldwell County Area Transit System, Inc. (CCATS) and is a non profit business providing community based transportation service in and around Lenoir. CCATS has a fixed route service, which is currently limited to Caldwell County. CCATS was established in 1992, and in 1997 the Board of Directors hired an Executive Director to pursue additional business and operational opportunities. Service is now provided to over 25 local agencies, with further expansion expected in the future. Recently, CCATS and the neighboring transit providers in Alexander, Burke and Catawba counties have recognized that their consolidation would significantly improve the effectiveness and efficiency of their service within each of the counties. Development of a regional transit program would better accommodate employment, medical, shopping and recreational trips that cross these county lines. The four existing services do not presently offer inter-county services. The NCDOT has encouraged the development of community transit services in rural counties of the state. Now, nearly all counties now have some form of public transportation. Regional based programs are considered to be the next phase in transit development. In rural areas, many of the opportunities, programs and services are found outside the immediate counties and thus are not served by the current system. Each of the four existing transit programs has the appropriate infrastructure to effectively handle their existing passenger loads, but consolidation will increase the complexity of the operation. Also, the planning for the unification effort is beyond the capabilities of any of the current systems. CCATS does not have the capacity to carry out the planning and development tasks that are necessary to establish an expanded regional transit operation. Assistance to perform the critical service development tasks would be necessary in order to consolidate the existing systems. A consultant firm is currently developing a scope of work to define these tasks. For more information contact: Caldwell County Area Transit System P.O. Box 387 Lenoir, NC 28645-5108, (828) 757-8679.

Greenway - Administrative Process

In 1994 the NCDOT adopted administrative guidelines to consider greenways and greenway crossings during the highway planning process. This policy was developed so those critical corridors, which have been adopted by localities for future greenways, will not be severed by highway construction. Figure 2.5 shows the Lenoir Greenway Map.

Administrative Action to Include Local Adopted Greenways Plans in the NCDOT Highway Planning Process - January 1994

In concurrence with the Inter-modal Surface Transportation Efficiency Act (ISTEA) of 1991 and the Board of Transportation's Bicycle Policy of 1978 (updated in 1991) and Pedestrian Policy of 1993, the North Carolina Department of Transportation recognizes the importance of incorporating local greenways plans into its planning process for the development and improvement of highways throughout North Carolina.

NCDOT Responsibilities:

The Department will incorporate locally adopted plans for greenways into the ongoing planning processes within the Statewide Planning (thoroughfare plans) and the Planning and Environmental (project plans) Branches of the Division of Highways. This incorporation of greenway plans will be consistent throughout the department. Consideration will be given to including the greenway access as a part of the highway improvement.

Where possible, within the policies of the Department, within the guidelines set forth in provisions for greenway crossings, or other greenway elements, will be made as a part of the highway project or undertaken as an allowable local expenditure.

Local Responsibilities:

Localities must show the same commitment to building their adopted greenway plans as they are requesting when they ask the state to commit to providing for a certain segment of that plan. It is the responsibility of each locality to notify the Department of greenway planning activity and adopted greenway plans and to update the Department with all adopted additions and changes in existing plans.

It is also the responsibility of each locality to consider the adopted transportation plan in their greenways planning and include its adopted greenways planning activities within their local transportation planning process. Localities should place in priority their greenway construction activities and justify the transportation nature of each greenway segment. When there are several planned greenway crossings of a proposed highway improvement, the locality must provide justification of each and place the list of crossings in priority order. Where crossings are planned, transportation rights of way should be designated or acquired separately to avoid jeopardizing the future transportation improvements.

Guidelines for NCDOT to Comply With Administrative Decision to Incorporate Local Greenways into Highway Planning Process

1. Thoroughfare plans will address the existence of greenways planning activity, which has been submitted by local areas. Documentation of mutually agreed upon interface points between the thoroughfare plan and a greenway plan will be kept, and this information will become apart of project files.

2. Project Planning Reports will address the existence of locally adopted greenways segment plans, which may affect the corridor being planned for a highway improvement. It is, however, the responsibility of the locality to notify the Department of the adopted greenways plans (or changes to its previous plans) through its current local transportation plan, as well as its implementation programs.

3. Where local greenways plans have not been formally adopted or certain portions of the greenways plans have not been adopted, the Department may note this greenway planning activity but is not required to incorporate this information into its planning reports.

4. Where the locality has included adopted greenways plans as a part of its local transportation plan and a segment (or segments) of these greenways fall within the corridor of new highway construction or a highway improvement project, the feasibility study and/or project planning report for this highway improvement will consider the effects of the proposed highway improvement upon the greenway in the same manner as it considers other planning characteristics of the project corridor, such as archeological features or land use.

5. Where the locality has justified the transportation versus the leisure use importance of a greenway segment and there is no greenway alternative of equal importance nearby, the project planning report will suggest inclusion of the greenway crossing, or appropriate greenway element, as an incidental part of the highway expenditure.

6. Where the locality has not justified the transportation importance of a greenway segment, the greenway crossing, or appropriate greenway element, may be included as a part of the highway improvement plan if the local government covers the cost.

7. A locality may add any appropriate/acceptable greenway crossing or greenway element at their own expense to any highway improvement project as long as it meets the design standards of the NCDOT.

8. The NCDOT will consider funding for greenway crossings and other appropriate greenway elements only if the localities guarantee the construction of and/or connection with other greenway segments. This guarantee should be in the form of inclusion in the local capital improvements program or NCDOT/municipal agreement.

9. If the state pays for the construction of a greenway incidental to a highway improvement and the locality either removes the connecting greenway segments from its adopted greenway plans or decides not to construct its agreed upon greenway segment, the locality will reimburse the state for the cost of the greenway incidental feature. These details will be handled through a municipal agreement.

10. Locality must accept maintenance responsibilities for state-built greenways, or portions thereof.

11. Details will be handled through a municipal agreement.

Last updated on 4/22/02
This information is available at: www.ncdot.org.transit.bicycle/laws-greenway-admin.html

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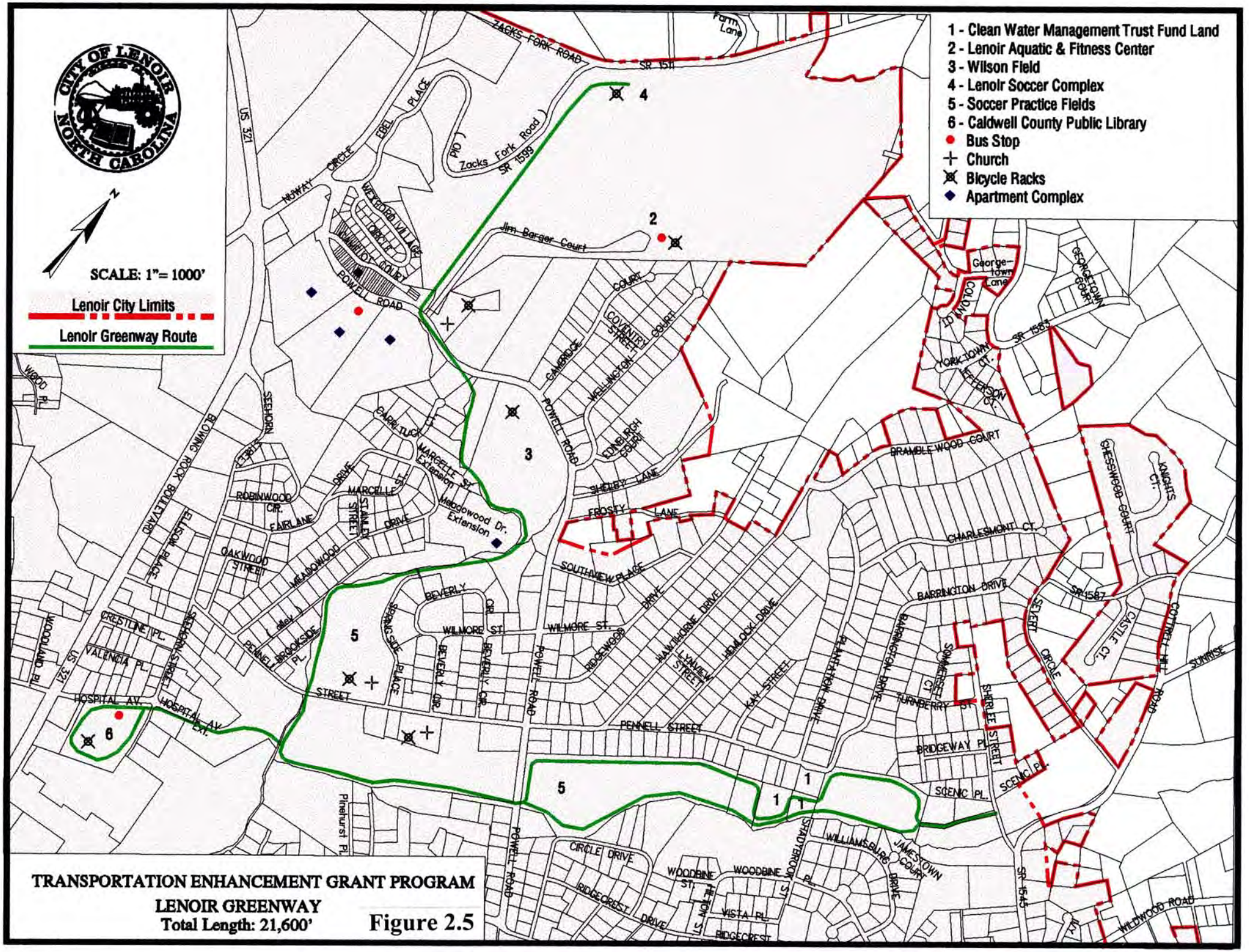
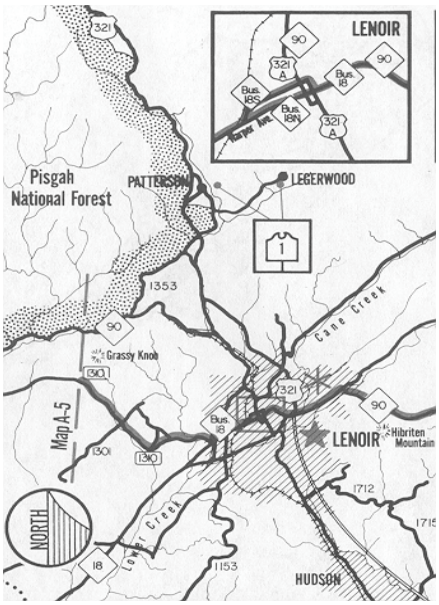


TRANSPORTATION ENHANCEMENT GRANT PROGRAM
LENOIR GREENWAY
Total Length: 21,600'

Figure 2.5

Bicycle Routes

Mountains to Sea



The Mountains to Sea route is designated as NC Bike Route 2.

*From Murphy to Manteo, the extremes of North Carolina…That's where this 700-mile route takes you. On the way you'll pass the loftiest peaks east of the Rockies, traverse portions of the Blue Ridge Parkway, then drop 2,000 feet from the Blue Ridge escarpment to the rolling foothills of the piedmont. Quiet lanes take you through lush farm country to most of the major cities of the state. Once past Raleigh, the flat land of the coastal plain makes the ride to the coast seem easy. Seventy miles from the end of the route you have the choice of taking the ferry to Ocracoke and the Outer Banks or continuing to Manteo. Either way, you can't lose. Wide Atlantic beaches are your reward at the end of the trip.

** Excerpt taken from Mountains to Sea Brochure, Division of Bicycle and Pedestrian Transportation, NCDOT.*

The section of the Bike Route that runs through Caldwell County is called the Carolina Emerald. This 36-mile bucolic segment is characterized by rolling hills and farmland. NC 90 between Lenoir and Taylorsville has a high quality pavement while the remainder of the roads along this section having a rougher pavement type. However, all are all in good condition and well maintained. Traffic in Lenoir can be congested, especially through the Smith's Crossroads intersection and through uptown Lenoir along Business NC 18 and Harper Avenue. There are many country stores along the route to provide any needed services and there is also a private campground available. Two points of interest along the route are Happy Valley in Caldwell County and Hiddenite and the Emerald Valley Mines in Alexander County.

Before state maintained roadways designated as bicycle routes are widened, the NCDOT Division of Bicycle and Pedestrian Transportation should be consulted. This division can recommend the most appropriate cross section for the widening, in addition to providing assistance in identifying the need for improvements based on present and future bicycle traffic. For further consideration and assistance, the coordinator of this division can be contacted at:

NC Department of Transportation,
Division of Bicycle and Pedestrian Transportation,
1552 Mail Service Center, Raleigh NC 27699-1552.

Email bikeped_transportation@dot.state.nc.us
Web www.ncdot.org/transit/bicycle

North Carolina Moving Ahead!

N.C. Moving Ahead! is a bold two-year initiative enacted that allows people, goods, and dollars to move more efficiently through our state by investing $700 million in three critical areas; maintenance, modernization and public transportation. The program increases the highway maintenance and preservation budget by nearly 45 percent. This allows NCDOT to resurface and rehabilitate highways across the state in rural and urban areas. It increases highway modernization by 25 percent through the improvements such as widening lanes and shoulders, building turn lanes, improving intersections, replacing substandard bridges and upgrading traffic signal systems across the state. The program also increases the funding for public transportation by about 25 percent, which allows NCDOT to help fund regional rail systems in the Charlotte metro area, the Triangle and Triad and to modernize the aging public transportation infrastructure across the state.

Caldwell County Project List for the Moving Ahead Program

US 321 (Hickory Boulevard) - From the Burke County Line to US 64/NC 18-90 in Lenoir - construct directional leftovers and close other crossovers at an estimated cost of $2,500,500.

SR 1178 (Hibriten Drive) - From NC 18 to the new McLean Drive Extension - widen pavement to 24 feet with paved shoulders/ditches and make safety improvements at an estimated cost of $400,000.

SR 1002 (Dudley Shoals Road) - From the intersection of Grace Chapel Road (SR 1751) and Peach Orchard Road (SR 1752) - realign intersections at as cost of $500,000.

NC 90 - Improve typical section in rock cuts north of Collettsville at a cost of $500,000.

SR 1109 (Pinewood Drive) - From US 321-A to east of Shamrock Heights (SR 1252) - widen pavement with turn lanes at US 321-A and SR 1252 and install signals at the intersections of Pinewood Drive at US 321-A and SR 1109 at SR 1252 at a cost of $500,000.

SR 1325 (Hartland Road) - Replace Bridge #20 - 0.10 miles west of Brown Mtn. Beach Road (SR 1328) on SR 1325 over Celia Creek at a cost of $350,000.

SR 1127 (Horseshoe Bend Road) - Replace Bridge #188 - 0.20 miles north of Hudson-Cajah Mtn. Road (SR 1131) on SR 1127 over the Little Gunpowder Creek at a cost of $350,000.

Conversion of the Lenoir CBD Streets to Two-Way Operation

The following is a letter written by former Division Engineer, Carl McCann, P.E. to former City Manager, James H. Hipp summarizing plans for the conversion of the one-way Lenoir Central Business District streets back to two-way operation.

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

MICHAEL F. EASLEY
GOVERNOR

P.O. Box 25201, Raleigh, NC 27611-5201
PHONE (919) 733-2520

LYNDO TIPPETT
SECRETARY

AUGUST 13, 2003

Mr. James H. Hipp, City Manager
City of Lenoir
P.O. Box 958
Lenoir, North Carolina 28645-0958

SUBJECT: Summary of Meeting to Discuss Conversion of Streets in Downtown Lenoir to Two-Way Traffic.

Dear Mr. Hipp:

The following is presented as a summary of our meeting to discuss the staging of the conversion of streets in the Lenoir CBD Area to two-way operation.

Staging of Transition to Two-Way Operation

Those in attendance agreed that the preferred approach is to convert all streets in the CBD Area to two-way operation at essentially the same time. Harper Avenue would be converted first. Upon completion of the conversion of Harper Avenue, all other streets in the CBD Area would be removed from the State Highway System.

Responsibility for Costs

The City of Lenoir will be responsible for the cost of right-of-way, utility adjustments, and roadway widening along Harper Avenue. NCDOT will be responsible for the cost of traffic signs, pavement markings, and traffic signals (including plan preparation) along Harper Avenue. An agreement will be prepared stating that NCDOT will reimburse the City for the estimated cost of this work upon completion. The City will be responsible for all costs for the conversions of all other streets, as they will become City streets at the time Harper Avenue is converted.

P. O. BOX 250, N. WILKESBORO, NC 28659

Responsibility for Plan Preparation and Construction

The City's Engineering firm will prepare all right-of-way, construction, pavement marking, traffic signal, and traffic control plans and specifications. NCDOT will review the plans and specifications locally. Traffic signal plans and specifications will be reviewed by the Traffic Engineering Branch at no cost to the City or to the City's Engineering Firm. The City will prepare and administer one contract for all of the work. All work on Harper Avenue will be in accordance with NCDOT specifications and will be subject to inspection by NCDOT.

NCDOT will prepare cost estimates for the traffic signal and pavement marking work which will be included in the reimbursable agreement. The City will provide NCDOT with an estimated completion date for inclusion in the agreement.

Thank you for your assistance. If you have any questions or need any further information, please contact our Division Traffic Engineer, Dean Ledbetter, at 336-667-9111.

Yours very truly,

R. C. McCann, P.E.
Division Engineer - 11

RCMC/JDL

cc: Mr. Sam Erby, Jr.
Mr. V. L. Embry
Mr. N. K. Turner, P.E.
Mr. J. D. Ledbetter, P.E.

Chapter 3
Implementation of the Transportation Plan

Implementation is one of the most important aspects of the transportation plan. Unless implementation is an integral part of this process, the effort and expense associated with developing the plan will be lost. There are several tools available for use by local governments to assist them in the implementation of the transportation plan. These tools are described in detail in this chapter. To neglect the implementation process is a three-fold loss; the loss of the capital expenditures used in developing a plan, the opportunity cost of the capital expenditures, and more importantly the loss of the benefits that would accrue from an improved transportation system.

Figure 3.1 shows the general development process for a new road that is to be funded by State or Federal funds.

State - Municipal Adoption of the Transportation Plan

Chapter 136, Article 3A, Section 136-66.2 of the General Statutes of North Carolina provides that after development of a transportation plan, the plan may be adopted by the governing body of the municipality and the Department of Transportation to serve as the basis for future street and highway improvements. Chapter 136, Article 3A, Section 136-66.1 of the General Statutes provides guidance in the delineation of responsibilities. In summary, these statutes provide that the Department of Transportation shall be responsible for those facilities that serve volumes of through traffic and traffic from outside the area to major business, industrial, governmental, and institutional destinations located inside the municipality. The municipality is responsible for those facilities that serve primarily internal travel.

In areas over 50,000 population, Federal law requires adoption by the Metropolitan Planning Organization (MPO). In North Carolina this is accomplished through the Transportation Advisory Committee (TAC) for that urbanized area. This body is made up of local elected officials and a representative from the North Carolina Board of Transportation. As a result of the 2000 census, the Caldwell County Urban Area is now a part of the Greater Hickory Metropolitan Planning Organization.

Several issues play a major role in the implementation process, available finances (current need versus future need), environmental issues, and citizen involvement. Effective use of the controls and tools listed above are indicative of good planning and minimize the effects of limited finances and negative citizen reaction to specific elements of a plan. It is through good planning that maximum use is made of every available dollar and that citizen involvement and approval of the transportation plan is obtained.

Methods Used to Protect the Adopted Transportation Plan

Future Street Line Ordinances

A municipality with legislative approval may amend its charter to be empowered to adopt future street line ordinances. This ordinance, enacted for selected streets, is particularly beneficial for planned future improvements, such as roadway widening. Through a metes-and-bounds description of a street's future right-of-way requirements, the municipality may prohibit new construction or reconstruction of structures within the future right-of-way. This approach requires specific design hearings to be held as an opportunity for affected property owners to obtain information about what to expect and to make necessary adjustments without undue hardship.

A future street line ordinance differs from a setback line in a zoning ordinance. Setback lines in a zoning ordinance are based on requirements for light, air, health, etc., not for future streets.

Subdivision Regulations

Local subdivision regulations are locally adopted laws governing the process of converting undeveloped land into building sites. These regulations are one of the most important implementation tools. Subdivision regulations require every sub-divider to submit to the City, Town and or County Planning Boards a plan of any proposed subdivision. From the planner's view, subdivision regulations are important at two distinct levels. First, they enable the planner to coordinate the otherwise unrelated plans of many individual developers. This process assures that provision is made for land development elements such as roadway right-of-way, parks, school sites, water lines, and so forth. Second, they enable the planner to control the internal design of each new subdivision so that its pattern of streets, lots, and other facilities will be safe, pleasant, and economical to maintain. The construction of subdivision streets to adequate standards reduces maintenance costs and simplifies the transfer of streets to the State Highway System.

To be most effective, subdivision regulations and their administration must be closely coordinated with other local governmental policies and ordinances. Among the more important of these are the Comprehensive Growth Plan, Utilities Extension Master Plan, CAMA Land Use Plan, the Transportation Plan, and the Collector Street Plan.

In practice, subdivision regulations can provide some very positive benefits such as requiring portions of major streets to be constructed in accordance with the Transportation Plan, or requiring sub-dividers to provide for the dedication and/or reservation of rights-of-way in advance of construction. These practices reduce the overall cost of the plan's implementation by having some of the costs borne by developers.

It should be noted that one problem encountered in the use of the subdivision ordinance is the situation where a controlled access facility such as a freeway is involved. The ordinance may only be able to require a right-of-way reservation for a fixed period of time after which the land must be purchased or the development allowed to occur. Another tool, the Roadway Corridor Official Map, can sometimes be used to avoid this problem. It should be noted that this map has

Development Process For A New Road

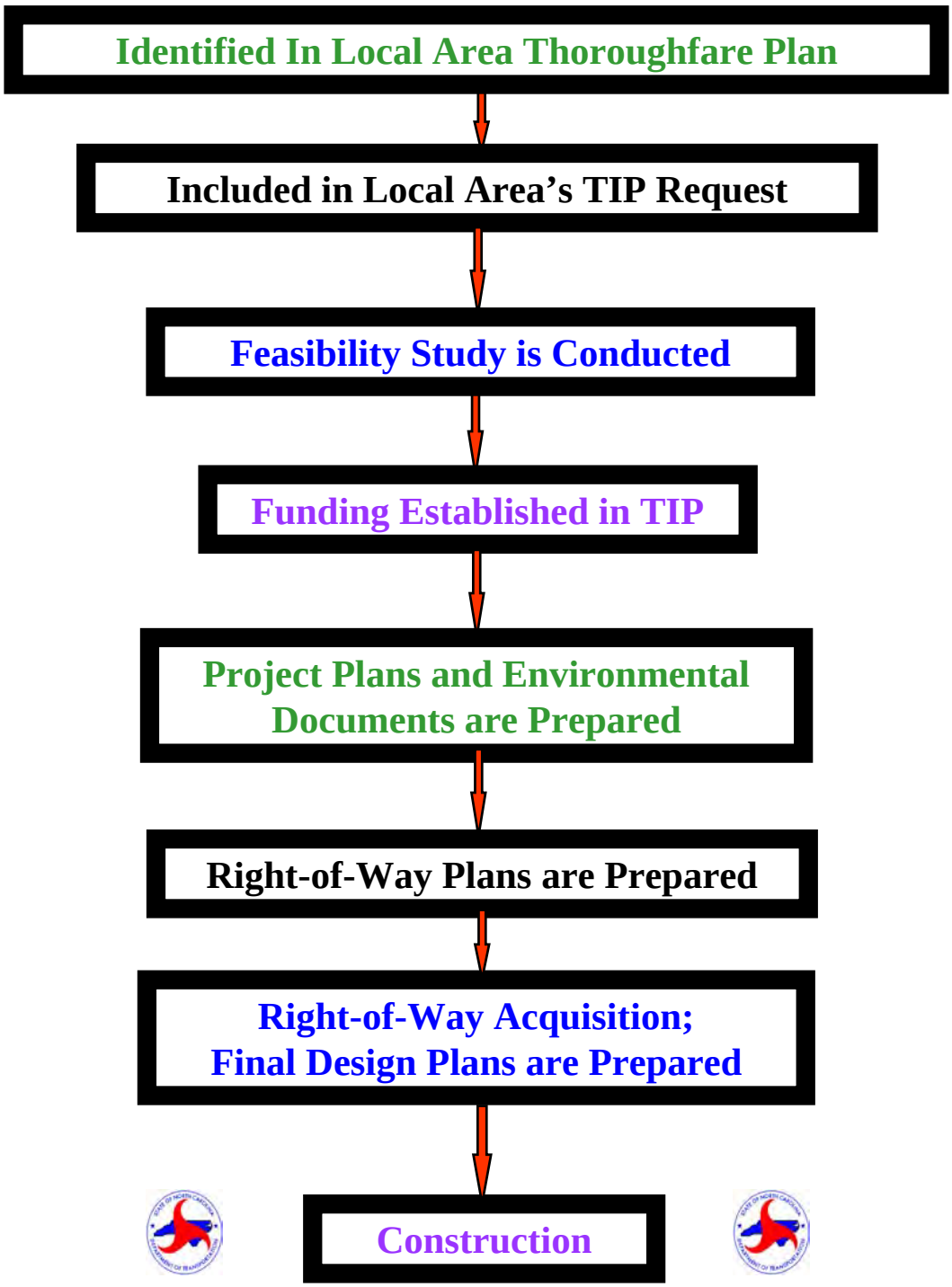


Figure 3.1

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a three year limit (see section on *Roadway Corridor Official Map* in this chapter for more details). Another limitation is that right-of-way may be reserved through the subdivision process, but at a later date the adjacent property owners may refuse to recognize the right of the municipality or State to construct the facility and use their concerns to stop the construction. There can also be an administrative failure to adequately administer the plan, or a significant amount of property may be required of a small parcel. Staging can sometimes be used to avoid undue expense on a subdivider. For example, two travel lanes may be constructed initially with additional widening planned for a later date (right-of-way for the final cross-section is initially reserved).

Collector Street Plan

It is encouraged that municipalities develop a Collector Street Plan. The definition of a collector street is a facility that primarily provides local access (to your home, school, church, office, etc.) at a lower speed and with less mobility than arterials for shorter distances by collecting traffic from local roads and connecting them with arterials. The benefit of a collector street plan is continuity. The plan helps insure that the local streets do not become heavily congested with traffic. A good collector system also allows shorter distance travel without use of the major street system.

While many existing streets function as collectors, only the most significant should be included in the Collector Street Plan. Most major subdivision streets should be on the collector plan.

Zoning Ordinances

Local zoning ordinances can be beneficial to transportation planning by designating appropriate locations of various land uses and allowable densities of residential development. This provides a degree of stability on which to make future traffic projections and to plan streets and highways. Other benefits of good zoning ordinance are (1) the establishment of standards of development, which will aid traffic operations on major thoroughfares, and (2) the minimization of commercial strip development that can create traffic friction and increases the traffic accident potential.

Functional Designs

The term "functional design" is used to describe preliminary design work done to answer questions on construction feasibility, to provide better information on right-of-way and construction cost estimates, and to give the administrative agency, developers, property owners, etc., detailed knowledge on proposed alignments. Typically, functional designs are done on topographic mapping with a horizontal scale of 1" = 200' with 5' contours. The centerline, horizontal curves, and approximate right-of-way limits are shown. A centerline vertical profile is done to help determine the approximate right-of-way limits that may be affected by cut and fill areas. A centerline vertical profile may also be transferred to property line tax mapping and aerial photography to aid in the protection of the corridor. Functional designs are expensive and time consuming and can become outdated rather quickly due to minor changes and adjustments. For this reason, they should only be done on an "as needed" basis. If you feel a functional design is required for a project, consult the NCDOT Transportation Planning Branch. A preliminary functional design was done for the proposed single point diamond interchange at Smith’s Crossroads. The City of Lenoir Planning Department has a copy of this preliminary design

Roadway Corridor Official Maps

A Roadway Corridor Official Map (Official Map) is a document adopted by the legislative body of the community or the North Carolina Board of Transportation that pinpoints and preserves the location of proposed streets against encroachment as provided by General Statutes 136-44.5 through 136-44.53. The Official Map in effect serves as notice to developers that the State or municipality intends to acquire specific property. This process is a beneficial tool in directing development so sites can be reserved for public improvements in anticipation of actual need.

Official Maps place temporary restrictions on private property rights by prohibiting the issuance of a building permit or the approval of a subdivision on property within an adopted alignment, for *up to a three-year period* beginning when a request for development is denied.

Requests for NCDOT to prepare and adopt an official map should be sent to the Program Development Branch. NCDOT typically limits Roadway Corridor Official Maps to control of access facilities that are outside or go through a municipal boundary. For cities contemplating the adoption of an official map, there are two ways in which the city may proceed. The first is to consider the official map statute as a stand-alone authority and use it as the basis for local adoption of an official map. Alternatively, the second approach is to adopt a local ordinance modeled after the statute, but modified to fit local circumstances and clarify the statute. Regardless of the approach taken, several procedural steps will need to be considered, such as establishing procedures for consideration of variance petitions.

Once the project has been selected and the alignment determined, maps must be prepared that are suitable for filing with the County Register of Deeds Office. The map should show the proposed alignment in sufficient detail to identify the functional design and the preliminary right-of-way boundaries. Since the purpose of the map is to show the effect on properties along the project path, the existing property boundaries should be identified. *As an additional requirement, within one year of the adoption of an official map, work must begin on an environmental document or preliminary engineering.*

It is important to recognize the risks inherent in the adoption of an official map prior to completing the environmental studies. Projects to be funded using any federal funds require the unbiased evaluation of alternate alignments. This means that other alternatives can be studied and compared to the protected alignment. The risks are generally offset by the protection of the corridor and its viability for future construction. Care must be given to include social and natural environment issues when conducting the preliminary environmental study.

The above information is only to serve as an introduction to official maps. Details and guidance for municipal adoption should be sent to the following: Program Development Branch, Mail Service Center 1534 Raleigh, North Carolina 27699-1534, (919) 733-2039.

Dedication of Right-of-Way with Density or Development Rights Transfer

The North Carolina General Statutes amended in 1987 provided this additional tool for plan implementation. The statues provide that a city or county may require an applicant for subdivision approval; or special use permit, conditional use permit, or special exception; or for

any other permission pursuant to a land use control ordinance to dedicate for street or highway purposes, the right-of-way within a corridor if the city or county allows the applicant to transfer density credits attributable to the dedicated right-of-way to contiguous land owned by the applicant. No dedication may be required if the dedication results in deprivation of a reasonable use of the original tract. The dedication must be reasonably related to traffic generated by the proposed subdivision, or use of the remaining land, or the impact dedication mitigated by measures provided in the local ordinance.

If the city or county does not require dedication of right-of-way under these statutes or other legal authority, but an applicant elects to dedicate the needed right-of-way, the city or county may allow the applicant to transfer density credits attributable to the dedicated right-of-way to contiguous land that is part of a common development plan; or to transfer severable development rights to noncontiguous land in designated receiving districts. The term "severable development right" means the potential for the improvement or subdivision of part or all of a parcel of real property as permitted under the terms of a zoning and/or subdivision ordinance, expressed in dwelling unit equivalents or other measures of development density or intensity or a fraction or multiple of that potential that may be severed or detached.

Advance Right-of-Way Acquisition

There are sometimes cases where planning tools and ordinances are not applicable, development of property in a thoroughfare corridor is imminent, and the only recourse is the purchase of the property. For these special situations, a right-of-way fund is desirable that will enable the property to be purchased and held by the public agency until such time as the improvement project can be funded. An alternative to the full cost acquisition of the property is the purchase of a long term option to buy that will fix the future cost and prevent development in the corridor.

Development Reviews

The District Engineer’s office and the Traffic Engineering Branch of the North Carolina Department of Transportation review driveway access to any state-maintained road. In addition, any development expected to generate large volumes of traffic (e.g., shopping centers, fast food restaurants, or large industries) should be comprehensively studied by the Traffic Engineering Branch and/or the Roadway Design Unit of NCDOT. If reviewed at an early stage, it is often possible to significantly improve the development’s accessibility while preserving the integrity of the transportation plan.

Direct Construction

Direct construction is an obvious means for implementing a plan, and there are a number of ways direct construction can be funded. These include 1) transit funds, 2) Rivers and Harbors Act of 1824, 3) Federal and State aid for Airport Development, 4) Federal-aid Highway Act, 5) Department of Defense funds, 6) State funds, and 7) local funding through local taxes, state-aid, or bonds.

Funding Sources

Local Programs

Local funding can be raised through local taxes, State-aid, or bonds. Impact fees are also an example of local means to help meet the area's transportation needs created by new development. Local officials can also require developers to help with the construction of new facilities or upgrades that the developments make necessary.

Local Capital Improvements Program
The local capital improvements program, with respect to transportation, is a long-range plan for the spending of money on street improvements, acquisition of rights-of-way and other improvements within the bounds of projected revenues. A capital improvements program makes it easier to build a planned transportation system. It consists of two lists of projects. The first is a list of highway projects that are to be implemented with municipal funds. The second is a list of local projects designated as State responsibility that are included in the Transportation Improvement Program. Only in special cases will a municipality be able to enjoy the benefits of highway improvements without some form of investment.

Federal Assistance
A local municipality can apply for federal assistance through housing, urban development, and economic development grants. These funds can be used to correct poor street design, layout, and other street problems.

Impact Fees
A municipality may levy impact fees on new development to pay for the appropriate portion of off-site infrastructure improvements made necessary as a result of that development. A municipality seeking to impose impact fees must receive that authority from the state legislature. Statutory restrictions require the fees be collected and spent within the area or district in which they are collected.

Municipal Service Districts
Under North Carolina General Statute, Chapter 160a, Sections 535-554, the legislative body of a municipality may create one or more municipal service districts in a downtown commercial area in order to raise additional funds for physical improvements. One purpose of the district could be to facilitate traffic flow and parking. The district may issue bonds that would be paid off with revenues from an extra ad valorem tax on all property within the district's boundaries. Once the improvements are completed and the bonds are retired, the extra taxation would cease and the district could be dissolved. Previously used for erosion control, flood and hurricane protection work, downtown revitalization, drainage projects, and off-street parking. It can be used for transportation facilities.

General requirements are 1) a report or study that defines the district, documents the fact that the district meets the standards required of legislation, and a plan for providing the service; and 2) public hearing.

The advantages to using these means are 1) special treatment for the area, 2) assessing power, and 3) bond authorization.

Planned Unit Development (PUD)
A number of communities have planned unit development ordinances (PUD) which permit flexibility in design of larger developments with the overall design subject to review. The PUD ordinance, like the subdivision ordinance can require thoroughfare construction and right-of-way dedication in accordance with the transportation plan. Since larger developments are usually involved in a PUD project, the likelihood is increased that some transportation plan revisions will be necessary in order to ensure coordination.

Transportation Improvement Program

North Carolina's Transportation Improvement Program (TIP or STIP) is a financially constrained document that lists all major transportation projects, and their funding sources, planned by the NCDOT for a seven-year period. Every two years, when the TIP is updated, completed projects are removed, programmed projects are advanced, and new projects are added. *Once a project is identified on the mutually adopted Transportation Plan,* the next step for projects anticipated to be implemented with State and Federal funds is for the municipality to present it as a request at the TIP public hearings. During biennial TIP public hearings, municipalities, local citizen groups, and other interested parties request projects to be included in the TIP. The group requesting a particular project(s) should submit to the NCDOT Board of Transportation Member representing their area the following: a letter with a prioritized summary of requested projects, TIP candidate project request forms, and project location maps with a description of each project.

In areas designated by the U.S. Census Bureau as urbanized, that is 50,000 or greater population, there is an additional process. In these areas, the Transportation Advisory Committee (TAC) compiles the list of transportation priorities every other year for the Metropolitan Planning Organization. This list is then advertised for public review and comment. The TAC discusses the public input and consequently adopts a formal transportation priority list to be presented at the Board of Transportation Public Hearing for the entire urban area. The MPOs also have a Metropolitan Transportation Improvement Program (MTIP) that lists local, state, and federally funded projects. The LTIP must agree with the State Transportation Improvement Program.

Rural Planning Organizations (RPO's) also have a role in prioritizing projects for their multi-county area and presenting a priorities list to NCDOT Board of Transportation.

The Board of Transportation reviews all of the project requests from each area of the State. Based on the technical feasibility, need, and available funding, the Board decides which projects will be included in the TIP. In addition to highway construction and widening, TIP funds are available for bridge replacement, highway safety projects, public transit projects, railroad projects, and bicycle facilities. Contact your Board of Transportation (BOT) Member. You can get your BOT Member's name by calling the Secretary to the Board of Transportation at (919) 733-2520 or by going to www.dot.org and clicking on "Board of Transportation" and then clicking on "Board Members".

Figure 3.2 shows a flowchart detailing the biennial process for updating the TIP. As can be seen from the chart, the public hearings are held in the first year of the process. To obtain information on the date and location of the public hearing for your area, call the NCDOT Programming and TIP Branch at (919) 733-2039.

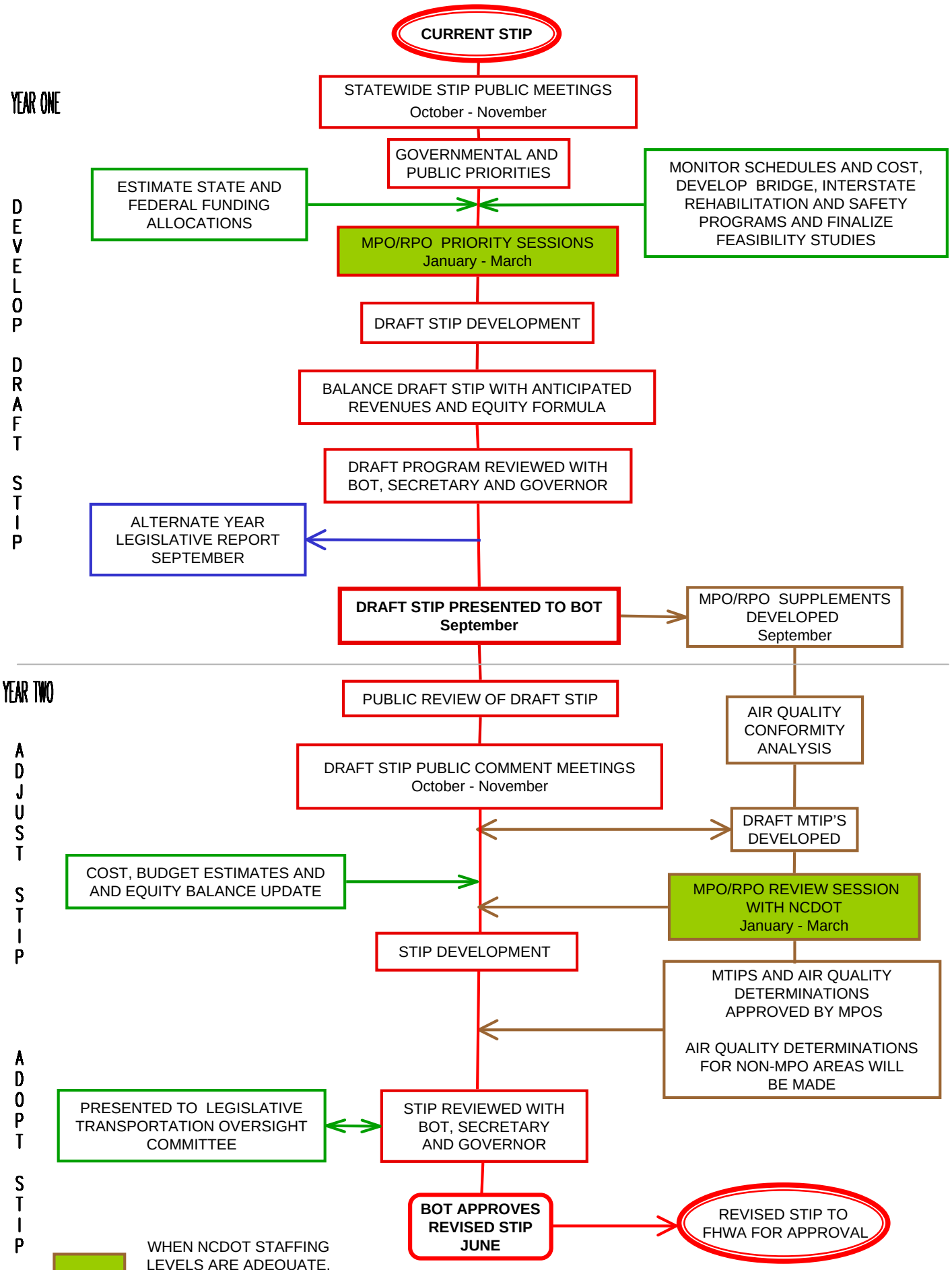
Congestion Mitigation and Air Quality Program (CMAQ)

This program is to fund projects designed specifically to reduce emissions and congestion *in air quality non-attainment areas and maintenance areas***.** MPO's that are non-attainment or maintenance areas who are proposing CMAQ projects must submit proposed CMAQ projects directly to the Program Development Branch of NCDOT as part of their candidate projects list. An NCDOT contact for Air Quality issues in the Transportation Planning Branch, Behshad M. Norowzi (919) 733-4705.

Enhancement Program Funds

These funds are for enhancement projects that fall into one or more of the 11 categories. For a list of these categories you can contact the Programming and Development Branch, Enhancements Unit or at www.dot.org. A project must demonstrate a strong and direct relationship to the intermodal transportation system. A legal agreement between the NCDOT and the sponsor outlining the responsibility of each party is necessary prior to funding. For more information contact the Enhancements Unit Program Manager. An individual, group or government agency may request a project as long as it is co-sponsored by an eligible governmental entity. Transportation enhancement activities must relate to *surface transportation.* The sponsor must pay for at least 20% of the project cost.

BIENNIAL STIP UPDATE PROCESS



PROGRAM DEVELOPMENT BRANCH, OCT 2003

Figure 3.2

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Industrial Access Funds

If certain economic conditions are met, Industrial Access Funds are available for construction of access roads for industries that plan to develop property that does not have access to any state-maintained road. The NCDOT Secondary Roads Office (9190 733-3250 should be contacted for information on Industrial Access Funds. The amount of money available each year is only about $2 million. There is another type of Industrial Access Funds available through application to the Board of Transportation. There is approximately $10 million/year for rural areas and $10 million/year for urban areas. This process is more involved than the Industrial Access Funds from Secondary Roads so you may want to inquire about the Secondary Roads availability first. For more information contact your Board of Transportation Member or the Division 11 Engineer. A current list of NCDOT Board of Transportation Members can be acquired by calling the Secretary to the Board of Transportation at (919) 733-2520 or by going to www.dot.org clicking on the Directory (at the bottom of the page) then Table of Contents and Board of Transportation.

National Highway System Program (NHS) Funds

This program provides funding for improvements to rural and urban roads that are part of the NHS, including the Interstate System and designated connections to major intermodal terminals. *NHS funds may also be used to fund transit improvements in NHS corridors (under certain circumstances).* For more information contact your Board Member or Program and Development Branch at (919) 733-2039.

Powell Bill Funds

Powell Bill Funds were established through N.C. General Statute 136-41.1 - 136-41.3. Incorporated municipalities are eligible for these funds for maintenance of local streets. Each municipality establishes its eligibility annually by submitting to the NCDOT Program Development Branch a certified statement and a certified Powell Bill map. Funds may be used for maintaining, repairing, constructing, reconstruction, or widening of any street or public thoroughfare including bridges, drainage, curb and gutter, and other necessary appurtenances. It can also be used for construction and maintenance of bikeways located within the right-of-way of public streets and highways, and also sidewalks. For more information contact the Powell Bill Program Manager in Program and Development Branch.

Small Urban Funds

Small Urban Funds are annual discretionary funds that are made available to municipalities with qualifying projects on the state system. A project must be within the incorporated municipal limits or within one mile of the limits. The maximum amount is one million dollars per year per division. The Board of Transportation has established a policy of limiting approvals to $150,000 per project per year. Requests for Small Urban Fund assistance should be directed to the Division Engineer or the Administration Officer in Secondary Roads at (919) 733-3250.

The North Carolina Highway Trust Fund Law

The Highway Trust Fund Law was established in 1989 as a plan with four major goals for North Carolina's roads and highways. These goals are:

- complete a 3,600 mile intrastate system of four-lane roads;
- widen and improve 113 miles of existing interstate highways;
- build multi-lane loops and connectors near seven major cities;
- provide additional funds in order to pave all unpaved secondary roads by 2006;
- provide additional funds for municipal streets (to supplement the Powell Bill Program

Other Funding Programs Available:

Contingency/Discretionary Funds

Contingency Funds are administered by the Secretary of Transportation. These funds are used to assist with the financing of various projects that would normally be low in priority in the TIP process, i.e. industrial access projects, improvements for public schools such as turn lanes and traffic signals, and the paving of low priority roads. Also, may times, it is the only way the NCDOT can address requests from other State agencies such as new roads to Department of Correction facilities. Expenditure of these funds must be approved by the full Board of Transportation. *The Board of Transportation has established a $150,000 limit per project.* Basically, expenditure guidelines for these funds are identical to guidelines for the Division-wide Small Urban Funds.

Requests for Statewide Contingency Funds will be received from municipalities, counties, businesses, schools, citizens, and legislative members, and NCDOT staff. All requests must be submitted in writing to the Secretary of Transportation and include a clear description and a justification of the project. Contact your Board of Transportation Member if there is a project you want considered. A current list of NCDOT Board of Transportation Members can be acquired by calling the Secretary to the Board of Transportation at (919) 733-2520 or by going to www.dot.org clicking on the Directory (at the bottom of the page) then Table of Contents and Board of Transportation.

North Carolina-Moving Ahead

Governor Easley recently announced "N.C. Moving Ahead" a bold two-year (non recurring) transportation initiative that will result in new jobs and have a major impact on the economy. The program will also bring a new level of safety and mobility to the State's transportation network by attacking the state's most critical needs – maintenance, modernization and public transportation. See the following page for more information on "North Carolina Moving Ahead".

Chapter 4

Analysis of the Caldwell County Urban Area's Roadway System

This chapter presents an analysis of the ability of the existing street system to serve the area's travel desires. Emphasis is placed not only on detecting the deficiencies, but also on understanding their cause. Travel deficiencies may be localized and the result of substandard highway design, inadequate pavement width, or intersection controls. Alternately, the underlying problem may be caused by a system deficiency such as a need for a bypass, loop facility, construction of missing links, or additional radials.

Existing Travel Patterns

It is the transportation engineer's responsibility to analyze existing travel patterns and identify existing roadway deficiencies. This includes roadway capacity and safety analysis. After the existing travel patterns in the area have been assessed, the engineer must analyze factors that will impact the future system. These factors include forecasted population growth, economic development potential, and land use trends. This information will be used to determine future deficiencies in the transportation system.

Capacity Analysis of the Existing System

An indication of the adequacy of the existing street system is a comparison of traffic volumes versus the ability of the streets to move traffic freely and at a desirable speed. In an urban area, the ability to move traffic is generally controlled by the spacing of a road's major intersections, access control, width of pavement, and the traffic control devices utilized, such as traffic signals. Thus, the ability of a street to move traffic can be increased by restricting parking and turning movements, using proper sign and signal devices, and by the application of other traffic engineering strategies.

Capacity is the maximum number of vehicles which has a "reasonable expectation" of passing over a given section of a roadway, during a given time period under prevailing roadway and traffic conditions. The relationship of traffic volumes to the capacity of the roadway will determine the level of service (LOS) being provided. Six levels of service have been selected for analysis purposes. They are given letter designations from A to F with LOS A representing the best operating conditions and LOS F the worst.

The six levels of service are illustrated in Figure 4.1, and they are defined on the following page. The definitions are general and conceptual in nature, but may be applied to urban arterial levels of service. Levels of service for interrupted flow facilities vary widely in terms of both the user's perceptions of service quality and the operational variables used to describe them. The Highway Capacity Manual contains more detailed descriptions of the levels of service as defined for each facility type. Design requirements for thoroughfares vary according to the level of service desired. Universal standards in the design of thoroughfares are not practical. Each road section must be individually analyzed and its design requirements determined by projected

traffic, capacity, level of service and available right-of-way. The recommended improvements and overall design of the Thoroughfare Plan were based on achieving a minimum LOS D. LOS D is considered the "practical capacity" of a road, or that at which the public begins to express dissatisfaction with the ability of the road to move traffic.

Level of Service

LOS A

Describes primarily free flow conditions. The motorist experiences a high level of physical and psychological comfort. The effects of minor incidents of breakdown are easily absorbed. Even at the maximum density, the average spacing between vehicles is about 528 ft, or 26 car lengths.

LOS B

Represents reasonably free flow conditions. The ability to maneuver within the traffic stream is only slightly restricted. The lowest average spacing between vehicles is about 330 ft, or 18 car lengths.

LOS C

Provides for stable operations, but flows approach the range in which small increases will cause substantial deterioration in service. Freedom to maneuver is noticeably restricted. Minor incidents may still be absorbed, but the local decline in service will be great. Queues may be expected to form behind any significant blockage. Minimum average spacings are in the range of 220 ft, or 11 car lengths.

LOS D

Borders on unstable flow. Density begins to deteriorate somewhat more quickly with increasing flow. Small increases in flow can cause substantial deterioration in service. Freedom to maneuver is severely limited, and the driver experiences drastically reduced comfort levels. Minor incidents can be expected to create substantial queuing. At the limit, vehicles are spaced at about 165 ft, or nine car lengths.

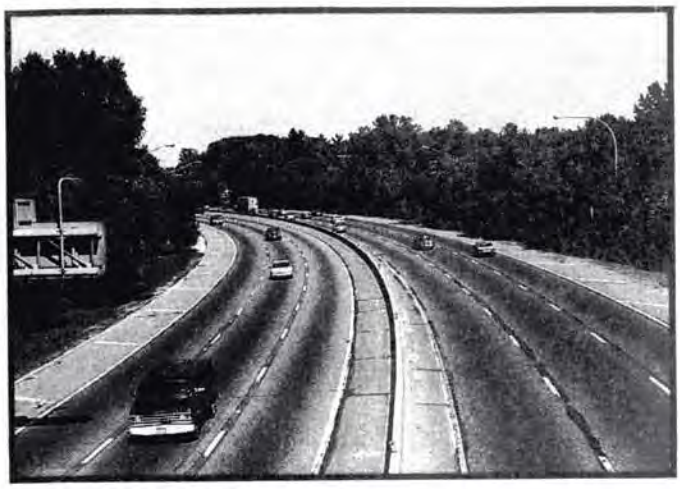
LOS E

Describes operation at capacity. Operations at this level are extremely unstable, because there are virtually no usable gaps in the traffic stream. Any disruption to the traffic stream, such as a vehicle entering from a ramp, or changing lanes, requires the following vehicles to give way to admit the vehicle. This can establish a disruption wave that propagates through the upstream traffic flow. At capacity, the traffic stream has no ability to dissipate any disruption. Any incident can be expected to produce a serious breakdown with extensive queuing. Vehicles are spaced at approximately six car lengths, leaving little room to maneuver.

LOS F

Describes forced or breakdown flow. Such conditions generally exist within queues forming behind breakdown points.

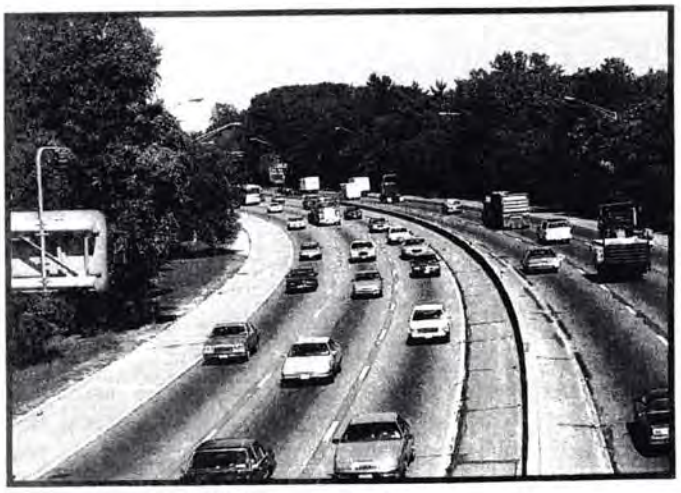
Source: 1994 Highway Capacity Manual



LOS A.

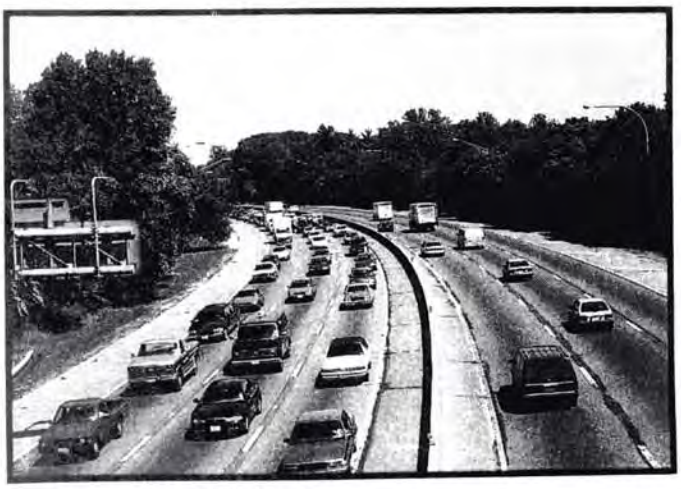
LOS D.

LOS B.



LOS E.

LOS C.



LOS F.

LEVELS OF SERVICE

Figure 4.1

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Crash Statistics

Crash statistics are often used as an indicator for locating congestion problems. Crash records can also be reviewed to identify problem locations or deficiencies such as poor design, inadequate signing, ineffective parking, or poor sight distance. An analysis of the crash data helps in making thoroughfare recommendations that will lead to a reduction in the number of crashes. Table 4-1 is a summary of the crashes occurring in the Caldwell County Urban Area from January 1, 1997 to December 31, 1999. This table includes locations with 15 or more accidents. The "Number of Crashes" column indicates the total number of accidents *reported* within 200 feet of the intersection during the study period indicated. Refer to Figure 4.2 for the locations of the high crash intersections mentioned in Table 4-1.

Table 4-1

High Crash Locations in Caldwell County

For the Reporting Period of January 1, 1997 through December 31, 1999

Municipality	*Intersection of*		*Number of Reported Crashes*	*Equivalent Property Damage Only Index*	*Predominate CrashType ≤ 25% of Total*
	Road A	*Road B*			
GRANITE FALLS	US-321	PINEWOOD	43	320.4	Rear End & Left Turn
LENOIR	FAIRVIEW	HARPER	40	483.8	Left Turn
LENOIR	US-321	HOSPITAL	37	223.8	Angle
LENOIR	HARPER	MORGANTON	32	106	Rear End & Angle
*LENOIR	US-321	WILKESBORO	31	158.6	Rear End & Angle
HUDSON	US-321	MOUNT HERMAN	30	104	Rear End
HUDSON	US-321	MISSION	29	284.2	Rear End & Angle
LENOIR	LOWER CREEK	WILKESBORO	28	366.4	Rear End/Angle/Left Turn
LENOIR	MORGANTON	NORWOOD	26	100	Angle
HUDSON	US-321	PINE MOUNTAIN	25	174.8	Rear End
LENOIR	BLOWING ROCK	NUWAY	24	173.8	Left Turn
LENOIR	MORGANTON	VIRGINIA	24	120.2	Rear End & Angle
LENOIR	NORWOOD	SOUTHWEST	23	165.4	Rear End & Angle
*LENOIR	US-321	WILKESBORO	22	44.2	Rear End & Angle
LENOIR	US-321	McLEAN	21	178.2	Rear End
LENOIR	CONNLEY SPRINGS	SOUTHWEST	20	360.2	Rear End
GAMEWELL	US-64	CALICO	20	169.8	Rear End & Ran of Rd. Rt.
LENOIR	US-321	ABC	20	49.6	Rear End/Angle/Sideswipe
*LENOIR	US-321	HARPER	19	215	Rear End
GRANITE FALLS	US-321	US-321A	19	131.8	Left Turn & Angle
GRANITE FALLS	HIGHLAND	PINEWOOD	18	289.8	Rear End & Angle
**LENOIR	US-321	NC-268	18	236.2	Angle
LENOIR	TAYLORSVILLE	WILKESBORO	18	236.2	Angle & Left Turn
LENOIR	COMPLEX	MORGANTON	17	144.6	Angle
LENOIR	US-321	MAIN	17	107.6	Angle
RURAL CALDWELL	HORSESHOE BEND	CAJAH'S MT.	17	105.8	Angle
LENOIR	HARRISBURG	MORGANTON	17	68.8	Rear End & Angle
LENOIR	FAIRVIEW	MORGANTON	16	90	Rear End & Left Turn
*LENOIR	HARPER	US-321	16	53	Rear End & Sideswipe
CAJAH'S MT.	CONNLEY SPRINGS	CAJAH'S MT.	15	157.4	Rear End & Left Turn
RURAL-CALDWELL	CONNLEY SPRINGS	BATON SCHOOL	15	150	Rear End
LENOIR	FAIRWOOD	HICKORY	15	120.4	Rear End

Note: The ***Number of Reported Crashes*** refers only to the crashes that were actually reported and correctly coded into the DMV Crash Database and occurred within 200 feet of the intersection.

* Smith's Crossroads Intersection together total 88 crashes

** US-321 at NC-268 is just outside the planning area boundary.

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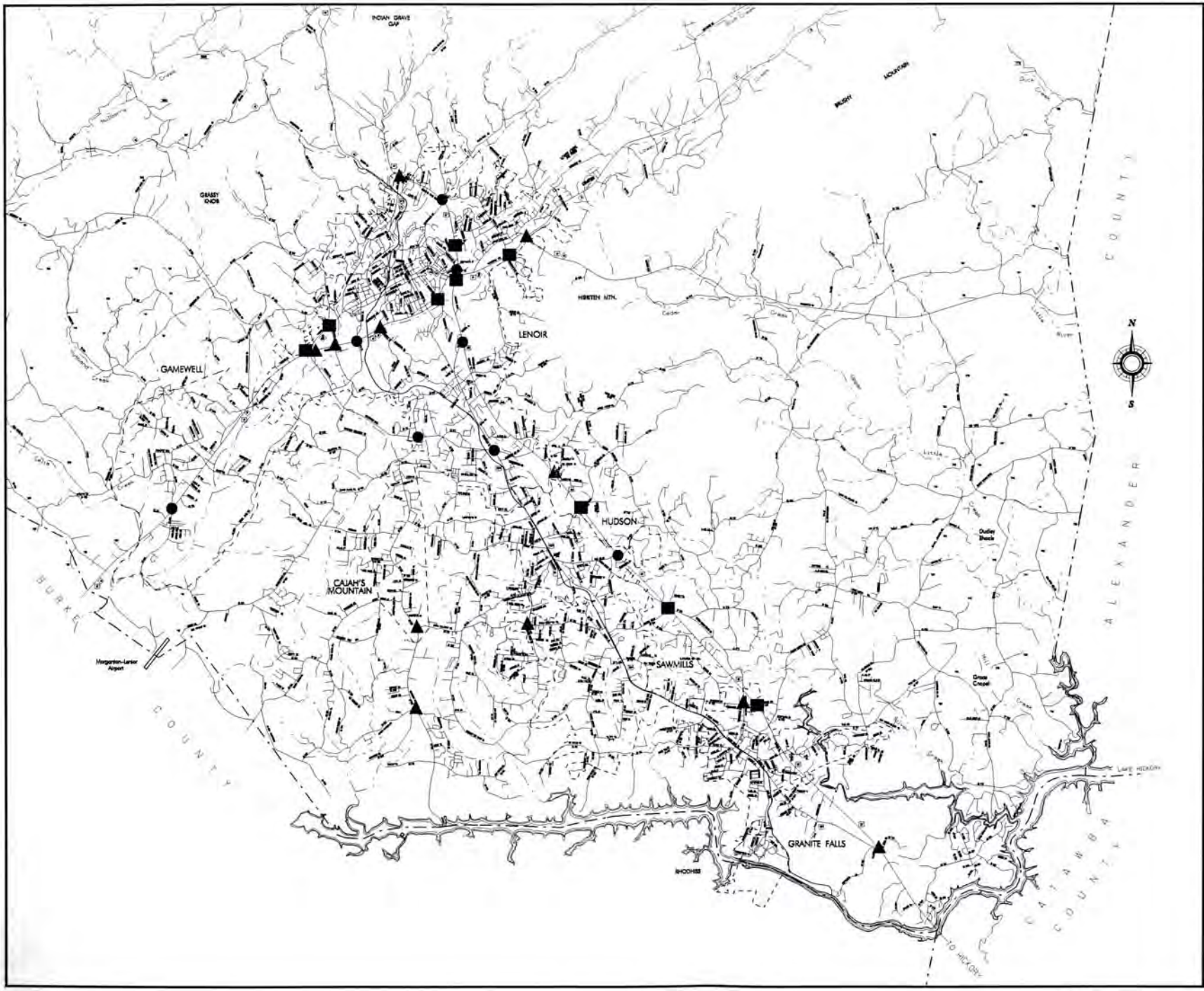

Figure 4.2

High Frequency Crash Locations

Legend

- 15 – 19 Accidents ▲
- 20 – 25 Accidents ●
- More than 25 Accidents ■

CALDWELL COUNTY

NORTH CAROLINA

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DIVISION OF HIGHWAYS – STATEWIDE PLANNING BRANCH

UNITED STATES DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION

SCALE

0 1 2 3 4 5
km

0 .5 1 2 3
mi

Analyzing the crash data at the US 321 / US 64 intersection posed a data problem because the four legs of this intersection all have different names. Starting with the west leg and moving counter clockwise around the intersection the street names are Harper Ave, Blowing Rock Blvd, Wilkesboro Ave and Hickory Blvd. All the intersections containing a combination of these roads were considered to be the US 321 / US 64 intersection and combined had a total number of 88 crashes. Although this number appears high, this intersection has two through lanes in both directions, two left turns lanes in every direction, and slip ramps to facilitate the right turns.

Both the Equivalent Property Damage Only Index (EPDO) and the number of crashes at a particular intersection should be considered when investigating crash data. The severity of every accident is measured with a series of weighting factors developed by NCDOT's Traffic Safety Systems Management Unit (TSSMU). The EPDO Index is used to account for the severity of crashes. The EPDO Index gives injury crashes more weight than property damage only crashes. The latest calculation for the EPDO has the following weights for injuries:

- Fatal and severe injury crash (K or A type injuries) 76.8
- Moderate and minor injuries (B and C type injuries) 8.4
- No injury (property damage only) 1.0

To request a more detailed crash analysis for any of the above mentioned intersections, as well as any other intersections of concern, the point of contact should be either the Division 11 Traffic Engineer or the NCDOT's Traffic Safety Systems Management Unit. The Traffic Safety Systems Management Unit is responsible for the Highway Safety Improvement Program. Given the NCDOT's commitment to reducing injuries and crashes and the need to provide integrated transportation, it is increasingly important that critical safety and traffic record information be provided to maximize the safety benefit of limited resources. The Highway Safety Improvement Program (HSIP) focuses on potentially hazardous locations and hazardous features analysis. Each year the TSSMU produces a "potentially hazardous location" listing to inventory hazardous locations on North Carolina roads. These locations are submitted to field engineers for on-site investigation, further analysis, and recommendation of engineering countermeasures to address the safety problems. Included in the safety program are locations with crashes involving intersections, interchanges, bridges, pedestrians, wet pavement conditions and night-time crashes.

Traffic Capacity Analysis

Capacity Deficiencies

In Figure 4.3 a comparison of average daily traffic (ADT) counts to corresponding roadway capacities reveals that sections of the following major thoroughfares are near or over their practical capacity (Level of Service D). In this figure the blue band displays present conditions and the red band displays future year conditions provided no recommendations are implemented. The roads shown in Figure 4.3 are:

US 321 - Sections of US 321 are currently operating near the practical capacity of the roadway. From Greenhaven Drive to the Catawba River the traffic volumes range from 28,000 to 38,000 vehicles per day (vpd). Year 2025 traffic volumes are estimated to range from 37,000 to 65,000 vpd, making the majority of the roadway at or above its capacity to facilitate traffic at a reasonable level of service. It will be necessary to improve sections of US 321(see Chapter 2 for recommendations).

US 321A - Sections of US 321A are currently operating near or at the practical capacity of the roadway. From McLean Drive to Pleasant Hill Road the traffic volumes range from 10,000 to 12,000 vpd. In Granite Falls from Highland Ave. to Central Ave. the traffic volumes range from 10,000 to 11,000 vpd. For the year 2025 traffic volumes are estimated conservatively to range between 15,000 and 20,000 along the section of US 321A from McLean Drive to US 321 in Granite Falls. It will be necessary to improve sections of US 321A (see Chapter 2 for recommendations).

US 64/NC 18 - The section of US 64/NC 18 from Hartland Road to Calico Road is currently operating over the practical capacity the roadway having a traffic volume of 14,000 vpd. The section of road from Hartland Road to the Burke County line will be over capacity for year 2025 without implementing the scheduled improvements having estimated volumes ranging from 19,000 to 20,000 vpd. Improvements for this section of US 64/NC 18 are programmed in the Transportation Improvement Program and will prevent the road from being over capacity in the future (see Chapter 2 for recommendations).

Connelly Springs Road - The section of Connelly Springs Road from Southwest Boulevard to Baton School Road is operating near the practical capacity of the roadway. The traffic volume along this section of road is consistently near 10,000 vpd. The entire length of Connelly Springs Road is estimated to be over capacity for year 2025 without implementing the scheduled improvements having estimated volumes ranging conservatively between 15,000 and 17,000 vpd. Improvements for Connelly Springs Road are programmed in the Transportation Improvement Program and will prevent the road from being over capacity in the future (see Chapter 2 for recommendations).

Harper Avenue - The section of Harper Avenue between Morganton Boulevard and US 321 is currently at its practical capacity having traffic volumes ranging from 25,000 to 28,000 vpd. For year 2025, the traffic volumes are estimated to be 42,000 vpd. The section of Harper Avenue between Morganton Boulevard and Norwood Street is currently at an acceptable level of service (LOS) with a volume of 13,000 VPD, but will be over its practical capacity in 2025 with estimated traffic ranging from 19,000 to 22,000 vpd. Because of adjacent land-use and available right-of-way no recommendation for improvement is given for this section of roadway at this time.

McLean Drive - McLean Drive is currently operating near capacity with a traffic volume of 9,900 vpd. For year 2025, the traffic volumes are estimated to range from 17,000 to 20,000 vpd. This estimation should be revisited in five to seven years when the full effect of the McLean Drive Extension and the development that will accompany it is realized. Based on the current estimate for 2025 it will be necessary to improve McLean Drive (see chapter 2 for recommendations).

Morganton Boulevard - The section of Morganton Boulevard form Harper Avenue to Mulberry Street is currently at an acceptable level of service (LOS) with a volume of 23,000 vpd but will be operating at its practical capacity for year 2025 with an estimated traffic volume of 30,000 vpd. A center median to limit left turning traffic may be necessary in the future but a recommended widening for this section of roadway is not recommended at this time.

Wilkesboro Boulevard - With the exception of Smith's Crossroads, Wilkesboro Boulevard is currently operating at an acceptable level of service. The section of road east of the Crossroads to Taylorsville Road has a volume of 18,000 vpd. The section of road from Taylorsville Road to Blue Creek Road has volumes ranging from 8,400 to 5,000 vpd. For year 2025 the section of road east of the Crossroads to Taylorsville Road will be operating at the roads capacity with an estimated volume of 32,000 vpd. The section of road from Taylorsville Road to Blue Creek Road is estimated to have volumes ranging from 15,000 to 19,000 vpd and it will be necessary to improve this section of Wilkesboro Boulevard (see Chapter 2 for recommendations).

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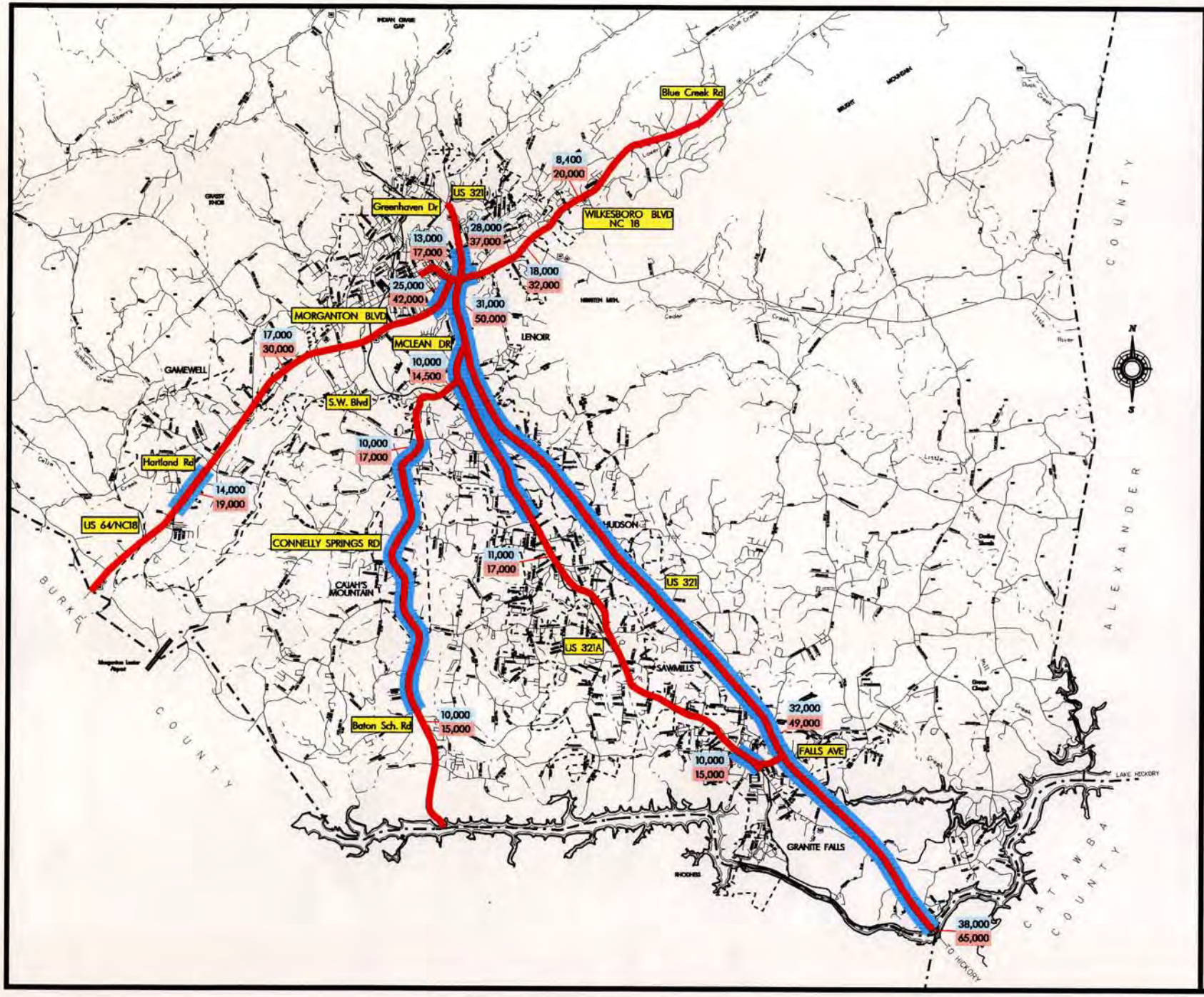

Figure 4.3

Roadway Deficiencies

Legend

Roads At or Near Capacity

Present Conditions

Future Year 2025

No Recommendations Implemented

1999 ADT

2025 Est.

CALDWELL COUNTY

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NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS – STATEWIDE PLANNING BRANCH

UNITED STATES DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION

SCALE

0 1 2 3 4 5
km

0 1 2 3
mi

Bridge Conditions

Bridges are a vital and unique element of a highway system. First, they represent the highest unit investment of all elements on the system. Second, any inadequacy or deficiency in a bridge reduces the value of the total investment. Third, a bridge presents the greatest opportunity of all potential highway failures for disruption of community welfare. Finally, and most importantly, a bridge has the greatest potential of all highway failures for the loss of life. For these reasons, it is imperative that bridges be constructed to the same design standards as the system of which they are a part.

Congress enacted the National Bridge Inspection Program Standards on April 27, 1971, implementing the Federal Highway Act of 1968. These standards require that "all structures defined as bridges located on any of the Federal-Aid Highway Systems be inspected and the safe load carrying capacity computed at regular intervals, not to exceed two years." A sufficiency index number has been calculated for each bridge to establish eligibility and priority for replacement. The bridges with the highest priority are replaced as Federal and State funds become available.

The NCDOT's Bridge Maintenance Unit, with assistance from various consultants, inspects all bridges on the State Highway System. All bridges in Caldwell County have been analyzed, rated, appraised, and inventoried. The resulting data has been reduced to a more readily useable form as a management tool.

A sufficiency rating was used in the analysis to determine the deficiency of each bridge. The sufficiency rating is a method of evaluating factors that determine whether a bridge is sufficient enough to remain in service. Factors used include: structural adequacy and safety, serviceability and functional obsolescence, essentiality for public use, type of structure, and traffic safety features. The result of this method is a percentage in which one hundred percent represents and entirely sufficient bridge and zero percent represents and entirely insufficient or deficient bridge. A sufficiency rating of fifty percent or less qualifies the structure for Federal Bridge Replacement Funds.

Deficient bridges are categorized as either functionally obsolete or structurally deficient. Bridges in the functionally obsolete category have below average ratings in roadway approach alignment, under clearance, deck geometry, waterway adequacy, or structural condition. Structurally deficient bridges have below average ratings in deck superstructure, substructure, overall structural condition, or waterway adequacy. Table 4.2 is a list of the state system bridges in Caldwell County Urban Area and their corresponding sufficiency rating (bridge numbers *68, *73, and *75 are local bridges that are being replaced with Municipal Bridge Program Funds). Refer to Figure 4.4 for the location of these bridges.

State System Bridges for the Caldwell County Urban Area

Bridge Number	Suff. Rating	Bridge Number	Suff. Rating	Bridge Number	Suff. Rating
2	60.3	P72	99.4	259	91.6
5	99.1	*73	23.3	P260	93.6
6	41.7	*75	29.5	262	62.2
8	75.6	77	53.4	267	77.8
9	77.0	84	6.0	P268	90.9
11	77.6	86	54.7	273	53.3
12	78.0	90	32.4	279	45.3
13	95.9	91	79.8	280	75.8
14	47.2	93	81.2	306	94.5
C15	83.0	94	81.3	316	78.1
16	64.0	95	65.1	326	39.9
17	77.9	106	92.5	327	57.4
23	92.2	115	55.8	332	77.1
C24	80.3	134	36.8	340	67.5
P25	99.8	157	95.0	347	40.3
30	93.6	P171	99.9	C351	94.3
C31	95.6	177	99.9	C352	83.6
32	97.0	183	49.9	C356	72.3
33	70.1	188	74.8	357	85.7
C36	96.5	191	70.0	C358	76.5
37	99.2	200	74.2	359	88.8
C39	89.0	206	81.9	C360	81.2
46	64.8	208	39.7	366 / 367	96.9 / 73.7
48	85.7	C233	80.2	C368	94.6
49	85.6	234	100.0	369	86.0
51	52.9	C245	99.9	370	98.0
C52	73.6	247	49.7	C371	81.3
C53	70.0	250	47.0	372	98.5
C54	78.0	252	73.1	373	97.6
66	95.2	255	22.8	374	88.0
*68	71.2	P257	99.8	375	99.5

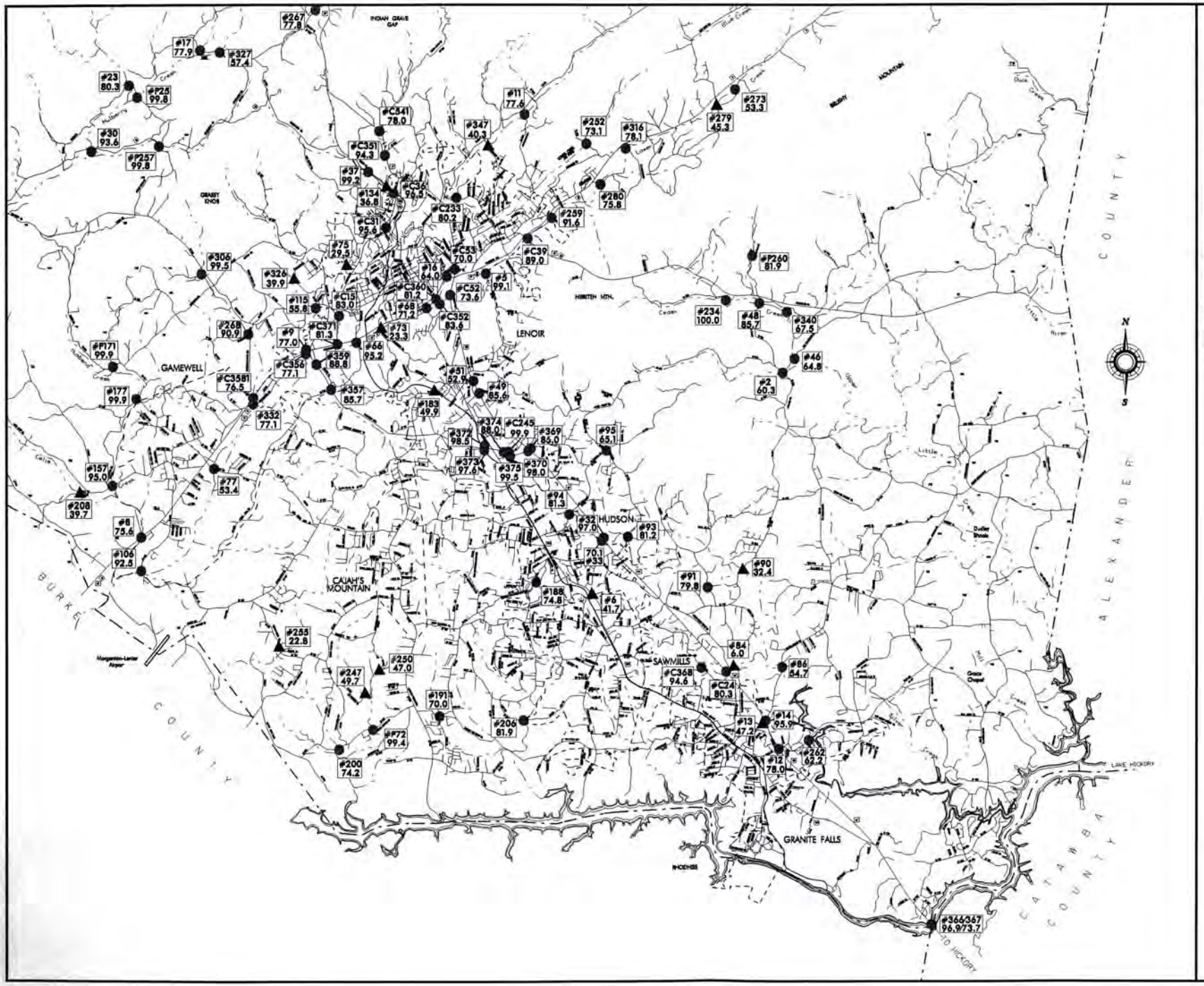


Figure 4.4

State System Bridge Map

Bridges with Suffiency Ratings Between 0 – 50 ▲

Bridges with Suffiency Ratings Between 50.1 – 100 ●

Bridge #'s 68,73&75 are local bridges that are being replaced with Municipal Bridge Program Funds

CALDWELL COUNTY

NORTH CAROLINA

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS – STATEWIDE PLANNING BRANCH

UNITED STATES DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION

SCALE
0 1 2 3 4 5
km
0 .5 1 2 3
mi

Chapter 5

Population and Land Use

Factors Affecting the Future Roadway System

The objective of thoroughfare planning is to develop a transportation system that will meet future travel demand and enable people and goods to travel safely and economically. To determine the needs of an area it is important to understand the role that population, economics, and land-use has on the highway system. Examination of these factors helps to explain historic travel patterns and lays the groundwork for thoroughfare planning.

In order to formulate an adequate year 2025 thoroughfare plan, reliable forecasts of future travel characteristics must be achieved. The factors of population, vehicle usage trends, economy and land use play a significant role in determining the transportation needs of the area, and must be carefully analyzed. Additional items may include the effects of legal controls such as subdivision regulations and zoning ordinances, availability of public utilities and physical features of the area.

The first step in the development of the thoroughfare plan is to define the planning period and the planning area. The base year for the Caldwell County Urban Area study was 1997, and the year 2025 was chosen to be the end point of the study period (28 years). The planning area is generally the limits to which urbanization is expected to occur during the planning period. The planning area is then subdivided into traffic analysis zones (TAZ's). Figure 5.1 shows the original planning area boundary and traffic analysis zones. This is the area for which the travel demand model was built. The Thoroughfare Plan boundary was ultimately expanded to incorporate Grace Chapel Road (SR 1751), Campground Road SR (1751), Deal Mill Road (SR 1718), and Cedar Valley Church Road (SR 1719) and the new location projects which cross into Alexander and Catawba Counties. The expanded area is not part of the travel demand model for the Caldwell County Urban Area.

Population

The amount of traffic on a section of roadway is a function of the size and location of the population that it serves. Investigating past trends in population growth, forecasting future population growth and then dispersing that projected growth throughout the planning area is one of the initial steps for the transportation-planning engineer.

Table 5-1 on the next page shows both the historical and projected population for the Caldwell County Urban Area through the year 2025. Graphical illustrations of the population data below are shown in Graphs 5-1, 5-2 and 5-3.

Table 5-1

Population Trends and Projections	*US Census Bureau				**Trend	
	*1970	*1980	*1990	*2000	**2010	**2025
Cajah's Mountain	not available	1,884	2,429	2,683	3,531	4,130
Gamewell	not available	2,910	3,357	3,644	4,405	4,956
Granite Falls	2,388	2,580	3,253	4,611	5,043	6,145
Hudson	2,820	2,888	2,819	3,078	3,076	3,183
Lenoir	14,705	13,748	14,192	16,793	16,537	17,543
Sawmills	not available	3,706	4,088	4,921	6,061	6,972
Total for towns	19,913	27,716	30,138	5,730	38,653	42,929
Caldwell County	56,699	67,746	7 0,709	77,415	83,035	90,183
North Carolina	5,048,411	5,880,095	6,632,448	8,049,313	9,491,372	11,712,440

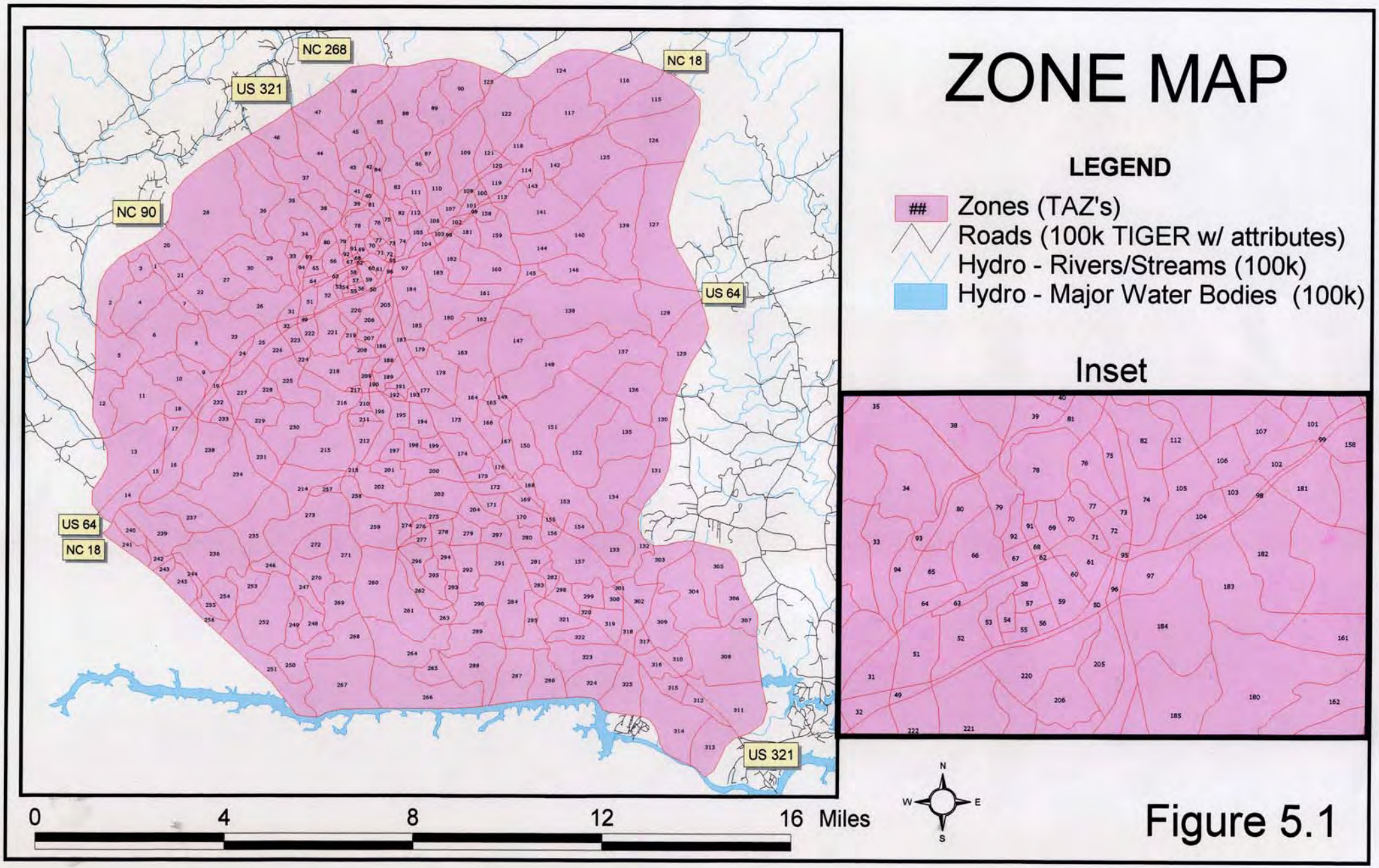
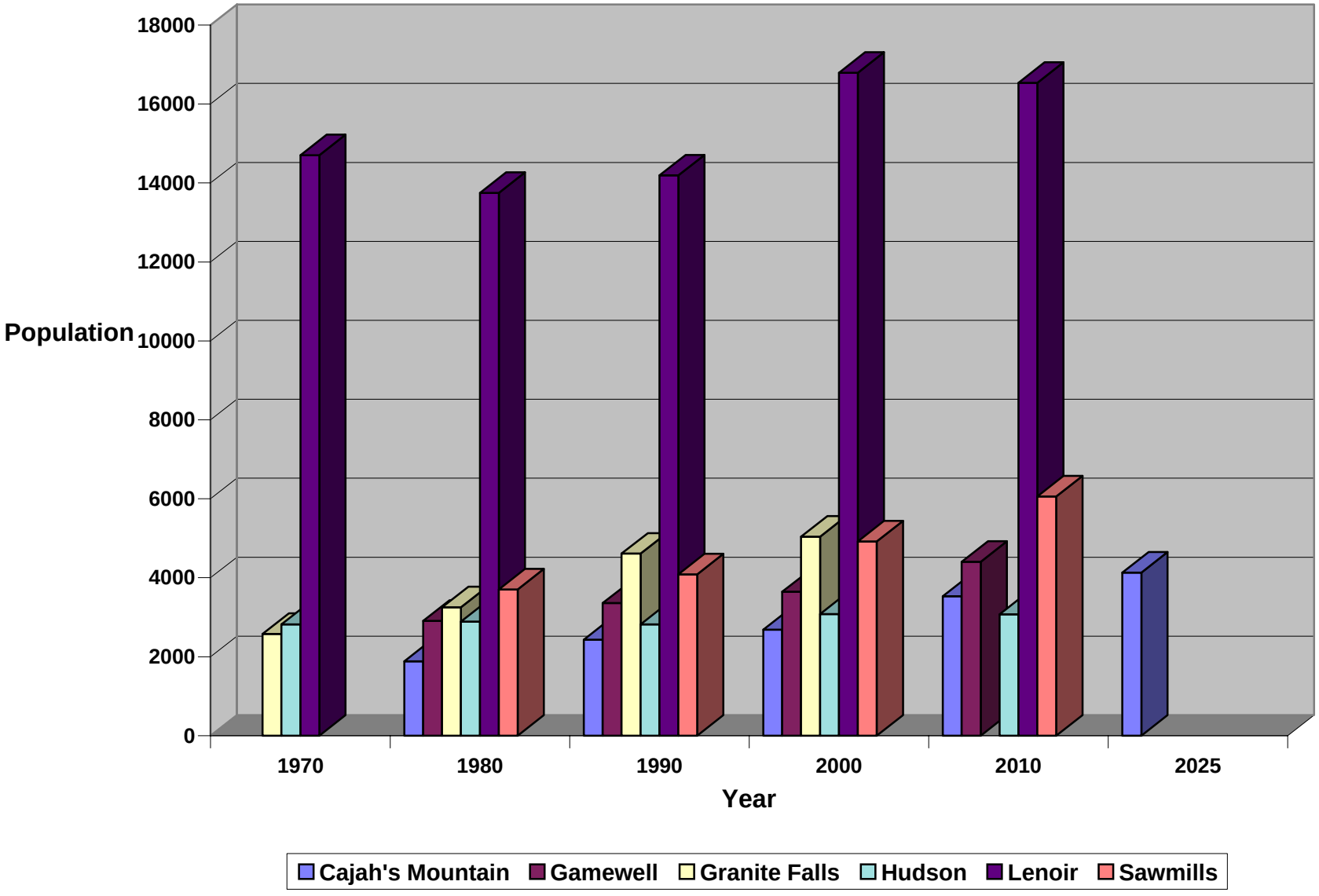
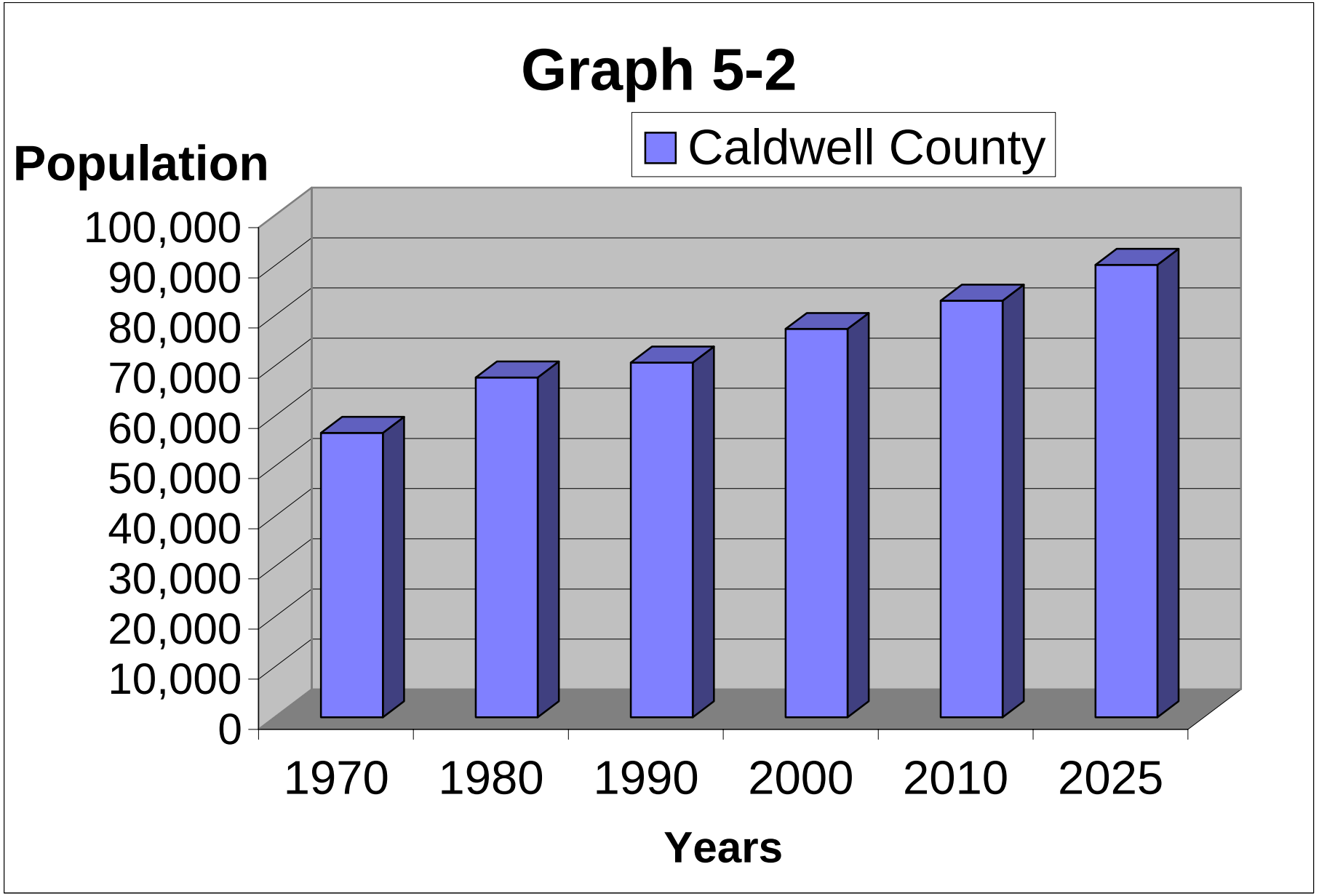

ZONE MAP
LEGEND
Zones (TAZ's)
Roads (100k TIGER w/ attributes)
Hydro - Rivers/Streams (100k)
Hydro - Major Water Bodies (100k)
Inset
NC 268
US 321
NC 18
NC 90
US 64
US 64
NC 18
US 321
0
4
8
12
16 Miles
N
W
E
S

Figure 5.1

Graph 5-1

Caldwell County Urban Area
Population & Projections




Graph 5-2
Caldwell County
Population
100,000
90,000
80,000
70,000
60,000
50,000
40,000
30,000
20,000
10,000
0
1970
1980
1990
2000
2010
2025
Years

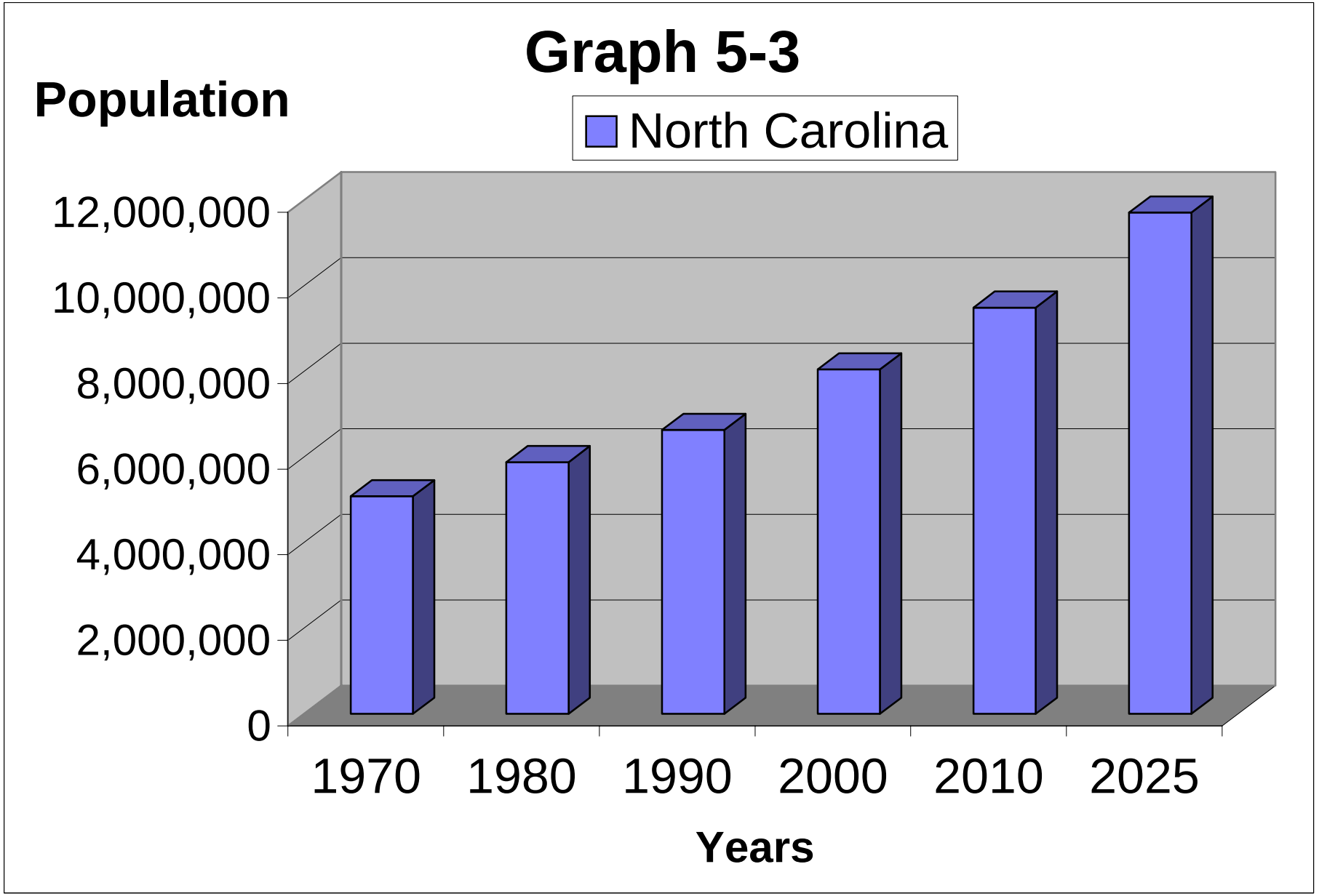

Graph 5-3
Population
North Carolina
12,000,000
10,000,000
8,000,000
6,000,000
4,000,000
2,000,000
0
1970
1980
1990
2000
2010
2025
Years

Table 5-2 shows the average number of people per dwelling unit over the last three decades. The table indicates a general trend towards fewer people per household. Fewer people per household in the future impacts trip generation rates in developing the future year model. See Chapter 7 for more information about generation rates.

Table 5-2

Average Persons Per Dwelling Unit	Data Source - US Census Bureau			
	1970	1980	1990	2000
Cajah's Mountain	not available	not available	2.776	2.384
Gamewell	not available	not available	2.470	2.428
Granite Falls	2.945	2.630	2.371	2.529
Hudson	3.230	2.732	2.391	2.325
Lenoir	3.032	2.495	2.239	2.343
Sawmills	not available	not available	2.544	2.534
Caldwell County	3.139	2.651	2.401	2.455
North Carolina	3.098	2.585	2.353	2.489

Economy and Employment

One of the more important factors to be considered in estimating the future traffic growth of an area is its economic base. The number of employers and the employee's income or purchasing power influences how much population can be supported in the area and the number of motor vehicles that will be locally owned and operated. Generally, as the family income increases so does the number of vehicles owned, as well as the number of vehicle trips generated per day by each household. An accurate estimate of an areas future economy is essential to predicting future travel demand. Factors which will influence economic growth and development in the Caldwell County Urban Area over the 25 year planning period is the continued residential development in the southern portion of the county and the continued commercial development along the US 321 and US 64/NC 18 corridors. Table 5-3 shows the employment stratification for the Caldwell County Urban Area that was derived from the 1997 socio-economic field survey data.

Table 5-3

Employment Stratification for the Caldwell County Urban Area (from IDS)

Type of Employment	**Employment 1997**	**% of Total 1997**	**Employment 2025**	**% of Total 2025**
Industrial	13,248	53%	15,914	49.5%
Retail	3,010	12%	4,027	12.5%
Highway Retail	1,574	6.3%	2,118	6.5%
Office	1,821	7.3%	2 ,201	6.9%
Service	5,354	21.4%	7, 898	24.6%
Total	25,043	100.0%	32, 158	100.0%

Table 5-4 shows a twenty-year break down of Caldwell County's employment to population ratio by industry type as compared to North Carolina as a whole. Graphical illustrations of the employment to population ratio data below are shown in Graphs 5-4 and 5-5.

Table 5-4

Employment/Population Ratio by Industry for Caldwell County vs. North Carolina

Caldwell County	**1970**	**1975**	**1980**	**1985**	**1990**
Industry	0.273	0.267	0.291	0.293	0.299
Retail	0.062	0.053	0.055	0.063	0.080
Office	0.012	0.013	0.013	0.013	0.015
Services	0.081	0.088	0.097	0.107	0.122
North Carolina	**1970**	**1975**	**1980**	**1985**	**1990**
Industry	0.230	0.208	0.222	0.217	0.215
Retail	0.079	0.081	0.095	0.109	0.124
Office	0.024	0.027	0.029	0.030	0.033
Services	0.151	0.161	0.172	0.188	0.215

It is clear from Table 5-4 that industrial based employment makes up the highest percentage of the workforce in both Caldwell County as well as in North Carolina. Industrial based employment has consistently been the leading employment type in Caldwell County and the trend is for this to continue into the future. While in North Carolina, where industrial based employment has been the leader, the trend shows the service industry catching up and exceeding industrial based employment in the future. Table 5-5 shows a trend in Caldwell County's labor statistics. March 2002 data from the NC Department of Commerce shows the unemployment rate in Caldwell County to be at 7.8%. This spike in the unemployment rate shows the affect recent economic conditions have had on Caldwell County and the State. Table 5-6 provides a list of Caldwell County's largest employers.

Table 5-5

Labor Statistics for Caldwell County

	1994	**1995**	**1996**	**1997**	**1998**	**1999**	**2000**
Labor Force	39,990	40,240	41,620	41,420	39,420	39,570	40,330
Employment	38,870	38,720	40,010	39,510	38,470	38,850	39,380
Unemployment	1,120	1,520	1,610	1,910	950	720	950
Unemployment Rate	2.8%	3.8%	3.9%	4.6%	2.4%	1.8%	2.4%

Table 5-6

Caldwell County's Largest Employers

Kincaid Furniture Co. Inc.	Thomasville Furniture Industries	Broyhill Furniture Industries
Hammary Furniture	Shuford Mills Inc.	Huffman Finishing Company
Meridian Automotive Systems	NACCO Materials Handling Group	Paxar Fabric Label Group
Lenoir Mirror Co.	NEPTCO Inc.	Bernhardt Furniture Co.
Kimble Glass Inc.	Fairfield Chair Company	American & Efird Inc.
Greer Laboratories Inc.	Sealed Air	Caldwell County Schools
Caldwell Memorial Hospital	Caldwell County Government	Caldwell Personnel Services
Caldwell Community College	& Technical Institute	

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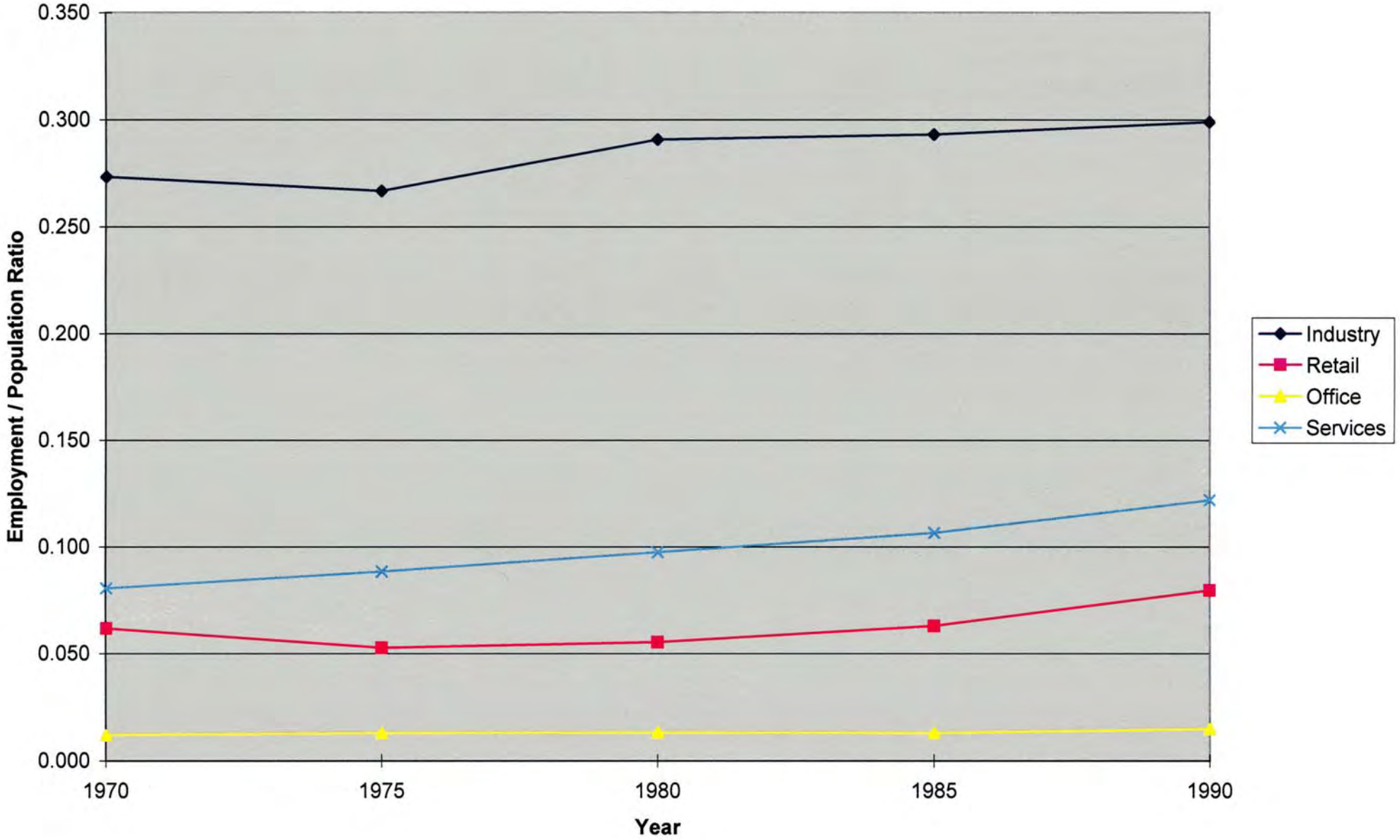
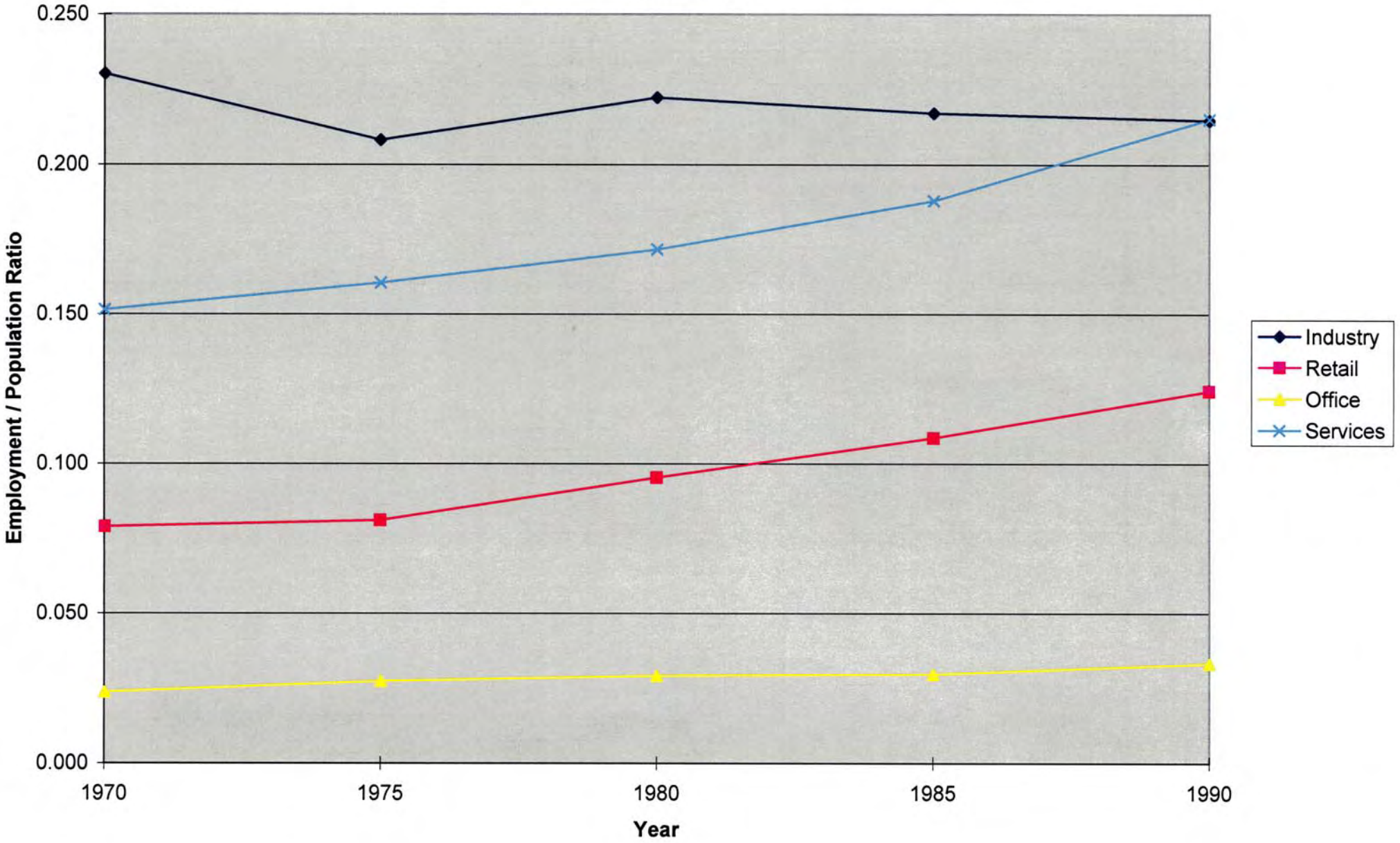
CALDWELL COUNTY
EMPLOYMENT / POPULATION RATIO BY INDUSTRY
GRAPH 5-4



NORTH CAROLINA
EMPLOYMENT / POPULATION RATIO BY INDUSTRY
GRAPH 5-5



Land Use

Land use refers to the physical patterns of activities and functions within a city or county. Nearly all traffic problems in a given area are connected in some form to the type of land use. For example, a large industrial plant might be the cause of congestion during shift change hours as its workers come and go. However, during the remainder of the day few problems, if any, may occur. The spatial distribution of different types of land use is the predominant determinant of when, where, and why congestion occurs. The attraction between different land uses and their association with travel varies depending on the size, type, intensity, and spatial separation of each.

For use in transportation planning, land uses are grouped into four main categories:

1. Residential - all land devoted to the housing of people (excludes hotels and motels)

2. Commercial - all land devoted to retail trade including consumer and business service and office

3. Industrial - all land devoted to manufacturing, storage, warehousing, and transportation of products

4. Public - all land devoted to social, religious, educational, cultural, and political activities.

A traditional land use map was not available for use with this report. However, a similar map, Figure 5.2 displays the zoning for Caldwell County. The Zoning Map shows the different types of permitted land uses as defined by the county. It is logical to anticipate that the future land use in most cases will be an extension of its present spatial distribution. Anticipating where growth is expected to occur is an integral part of proposing thoroughfares on new location and for proposing improvements to existing thoroughfares. Areas of anticipated development and growth for the Caldwell County Urban Area are shown in Figures 7.12 (Dwelling Unit Projections) and Figure 7.13 (Employment Projections). A comparison of Table 7-1 (Base Year Socioeconomic Dwelling Unit Input Data) to Table 7-3 (Design Year Socioeconomic Dwelling Unit Input Data) and Table 7-2 (Base Year Socioeconomic Employment Input Data) to Table 7-4 (Design Year Socioeconomic Employment Input Data) will quantify the information displayed in the above mentioned figures.

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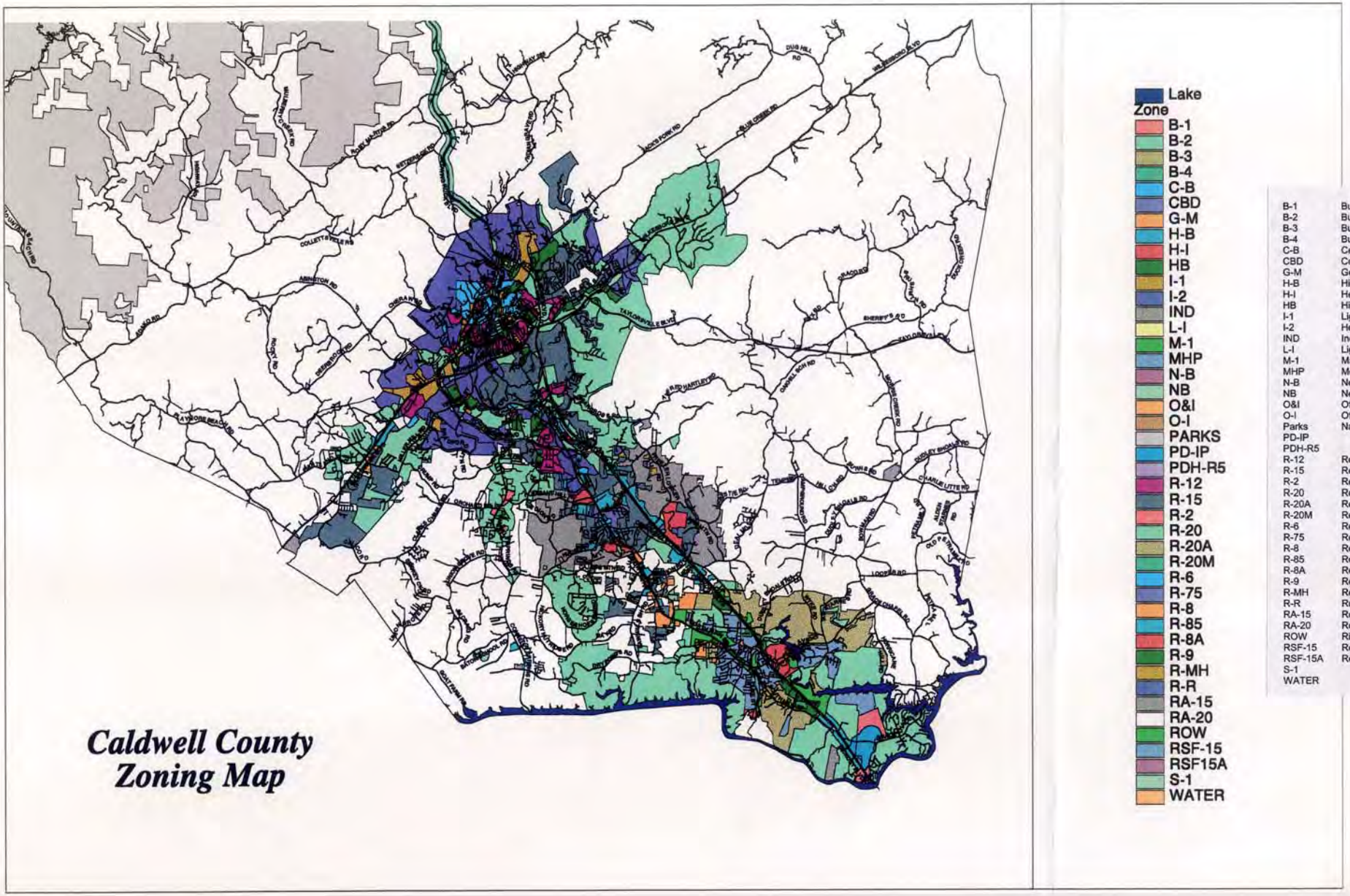

Caldwell County
Zoning Map
Lake
Zone
B-1
B-2
B-3
B-4
C-B
CBD
G-M
H-B
H-I
HB
I-1
I-2
IND
L-I
M-1
MHP
N-B
NB
O&I
O-I
PARKS
PD-IP
PDH-R5
R-12
R-15
R-2
R-20
R-20A
R-20M
R-6
R-75
R-8
R-85
R-8A
R-9
R-MH
R-R
RA-15
RA-20
ROW
RSF-15
RSF15A
S-1
WATER
B-1 Business
B-2 Business
B-3 Business
B-4 Business
C-B Central Business
CBD Central Business District
G-M General Manufacturing
H-B Highway Business
H-I Heavy Industrial
HB Highway Business
I-1 Light Industrial
I-2 Heavy Industrial
IND Industrial
L-I Light Industrial
M-1 Manufacturing
MHP Mobile Home Park
N-B Neighborhood Business
NB Neighborhood Business
O&I Office & Institutional
O-I Office & Institutional
Parks National Forest Land
PD-IP
PDH-R5
R-12 Residential (12,000 sq.ft. lots)
R-15 Residential (15,000 sq.ft. lots)
R-2 Residential
R-20 Residential (20,000 sq.ft. lots)
R-20A Residential Agricultural
R-20M Residential
R-6 Residential (6,000 sq.ft. lots)
R-75 Residential
R-8 Residential (8,000 sq.ft. lots)
R-85 Residential
R-8A Residential
R-9 Residential
R-MH Residential Mobile Home
R-R Rural Residential
RA-15 Residential Agricultural
RA-20 Residential Agricultural
ROW Right-of-way
RSF-15 Residential Single-family
RSF-15A Residential Single-family, agricultural
S-1
WATER

Figure 5.2

Chapter 6

Environmental Concerns

In recent years, environmental considerations associated with highway improvements or new construction have come to the forefront of the planning process. The legislation that dictates the necessary procedures regarding environmental impacts is the National Environmental Policy Act of 1969 (NEPA). Section 102 of this act requires the development of a detailed statement on the environmental impact of any proposed action, including evaluation of alternatives and documentation of unavoidable adverse effects. The North Carolina Department of Transportation develops Environmental Impact Statements (EIS's) for road projects that have a significant impact on the social, economic or natural environment. Less detailed statements, such as Categorical Exclusions and Environmental Assessments, are reserved for projects that do not have significant impacts on the social, economic or natural environment. Typical environmental analysis involves the evaluation of a project's impact on wetlands, water quality, historic properties, wildlife, and public lands. While this report does not cover the environmental concerns in as much detail as an EIS, preliminary research was done on several of these factors and is included in this chapter. The environmental data is displayed on Environmental Figures 6.1 and 6.2 at the end of this chapter.

Municipal Parks and Recreation Sites (Public)

The municipal parks and recreation sites listed below and displayed on Figure 6.1 will not be impacted by any of the recommendations made in the Thoroughfare Plan. Public parks are protected under Section 4 (f) of the Department of Transportation Act (23 USC Section 138 Preservation of Parklands). It is declared to be the national policy that special effort should be made to preserve the natural beauty of the countryside, public parks**,** recreation lands, wildlife, waterfowl refuges, and historic sites.

1. Granite Falls Recreation Department - 51 Pinewood Rd, Granite Falls
2. Redwood Park - Mt. Herman Road, Hudson
3. J. E. Broyhill Park and Main Office - 509 Ridge Street, Lenoir
4. Martin Luther King Center - 122 Greenhaven Drive, Lenoir
5. Lenoir Aquatic and Fitness Center - 1031 Jim Barger Court, Lenoir
6. T. Henry Wilson Athletic Park - Powell Road, Lenoir
7. T. H. Broyhill "Walking" Park - Lakeview Drive, Lenoir
8. Mulberry Recreation Center - 720 Mulberry Street, Lenoir
9. Lenoir High School Gymnasium and Auditorium - Willow Street, Lenoir
10. West End Neighborhood Park - Willow, Robbins, Vance, and Hill Street Areas, Lenoir

Please note that TIP Project U-3437 the extension of SR 1159, Pleasant Hill Road could potentially impact two baseball fields at the end of Optimist Ave in Hudson. These fields are part of the Hudson Optimist Club. TIP U-3437 is currently being studied in the NCDOT Project Development and Environmental Analysis Branch and a final alignment has not yet been established.

Ambient Water Quality Monitoring Sites

These sites are locations from where water quality is routinely sampled. This site is located along the Catawba River at Connelly Springs Road (SR 1001), as displayed on Figure 6.1. The recommendation for widening Connelly Springs Road should not pose any conflict associated with the location of this monitoring site.

Surface Water Intake

These sites are locations from where communities draw raw water from a lake, river, or stream, then treat and distribute it to residences and businesses. They are located along the Catawba River, as displayed on Figure 6.1. There are no recommendations on the Thoroughfare Plan that pose any conflict associated with the location of these water intakes.

High Quality Water Zone

These are waters that are rated as excellent based on biological and physical/chemical characteristics through North Carolina Department of Environmental and Natural Resources (NC DENR), Division of Water Quality monitoring or special studies. Waters designated as native trout waters by the Wildlife Resources Commission. Primary nursery areas designated by the Marine Fisheries Commission, and other functional nursery areas designated by the Wildlife Resources Commission or the Department of Agriculture. Water supply watersheds which are either classified as WS-I or WS-II watersheds or watersheds in which a formal petition for reclassification to a WS-I or WS-II has been received from the appropriate local government and accepted by the Division of Environmental Management. In addition, all Class SA (Shell Fishing Areas) waters are also considered to be high quality water zones. The integrity of the high quality water zone displayed on Figure 6.1 should not be threatened as a result of any recommendations made in the Thoroughfare Plan.

Wetlands – National Wetlands Inventory (NWI)

In general terms, wetlands are lands where saturation with water is the dominant factor in determining the nature of soil development and the types of plant and animal communities living in the soil and on its surface. The single characteristic that most wetlands share is soil or substrata that is at least periodically saturated with or covered by water. Unique species inhabit wetlands since water creates severe physiological problems for all plants and animals except those that are adapted for life in water or in saturated soil. Wetlands are crucial ecosystems in our environment. They help regulate and maintain the hydrology of our rivers, lakes, and streams by slowly storing and releasing floodwaters. They help maintain the quality of our water by storing nutrients, reducing sediment loads, and reducing erosion. They are also critical to fish and wildlife populations. Wetlands provide an important habitat for about one third of the plant and animal species that are federally listed as threatened or endangered. Criteria for wetland determinations are described in the "Corps of Engineers Wetland Delineation Manual" (Environmental Laboratory, 1987). Any action that proposes to place fill into these areas falls under the jurisdiction of the U.S. Army Corps of Engineers under provisions of Section 404 of the Clean Water Act, (33USC1344). The locations of wetlands can be determined using the National Wetlands Inventory Mapping, available from the U. S. Fish and Wildlife Service.

Wetland impacts are to be avoided or minimized to the greatest extent possible, while preserving the integrity of the transportation plan. Wetlands throughout the Caldwell County Urban Area are shown in Figure 6.1 as NWI (arc-24k) and NWI (poly-24k). Almost half of the Thoroughfare Plan recommendations will either minimally impact a wetland area or be in close proximity to wetlands. Therefore, just as in the case with the watershed critical area, coordination with the US Army Corps of Engineers and the North Carolina Department of Environmental and Natural Resources (NC DENR), Division of Water Quality, will be required during the project level planning, design and construction of these projects. The following Thoroughfare Plan recommendations have already been evaluated for their impacts on wetlands:

McLean Drive Extension (TIP No. U-3813) - This project has been analyzed by the Program Development and Environmental Analysis Branch. An Environmental Assessment was completed and as a result a State Finding of No Significant Impact (FONSI) has been issued. The total amount of wetlands impacted by this project is 0.05 acres. Mitigation is not required for wetland impacts less than one-tenth of an acre and therefore no wetland mitigation will be required for the construction of this project.

Connelly Springs Road (TIP No. U-2211) - This project has been analyzed by the Program Development and Environmental Analysis Branch. An Environmental Assessment was completed and as a result a State Finding of No Significant Impact (FONSI) has been issued. No jurisdictional wetlands occur within the project limit.

Cajah's Mountain Road (TIP No. R-4046) - This project has been analyzed by the Program Development and Environmental Analysis Branch. A Federal Programmatic Categorical Exclusion was issued as a result of this analysis. This simply means that the project will have no adverse affect on wetlands or any other environmental criteria.

Groundwater Recharge/Discharge Areas

These areas are displayed on Figure 6.1 and are where groundwater continually feeds into streams during dry periods, predominantly marshes and high aquifers. Widening recommendations for Wilkesboro Boulevard and US 64 /NC 18 south of Gamewell will impact these areas. Coordination with the US Army Corps of Engineers and the North Carolina Department of Environmental and Natural Resources (NC DENR) Division of Water Quality will be required during the project level planning, design and construction of these projects.

Trout Streams

These streams that are displayed on Figure 6.1 are depicting trout regulations in effect on trout streams managed under the Designated Public Trout Waters Program as listed in the 1997-98 North Carolina Inland Fishing, Hunting, and Trapping Regulations Digest. Caldwell County is one of the mountain trout counties that contain waters classified as public trout waters. The North Carolina Wildlife Resources Commission (WRC) determines public trout waters. Construction permits are not issued in Caldwell County without certification from the WRC that project construction will not adversely impact trout waters. There are no conflicts between the trout streams in Caldwell County and the recommendations made in the Thoroughfare Plan.

Water Supply Watershed Critical Area

These areas that are displayed on Figure 6.1 are adjacent to a water supply intake or reservoir where risk associated with pollution is greater than from the remaining portions of the watershed. The watershed critical area is that land which is directly adjacent to the Catawba River and contains much of the County's wetlands. Because the water supply watershed critical area is the area closest to where drinking water is drawn for human consumption, very stringent regulations are in place regarding construction in this area. The North Carolina Department of Natural Resources (NC DENR) Division of Water Quality (DWQ) requires a permit for water quality certification prior to any project construction within the critical area. Close coordination with the DWQ and the US Army Corps of Engineers will be necessary during the project level analysis of recommendations made within the critical area. The widening recommendations for US64/NC18, Connelly Springs Road, Grace Chapel Road and US 321 will all occur within the critical area. Recommendations for new locations from Dry Ponds Road to Goat Farm Road, Myers Road to US 321, Grace Chapel Road to NC 127 in Catawba County and Grace Chapel Road to NC 127 in Alexander County would also occur within the critical area. A new location project must have very good justification before the resource agencies mentioned above would issue permits for construction. The above mentioned recommendations are all anticipated to be needed within the planning horizon, however, they will all come under close scrutiny during the project level environmental analysis.

Water Supply Watershed Protected Area

These areas that are displayed on Figure 6.1 are adjoining and upstream of the critical area within a water supply watershed in which protection measures are required. The majority of southern Caldwell County is located in the water supply watershed protected area. There are several Thoroughfare Plan recommendations that fall within the protected area. Recommendations in this area, like with the watershed critical area and wetlands, will require permitting and coordination with the US Army Corps of Engineers and the North Carolina Department of Environmental and Natural Resources (NC DENR), Division of Water Quality, during the project level planning, design and construction of these projects.

The following are definitions of the various Watershed Classifications:
***Water Supply I (WS-I**) Waters used as sources of water supply for drinking, culinary, or food processing purposes for those users desiring maximum protection for their water supplies. WS-I waters are those within natural and undeveloped watersheds in public ownership with no permitted point source (wastewater) discharges.

***Water Supply II (WS-II**) Waters used as sources of water supply for drinking, culinary, or food processing purposes for those users desiring maximum protection for their water supplies where a WS-I classification is not feasible. WS-II waters are generally in predominantly undeveloped watersheds.

***Water Supply III (WS-III**) Waters used as sources of water supply for drinking, culinary, or food processing purposes for those users where a more protective WS-I or II classification is not feasible. WS-III waters are generally in low to moderately developed watersheds.

***Water Supply IV (WS-IV**) Waters used as sources of water supply for drinking, culinary, or food processing purposes for those users where a more protective WS-I, II or III classification is not feasible. WS-IV waters are generally in moderate to highly developed watersheds or protected areas.

***Water Supply V (WS-V)** Waters protected as water supplies which are generally upstream and draining to Class WS-IV waters or waters used by industry to supply their employees with drinking water or as waters formerly used as water supply. WS-V has no categorical restrictions on watershed development or wastewater discharges like other WS classifications and local governments are not required to adopt watershed protection ordinances.

Class B Waters used for primary recreation and other uses suitable for Class C. Primary recreational activities include swimming, skin diving, water skiing, and similar uses involving human body contact with water where such activities take place in an organized manner or on a frequent basis. There are no restrictions on watershed development activities, discharges must meet treatment reliability requirements such as backup power supplies and dual train design.

Class C Waters protected for secondary recreation, fishing, wildlife, fish and aquatic life propagation and survival, agriculture and other uses suitable for C. Secondary recreation includes wading, boating, and other uses involving human body contact with water where such activities take place in an infrequent, unorganized, or incidental manner. There are no restrictions on watershed development activities.

**Wastewater discharge and storm water management requirements are applicable.*

Threatened and Endangered Species (Natural Heritage Sites)

A review of the State and Federally Listed Threatened and Endangered Species is done to determine the effect that recommended new road corridors or widening projects could have on the wildlife. Threatened or endangered species are identified using mapping from the North Carolina Department of Environment and Natural Resources, Natural Heritage Program. Caldwell County has 38 total records pertaining to the Natural Heritage Program. Of the 38 records 12 records are on the Federal List and 5 records are on the State List. Sites within the Caldwell County Urban Area are displayed on Figure 6.2.

The Federal List - These statuses are designated by the US Fish and Wildlife Service. Federally listed Endangered and Threatened Species are protected under the provisions of the Threatened and Endangered Species Act of 1973, as amended through the 100th Congress. This allows the US Fish and Wildlife Service to impose measures for mitigation of the environmental impacts of a road project on endangered plants and animals and critical wildlife habitats.

The State List - The statuses of plants and animals differ on the state list. The Plant Conservation Program (NC Department of Agriculture) and the Natural Heritage Program determine plant statuses. State law (The Plant Protection and Conservation Act, 1979) protects Endangered, Threatened, and Special Concern species of plants. Candidate and Significantly Rare designations indicate rarity and the need for population monitoring and conservation action.

The Wildlife Resources Commission and the Natural Heritage Program determine animal statuses. Endangered, Threatened, and Special Concern species of mammals, birds, reptiles, amphibians, freshwater fishes, and freshwater and terrestrial mollusks have legal protection status in North Carolina. The Significantly Rare designation indicates rarity and the need for population monitoring and conservation action.

The following is a listing of plant and animal species on the North Carolina, Natural Heritage Program. *Database (NC Natural Heritage Program Database last updated: January 2002)*

Federal Listing:

1. Allegheny Woodrat (mamal)
2. Spruce-fir Moss Spider (arachnid)
3. Moutain River Cruiser (insect)
4. Edmund's Snaketail (insect)
5. Diana Fritillary (insect)
6. Mountain Bittercress (plant)
7. Bent Avens (plant)
8. Dwarf-flowered Heartleaf (plant)
9. Heller's Blazing Star (plant)
10. Gray's Lilly (plant)
11. Sweet Pinesap (plant)
12. Riverbank Vervain (plant)

State Listing:

1. Allegheny Woodrat
2. Bent Avens
3. Dwarf-flowered Heartleaf
4. Heller's Blazing Star
5. Gray's Lilly

For other less critically categorized plant and animal species in Caldwell County, as well as a much more detailed explanation of status categories, see the North Carolina Natural Heritage Program website listed at the end of this chapter.

By locating rare species in the planning stage of road construction, avoidance or minimization of these impacts is possible. Although there should not be any direct conflicts to any Natural Heritage Elements, US 321 is recommended for future widening and has two identified sites within close proximity. The Project Development and Environmental Analysis Branch will investigate these site locations in greater detail during project level analysis, and if necessary, will address these issues further at that time.

National Pollutant Discharge Elimination System Sites (NPDES)

These sites represent surface water discharge locations as recorded on permits issued for National Pollutant Discharge Elimination System Sites. These sites are associated with area business locations. There are many of these sites along US 321 and US 321A, which are both recommended for future widening. The widening of these roads should occur primarily along existing state right-of-way. There is also a site in close proximity to the proposed two-lane connector between Taylorsville Road and Wilkesboro Boulevard. There should not be any major conflicts between these sites displayed on Figure 6.2 and the recommendations made in the Thoroughfare Plan. The Project Development and Environmental Analysis Branch will investigate these site locations in greater detail during project level analysis, and if, necessary will address them at that time.

Water Distribution Systems – Water Treatment Plants

Water treatment plants are where raw water is treated and purified for human consumption. There are no conflicts between these facilities displayed on Figure 6.2 and the recommendations made in the Thoroughfare Plan.

Air Quality Pollution Discharge Points

Air quality pollution discharge points indicate where air pollution sources including manufacturing facilities, power plants, food storage facilities, and heating plants are located as compiled by the North Carolina Department of Environmental and Natural Resources, Division of Air Quality. There should not be any conflicts between these locations displayed on Figure 6.2 and the recommendations made in the Thoroughfare Plan.

Historic Sites

The locations of historic sites in the Caldwell County Urban Area were investigated to determine the possible impacts of the various projects studied. The federal government has issued guidelines requiring all State Transportation Departments to make special efforts to preserve historic sites. In addition, the State of North Carolina has issued its own guidelines for the preservation of historic sites. These two pieces of legislation are described below:

> **National Historic Preservation Act -** Section 106 of this act requires state departments of transportation to identify historic properties listed in the National Register of Historic Places and properties eligible to be listed. State departments of transportation must consider the impacts of transportation projects on these properties and consult with the Federal Advisory Council on Historic Preservation.
>
> **NC General Statute 121-12(a) -** This statute requires the NCDOT to consider impacts of transportation projects on National Register properties. The North Carolina Historical Commission is given an opportunity to review potential impacts and make advisory recommendations. Figure 6.2 displays the historic properties within the Caldwell County Urban Area that are listed on the National Register of Historic Places. The seven historic properties listed on the National Register of Historic Places in Caldwell County are listed below.

Section 4 (f) of the Department of Transportation Act part 23 USC Section 138 Preservation of Parklands states: It is declared to be the national policy that special effort should be made to preserve the natural beauty of the countryside and public park and recreation lands, wildlife and waterfowl refuges, and **historic sites**.

National Register for Historic Places in Caldwell County
Properties within the Caldwell County Urban Area Planning Boundary displayed on Figure 6.2 are displayed with an asterisk.

1. *Caldwell County Courthouse (Lenoir) placed on the National Register 5/10/1979
2. Clover Hill (Patterson Vicinity) placed the National Register 5/25/1973
3. Fort Defiance (Patterson Vicinity) placed on the National Register 9/15/1970

4. William Hagler House (Grandin Vicinity) placed on the National Register 12/28/1982
5. *Lenoir High School (Lenoir) placed on the National Register 8/2/1990
6. *Mary's Grove (Lenoir) placed on the National Register 4/25/2001
7. *E.A. Poe Jr. House (Lenoir) placed on the National Register 5/8/2001

The State of North Carolina Historic Preservation Office maintains a list of properties that are potential candidates for inclusion in the National Register of Historic Properties. This Study List has been provided below as an informational resource.

The State of North Carolina Historic Preservation Office Study List

Babb House (Granite Falls)
James H Beall, Sr. Summer House (Lenoir)
David E. Bower House (Yadkin Valley Vicinity)
Chapel of Rest (Happy Valley)
McCaleb Coffey House (Patterson Vicinity)
James Collett House (Collettsville Vicinity)
A.G. Corpening House (Baton Vicinity)
John Eli Corpening House (Gamewell)
Courtney Block Historic District (Lenoir)
Davenport Music Building (Lenoir)
Hugh A. Dobbin House (Legerwood Vicinity)
Dula-Horton Cemetery (Grandin Vicinity)
Leonard"Boone"Estes Farm (Collettsville Vicinity)
The Fountain (Happy Valley Vicinity)
Wiley Gaither House (Lenoir)
Gard Hall at Patterson School (Patterson Vicintiy)
Grandin Historic District (Grandlin Vicinity)
Grey stone (Legerwood Vicinity)
James Haigler House (Lenoir)
Harper's Chapel Methodist Ch. & Cem. (Patterson Vic.)
Hawkins House (Buffalo Cove Vicinity)
James Houck House (Granite Falls)
Lenoir Historic District (Lenoir)
Lenoir Mills (Lenoir)
Walter James Lenoir House (Yadkin Valley Vic.)
Augustus Little House (Gamewell Vicinity)
Moriah's Chapel (Legerwood Vicinity)
Montrose Academy (Lenoir)
Municipal Building (Granite Falls)
Patterson Mill Houses (Patterson Vicinity)
John P. Rabb House (Lenoir)
John L. Jones House (Grandlin Vicinity)
Shuford Farm & Blackstone Post Office (Laytown)
St. Francis of Assisi Catholic Ch. & Parish House (Lenoir)
Benedict Marcus Tuttle House (Gamewell Vicinity)
United States Post Office (former) (Lenoir)
D.H. Warlick House (Granite Falls)
Woods Barber Shop (PattersonVicinity)

Please note that the Scroggs Street Extension in Lenoir, which has been adopted on the Thoroughfare Plan, would impact the E.A. Poe Jr. House if constructed. It was agreed that this small connector would be removed from the 2002 Updated Caldwell County Urban Area Thoroughfare Plan but was mistakenly left on. The Scroggs Street Extension is not included on the recommendation map and should be deleted from the Thoroughfare Plan Map at the next available opportunity. All other historic properties on the National Register within the Caldwell County Urban Area should not be affected by the projects proposed in the thoroughfare plan. All reasonable efforts are made to minimize the impact to identified historic sites and natural settings when widening existing roads or constructing new facilities. A more detailed study will always be done in regard to local historic sites prior to construction of any project.

Solid Waste Facilities

These facilities are locations of active municipal solid waste landfills and permit numbers in North Carolina. There should not be any conflicts between these facilities displayed on Figure 6.2 and the recommendations made in the Thoroughfare Plan.

Hazardous Waste Facilities

These facilities are locations of treatment storage and disposal facilities regulated under the requirements of the Resource Conservation and Recovery Act (RCRA) and must have an RCRA permit issued by the Division of Waste Management-Hazardous Waste Section, to operate. There should not be any conflicts between these facilities displayed on Figure 6.2 and the recommendations made in the Thoroughfare Plan.

Hazardous Substance Disposal Sites (Superfund)

The locations of uncontrolled and unregulated hazardous waste sites (formerly called Superfund Sites) displayed on Figure 6.2. This data file includes sites on the CERCLA Information System (CERCLIS) National Priorities List, the State Inactive Hazardous Sites List, the Sites Priority List, and some Department of Defense files. There should not be any direct conflicts between these sites and recommendations made in the Thoroughfare Plan. Please note that there are identified disposal sites along both US 321 and US 321A, which are recommended for future widening. Also, there is an identified site north of the Smith's Crossroads intersection, which has been recommended for a future single point diamond interchange. The Project Development and Environmental Analysis Branch will investigate these site locations in greater detail during a project level analysis and, if necessary, will address at that time.

Federally Owned Lands

The land in North Carolina owned and managed by the United States government is displayed on Figure 6.2. None of the Thoroughfare Plan recommendations will impact federally owned lands.

Archaeology

There are no known archaeology sites of significance within the Caldwell County Urban Area Planning Boundary. A more detailed study to identify potential archaeological sites will be done prior to the construction of any of the Thoroughfare Plan recommendations.

Internet Website Resources

The following is a list of Internet Web Sites, which are provided to give additional information about the environmental data discussed above, and the resource agencies responsible for managing them:

The North Carolina Center for Geographic Information and Analysis
http://cgia.cgia.state.nc.us:80/cgia/index.html

The CGIA data list has descriptions of corporate geographic data (most of the above mentioned environmental concerns). Click on the *Catalog* and *FAQ* links to get information and mapping on the desired layer (make sure you scroll down on the page to see the different data layers).
http://cgia.cgia.state.nc.us:80/cgdb/datalist.html

North Carolina MAPNET is a free service provided by the State of North Carolina. The site provides public access to geographic information and maps of North Carolina.
http://www.ncmapnet.com

The US Fish and Wildlife National Wetlands Inventory
www.nwi.fws.gov

The National Fish and Wildlife Foundation
www.nfwf.org

The North Carolina Natural Heritage Program (information on threatened and endangered species) http://ils.unc.edu/parkproject/nhp/index.html. Click on the Database link to do a search by specific county or by USGS 7.5-minute Quadrangle maps. The USGS Quad maps that are in or overlap Caldwell County are: Grandfather Mountain, Globe, Buffalo Cove, Grandin, Boomer, Chestnut Mtn, Collettsville, Lenoir, Kings Creek, Ellendale, Morganton North, Drexel, Granite Falls, and Bethlehem. An explanation of all the codes and status definitions used in the Database, are provided at http://www.ncsparks.net/nhp/codes.html, which is linked from the Database. This explains, for example, the difference between endangered, threatened, special concern and significantly rare as well as many others status types.

The US Fish and Wildlife Endangered Species Program
www.endangered.fws.gov

The United States Department of the Interior
www.doi.gov (Go to the links for *Bureaus, Offices, and Index*)

National Wetlands Inventory
www.nwi.fws.gov

North Carolina Department of Environment and Natural Resources (NC DENR)
www.enr.state.nc.us (Go to the link for Divisions and Contacts) Here you will find links to the Division of Waste Management, Division of Water Quality, Division of Air Quality, Division of Water Resources, Division of Parks and Recreation and many more Divisions of the NC DENR.

North Carolina State Historic Preservation Office
www.hpo.dcr.state.nc.us

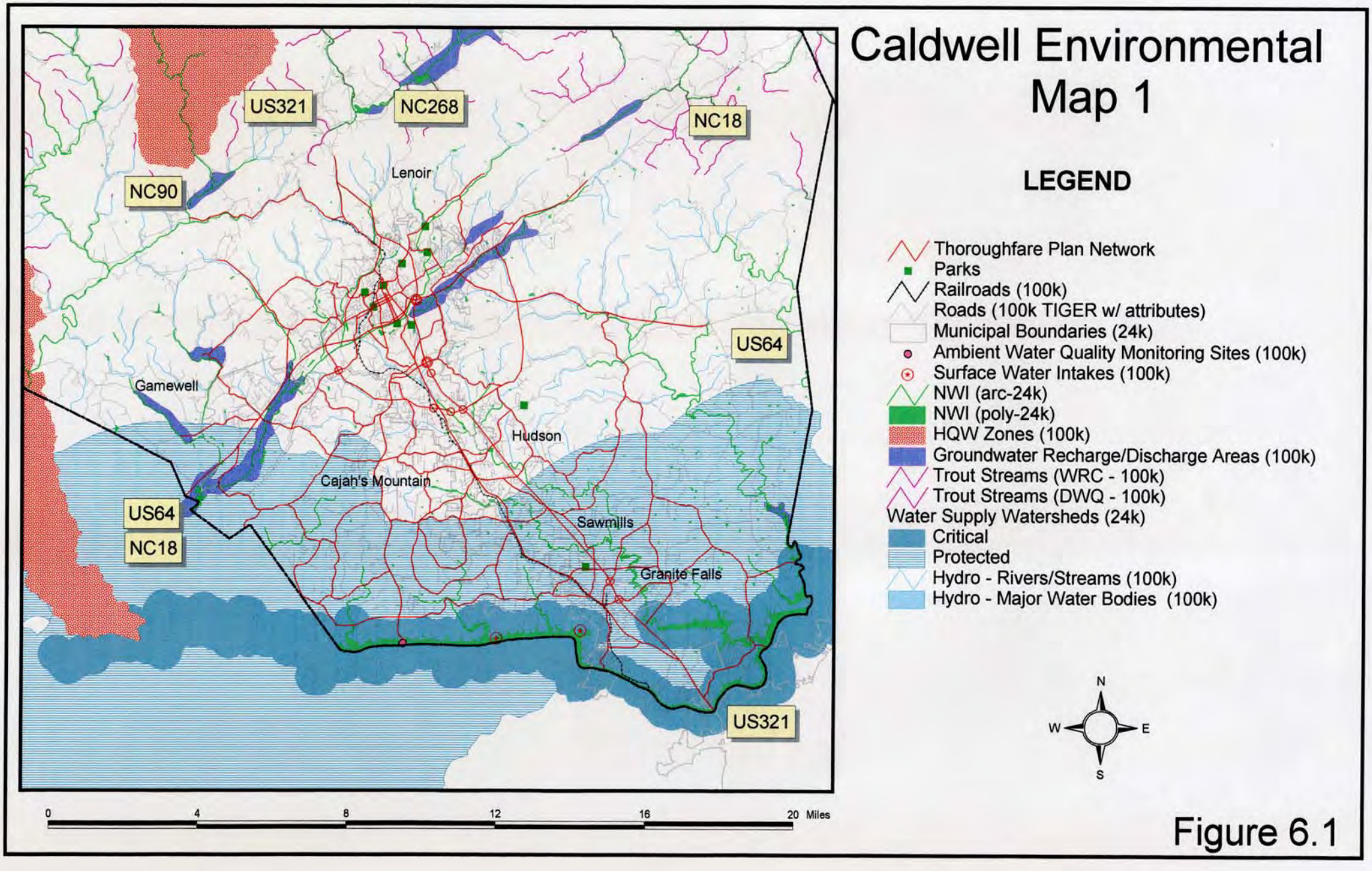

Caldwell Environmental Map 1
LEGEND
Thoroughfare Plan Network
Parks
Railroads (100k)
Roads (100k TIGER w/ attributes)
Municipal Boundaries (24k)
Ambient Water Quality Monitoring Sites (100k)
Surface Water Intakes (100k)
NWI (arc-24k)
NWI (poly-24k)
HQW Zones (100k)
Groundwater Recharge/Discharge Areas (100k)
Trout Streams (WRC - 100k)
Trout Streams (DWQ - 100k)
Water Supply Watersheds (24k)
Critical
Protected
Hydro - Rivers/Streams (100k)
Hydro - Major Water Bodies (100k)
US321
NC268
NC18
NC90
Lenoir
US64
Gamewell
Hudson
Cajah's Mountain
US64
NC18
Sawmills
Granite Falls
US321
N
W
E
S
0
4
8
12
16
20 Miles

Figure 6.1

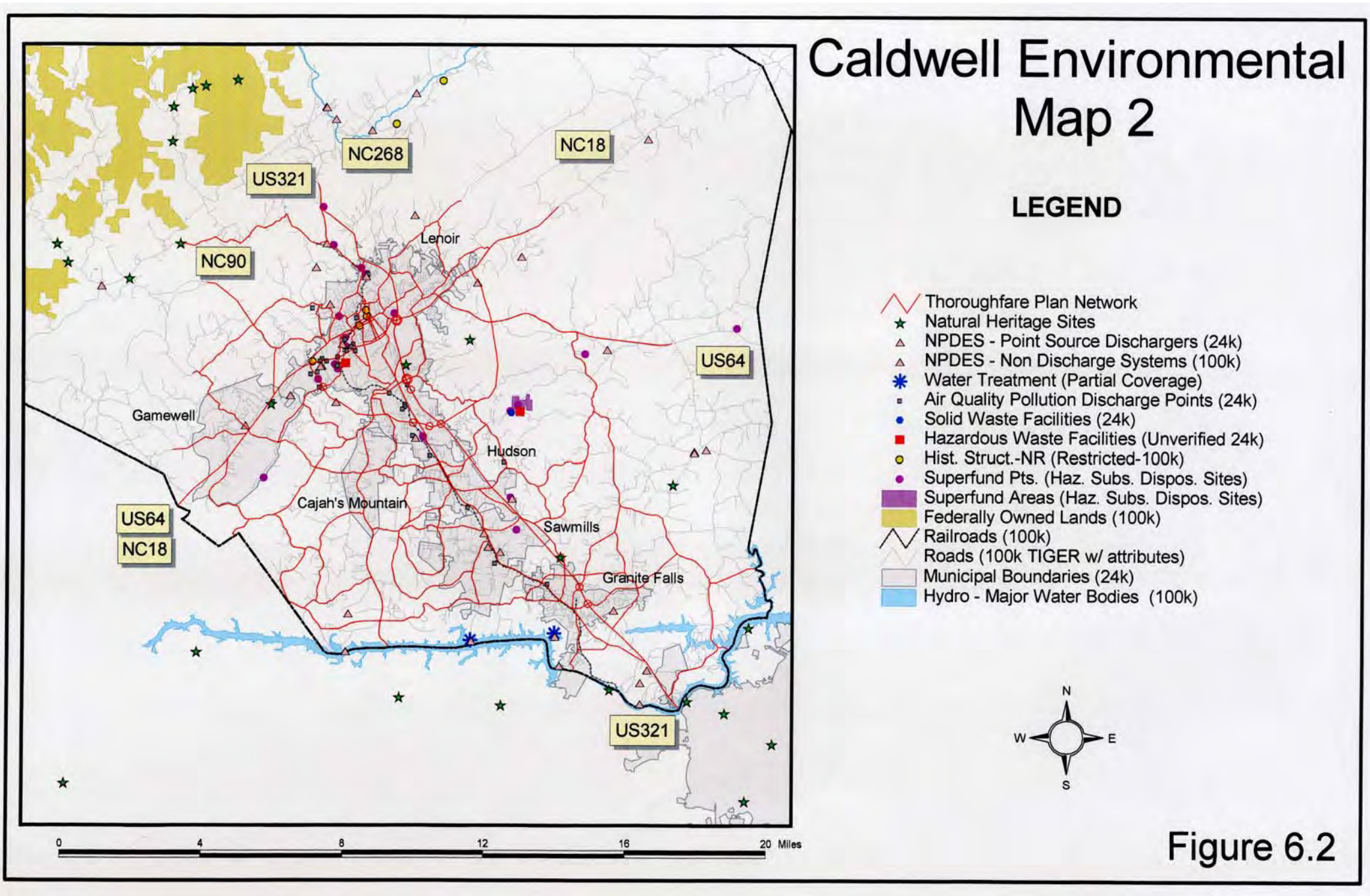

Caldwell Environmental Map 2
LEGEND
Thoroughfare Plan Network
Natural Heritage Sites
NPDES - Point Source Dischargers (24k)
NPDES - Non Discharge Systems (100k)
Water Treatment (Partial Coverage)
Air Quality Pollution Discharge Points (24k)
Solid Waste Facilities (24k)
Hazardous Waste Facilities (Unverified 24k)
Hist. Struct.-NR (Restricted-100k)
Superfund Pts. (Haz. Subs. Dispos. Sites)
Superfund Areas (Haz. Subs. Dispos. Sites)
Federally Owned Lands (100k)
Railroads (100k)
Roads (100k TIGER w/ attributes)
Municipal Boundaries (24k)
Hydro - Major Water Bodies (100k)
NC268
NC18
US321
NC90
Lenoir
US64
Gamewell
Hudson
Cajah's Mountain
Sawmills
Granite Falls
US64
NC18
US321
N
W
E
S
0
4
8
12
16
20 Miles

Figure 6.2

Chapter 7

Travel Demand Model Development

In order to develop an efficient thoroughfare plan for the Caldwell County Urban Area, it was necessary to develop and calibrate a travel demand model for the area. To develop the travel demand model it was necessary to define the study area and project socio-economic data for the area to the design year (2025). Once this has been completed, the model is used to identify existing and future roadway deficiencies and then as a tool for evaluating potential future projects which address the identified deficiencies (anticipated traffic congestion). The software program Tranplan was used to develop the model.

The Study Area

The study area for the Caldwell County Urban Area, that was included in the model, is shown on Figure 7.1(Zone Map) and Figure 7.1a (Zone Map With Roads Showing). This figure shows the planning area and the traffic analysis zones (TAZ's). There are 325 TAZ's or traffic analysis zones, which subdivide the planning area for data collection and aggregation. These zones try to reflect similar land use throughout the planning area. The housing and employment data used in developing the model was collected in 1997. The socio-economic data projections for year 2025 were made utilizing information provided by the Caldwell County Urban Area Advisory Committee, and other local area staff and from past trends of previous census data and projections by the Office of State Planning and Budget.

The Base Year Network

The purpose of the travel demand model is to replicate the conditions on the Caldwell County Urban Area roadway system. Therefore it is necessary to represent the existing street system in the model. There is a balance between having too many streets on the model to allow it to be calibrated and not having enough streets to realistically duplicate existing conditions. Generally, all the major arterials and some of the major land access or collector streets need to be represented.

Speed and distance are the major factors on the network links that define the minimum time paths between zones. The model uses the minimum time paths as the basis for assigning traffic to roads. Generally in the Caldwell County Urban Area model, the speeds assigned to links of the roadway system are at the posted speed limit. Figures 7.2 and 7.3 (Lenoir Inset) show the Tranplan network, which include the system nodes, links and centriods. Roadway capacity is also an important component of the model. The volume/capacity ratio (v/c) gives the best indication of present and future traffic congestion.

Data Requirements

In order to produce an adequate travel demand model for the study area, two additional types of data are required. First, traffic counts are collected on routes used in the model to provide a

basis for model calibration. These counts provide a snapshot of the traffic conditions in the study area. Second, is socio-economic data, an inventory of both housing and employment data is necessary in order for the model to generate traffic.

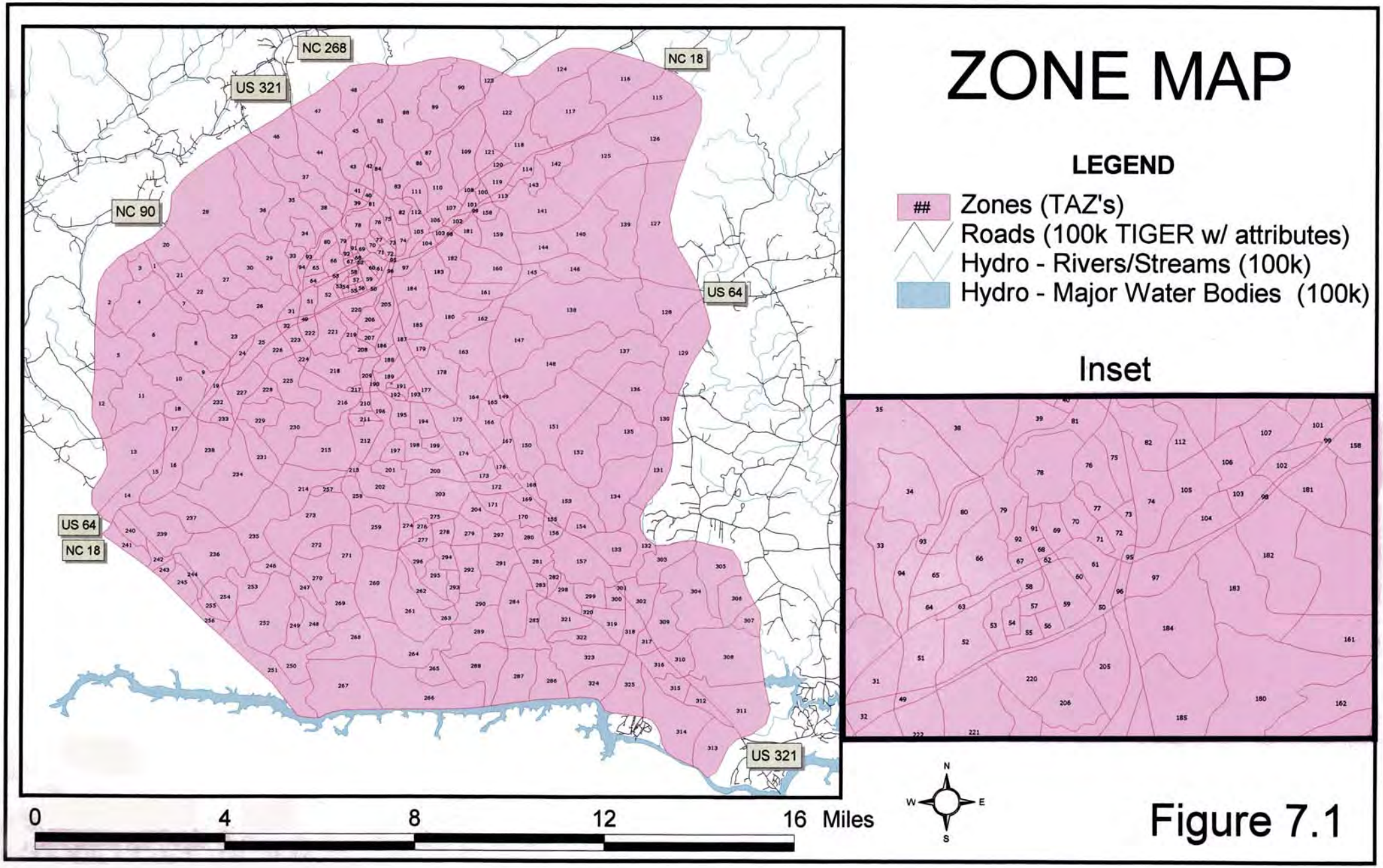
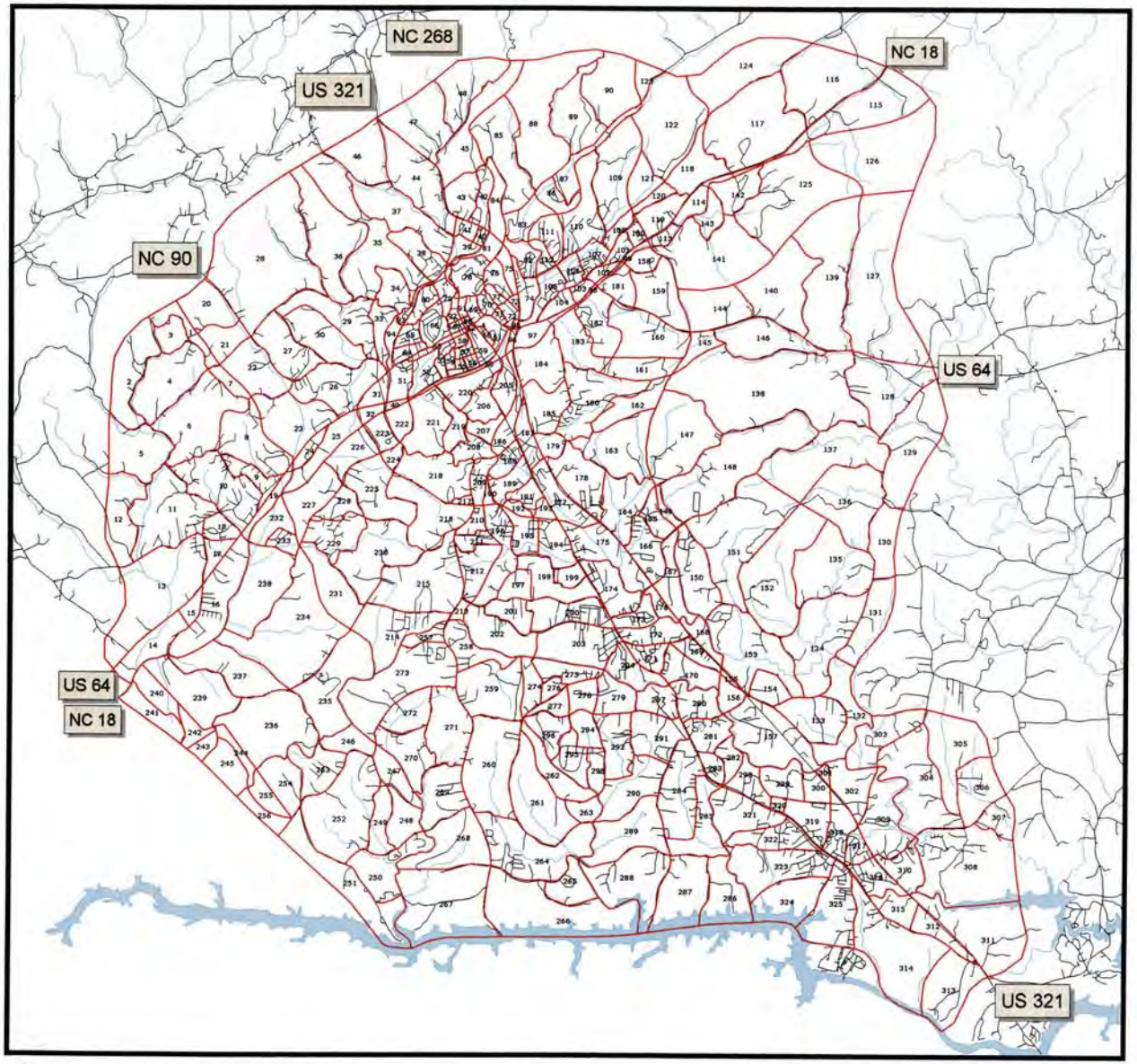

ZONE MAP
LEGEND
Zones (TAZ's)
Roads (100k TIGER w/ attributes)
Hydro - Rivers/Streams (100k)
Hydro - Major Water Bodies (100k)
Inset
NC 268
US 321
NC 18
NC 90
US 64
US 64
NC 18
US 321
0
4
8
12
16 Miles
N
W
E
S

Figure 7.1



ZONE MAP

With Roads Showing

LEGEND

- ## Zones (TAZ's)
- Roads (100k TIGER w/ attributes)
- Hydro - Rivers/Streams (100k)
- Hydro - Major Water Bodies (100k)

0 4 8 12 16 Miles

N W E S

Figure 7.1a

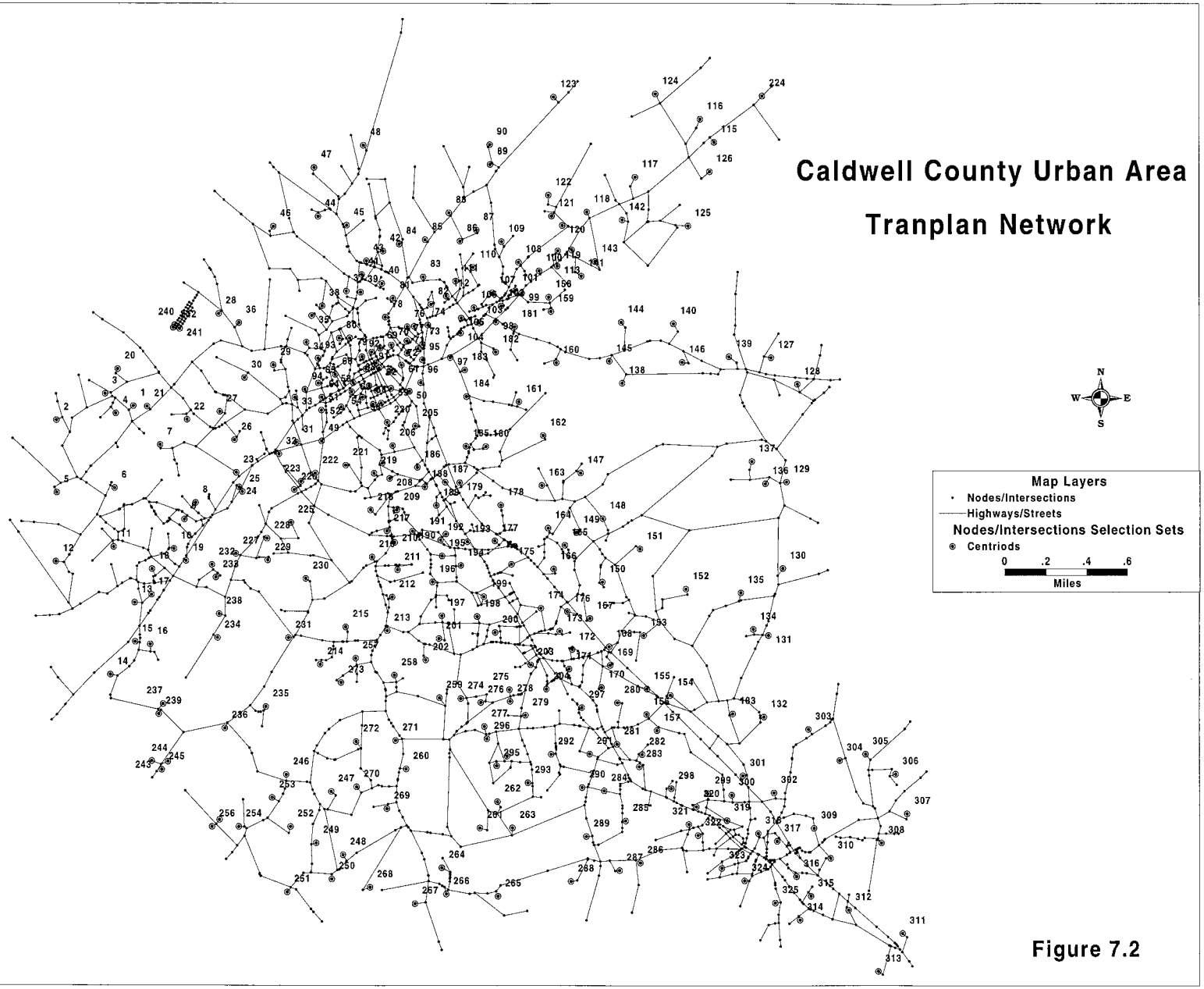
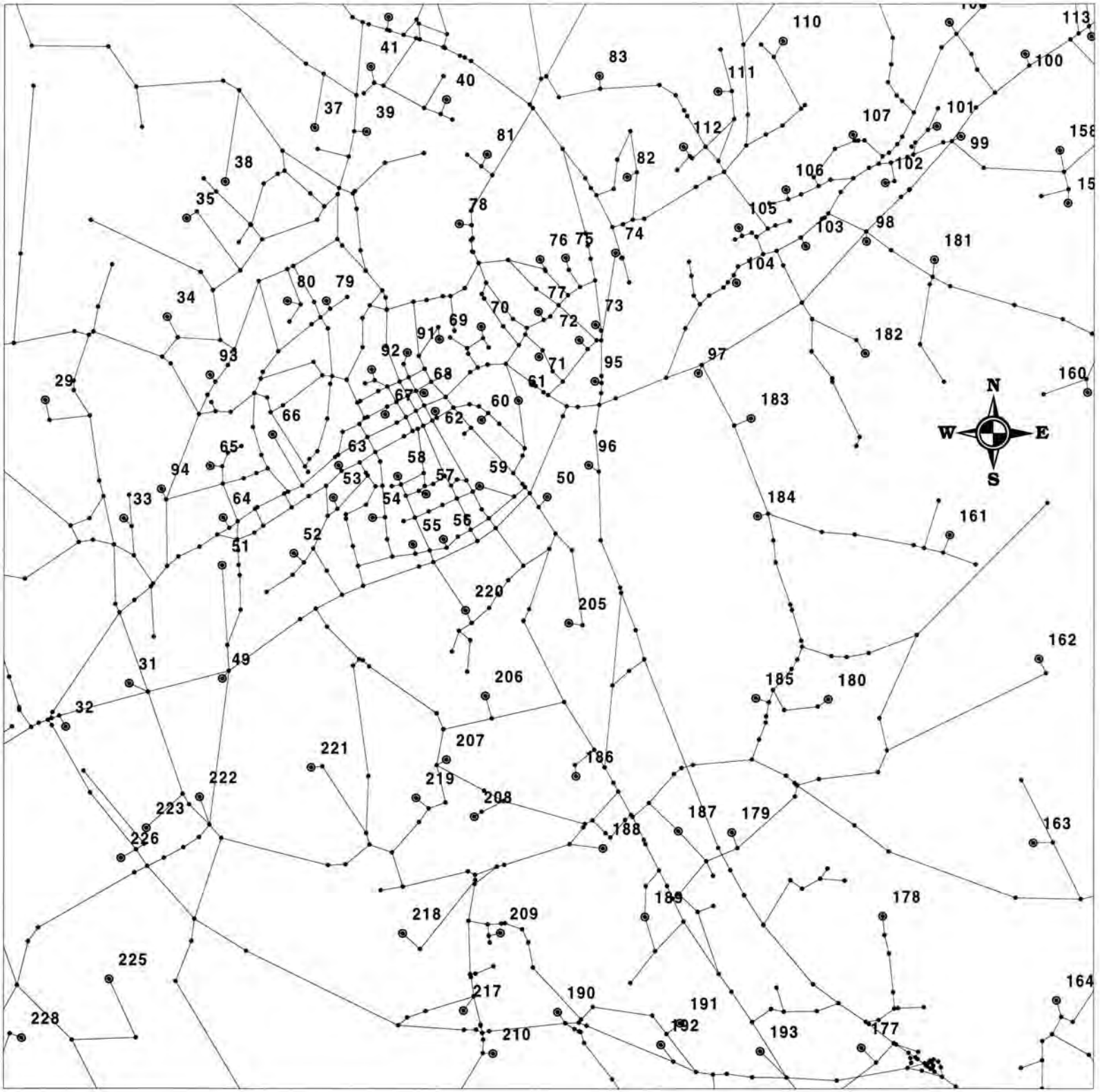

Caldwell County Urban Area
Tranplan Network
N
W
E
S
Map Layers
Nodes/Intersections
Highways/Streets
Nodes/Intersections Selection Sets
Centriods
0 .2 .4 .6
Miles

Figure 7.2



Lenoir Area Inset
Tranplan Network

Figure 7.3

Traffic Counts

The model must be calibrated against existing conditions in the study area. In order to calibrate the model, traffic counts must be taken at various locations throughout the study area. Traffic counts must also be collected on all routes crossing the planning area boundary. These counts are called Cordon Counts and show how much traffic is entering and exiting the study area. The 24, 48, and 72-hour ground counts, as well as the classification counts for much of the Caldwell County Urban Area study were collected during 1997. These traffic count locations are shown in Figures 7.4 through 7.10. Additionally, Annual Average Daily Traffic Counts (AADT's) for Caldwell County from 1997 and 1998 were considered in the calibration of the model.

Socio-economic Data and Projections

The socio-economic data required for the model consists of both a housing inventory and an employment inventory. The housing inventory data is used for the generation of trips and the employment inventory data is used for the attraction of trips.

Household income is used as indicator of the average number of household trips made. Since there is no adequate method for determining household income, the type and quality of housing was used as an indicator of household income. The housing inventory was divided into five categories: excellent, above average, average, below average, and poor. Each of these categories was assigned a slightly different trip generation rate.

The employment data collected was ultimately broken out by Standard Industrial Code classification and grouped into five categories: industry, retail, highway retail, office and services. This data was used with regression equations developed from an origin and destination survey of a similar size area study to produce an attraction factor for each zone.

In order to make use of the model for future year analysis, or what is often referred to as the design year, the base year data must first be modified to reflect all the assumed conditions in the design year. These projections along with the previously developed regression equations (see page 7-63) were used to produce the future productions and future attractions (future internal trips) in the same manner as with the base year. The future external and through trips are projected from the base year using historic traffic growth rates at each external station bordering the planning area.

Dwelling Unit Projections

Future dwelling units were determined by considering statistics provided by the Office of State Planning and Demographics and the use of the LINC database (Log into North Carolina). Other considerations were statistics were from the U.S. Census Bureau and the number of locally issued building permits. The Transportation Planning Branch, with the help of the local area planning staff and the County Transportation Committee, projected and distributed the anticipated 2025 dwelling units throughout the planning area where the additional housing growth was expected to occur. Those projections were then added to the 1997 dwelling unit data that was field collected.

Employment Projections

Future employment was determined by considering statistics provided through the Office of State Planning and Demographics and by using the LINC database (Log Into North Carolina). Additionally, employment statistics were also provided through the Caldwell County Economic Development Commission and local planning departments. The Transportation Planning Branch, with the help of local area planning staff and the Transportation Advisory Committee, projected and distributed the anticipated 2025 employment throughout the planning area where the additional employment growth was expected to occur. Those projections were then added to the 1997 employment data that was field collected. The socioeconomic data used in this study is shown in Figures 7.11 through 7.13 and is quantified by zone in Tables 7-3 through 7-6. The data shown is from the original number of zones (325 total) that was collected in the field for use in this study. To aid in the calibration of the model, zones 59, 177, 187, 200 and 318 were ultimately subdivided into smaller areas or sub zones. Zone 59 was subdivided creating zones 326 and 327. Zone 318 was subdivided creating zone 328. Zone 187 was subdivided creating zone 329. Zone 177 was subdivided creating zones 330, 331 and 332. And finally, zone 200 was subdivided to creating zone 333.

Commercial Vehicles

Commercial vehicles have somewhat different trip generation characteristics than privately owned vehicles. An inventory of all commercial vehicles was done at the same time as the employment and housing inventory. There were slightly fewer commercial vehicles estimated for the design year than surveyed for use in the base year data. These trips are distributed as non-home based trips.

Trip Generation

Trip generation is a process where the external station volumes, housing data, and employment data are used to generate traffic volumes that duplicate the traffic volumes on the street network. The technical definition of a trip is slightly different than the definition of a trip used by the general public. Technically a trip only has one origin and one destination while the layman will often group, or chain, several short trips together as one longer trip. It is important to note that all trips are modeled as two-way trips. Traffic inside the study area has three major components: through trips, internal-external trips, and internal trips. Through trips originate outside the planning area and pass through the planning area in route to a destination outside the planning area. Internal-external trips have one end of the trip outside of the planning area. Internal trips have both their origin and destination inside the planning area. For clarity the internal trips are further subdivided into trip purposes. These trip purpose types include home-based work (HBW), home-based other (HBO), and non-home based (NHBO) trips. Home-based work trips are a fairly straightforward concept in that they are simply the trip between home and work. If a planning area has a high employment-to population ratio there may be justification for increasing the proportion of HBW trips. Conversely, if there is relatively low employment opportunity in the area, this percentage may be lower than the given range. HBW trips conventionally have the longest average trip lengths of the internal trips because workplaces are fixed destinations. Home-based other trips encompass any trip that originates in the home and has a destination

other than work. This should always be the largest portion of internal trips because it incorporates such a broad variety of activities (home-to-shopping, home-to-recreation, home-to school, etc.) HBO trips should have a shorter average trip length than HBW trips because there is more choice in activities, such as shopping, so drivers can choose closer destinations. Non-home based trips usually make up almost a third of the internal trips and include all internal trips that originate at some point other than the home (i.e. a trip from work to the store, on the way home from work). NHB trips should have the shortest average trip length of all the internal trips due to the type of activities included in this category. These are often trips that are links in a longer trip-chain and are characteristically relatively short trips.

Table 7-1, Travel Data Summary provides a breakdown of trips by purpose and Table 7-2, Travel Input Variables provide the trip percentages by purpose and persons per dwelling unit. Graph 7-1 illustrates the person per dwelling unit trend for Caldwell County.

Table 7-1

Travel Data Summary

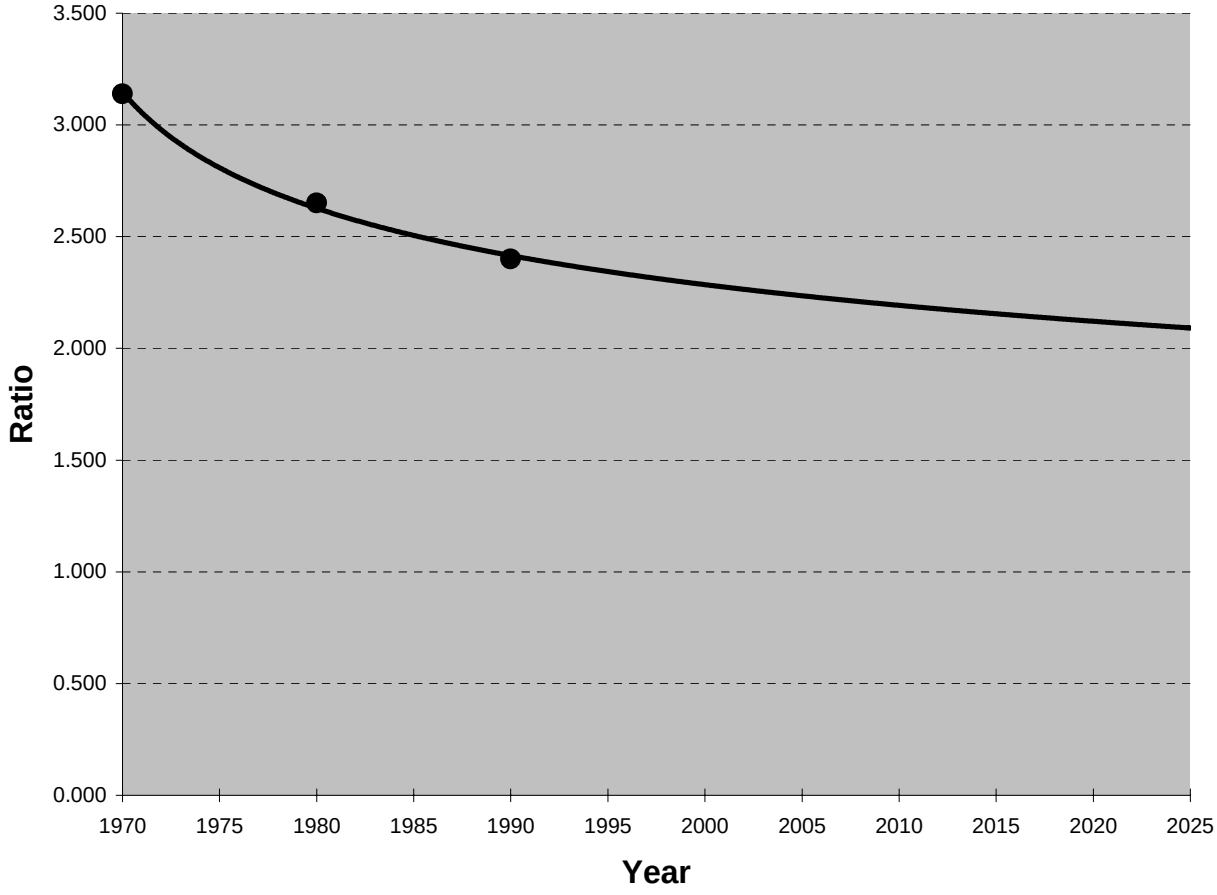
Type	1997	2025
Average Daily Trips per DU	7.61	7.34
Internal Trips	149,109	200,903
Home Based Work	44,733	60,271
Home Based Other	67,099	90,406
Non-Home Based, Internal	37,277	50,226
Secondary NHB	24,900	51,400
Internal <-> External	68,160	120,110
Through Trips	25,340	42,880

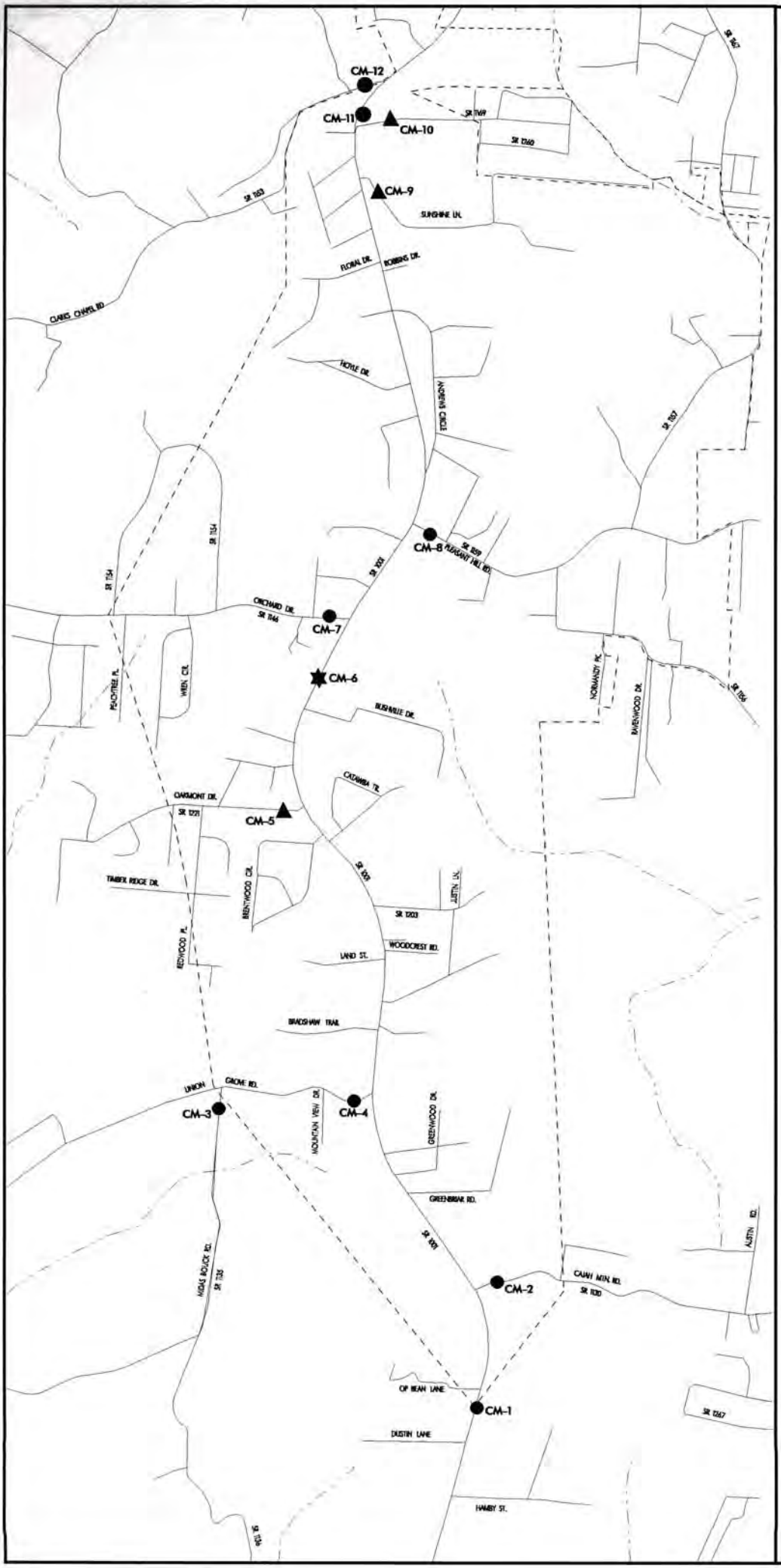
Table 7-2

Travel Model Input Variables

Trip Percentages by Purpose		Year	Persons/Dwelling Unit
Internal of Total	85%		
Home Based Work	30%	1997	2.39
Home Based Other	45%		
Non Home Base	25%	2025	2.10

Graph 7-1
Caldwell County Persons per Dwelling Unit





Traffic Count Map

LEGEND

24 Hour PTC	▲
48 Hour PTC	●
72 Hour PTC	★
Classification Count	■
Station Number	CM-00

Figure 7.4

N

S

Cajah's Mountain

Caldwell County

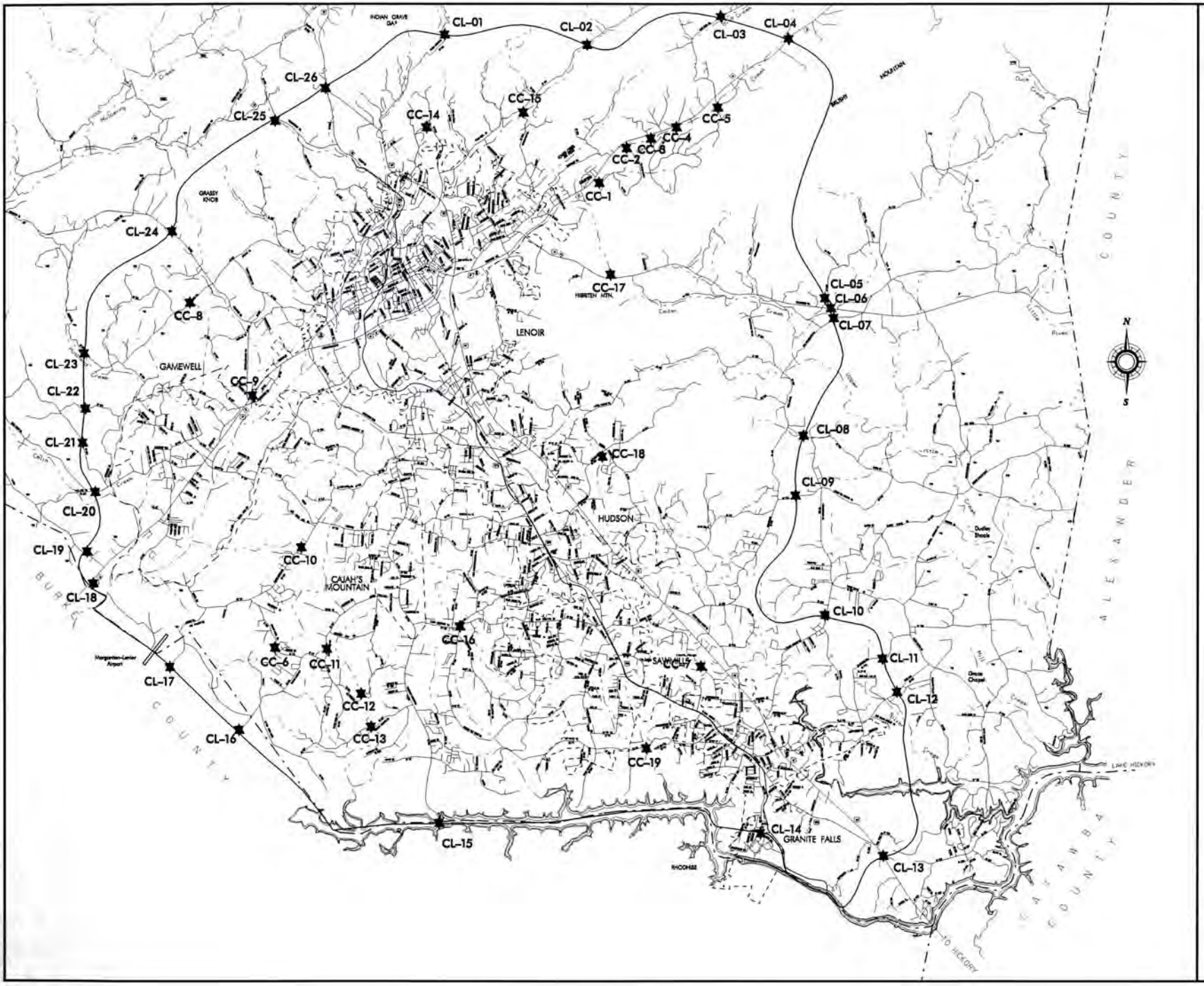
NORTH CAROLINA

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS – GIS UNIT

UNITED STATES DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION

SCALE

0 500 1000 1500



Traffic Count Map

Legend

24 Hour PTC	▲
48 Hour PTC	●
72 Hour PTC	★
Classification Count	■
Station Number	CL-00

Figure 7.5

CALDWELL COUNTY

NORTH CAROLINA

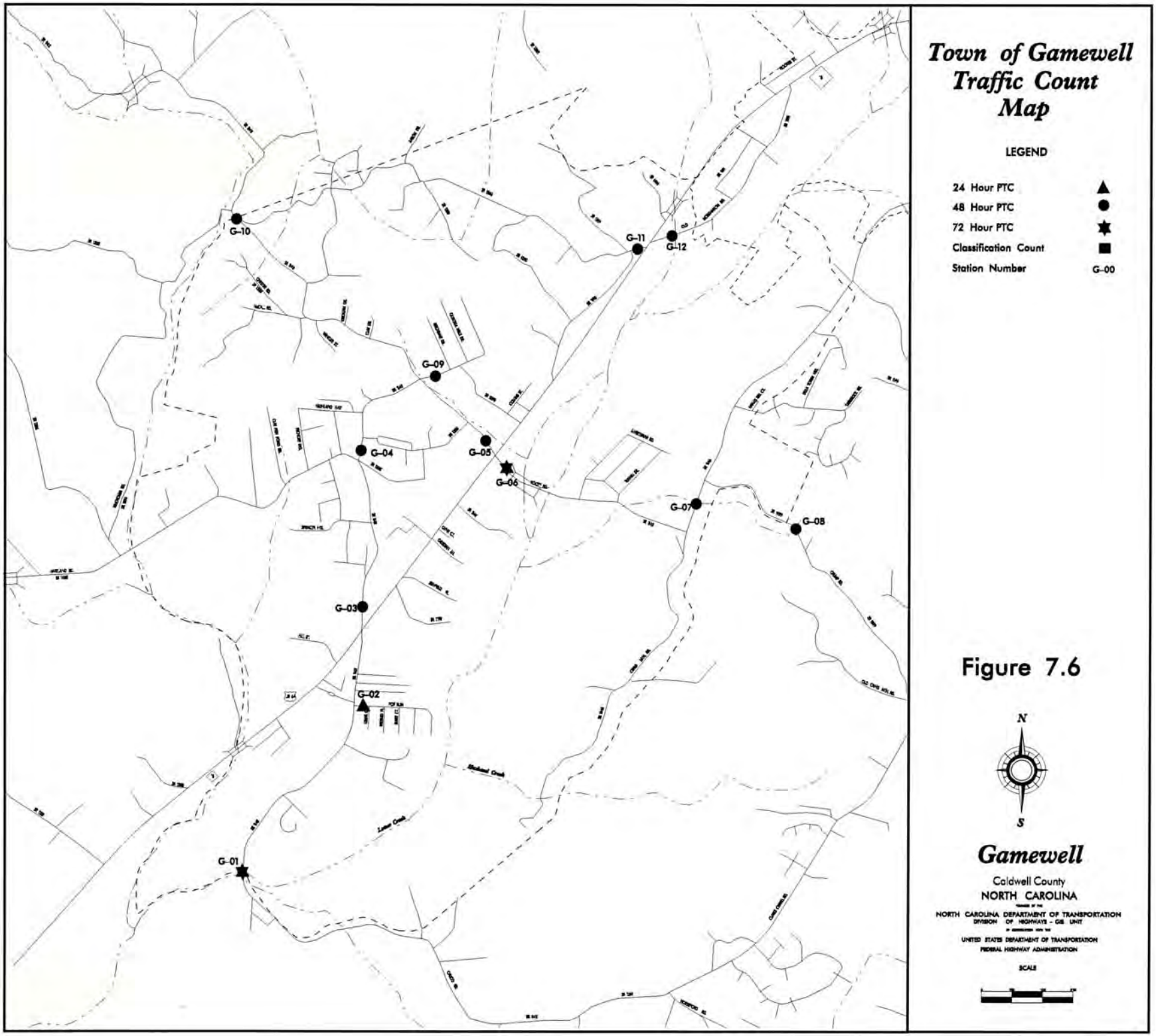
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS - STATEWIDE PLANNING BRANCH

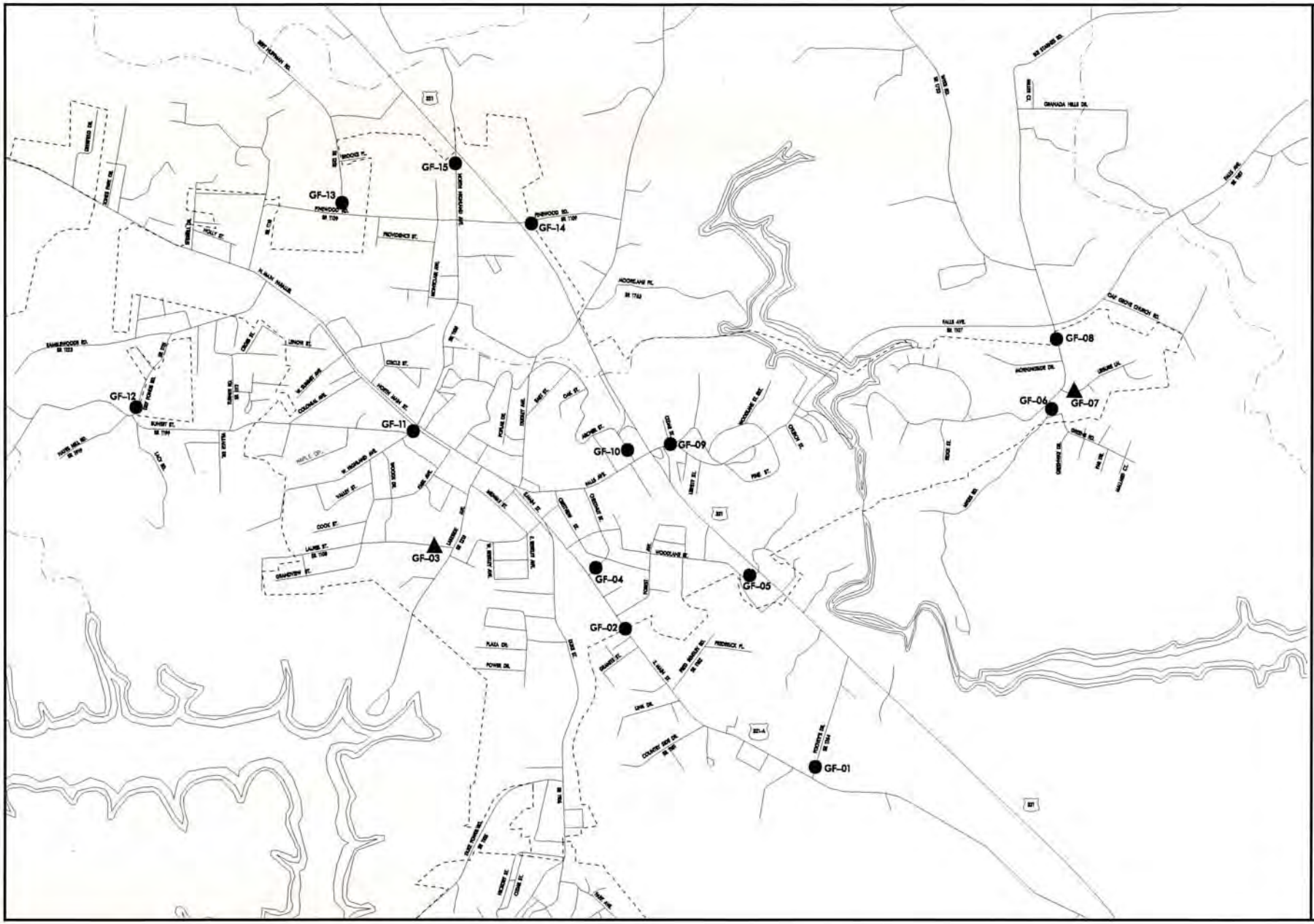
UNITED STATES DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION

SCALE

0 1 2 3 4 5 km

0 .5 1 2 3 mi


Town of Gamewell
Traffic Count
Map
LEGEND
24 Hour PTC
48 Hour PTC
72 Hour PTC
Classification Count
Station Number
G-00
G-01
G-02
G-03
G-04
G-05
G-06
G-07
G-08
G-09
G-10
G-11
G-12
Figure 7.6
N
S
Gamewell
Caldwell County
NORTH CAROLINA
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS - GIS UNIT
UNITED STATES DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
SCALE



Traffic Count Map

LEGEND

24 Hour PTC	▲
48 Hour PTC	●
72 Hour PTC	★
Classification Count	■
Station Number	GF-00

Figure 7.7

N

S

Town of Granite Falls

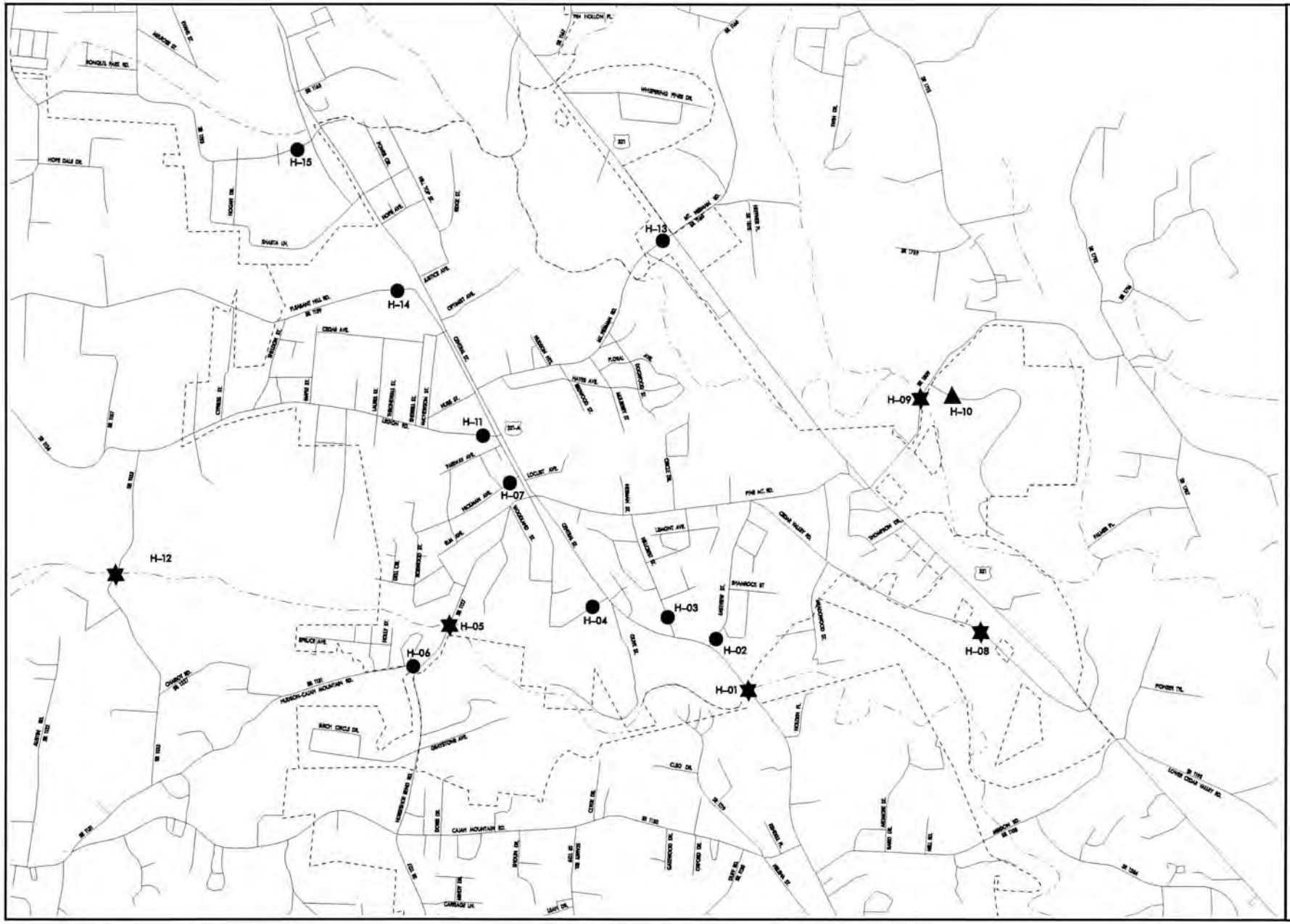
Caldwell County

NORTH CAROLINA

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS - GIS UNIT

UNITED STATES DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION

SCALE



Traffic Count Map

LEGEND

24 Hour PTC	▲
48 Hour PTC	●
72 Hour PTC	★
Classification Count	■
Station Number	H-00

Figure 7.8

N

S

Town of HUDSON

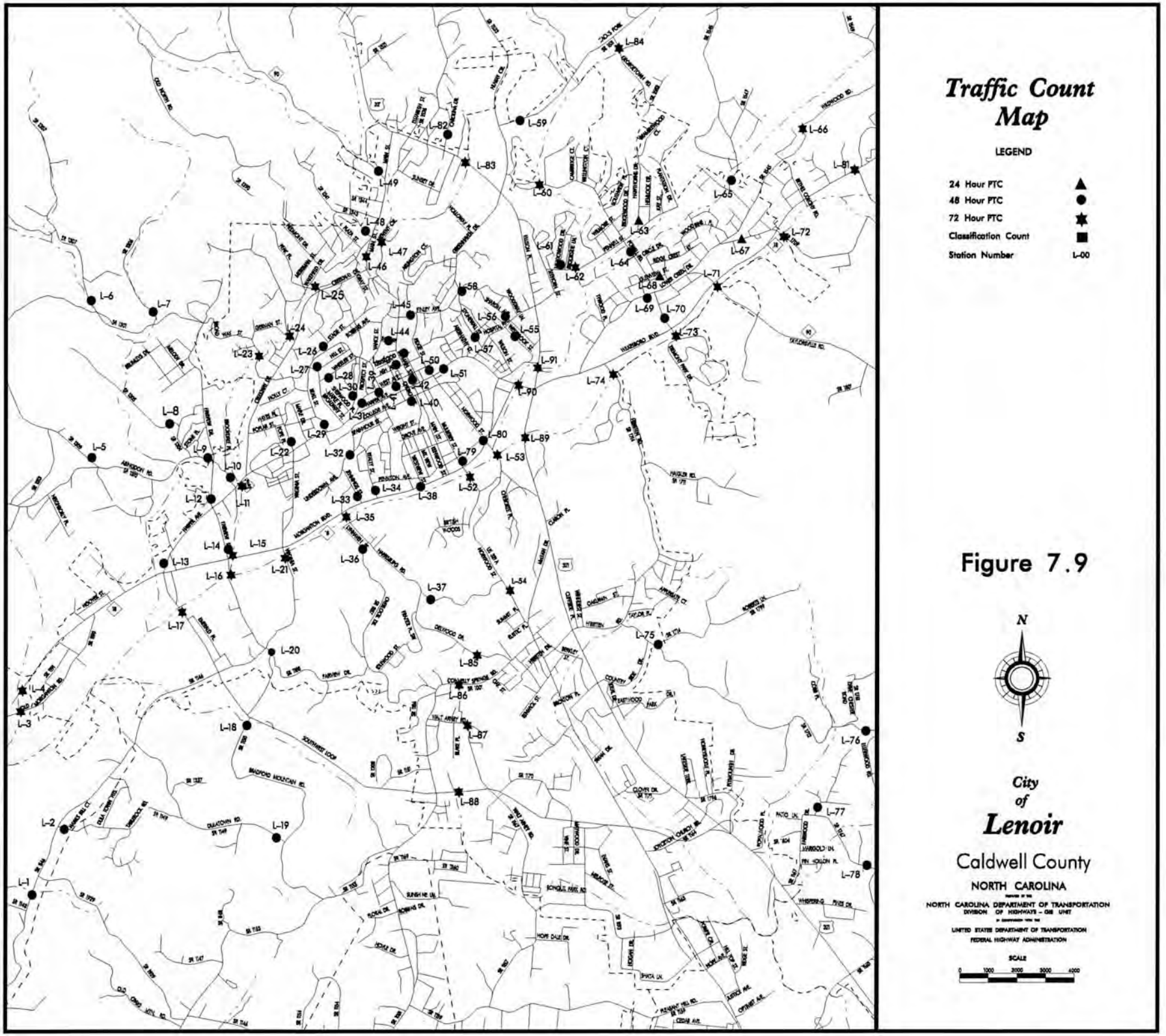
CALDWELL COUNTY

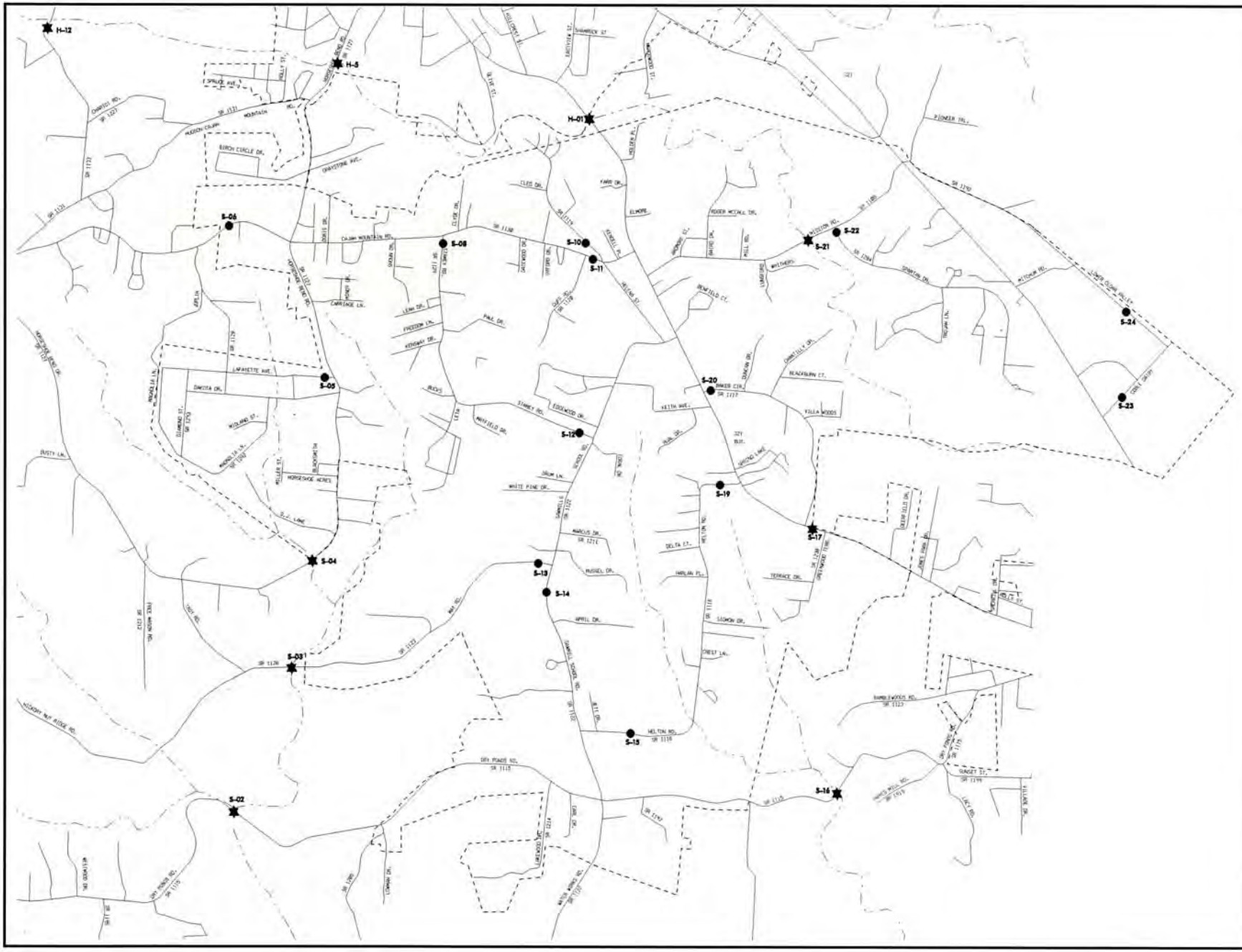
NORTH CAROLINA

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS - GIS UNIT

UNITED STATES DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION

SCALE


Traffic Count Map
LEGEND
24 Hour PTC
48 Hour PTC
72 Hour PTC
Classification Count
Station Number L-00
Figure 7.9
N
S
City of Lenoir
Caldwell County
NORTH CAROLINA
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS - GIS UNIT
UNITED STATES DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
SCALE
0 1000 2000 3000 4000


H-12
H-5
H-01
S-06
S-08
S-10
S-11
S-22
S-21
S-24
S-23
S-20
S-05
S-12
S-19
S-17
S-04
S-13
S-14
S-03
S-15
S-16
S-02
Traffic Count Map
LEGEND
24 Hour PTC
48 Hour PTC
72 Hour PTC
Classification Count
Station Number
S-00
Figure 7.10
N
S
Town of Sawmills
Caldwell County
NORTH CAROLINA

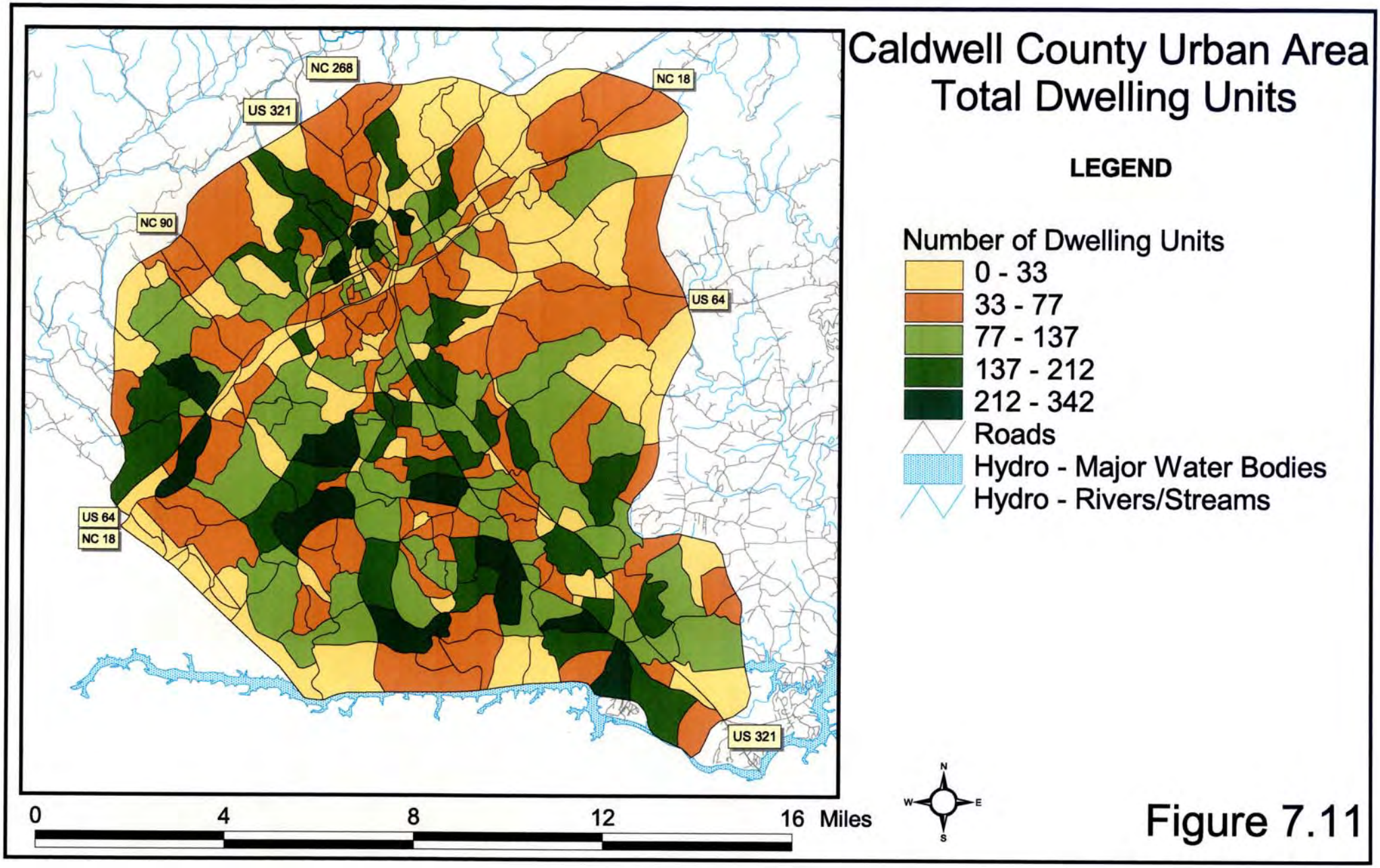
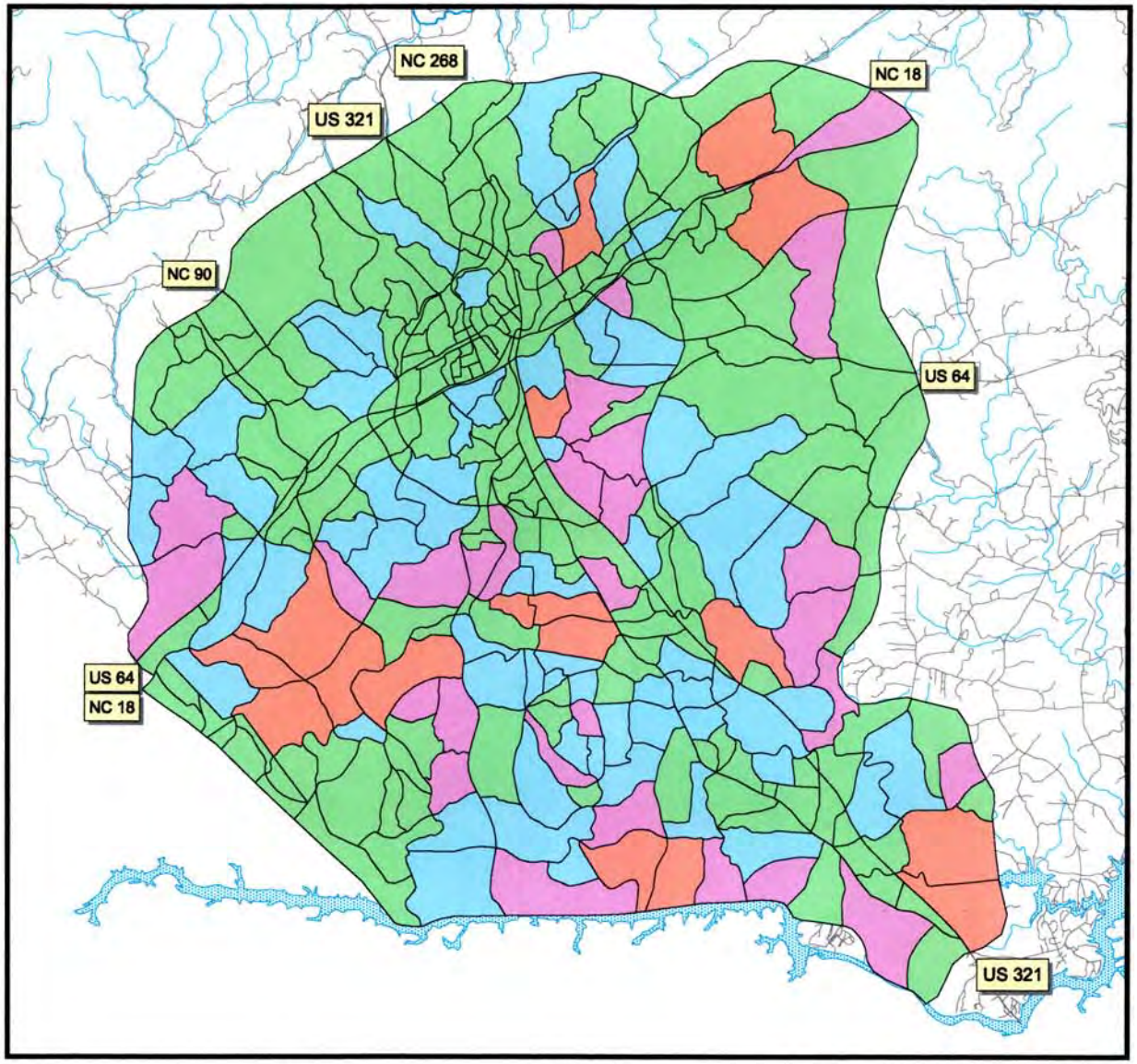

Caldwell County Urban Area
Total Dwelling Units
LEGEND
Number of Dwelling Units
0 - 33
33 - 77
77 - 137
137 - 212
212 - 342
Roads
Hydro - Major Water Bodies
Hydro - Rivers/Streams
NC 268
NC 18
US 321
NC 90
US 64
US 64
NC 18
US 321
0
4
8
12
16 Miles
N
W
E
S

Figure 7.11



Caldwell County Urban Area Dwelling Unit Projections

LEGEND

Dwelling Unit Projections
- Low: 24 or Less
- Medium: 25 to 49
- High: 50 to 74
- Very High: 75 or More

Roads

Hydro - Major Water Bodies

Hydro - Rivers/Streams

0 4 8 12 16 Miles

N W E S

Figure 7.12

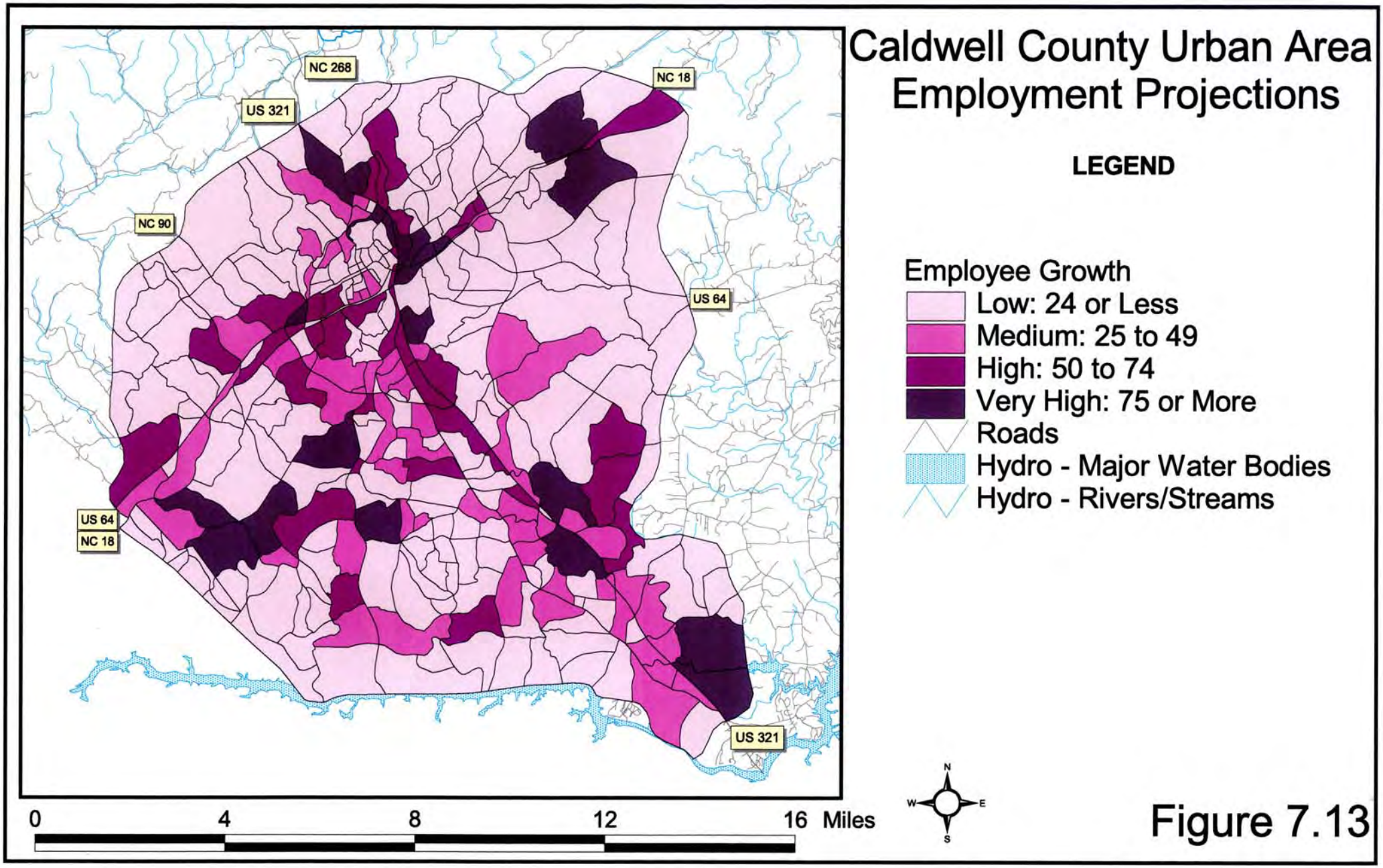

Caldwell County Urban Area
Employment Projections
LEGEND
Employee Growth
Low: 24 or Less
Medium: 25 to 49
High: 50 to 74
Very High: 75 or More
Roads
Hydro - Major Water Bodies
Hydro - Rivers/Streams
NC 268
NC 18
US 321
NC 90
US 64
US 64
NC 18
US 321
0
4
8
12
16 Miles
N
W
E
S

Figure 7.13

TABLE 7-3

BASE YEAR SOCIO-ECONOMIC DWELLING UNIT INPUT DATA

IDS DATA
CALDWELL COUNTY URBAN AREA (See end of table for a key to abbreviations)

	Number of Dwelling Units					TOTAL					TOTAL	Commercial Vehicles			TOTAL
ZN	EXC	AAV	AVE	BA	POOR	DU S	OTHER1	OTHER2	OTHER3	OTHER4	OTHER	TAXI	TRUCK	CA	CV
1	0	5	29	5	2	41	0	0	0	0	0	0	0	0	0
2	0	5	15	5	8	33	0	0	0	0	0	0	5	1	6
3	0	6	14	0	10	30	0	0	0	0	0	0	0	0	0
4	0	3	73	4	18	98	0	0	0	0	0	0	0	0	0
5	0	1	9	0	0	10	0	0	0	0	0	0	1	0	1
6	0	7	80	5	1	93	0	0	0	0	0	0	0	0	0
7	0	3	6	0	1	10	0	0	0	0	0	0	0	0	0
8	0	5	34	19	2	60	0	0	0	0	0	0	23	0	23
9	0	0	47	39	0	86	0	0	0	0	0	0	10	0	10
10	5	39	128	52	5	229	0	0	0	0	0	0	16	0	16
11	0	8	150	42	1	201	0	0	0	0	0	0	2	0	2
12	0	7	37	17	1	62	0	0	0	0	0	0	1	0	1
13	1	16	153	8	0	178	0	0	0	0	0	0	3	0	3
14	0	3	26	1	0	30	0	0	0	0	0	0	0	0	0
15	0	12	28	2	0	42	0	0	0	0	0	0	0	0	0
16	0	35	147	37	3	222	0	0	0	0	0	0	12	2	14
17	0	5	24	20	3	52	0	0	0	0	0	0	0	0	0
18	0	6	88	26	0	120	0	0	0	0	0	0	1	0	1
19	0	0	3	1	0	4	0	0	0	0	0	0	10	0	10
20	0	2	2	5	25	34	0	0	0	0	0	0	4	1	5
21	0	0	1	4	29	34	0	0	0	0	0	0	0	0	0
22	0	4	1	10	17	32	0	0	0	0	0	0	1	0	1
23	0	6	20	7	9	42	0	0	0	0	0	0	6	0	6
24	1	2	2	3	41	49	0	0	0	0	0	0	0	1	1
25	0	1	1	4	13	19	0	0	0	0	0	0	4	6	10
26	0	0	8	20	81	109	0	0	0	0	0	0	53	1	54
27	0	5	2	5	110	122	0	0	0	0	0	0	0	0	0
28	0	1	0	2	55	58	0	0	0	0	0	0	1	0	1
29	0	0	4	0	170	174	0	0	0	0	0	0	0	0	0
30	0	0	4	0	23	27	0	0	0	0	0	0	0	0	0
31	0	0	51	0	2	53	0	0	0	0	0	0	0	0	0
32	0	0	9	0	0	9	0	0	0	0	0	0	0	0	0
33	0	0	3	0	89	92	0	0	0	0	0	0	0	0	0
34	0	2	3	3	67	75	0	0	0	0	0	0	0	0	0
35	0	0	0	0	189	189	0	0	0	0	0	0	0	0	0
36	0	0	1	1	24	26	0	0	0	0	0	0	0	0	0
37	0	0	0	0	187	187	0	0	0	0	0	0	0	0	0
38	0	0	0	0	185	185	0	0	0	0	0	0	0	0	0
39	0	0	3	0	31	34	0	0	0	0	0	0	0	0	0
40	0	0	0	0	54	54	0	0	0	0	0	0	0	0	0
41	0	0	1	2	28	31	0	0	0	0	0	0	3	0	3
42	0	2	19	2	53	76	0	0	0	0	0	0	2	0	2
43	0	7	5	11	49	72	0	0	0	0	0	0	1	0	1
44	1	1	1	2	43	48	0	0	0	0	0	0	14	0	14
45	0	2	2	0	49	53	0	0	0	0	0	0	0	0	0
46	0	2	0	0	22	24	0	0	0	0	0	0	10	0	10
47	0	0	2	1	47	50	0	0	0	0	0	0	0	0	0
48	0	13	15	0	12	40	0	0	0	0	0	0	0	0	0
49	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
50	0	0	0	0	0	0	0	0	0	0	0	0	2	0	2
51	0	0	0	0	56	56	0	0	0	0	0	0	42	0	42
52	0	0	0	0	43	43	0	0	0	0	0	0	0	0	0
53	0	0	0	5	80	85	0	0	0	0	0	0	4	0	4
54	0	0	0	1	58	59	0	0	0	0	0	0	0	0	0
55	0	0	36	1	22	59	0	0	0	0	0	0	0	0	0
56	0	2	41	34	2	79	0	0	0	0	0	0	0	3	3
57	0	1	59	28	3	91	0	0	0	0	0	0	0	0	0
58	0	0	9	7	0	16	0	0	0	0	0	0	0	0	0
59	3	9	54	20	1	87	0	0	0	0	0	0	0	0	0
60	10	6	25	1	0	42	0	0	0	0	0	0	0	0	0
61	19	19	18	0	0	56	0	0	0	0	0	0	8	14	22
62	0	0	0	0	0	0	0	0	0	0	0	0	0	7	7
63	0	2	12	6	4	24	0	0	0	0	0	0	13	15	28
64	1	13	68	0	0	82	0	0	0	0	0	0	2	0	2

TABLE 7-3

BASE YEAR SOCIO-ECONOMIC DWELLING UNIT INPUT DATA

IDS DATA
CALDWELL COUNTY URBAN AREA (See end of table for a key to abbreviations)

	Number of Dwelling Units					TOTAL					TOTAL	Commercial Vehicles			TOTAL
ZN	EXC	AAV	AVE	BA	POOR	DU S	OTHER1	OTHER2	OTHER3	OTHER4	OTHER	TAXI	TRUCK	CA	CV
65	0	36	33	14	59	142	0	0	0	0	0	0	0	0	0
66	3	13	24	23	177	240	0	0	0	0	0	0	8	1	9
67	0	0	0	0	0	0	0	0	0	0	0	0	8	88	96
68	0	0	2	0	0	2	0	0	0	0	0	0	24	57	81
69	0	1	12	21	69	103	0	0	0	0	0	0	2	0	2
70	0	0	0	19	144	163	0	0	0	0	0	0	0	0	0
71	0	0	2	6	29	37	0	0	0	0	0	0	2	0	2
72	0	0	8	114	8	130	0	0	0	0	0	0	0	0	0
73	0	1	3	9	0	13	0	0	0	0	0	0	1	0	1
74	2	8	18	17	1	46	0	0	0	0	0	0	0	1	1
75	0	4	2	1	3	10	0	0	0	0	0	0	3	0	3
76	0	34	45	2	0	81	0	0	0	0	0	0	0	0	0
77	0	4	36	13	26	79	0	0	0	0	0	0	0	0	0
78	0	0	0	138	148	286	0	0	0	0	0	0	0	0	0
79	0	0	0	10	130	140	0	0	0	0	0	0	0	0	0
80	0	0	1	32	96	129	0	0	0	0	0	0	0	0	0
81	0	0	9	2	2	13	0	0	0	0	0	0	5	4	9
82	1	20	90	127	0	238	0	0	0	0	0	0	12	0	12
83	0	0	16	0	2	18	0	0	0	0	0	0	3	0	3
84	0	0	0	0	5	5	0	0	0	0	0	0	5	2	7
85	2	9	7	10	121	149	0	0	0	0	0	0	85	8	93
86	1	16	6	0	0	23	0	0	0	0	0	0	0	0	0
87	2	3	4	0	2	11	0	0	0	0	0	0	0	0	0
88	0	3	5	2	9	19	0	0	0	0	0	0	0	0	0
89	0	4	11	10	2	27	0	0	0	0	0	0	1	0	1
90	1	3	4	1	4	13	0	0	0	0	0	0	0	0	0
91	0	1	0	0	7	8	0	0	0	0	0	0	2	2	4
92	0	0	0	0	26	26	0	0	0	0	0	0	13	6	19
93	0	0	1	0	2	3	0	0	0	0	0	0	4	1	5
94	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1
95	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
96	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0
97	0	0	0	0	0	0	0	0	0	0	0	0	0	15	15
98	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
99	0	0	4	5	0	9	0	0	0	0	0	0	0	0	0
100	10	14	2	2	5	33	0	0	0	0	0	0	0	0	0
101	3	9	36	13	3	64	0	0	0	0	0	0	4	11	15
102	0	1	27	4	0	32	0	0	0	0	0	0	7	3	10
103	0	5	13	2	0	20	0	0	0	0	0	0	4	12	16
104	1	1	50	1	0	53	0	0	0	0	0	0	7	2	9
105	0	3	88	31	5	127	0	0	0	0	0	0	1	0	1
106	3	14	65	3	1	86	0	0	0	0	0	0	0	0	0
107	0	27	75	4	1	107	0	0	0	0	0	0	0	0	0
108	0	8	13	5	5	31	0	0	0	0	0	0	0	0	0
109	0	12	14	14	21	61	0	0	0	0	0	0	1	0	1
110	51	46	71	20	8	196	0	0	0	0	0	0	0	0	0
111	51	25	28	4	0	108	0	0	0	0	0	0	0	0	0
112	7	19	6	0	0	32	0	0	0	0	0	0	0	0	0
113	0	0	1	0	0	1	0	0	0	0	0	0	0	1	1
114	0	1	12	1	0	14	0	0	0	0	0	0	0	0	0
115	1	2	18	13	7	41	0	0	0	0	0	0	3	0	3
116	1	7	43	10	8	69	0	0	0	0	0	0	0	0	0
117	10	13	29	5	2	59	0	0	0	0	0	0	0	0	0
118	4	7	13	2	0	26	0	0	0	0	0	0	0	0	0
119	0	2	23	12	11	48	0	0	0	0	0	0	2	5	7
120	0	1	3	3	3	10	0	0	0	0	0	0	4	9	13
121	0	1	2	0	2	5	0	0	0	0	0	0	0	0	0
122	5	4	8	1	1	19	0	0	0	0	0	0	0	0	0
123	0	0	3	2	0	5	0	0	0	0	0	0	0	0	0
124	1	3	13	7	6	30	0	0	0	0	0	0	0	0	0
125	23	40	18	1	1	83	0	0	0	0	0	0	0	0	0
126	0	1	1	2	1	5	0	0	0	0	0	0	0	0	0
127	1	5	7	29	4	46	0	0	0	0	0	0	1	0	1
128	2	11	12	23	14	62	0	0	0	0	0	0	1	0	1

TABLE 7-3

BASE YEAR SOCIO-ECONOMIC DWELLING UNIT INPUT DATA

IDS DATA
CALDWELL COUNTY URBAN AREA (See end of table for a key to abbreviations)

	Number of Dwelling Units					TOTAL					TOTAL	Commercial Vehicles			TOTAL
ZN	EXC	AAV	AVE	BA	POOR	DU S	OTHER1	OTHER2	OTHER3	OTHER4	OTHER	TAXI	TRUCK	CA	CV
129	0	0	2	16	9	27	0	0	0	0	0	0	0	0	0
130	1	2	0	9	6	18	0	0	0	0	0	0	0	0	0
131	0	3	8	15	12	38	0	0	0	0	0	0	0	0	0
132	0	10	9	59	17	95	0	0	0	0	0	0	0	0	0
133	0	6	2	40	35	83	0	0	0	0	0	0	1	0	1
134	2	65	39	37	20	163	0	0	0	0	0	0	0	0	0
135	0	0	0	16	85	101	0	0	0	0	0	0	3	0	3
136	0	1	4	11	4	20	0	0	0	0	0	0	0	0	0
137	0	1	0	3	9	13	0	0	0	0	0	0	0	0	0
138	0	5	4	30	23	62	0	0	0	0	0	0	0	0	0
139	0	2	6	9	3	20	0	0	0	0	0	0	0	0	0
140	1	1	4	9	0	15	0	0	0	0	0	0	1	0	1
141	5	9	2	8	6	30	0	0	0	0	0	0	0	0	0
142	4	32	4	2	3	45	0	0	0	0	0	0	0	0	0
143	0	4	0	8	10	22	0	0	0	0	0	0	0	0	0
144	1	3	2	4	1	11	0	0	0	0	0	0	0	0	0
145	0	2	3	5	0	10	0	0	0	0	0	0	0	0	0
146	0	6	2	24	5	37	0	0	0	0	0	0	3	0	3
147	0	4	4	24	31	63	0	0	0	0	0	0	0	0	0
148	0	15	22	58	19	114	0	0	0	0	0	0	7	0	7
149	0	2	7	6	4	19	0	0	0	0	0	0	0	0	0
150	2	14	26	94	72	208	0	0	0	0	0	0	4	1	5
151	0	8	14	36	56	114	0	0	0	0	0	0	2	0	2
152	0	9	5	33	19	66	0	0	0	0	0	0	0	0	0
153	0	19	22	22	21	84	0	0	0	0	0	0	2	1	3
154	0	1	3	12	15	31	0	0	0	0	0	0	0	0	0
155	0	0	2	2	2	6	0	0	0	0	0	0	4	0	4
156	0	4	3	3	4	14	0	0	0	0	0	0	31	0	31
157	1	33	39	40	55	168	0	0	0	0	0	0	22	10	32
158	0	1	7	5	0	13	0	0	0	0	0	0	0	0	0
159	0	4	20	9	4	37	0	0	0	0	0	0	1	0	1
160	2	8	18	0	2	30	0	0	0	0	0	0	0	0	0
161	6	6	22	12	7	53	0	0	0	0	0	0	0	0	0
162	1	1	1	2	0	5	0	0	0	0	0	0	0	0	0
163	0	4	15	3	17	39	0	0	0	0	0	0	1	0	1
164	0	21	55	11	15	102	0	0	0	0	0	0	4	0	4
165	1	14	31	6	2	54	0	0	0	0	0	0	0	0	0
166	1	8	76	11	50	146	0	0	0	0	0	0	85	0	85
167	0	2	10	7	18	37	0	0	0	0	0	0	4	0	4
168	0	34	1	0	1	36	0	0	0	0	0	0	13	1	14
169	11	11	39	1	2	64	0	0	0	0	0	0	5	0	5
170	0	15	37	14	0	66	0	0	0	0	0	0	30	0	30
171	2	4	75	30	26	137	0	0	0	0	0	0	18	0	18
172	2	10	43	21	18	94	0	0	0	0	0	0	9	0	9
173	0	2	8	10	53	73	0	0	0	0	0	0	12	1	13
174	2	14	104	30	44	194	0	0	0	0	0	0	13	0	13
175	0	7	21	2	74	104	0	0	0	0	0	0	164	4	168
176	0	0	0	0	0	0	0	0	0	0	0	0	3	4	7
177	0	12	84	32	57	185	0	0	0	0	0	0	42	2	44
178	11	32	61	13	43	160	0	0	0	0	0	0	10	0	10
179	0	3	11	2	12	28	0	0	0	0	0	0	0	0	0
180	30	40	32	14	26	142	0	0	0	0	0	0	4	0	4
181	1	0	77	1	0	79	0	0	0	0	0	0	0	0	0
182	30	23	0	3	0	56	0	0	0	0	0	0	0	0	0
183	8	10	15	2	3	38	0	0	0	0	0	0	0	0	0
184	21	6	9	5	5	46	0	0	0	0	0	0	0	0	0
185	0	8	21	28	24	81	0	0	0	0	0	0	3	1	4
186	0	14	25	18	16	73	0	0	0	0	0	0	17	0	17
187	0	5	12	52	48	117	0	0	0	0	0	0	23	4	27
188	0	1	8	29	94	132	0	0	0	0	0	0	4	0	4
189	0	6	12	9	71	98	0	0	0	0	0	0	52	0	52
190	0	0	1	2	0	3	0	0	0	0	0	0	0	0	0
191	0	10	17	18	19	64	0	0	0	0	0	0	4	1	5
192	0	2	9	6	4	21	0	0	0	0	0	0	0	0	0

TABLE 7-3

BASE YEAR SOCIO-ECONOMIC DWELLING UNIT INPUT DATA

IDS DATA
CALDWELL COUNTY URBAN AREA (See end of table for a key to abbreviations)

	Number of Dwelling Units					TOTAL					TOTAL	Commercial Vehicles			TOTAL
ZN	EXC	AAV	AVE	BA	POOR	DU S	OTHER1	OTHER2	OTHER3	OTHER4	OTHER	TAXI	TRUCK	CA	CV
193	0	0	2	1	3	6	0	0	0	0	0	0	5	0	5
194	0	2	19	32	29	82	0	0	0	0	0	0	17	2	19
195	0	5	54	28	88	175	0	0	0	0	0	0	3	0	3
196	2	19	101	25	25	172	0	0	0	0	0	0	0	0	0
197	0	0	0	0	0	0	0	0	0	0	0	0	27	8	35
198	1	6	25	21	11	64	0	0	0	0	0	0	3	0	3
199	0	0	5	20	37	62	0	0	0	0	0	0	14	0	14
200	10	28	81	44	45	208	0	0	0	0	0	0	1	0	1
201	0	3	10	19	44	76	0	0	0	0	0	0	8	0	8
202	3	6	51	8	17	85	0	0	0	0	0	0	1	0	1
203	9	37	125	36	19	226	0	0	0	0	0	0	11	1	12
204	1	6	68	11	3	89	0	0	0	0	0	0	14	0	14
205	0	31	4	0	0	35	0	0	0	0	0	0	0	0	0
206	0	35	17	0	0	52	0	0	0	0	0	0	0	0	0
207	0	2	13	3	0	18	0	0	0	0	0	0	0	0	0
208	0	1	79	1	1	82	0	0	0	0	0	0	4	0	4
209	0	1	44	25	0	70	0	0	0	0	0	0	3	0	3
210	1	0	45	0	0	46	0	0	0	0	0	0	1	0	1
211	0	0	93	0	0	93	0	0	0	0	0	0	0	0	0
212	0	4	85	2	0	91	0	0	0	0	0	0	1	0	1
213	0	1	2	3	0	6	0	0	0	0	0	0	0	2	2
214	0	0	179	4	0	183	0	0	0	0	0	0	4	0	4
215	0	4	241	23	0	268	0	0	0	0	0	0	1	0	1
216	0	0	0	0	0	0	0	0	0	0	0	0	12	0	12
217	0	0	9	0	0	9	0	0	0	0	0	0	0	0	0
218	1	1	118	10	3	133	0	0	0	0	0	0	0	0	0
219	0	3	34	5	0	42	0	0	0	0	0	0	0	0	0
220	0	1	68	0	0	69	0	0	0	0	0	0	0	1	1
221	0	0	51	1	0	52	0	0	0	0	0	0	24	3	27
222	0	0	2	0	0	2	0	0	0	0	0	0	0	0	0
223	0	0	96	48	0	144	0	0	0	0	0	0	2	0	2
224	0	0	23	5	0	28	0	0	0	0	0	0	1	0	1
225	0	0	59	25	0	84	0	0	0	0	0	0	14	0	14
226	0	1	3	2	0	6	0	0	0	0	0	0	0	0	0
227	0	4	29	1	0	34	0	0	0	0	0	0	0	0	0
228	0	1	90	21	1	113	0	0	0	0	0	0	0	0	0
229	0	3	125	0	0	128	0	0	0	0	0	0	0	0	0
230	0	4	87	16	1	108	0	0	0	0	0	0	1	0	1
231	0	4	19	2	0	25	0	0	0	0	0	0	0	0	0
232	5	5	10	0	0	20	0	0	0	0	0	0	0	0	0
233	3	12	27	1	0	43	0	0	0	0	0	0	0	0	0
234	0	2	7	79	34	122	0	0	0	0	0	0	0	1	1
235	0	8	42	64	46	160	0	0	0	0	0	0	0	0	0
236	0	12	7	34	24	77	0	0	0	0	0	0	0	0	0
237	1	2	7	5	25	40	0	0	0	0	0	0	0	0	0
238	0	1	3	2	64	70	0	0	0	0	0	0	0	0	0
239	0	0	3	3	35	41	0	0	0	0	0	0	0	0	0
240	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
241	0	0	1	3	0	4	0	0	0	0	0	0	0	0	0
242	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2
243	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
244	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
245	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
246	0	2	3	9	66	80	0	0	0	0	0	0	0	0	0
247	0	3	10	3	8	24	0	0	0	0	0	0	0	0	0
248	0	0	6	10	37	53	0	0	0	0	0	0	0	0	0
249	2	8	6	10	18	44	0	0	0	0	0	0	0	0	0
250	1	1	16	19	49	86	0	0	0	0	0	0	0	0	0
251	0	1	1	2	14	18	0	0	0	0	0	0	1	0	1
252	2	11	23	25	27	88	0	0	0	0	0	0	0	0	0
253	0	3	5	63	65	136	0	0	0	0	0	0	0	0	0
254	0	0	0	4	14	18	0	0	0	0	0	0	0	0	0
255	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0
256	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

TABLE 7-3

BASE YEAR SOCIO-ECONOMIC DWELLING UNIT INPUT DATA

IDS DATA
CALDWELL COUNTY URBAN AREA (See end of table for a key to abbreviations)

	Number of Dwelling Units					TOTAL					TOTAL	Commercial Vehicles			TOTAL
ZN	EXC	AAV	AVE	BA	POOR	DU S	OTHER1	OTHER2	OTHER3	OTHER4	OTHER	TAXI	TRUCK	CA	CV
257	2	4	45	0	0	51	0	0	0	0	0	0	0	1	1
258	0	4	91	6	0	101	0	0	0	0	0	0	0	0	0
259	8	8	98	20	0	134	0	0	0	0	0	0	3	0	3
260	0	1	180	18	0	199	0	0	0	0	0	0	0	0	0
261	0	6	86	13	0	105	0	0	0	0	0	0	3	0	3
262	0	2	50	0	0	52	0	0	0	0	0	0	0	0	0
263	0	2	24	0	0	26	0	0	0	0	0	0	0	0	0
264	0	33	303	5	1	342	0	0	0	0	0	0	6	0	6
265	0	0	40	7	0	47	0	0	0	0	0	0	0	0	0
266	0	0	32	2	0	34	0	0	0	0	0	0	0	0	0
267	0	0	6	1	0	7	0	0	0	0	0	0	0	0	0
268	0	0	77	10	0	87	0	0	0	0	0	0	0	0	0
269	0	3	105	0	0	108	0	0	0	0	0	0	5	1	6
270	0	3	51	17	0	71	0	0	0	0	0	0	0	0	0
271	0	1	57	13	0	71	0	0	0	0	0	0	10	0	10
272	2	2	49	7	0	60	0	0	0	0	0	0	0	0	0
273	3	6	268	0	0	277	0	0	0	0	0	0	2	0	2
274	0	6	6	6	20	38	0	0	0	0	0	0	0	0	0
275	2	4	47	15	4	72	0	0	0	0	0	0	0	0	0
276	1	2	8	7	9	27	0	0	0	0	0	0	0	0	0
277	2	3	20	9	27	61	0	0	0	0	0	0	0	0	0
278	4	25	19	0	0	48	0	0	0	0	0	0	8	4	12
279	1	9	22	20	17	69	0	0	0	0	0	0	0	0	0
280	1	7	11	21	33	73	0	0	0	0	0	0	7	3	10
281	0	2	22	66	23	113	0	0	0	0	0	0	29	10	39
282	3	8	25	5	6	47	0	0	0	0	0	0	0	0	0
283	0	3	13	12	94	122	0	0	0	0	0	0	3	4	7
284	0	16	67	66	104	253	0	0	0	0	0	0	9	4	13
285	0	5	6	10	67	88	0	0	0	0	0	0	5	0	5
286	1	0	1	0	0	2	0	0	0	0	0	0	0	0	0
287	1	0	13	1	1	16	0	0	0	0	0	0	0	3	3
288	1	9	18	18	14	60	0	0	0	0	0	0	5	0	5
289	7	3	6	10	9	35	0	0	0	0	0	0	0	0	0
290	1	11	68	16	86	182	0	0	0	0	0	0	0	0	0
291	1	6	152	49	75	283	0	0	0	0	0	0	11	8	19
292	0	30	46	29	107	212	0	0	0	0	0	0	1	1	2
293	6	11	28	14	27	86	0	0	0	0	0	0	0	0	0
294	0	4	15	15	9	43	0	0	0	0	0	0	0	1	1
295	11	37	56	6	8	118	0	0	0	0	0	0	0	0	0
296	3	5	50	14	42	114	0	0	0	0	0	0	0	0	0
297	0	9	41	21	49	120	0	0	0	0	0	0	0	1	1
298	2	12	5	9	12	40	0	0	0	0	0	0	2	0	2
299	0	14	5	4	3	26	0	0	0	0	0	0	0	0	0
300	0	14	11	0	4	29	0	0	0	0	0	0	0	0	0
301	0	0	0	2	2	4	0	0	0	0	0	0	2	0	2
302	0	2	14	6	13	35	0	0	0	0	0	0	9	3	12
303	0	4	7	21	22	54	0	0	0	0	0	0	0	0	0
304	0	19	25	3	37	84	0	0	0	0	0	0	0	0	0
305	0	2	13	6	8	29	0	0	0	0	0	0	0	0	0
306	0	13	19	22	11	65	0	0	0	0	0	0	0	0	0
307	0	2	8	14	15	39	0	0	0	0	0	0	0	0	0
308	26	52	19	9	8	114	0	0	0	0	0	0	0	0	0
309	0	0	10	63	32	105	0	0	0	0	0	0	0	0	0
310	0	1	7	47	33	88	0	0	0	0	0	0	8	2	10
311	0	0	12	1	2	15	0	0	0	0	0	0	12	0	12
312	0	1	8	6	13	28	0	0	0	0	0	0	26	0	26
313	0	0	10	21	28	59	0	0	0	0	0	0	14	0	14
314	0	18	9	64	13	104	0	0	0	0	0	0	10	0	10
315	0	0	5	18	37	60	0	0	0	0	0	0	0	0	0
316	1	8	48	49	3	109	0	0	0	0	0	0	0	0	0
317	0	1	5	63	18	87	0	0	0	0	0	0	7	0	7
318	0	1	21	88	16	126	0	0	0	0	0	0	2	5	7
319	0	23	47	34	75	179	0	0	0	0	0	0	17	0	17
320	0	1	7	4	10	22	0	0	0	0	0	0	4	0	4

TABLE 7-3

BASE YEAR SOCIO-ECONOMIC DWELLING UNIT INPUT DATA

IDS DATA
CALDWELL COUNTY URBAN AREA (See end of table for a key to abbreviations)

	Number of Dwelling Units					TOTAL					TOTAL	Commercial Vehicles			TOTAL
ZN	EXC	AAV	AVE	BA	POOR	DU S	OTHER1	OTHER2	OTHER3	OTHER4	OTHER	TAXI	TRUCK	CA	CV
321	0	4	52	20	17	93	0	0	0	0	0	0	19	5	24
322	1	29	99	43	92	264	0	0	0	0	0	0	1	0	1
323	0	8	93	58	44	203	0	0	0	0	0	0	21	4	25
324	4	11	44	4	11	74	0	0	0	0	0	0	1	0	1
325	0	11	111	49	85	256	0	0	0	0	0	0	4	0	4
TOTALS															
	511	**2134**	**9194**	**4356**	**6860**	**23055**							**1508**	**390**	**1898**

Key to abbreviations:

Zn Zone Number
Exc Excellent Rating
AAV Above Average Rating
AVE Average Rating
BA Below Average Rating
Poor Poor Rating
DU s Dwelling Units
CA Commercial Auto
CV Commercial Vehicles

TABLE 7-4

BASE YEAR SOCIO-ECONOMIC EMPLOYMENT INPUT DATA

IDS DATA
CALDWELL COUNTY URBAN AREA (See end of table for a key to abbreviations)

	[----------Number Of Employees By Catagory---------]								TOTAL				TOTAL
ZONE	IND	RET	HWYRET	OFF	SER	OTH1	OTH2	OTH3	EMPLOYEES				DWELLING
	X1	X2	X3	X4	X5	X6	X7	X8					UNITS
1	0	0	0	0	1	0	0	0	1	0	0	0	41
2	0	0	2	0	1	0	0	0	3	0	0	0	33
3	0	0	0	0	0	0	0	0	0	0	0	0	30
4	0	0	0	1	2	0	0	0	3	0	0	0	98
5	0	0	0	0	4	0	0	0	4	0	0	0	10
6	0	0	0	0	1	0	0	0	1	0	0	0	93
7	0	0	0	0	0	0	0	0	0	0	0	0	10
8	82	0	0	0	122	0	0	0	204	0	0	0	60
9	3	11	0	1	19	0	0	0	34	0	0	0	86
10	2	1	0	0	147	0	0	0	150	0	0	0	229
11	0	0	0	1	4	0	0	0	5	0	0	0	201
12	0	0	0	0	1	0	0	0	1	0	0	0	62
13	13	6	0	0	6	0	0	0	25	0	0	0	178
14	0	0	3	0	21	0	0	0	24	0	0	0	30
15	0	1	1	0	0	0	0	0	2	0	0	0	42
16	210	1	1	1	6	0	0	0	219	0	0	0	222
17	2	0	0	0	3	0	0	0	5	0	0	0	52
18	30	1	4	0	0	0	0	0	35	0	0	0	120
19	43	5	2	1	2	0	0	0	53	0	0	0	4
20	0	8	0	0	0	0	0	0	8	0	0	0	34
21	0	0	0	0	0	0	0	0	0	0	0	0	34
22	0	0	0	0	5	0	0	0	5	0	0	0	32
23	15	0	0	0	0	0	0	0	15	0	0	0	42
24	0	0	0	0	24	0	0	0	24	0	0	0	49
25	2	8	3	0	0	0	0	0	13	0	0	0	19
26	70	35	1	0	127	0	0	0	233	0	0	0	109
27	51	0	0	0	0	0	0	0	51	0	0	0	122
28	0	1	0	0	3	0	0	0	4	0	0	0	58
29	0	0	0	0	0	0	0	0	0	0	0	0	174
30	0	0	0	0	1	0	0	0	1	0	0	0	27
31	0	0	0	0	0	0	0	0	0	0	0	0	53
32	0	0	0	0	0	0	0	0	0	0	0	0	9
33	0	0	0	0	0	0	0	0	0	0	0	0	92
34	422	0	0	0	4	0	0	0	426	0	0	0	75
35	0	0	0	0	0	0	0	0	0	0	0	0	189
36	0	0	0	0	1	0	0	0	1	0	0	0	26
37	0	0	0	0	0	0	0	0	0	0	0	0	187
38	0	0	0	0	0	0	0	0	0	0	0	0	185
39	0	0	0	0	0	0	0	0	0	0	0	0	34
40	0	0	0	0	2	0	0	0	2	0	0	0	54
41	0	0	0	0	46	0	0	0	46	0	0	0	31
42	0	0	0	0	19	0	0	0	19	0	0	0	76
43	0	10	0	0	0	0	0	0	10	0	0	0	72
44	11	18	0	7	1	0	0	0	37	0	0	0	48
45	0	0	0	0	3	0	0	0	3	0	0	0	53
46	20	1	0	0	1	0	0	0	22	0	0	0	24
47	0	0	0	0	0	0	0	0	0	0	0	0	50
48	0	0	0	0	0	0	0	0	0	0	0	0	40
49	175	0	0	0	0	0	0	0	175	0	0	0	0
50	0	1	7	0	15	0	0	0	23	0	0	0	0
51	202	74	3	60	8	0	0	0	347	0	0	0	56
52	1100	0	0	0	13	0	0	0	1113	0	0	0	43
53	0	4	9	0	17	0	0	0	30	0	0	0	85
54	0	0	0	0	0	0	0	0	0	0	0	0	59
55	0	0	22	0	14	0	0	0	36	0	0	0	59
56	3	17	8	0	0	0	0	0	28	0	0	0	79
57	0	0	0	0	0	0	0	0	0	0	0	0	91
58	0	0	0	0	82	0	0	0	82	0	0	0	16
59	1	14	46	98	986	0	0	0	1145	0	0	0	87
60	0	0	0	0	0	0	0	0	0	0	0	0	42
61	20	63	90	44	110	0	0	0	327	0	0	0	56
62	0	10	0	45	41	0	0	0	96	0	0	0	0
63	280	14	0	5	62	0	0	0	361	0	0	0	24
64	0	0	2	0	10	0	0	0	12	0	0	0	82

TABLE 7-4

BASE YEAR SOCIO-ECONOMIC EMPLOYMENT INPUT DATA

IDS DATA
CALDWELL COUNTY URBAN AREA (See end of table for a key to abbreviations)

	[----------Number Of Employees By Catagory---------]								TOTAL				TOTAL
ZONE	IND	RET	HWYRET	OFF	SER	OTH1	OTH2	OTH3	EMPLOYEES				DWELLING
	X1	X2	X3	X4	X5	X6	X7	X8					UNITS
65	0	0	0	0	0	0	0	0	0	0	0	0	142
66	454	11	0	0	16	0	0	0	481	0	0	0	240
67	0	68	5	171	177	0	0	0	421	0	0	0	0
68	0	16	3	102	111	0	0	0	232	0	0	0	2
69	0	0	0	11	102	0	0	0	113	0	0	0	103
70	0	0	0	0	0	0	0	0	0	0	0	0	163
71	70	3	29	0	41	0	0	0	143	0	0	0	37
72	0	55	8	8	6	0	0	0	77	0	0	0	130
73	0	0	20	0	0	0	0	0	20	0	0	0	13
74	0	223	132	6	45	0	0	0	406	0	0	0	46
75	0	395	12	0	2	0	0	0	409	0	0	0	10
76	0	0	0	0	5	0	0	0	5	0	0	0	81
77	0	0	0	0	0	0	0	0	0	0	0	0	79
78	0	0	0	0	0	0	0	0	0	0	0	0	286
79	61	0	0	0	0	0	0	0	61	0	0	0	140
80	21	0	0	0	0	0	0	0	21	0	0	0	129
81	0	11	0	576	0	0	0	0	587	0	0	0	13
82	0	34	1	0	0	0	0	0	35	0	0	0	238
83	4	0	0	0	139	0	0	0	143	0	0	0	18
84	228	0	0	109	0	0	0	0	337	0	0	0	5
85	221	17	0	0	3	0	0	0	241	0	0	0	149
86	0	0	0	0	0	0	0	0	0	0	0	0	23
87	0	0	0	0	0	0	0	0	0	0	0	0	11
88	0	0	0	0	0	0	0	0	0	0	0	0	19
89	41	0	0	0	0	0	0	0	41	0	0	0	27
90	0	0	0	0	1	0	0	0	1	0	0	0	13
91	0	0	2	13	12	0	0	0	27	0	0	0	8
92	8	1	4	0	59	0	0	0	72	0	0	0	26
93	29	0	0	0	2	0	0	0	31	0	0	0	3
94	2	0	0	0	0	0	0	0	2	0	0	0	0
95	0	2	0	17	2	0	0	0	21	0	0	0	0
96	0	0	0	0	0	0	0	0	0	0	0	0	1
97	17	43	54	26	69	0	0	0	209	0	0	0	0
98	0	0	15	2	6	0	0	0	23	0	0	0	0
99	30	0	0	0	1	0	0	0	31	0	0	0	9
100	0	0	0	0	0	0	0	0	0	0	0	0	33
101	17	0	0	0	6	0	0	0	23	0	0	0	64
102	20	1	0	0	5	0	0	0	26	0	0	0	32
103	26	49	10	25	28	0	0	0	138	0	0	0	20
104	0	21	60	13	50	0	0	0	144	0	0	0	53
105	3	14	146	13	3	0	0	0	179	0	0	0	127
106	0	0	0	0	6	0	0	0	6	0	0	0	86
107	0	0	0	0	0	0	0	0	0	0	0	0	107
108	0	0	0	0	0	0	0	0	0	0	0	0	31
109	21	0	0	0	0	0	0	0	21	0	0	0	61
110	0	0	0	0	1	0	0	0	1	0	0	0	196
111	0	0	0	0	0	0	0	0	0	0	0	0	108
112	0	0	0	0	0	0	0	0	0	0	0	0	32
113	17	1	0	0	0	0	0	0	18	0	0	0	1
114	0	0	0	0	0	0	0	0	0	0	0	0	14
115	3	0	0	0	0	0	0	0	3	0	0	0	41
116	0	0	0	0	0	0	0	0	0	0	0	0	69
117	0	0	0	0	1	0	0	0	1	0	0	0	59
118	0	0	0	0	0	0	0	0	0	0	0	0	26
119	9	1	0	2	3	0	0	0	15	0	0	0	48
120	11	0	0	0	20	0	0	0	31	0	0	0	10
121	0	0	0	0	0	0	0	0	0	0	0	0	5
122	0	0	0	0	0	0	0	0	0	0	0	0	19
123	0	0	0	0	0	0	0	0	0	0	0	0	5
124	0	0	0	0	2	0	0	0	2	0	0	0	30
125	0	0	0	0	60	0	0	0	60	0	0	0	83
126	0	0	0	0	0	0	0	0	0	0	0	0	5
127	75	0	0	0	0	0	0	0	75	0	0	0	46
128	10	4	0	0	32	0	0	0	46	0	0	0	62

TABLE 7-4

BASE YEAR SOCIO-ECONOMIC EMPLOYMENT INPUT DATA

IDS DATA
CALDWELL COUNTY URBAN AREA (See end of table for a key to abbreviations)

	[----------Number Of Employees By Catagory---------]								TOTAL				TOTAL
ZONE	IND	RET	HWYRET	OFF	SER	OTH1	OTH2	OTH3	EMPLOYEES				DWELLING
	X1	X2	X3	X4	X5	X6	X7	X8					UNITS
129	2	0	0	0	0	0	0	0	2	0	0	0	27
130	0	0	0	0	0	0	0	0	0	0	0	0	18
131	0	0	0	0	0	0	0	0	0	0	0	0	38
132	0	0	0	0	0	0	0	0	0	0	0	0	95
133	15	2	0	0	6	0	0	0	23	0	0	0	83
134	0	0	0	0	0	0	0	0	0	0	0	0	163
135	1	0	0	0	3	0	0	0	4	0	0	0	101
136	0	0	0	0	0	0	0	0	0	0	0	0	20
137	0	0	0	0	0	0	0	0	0	0	0	0	13
138	0	0	0	0	1	0	0	0	1	0	0	0	62
139	0	0	0	0	0	0	0	0	0	0	0	0	20
140	1	0	0	0	1	0	0	0	2	0	0	0	15
141	0	0	0	0	0	0	0	0	0	0	0	0	30
142	0	0	0	0	0	0	0	0	0	0	0	0	45
143	0	0	0	0	0	0	0	0	0	0	0	0	22
144	0	0	0	0	1	0	0	0	1	0	0	0	11
145	0	0	0	0	0	0	0	0	0	0	0	0	10
146	3	4	0	0	0	0	0	0	7	0	0	0	37
147	0	0	0	0	2	0	0	0	2	0	0	0	63
148	95	0	0	0	2	0	0	0	97	0	0	0	114
149	0	0	0	0	0	0	0	0	0	0	0	0	19
150	39	1	0	0	0	0	0	0	40	0	0	0	208
151	20	3	1	0	3	0	0	0	27	0	0	0	114
152	0	0	0	0	1	0	0	0	1	0	0	0	66
153	12	8	0	0	23	0	0	0	43	0	0	0	84
154	0	2	0	0	0	0	0	0	2	0	0	0	31
155	0	8	0	0	0	0	0	0	8	0	0	0	6
156	100	13	0	0	1	0	0	0	114	0	0	0	14
157	181	80	8	7	163	0	0	0	439	0	0	0	168
158	0	0	0	0	0	0	0	0	0	0	0	0	13
159	2	0	0	0	99	0	0	0	101	0	0	0	37
160	0	0	0	0	4	0	0	0	4	0	0	0	30
161	0	0	0	0	0	0	0	0	0	0	0	0	53
162	0	0	0	0	0	0	0	0	0	0	0	0	5
163	0	0	0	0	2	0	0	0	2	0	0	0	39
164	0	0	50	0	2	0	0	0	52	0	0	0	102
165	0	0	0	0	0	0	0	0	0	0	0	0	54
166	189	1	6	0	3	0	0	0	199	0	0	0	146
167	5	0	0	0	4	0	0	0	9	0	0	0	37
168	15	150	0	13	9	0	0	0	187	0	0	0	36
169	0	21	0	0	48	0	0	0	69	0	0	0	64
170	141	0	0	0	0	0	0	0	141	0	0	0	66
171	60	18	0	5	32	0	0	0	115	0	0	0	137
172	0	7	197	32	0	0	0	0	236	0	0	0	94
173	150	3	0	7	15	0	0	0	175	0	0	0	73
174	8	6	17	7	16	0	0	0	54	0	0	0	194
175	317	17	13	2	15	0	0	0	364	0	0	0	104
176	0	0	0	0	238	0	0	0	238	0	0	0	0
177	406	60	9	7	55	0	0	0	537	0	0	0	185
178	26	0	1	0	8	0	0	0	35	0	0	0	160
179	1	0	0	0	1	0	0	0	2	0	0	0	28
180	0	16	0	1	1	0	0	0	18	0	0	0	142
181	0	0	0	0	2	0	0	0	2	0	0	0	79
182	0	0	0	0	1	0	0	0	1	0	0	0	56
183	0	0	0	0	0	0	0	0	0	0	0	0	38
184	0	0	0	0	0	0	0	0	0	0	0	0	46
185	12	1	0	0	1	0	0	0	14	0	0	0	81
186	22	55	4	0	11	0	0	0	92	0	0	0	73
187	15	79	71	36	116	0	0	0	317	0	0	0	117
188	0	8	0	4	15	0	0	0	27	0	0	0	132
189	682	9	3	0	0	0	0	0	694	0	0	0	98
190	0	0	0	0	0	0	0	0	0	0	0	0	3
191	300	0	5	0	2	0	0	0	307	0	0	0	64
192	0	0	0	0	0	0	0	0	0	0	0	0	21

TABLE 7-4

BASE YEAR SOCIO-ECONOMIC EMPLOYMENT INPUT DATA

IDS DATA
CALDWELL COUNTY URBAN AREA (See end of table for a key to abbreviations)

	[----------Number Of Employees By Catagory---------]								TOTAL				TOTAL
ZONE	IND	RET	HWYRET	OFF	SER	OTH1	OTH2	OTH3	EMPLOYEES				DWELLING
	X1	X2	X3	X4	X5	X6	X7	X8					UNITS
193	177	16	2	0	2	0	0	0	197	0	0	0	6
194	185	26	0	0	49	0	0	0	260	0	0	0	82
195	3	6	0	0	5	0	0	0	14	0	0	0	175
196	0	0	0	0	1	0	0	0	1	0	0	0	172
197	0	0	0	94	0	0	0	0	94	0	0	0	0
198	88	2	0	0	2	0	0	0	92	0	0	0	64
199	1142	7	2	0	3	0	0	0	1154	0	0	0	62
200	26	0	0	0	9	0	0	0	35	0	0	0	208
201	7	0	0	0	9	0	0	0	16	0	0	0	76
202	0	0	0	0	2	0	0	0	2	0	0	0	85
203	17	60	30	52	56	0	0	0	215	0	0	0	226
204	258	0	16	0	9	0	0	0	283	0	0	0	89
205	0	0	0	0	1	0	0	0	1	0	0	0	35
206	0	0	0	0	0	0	0	0	0	0	0	0	52
207	0	0	0	0	1	0	0	0	1	0	0	0	18
208	0	15	0	0	14	0	0	0	29	0	0	0	82
209	240	3	0	0	4	0	0	0	247	0	0	0	70
210	0	0	0	0	24	0	0	0	24	0	0	0	46
211	0	0	0	0	0	0	0	0	0	0	0	0	93
212	0	16	0	0	50	0	0	0	66	0	0	0	91
213	221	0	15	0	2	0	0	0	238	0	0	0	6
214	28	0	3	0	5	0	0	0	36	0	0	0	183
215	0	2	2	0	4	0	0	0	8	0	0	0	268
216	25	9	2	0	1	0	0	0	37	0	0	0	0
217	3	2	10	0	2	0	0	0	17	0	0	0	9
218	0	0	2	0	6	0	0	0	8	0	0	0	133
219	0	1	0	0	2	0	0	0	3	0	0	0	42
220	129	2	130	0	16	0	0	0	277	0	0	0	69
221	55	3	1	0	0	0	0	0	59	0	0	0	52
222	6	0	0	0	0	0	0	0	6	0	0	0	2
223	0	0	0	0	1	0	0	0	1	0	0	0	144
224	0	4	0	0	0	0	0	0	4	0	0	0	28
225	68	0	1	0	2	0	0	0	71	0	0	0	84
226	1700	0	0	0	0	0	0	0	1700	0	0	0	6
227	10	0	0	0	2	0	0	0	12	0	0	0	34
228	0	0	0	0	11	0	0	0	11	0	0	0	113
229	0	0	0	0	1	0	0	0	1	0	0	0	128
230	0	2	0	0	2	0	0	0	4	0	0	0	108
231	0	0	0	0	1	0	0	0	1	0	0	0	25
232	0	0	0	0	0	0	0	0	0	0	0	0	20
233	0	0	0	0	0	0	0	0	0	0	0	0	43
234	0	0	0	0	2	0	0	0	2	0	0	0	122
235	0	0	0	0	0	0	0	0	0	0	0	0	160
236	0	0	0	0	0	0	0	0	0	0	0	0	77
237	0	0	0	0	0	0	0	0	0	0	0	0	40
238	0	0	0	0	0	0	0	0	0	0	0	0	70
239	16	0	0	0	0	0	0	0	16	0	0	0	41
240	0	0	0	0	0	0	0	0	0	0	0	0	0
241	0	0	0	0	0	0	0	0	0	0	0	0	4
242	7	0	0	0	0	0	0	0	7	0	0	0	0
243	0	0	0	0	0	0	0	0	0	0	0	0	0
244	0	0	0	0	0	0	0	0	0	0	0	0	0
245	0	0	0	0	0	0	0	0	0	0	0	0	0
246	0	2	0	0	1	0	0	0	3	0	0	0	80
247	0	0	0	0	0	0	0	0	0	0	0	0	24
248	0	0	0	0	0	0	0	0	0	0	0	0	53
249	0	0	0	0	0	0	0	0	0	0	0	0	44
250	0	0	0	0	0	0	0	0	0	0	0	0	86
251	0	0	0	0	1	0	0	0	1	0	0	0	18
252	0	0	0	0	0	0	0	0	0	0	0	0	88
253	0	0	0	0	0	0	0	0	0	0	0	0	136
254	0	0	0	0	0	0	0	0	0	0	0	0	18
255	0	0	0	0	0	0	0	0	0	0	0	0	1
256	0	0	0	0	0	0	0	0	0	0	0	0	0

TABLE 7-4

BASE YEAR SOCIO-ECONOMIC EMPLOYMENT INPUT DATA

IDS DATA
CALDWELL COUNTY URBAN AREA (See end of table for a key to abbreviations)

	[----------Number Of Employees By Catagory---------]								TOTAL				TOTAL
ZONE	IND	RET	HWYRET	OFF	SER	OTH1	OTH2	OTH3	EMPLOYEES				DWELLING
	X1	X2	X3	X4	X5	X6	X7	X8					UNITS
257	60	0	0	1	22	0	0	0	83	0	0	0	51
258	0	0	0	0	4	0	0	0	4	0	0	0	101
259	0	0	2	0	27	0	0	0	29	0	0	0	134
260	11	20	0	0	63	0	0	0	94	0	0	0	199
261	0	0	0	0	4	0	0	0	4	0	0	0	105
262	0	0	0	1	0	0	0	0	1	0	0	0	52
263	0	0	0	0	0	0	0	0	0	0	0	0	26
264	5	11	0	0	11	0	0	0	27	0	0	0	342
265	0	10	0	0	0	0	0	0	10	0	0	0	47
266	0	1	0	0	1	0	0	0	2	0	0	0	34
267	3	0	0	0	0	0	0	0	3	0	0	0	7
268	72	40	10	0	4	0	0	0	126	0	0	0	87
269	0	3	0	0	78	0	0	0	81	0	0	0	108
270	0	1	0	0	1	0	0	0	2	0	0	0	71
271	0	2	31	1	6	0	0	0	40	0	0	0	71
272	0	0	0	0	0	0	0	0	0	0	0	0	60
273	0	18	25	0	12	0	0	0	55	0	0	0	277
274	0	0	0	0	0	0	0	0	0	0	0	0	38
275	0	0	0	0	0	0	0	0	0	0	0	0	72
276	0	0	0	0	1	0	0	0	1	0	0	0	27
277	0	6	0	0	0	0	0	0	6	0	0	0	61
278	0	1	7	0	19	0	0	0	27	0	0	0	48
279	0	1	0	0	2	0	0	0	3	0	0	0	69
280	14	2	4	8	0	0	0	0	28	0	0	0	73
281	149	117	12	36	4	0	0	0	318	0	0	0	113
282	0	0	0	0	0	0	0	0	0	0	0	0	47
283	2	3	7	0	4	0	0	0	16	0	0	0	122
284	133	9	2	0	55	0	0	0	199	0	0	0	253
285	112	0	0	0	0	0	0	0	112	0	0	0	88
286	0	0	0	0	0	0	0	0	0	0	0	0	2
287	0	0	0	3	1	0	0	0	4	0	0	0	16
288	0	3	0	0	1	0	0	0	4	0	0	0	60
289	10	0	0	0	0	0	0	0	10	0	0	0	35
290	0	0	0	0	0	0	0	0	0	0	0	0	182
291	125	3	7	0	17	0	0	0	152	0	0	0	283
292	0	0	0	0	10	0	0	0	10	0	0	0	212
293	0	0	0	0	2	0	0	0	2	0	0	0	86
294	0	0	0	0	22	0	0	0	22	0	0	0	43
295	0	0	0	0	0	0	0	0	0	0	0	0	118
296	0	0	0	0	0	0	0	0	0	0	0	0	114
297	0	15	0	0	5	0	0	0	20	0	0	0	120
298	16	0	0	0	0	0	0	0	16	0	0	0	40
299	0	0	0	0	0	0	0	0	0	0	0	0	26
300	0	0	0	0	21	0	0	0	21	0	0	0	29
301	45	0	0	0	0	0	0	0	45	0	0	0	4
302	228	92	0	7	15	0	0	0	342	0	0	0	35
303	0	0	0	0	1	0	0	0	1	0	0	0	54
304	0	5	0	0	0	0	0	0	5	0	0	0	84
305	0	0	0	2	0	0	0	0	2	0	0	0	29
306	0	0	0	0	0	0	0	0	0	0	0	0	65
307	0	0	0	0	3	0	0	0	3	0	0	0	39
308	0	0	0	0	8	0	0	0	8	0	0	0	114
309	2	12	7	17	11	0	0	0	49	0	0	0	105
310	117	39	0	0	2	0	0	0	158	0	0	0	88
311	0	22	6	0	13	0	0	0	41	0	0	0	15
312	38	4	0	0	7	0	0	0	49	0	0	0	28
313	13	0	0	0	2	0	0	0	15	0	0	0	59
314	0	48	9	0	8	0	0	0	65	0	0	0	104
315	7	7	0	0	2	0	0	0	16	0	0	0	60
316	3	29	65	17	46	0	0	0	160	0	0	0	109
317	134	16	3	5	35	0	0	0	193	0	0	0	87
318	15	397	64	25	409	0	0	0	910	0	0	0	126
319	441	13	7	13	14	0	0	0	488	0	0	0	179
320	0	11	0	0	13	0	0	0	24	0	0	0	22

TABLE 7-4

BASE YEAR SOCIO-ECONOMIC EMPLOYMENT INPUT DATA

IDS DATA
CALDWELL COUNTY URBAN AREA (See end of table for a key to abbreviations)

	[----------Number Of Employees By Catagory---------]								TOTAL				TOTAL
ZONE	IND	RET	HWYRET	OFF	SER	OTH1	OTH2	OTH3	EMPLOYEES				DWELLING
	X1	X2	X3	X4	X5	X6	X7	X8					UNITS
321	109	0	0	0	2	0	0	0	111	0	0	0	93
322	0	7	0	0	3	0	0	0	10	0	0	0	264
323	0	0	0	60	198	0	0	0	258	0	0	0	203
324	4	0	0	0	0	0	0	0	4	0	0	0	74
325	30	18	0	0	4	0	0	0	52	0	0	0	256

TOTALS

13284	**3010**	**1574**	**1821**	**5354**	**0**	**0**	**0**	**25043**	**0**	**0**	**0**	**23055**

NOTES

TEMP only includes employment in X1-X8

Key to abbreviations:

IND	Industrial
RET	Retail
HWYRET	Highway Retail
OFF	Office
SER	Service

TABLE 7-5

DESIGN YEAR SOCIO-ECONOMIC DWELLING UNIT INPUT DATA

IDS DATA
CALDWELL COUNTY URBAN AREA (See end of table for key to the abbreviations)

	Number of Dwelling Units					TOTAL					TOTAL	Commercial Vehicles			TOTAL
ZN	EXC	AAV	AVE	BA	POOR	DU S	OTHER1	OTHER2	OTHER3	OTHER4	OTHER	TAXI	TRUCK	CA	CV
1	0	6	37	6	3	52	0	0	0	0	0	0	0	0	0
2	0	7	20	7	11	45	0	0	0	0	0	0	5	1	6
3	0	8	20	0	14	42	0	0	0	0	0	0	0	0	0
4	0	3	82	4	20	109	0	0	0	0	0	0	0	0	0
5	0	5	42	0	0	47	0	0	0	0	0	0	1	0	1
6	0	10	112	7	1	130	0	0	0	0	0	0	0	0	0
7	0	7	13	0	2	22	0	0	0	0	0	0	0	0	0
8	0	6	41	23	2	72	0	0	0	0	0	0	23	0	23
9	0	0	54	44	0	98	0	0	0	0	0	0	10	0	10
10	6	45	149	60	6	266	0	0	0	0	0	0	16	0	16
11	0	11	200	56	1	268	0	0	0	0	0	0	2	0	2
12	0	11	59	27	2	99	0	0	0	0	0	0	1	0	1
13	1	22	211	11	0	245	0	0	0	0	0	0	3	0	3
14	0	4	36	1	0	41	0	0	0	0	0	0	0	0	0
15	0	15	36	3	0	54	0	0	0	0	0	0	0	0	0
16	0	41	172	43	4	260	0	0	0	0	0	0	12	2	14
17	0	9	41	34	5	89	0	0	0	0	0	0	0	0	0
18	0	7	97	29	0	133	0	0	0	0	0	0	1	0	1
19	0	0	12	4	0	16	0	0	0	0	0	0	10	0	10
20	0	3	3	7	34	47	0	0	0	0	0	0	4	1	5
21	0	0	1	5	39	45	0	0	0	0	0	0	0	0	0
22	0	6	1	14	23	44	0	0	0	0	0	0	1	0	1
23	0	8	26	9	12	55	0	0	0	0	0	0	6	0	6
24	1	2	2	4	51	60	0	0	0	0	0	0	0	1	1
25	0	2	2	7	21	32	0	0	0	0	0	0	4	6	10
26	0	0	11	27	108	146	0	0	0	0	0	0	53	1	54
27	0	5	2	5	121	133	0	0	0	0	0	0	0	0	0
28	0	1	0	2	66	69	0	0	0	0	0	0	1	0	1
29	0	0	5	0	206	211	0	0	0	0	0	0	0	0	0
30	0	0	9	0	55	64	0	0	0	0	0	0	0	0	0
31	0	0	63	0	2	65	0	0	0	0	0	0	0	0	0
32	0	0	21	0	0	21	0	0	0	0	0	0	0	0	0
33	0	0	3	0	101	104	0	0	0	0	0	0	0	0	0
34	0	2	3	3	78	86	0	0	0	0	0	0	0	0	0
35	0	0	0	0	201	201	0	0	0	0	0	0	0	0	0
36	0	0	1	1	35	37	0	0	0	0	0	0	0	0	0
37	0	0	0	0	224	224	0	0	0	0	0	0	0	0	0
38	0	0	0	0	197	197	0	0	0	0	0	0	0	0	0
39	0	0	4	0	42	46	0	0	0	0	0	0	0	0	0
40	0	0	0	0	66	66	0	0	0	0	0	0	0	0	0
41	0	0	1	3	39	43	0	0	0	0	0	0	3	0	3
42	0	2	22	2	61	87	0	0	0	0	0	0	2	0	2
43	0	8	6	13	57	84	0	0	0	0	0	0	1	0	1
44	1	1	1	3	54	60	0	0	0	0	0	0	14	0	14
45	0	2	2	0	60	64	0	0	0	0	0	0	0	0	0
46	0	3	0	0	33	36	0	0	0	0	0	0	10	0	10
47	0	0	2	1	58	61	0	0	0	0	0	0	0	0	0
48	0	17	20	0	16	53	0	0	0	0	0	0	0	0	0
49	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
51	0	0	0	0	68	68	0	0	0	0	0	0	42	0	42
52	0	0	0	0	55	55	0	0	0	0	0	0	0	0	0
53	0	0	0	6	91	97	0	0	0	0	0	0	4	0	4
54	0	0	0	1	70	71	0	0	0	0	0	0	0	0	0
55	0	0	43	1	26	70	0	0	0	0	0	0	0	0	0
56	0	2	47	39	2	90	0	0	0	0	0	0	0	3	3
57	0	1	67	32	3	103	0	0	0	0	0	0	0	0	0
58	0	0	16	12	0	28	0	0	0	0	0	0	0	0	0
59	3	10	61	23	1	98	0	0	0	0	0	0	0	0	0
60	13	8	32	1	0	54	0	0	0	0	0	0	0	0	0
61	23	23	22	0	0	68	0	0	0	0	0	0	8	14	22
62	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
63	0	3	18	9	6	36	0	0	0	0	0	0	13	15	28
64	1	15	78	0	0	94	0	0	0	0	0	0	2	0	2

TABLE 7-5

DESIGN YEAR SOCIO-ECONOMIC DWELLING UNIT INPUT DATA

IDS DATA
CALDWELL COUNTY URBAN AREA (See end of table for key to the abbreviations)

	Number of Dwelling Units					TOTAL					TOTAL	Commercial Vehicles			TOTAL
ZN	EXC	AAV	AVE	BA	POOR	DU S	OTHER1	OTHER2	OTHER3	OTHER4	OTHER	TAXI	TRUCK	CA	CV
65	0	39	36	15	64	154	0	0	0	0	0	0	0	0	0
66	3	14	25	24	186	252	0	0	0	0	0	0	8	1	9
67	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
68	0	0	14	0	0	14	0	0	0	0	0	0	24	57	81
69	0	1	13	23	77	114	0	0	0	0	0	0	2	0	2
70	0	0	0	20	155	175	0	0	0	0	0	0	0	0	0
71	0	0	3	8	38	49	0	0	0	0	0	0	2	0	2
72	0	0	9	125	9	143	0	0	0	0	0	0	0	0	0
73	0	2	6	17	0	25	0	0	0	0	0	0	1	0	1
74	3	10	23	21	1	58	0	0	0	0	0	0	0	1	1
75	0	9	4	2	7	22	0	0	0	0	0	0	3	0	3
76	0	39	52	2	0	93	0	0	0	0	0	0	0	0	0
77	0	5	41	15	30	91	0	0	0	0	0	0	0	0	0
78	0	0	0	156	167	323	0	0	0	0	0	0	0	0	0
79	0	0	0	11	141	152	0	0	0	0	0	0	0	0	0
80	0	0	1	35	105	141	0	0	0	0	0	0	0	0	0
81	0	0	17	4	4	25	0	0	0	0	0	0	5	4	9
82	1	21	95	133	0	250	0	0	0	0	0	0	12	0	12
83	0	0	27	0	3	30	0	0	0	0	0	0	3	0	3
84	0	0	0	0	17	17	0	0	0	0	0	0	5	2	7
85	2	10	8	11	131	162	0	0	0	0	0	0	85	8	93
86	3	42	16	0	0	61	0	0	0	0	0	0	0	0	0
87	9	13	17	0	9	48	0	0	0	0	0	0	0	0	0
88	0	9	15	6	27	57	0	0	0	0	0	0	0	0	0
89	0	6	16	14	3	39	0	0	0	0	0	0	1	0	1
90	2	6	8	2	8	26	0	0	0	0	0	0	0	0	0
91	0	3	0	0	18	21	0	0	0	0	0	0	2	2	4
92	0	0	0	0	38	38	0	0	0	0	0	0	13	6	19
93	0	0	5	0	10	15	0	0	0	0	0	0	4	1	5
94	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
95	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
96	13	0	0	0	0	13	0	0	0	0	0	0	0	0	0
97	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
98	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
99	0	0	9	12	0	21	0	0	0	0	0	0	0	0	0
100	21	30	4	4	11	70	0	0	0	0	0	0	0	0	0
101	4	11	43	15	4	77	0	0	0	0	0	0	4	11	15
102	0	1	37	6	0	44	0	0	0	0	0	0	7	3	10
103	0	8	21	3	0	32	0	0	0	0	0	0	4	12	16
104	1	1	61	1	0	64	0	0	0	0	0	0	7	2	9
105	0	3	96	34	5	138	0	0	0	0	0	0	1	0	1
106	3	16	74	3	1	97	0	0	0	0	0	0	0	0	0
107	0	30	83	4	1	118	0	0	0	0	0	0	0	0	0
108	0	11	18	7	7	43	0	0	0	0	0	0	0	0	0
109	0	19	22	22	34	97	0	0	0	0	0	0	1	0	1
110	82	74	114	32	13	315	0	0	0	0	0	0	0	0	0
111	83	41	45	6	0	175	0	0	0	0	0	0	0	0	0
112	10	26	8	0	0	44	0	0	0	0	0	0	0	0	0
113	0	0	13	0	0	13	0	0	0	0	0	0	0	1	1
114	0	2	22	2	0	26	0	0	0	0	0	0	0	0	0
115	3	5	47	34	18	107	0	0	0	0	0	0	3	0	3
116	1	8	50	12	9	80	0	0	0	0	0	0	0	0	0
117	30	39	88	15	6	178	0	0	0	0	0	0	0	0	0
118	6	10	19	3	0	38	0	0	0	0	0	0	0	0	0
119	0	4	41	21	19	85	0	0	0	0	0	0	2	5	7
120	0	2	7	7	7	23	0	0	0	0	0	0	4	9	13
121	0	3	7	0	7	17	0	0	0	0	0	0	0	0	0
122	8	7	13	2	2	32	0	0	0	0	0	0	0	0	0
123	0	0	10	7	0	17	0	0	0	0	0	0	0	0	0
124	1	4	18	10	8	41	0	0	0	0	0	0	0	0	0
125	56	98	44	2	2	202	0	0	0	0	0	0	0	0	0
126	0	3	3	7	3	16	0	0	0	0	0	0	0	0	0
127	1	6	9	37	5	58	0	0	0	0	0	0	1	0	1
128	2	13	14	27	17	73	0	0	0	0	0	0	1	0	1

TABLE 7-5

DESIGN YEAR SOCIO-ECONOMIC DWELLING UNIT INPUT DATA

IDS DATA
CALDWELL COUNTY URBAN AREA (See end of table for key to the abbreviations)

	Number of Dwelling Units					TOTAL					TOTAL	Commercial Vehicles			TOTAL
ZN	EXC	AAV	AVE	BA	POOR	DU S	OTHER1	OTHER2	OTHER3	OTHER4	OTHER	TAXI	TRUCK	CA	CV
129	0	0	3	23	13	39	0	0	0	0	0	0	0	0	0
130	2	3	0	15	10	30	0	0	0	0	0	0	0	0	0
131	0	4	11	20	16	51	0	0	0	0	0	0	0	0	0
132	0	17	15	101	29	162	0	0	0	0	0	0	0	0	0
133	0	9	3	58	51	121	0	0	0	0	0	0	1	0	1
134	3	92	55	52	28	230	0	0	0	0	0	0	0	0	0
135	0	0	0	27	141	168	0	0	0	0	0	0	3	0	3
136	0	2	6	18	6	32	0	0	0	0	0	0	0	0	0
137	0	2	0	6	17	25	0	0	0	0	0	0	0	0	0
138	0	6	5	36	27	74	0	0	0	0	0	0	0	0	0
139	0	9	26	39	13	87	0	0	0	0	0	0	0	0	0
140	2	2	7	16	0	27	0	0	0	0	0	0	1	0	1
141	7	13	3	11	8	42	0	0	0	0	0	0	0	0	0
142	5	41	5	3	4	58	0	0	0	0	0	0	0	0	0
143	0	6	0	12	15	33	0	0	0	0	0	0	0	0	0
144	2	6	4	8	2	22	0	0	0	0	0	0	0	0	0
145	0	4	7	11	0	22	0	0	0	0	0	0	0	0	0
146	0	8	3	32	7	50	0	0	0	0	0	0	3	0	3
147	0	6	6	38	49	99	0	0	0	0	0	0	0	0	0
148	0	20	29	77	25	151	0	0	0	0	0	0	7	0	7
149	0	3	11	10	7	31	0	0	0	0	0	0	0	0	0
150	2	15	28	99	76	220	0	0	0	0	0	0	4	1	5
151	0	11	19	48	74	152	0	0	0	0	0	0	2	0	2
152	0	14	8	52	30	104	0	0	0	0	0	0	0	0	0
153	0	46	53	53	51	203	0	0	0	0	0	0	2	1	3
154	0	1	4	17	21	43	0	0	0	0	0	0	0	0	0
155	0	0	6	6	6	18	0	0	0	0	0	0	4	0	4
156	0	15	11	11	15	52	0	0	0	0	0	0	31	0	31
157	1	40	48	49	67	205	0	0	0	0	0	0	22	10	32
158	0	2	13	10	0	25	0	0	0	0	0	0	0	0	0
159	0	5	26	12	5	48	0	0	0	0	0	0	1	0	1
160	4	18	40	0	4	66	0	0	0	0	0	0	0	0	0
161	0	7	22	15	7	51	0	0	0	0	0	0	0	0	0
162	3	3	3	7	0	16	0	0	0	0	0	0	0	0	0
163	0	11	41	8	46	106	0	0	0	0	0	0	1	0	1
164	0	35	91	18	25	169	0	0	0	0	0	0	4	0	4
165	1	17	38	7	2	65	0	0	0	0	0	0	0	0	0
166	1	10	95	14	63	183	0	0	0	0	0	0	85	0	85
167	0	3	13	9	24	49	0	0	0	0	0	0	4	0	4
168	0	45	1	0	1	47	0	0	0	0	0	0	13	1	14
169	13	13	46	1	2	75	0	0	0	0	0	0	5	0	5
170	0	23	58	22	0	103	0	0	0	0	0	0	30	0	30
171	2	4	82	33	28	149	0	0	0	0	0	0	18	0	18
172	2	11	48	24	20	105	0	0	0	0	0	0	9	0	9
173	0	2	9	12	62	85	0	0	0	0	0	0	12	1	13
174	3	19	140	40	59	261	0	0	0	0	0	0	13	0	13
175	0	8	23	2	83	116	0	0	0	0	0	0	164	4	168
176	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
177	0	13	89	34	61	197	0	0	0	0	0	0	42	2	44
178	16	45	87	18	61	227	0	0	0	0	0	0	10	0	10
179	0	7	26	5	28	66	0	0	0	0	0	0	0	0	0
180	44	59	47	21	38	209	0	0	0	0	0	0	4	0	4
181	2	0	142	2	0	146	0	0	0	0	0	0	0	0	0
182	50	38	0	5	0	93	0	0	0	0	0	0	0	0	0
183	11	13	20	3	4	51	0	0	0	0	0	0	0	0	0
184	38	11	16	9	9	83	0	0	0	0	0	0	0	0	0
185	0	20	52	69	60	201	0	0	0	0	0	0	3	1	4
186	0	16	29	21	19	85	0	0	0	0	0	0	17	0	17
187	0	6	13	57	53	129	0	0	0	0	0	0	20	4	24
188	0	1	9	32	103	145	0	0	0	0	0	0	4	0	4
189	0	7	13	10	80	110	0	0	0	0	0	0	52	0	52
190	0	0	5	10	0	15	0	0	0	0	0	0	0	0	0
191	0	12	20	23	23	78	0	0	0	0	0	0	4	1	5
192	0	3	14	9	6	32	0	0	0	0	0	0	0	0	0

TABLE 7-5

DESIGN YEAR SOCIO-ECONOMIC DWELLING UNIT INPUT DATA

IDS DATA
CALDWELL COUNTY URBAN AREA (See end of table for key to the abbreviations)

	Number of Dwelling Units					TOTAL					TOTAL	Commercial Vehicles			TOTAL
ZN	EXC	AAV	AVE	BA	POOR	DU S	OTHER1	OTHER2	OTHER3	OTHER4	OTHER	TAXI	TRUCK	CA	CV
193	0	0	6	3	9	18	0	0	0	0	0	0	5	0	5
194	0	2	22	37	33	94	0	0	0	0	0	0	17	2	19
195	0	5	58	30	94	187	0	0	0	0	0	0	3	0	3
196	3	26	140	35	35	239	0	0	0	0	0	0	0	0	0
197	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
198	2	9	39	33	17	100	0	0	0	0	0	0	3	0	3
199	0	0	6	24	44	74	0	0	0	0	0	0	14	0	14
200	16	44	128	69	71	328	0	0	0	0	0	0	1	0	1
201	0	8	26	49	113	196	0	0	0	0	0	0	8	0	8
202	3	7	58	9	19	96	0	0	0	0	0	0	1	0	1
203	14	57	191	55	29	346	0	0	0	0	0	0	11	1	12
204	1	7	77	12	3	100	0	0	0	0	0	0	14	0	14
205	0	42	5	0	0	47	0	0	0	0	0	0	0	0	0
206	0	60	29	0	0	89	0	0	0	0	0	0	0	0	0
207	0	3	22	5	0	30	0	0	0	0	0	0	0	0	0
208	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
209	0	1	52	29	0	82	0	0	0	0	0	0	3	0	3
210	1	0	57	0	0	58	0	0	0	0	0	0	1	0	1
211	0	0	105	0	0	105	0	0	0	0	0	0	0	0	0
212	0	7	148	3	0	158	0	0	0	0	0	0	1	0	1
213	0	3	6	9	0	18	0	0	0	0	0	0	0	2	2
214	0	0	191	4	0	195	0	0	0	0	0	0	4	0	4
215	0	5	301	29	0	335	0	0	0	0	0	0	1	0	1
216	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
217	0	0	21	0	0	21	0	0	0	0	0	0	0	0	0
218	1	1	151	13	4	170	0	0	0	0	0	0	0	0	0
219	0	6	64	9	0	79	0	0	0	0	0	0	0	0	0
220	0	2	104	0	0	106	0	0	0	0	0	0	0	1	1
221	0	0	63	1	0	64	0	0	0	0	0	0	24	3	27
222	0	0	14	0	0	14	0	0	0	0	0	0	0	0	0
223	0	0	104	52	0	156	0	0	0	0	0	0	2	0	2
224	0	0	33	7	0	40	0	0	0	0	0	0	1	0	1
225	0	0	85	36	0	121	0	0	0	0	0	0	14	0	14
226	0	3	9	6	0	18	0	0	0	0	0	0	0	0	0
227	0	5	39	1	0	45	0	0	0	0	0	0	0	0	0
228	0	1	100	23	1	125	0	0	0	0	0	0	0	0	0
229	0	4	161	0	0	165	0	0	0	0	0	0	0	0	0
230	0	5	117	21	1	144	0	0	0	0	0	0	1	0	1
231	0	15	70	7	0	92	0	0	0	0	0	0	0	0	0
232	8	8	16	0	0	32	0	0	0	0	0	0	0	0	0
233	4	15	35	1	0	55	0	0	0	0	0	0	0	0	0
234	0	4	14	157	67	242	0	0	0	0	0	0	0	1	1
235	0	14	74	112	81	281	0	0	0	0	0	0	0	0	0
236	0	31	18	87	61	197	0	0	0	0	0	0	0	0	0
237	3	5	119	313	67	507	0	0	0	0	0	0	0	0	0
238	0	2	5	3	98	108	0	0	0	0	0	0	0	0	0
239	0	0	6	6	67	79	0	0	0	0	0	0	0	0	0
240	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
241	0	0	4	12	0	16	0	0	0	0	0	0	0	0	0
242	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
243	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
244	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
245	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
246	0	3	4	13	97	117	0	0	0	0	0	0	0	0	0
247	0	5	15	5	12	37	0	0	0	0	0	0	0	0	0
248	0	0	7	12	45	64	0	0	0	0	0	0	0	0	0
249	3	10	8	13	23	57	0	0	0	0	0	0	0	0	0
250	1	1	18	22	56	98	0	0	0	0	0	0	0	0	0
251	0	2	2	3	23	30	0	0	0	0	0	0	1	0	1
252	2	13	26	28	31	100	0	0	0	0	0	0	0	0	0
253	0	3	5	69	71	148	0	0	0	0	0	0	0	0	0
254	0	0	0	7	23	30	0	0	0	0	0	0	0	0	0
255	0	0	0	0	13	13	0	0	0	0	0	0	0	0	0
256	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

TABLE 7-5

DESIGN YEAR SOCIO-ECONOMIC DWELLING UNIT INPUT DATA

IDS DATA
CALDWELL COUNTY URBAN AREA (See end of table for key to the abbreviations)

	Number of Dwelling Units					TOTAL					TOTAL	Commercial Vehicles			TOTAL
ZN	EXC	AAV	AVE	BA	POOR	DU S	OTHER1	OTHER2	OTHER3	OTHER4	OTHER	TAXI	TRUCK	CA	CV
257	2	5	56	0	0	63	0	0	0	0	0	0	0	1	1
258	0	5	124	8	0	137	0	0	0	0	0	0	0	0	0
259	10	10	125	26	0	171	0	0	0	0	0	0	3	0	3
260	0	1	191	19	0	211	0	0	0	0	0	0	0	0	0
261	0	8	116	18	0	142	0	0	0	0	0	0	3	0	3
262	0	5	114	0	0	119	0	0	0	0	0	0	0	0	0
263	0	3	35	0	0	38	0	0	0	0	0	0	0	0	0
264	0	37	336	6	1	380	0	0	0	0	0	0	6	0	6
265	0	6	57	9	0	72	0	0	0	0	0	0	0	0	0
266	0	18	63	3	0	84	0	0	0	0	0	0	0	0	0
267	0	6	23	3	0	32	0	0	0	0	0	0	0	0	0
268	0	0	110	14	0	124	0	0	0	0	0	0	0	0	0
269	0	5	170	0	0	175	0	0	0	0	0	0	5	1	6
270	0	4	60	20	0	84	0	0	0	0	0	0	0	0	0
271	0	2	111	25	0	138	0	0	0	0	0	0	10	0	10
272	4	4	104	15	0	127	0	0	0	0	0	0	0	0	0
273	4	9	384	0	0	397	0	0	0	0	0	0	2	0	2
274	0	12	12	12	39	75	0	0	0	0	0	0	0	0	0
275	3	6	71	23	6	109	0	0	0	0	0	0	0	0	0
276	2	5	19	17	21	64	0	0	0	0	0	0	0	0	0
277	2	4	24	11	32	73	0	0	0	0	0	0	0	0	0
278	7	44	34	0	0	85	0	0	0	0	0	0	8	4	12
279	1	11	26	23	20	81	0	0	0	0	0	0	0	0	0
280	2	11	17	32	50	112	0	0	0	0	0	0	7	3	10
281	0	3	29	88	31	151	0	0	0	0	0	0	29	10	39
282	4	10	31	6	8	59	0	0	0	0	0	0	0	0	0
283	0	3	14	13	103	133	0	0	0	0	0	0	3	4	7
284	0	17	70	69	109	265	0	0	0	0	0	0	9	4	13
285	0	7	9	14	95	125	0	0	0	0	0	0	5	0	5
286	35	0	35	0	0	70	0	0	0	0	0	0	0	0	0
287	44	39	106	5	5	199	0	0	0	0	0	0	0	3	3
288	41	58	77	38	30	244	0	0	0	0	0	0	5	0	5
289	20	9	17	29	26	101	0	0	0	0	0	0	0	0	0
290	1	13	82	19	103	218	0	0	0	0	0	0	0	0	0
291	1	7	172	55	85	320	0	0	0	0	0	0	11	8	19
292	0	35	54	34	126	249	0	0	0	0	0	0	1	1	2
293	9	16	40	20	39	124	0	0	0	0	0	0	0	0	0
294	0	10	38	38	23	109	0	0	0	0	0	0	0	1	1
295	14	49	74	8	11	156	0	0	0	0	0	0	0	0	0
296	3	6	55	15	46	125	0	0	0	0	0	0	0	0	0
297	0	12	54	27	64	157	0	0	0	0	0	0	0	1	1
298	3	16	7	12	16	54	0	0	0	0	0	0	2	0	2
299	0	34	12	10	7	63	0	0	0	0	0	0	0	0	0
300	0	20	16	0	6	42	0	0	0	0	0	0	0	0	0
301	0	0	0	8	8	16	0	0	0	0	0	0	2	0	2
302	0	3	19	8	17	47	0	0	0	0	0	0	9	3	12
303	0	5	9	26	27	67	0	0	0	0	0	0	0	0	0
304	0	27	36	4	53	120	0	0	0	0	0	0	0	0	0
305	0	3	18	8	11	40	0	0	0	0	0	0	0	0	0
306	0	26	39	45	22	132	0	0	0	0	0	0	0	0	0
307	0	3	10	18	20	51	0	0	0	0	0	0	0	0	0
308	53	107	39	18	16	233	0	0	0	0	0	0	0	0	0
309	0	0	14	85	43	142	0	0	0	0	0	0	0	0	0
310	0	1	8	53	38	100	0	0	0	0	0	0	8	2	10
311	0	0	108	9	18	135	0	0	0	0	0	0	12	0	12
312	0	1	11	9	19	40	0	0	0	0	0	0	26	0	26
313	0	0	12	25	34	71	0	0	0	0	0	0	14	0	14
314	0	30	15	105	21	171	0	0	0	0	0	0	10	0	10
315	0	0	6	22	44	72	0	0	0	0	0	0	0	0	0
316	1	9	53	54	3	120	0	0	0	0	0	0	0	0	0
317	0	1	6	72	20	99	0	0	0	0	0	0	7	0	7
318	0	1	24	65	18	108	0	0	0	0	0	0	2	4	6
319	0	25	50	36	80	191	0	0	0	0	0	0	17	0	17
320	0	2	11	6	15	34	0	0	0	0	0	0	4	0	4

TABLE 7-5

DESIGN YEAR SOCIO-ECONOMIC DWELLING UNIT INPUT DATA

IDS DATA
CALDWELL COUNTY URBAN AREA (See end of table for key to the abbreviations)

	Number of Dwelling Units					TOTAL					TOTAL	Commercial Vehicles			TOTAL
ZN	EXC	AAV	AVE	BA	POOR	DU S	OTHER1	OTHER2	OTHER3	OTHER4	OTHER	TAXI	TRUCK	CA	CV
321	0	5	59	23	19	106	0	0	0	0	0	0	19	5	24
322	1	30	104	45	96	276	0	0	0	0	0	0	1	0	1
323	0	9	110	69	52	240	0	0	0	0	0	0	21	4	25
324	8	21	84	8	21	142	0	0	0	0	0	0	1	0	1
325	0	12	116	51	89	268	0	0	0	0	0	0	4	0	4
TOTALS	**948**	**3277**	**12780**	**6208**	**8878**	**32091**	**0**	**0**	**0**	**0**	**0**	**0**	**1448**	**264**	**1712**

Key to abbreviations:

Zn Zone Number
Exc Excellent Rating
AAV Above Average Rating
AVE Average Rating
BA Below Average Rating
Poor Poor Rating
DU s Dwelling Units
CA Commercial Auto
CV Commercial Vehicles

TABLE 7-6

DESIGN YEAR SOCIO-ECONOMIC EMPLOYMENT INPUT DATA

IDS DATA
CALDWELL COUNTY URBAN AREA (See end of table for key to the abbreviations)

	[----------Number Of Employees By Catagory---------]								TOTAL				TOTAL
ZONE	IND	RET	HWYRET	OFF	SER	OTH1	OTH2	OTH3	EMPLOYEES				DWELLING
	X1	X2	X3	X4	X5	X6	X7	X8					UNITS
1	0	0	0	0	13	0	0	0	13	0	0	0	52
2	0	0	10	0	5	0	0	0	15	0	0	0	45
3	0	0	0	0	0	0	0	0	0	0	0	0	42
4	0	0	0	5	10	0	0	0	15	0	0	0	109
5	0	0	0	0	16	0	0	0	16	0	0	0	47
6	0	0	0	0	13	0	0	0	13	0	0	0	130
7	0	0	0	0	0	0	0	0	0	0	0	0	22
8	107	0	0	0	159	0	0	0	266	0	0	0	72
9	4	15	0	1	26	0	0	0	46	0	0	0	98
10	2	1	0	0	159	0	0	0	162	0	0	0	266
11	0	0	0	3	14	0	0	0	17	0	0	0	268
12	0	0	0	0	13	0	0	0	13	0	0	0	99
13	45	21	0	0	21	0	0	0	87	0	0	0	245
14	0	0	8	0	53	0	0	0	61	0	0	0	41
15	0	7	7	0	0	0	0	0	14	0	0	0	54
16	245	1	1	1	7	0	0	0	255	0	0	0	260
17	7	0	0	0	10	0	0	0	17	0	0	0	89
18	40	1	5	0	0	0	0	0	46	0	0	0	133
19	73	8	3	2	3	0	0	0	89	0	0	0	16
20	0	20	0	0	0	0	0	0	20	0	0	0	47
21	0	0	0	0	0	0	0	0	0	0	0	0	45
22	0	0	0	0	17	0	0	0	17	0	0	0	44
23	52	0	0	0	0	0	0	0	52	0	0	0	55
24	0	0	0	0	36	0	0	0	36	0	0	0	60
25	12	46	17	0	0	0	0	0	75	0	0	0	32
26	89	44	1	0	161	0	0	0	295	0	0	0	146
27	63	0	0	0	0	0	0	0	63	0	0	0	133
28	0	4	0	0	12	0	0	0	16	0	0	0	69
29	0	0	0	0	0	0	0	0	0	0	0	0	211
30	0	0	0	0	13	0	0	0	13	0	0	0	64
31	0	0	0	0	0	0	0	0	0	0	0	0	65
32	0	0	0	0	0	0	0	0	0	0	0	0	21
33	0	0	0	0	0	0	0	0	0	0	0	0	104
34	459	0	0	0	4	0	0	0	463	0	0	0	86
35	0	0	0	0	0	0	0	0	0	0	0	0	201
36	0	0	0	0	13	0	0	0	13	0	0	0	37
37	0	0	0	0	0	0	0	0	0	0	0	0	224
38	0	0	0	0	0	0	0	0	0	0	0	0	197
39	0	0	0	0	0	0	0	0	0	0	0	0	46
40	0	0	0	0	14	0	0	0	14	0	0	0	66
41	0	0	0	0	83	0	0	0	83	0	0	0	43
42	0	0	0	0	81	0	0	0	81	0	0	0	87
43	0	97	0	0	0	0	0	0	97	0	0	0	84
44	37	60	0	23	3	0	0	0	123	0	0	0	60
45	0	0	0	0	15	0	0	0	15	0	0	0	64
46	31	2	0	0	2	0	0	0	35	0	0	0	36
47	0	0	0	0	0	0	0	0	0	0	0	0	61
48	0	0	0	0	0	0	0	0	0	0	0	0	53
49	187	0	0	0	0	0	0	0	187	0	0	0	0
50	0	2	11	0	23	0	0	0	36	0	0	0	0
51	238	87	4	71	9	0	0	0	409	0	0	0	68
52	1161	0	0	0	14	0	0	0	1175	0	0	0	55
53	0	6	13	0	24	0	0	0	43	0	0	0	97
54	0	0	0	0	0	0	0	0	0	0	0	0	71
55	0	0	45	0	28	0	0	0	73	0	0	0	70
56	7	39	19	0	0	0	0	0	65	0	0	0	90
57	0	0	0	0	0	0	0	0	0	0	0	0	103
58	0	0	0	0	94	0	0	0	94	0	0	0	28
59	1	14	47	101	1018	0	0	0	1181	0	0	0	98
60	0	0	0	0	0	0	0	0	0	0	0	0	54
61	21	65	93	46	114	0	0	0	339	0	0	0	68
62	0	11	0	51	46	0	0	0	108	0	0	0	0
63	289	14	0	5	64	0	0	0	372	0	0	0	36
64	0	0	4	0	20	0	0	0	24	0	0	0	94

TABLE 7-6

DESIGN YEAR SOCIO-ECONOMIC EMPLOYMENT INPUT DATA

IDS DATA
CALDWELL COUNTY URBAN AREA (See end of table for key to the abbreviations)

	[----------Number Of Employees By Catagory---------]								TOTAL				TOTAL
ZONE	IND	RET	HWYRET	OFF	SER	OTH1	OTH2	OTH3	EMPLOYEES				DWELLING
	X1	X2	X3	X4	X5	X6	X7	X8					UNITS
65	0	0	0	0	0	0	0	0	0	0	0	0	154
66	465	11	0	0	16	0	0	0	492	0	0	0	252
67	0	70	5	176	182	0	0	0	433	0	0	0	0
68	0	17	3	107	117	0	0	0	244	0	0	0	14
69	0	0	0	12	113	0	0	0	125	0	0	0	114
70	0	0	0	0	0	0	0	0	0	0	0	0	175
71	76	3	31	0	44	0	0	0	154	0	0	0	49
72	0	64	9	9	7	0	0	0	89	0	0	0	143
73	0	0	82	0	0	0	0	0	82	0	0	0	25
74	0	271	160	7	55	0	0	0	493	0	0	0	58
75	0	479	15	0	2	0	0	0	496	0	0	0	22
76	0	0	0	0	17	0	0	0	17	0	0	0	93
77	0	0	0	0	0	0	0	0	0	0	0	0	91
78	0	0	0	0	0	0	0	0	0	0	0	0	323
79	98	0	0	0	0	0	0	0	98	0	0	0	152
80	58	0	0	0	0	0	0	0	58	0	0	0	141
81	0	13	0	661	0	0	0	0	674	0	0	0	25
82	0	94	3	0	0	0	0	0	97	0	0	0	250
83	4	0	0	0	151	0	0	0	155	0	0	0	30
84	270	0	0	129	0	0	0	0	399	0	0	0	17
85	278	21	0	0	4	0	0	0	303	0	0	0	162
86	0	0	0	0	0	0	0	0	0	0	0	0	61
87	0	0	0	0	0	0	0	0	0	0	0	0	48
88	0	0	0	0	0	0	0	0	0	0	0	0	57
89	53	0	0	0	0	0	0	0	53	0	0	0	39
90	0	0	0	0	13	0	0	0	13	0	0	0	26
91	0	0	3	19	17	0	0	0	39	0	0	0	21
92	9	1	5	0	69	0	0	0	84	0	0	0	38
93	40	0	0	0	3	0	0	0	43	0	0	0	15
94	39	0	0	0	0	0	0	0	39	0	0	0	0
95	0	8	0	67	8	0	0	0	83	0	0	0	0
96	0	0	0	0	0	0	0	0	0	0	0	0	13
97	24	61	76	37	98	0	0	0	296	0	0	0	0
98	0	0	72	10	29	0	0	0	111	0	0	0	0
99	66	0	0	0	2	0	0	0	68	0	0	0	21
100	0	0	0	0	0	0	0	0	0	0	0	0	70
101	63	0	0	0	22	0	0	0	85	0	0	0	77
102	68	3	0	0	17	0	0	0	88	0	0	0	44
103	42	80	16	41	46	0	0	0	225	0	0	0	32
104	0	34	96	21	80	0	0	0	231	0	0	0	64
105	4	21	217	19	4	0	0	0	265	0	0	0	138
106	0	0	0	0	18	0	0	0	18	0	0	0	97
107	0	0	0	0	0	0	0	0	0	0	0	0	118
108	0	0	0	0	0	0	0	0	0	0	0	0	43
109	33	0	0	0	0	0	0	0	33	0	0	0	97
110	0	0	0	0	13	0	0	0	13	0	0	0	315
111	0	0	0	0	0	0	0	0	0	0	0	0	175
112	0	0	0	0	0	0	0	0	0	0	0	0	44
113	28	2	0	0	0	0	0	0	30	0	0	0	13
114	0	0	0	0	0	0	0	0	0	0	0	0	26
115	65	0	0	0	0	0	0	0	65	0	0	0	107
116	0	0	0	0	0	0	0	0	0	0	0	0	80
117	0	0	0	0	88	0	0	0	88	0	0	0	178
118	0	0	0	0	0	0	0	0	0	0	0	0	38
119	16	2	0	4	5	0	0	0	27	0	0	0	85
120	15	0	0	0	28	0	0	0	43	0	0	0	23
121	0	0	0	0	0	0	0	0	0	0	0	0	17
122	0	0	0	0	0	0	0	0	0	0	0	0	32
123	0	0	0	0	0	0	0	0	0	0	0	0	17
124	0	0	0	0	14	0	0	0	14	0	0	0	41
125	0	0	0	0	147	0	0	0	147	0	0	0	202
126	0	0	0	0	0	0	0	0	0	0	0	0	16
127	87	0	0	0	0	0	0	0	87	0	0	0	58
128	13	5	0	0	40	0	0	0	58	0	0	0	73

TABLE 7-6

DESIGN YEAR SOCIO-ECONOMIC EMPLOYMENT INPUT DATA

IDS DATA
CALDWELL COUNTY URBAN AREA (See end of table for key to the abbreviations)

	[----------Number Of Employees By Catagory---------]								TOTAL				TOTAL
ZONE	IND	RET	HWYRET	OFF	SER	OTH1	OTH2	OTH3	EMPLOYEES				DWELLING
	X1	X2	X3	X4	X5	X6	X7	X8					UNITS
129	14	0	0	0	0	0	0	0	14	0	0	0	39
130	0	0	0	0	0	0	0	0	0	0	0	0	30
131	0	0	0	0	0	0	0	0	0	0	0	0	51
132	0	0	0	0	0	0	0	0	0	0	0	0	162
133	39	5	0	0	16	0	0	0	60	0	0	0	121
134	0	0	0	0	0	0	0	0	0	0	0	0	230
135	17	0	0	0	50	0	0	0	67	0	0	0	168
136	0	0	0	0	0	0	0	0	0	0	0	0	32
137	0	0	0	0	0	0	0	0	0	0	0	0	25
138	0	0	0	0	13	0	0	0	13	0	0	0	74
139	0	0	0	0	0	0	0	0	0	0	0	0	87
140	7	0	0	0	7	0	0	0	14	0	0	0	27
141	0	0	0	0	0	0	0	0	0	0	0	0	42
142	0	0	0	0	0	0	0	0	0	0	0	0	58
143	0	0	0	0	0	0	0	0	0	0	0	0	33
144	0	0	0	0	13	0	0	0	13	0	0	0	22
145	0	0	0	0	0	0	0	0	0	0	0	0	22
146	8	11	0	0	0	0	0	0	19	0	0	0	50
147	0	0	0	0	39	0	0	0	39	0	0	0	99
148	131	0	0	0	3	0	0	0	134	0	0	0	151
149	0	0	0	0	0	0	0	0	0	0	0	0	31
150	51	1	0	0	0	0	0	0	52	0	0	0	220
151	29	4	1	0	4	0	0	0	38	0	0	0	152
152	0	0	0	0	13	0	0	0	13	0	0	0	104
153	36	24	0	0	70	0	0	0	130	0	0	0	203
154	0	39	0	0	0	0	0	0	39	0	0	0	43
155	0	20	0	0	0	0	0	0	20	0	0	0	18
156	132	17	0	0	1	0	0	0	150	0	0	0	52
157	217	96	10	8	195	0	0	0	526	0	0	0	205
158	0	0	0	0	0	0	0	0	0	0	0	0	25
159	2	0	0	0	111	0	0	0	113	0	0	0	48
160	0	0	0	0	16	0	0	0	16	0	0	0	66
161	0	0	0	0	0	0	0	0	0	0	0	0	51
162	0	0	0	0	0	0	0	0	0	0	0	0	16
163	0	0	0	0	14	0	0	0	14	0	0	0	106
164	0	0	62	0	2	0	0	0	64	0	0	0	169
165	0	0	0	0	0	0	0	0	0	0	0	0	65
166	200	1	6	0	3	0	0	0	210	0	0	0	183
167	26	0	0	0	20	0	0	0	46	0	0	0	49
168	18	180	0	16	11	0	0	0	225	0	0	0	47
169	0	40	0	0	91	0	0	0	131	0	0	0	75
170	178	0	0	0	0	0	0	0	178	0	0	0	103
171	66	20	0	6	35	0	0	0	127	0	0	0	149
172	0	7	12	34	195	0	0	0	248	0	0	0	105
173	160	3	0	7	16	0	0	0	186	0	0	0	85
174	10	7	21	9	20	0	0	0	67	0	0	0	261
175	371	20	15	2	18	0	0	0	426	0	0	0	116
176	0	0	0	0	300	0	0	0	300	0	0	0	0
177	446	57	55	8	119	0	0	0	685	0	0	0	197
178	72	0	3	0	22	0	0	0	97	0	0	0	227
179	20	0	0	0	20	0	0	0	40	0	0	0	66
180	0	27	0	2	2	0	0	0	31	0	0	0	209
181	0	0	0	0	14	0	0	0	14	0	0	0	146
182	0	0	0	0	13	0	0	0	13	0	0	0	93
183	0	0	0	0	0	0	0	0	0	0	0	0	51
184	0	0	0	0	0	0	0	0	0	0	0	0	83
185	87	7	0	0	7	0	0	0	101	0	0	0	201
186	37	92	7	0	18	0	0	0	154	0	0	0	85
187	18	94	85	43	139	0	0	0	379	0	0	0	129
188	0	19	0	9	36	0	0	0	64	0	0	0	145
189	718	9	3	0	0	0	0	0	730	0	0	0	110
190	0	0	0	0	0	0	0	0	0	0	0	0	15
191	332	0	55	0	2	0	0	0	389	0	0	0	78
192	0	0	0	0	0	0	0	0	0	0	0	0	32

TABLE 7-6

DESIGN YEAR SOCIO-ECONOMIC EMPLOYMENT INPUT DATA

IDS DATA
CALDWELL COUNTY URBAN AREA (See end of table for key to the abbreviations)

	[----------Number Of Employees By Catagory---------]								TOTAL				TOTAL
ZONE	IND	RET	HWYRET	OFF	SER	OTH1	OTH2	OTH3	EMPLOYEES				DWELLING
	X1	X2	X3	X4	X5	X6	X7	X8					UNITS
193	188	17	2	0	2	0	0	0	209	0	0	0	18
194	211	30	0	0	56	0	0	0	297	0	0	0	94
195	6	11	0	0	9	0	0	0	26	0	0	0	187
196	0	0	0	0	38	0	0	0	38	0	0	0	239
197	0	0	0	106	0	0	0	0	106	0	0	0	0
198	123	3	0	0	3	0	0	0	129	0	0	0	100
199	1154	7	2	0	3	0	0	0	1166	0	0	0	74
200	72	0	0	0	25	0	0	0	97	0	0	0	328
201	23	0	0	0	30	0	0	0	53	0	0	0	196
202	0	0	0	0	14	0	0	0	14	0	0	0	96
203	18	63	32	55	59	0	0	0	227	0	0	0	346
204	292	0	18	0	10	0	0	0	320	0	0	0	100
205	0	0	0	0	13	0	0	0	13	0	0	0	47
206	0	0	0	0	0	0	0	0	0	0	0	0	89
207	0	0	0	0	13	0	0	0	13	0	0	0	30
208	0	21	0	0	20	0	0	0	41	0	0	0	0
209	276	3	0	0	5	0	0	0	284	0	0	0	82
210	0	0	0	0	86	0	0	0	86	0	0	0	58
211	0	0	0	0	0	0	0	0	0	0	0	0	105
212	0	19	0	0	59	0	0	0	78	0	0	0	158
213	279	0	19	0	3	0	0	0	301	0	0	0	18
214	37	0	4	0	7	0	0	0	48	0	0	0	195
215	0	24	24	0	48	0	0	0	96	0	0	0	335
216	50	18	4	0	2	0	0	0	74	0	0	0	0
217	10	6	32	0	6	0	0	0	54	0	0	0	21
218	0	0	11	0	34	0	0	0	45	0	0	0	170
219	0	5	0	0	10	0	0	0	15	0	0	0	79
220	158	2	159	0	20	0	0	0	339	0	0	0	106
221	113	6	2	0	0	0	0	0	121	0	0	0	64
222	68	0	0	0	0	0	0	0	68	0	0	0	14
223	0	0	0	0	13	0	0	0	13	0	0	0	156
224	0	41	0	0	0	0	0	0	41	0	0	0	40
225	127	0	2	0	4	0	0	0	133	0	0	0	121
226	1737	0	0	0	0	0	0	0	1737	0	0	0	18
227	20	0	0	0	4	0	0	0	24	0	0	0	45
228	0	0	0	0	23	0	0	0	23	0	0	0	125
229	0	0	0	0	13	0	0	0	13	0	0	0	165
230	0	8	0	0	8	0	0	0	16	0	0	0	144
231	0	0	0	0	13	0	0	0	13	0	0	0	92
232	0	0	0	0	0	0	0	0	0	0	0	0	32
233	0	0	0	0	0	0	0	0	0	0	0	0	55
234	0	0	0	0	14	0	0	0	14	0	0	0	242
235	0	0	0	0	0	0	0	0	0	0	0	0	281
236	0	0	0	0	0	0	0	0	0	0	0	0	197
237	0	0	0	0	0	0	0	0	0	0	0	0	107
238	0	0	0	0	0	0	0	0	0	0	0	0	108
239	53	0	0	0	0	0	0	0	53	0	0	0	79
240	0	0	0	0	0	0	0	0	0	0	0	0	0
241	0	0	0	0	0	0	0	0	0	0	0	0	16
242	19	0	0	0	0	0	0	0	19	0	0	0	0
243	0	0	0	0	0	0	0	0	0	0	0	0	0
244	0	0	0	0	0	0	0	0	0	0	0	0	0
245	0	0	0	0	0	0	0	0	0	0	0	0	0
246	0	27	0	0	13	0	0	0	40	0	0	0	117
247	0	0	0	0	0	0	0	0	0	0	0	0	37
248	0	0	0	0	0	0	0	0	0	0	0	0	64
249	0	0	0	0	0	0	0	0	0	0	0	0	57
250	0	0	0	0	0	0	0	0	0	0	0	0	98
251	0	0	0	0	13	0	0	0	13	0	0	0	30
252	0	0	0	0	0	0	0	0	0	0	0	0	100
253	0	0	0	0	0	0	0	0	0	0	0	0	148
254	0	0	0	0	0	0	0	0	0	0	0	0	30
255	0	0	0	0	0	0	0	0	0	0	0	0	13
256	0	0	0	0	0	0	0	0	0	0	0	0	0

TABLE 7-6

DESIGN YEAR SOCIO-ECONOMIC EMPLOYMENT INPUT DATA

IDS DATA
CALDWELL COUNTY URBAN AREA (See end of table for key to the abbreviations)

	[----------Number Of Employees By Catagory---------]								TOTAL				TOTAL
ZONE	IND	RET	HWYRET	OFF	SER	OTH1	OTH2	OTH3	EMPLOYEES				DWELLING
	X1	X2	X3	X4	X5	X6	X7	X8					UNITS
257	69	0	0	1	25	0	0	0	95	0	0	0	63
258	0	0	0	0	16	0	0	0	16	0	0	0	137
259	0	0	8	0	108	0	0	0	116	0	0	0	171
260	12	23	0	0	71	0	0	0	106	0	0	0	211
261	0	0	0	0	16	0	0	0	16	0	0	0	142
262	0	0	0	13	0	0	0	0	13	0	0	0	119
263	0	0	0	0	0	0	0	0	0	0	0	0	38
264	12	26	0	0	26	0	0	0	64	0	0	0	380
265	0	22	0	0	0	0	0	0	22	0	0	0	59
266	0	7	0	0	7	0	0	0	14	0	0	0	46
267	15	0	0	0	0	0	0	0	15	0	0	0	19
268	93	52	13	0	5	0	0	0	163	0	0	0	124
269	0	5	0	0	138	0	0	0	143	0	0	0	175
270	0	7	0	0	7	0	0	0	14	0	0	0	84
271	0	4	60	2	12	0	0	0	78	0	0	0	138
272	0	0	0	0	0	0	0	0	0	0	0	0	127
273	0	38	53	0	26	0	0	0	117	0	0	0	397
274	0	0	0	0	0	0	0	0	0	0	0	0	75
275	0	0	0	0	0	0	0	0	0	0	0	0	109
276	0	0	0	0	38	0	0	0	38	0	0	0	64
277	0	18	0	0	0	0	0	0	18	0	0	0	73
278	0	1	10	0	27	0	0	0	38	0	0	0	85
279	0	5	0	0	10	0	0	0	15	0	0	0	81
280	33	5	9	19	0	0	0	0	66	0	0	0	112
281	166	131	13	40	4	0	0	0	354	0	0	0	151
282	0	0	0	0	0	0	0	0	0	0	0	0	59
283	4	5	12	0	7	0	0	0	28	0	0	0	133
284	158	11	2	0	65	0	0	0	236	0	0	0	265
285	124	0	0	0	0	0	0	0	124	0	0	0	125
286	0	0	0	0	0	0	0	0	0	0	0	0	70
287	0	0	0	12	4	0	0	0	16	0	0	0	82
288	0	12	0	0	4	0	0	0	16	0	0	0	127
289	72	0	0	0	0	0	0	0	72	0	0	0	101
290	0	0	0	0	0	0	0	0	0	0	0	0	218
291	135	3	8	0	18	0	0	0	164	0	0	0	320
292	0	0	0	0	22	0	0	0	22	0	0	0	249
293	0	0	0	0	14	0	0	0	14	0	0	0	124
294	0	0	0	0	34	0	0	0	34	0	0	0	109
295	0	0	0	0	0	0	0	0	0	0	0	0	156
296	0	0	0	0	0	0	0	0	0	0	0	0	125
297	0	24	0	0	8	0	0	0	32	0	0	0	157
298	53	0	0	0	0	0	0	0	53	0	0	0	54
299	0	0	0	0	0	0	0	0	0	0	0	0	63
300	0	0	0	0	58	0	0	0	58	0	0	0	42
301	82	0	0	0	0	0	0	0	82	0	0	0	16
302	253	102	0	8	17	0	0	0	380	0	0	0	47
303	0	0	0	0	13	0	0	0	13	0	0	0	67
304	0	17	0	0	0	0	0	0	17	0	0	0	120
305	0	0	0	14	0	0	0	0	14	0	0	0	40
306	0	0	0	0	0	0	0	0	0	0	0	0	132
307	0	0	0	0	15	0	0	0	15	0	0	0	51
308	0	0	0	0	95	0	0	0	95	0	0	0	233
309	4	21	12	30	19	0	0	0	86	0	0	0	142
310	144	48	0	0	2	0	0	0	194	0	0	0	100
311	0	69	19	0	41	0	0	0	129	0	0	0	135
312	67	7	0	0	12	0	0	0	86	0	0	0	40
313	23	0	0	0	4	0	0	0	27	0	0	0	71
314	0	75	14	0	13	0	0	0	102	0	0	0	171
315	23	23	0	0	7	0	0	0	53	0	0	0	72
316	4	36	80	21	57	0	0	0	198	0	0	0	120
317	142	17	3	5	37	0	0	0	204	0	0	0	99
318	16	210	68	27	280	0	0	0	601	0	0	0	108
319	452	13	7	13	14	0	0	0	499	0	0	0	191
320	0	17	0	0	20	0	0	0	37	0	0	0	34

TABLE 7-6

DESIGN YEAR SOCIO-ECONOMIC EMPLOYMENT INPUT DATA

IDS DATA
CALDWELL COUNTY URBAN AREA (See end of table for key to the abbreviations)

	[----------Number Of Employees By Catagory---------]								TOTAL				TOTAL
ZONE	IND	RET	HWYRET	OFF	SER	OTH1	OTH2	OTH3	EMPLOYEES				DWELLING
	X1	X2	X3	X4	X5	X6	X7	X8					UNITS
321	145	0	0	0	3	0	0	0	148	0	0	0	106
322	0	15	0	0	7	0	0	0	22	0	0	0	276
323	0	0	0	63	207	0	0	0	270	0	0	0	240
324	16	0	0	0	0	0	0	0	16	0	0	0	142
325	37	22	0	0	5	0	0	0	64	0	0	0	268

TOTALS

15914	**4027**	**2118**	**2201**	**7898**	**0**	**0**	**0**	**32158**	**0**	**0**	**0**	**31393**

NOTES

TEMP only includes employment in X1-X8

Key to abbreviations:

IND Industrial
RET Retail
HWYRET Highway Retail
OFF Office
SER Service

Cordon Station Travel

Through Trips

The Through Trip Table for this study was developed based on Statewide Planning Technical Report 3 (Synthesized Through Trip Table for Small Urban Areas By Dr. David G. Modlin, Jr.).

Once these volumes were developed, the Fratar balancing method was then used to balance the trip interchanges so that the total number of through trips at each external station is consistent with the total number of through trips at every other station. Generally five iterations are sufficient to balance the estimate between external zones.

External – Internal Trips

The external-internal trip volumes were determined by subtracting the through trip volume at each external station from the total traffic volume at that station.

Design Year External and Through Trips

For the design year, external and through trips were projected from the base year using a linear projection of the past growth rate at each external station.

See Table 7-7 Cordon Station Travel for a listing of the through trip volumes, external-internal trip volumes and the volumes at the external stations.

Table 7-7

Cordon Station Travel IDS = Internal Data Summary *External volume totals rounded for use in "Synth"

IDS Station # & Fig.14 Station #	Base Year - 1997 *Total External	Through Trip End	Ext - Int Trips	Future Year - 2025 Total External	Through Trip End	Ext - Int Trips
351 = 1	200	4	196	400	8	392
352 = 2	700	28	672	1,400	56	1,334
353 = 3	600	22	578	1,200	44	1,156
354 = 4	5,200	998	4,202	10,400	1,996	8,404
355 = 5	600	22	578	1,200	44	1,156
356 = 6	3,800	698	3,102	7,600	1,396	6,204
357 = 7	400	12	388	800	24	776
358 = 8	200	4	196	400	8	392
359 = 9	1,800	132	1,668	3,600	264	3,336
360 = 10	5,800	3,514	2,286	10,800	6,543	4,257
361 = 11	200	4	196	400	8	392
362 = 12	1,600	104	1,496	3,200	208	2,992
363 = 13	27,000	8,202	18,798	45,000	13,670	31,330
364 = 14	6,800	346	6,454	10,000	509	9,491
365 = 15	7,600	1,088	6,512	13,600	1,974	11,653
366 = 16	200	4	196	400	8	392
367 = 17	400	12	388	800	24	776
368 = 18	6,400	2,980	3,420	12,000	5,588	6,413
369 = 19	2,000	166	1,834	4,000	332	3,668
370 = 20	2,000	166	1,834	4,000	332	3,668
371 = 21	600	26	574	1,200	52	1,148
372 = 22	200	4	196	400	8	392
373 = 23	400	10	390	800	20	780
374 = 24	3,800	338	3,412	7,600	776	6,824
375 = 25	1,400	110	1,290	2,800	220	2,580
376 = 26	13,600	6,296	7,304	19,000	8,795	10,204
Total	**93,500**	**25,340**	**68,160**	**163,000**	**42,880**	**120,110**

In 1997 the average generation rate was 7.61 trips per dwelling unit and in 2025 the average generation rate was 7.34 trips per dwelling unit. The average trip generation rate for 2025 was decreased slightly. As shown in Table 7-7 and illustrated on Graph 7-1 there were slightly fewer people per dwelling unit predicted for year 2025.

Secondary Non-Home Based Trip Development

Secondary non-home based (NHB) trips are trips within the planning area that originated outside the planning area. The secondary non-home based trips are determined using the following calculation:

Secondary non-home based trips are the total trips produced at the external stations. The external trips produced by vehicles garaged within the planning area and multiplied by an opportunity factor. The typical range for this factor is between 0.3 and 0.6. The number of secondary non-home based trips can heavily effect the other steps in the model development process and should not be overestimated. In most cases secondary non-home based trips are made similarly to the way non-home based trips are made. People residing in the area will make these types of trips.

Internal Data Summary (IDS)

IDS is the process that takes the external-internal traffic volumes, housing data, employment data, generation rates, and regression equations and generates the trip productions and trip attractions required for use by the gravity model. Housing units were stratified to account for differing trip generation rates for each classification. The individual trip generation rates give an average trip generation rate for the study area of 7.61 trips per dwelling unit (du) for 1997. This is within the state average of 7 to 8 trips per dwelling unit. Trip attractions were produced using regression equations. The regression equations consider trip attractions to be related to the employment characteristics of the traffic zones. The regression equations for Caldwell County Urban Area are:

Home Base Work	Y	$= 1.00X_1 + 1.00X_2 + 1.00X_3 + 1.00X_4 + 1.00X_5 + .80DU$
Home Base Other	Y	$= 0.50X_1 + 1.83X_2 + 10.36X_3 + 2.55X_4 + 2.60X_5 + .50DU$
Non Home Base	Y	$= 0.50X_1 + 1.83X_2 + 10.36X_3 + 2.55X_4 + 2.60X_5 + .50DU$
Truck (CV)	Y	$= 0.10X_1 + 0.40X_2 + 2.00X_3 + 0.50X_4 + 0.50X_5 + .10DU$
External-Internal	Y	$= 0.50X_1 + 1.83X_2 + 10.36X_3 + 2.55X_4 + 2.60X_5 + .50D$

Where:
- Y = Attraction factor for each zone
- X_1 = Industry (SIC codes 1-49)
- X_2 = Retail (SIC codes 55,58)
- X_3 = Special Retail (SIC codes 50-54, 56, 57, 59)
- X_4 = Office (SIC codes 60-67, 91-97)
- X_5 = Services (SIC codes 70-76, 78-89, 99)
- DU = Dwelling Units

The outputs of the IDS program are trip productions and trip attractions for each zone divided into four trip purposes: home-based work, home-based other, non-home based and external-internal. The trips are separated into trip purposes because different trip lengths are associated with each trip purpose.

Internal Trip Distribution

Once the number of trips per traffic zone is determined, the trips must still be distributed to other traffic zones. The preferred method of distributing internal and external-internal trips is called the gravity model. The gravity model states that the number of trips between Zone A and Zone B are equal to the number of trips produced in Zone A, multiplied by the number of trips attracted to Zone B, multiplied by a travel time factor between the zones, then divided by the sum of all zone attractions multiplied by their travel time factors. The gravity model takes the mathematical form:

$$T_{ij} = \frac{P_i \times A_j \times F_{ij}}{\text{Sum } x=1,n \text{ of } A_x \times F_{t,x}}$$

Where:

- T_{ij} = The number of trips produced in zone I and attracted to zone j.
- P_i = The number of trips produced in zone i.
- A_j = The number of trips attracted to zone j.
- F_{ij} = The travel time factor.
- n = The total number of zones.
- i = The origin zone number.
- j = The destination zone number.
- x = Any zone number.

The travel time factor or friction factor (F) is critical to the gravity model distribution and must be derived empirically. The friction factor is dependent on the distances between the traffic zones and the time necessary to travel these distances. This factor is also dependent on the trip purpose. In order to derive this factor a gravity model calibration program is run with an initial friction factor and trip length frequency curve for each trip purpose**.** The *initial* friction factors used in the Caldwell County Urban Area model were originally borrowed based on a similar sized area and then adjusted during calibration. Table 7-8 and 7-9 show the *actual* friction factor values and distributed trip percentages by trip purpose used for the final model calibration. Graphs of the data are represented in Graph 7-2 and 7-3.

Table 7-8

Friction Factors Report
Caldwell County Urban Area

TIME INTERVAL	HBW PURPOSE 1	HBO PURPOSE 2	NHB PURPOSE 3	Com-Veh PURPOSE 4	Ext-Int PURPOSE 5
1	15786	32527	10089	12870	87781
2	16369	42447	17472	18887	132443
3	16307	28760	14795	14049	103074
4	15663	20041	12236	10642	79185
5	14557	14344	9914	8208	60123
6	13137	10529	7894	6443	45173
7	11553	7915	6198	5145	33628
8	9936	6085	4812	4178	24833
9	8387	4778	3707	3450	18214
10	6973	3825	2842	2895	13285
11	5730	3119	2176	2468	9648
12	4671	2586	1668	2136	6985
13	3791	2177	1285	1878	5048
14	3074	1858	998	1675	3645
15	2499	1606	783	1515	2634
16	2044	1404	624	1390	1907
17	1688	1239	505	1293	1385
18	1413	1103	418	1219	1010
19	1203	988	354	1164	741
20	1045	890	308	1126	547
21	930	804	276	1102	407
22	850	729	255	1091	306
23	802	662	245	1094	232
24	784	600	245	1108	178
25	795	544	255	1135	139
26	841	491	279	1175	109

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Graph 7-2
Friction Factor By Purpose

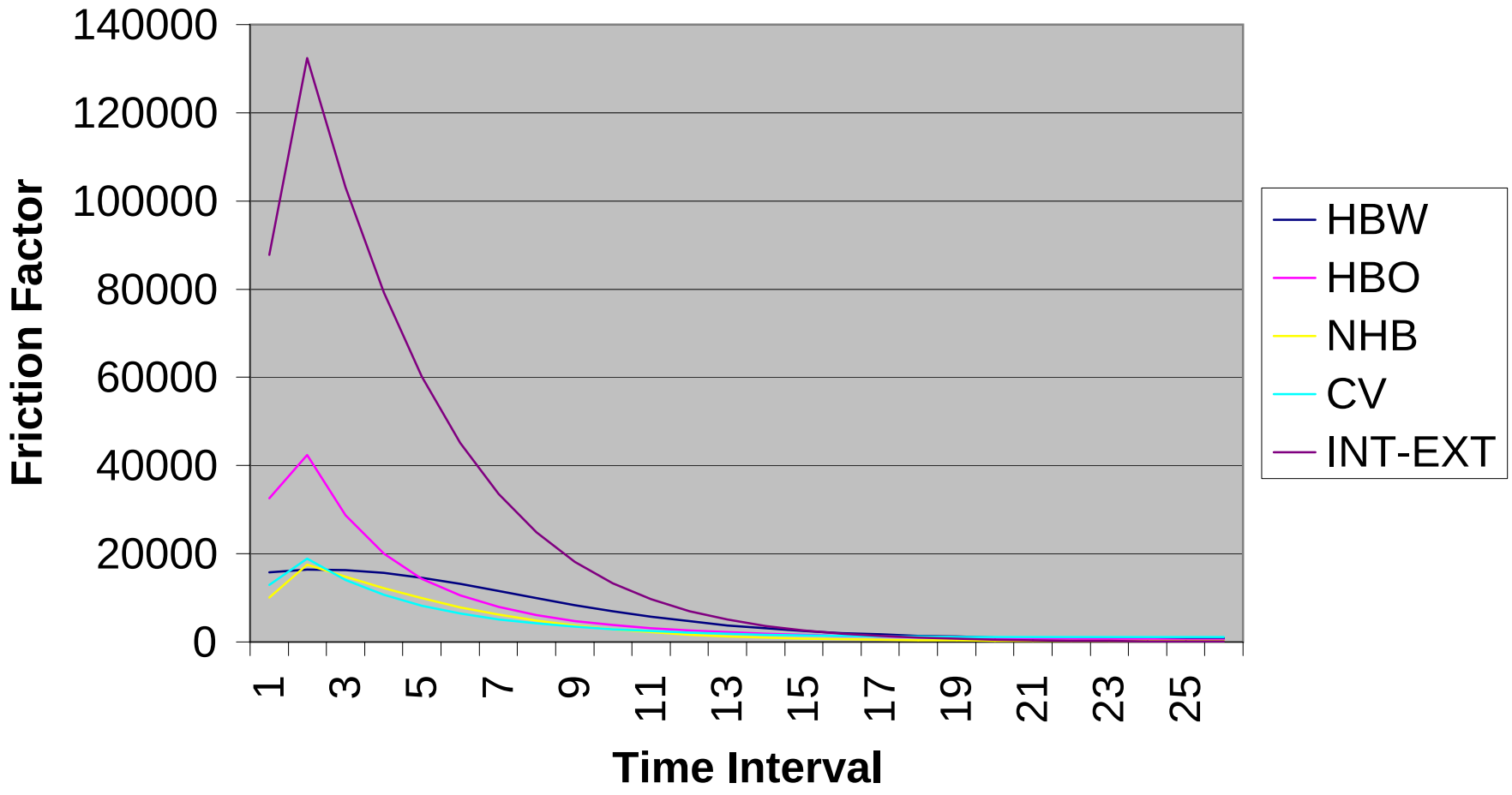

Table 7-9

Travel Curves Report (base year)
Percent of Trips Distributed

TIME INTERVAL	HBW PURPOSE 1	HBO PURPOSE 2	NHB PURPOSE 3	Com-Veh PURPOSE 4	Ext-Int PURPOSE 5
1	1.41	2.92	3.50	4.26	0.00
2	1.79	5.27	7.16	7.98	0.58
3	4.61	9.08	12.49	12.10	0.45
4	6.72	9.77	13.33	12.35	1.38
5	9.24	10.80	13.44	11.45	6.33
6	9.77	9.51	9.44	7.90	9.17
7	10.20	8.30	8.49	7.38	8.52
8	9.82	7.31	6.74	5.67	6.59
9	9.40	6.74	6.62	6.19	5.96
10	8.20	6.04	5.22	5.07	11.52
11	7.32	5.63	4.10	4.44	11.53
12	5.49	4.31	2.71	3.22	8.68
13	4.31	3.38	1.96	2.70	8.90
14	3.35	2.79	1.53	2.28	4.64
15	2.58	2.21	1.14	2.09	3.68
16	1.90	1.91	0.85	1.72	4.20
17	1.40	1.38	0.54	1.17	3.30
18	0.90	1.00	0.25	0.81	2.68
19	0.67	0.73	0.22	0.56	0.89
20	0.43	0.42	0.12	0.30	0.87
21	0.19	0.18	0.06	0.16	0.27
22	0.11	0.12	0.03	0.09	0.10
23	0.08	0.08	0.02	0.06	0.03
24	0.06	0.06	0.02	0.03	0.02
25	0.03	0.01	0.01	0.01	0.02
26	0.03	0.02	0.02	0.00	0.00

Trip Assignment

Iterative capacity restraint was the assignment methodology chosen for the Caldwell County Urban Area Model. The primary reason for this choice was US 321 and 321-A, which are competing parallel routes. Good calibration along these facilities would have been difficult with all-or-nothing assignment. Capacity restraint assignment is a commonly used method of assigning trips that adjusts travel time based on congestion (the volume-to-capacity ratio). To do this an iterative process is used. The first iteration uses an all-or-nothing assignment but only assigns a certain percentage of the total number of trips. On successive iterations the computer, based on a volume delay or speed volume curves, adjusts the link speeds. The model then computes new minimum paths for each of the successive iterations and again loads the trips with an all-or-nothing assignment. The load percentages can vary, but the first iteration should be at least 35 percent, as specified in the Tranplan Manual. The Caldwell County Urban Area Model uses a 40,30,20,10 percentage split for loading the trips onto the network.

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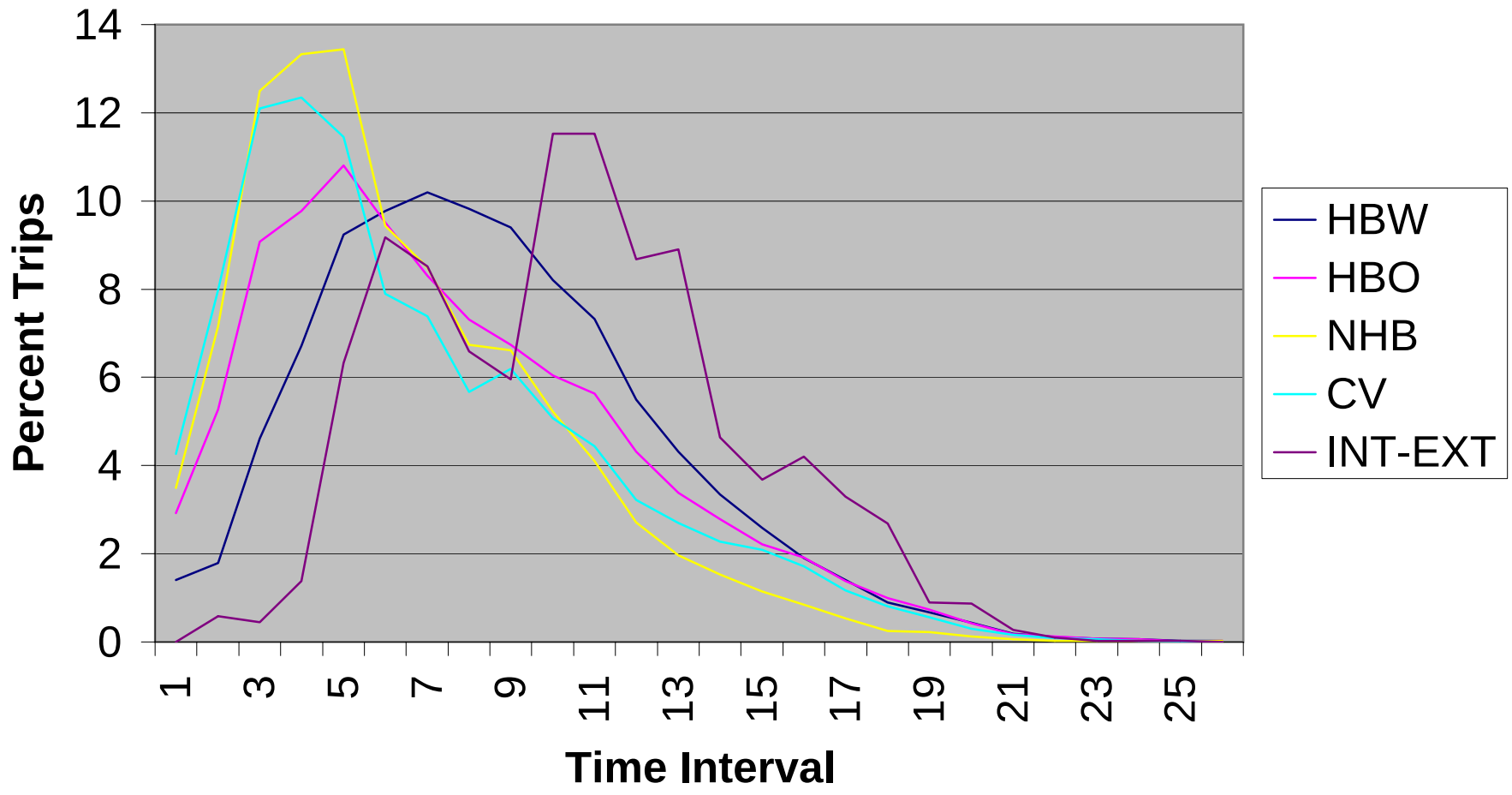
Graph 7-3
Percent of Trips Distributed



Model Calibration

The purpose of a travel model is to predict the traffic on a street system at some future point in time; however, if the model is not accurate, it is useless for this purpose. Therefore the model must duplicate the existing traffic pattern. The actual calibration of the model is an iterative process in which incremental changes are made either in the trip generation, trip distribution, or the street network. The purpose of each change is to allow the model to more accurately reflect the real world conditions upon which it is based. Only when the model can adequately reflect the existing traffic pattern should it be used to predict traffic in the future. As previously mentioned, the model was calibrated using traffic counts taken specifically for this study and shown in figures 7.4 through 7.10. Annual average daily traffic counts (AADTs) from 1997 and 1998 were also considered in the calibration of the model.

Accuracy Checks

There are three accuracy checks made on a model. The first is to follow trips through all the steps involved in the model. The purpose of this check is to insure that no trips have been accidentally added to or subtracted from the model, and that no trips have been counted twice. The second check is to compare the model-generated trips on the screenlines with the ground counts taken at the screenlines. The screenlines, cordon line and external stations for the modeled area are shown on Figure 7-14**.** A model is considered to accurately reflect the overall patterns if the trips it generates are from 95% to 105% of the ground counts on the screenlines. Table 7-10 compares the ground count totals collected with the modeled traffic volume totals along the screenlines. The final check for model accuracy is to match the traffic volumes on the links in the model with the ground counts and or AADT's at the same locations. The 'link counts' can be used to find particular places in the network where there are problems. Comparing the link counts with the ground counts for those links did not reveal any significant problems with the model.

Table 7-10

Actual vs. Model Screenline Total

Screenline	Ground Count	Model Volume	Percent
Lower Creek	79,934	82,800	0.97
Smokey Creek	72,153	73,000	0.99
Gamewell	27,729	26,400	1.05
Lenoir	50,640	56,000	0.90
Cane Creek	111,061	118,600	0.94
Hibriten Mountain	76,806	75,800	1.01
Total	**418,323**	**432,600**	**0.97**

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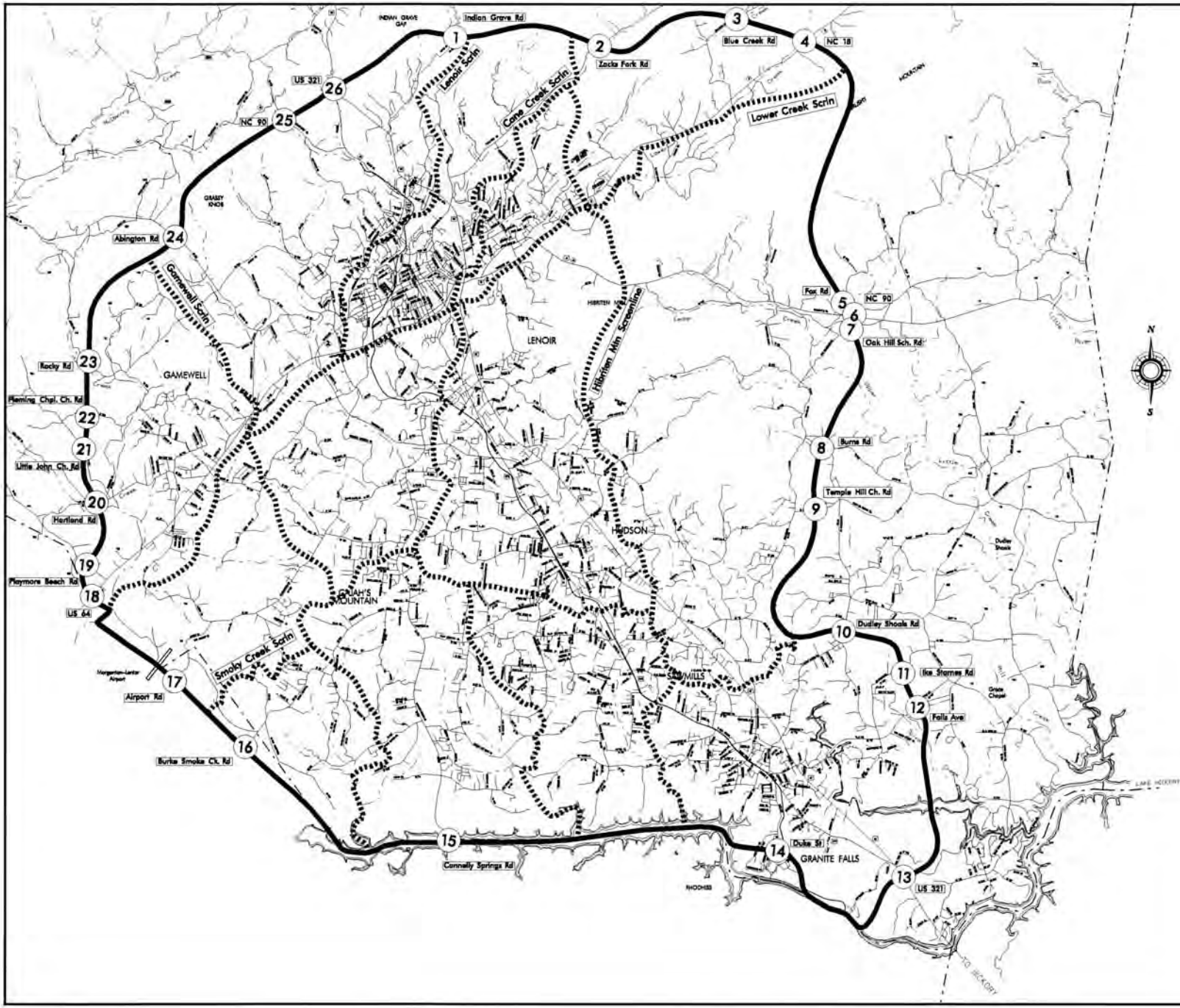


SCREENLINE MAP

For

CALDWELL COUNTY URBAN AREA

LEGEND

Screen Line .....

Cordon Line ———

External Station (#)

FIGURE 7.14

CALDWELL COUNTY

NORTH CAROLINA

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS - STATEWIDE PLANNING BRANCH

UNITED STATES DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION

SCALE

0 1 2 3 4 5
km

0 .5 1 2 3
mi

APPENDICES

Appendix A

Thoroughfare Planning Principles

There are many advantages to thoroughfare planning, but the primary mission is to assure that the road system will be progressively developed to serve future travel desires. Thus, the main consideration in thoroughfare planning is to make provisions for street and highway improvements so that, when the need arises, feasible opportunities to make improvements exist.

Benefits of Thoroughfare Planning

There are two major benefits derived from thoroughfare planning. First, each road or highway can be designed to perform a specific function and provide a specific level of service. This permits savings in right-of-way, construction, and maintenance costs. It also protects residential neighborhoods and encourages stability in travel and land use patterns. Second, local officials are informed of future improvements and can incorporate them into planning and policy decisions. This will permit developers to design subdivisions in a non-conflicting manner, direct school and park officials to better locate their facilities, and minimize the damage to property values and community appearance that is sometimes associated with roadway improvements.

Idealized Major Thoroughfare System

The coordinated system of major thoroughfares that is most adaptable to the desired lines of travel within an urban area and that is reflected in most urban area thoroughfare plans is the radial-loop system. The radial-loop system includes radials, cross-towns, loops, and bypasses (Figure A.1).

Radial streets provide for traffic movement between points located on the outskirts of the city and the central area. This is a major traffic movement in most cities, and the economic strength of the central business district depends upon the adequacy of this type of thoroughfare.

If all radial streets crossed in the central area, an intolerable congestion problem would result. To avoid this problem, it is very important to have a system of cross-town streets that form a loop around the central business district. This system allows traffic moving from origins on one side of the central area to destinations on the other side to follow the area's border. It also allows central area traffic to circle and then enter the area near a given destination. The effect of a good cross-town system is to free the central area of cross-town traffic, thus permitting the central area to function more adequately in its role as a business or pedestrian shopping area.

Loop system streets move traffic between suburban areas of the city. Although a loop may completely encircle the city, a typical trip may be from an origin near a radial thoroughfare to a destination near another radial thoroughfare. Loop streets do not necessarily carry heavy volumes of traffic, but they function to help relieve central areas. There may be one or more

loops, depending on the size of the urban area. They are generally spaced one-half mile to one mile apart, depending on the intensity of land use.

A bypass is designed to carry traffic through or around the urban area, thus providing relief to the city street system by removing traffic that has no desire to be in the city. Bypasses are usually designed to through-highway standards, with control of access. Occasionally, a bypass with low traffic volume can be designed to function as a portion of an urban loop. The general effect of bypasses is to expedite the movement of through traffic and to improve traffic conditions within the city. By freeing the local streets for use by shopping and home-to-work traffic, bypasses tend to increase the economic vitality of the local area.

Thoroughfare Classification Systems

Streets perform two primary functions, traffic service and land access, which when combined are basically incompatible. The conflict is not serious if both traffic and land service demands are low. However, when traffic volumes are high, conflicts created by uncontrolled and intensely developed abutting property lead to intolerable traffic flow friction and congestion.

The underlying concept of the thoroughfare plan is that it provides a functional system of streets that permits travel from origins to destinations with directness, ease and safety. Different streets in this system are designed and called on to perform specific functions, thus minimizing the traffic and land service conflict.

Urban Classification

The Caldwell County Urban Area Thoroughfare Plan was done using urban classifications due to the clustering of Cajah's Mountain, Gamewell, Granite Falls, Hudson, Lenoir and Sawmills all into a single plan. In the urban thoroughfare plan, elements are classified as major thoroughfares, minor thoroughfares, or local access streets.

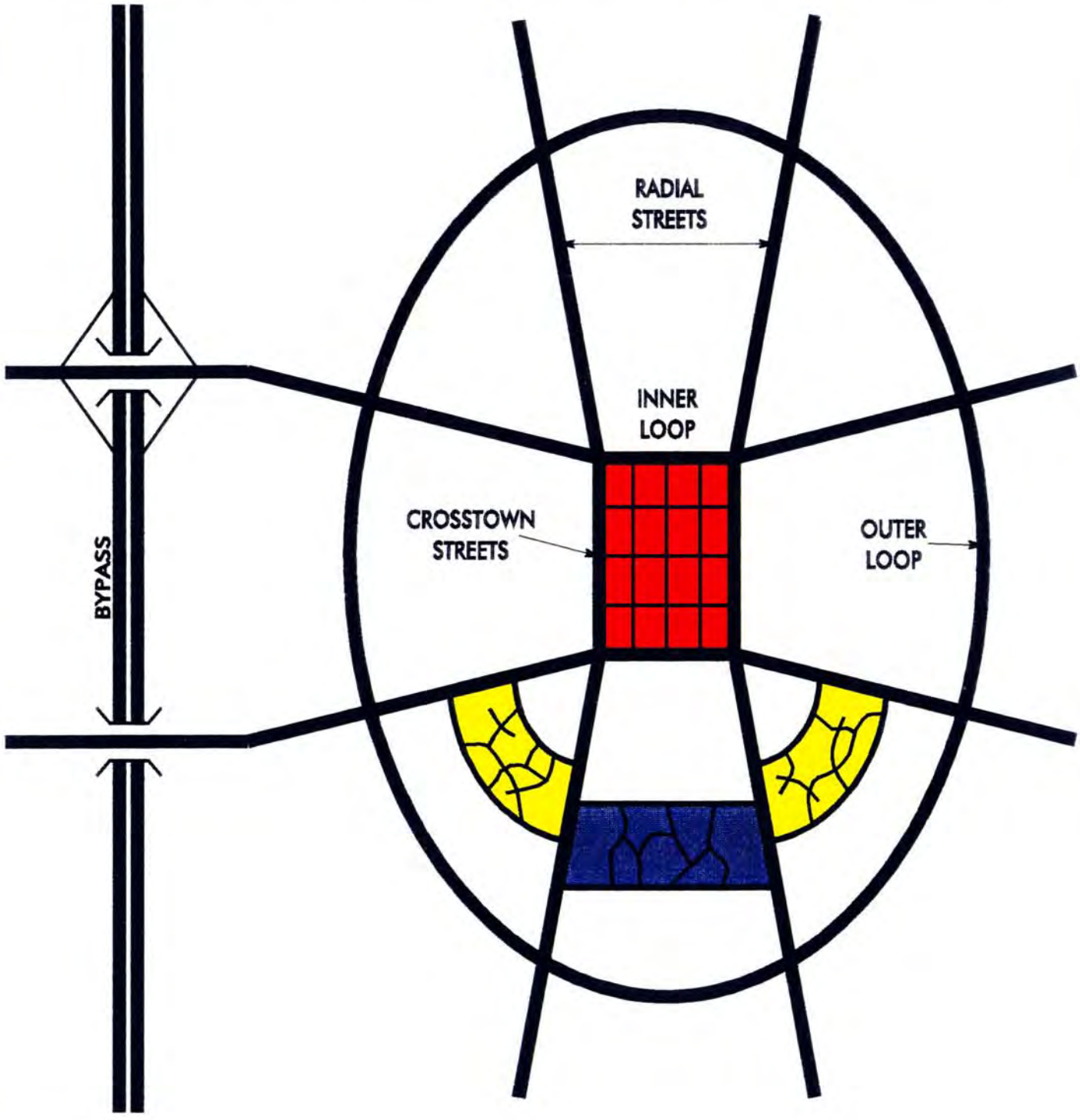
Major Thoroughfares
These routes are the primary traffic arteries of the urban area and they accommodate traffic movements within, around, and through the area.

Minor Thoroughfares
Roadways classified under this type collect traffic from the local access streets and carry it to the major thoroughfare system.

Local Access Streets
This classification covers streets that have a primary purpose of providing access to the abutting property. This classification may be further classified as residential, commercial and/or industrial depending upon the type of land use that they serve.

FIGURE A.1

IDEAL SMALL URBAN THOROUGHFARE PLAN



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Rural Classification (Informational purposes only)

A rural classification system is used for county thoroughfare plans, which also show the major thoroughfares within urban thoroughfare planning boundaries. There are four major systems in the rural classification system: principal arterial, minor arterial, major and minor collectors, as well as the local roads. The Caldwell County Urban Area Thoroughfare Plan, although partially in the county's jurisdiction, was done using the urban classification system.

Rural Principal Arterial System
The principal arterial system is a connected network of continuous routes that serve corridor movements having substantial statewide or interstate travel characteristics. Longer trip lengths and greater travel densities characterize this type of travel. The principal arterial system should serve all urban areas over 50,000 in population and most of those with a population greater than 5,000. The interstate system constitutes a significant portion of the principal arterial system.

Rural Minor Arterial System
The minor arterial system forms a network linking cities, large towns, and other major traffic generators, such as large resorts. The minor arterial system generally serves intrastate and inter-county travel and travel corridors with trip lengths and travel densities somewhat less than the principal arterial system.

Rural Collector System
The rural collector routes generally serve intra-county travel. These routes serve travel whose distances are shorter than on the arterial routes. The rural collector road system is sub-classified into major and minor collector roads.

Major Collector Roads
These routes provide service to most sizable towns not directly served by the higher systems and to other traffic generators of equivalent intra-county importance, such as consolidated schools, shipping points, county parks, significant mining and agricultural areas, etc. Major collector roads also link these places to routes of higher classification and serve the more important intra-county travel corridors.

Minor Collector Roads
These roads collect traffic from the local roads and provide a link within a reasonable distance to a major collector road. Minor collectors also provide service to the remaining smaller communities and link rural areas to the locally important traffic generators.

Rural Local Road System
The rural local road system consists of all facilities not on a higher system. Local residential streets and residential collector streets are elements of this system. Facilities designated as local residential streets are either cul-de-sacs, loop streets less than 2,500 feet in length, or streets less than one mile in length. These streets do not connect thoroughfares or serve major traffic generators and do not collect traffic from more than one hundred dwelling units. Residential collector streets serve as the connecting street system between local residential streets and the thoroughfare system. Figure A.2 shows a schematic illustration of the functional classification of a rural highway system and Figure A.3 shows the actual Caldwell County rural functional classification system.

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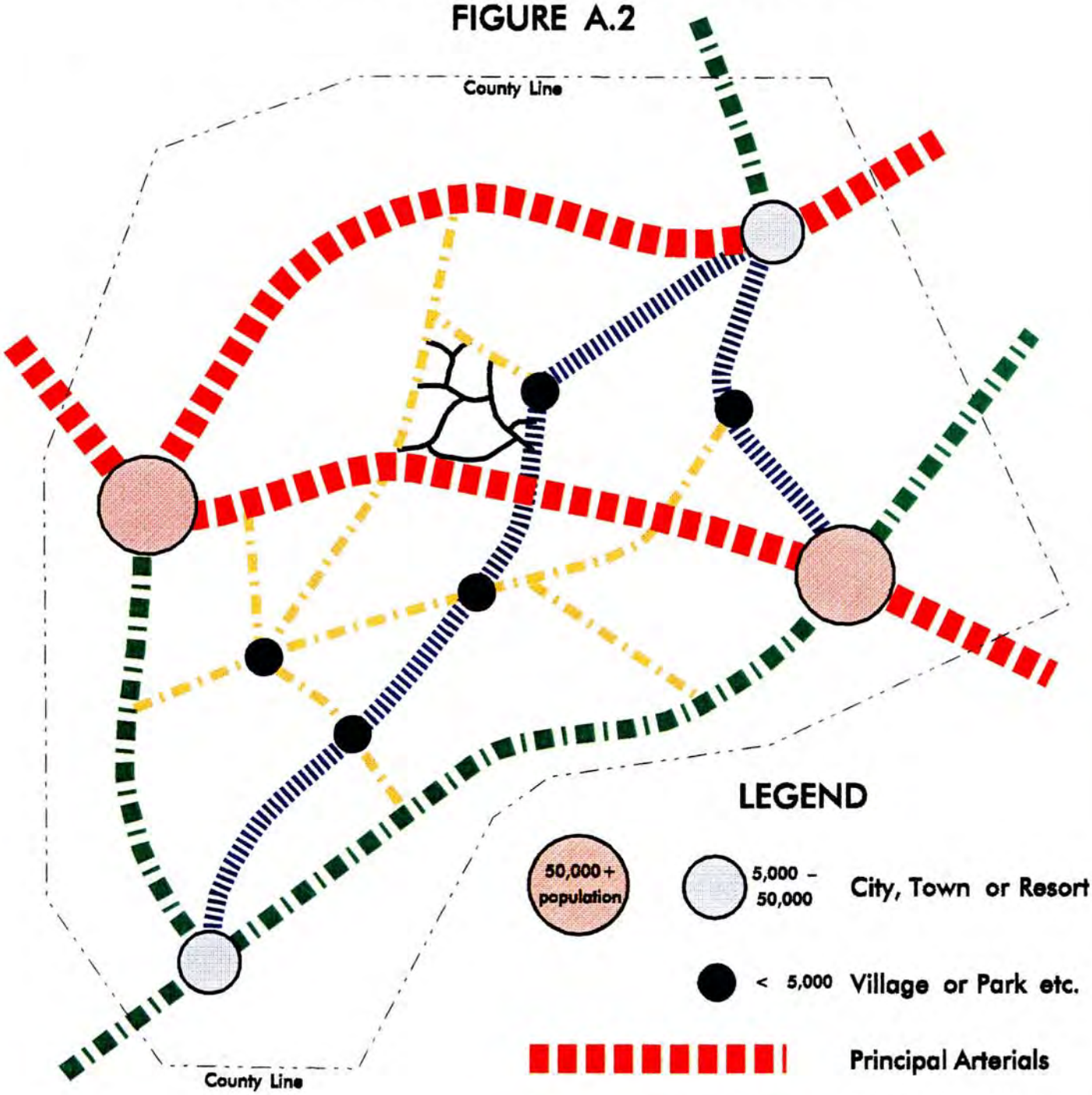
RURAL HIGHWAY NETWORK
FUNCTIONAL CLASSIFICATION
FIGURE A.2



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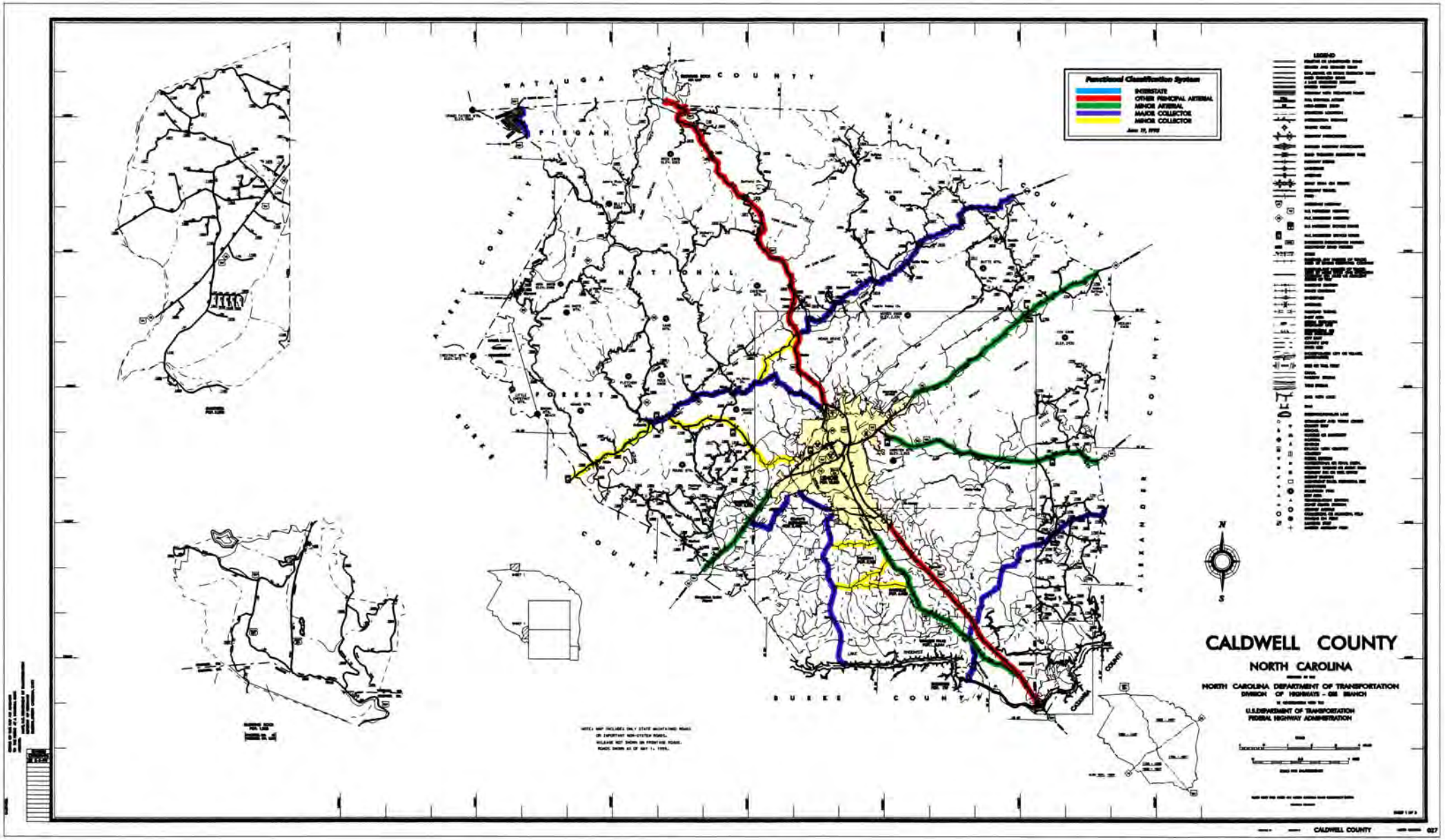
Functional Classification System
INTERSTATE
OTHER PRINCIPAL ARTERIAL
MINOR ARTERIAL
MAJOR COLLECTOR
MINOR COLLECTOR
WATAUGA COUNTY
AVERY COUNTY
BURKE COUNTY
WILKES COUNTY
ALEXANDER COUNTY
CATAWBA COUNTY
PISGAH NATIONAL FOREST
CALDWELL COUNTY
NORTH CAROLINA
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS - GIS BRANCH
U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
N
S
CALDWELL COUNTY

Figure A.3

Objectives of Thoroughfare Planning

Thoroughfare planning is the process public officials use to assure the development of the most appropriate street system that will meet existing and future travel desires within the urban area. The primary aim of a thoroughfare plan is to guide the development of the urban street system in a manner consistent with the changing traffic patterns. A thoroughfare plan will enable street improvements to be made as traffic demands increase, and it helps eliminate unnecessary improvements, so needless expense can be averted. By developing the urban street system to keep pace with increasing traffic demands, a maximum utilization of the system can be attained, requiring a minimum amount of land for street purposes. In addition to providing for traffic needs the thoroughfare plan should embody those details of good urban planning necessary to present a pleasing and efficient urban community. The location of present and future population and commercial and industrial development affect major street and highway locations. Conversely, the location of major streets and highways within the urban area will influence the urban development pattern.

Other objectives of a thoroughfare plan include:

To provide for the orderly development of an adequate major street system as land development occurs;

To reduce travel and transportation costs;

To reduce the cost of major street improvements to the public through the coordination of the street system with private action;

To enable private interest to plan their actions, improvements, and development with full knowledge of public intent;

To minimize disruption and displacement of people and businesses through long range advance planning for major street improvements;

To reduce environmental impacts, such as air pollution, resulting from transportation, and

To increase travel safety.

These objectives are achieved through improving both the operational efficiency of thoroughfares and improving the system efficiency through system coordination and layout.

Operational Efficiency

A street's operational efficiency is improved by increasing the capability of the street to carry more vehicular traffic and people. In terms of vehicular traffic, a road's capacity is defined by the maximum number of vehicles that can pass a given point on a roadway during a given time

period under prevailing roadway and traffic conditions. The road's physical characteristics, prevailing traffic characteristics, and weather all affect a road's capacity.

Physical ways to improve vehicular capacity include:

Street widening - The widening of a street from two to four lanes more than doubles the capacity of the street by providing additional maneuverability for traffic.

Intersection improvements - Increasing the turning radii, adding exclusive turn lanes, and channelizing movements can improve the capacity of an existing intersection.

Improving vertical and horizontal alignment - Improving alignment can reduces the congestion caused by slow moving vehicles.

Eliminating roadside obstacles - Removing obstacles reduces side friction and improves a driver's field of sight.

Operational ways to improve street capacity include:

Control of Access - A control of access facility can carry up to three times the traffic handled by a non-controlled access street with identical lane width and number.

Parking removal – Removing parking will increase capacity by providing additional street width for traffic flow and by reducing friction to flow caused by parking and unparking vehicles.

One-way operation - The capacity of a street can sometimes be increased 20 -50%, depending upon turning movements and overall street width, by initiating one-way traffic operations. One-way streets can also improve traffic flow by decreasing potential traffic conflicts and simplifying traffic signal coordination.

Reversible lane - Reversible traffic lanes can be used to increase street capacity in situations where heavy directional flows occur during peak periods.

Signal phasing and coordination - Uncoordinated signals and poor signal phasing restrict traffic flow by creating excessive stop-and-go operation.

Altering travel demand is a third way to improve the efficiency of existing streets. Travel demand can be reduced or altered in the following ways:

Carpools - Encouraging people to form carpools and vanpools for journeys to work and other trip purposes can reduce the number of vehicles on the roadway and raise the people carrying capability of the street system.

Alternate mode - Encourage the use of transit and bicycle modes.

Work hours - Encouraging industries, businesses, and institutions to stagger work hours or establish variable work hours for employees will spread peak travel over a longer time period and thus reduce peak hour demand.

Land use - These plans should encourage land use development or redevelopment in a travel efficient manner.

System Efficiency

Another means for improving the operation of existing facilities is to develop a more efficient system of roads that will better serve travel desires. A more efficient system can reduce travel distances, time, and cost to the user. Improvements in system efficiency can be achieved through the concept of functional classification of streets and development of a coordinated major street system.

Application of Thoroughfare Planning Principles

The concepts presented in the discussion of operational efficiency, system efficiency, functional classification, and idealized major thoroughfare system are the conceptual tools available to the transportation planner in developing a thoroughfare plan. In actual practice thoroughfare planning is done for established urban areas and is constrained by existing land use and street patterns, existing public attitudes and goals, and current expectations of future land use. Compromises must be made because of these and the many other factors that affect major street locations.

Through the thoroughfare planning process it is necessary from a practical viewpoint that certain basic principles be followed as closely as possible. These principles are listed below:

1. The plan should be derived from a thorough knowledge of today's travel - its component parts, and the factors that contribute to it, limit it, and modify it.

2. Traffic demands must be sufficient to warrant the designation and development of each major street. The thoroughfare plan should be designed to accommodate a large portion of major traffic movements on a few streets.

3. The plan should conform to and provide for the land development plan for the area.

4. Certain considerations must be given to urban development beyond the current planning period. Particularly in outlying or sparsely developed areas that have development potential, it is necessary to designate thoroughfares on a long-range planning basis to protect rights-of-way for future thoroughfare development.

5. While being consistent with the above principles and realistic in terms of travel trends, the plan must be economically feasible.

Appendix B

Thoroughfare Plan Street Tabulation

This appendix includes a detailed tabulation of all streets identified as elements of the Caldwell County Urban Area Thoroughfare Plan. The table includes a description of each roadway section, as well as the length, cross-section, and right-of-way. Also included in the table are the existing and projected daily traffic volume, roadway capacities, and recommended ultimate roadway cross-section. The recommended cross-sections in this table are represented as a letter A through P. A detailed description of each of these cross-sections and an illustrative figure can be found at the end of Appendix C.

The following index of terms may be helpful in interpreting the table:

DIST- Distance

RDWY - Roadway

ROW - Right of Way

VPD -Vehicles per Day

SPUI - Single Point Urban Interchange

Practical Capacity - Level of Service “D” (See Figure 4.1)

n/a - Not Available

Note: For use in the street tabulation Southwest Boulevard is used to describe the sections of road along part of Harper Avenue (Bus. NC 18), Creekway Drive and Main Street (US 321-A /NC 90).

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Appendix B

Thoroughfare Plan Street Tabulation

FACILITY & SECTION	EXISTING CROSS SECTION DIST MI	RDWY FT	ROW FT	NUMBER OF LANES	PRESENT 1999/2000 VPD	ESTIMATED 2025 VPD	PRACTICAL CAPACITY 1999 (2025)	RECOMMENDED CROSS SECTION RDWY 2025
Abington Rd (SR 1310)								
Harper Ave (Bus NC-18) to Fairview Dr	0.22	20	30	2	6400	9400	10500	adequate
Fairview Dr to Beacher Anderson Rd	1.37	20	60	2	5800	8600	10500	adequate
Beacher Anderson Rd to Cheraw Rd (SR-1301)	0.98	20	60	2	5700	8400	10500	adequate
Cheraw Rd (SR-1301) to W. Planning Boundary	1.90	20	60	2	4600	6800	10500	adequate
Alfred Hartley Rd (SR 1712)								
Starcross Rd (SR 1712) - South end of new location	0.84	20	60	2	1800	5000	10500	adequate
Baton School Rd (SR 1139)								
Connelly Springs Rd to J.M. Craig Rd (SR 1137)	1.88	18	60	2	2100	4000	(12000)	K (improve 2 lanes)
J.M. Craig Rd to Goat Farm Rd (SR 1140)	0.44	18	60	2	1400	2700	(12000)	K (improve 2 lanes)
Beacher Anderson Rd (SR 1404)								
Abington Rd to Morganton Blvd (US-64/NC-18)	1.34	24	60	2	n/a	4000	12000	adequate
Blowing Rock Blvd (US-321)								
Smith's Crossroads - Hospital Ave.	0.56	64	100	5	27000	40000	(54000)	SPUI w/access control
Hospital Ave. - Greenhaven Dr.	0.76	64	100	5	22000	32000	(35000)	E
Greenhaven Dr. - US 321A (Southwest Blvd)	0.82	64	100	5	15000	22000	30000	adequate
US 321A - Northern Planning Area Boundary	2.70	48	150	4 div	11000	19000	40000	adequate
Bradford Mountain Rd (SR 1150)								
Dulatown Rd (SR 1149) - Clarks Chapel Rd (SR 1153)	0.57	18	60	2	700	1200	(12000)	K (improve 2 lanes)
Broadway Street								
Harper Ave - Beall St	0.47	23	40	2	3000	5000	11000	adequate
Beall St - Southwest Blvd (SR 1933)	0.30	20	60	2	3000	5000	10500	adequate
Southwest Blvd - Lenoir West Corprate Limits	0.63	18	60	2	2000	4000	(12000)	K (improve 2 lanes)
Burns Rd (SR 1749)								
Cedar Valley Church Rd - Campground Rd	0.50	16	60	2	200	2500	(12000)	K (pave 2 lanes)
Cajah Mountain Rd (SR 1130)								
Connelly Springs Rd - Cajah's Mtn. East Corp. Limit	0.23	20	30	2	7000	10500	10500	adequate
East corporate limit - Hickory Nut Ridge Rd	0.58	20	60	2	6900	10000	10500	adequate
Hickory Nut Ridge Rd - Horseshoe Bend Rd	1.27	20	60	2	6600	10000	10500	adequate
Horseshoe Bend Rd - Stamey Rd (SR 1129)	0.58	20	40	2	7300	10500	10500	adequate
Stamey Rd (SR 1129) - Helena St	0.70	20	40	2	7100	10000	10500	adequate
Helena St - US 321-A	0.08	20	60	2	6900	10000	10500	adequate
Caldwell Street (SR 1106)								
Burke County - Duke Ave (SR 1106)	0.62	24	60	2	5600	9000	12000	adequate
Calico Rd (SR 1142)								
US 64/NC 18 - Lower Creek	1.25	20	60	2	4000	8000	10500	adequate
Lower Creek - Clarks Chapel Rd (SR 1135)	2.65	20	60	2	2500	4000	10500	adequate
Campground Rd (SR 1751)								
Burns Rd (SR 1749) - Grace Chapel Rd	2.62	20	60	2	1700	3500	10500	adequate
Cedar Valley Rd (SR 1192)								
Pine Mtn Rd (SR 1952) - US 321 Hickory Blvd	1.31	18	60	2	1300	2200	(12000)	K (improve 2 lanes)
Cedar Valley Church Rd (SR 1719)								
Oakhill Park Circle (SR 1788) - Deal Mill Rd	1.70	20	60	2	550	1200	10500	adequate
Cheraw Rd (SR 1301)								
Lenoir W. Corp. Limits - Hoods Creek Rd (SR 1307)	0.90	18	60	2	1000	5000	(12000)	K (improve 2 lanes)
Hoods Creek Rd - Abington Rd (SR 1310)	1.50	20	60	2	800	4500	10500	adequate

Appendix B

Thoroughfare Plan Street Tabulation

FACILITY & SECTION	EXISTING CROSS SECTION DIST MI	RDWY FT	ROW FT	NUMBER OF LANES	PRESENT 1999/2000 VPD	ESTIMATED 2025 VPD	PRACTICAL CAPACITY 1999 (2025)	RECOMMENDED CROSS SECTION RDWY 2025
Christie Rd (SR 1717)								
Pine Mtn. Rd - Deal Meal Rd (SR 1718)	1.8	20	60	2	1900	3700	10500	adequate
Clark's Chapel Rd (SR 1153)								
Connelly Springs Rd. (SR 1001) - Woodbridge Ct	2.71	16-18	60	2	1700	3700	(12000)	K (improve 2 lanes)
Woodbridge Ct (SR 1900) - Smokey Creek Rd	1.11	20	60	2	2000	4000	10500	adequate
College Ave								
Virginia St (SR 1145) - Willow St	0.69	21-39	50	2	3500	5700	12000	adequate
Willow St - Main St	0.23	54	40	2	4000	6500	12000	adequate
Main St - Mulberry St *(this section US 321-A)*	0.03	34	50	2	5500	8800	12000	adequate
Mulberry St - Norwood St	0.11	34	50	2	5000	8000	12000	adequate
Collettsville Rd (NC-90)								
Valway Rd - Setzers Gap Rd (SR 1350)	1.59	19	60	2	2000	3300	(12000)	K (improve 2 lanes)
Setzers Gap Rd (SR 1350) - Planning Boundary	2.15	18	60	2	1500	2500	(12000)	K (improve 2 lanes)
Connelly Springs Rd (SR 1001)								
Note: *The improved section of Connelly Springs Rd from Southwest Blvd. to US 321-A is now open to traffic and has changed traffic patterns in the vicinity*								
US 321-A Norwood St. - Just N. of Walt Arney Rd	0.76	22-24	60	2	10000	3500	12000	adequate
Just N. of Walt Arney Rd - Southwest Blvd (SR 1933)	0.57	60	90	5	11000	18500	(30000)	adequate
Southwest Blvd -Orchard Rd (SR 1146)	2.71	22	60	2	14500	25000	(35000)	C or E
Orchard Rd - Cajah Mtn. Rd (SR 1130)	1.75	22	60	2	12500	21000	(35000)	C or E
Cajah Mt. Rd - Baton School Rd (SR 1139)	1.46	22	60	2	9500	16500	(35000)	C or E
Baton School Rd - Dry Ponds Rd (SR 1115)	0.97	22	60	2	9000	15500	(35000)	C or E
Dry Ponds Rd - Catawba River	1.17	22	60	2	8200	14000	(40000)	F
Cottrell Hill Rd (SR 1545)								
Zacks Fork Rd (SR 1511) - Wildwood Rd (SR1548)	2.21	16-18	60	2	1400	2000	(12000)	K (improve 2 lanes)
Crump Rd (SR 1929)								
Orchard Rd (SR 1146) - Creek East of Branch Rd	0.91	21	60	2	2100	4400	10500	adequate
Deal Mill Rd (SR 1718)								
Cedar Valley Church (SR 1719) - Fox Winkler Rd	0.74	20	60	2	500	1000	10500	adequate
Fox Winkler Rd (SR 1762) -Burns Rd (SR 1749)	0.46	20	60	2	200	1000	10500	adequate
Burns Rd (SR 1749) - Christie Rd (SR 1717)	1.66	20	60	2	950	2100	10500	adequate
Christie Rd (SR 1717) - Raintree Dr (SR 1844)	0.66	20	60	2	1300	2700	10500	adequate
Christie Rd (SR 1717) - Pine Mtn. Rd (SR 1809)	1.51	20	60	2	2500	4300	10500	adequate
Pine Mtn. Rd - Lower Cedar Valley Rd (SR 1108)	0.53	20	60	2	3500	5700	10500	adequate
Deerbrook Rd SR (1301)								
Rocky Rd (SR 1143) - Abington Rd (SR 1310)	2.00	18	60	2	1900	3100	(12000)	K (improve 2 lanes)
Dellwood Drive								
Harrisburg Rd - Connelly Springs Rd (SR 1001)	0.91	20	60	2	1000	2500	10500	adequate
Dudley Ave (SR 1002)								
Main St (US 321-A) - Hickory Blvd (US 321)	0.68	18	60	2	2700	5500	(12000)	K (improve 2 lanes)
Dudley Shoals Rd (SR 1002)								
Hickory Blvd (US 321) - Wyke Rd (SR 1753)	2.02	20	60	2	7100	10000	10500	adequate
Wyke Rd (SR 1753) - Grace Chapel Rd SR (1751)	0.76	20	60	2	6100	9500	10500	adequate
Duke Ave (SR 1106)								
Main St (US 321-A) - Cline Dr	0.60	36	40	2	8100	12000	12000	adequate
Cline Dr - Duke Power Rd (SR 1105)	0.57	36	60	2	8100	12000	12000	adequate
Duke Power Rd (SR 1105) - Caldwell St (SR 1106)	0.22	18	60	2	5600	9000	(12000)	K (improve 2 lanes)

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FACILITY & SECTION	EXISTING CROSS SECTION DIST MI	RDWY FT	ROW FT	NUMBER OF LANES	PRESENT 1999/2000 VPD	ESTIMATED 2025 VPD	PRACTICAL CAPACITY 1999 (2025)	RECOMMENDED CROSS SECTION RDWY 2025
Dulatown Rd (SR 1149)								
Virginia St (SR 1145) - Charlie Ridge Pl (SR 1285)	0.64	21	60	2	900	1500	10500	adequate
Charlie Ridge Pl - Bradford Mtn. Rd (SR 1150)	0.74	21	60	2	600	1000	10500	adequate
Dry Ponds Rd (SR 1115)								
Main St (US321-A) - Sunset St (SR 1199)	0.74	18	60	2	2400	5000	(12000)	K (improve 2 lanes)
Sunset St (SR 1199) - Sawmills School Rd (SR 1122)	1.43	18	60	2	1900	5000	(12000)	K (improve 2 lanes)
Sawmills School Rd - Liberty Rd (SR 1195)	2.57	18	60	2	2600	5000	(12000)	K (improve 2 lanes)
Ellerwood Rd (SR 1715)								
Alfred Hartley Rd (SR 1712) - Mt. Herman Rd	0.86	19	60	2	2000	3300	(12000)	K (improve 2 lanes)
Falls Ave (SR 1107)								
Main St (US 321-A) - Hickory Blvd (US 321)	0.48	34	50	2	7700	15500	(16000)	H
Hickory Blvd (US 321) - Pine St	0.32	24	50	2	6200	11500	12000	adequate
Pine St - Ike Starnes Rd (SR 1754)	1.28	20	60	2	4100	8600	10500	adequate
Ike Starnes Rd (SR 1754) - Grace Chapel Rd (SR 1751)	1.55	20	60	2	2000	4400	10500	adequate
Fairview Dr (SR 1303)								
Abington Rd (SR 1310) - Cheraw Rd (SR 1301)	0.98	18	60	2	2000	3300	(12000)	K (improve 2 lanes)
Finley Ave								
Vance St - Main St (in Lenoir)	0.08	19	30	1	1000	1500	12000	adequate
Main St - Stonewall St	0.47	20	30	2	3400	5000	10500	adequate
Stonewall St - Greenhaven Dr	0.22	20	30	2	4500	6500	10500	adequate
Freezer Locker Rd (SR 1715)								
Mt. Herman Rd (SR 1160) - Pine Mtn. Rd (SR 1809)	1.43	19	60	2	2500	4100	(12000)	K (improve 2 lanes)
Goat Farm Rd (SR 1140)								
Union Grove Rd (SR 1141) - Baton School Rd	1.20	18	60	2	860	4000	(12000)	K (improve 2 lanes)
Baton School Rd (SR 1139) - New Connector	1.18	18	60	2	150	4000	(12000)	K (improve 2 lanes)
Grace Chapel Rd (SR 1751)								
Dudley Shoals Rd (SR 1001) - Ike Starnes Rd	1.81	16	60	2	1700	2800	(12000)	K (improve 2 lanes)
Ike Starnes Rd (SR 1754) - Rocky Mtn. Rd (SR 1157)	3.00	16	60	2	2400	4000	(12000)	K (improve 2 lanes)
Rocky Mtn. Rd (SR 1157) - Musket Ct (SR 1870)	0.82	16	60	2	2700	5700	(12000)	K (improve 2 lanes)
Musket Ct (SR 1870) - Mountainside Dr (SR 1817)	0.51	22	60	2	3300	6900	(12000)	K (multi-lanes ROW)
Mountainside Dr. - Northlake Dr (SR 1807)	0.13	18	60	2	4300	9000	(12000)	K (multi-lanes ROW)
Northlake Dr (SR 1807) - Grace Dr (SR 1856)	1.06	18	60	2	5000	11800	(12000)	K (multi-lanes ROW)
Grace Dr (SR 1856) - Hickory Blvd (US 321)	0.47	20	60	2	5100	12000	(12000)	K (multi-lanes ROW)
Greehaven Dr								
Blowing Rock Blvd (US 321) - Holloway Place	0.34	20	60	2	4700	7700	10500	adequate
Holloway Place - Finely Ave	0.19	27	60	2	4500	7400	12000	adequate
Harper Ave (NC 18 - Business)								
US 321 - Morganton Blvd (US 64/NC 18)	0.13	64	80	4w/turns	25000	40000	40000	realign w/interchange
Morganton Blvd - Penton Ave	0.10	35	80/70	3	13000	19000	17000	no recommendation
Penton Ave - Norwood St (US 321-A)	0.49	35	50	3	13000	19000	17000	no recommendation
Norwood St - Boundary St	0.26	33	50	3 oneway	6500	12000	(16000)	convert to two-way
Boundary St - Steel St	0.33	33	50	2 oneway	6500	12000	(16000)	convert to two-way
Steel St - Virginia St (SR 1145)	0.50	27	50	2	6500	11000	12000	adequate
Virginia St (SR 1145) - Hickory St	0.20	27	50	2	6800	11000	12000	adequate
Hickory St - Southwest Blvd (SR 13000	0.14	27	80	2	6800	11000	12000	adequate
Harrisburg Dr								
Morganton Blvd (US 64/NC18) - Overlook Dr	0.25	30	60	2	3200	5000	12000	adequate
Overlook Dr - Delwood Dr	0.49	18	60	2	3200	5000	(12000)	K (improve 2 lanes)

Appendix B

Thoroughfare Plan Street Tabulation

FACILITY & SECTION	EXISTING CROSS SECTION DIST MI	RDWY FT	ROW FT	NUMBER OF LANES	PRESENT 1999/2000 VPD	ESTIMATED 2025 VPD	PRACTICAL CAPACITY 1999 (2025)	RECOMMENDED CROSS SECTION RDWY 2025
Hartland Rd (SR 1325)								
Planning Area Boundary to US 64	1.62	18	60	2	3700	6800	(12000)	K (improve 2 lanes)
Hibriten Dr (SR 1178)								
Wilkesboro Blvd (US 64/NC18) - McLean Dr Ext	0.84	20	60	2	2800	12000	(12000)	K (improve 2 lanes)
McLean Dr Extention - Hickory Blvd (US 321)	1.45	20	60	2	2600	12000	(12000)	K (improve 2 lanes)
Hickory Blvd. (US-321)								
Catawba River - Grace Chapel Rd (SR 1751)	0.27	48	180	4 div	38000	65000	(65000)	D
Grace Chapel Rd - Main Street (US 321-A)	1.28	48	260	4 div	32000	55000	(65000)	D
US 321A - Falls Ave (SR 1107)	2.25	48	260	4 div	27000	50000	(65000)	D
Falls Ave - Mission Rd. (SR 1108)	2.86	48	260	4 div	30000	50000	(60000)	D
Mission Rd. - Pine Mtn. Rd. (SR 1952/1809)	1.20	48	260	4 div	31000	51000	(60000)	D
Pine Mtn. Rd. - Southwest Blvd. (SR 1933)	2.28	48	260	4 div	31000	47000	(60000)	D
Southwest Blvd. - McLean Dr. (SR 1180)	2.21	48	260	4 div	22000	42000	(60000)	D
McLean Dr. - Smiths Crossroads (US 64/NC 18)	0.96	48	150	4 div	31000	46000	(80000)	SPUI w/access control
Hickory Nut Ridge Rd (SR 1123)								
Cajah Mtn Rd - Horseshoe Bend Rd (SR 1127)	0.15	18	60	2	2100	3400	(12000)	K (improve 2 lanes)
Horseshoe Bend Rd - Baton Church Rd (SR 1124)	1.42	18	60	2	1000	1700	(12000)	K (improve 2 lanes)
Baton Church Rd (SR 1124) - May Rd (SR 1126)	1.27	20	60	2	1000	1700	10500	adequate
Highland Ave (SR 1108)								
Main St (US 321-A) - Pinewood Rd (SR 1109)	0.75	30	50	2	4400	7000	12000	adequate
Pinewood (SR 1109) - Hickory Blvd (US 321)	0.22	27	50	2	4400	7000	12000	adequate
Horseshoe Bend Rd (SR 1127)								
Hickory Nut Ridge Rd(SR 1123) - A.O. Wilson Rd	1.22	20	60	2	800	1200	10500	adequate
A.O. Wilson Rd (SR 1212) - Dakota Dr	1.09	18	60	2	800	1100	(12000)	K (improve 2 lanes)
Dakota Dr - Cajah Mtn Rd (SR 1130)	0.93	19	60	2	1100	1700	(12000)	K (improve 2 lanes)
Cajah's Mtn Rd - Hudson-Cajah Mtn Rd (SR 1131)	0.58	20	60	2	2500	4000	10500	adequate
Hospital Ave								
Harper Ave - Blowing Rock Blvd (US 321)	0.52	24-28	30	2	4000	7000	12000	adequate
Blowing Rock Blvd (US 321) - end of road	0.28	33	30	2	na	6000	12000	adequate
Hudson-Cajah Mtn Rd (SR 1131)								
Cajah Mtn Rd (SR 1130) - Horseshoe Bend Rd	1.32	20	60	2	2600	4300	10500	adequate
Ike Starnes Rd (SR 1754)								
Falls Ave (SR 1107) - Wyke Rd (SR 1753)	0.20	18	60	2	1000	2500	(12000)	K (improve 2 lanes)
J. M. Craig Rd (SR 1137)								
Union Grove Rd (SR 1134) - Baton School Rd	1.59	20	60	2	500	1500	(12000)	adequate
Jennings Street								
Underdown Ave - Morganton Blvd (US 64/NC 18)	0.25	23	40	2	2000	3300	11000	adequate
Legion Rd (SR 1156)								
Pleasant Hill Rd (SR 1159) - Hudson corporate limit	1.28	18	60	2	1300	2100	(12000)	K (improve 2 lanes)
Hudson City limit - Main St (US 321-A)	0.98	20	40	2	1400	2300	10500	adequate
Lenoir Ave								
Spruce Street - Willow Street	0.08	16	40	2	500	2200	(12000)	K (improve 2 lanes)
Little Gunpowder Creek Rd (SR 1133)								
Legion Rd - Hudson-Cajah Mtn Rd (SR 1131)	1.20	20	60	2	900	1500	10500	adequate
Lower Cedar Valley Rd (SR 1108)								
Hickory Blvd (US 321) - Deal Mill Rd (SR 1718)	0.45	18	60	2	3300	7000	(12000)	K (improve 2 lanes)
Deal Mill Rd (SR 1718 - Hickory Blvd (US 321)	1.69	18	60	2	1700	3600	(12000)	K (improve 2 lanes)

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FACILITY & SECTION	EXISTING CROSS SECTION DIST MI	RDWY FT	ROW FT	NUMBER OF LANES	PRESENT 1999/2000 VPD	ESTIMATED 2025 VPD	PRACTICAL CAPACITY 1999 (2025)	RECOMMENDED CROSS SECTION RDWY 2025
Lower Creek Drive								
Eastover Circle - Pinecrest Place	0.78	22	60	2	4300	7000	11000	adequate
Main St US 321-A (Granite Falls)								
Hickory Blvd (US 321) - Fred Bentley Rd (SR 1102)	1.67	20	60	2	4100	6500	10500	adequate
Fred Bentley (SR 1102) - Granite Falls Corp. Limit	0.26	20	40	2	4100	6500	10500	adequate
Granite Falls Corp. Limit - Duke Ave (SR 1106)	0.45	28	50	2	5200	8500	12000	adequate
Duke Ave (SR 1106) - Falls Ave (SR 1107)	0.14	50	110	2	7400	12000	12000	adequate
Falls Ave (SR 1107) - N. Highland Ave (SR 1108)	0.41	22	60	2	9300	15200	(16000)	H
N. Highland Ave (SR 1108) - Summit Ave	0.33	28	60	2	8000	13100	(16000)	H
Summit Ave - Dry Ponds Rd (SR 1115)	0.42	24	60	2	8000	13100	(16000)	H
Dry Ponds Rd (SR 1115) - Hardwood Dr	0.62	24	60	2	7500	12300	(16000)	H
Main St US 321-A (Sawmills)								
Hardwood Dr - Little Gunpowder Creek	2.37	24	60	2	8000	11600	(16000)	H
Main St US 321-A (Hudson)								
Little Gundpowder Creek - Pine Mtn. Rd (SR 1809)	0.98	24	60	2	6400	9300	(16000)	H
Pine Mtn. Rd (SR 1809) - Optimist Ave	0.63	39	60	3	11000	16000	16000	adequate
Optimist Ave - Swanson Rd	0.56	22	60	2	10000	14500	(16000)	H
Main St (Lenoir)								
Morganton Blvd (US 64/NC 18) - Grove Ave	0.34	24	40	2	2700	4500	12000	adequate
Grove Ave - College Ave	0.23	41	35	2	2500	4100	12000	adequate
Main St US 321-A/NC 90 (Lenoir)								
College Ave - West Ave(College to Harper not NC 90)	0.14	46	70	3w/parking	4500	8000	(16000)	convert to two-way
West Ave - Ashe Ave	0.08	46	70	2w/parking	5500	8500	12000	adequate
Ashe Ave - Scroggs Street	0.15	20	70	2	5000	8000	10500	adequate
Scroggs Street - Finley Street	0.15	22	40	2	4500	7500	11000	adequate
Finley Street - Conley Place	0.10	28	40	2	4400	7000	12000	adequate
Conley Place - South West Blvd (US 321-A)	0.32	21	60	2	4400	7000	10500	adequate
May Rd (SR 1123)								
Sawmills School Rd (SR 1122) - Troy Rd (SR 1126)	1.36	20	60	2	1200	2200	10500	adequate
McLean Drive (SR 1180)								
Norwood St (US 321-A) - Hickory Blvd (US 321)	0.63	20	100	2	9900	15500	(16000)	H
Meandering Way (SR 1754)								
Falls Ave (SR 1107) - Myers Rd (SR 1754)	0.15	20	60	2	1200	9000	10500	adequate
Miller Hill Rd (SR 1145)								
Rocky Rd (SR 1143) - Dulatown Rd (SR 1149)	1.38	18	60	2	3200	5000	(12000)	K (improve 2 lanes)
Mission Rd (SR 1108)								
Hickory Blvd (US-321) - Ardmore Ln	0.97	20	60	2	7500	10500	10500	adequate
Morganton Blvd (US 64/NC 18)								
Beecher Anderson Rd (SR 1404) - Southwest Blvd	1.30	60	150	5	17000	27900	30000	adequate
Southwest Blvd (SR 1933) - Virginia St	0.80	60	150	5	15500	25400	30000	adequate
Virginia St - Mulberry St	1.32	60	150	5	16000	26200	30000	adequate
Mulberry St - Haper Ave (NC 18Bus/NC 90)	0.66	60	150	5	18000	29500	30000	adequate

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Morganton Rd (US 64/NC 18)								
Burke County Line - Sunset Trail	1.70	24	100	2	11000	18000	(50000)	F
Sunset Trail - Hartland Rd (SR 1325)	1.17	24	100	2	14000	23000	(30000)	C
Hartland Rd - Beacher Anderson Rd (SR 1404)	1.22	60	150	5	16000	26200	30000	adequate
Mt. Herman Rd (SR 1160)								
Main St (US 321-A) - Little Gunpowder Creek	0.73	20	60	2	7400	10500	10500	adequate
Little Gunpowder Creek - Hickory Blvd (US 321)	0.14	23	60	2	7500	12000	12000	adequate
Hickory Blvd (US 321) - Freezer Locker Rd	1.23	21	60	2	4100	6000	10500	adequate
Mulberry Street (US 321-A)								
Morganton Blvd (US 64/NC 18) - Penton Ave	0.09	35	50	2	5700	8300	12000	adequate
Penton Ave - College Ave	0.46	35	50	2	7400	10700	12000	adequate
College Ave - Harper Ave	0.07	33	50	2 oneway	7500	10900	(12000)	convert to two-way
Myers Rd (SR 1754)								
Meandering Way - New Connector	0.50	18	60	2	200	9000	(12000)	K (improve 2 lanes)
N. Highland Ave (SR 1180)								
Main St (US 321-A) - Pinewood Rd (SR 1109)	0.75	30	50	2	4400	7200	12000	adequate
Pinewood (SR 1109) - Hickory Blvd (US 321)	0.22	27	60	2	2400	4000	12000	adequate
Norwood St (US 321-A)								
Swanson Rd - Southwest Blvd (SR 1933)	0.49	22	60	2	9800	14200	(16000)	H
Southwest Blvd (SR 1933) - Hibriten Dr (SR 1178)	1.16	22	60	2	10000	14500	(16000)	H
Hibriten Dr (SR 1178) - McLean Dr (SR 1180)	0.22	22	60	2	11500	16000	(16000)	H
McLean Dr (SR 1180) - Lakewood Circle	1.33	22	60	2	7400	11000	11000	adequate
Lakewood Circle - Morganton Blvd (US 64/NC 18)	0.15	24	60	2	6500	9500	12000	adequate
Norwood Street								
Morganton Blvd (US 64/NC 18) - College Ave	0.48	18	50	2	5400	7800	(12000)	K (improve 2 lanes)
College Ave - Harper Ave (NC 18 Bus/NC 90	0.05	32	50	2	5000	7200	12000	adequate
Nuway Circle (SR 1523)								
Blowing Rock Blvd (US 321) - Powell Rd	0.14	35	60	2	7500	11000	12000	adequate
Oak Hill Circle (SR 1788)								
Taylorsville Rd - Cedar Valley Chruch Rd (SR 1719)	0.08	18	60	2	550	1200	(12000)	K (improve 2 lanes)
Old Amhurst Rd (SR 1134)								
Calico Rd (SR 1142) - Burke County Line	0.70	unpaved	60	2	100	500	(12000)	K (improve 2 lanes)
Orchard Dr (SR 1146)								
Connelly Springs Rd (SR 1001) - Clarks Chapel Rd	1.39	20	60	2	5000	9000	10500	adequate
Pennell Street								
Brookside Place - Beverly Circle	0.26	19	30	2	2600	6000	(12000)	K (improve 2 lanes)
Beverly Circle - Powell Rd	0.15	18	30	2	2600	6000	(12000)	K (improve 2 lanes)
Pennton Street								
Harper Ave (NC 18 Bus/NC 90) - Norwood St	0.42	25	50	2	3000	4000	12000	adequate
Mulberry St - Norwood St	0.22	20	50	2	4000	5800	10500	adequate
Mountain View St - Mulberry St	0.22	19-20	40	2	1500	2200	10500	adequate
Mountain View St - Spruce St	0.25	26	40	2	1700	2500	12000	adequate

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Pine Mtn. Rd (SR 1952/1809)								
Main St (US 321-A) - Meadowood St	0.86	23	40	2	8500	11000	12000	adequate
Hickory Blvd (US 321) - Freezer Locker Rd	0.73	24	60	2	4800	7900	12000	adequate
Frezzer Locker Rd - Jones Wade Rd (SR 1792)	0.49	20	60	2	2800	4600	10500	adequate
Jones Wade Rd (SR 1792) - Deal Mill Rd (SR 1718)	1.69	20	60	2	900	1500	10500	adequate
Pinewood Rd (SR 1109)								
Dudley Shoals Rd (SR 1002) -Hickory Blvd (US 321)	0.36	20	60	2	6500	8000	10500	adequate
Hickory Blvd (US 321) - N. Highland Ave	0.20	18	60	2	7500	9900	(12000)	K (improve 2 lanes)
N. Highland Ave (SR 1180) - Winchester Ave	0.30	33	60	2	3500	8800	12000	adequate
Winchester Ave - Spartan Drive	0.10	18	60	2	3500	8800	(12000)	K (improve 2 lanes)
Pleasant Hill Rd (SR 1159)								
East Corp. Limit Cajah's Mtn. - Boyette Rd (SR 1250)	1.15	20	60	2	4000	6000	10500	adequate
Boyette Rd (SR 1250) - Main St (US 321-A)	1.10	20	60	2	5000	7300	10500	adequate
Powell Rd								
Nuway Circle (SR 1523) - Cambridge Court	0.54	24	60	2	2500	3200	12000	adequate
Cambridge Court - Wellington Court	0.12	24	70	2	2400	3100	12000	adequate
Wellingtion Court - Pennell St	0.40	18	60	2	3000	3900	(12000)	K (improve 2 lanes)
Pennel St - Lower Creek Dr	0.44	22	60	2	4500	5800	12000	adequate
Rocky Rd (SR 1143)								
Miller Hill Rd (SR 1145) - Hollins Circle	0.32	21	60	2	3400	5600	11000	adequate
Hollins Circle - Morganton Rd (US 64/NC 18)	0.62	21	60	2	3800	6200	11000	adequate
Morganton Rd - Ivey Stine Rd (SR 1386)	0.18	18	60	2	2700	3900	(12000)	K (improve 2 lanes)
Ivey Stine Rd (SR 1386) - Sheely Rd (SR 1387)	1.08	18	60	2	1300	1900	(12000)	K (improve 2 lanes)
Sheely Rd (SR 1387) - Deerbrook Rd (SR 1301)	0.94	18	60	2	1100	1600	(12000)	K (improve 2 lanes)
Rocky Mtn. Rd (SR 1757)								
Grace Chapel Rd (SR 1751) - Mullen Place	0.18	20	60	2	500	3000	10500	adequate
Ridge Street								
West Ave - Forest Place	0.13	26	30	2	1600	2100	12000	adequate
Forest Place - Finley Ave	0.25	26	40	2	1900	2400	12000	adequate
Sawmills School Rd (SR 1122)								
Main St (US 321-A) - Idlewood Drive	0.38	20	40	2	4000	6500	10500	adequate
Idlewood Drive - Dry Ponds Rd (SR 1115)	1.79	20	60	2	1500	3500	10500	adequate
Scroggs Street								
Vance Street - Main Street	0.10	20	40	2	1400	1800	10500	adequate
Smokey Creek Rd (SR 1134)								
Clark's Chapel Rd (SR 1153) - Union Grove Rd	1.47	18	60	2	1800	3000	(12000)	K (improve 2 lanes)
Southwest Blvd (SR 1933)								
Hickory Blvd (US 321) - Norwood St (US 321-A)	0.64	48	210	4div	13000	19000	40000	adequate
Norwood St (US 321-A) - Connelly Springs Rd	1.35	48	200	4div	18000	26000	40000	adequate
Connelly Springs Rd (SR 1001) - Virginia St	1.60	48	200	4div	19000	27500	40000	adequate
Virginia St (SR 1145) - Morganton Blvd	0.78	48	150	4div	17000	24500	40000	adequate
Morganton Blvd (US 64/NC 18) - Abington Rd	0.76	60	100	5	12000	17500	30000	adequate
Abington Rd (SR 1310) - Poplar Street	0.38	60	100	5	9300	13500	30000	adequate
Poplar Street - Main St (US 321-A/NC 90)	1.39	60	100	5	9500	14000	30000	adequate
Main St - Old North Rd (SR 1341)	0.28	60	100	5	9700	14000	30000	adequate
Old North Rd (SR 1341) - Valway Rd (NC 90)	0.37	60	100	5	9100	13000	30000	adequate
Valway Rd (NC 90) - Blowing Rock Blvd (US 321)	0.32	60	100	5	9800	14000	30000	adequate

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Spruce Street								
Pennton Ave - Howard Street	0.08	19	40	2	800	1600	(12000)	K (improve 2 lanes)
Howard Street -Lenoir Ave	0.26	23	40	2	600	1600	(12000)	adequate
Starcross Rd (SR 1712)								
Hibriten Dr - (SR 1178) - Ellerwood Rd (SR 1715)	2.29	18	60	2	1000	1600	(12000)	K (improve 2 lanes)
Steel Street								
College Ave - Harper Ave (NC 18 - Business)	0.06	22	30	2	n/a	n/a	11000	adequate
Stonewall Street								
Hospital Ave - Finely Ave	0.41	20	25	2	1400	2000	10500	adequate
Sunset Street (SR 1199)								
Dry Ponds Rd (SR 1115) - Turner Rd (SR 1112)	0.34	20	60	2	1300	2100	10500	adequate
Turner Rd - W. Highland Ave (SR 1108)	0.59	20	40	2	2000	3300	10500	adequate
Taylorsville Rd (US 64/NC 90)								
Wilkesboro Blvd (US 64/NC18) - Moose Lodge Rd	0.35	24	60	2	7300	12000	(12000)	K (improve 2 lanes)
Moose Lodge Rd - Colony Way	1.99	24	90	2	6600	11000	(12000)	K (improve 2 lanes)
Colony Way - Oak Hill Circle (SR 1788)	1.90	24	60	2	5800	10000	(12000)	K (improve 2 lanes)
Oak Hill Circle (SR 1788) - Fox Rd (SR 1726)	1.10	24	90	2	5400	9000	(12000)	K (improve 2 lanes)
Fox Rd (SR 1726) - Morris Creek Rd (SR 1734)	1.73	24	90	2	3600	7000	(12000)	K (improve 2 lanes)
Underdown Ave								
Jennings Street - College Ave	0.29	27	50	2	1600	2300	12000	adequate
Union Grove Rd (SR 1134)								
Goat Farm Rd (SR 1140) - Smokey Creek Rd	1.22	18	60	2	1000	1700	(12000)	K (improve 2 lanes)
Smokey Creek Rd (SR 1134) - J. M. Craig Rd	0.40	20	60	2	4000	6500	10500	adequate
J. M. Craig Rd (SR 1137) - Connelly Springs Rd	1.58	20	60	2	6000	9800	10500	adequate
Vance Street								
Willow St - Scroggs St	0.16	19	30	2	1600	2100	(12000)	K (improve 2 lanes)
Scroggs St - Finley Ave	0.20	18	35	2	1600	2100	(12000)	K (improve 2 lanes)
Finley Ave - Main St (US 321-A/NC 90)	0.12	14	35	1	600	800	6000	adequate
Valway Rd (NC 90)								
Southwest Blvd (SR 1933) - Collettsvile Rd (NC 90)	1.34	23	60	2	2600	4300	11500	adequate
Virginia Street (SR 1145)								
Dulatown Rd - 0.14 miles S. of Southwest Blvd	0.65	18	60	2	3700	5400	(12000)	K (improve 2 lanes)
0.14 miles S. of SW Blvd - .14 miles N. SW Blvd	0.28	52	60	2	3800	5500	12000	adequate
0.14 miles N. of SW Blvd - Fairview Drive	0.21	18	60	2	3600	5200	(12000)	K (improve 2 lanes)
Fairview Drive - Morganton Blvd (US 64/NC 18)	0.75	20	60	2	3200	4600	10500	adequate
Morganton Blvd - 0.1 mile N. of Greer Circle	0.20	28	60	2	4400	6400	12000	adequate
0.1 mile N. of Greer Circle - College Ave	0.45	20	60	2	3000	4400	10500	adequate
College Ave - Harper Ave (NC 18-Business)	0.07	22	60	2	3500	5100	11000	adequate
W. Highland Ave (SR 1108)								
Sunset St - MainSt (US 321-A)	0.02	32	60	2	2700	4500	12000	adequate
Walt Arney Rd (SR 1167)								
Pleasant Hill Rd (SR 1159) - Southwest Blvd	1.63	20	60	2	1700	2500	10500	adequate
Connelly Springs Rd (SR 1001) - Kincaid Circle	0.79	20	60	2	800	1200	10500	adequate

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West Ave (NC 18-Business)								
Ridge St -Main St US 321-A *(this section NC 90)*	0.12	49	80	3 one-way	6900	11300	(12000)	convert to two-way
Main St (US 321-A) -Willow Street	0.24	42	80	3 one-way	4300	7100	(12000)	convert to two-way
Willow Street - Depot Place	0.07	42	80	2 one-way	4200	6900	(12000)	convert to two-way
Depot Place - Harper Ave (NC 18-Business)	0.18	25	80	2 one-way	4000	6600	(12000)	convert to two-way
Parking on West from Ridge St to Boundary Street								
Wheeler Street								
Broadway Street - Willow Street	0.29	18	30	2	700	1000	(12000)	K (improve 2 lanes)
Wildwood Rd (SR 1548)								
Lower Creek Dr - 0.58 mi W. of Spring Meadow Rd	1.40	16-17	60	2	700	1100	(12000)	K (improve 2 lanes)
0.58 mi W. of Spring Meadow Rd - Wilkesboro Blvd	0.58	20	60	2	600	1000	10500	adequate
Wilkesboro Blvd (NC 18)								
US 321 - Hibriten Drive (SR 1714)	0.49	64	150	5/wturns	22000	36000	40000	Interchange at US 321
Hibriten Drive - Taylorsville Rd (US 64/NC 90)	0.90	60	150	5	18000	29500	30000	adequate
Taylorsville Rd - 0.15 miles W. of Lower Creek Dr	0.23	60	150	3	9000	15000	30000	adequate
0.15 mi W. of Lower Cr. - 0.08 mi.W. of Tanglewood	0.35	36	90	3	8900	14500	(35000)	C
0.08 mi W. of Tanglewood Drive - Blue Ridge Circle	0.96	36	90	3	8400	13800	(35000)	C
Blue Ridge Circle - Blue Creek Rd (SR 1550)	2.47	24	60	2	6000	10000	(35000)	C
From US 321 to Taylorsville Rd is also US 64/NC 90								
Willow Street								
Beall Street - Hill Street	0.09	20	30	2	3000	4500	10500	adequate
Hill Street - Wheeler Street	0.07	24	30	2	3000	4500	12000	adequate
Wheeler Street - Prospect Street	0.03	18	30	2	3000	4500	(12000)	K (improve 2 lanes)
Prospect Street - Vance Street	0.07	16	40	2	3700	5500	(12000)	K (improve 2 lanes)
Vance Street - Ashe Steet	0.12	36	40	2	4500	6500	12000	adequate
Ashe Steet - West Street	0.08	36	40	2	3000	4500	12000	adequate
West Street - Harper Street	0.08	24	40	2	2600	3800	12000	adequate
Harper Street - College Street	0.07	23	40	2	2500	3600	11500	adequate
College Street - Spainhour Street	0.05	23	30	2	2000	3000	11500	adequate
Spainhour Street - Lenoir Avenue	0.12	16	30	2	1500	2200	(12000)	K (improve 2 lanes)
Zacks Fork Rd (SR 1511)								
Nuway Circle (SR 1523) - Old Mill Rd (SR 1543)	0.63	20	60	2	2400	3500	10500	adequate
Old Mill Rd (SR 1543) - Georgetown Rd (SR 1583)	0.35	18	60	2	2000	3000	(12000)	K (improve 2 lanes)
Georgetown Rd - Cottrell Hill Rd (SR 1545)	0.82	16	60	2	1500	2200	(12000)	K (improve 2 lanes)
Cottrell Hill Rd - 0.05 miles NE of St. John Rd	0.38	16	60	2	1300	2000	(12000)	K (improve 2 lanes)
New Location Recommendations								
Connelly Springs Rd - Realignment								
Walt Arney Rd - US 321(Hickory Blvd) at Hibriten Dr						15000	(30000)	C
Crump Rd Realignment								
West of Clarks Chapel Rd to Orchard Dr						4500	(12000)	K
Dry Ponds Rd to Goat Farm Rd Connector						5000	(12000)	K
Dry Ponds Rd to Pinewood Rd Connector						9000	(12000)	K
Duke Ave to US 321-A Connector						2500	(12000)	K

Appendix B

Thoroughfare Plan Street Tabulation

FACILITY & SECTION	EXISTING CROSS SECTION DIST MI	RDWY FT	ROW FT	NUMBER OF LANES	PRESENT 1999/2000 VPD	ESTIMATED 2025 VPD	PRACTICAL CAPACITY 1999 (2025)	RECOMMENDED CROSS SECTION RDWY 2025
New Location Recommendations								
Grace Chapel Rd to NC 27 in Alexander Co Connector						3000	(12000)	K
Grace Chapel Rd to NC 27 in Catawba Co Connector						10500	(12000)	K
Hospital Ave to Pennell St Connector						6000	(12000)	K
Lower Creek Dr Realignment								
Eastover Circle to Wilkesboro Blvd at Hibriten Dr						7000	(12000)	K
McLean Dr Extension								
US 321 (Hickory Blvd) to Hibriten Dr at Haigler Rd						11000	(12000)	K
Mission Rd Realignment								
Ardmore Ln to Cajah Mtn Rd at Main St (US 321-A)						11000	(12000)	K
Myers Rd Extension								
End of Myers Rd to US 321 at Poovey's Dr						9500	(12000)	K
Orchard Rd to Pleasant Hill Rd Connector						5000	(12000)	K
Pine Mtn Rd Realignment								
West of Meadowood St to US 321 at Pine Mtn Rd						11000	(12000)	K
Pinewood Rd Extension								
Pinewood Rd at Dudley Shoals Rd to Wyke Rd						2500	(12000)	K
Pleasant Hill Rd to Mt. Herman Rd Connector						5500	(12000)	K
Rocky Rd to Crump Rd Connector						4000	(12000)	K
Southwest Blvd to Alfred Hartley Rd Connector						8000	(12000)	K
Spruce St Extension								
Pennton Ave to Delwood Dr at Harrisburg Dr						3500	(12000)	K
Wilkesboro Blvd to Alfred Hartley Rd Connector						6000	(12000)	K

Appendix C

Typical Cross Sections

Cross section requirements for thoroughfares vary according to the desired capacity and level of service to be provided. Universal standards in the design of thoroughfares are not practical. Each roadway section must be individually analyzed and its cross section determined based on the volume and type of projected traffic, existing capacity, desired level of service, and available right-of-way. Recommended typical cross sections are shown in Figure C.1. These cross sections are typical for facilities on new location and where right-of-way constraints are not critical. For widening projects and urban projects with limited right-of-way, special cross sections should be developed that meet the needs of the project.

On all existing and proposed major thoroughfares delineated on the thoroughfare plan, adequate right-of-way should be protected or acquired for the recommended cross sections. In addition to cross section and right-of-way recommendations for improvements, The street tabulation in Appendix B may recommend ultimate needed right-of-way for the following situations:

- thoroughfares which may require widening after the current planning period,
- thoroughfares which are borderline adequate and accelerated traffic growth could render them deficient, and
- thoroughfares where an urban curb and gutter cross section may be locally desirable because of urban development or redevelopment.

Recommended design standards relating to grades, sight distances, degree of curve, super elevation, and other considerations for thoroughfares are given in Appendix D. The typical cross sections are described below.

A - Four Lanes Divided Freeway with Median

Cross-section "A" is typical for four lane divided highways in rural areas that may have only partial or no control of access. The minimum median width for this cross section is 46 feet, but a wider median is desirable.

B - Seven Lanes with Curb and Gutter

Cross section "B" is typically not recommended for new projects. When the conditions warrant six lanes, cross section “D” should be recommended. Cross section “B” should be used only in special situations such as when widening from a five-lane section and right-of-way is limited. Even in these situations, consideration should be given to converting the center turn lane to a median so that cross section “D” is the final cross section.

C - Five Lanes with Curb and Gutter

Typical for major thoroughfares, cross section "C" is desirable where frequent left turns are anticipated as a result of abutting development or frequent street intersections.

D - Six Lanes Divided with Raised Median and Curb & Gutter

E - Four Lanes Divided with Raised Median and Curb and Gutter

Cross sections "D" and "E" are typically used on major thoroughfares where left turns and intersection streets are not as frequent. Left turns would be restricted to a few selected intersections. The 16 ft median is the minimum recommended for an urban boulevard type cross section. In most instances, monolithic construction should be utilized due to greater cost effectiveness, ease and speed of placement, and reduced future maintenance requirements. In special cases, grassed or landscaped medians result in greatly increased maintenance costs and an increase in danger to maintenance personnel. Non-monolithic medians should only be recommended when the above concerns are addressed.

F - Four Lanes Divided Boulevard with Grass Median

Cross-section "F" is typically recommended for urban boulevards or parkways to enhance the urban environment and to improve the compatibility of major thoroughfares with residential areas. A minimum median width of 24 ft is recommended with 30 ft being desirable.

G - Four Lanes with Curb & Gutter

Cross section "G" is recommended for major thoroughfares where projected travel indicates a need for four travel lanes but traffic is not excessively high, left turning movements are light, and right-of-way is restricted. An additional left turn lane would probably be required at major intersections. This cross section should be used only if the above criteria is met. If right-of-way is not restricted, future strip development could take place and the inner lanes could become de facto left turn lanes.

H - Three Lanes with Curb & Gutter

In urban environments, thoroughfares which are proposed to function as one-way traffic carriers would typically require cross section “H”.

I - Two Lanes with Curb and Gutter and Parking on Both Sides

J - Two Lanes with Curb and Gutter and Parking on One Side

Cross sections “I” and “J” are usually recommended for urban minor thoroughfares since these facilities usually serve both land service and traffic service functions. Cross section “I” would be used on those minor thoroughfares where parking on both sides is needed as a result of more intense development.

K - Two Lanes with Paved Shoulder

Cross section "K" is used in rural areas or for staged construction of a wider multi-lane cross section. On some thoroughfares, projected traffic volumes may indicate that two travel lanes will adequately serve travel for a considerable period of time. For areas that are growing and future widening will be necessary, the full right-of-way of 100 ft should be required. In some instances, local ordinances may not allow the full 100 ft. In those cases, 70 ft should be

preserved with the understanding that the full 70 ft will be preserved by use of building setbacks and future street line ordinances.

L - Six Lanes Divided Freeway with Grass Median

Cross section “L” is typical for controlled access freeways. The 46 ft grassed median is the minimum desirable median width, but there could be some variation from this depending upon design considerations. Right-of-way requirements would typically vary upward from 228 ft depending upon cut and fill requirements.

M - Eight Lanes Divided with Raised Median and Curb & Gutter

Also used for controlled access freeways, cross section "M" may be recommended for freeways going through major urban areas or for routes projected to carry very high volumes of traffic.

Typical Cross Sections for Accommodating Bicycles

N - Five Lanes with Curb and Gutter and Widened Curb Lanes

O - Two Lane with Shoulder Section

P - Four Lanes Divided with Raised Median, Curb and Gutter and Widened Curb Lanes

If there is sufficient bicycle travel along the thoroughfare to justify a bicycle lane or bikeway, additional right-of-way may be required to contain the bicycle facilities. The North Carolina Bicycle Facilities Planning and Design Guidelines should be consulted for design standards for bicycle facilities. Cross sections “N”, “O”, and “P” are typically used to accommodate bicycle travel.

Curb & Gutter in an Urban setting

The urban curb and gutter cross sections all illustrate the sidewalk adjacent to the curb with a buffer or utility strip between the sidewalk and the minimum right-of-way line. This permits adequate setback for utility poles. If it is desired to move the sidewalk farther away from the street to provide additional separation for pedestrians or for aesthetic reasons, additional right-of-way must be provided to insure adequate setback for utility poles.

The right-of-way shown for each typical cross section is the minimum amount required to contain the street, sidewalks, utilities, and drainage facilities. Cut and fill requirements may require either additional right-of-way or construction easements. Obtaining construction easements is becoming the more common practice for urban thoroughfare construction.

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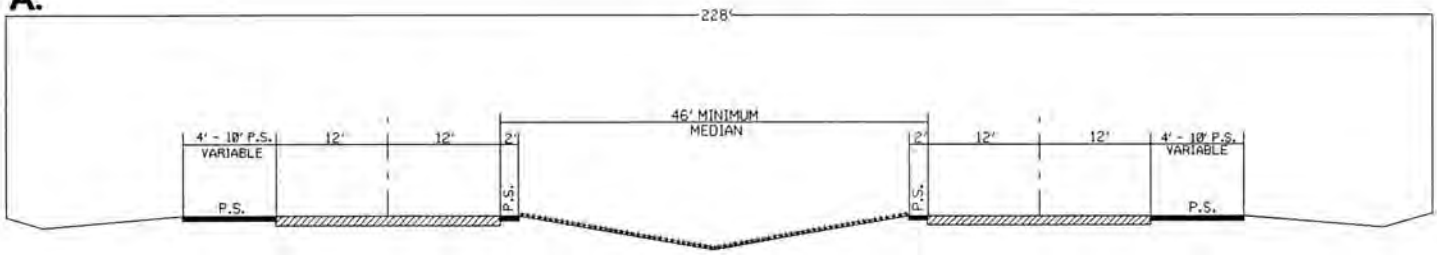
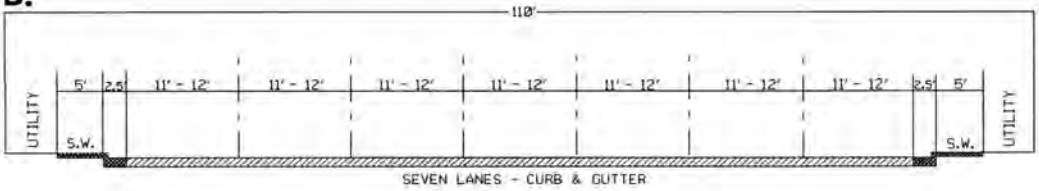
TYPICAL THOROUGHFARE CROSS SECTIONS

A.



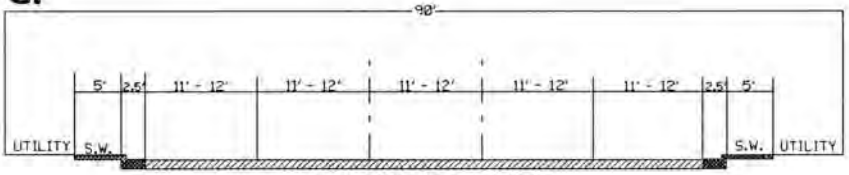
FOUR LANES DIVIDED WITH MEDIAN - FREEWAY

B.



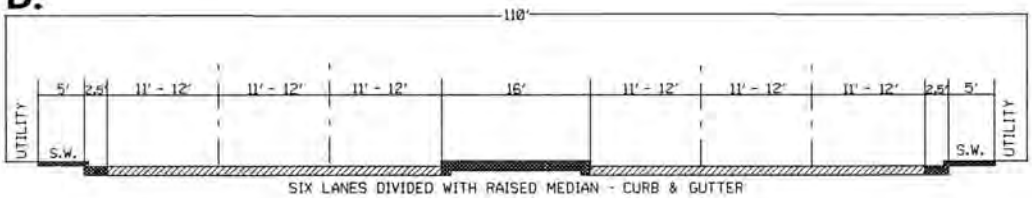
SEVEN LANES - CURB & GUTTER

C.



FIVE LANES - CURB & GUTTER

D.

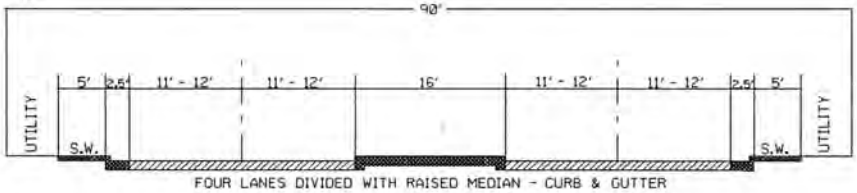


SIX LANES DIVIDED WITH RAISED MEDIAN - CURB & GUTTER

FIGURE C.1

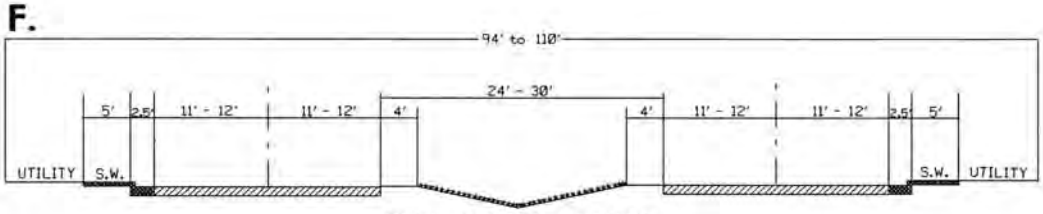
TYPICAL THOROUGHFARE CROSS SECTIONS

E.



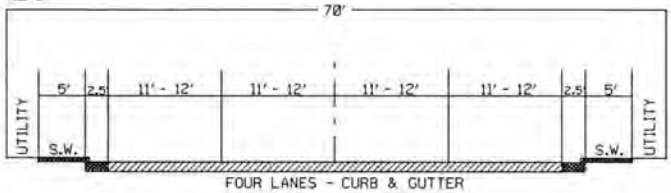
FOUR LANES DIVIDED WITH RAISED MEDIAN - CURB & GUTTER

F.



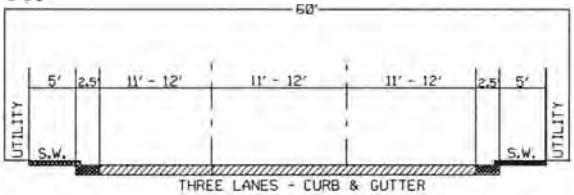
FOUR LANES DIVIDED - BOULEVARD
GRASS MEDIAN

G.



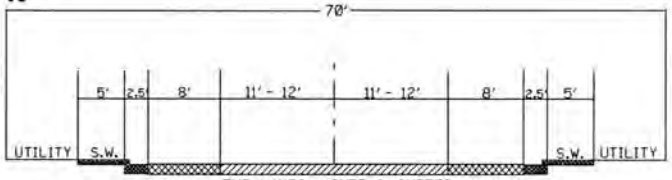
FOUR LANES - CURB & GUTTER

H.



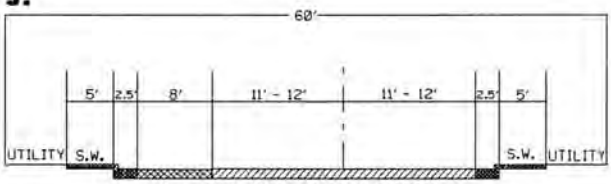
THREE LANES - CURB & GUTTER

I.



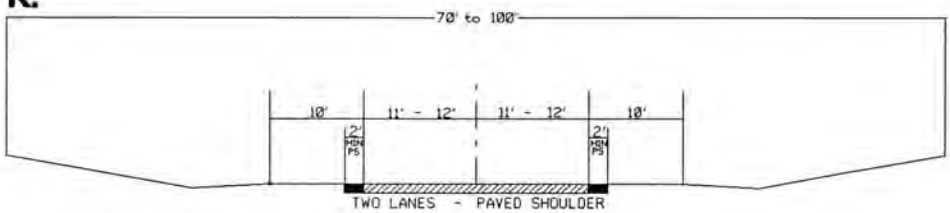
TWO LANES - CURB & GUTTER
PARKING ON EACH SIDE

J.



TWO LANES - CURB & GUTTER
PARKING ON ONE SIDE

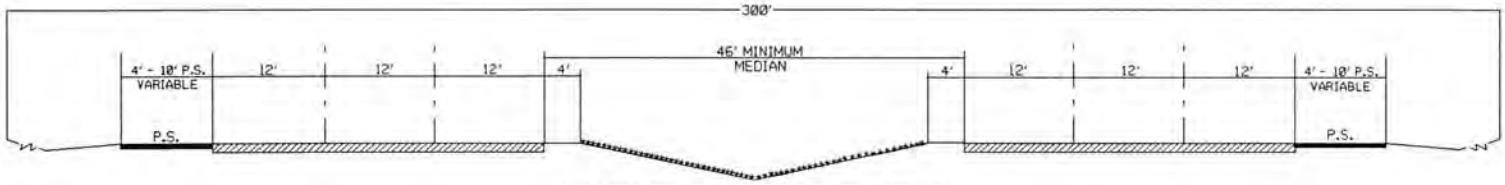
K.



TWO LANES - PAVED SHOULDER

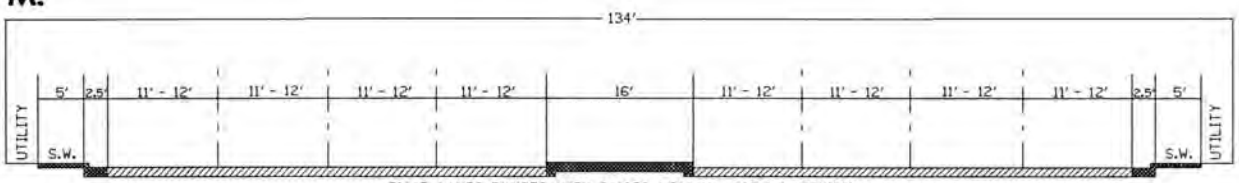
TYPICAL THOROUGHFARE CROSS SECTIONS

L.



SIX LANES DIVIDED WITH GRASS MEDIAN - FREEWAY

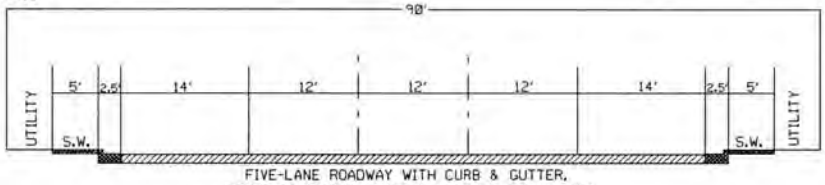
M.



EIGHT LANES DIVIDED WITH RAISED MEDIAN - CURB & GUTTER

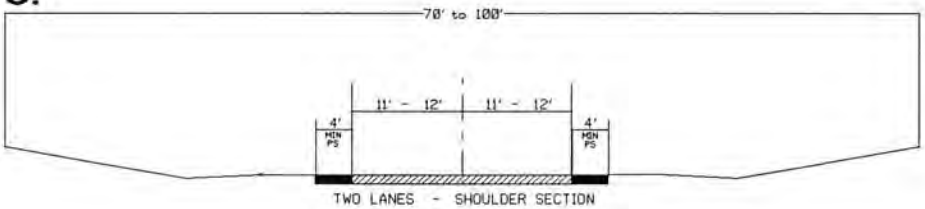
TYPICAL THOROUGHFARE CROSS SECTIONS FOR ACCOMMODATING BICYCLES

N.



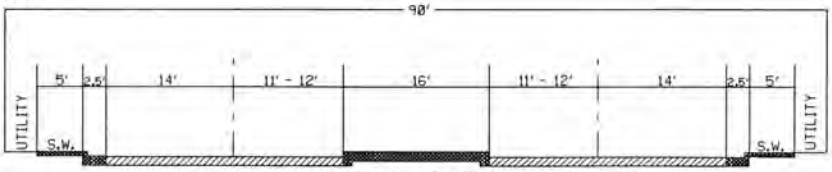
FIVE-LANE ROADWAY WITH CURB & GUTTER,
STANDARD INSIDE LANES & WIDENED CURB LANES

O.



TWO LANES - SHOULDER SECTION

P.



FOUR LANES DIVIDED WITH RAISED MEDIAN - CURB & GUTTER,
STANDARD INSIDE LANES & WIDENED CURB LANES

Appendix D

Recommended Subdivision Ordinances

Definitions

Streets and Roads

Rural Roads

- ***Principal Arterial*** - A rural link in a highway system serving travel, and having characteristics indicative of substantial statewide or interstate travel and existing solely to serve traffic; consists of interstate routes and other routes designated as principal arterials.

- ***Minor Arterial*** - A rural roadway joining cities and larger towns and providing intrastate and intercounty service at relatively high overall travel speeds with minimum interference to through movement.

- ***Major Collector*** - A road that serves major intracounty travel corridors and traffic generators and provides access to the arterial system.

- ***Minor Collector*** - A road that provides service to small local communities and traffic generators and provides access to the major collector system.

- ***Local Road*** - A road that serves primarily to provide access to adjacent land, over relatively short distances.

Urban Streets

- ***Major Thoroughfares*** - Major thoroughfares consist of interstate, other freeway, expressway, or parkway roads, and major streets that provide for the expeditious movement of high volumes of traffic within and through urban areas.

- ***Minor Thoroughfares*** - Minor thoroughfares perform the function of collecting traffic from local access streets and carrying it to the major thoroughfare system. Minor thoroughfares may be used to supplement the major thoroughfare system by facilitating minor through traffic movements and also serve abutting property.

- ***Local Street*** - A local street is any street not on a higher order urban system and serves primarily to provide direct access to abutting land.

Specific Type Rural or Urban Streets

- ***Freeway, expressway, or parkway*** **-** Divided multilane roadways designed to carry large volumes of traffic at high speeds. A *freeway* provides for continuous flow of vehicles with no direct access to abutting property and with access to selected crossroads only by way of interchanges. An *expressway* is a facility with full or partial control of access and generally with grade separations at major intersections. A *parkway* is for non-commercial traffic, with full or partial control of access.

- ***Residential Collector Street*** **-** A local street which serves as a connector street between local residential streets and the thoroughfare system. Residential collector streets typically collect traffic from 100 to 400 dwelling units.

- ***Local Residential Street*** **-** Cul-de-sacs, loop streets less than 2500 feet in length, or streets less than 1.0 miles in length that do not connect thoroughfares, or serve major traffic generators, and do not collect traffic from more than 100 dwelling units.

- ***Cul-de-sac*** **-** A short street having only one end open to traffic and the other end being permanently terminated with a vehicular turn-around provided.

- ***Frontage Road*** **-** A road that parallels a partial or full controlled-access facility which provides access to adjacent land.

- ***Alley*** **-** A strip of land, owned publicly or privately, set aside primarily for vehicular service access to the backside of properties otherwise abutting on a street.

Property

- **Building Setback Line -** A line parallel to the street in front of which no structure shall be erected.

- **Easement -** A grant by the property owner for use by the public, a corporation, or person(s), of a strip of land for a specific purpose.

- **Lot -** A portion of a subdivision, or any other parcel of land, which is intended as a unit for transfer of ownership and/or for development. The word “lot” includes the words “plat” and “parcel”.

Subdivision

- **Subdivider -** Any person, firm, corporation or official agent thereof, who subdivides or develops any land deemed to be a subdivision.

- **Subdivision -** All divisions of a tract or parcel of land into two or more lots, building sites, or other divisions for the purpose, immediate or future, of sale or building development and all divisions of land involving the dedication of a new street or change in existing streets.

  The following shall not be included within this definition nor subject to these regulations:

  * the combination or re-combination of portions of previously platted lots where the total number of lots is not increased and the resultant lots are equal to or exceed the standards contained herein,
  * the division of land into parcels greater then 10 acres where no street right of way dedication is involved,
  * the public acquisition, by purchase, of strips of land for the widening or the opening of streets, and
  * the division of a tract in single ownership whose entire area is no greater than 2 acres into not more than three lots, where no street right of way dedication is involved and where the resultant lots are equal to or exceed the standards contained herein.

- **Dedication -** A gift, by the owner, of his property to another party without any consideration being given for the transfer. The dedication is made by written instrument and is completed with an acceptance.

- **Reservation -** Reservation of land does not involve any transfer of property rights. It constitutes an obligation to keep property free from development for a stated period of time.

Roadway Design Standards

The design of all roads within a planning area shall be in accordance with the accepted policies of the North Carolina Department of Transportation, Division of Highways, as taken or modified from the American Association of State Highway Officials' (AASHTO) manuals.

The provision of right of way for roads shall conform and meet the recommendations of the thoroughfare plan, as adopted by the municipality or county. The proposed street layout shall be coordinated with the existing street system of the surrounding area. Normally, the proposed streets should be the extension of existing streets, where possible.

Right of Way Widths

Right of way (ROW) widths shall not be less than the minimum standards given in Table D-1 and shall apply except in those cases where ROW requirements have been specifically set out in the thoroughfare plan.

The subdivider will only be required to dedicate a maximum of 100 feet of ROW. In cases where over 100 feet of right of way is desired, the subdivider will be required only to reserve the

amount in excess of 100 feet. In all cases in which ROW is sought for a fully controlled access facility, the subdivider will only be required to make a reservation. It is strongly recommended that subdivisions provide access to properties from internal streets, and that direct property access to major thoroughfares, principle and minor arterials, and major collectors be avoided. Direct property access to minor thoroughfares is also undesirable.

A partial width ROW, not less then 60 feet in width, may be dedicated when adjoining undeveloped property is owned or controlled by the subdivider, provided that the width of a partial dedication be such as to permit the installation of such facilities as may be necessary to serve abutting lots. When the said adjoining property is sub-divided, the remainder of the full-required right of way shall be dedicated.

Table D-1

Minimum Right of way Requirements

Area Classification	Functional Classification	Minimum ROW
RURAL	Principle Arterial	Freeways- 350 ft Other- 200 ft
	Minor Arterial	100 ft
	Major Collector	100 ft
	Minor Collector	80 ft
	Local Road	60 ft[1]
URBAN	Major Thoroughfare	90 ft
	Minor Thoroughfare	70 ft
	Local Street	60 ft [1]
	Cul-de-sac	variable[2]

[1]The desirable minimum ROW is 60 ft. If curb and gutter is provided, 50 ft of ROW is adequate on local residential streets.

[2]The ROW dimension will depend on radius used for vehicular turn around. Distance from edge of pavement of turn around to ROW should not be less than distance from edge of pavement to ROW on street approaching turn around.

Street Widths

Widths for street and road classifications other than local shall be as recommended by the thoroughfare plan. Width of local roads and streets shall be as follows:

- ***Local Residential***
    * Curb and Gutter section: 26 feet, face to face of curb
    * Shoulder section: 20 feet to edge of pavement, 4 feet for shoulders

- ***Residential Collector***
    * Curb and Gutter section: 34 feet, face to face of curb
    * Shoulder section: 20 feet to edge of pavement, 6 feet for shoulders

Geometric Characteristics

The standards outlined below shall apply to all subdivision streets proposed for addition to the state highway system or municipal street system. In cases where subdivision is sought adjacent to a proposed thoroughfare corridor, the requirements of dedication and reservation discussed under the 'Right of Way Widths' section shall apply.

- ***Design Speed*** - The design speed for a roadway should be a minimum of 5 mph greater than the posted speed limit. The design speeds for subdivision type streets are shown in Table D-2.

- ***Minimum Sight Distance*** - In the interest of public safety, no less than the minimum sight distance applicable shall be provided. Vertical curves that connect each change in grade shall be provided and calculated using the parameters set forth in Table D-3.

- ***Superelevation*** - Table E-4 shows the minimum radius and the related maximum superelevation for design speeds. The maximum rate of roadway superelevation (e) for rural roads with no curb and gutter is 0.08. The maximum rate of superelevation for urban streets with curb and gutter is 0.06, with 0.04 being desirable.

- ***Maximum and Minimum Grades*** - The maximum percent grades are shown in Table D-5. Minimum grade should not be less then 0.5%. Grades for 100 feet each way from intersections (measured from edge of pavement) should not exceed 5%.

Table D-2

Design Speed

Facility Type	Design Speed (mph) Desirable	Minimum Level	Minimum Rolling
RURAL			
Minor Collector Roads (ADT Over 2000)	60	50	40
Local Roads[1] (ADT Over 400)	50	*50	*40
URBAN			
Major Thoroughfares[2]	60	50	40
Minor Thoroughfares	40	30	30
Local Streets	30	**30	**20

Note: *Based on ADT of 400-750. Where roads serve a limited area and small number of units, can reduce minimum design speed. **Based on projected ADT of 50-250. (Reference NCDOT Roadway Design Manual page 1-1B)

[1]Local Roads including Residential Collectors and Local Residential.

[2]Major Thoroughfares other than Freeways or Expressways.

Table D-3

Sight Distance

Design Speed (mph)	Stopping Sight Distance (feet) Desirable	Minimum	Minimum K[1] Values (feet) Crest Curve	Sag Curve	Passing Sight Distance (feet) For 2-lanes
30	200	200	30	40	1100
40	325	275	60	60	1500
50	475	400	110	90	1800
60	650	525	190	120	2100

Note: General practice calls for vertical curves to be multiples of 50 feet. Calculated lengths shall be rounded up in each case. (Reference NCDOT Roadway Design Manual page 1-12 T-1)

[1]K is a coefficient by which the algebraic difference in grade may be multiplied to determine the length of the vertical curve, which will provide the desired sight distance. Sight distance provided for stopped vehicles at intersections should be in accordance with "A Policy on Geometric Design of Highways and Streets, 1990".

Table D-4

Superelevation

Design Speed (mph)	Minimum Radius of Maximum e[1]			Maximum Degree of Curve		
	e=0.04	e=0.06	e=0.08	e=0.04	e=0.06	e=0.08
30	302	273	260	19^0 00’	21^0 00’	22^0 45’
60	573	521	477	10^0 00’	11^0 15’	12^0 15’
80	955	955	819	6^0 00’	6^0 45’	7^0 30’
100	1,637	1,432	1,146	3^0 45’	4^0 15’	4^0 45’

[1]e = rate of roadway superelevation, foot per foot

Note: (Reference NCDOT Roadway Design Manual page 1-12 T-6 thru T-8)

Table D-5

Maximum Vertical Grade

Facility Type and Design Speed (km/h)		Minimum Grade in Percent		
		Flat	Rolling	Mountainous
RURAL				
Minor Collector Roads*				
	20	7	10	12
	30	7	9	10
	40	7	8	10
	50	6	7	9
	60	5	6	8
	70	4	5	6
Local Roads*[1]				
	20	-	11	16
	30	7	10	14
	40	7	9	12
	50	6	8	10
	60	5	6	-
URBAN				
Major Thoroughfares[2]				
	30	8	9	11
	40	7	8	10
	50	6	7	9
	60	5	6	8

Table D-5 Continued

Maximum Vertical Grade

Facility Type and Design Speed (km/h)		Minimum Grade in Percent		
		Flat	Rolling	Mountainous
Minor Thoroughfares*				
	20	9	12	14
	30	9	11	12
	40	9	10	12
	50	7	8	10
	60	6	7	9
	70	5	6	7
Local Streets*				
	20	-	11	16
	30	7	10	14
	40	7	9	12
	50	6	8	10
	60	5	6	-

Note: *For streets and roads with projected annual average daily traffic less than 250 or short grades less than 150 meters (500 ft) long, grades may be 2% steeper than the values in the above table. (Reference NCDOT Roadway Metric Design Manual page 1-12 T-3)

[1]Local Roads including Residential Collectors and Local Residential.

[2]Major Thoroughfares other than Freeways or Expressways.

Intersections

Streets shall be laid out so as to intersect as nearly as possible at right angles, and no street should intersect any other street at an angle less than sixty-five (65) degrees.

Property lines at intersections should be set so that the distance from the edge of pavement, of the street turnout, to the property line will be at least as great as the distance from the edge of pavement to the property line along the intersecting streets. This property line can be established as a radius or as a sight triangle. Greater offsets from the edge of pavement to the property lines will be required, if necessary, to provide sight distance for the stopped vehicle on the side street.

Offset intersections are to be avoided. A minimum length of 200 feet should separate intersections that cannot be aligned between survey centerlines.

Cul-de-sacs

Cul-de-sacs shall not be more than one hundred and fifty 500 feet in length. The distance from the edge of pavement on the vehicular turn around to the right of way line should not be less than the distance from the edge of pavement to right of way line on the street approaching the turn around. Cul-de-sacs should not be used to avoid connection with an existing street or to avoid the extension of an important street.

Alleys

Alleys shall be required to serve lots used for commercial and industrial purposes except that this requirement may be waived where other definite and assured provisions are mode for service access. Alleys shall not be provided in residential subdivisions unless necessitated by unusual circumstances. The width of an alley shall be at least 20 feet.

Dead-end alleys shall be avoided where possible, but if unavoidable, shall be provided with adequate turn around facilities as may be required by the planning board.

Permits for Connection to State Roads

An approved permit is required for connection to any existing state system road. This permit is required prior to any construction on the street or road. The application is available at NCDOT's District Offices.

Offsets for Utility Poles

Poles for overhead utilities should be located clear of roadway shoulders, preferably a minimum of at least 30 feet from the edge of pavement. On streets with curb and gutter, utility poles shall be set back a minimum distance of 6 feet from the face of curb.

Wheel Chair Ramps

All street curbs being constructed or reconstructed for maintenance purposes, traffic operations, repairs, correction of utilities, or altered for any reason, shall provide wheelchair ramps for the physically handicapped at intersections where both curb and gutter and sidewalks are provided and at other major points of pedestrian flow.

Horizontal Width on Bridge Deck

The clear roadway width standards for new and reconstructed bridges serving two-lane, two-way traffic are given below.

- shoulder section approach
    * under 800 ADT design year - minimum 28 feet width face to face of parapets, rails, or pavement width plus 10 feet, whichever is greater
    * 800 - 2000 ADT design year - minimum 34 feet width face to face of parapets, rails, or pavement width plus 12 feet, whichever is greater
    * over 2000 ADT design year - minimum width of 40 feet, desirable width of 44 feet width face to face of parapets or rails

- curb and gutter approach
    * under 800 ADT design year - minimum 24 feet face to face of curbs
    * over 800 ADT design year - width of approach pavement measured face to face of curbs
    * where curb and gutter sections are used on roadway approaches, curbs on bridges shall match the curbs on approaches in height, in width of face to face curbs, and in crown drop; the distance from face of curb to face of parapet or rail shall be a minimum of 1.5 feet, or greater if sidewalks are required

The clear roadway width standards for new and reconstructed bridges having 4 or more lanes serving undivided two-way traffic are given below.

- shoulder section approach - width of approach pavement plus width of usable shoulders on the approach left and right shoulder width 8 feet minimum, 10 feet desirable
- curb and gutter approach - width of approach pavement measured face to face of curbs

Appendix E

Index for Secondary Roads Names vs Numbers

Div	County	SR #	Road Name
11	Caldwell	1759	Abernathy St
11	Caldwell	1310	Abington Rd
11	Caldwell	1429	Ada Williams Lane
11	Caldwell	1335	Adako Rd
11	Caldwell	1337	Adako Rd
11	Caldwell	1802	Adams Dr
11	Caldwell	1813	Addison Lane
11	Caldwell	1743	Alden Starnes Rd
11	Caldwell	1712	Alfred Hartley Rd
11	Caldwell	1141	Allendale Circle
11	Caldwell	1198	Amick Rd
11	Caldwell	1210	Andrew Cr
11	Caldwell	1281	Annas Dr
11	Caldwell	1362	Anthony Creek Rd
11	Caldwell	1910	Appalachain Ct
11	Caldwell	1215	Ardmore Ln
11	Caldwell	1858	Ashley Court
11	Caldwell	1132	Austin Rd
11	Caldwell	1727	Auton Rd
11	Caldwell	1117	Baker Circle
11	Caldwell	1218	Baptist Church Rd
11	Caldwell	1704	Barlowe Place
11	Caldwell	1124	Baton Church Rd
11	Caldwell	1139	Baton School Rd
11	Caldwell	1593	Beacon Hill Dr
11	Caldwell	1316	Bee Mtn Rd
11	Caldwell	1402	Bee Mtn Rdge Rd
11	Caldwell	1770	Beech Rd
11	Caldwell	1520	Bill Tuttle Rd
11	Caldwell	1500	Blackberry Rd
11	Caldwell	1271	Blackburn Ct
11	Caldwell	1525	Blairs Fork Rd
11	Caldwell	1550	Blue Creek Rd
11	Caldwell	1612	Blue Ridge Cr
11	Caldwell	1848	Blueberry Dr
11	Caldwell	1578	Bluegrass Place
11	Caldwell	1600	Bolick Rd
11	Caldwell	1746	Bowman Rd
11	Caldwell	1886	Boyd G. McRary Rd
11	Caldwell	1250	Boyette Rd
11	Caldwell	1150	Bradford Mtn Rd
11	Caldwell	1150	Bradford St
11	Caldwell	1254	Bradshaw Terr
11	Caldwell	1930	Branch Cr
11	Caldwell	1245	Brandon Rd
11	Caldwell	1791	Brandy Place
11	Caldwell	1334	Braswell Pl
11	Caldwell	1149	Broadland Rd
11	Caldwell	1301	Broadway St
11	Caldwell	1592	Brockmore Dr
11	Caldwell	1298	Brook St
11	Caldwell	1315	Brookshire Rd
11	Caldwell	1563	Brookside Pl
11	Caldwell	1922	Brookview Pl
11	Caldwell	1328	Brown Mtn Beach Rd
11	Caldwell	1733	Brush Mountain Rd
11	Caldwell	1306	Bryant Rd
11	Caldwell	1504	Buffalo Cove Rd
11	Caldwell	1749	Burns Rd
11	Caldwell	1390	Bush Place
11	Caldwell	1295	Bushwood Ct
11	Caldwell	1137	C R Brooks Rd
11	Caldwell	1295	Cactus Ct
11	Caldwell	1130	Cajah Mtn Rd
11	Caldwell	1606	Caldwell St
11	Caldwell	1134	Calico Rd
11	Caldwell	1594	Camp Carolwood Rd
11	Caldwell	1751	Campground Rd
11	Caldwell	1205	Cannon Dr
11	Caldwell	1282	Cannon Dr
11	Caldwell	1769	Cannon Pl
11	Caldwell	1330	Cannon Ridge Rd
11	Caldwell	1268	Canyon Court
11	Caldwell	1529	Carolina Dr
11	Caldwell	1240	Carpenter Rd
11	Caldwell	1289	Carriage Ln
11	Caldwell	1574	CC Camp Rd
11	Caldwell	1706	Cedar Rock Circle
11	Caldwell	1719	Cedar Valley Ch Rd
11	Caldwell	1192	Cedar Valley Rd
11	Caldwell	1327	Celia Creek Rd
11	Caldwell	1908	Chaparral Court
11	Caldwell	1227	Chariot Rd
11	Caldwell	1741	Charlie Little Rd
11	Caldwell	1285	Charlie Ridge Pl
11	Caldwell	1577	Charlie Triplett Rd
11	Caldwell	1301	Cheraw Rd
11	Caldwell	1920	Cherrywood Dr
11	Caldwell	1323	Chester Rd
11	Caldwell	1288	Chickadee Trail Pl
11	Caldwell	1717	Christie Rd
11	Caldwell	1829	Clark Hill Pl
11	Caldwell	1153	Clarks Chapel Rd
11	Caldwell	1406	Clay Fish Pond
11	Caldwell	1814	Clearlake Dr
11	Caldwell	1110	Clover Ch Rd
11	Caldwell	1171	Clover Dr
11	Caldwell	1803	Coble Dairy Rd
11	Caldwell	1260	Conner Circle
11	Caldwell	1299	Conway Court
11	Caldwell	1283	Conway Dr
11	Caldwell	1568	Cool Springs Pl
11	Caldwell	1259	Coral Dr
11	Caldwell	1244	Corkie Dr

Div	County	SR #	Road Name
11	Caldwell	1203	Cottage Grove Rd
11	Caldwell	1502	Cottrell Pl
11	Caldwell	1101	Countryside Dr
11	Caldwell	1175	Countryside Dr
11	Caldwell	1557	Cove Branch Rd
11	Caldwell	1347	Coy Miller Rd
11	Caldwell	1145	Craig Mnt. Rd
11	Caldwell	1286	Craig Rd
11	Caldwell	1915	Cranberry Court
11	Caldwell	1415	Creekside Place
11	Caldwell	1300	Creekway Dr
11	Caldwell	1827	Crestland Terr
11	Caldwell	1929	Crump Rd
11	Caldwell	1396	Daisy Place
11	Caldwell	1249	Dallas St
11	Caldwell	1761	Dave Chester Rd
11	Caldwell	1718	Deal Mill Rd
11	Caldwell	1301	Deerbrook Rd
11	Caldwell	1183	Delwood Dr
11	Caldwell	1544	Dimmette Rd
11	Caldwell	1555	Doe Ridge Place
11	Caldwell	1556	Donihue Place
11	Caldwell	1202	Dove St
11	Caldwell	1728	Draco Rd
11	Caldwell	1160	Drag Strip Rd
11	Caldwell	1115	Dry Ponds Rd
11	Caldwell	1730	Duck Creek Rd
11	Caldwell	1002	Dudley Shoals Rd
11	Caldwell	1120	Duff Dr
11	Caldwell	1551	Dug Hill Rd
11	Caldwell	1106	Duke St
11	Caldwell	1924	Dulatown Heights Rd
11	Caldwell	1149	Dulatown Rd
11	Caldwell	1745	Dusty Lane
11	Caldwell	1559	Early Place
11	Caldwell	1321	East Flat Church Rd
11	Caldwell	1842	Eastwood Park Circle
11	Caldwell	1774	Eastwood Prk Dr
11	Caldwell	1148	Ebb Smith Rd
11	Caldwell	1786	Ebenezer Church Rd
11	Caldwell	1521	Echo Dr
11	Caldwell	1113	Eddington Rd
11	Caldwell	1358	Edgemont Church Pl
11	Caldwell	1850	Ellenwood Rd
11	Caldwell	1715	Ellerwood Rd
11	Caldwell	1253	Fairbanks Dr
11	Caldwell	1169	Fairway Acres Circle
11	Caldwell	1169	Fairway Acres Rd
11	Caldwell	1421	Falcon Crest St
11	Caldwell	1422	Falcon Ridge Rd
11	Caldwell	1233	Fence St
11	Caldwell	1811	Fields Pl
11	Caldwell	1561	Flatwood Rd
11	Caldwell	1322	Fleming Chpl Ch Rd
11	Caldwell	1280	Floral Dr
11	Caldwell	1601	Forest Oaks Rd
11	Caldwell	1409	Fork Creek Pl
11	Caldwell	1747	Fowler Rd
11	Caldwell	1726	Fox Rd
11	Caldwell	1762	Fox Winkler Rd
11	Caldwell	1591	Frank Townsend Pl
11	Caldwell	1389	Franklin Place
11	Caldwell	1102	Fred Bentley Rd
11	Caldwell	1212	Free Mason Rd
11	Caldwell	1715	Freezer Locker Rd
11	Caldwell	1157	Friendly Pk Dr
11	Caldwell	1705	Gaither Walker Cr
11	Caldwell	1378	Gamewell Sch Rd
11	Caldwell	1723	Garnes Place
11	Caldwell	1583	Georgetown Est Rd
11	Caldwell	1912	Gingercake Ct
11	Caldwell	1354	Glass Rd
11	Caldwell	1360	Globe Creek Pl
11	Caldwell	1368	Globe Mtn Rd
11	Caldwell	1367	Globe Rd
11	Caldwell	1140	Goat Farm Rd
11	Caldwell	1857	Gold Creek Est Dr
11	Caldwell	1751	Grace Chapel Rd
11	Caldwell	1598	Grady Place
11	Caldwell	1336	Graig Creek Rd
11	Caldwell	1552	Grandin Rd
11	Caldwell	1775	Grant Rd
11	Caldwell	1391	Gravel Hill Rd
11	Caldwell	1340	Greasy Creek Rd
11	Caldwell	1589	Green Mtn Church Rd
11	Caldwell	1311	Green Pl
11	Caldwell	1907	Greenbrooke Rd
11	Caldwell	1597	Greenfield Pl
11	Caldwell	1277	Greenway St
11	Caldwell	1222	Greenwood Dr
11	Caldwell	1230	Greenwood Terr
11	Caldwell	1840	Gunpowder Dr
11	Caldwell	1772	H T Rd
11	Caldwell	1843	Hall Place
11	Caldwell	1707	Hall-Miller Rd
11	Caldwell	1114	Hardwood Dr
11	Caldwell	1384	Harpertown Cir
11	Caldwell	1303	Harpertown Dr
11	Caldwell	1325	Hartland Rd
11	Caldwell	1737	Hartley Hill Rd
11	Caldwell	1909	Hawksbill Rd
11	Caldwell	1919	Hayes Mill Rd
11	Caldwell	1825	Heffner Place
11	Caldwell	1119	Helena St
11	Caldwell	1388	Helton Hartley Pl
11	Caldwell	1116	Helton Rd
11	Caldwell	1172	Hemlock Dr
11	Caldwell	1172	Hemlock St
11	Caldwell	1571	Henry Place
11	Caldwell	1714	Hibriten Mtn Rd
11	Caldwell	1123	Hickory Nut Ridge Rd
11	Caldwell	1846	Hidden AcresLn

Div	County	SR #	Road Name
11	Caldwell	1348	Hillwood Dr
11	Caldwell	1162	Hogan Dr
11	Caldwell	1700	Hollow Springs Cr
11	Caldwell	1519	Hollywood Ridge Rd
11	Caldwell	1401	Honeycomb Place
11	Caldwell	1399	Hood Ridge Pl
11	Caldwell	1307	Hoods Creek Rd
11	Caldwell	1400	Hoods Pl
11	Caldwell	1220	Hopedale Dr
11	Caldwell	1256	Horace Bolick Rd
11	Caldwell	1127	Horseshoe Bend Rd
11	Caldwell	1564	Howard Arnett Rd
11	Caldwell	1824	Howard Austin Rd
11	Caldwell	1573	Howell Farm Rd
11	Caldwell	1247	Hoyle Dr
11	Caldwell	1131	Hudson Cajah Mnt Rd
11	Caldwell	1314	Huffman Rd
11	Caldwell	1516	Hull Place
11	Caldwell	1757	Hurricane Hill Rd
11	Caldwell	1317	Husband Creek Rd
11	Caldwell	1756	Icard Dam Rd
11	Caldwell	1754	Ike Starnes Rd
11	Caldwell	1514	Indian Grave Rd
11	Caldwell	1906	Indian Tr
11	Caldwell	1604	Indian Trail
11	Caldwell	1312	Industrial Ct
11	Caldwell	1383	Ishmore Hill Rd
11	Caldwell	1386	Ivey Stine Rd
11	Caldwell	1137	J M Craig Rd
11	Caldwell	1217	Johnson St
11	Caldwell	1792	Jones Wade Rd
11	Caldwell	1128	Joplin Rd
11	Caldwell	1164	Joyceton Church St
11	Caldwell	1125	Kaylor Dr
11	Caldwell	1121	Keith Ave
11	Caldwell	1921	Keller Circle
11	Caldwell	1508	Kendelltown Rd
11	Caldwell	1187	Kenham Pl
11	Caldwell	1170	Kincaid Circle
11	Caldwell	1553	Kings Creek Ch Rd
11	Caldwell	1324	Kingtown Rd
11	Caldwell	1812	Kingview Pl
11	Caldwell	1370	Kirby Mtn Rd
11	Caldwell	1923	Knight St
11	Caldwell	1837	Knollcrest Pl
11	Caldwell	1585	Knox Sherrill Pl
11	Caldwell	1269	La Mesa Court
11	Caldwell	1958	Lacey Rd
11	Caldwell	1558	Lackey Place
11	Caldwell	1760	Lake Park Dr
11	Caldwell	1777	Lake Shore Dr
11	Caldwell	1213	Lakeside Ave
11	Caldwell	1793	Lakeside Terr Cr
11	Caldwell	1815	Lakeview Ct
11	Caldwell	1776	Lakeview Terr
11	Caldwell	1214	Lakewood Dr
11	Caldwell	1801	Laurelwood Pl
11	Caldwell	1584	Lauren Place
11	Caldwell	1703	Laxton Rd
11	Caldwell	1507	Laytown Rd
11	Caldwell	1136	Lee Pearson Rd
11	Caldwell	1156	Legion Rd
11	Caldwell	1195	Liberty Rd
11	Caldwell	1133	Little Gunpowder Creek Dr
11	Caldwell	1326	Little John Ch Rd
11	Caldwell	1789	Log Cabin Pl
11	Caldwell	1755	Looper Rd
11	Caldwell	1108	Lower Cedar Valley Rd.
11	Caldwell	1593	Lyndhurst Dr
11	Caldwell	1821	Mac Dr
11	Caldwell	1292	Magnolia Lane
11	Caldwell	1357	Maple Grove Ch Rd
11	Caldwell	1385	Maple Tree Pl
11	Caldwell	1852	Maple Valley Pl
11	Caldwell	1211	Marcus Dr
11	Caldwell	1413	Martin Pl
11	Caldwell	1123	May Rd
11	Caldwell	1926	Mayfield Dr
11	Caldwell	1166	Maywood St
11	Caldwell	1377	McCall Rd
11	Caldwell	1138	McCall Town Rd
11	Caldwell	1163	McCrary Rd
11	Caldwell	1180	McLean Dr
11	Caldwell	1562	McMillan Place
11	Caldwell	1721	McRary Creek Rd
11	Caldwell	1233	Meadowlane Dr
11	Caldwell	1765	Medford Place
11	Caldwell	1412	Melody Lane
11	Caldwell	1225	Melrose St
11	Caldwell	1135	Midas Bolick Rd
11	Caldwell	1782	Midway Sand Rd
11	Caldwell	1732	Mill Pond Rd
11	Caldwell	1146	Miller Hill Rd
11	Caldwell	1720	Millers Creek Rd
11	Caldwell	1379	Mills Cove Pl
11	Caldwell	1248	Mise Rd
11	Caldwell	1108	Mission Rd
11	Caldwell	1238	Misty Morn Dr
11	Caldwell	1806	Mitchum Dr
11	Caldwell	1864	Morganton Blvd
11	Caldwell	1734	Morris Creek Rd
11	Caldwell	1219	Mountain View Cr
11	Caldwell	1817	Mountainside Ct
11	Caldwell	1817	Mountainside Dr
11	Caldwell	1826	Mt Herman Heights
11	Caldwell	1160	Mt Herman Rd
11	Caldwell	1369	Mulberry Church Rd
11	Caldwell	1369	Mulberry Creek Rd
11	Caldwell	1407	Murphy Place
11	Caldwell	1754	Myers Rd
11	Caldwell	1303	N. Fairview Dr
11	Caldwell	1413	Neighborly Pl

Div	County	SR #	Road Name
11	Caldwell	1764	New Farm Rd
11	Caldwell	1554	Nora McGee Rd
11	Caldwell	1807	Northlake Dr
11	Caldwell	1778	Northview Dr
11	Caldwell	1808	Northwood Dr
11	Caldwell	1416	Northwood Pl
11	Caldwell	1506	Nubbin Creek Rd
11	Caldwell	1523	Nuway Circle
11	Caldwell	1784	Oak Grove Church Rd
11	Caldwell	1788	Oakhill Park Cr
11	Caldwell	1722	Oakhill Park Dr
11	Caldwell	1712	Oakhill Sch Rd
11	Caldwell	1221	Oakmont Dr
11	Caldwell	1318	Oakwood Church Rd
11	Caldwell	1356	Old Johns River Rd
11	Caldwell	1543	Old Mill Rd
11	Caldwell	1190	Old Morganton Rd
11	Caldwell	1341	Old North Rd
11	Caldwell	1501	Old Sampson Rd
11	Caldwell	1278	Old Trenton Place
11	Caldwell	1599	Old Zacks Fork
11	Caldwell	1603	Olde Ridge Rd
11	Caldwell	1376	Ollis Place
11	Caldwell	1146	Orchard Dr
11	Caldwell	1143	Overland Rd
11	Caldwell	1251	Oxford Dr
11	Caldwell	1333	Packs Hill Rd
11	Caldwell	1798	Palmer Pl
11	Caldwell	1729	Park View Rd
11	Caldwell	1255	Parkwood Dr
11	Caldwell	1752	Peach Orchard Rd
11	Caldwell	1863	Peachtree Lane
11	Caldwell	1849	Pebble Ln
11	Caldwell	1419	Penridge Place
11	Caldwell	1823	Perch Rd
11	Caldwell	1800	Persimmon Hill Pl
11	Caldwell	1740	Petra Mill Rd
11	Caldwell	1515	Pigtail Rd
11	Caldwell	1363	Pilot Ridge Rd
11	Caldwell	1820	Pine Lake Ct
11	Caldwell	1809	Pine Mtn Rd
11	Caldwell	1815	Pine Ridge Ct
11	Caldwell	1856	Pine St
11	Caldwell	1355	Pinefrost Place
11	Caldwell	1109	Pinewood Ext
11	Caldwell	1109	Pinewood Rd
11	Caldwell	1569	Piney Grove Cir
11	Caldwell	1332	Piney Rd
11	Caldwell	1737	Pink Lail Rd
11	Caldwell	1916	Pinnacle Court
11	Caldwell	1309	Pisgah Church Rd
11	Caldwell	1331	Playmore Beach Rd
11	Caldwell	1159	Pleasant Hill Rd
11	Caldwell	1771	Plymouth Dr
11	Caldwell	1771	Plymouth Rd
11	Caldwell	1382	Poarch Place
11	Caldwell	1297	Poovey Dr
11	Caldwell	1716	Pooveys Chapel Ch Rd
11	Caldwell	1751	Pooveys Groove Ch Rd
11	Caldwell	1797	Poplar View Ln
11	Caldwell	1276	Post Place
11	Caldwell	1833	Powder Point Dr
11	Caldwell	1913	Powderhorn Ct
11	Caldwell	1305	Powell Brickyard Rd
11	Caldwell	1567	Powell Creek
11	Caldwell	1537	Powell Rd
11	Caldwell	1270	Prairie Court
11	Caldwell	1115	Premiere Rd
11	Caldwell	1547	Presnell Dr
11	Caldwell	1860	Primrose Court
11	Caldwell	1397	Rachel Place
11	Caldwell	1361	Rackett Creek Pl
11	Caldwell	1862	Rain Ct
11	Caldwell	1208	Rainbow Heights Cr
11	Caldwell	1844	Raintree Dr
11	Caldwell	1328	Ralph Winchester Rd
11	Caldwell	1223	Ramblewood Dr
11	Caldwell	1902	Red Oak Dr
11	Caldwell	1100	Red Oak Rd
11	Caldwell	1773	Red Shoals Pl
11	Caldwell	1738	Reid Rd
11	Caldwell	1181	Renwick St
11	Caldwell	1518	Rich Hollar Rd
11	Caldwell	1372	Richland Rd
11	Caldwell	1560	River Rd
11	Caldwell	1505	Riverside Dr
11	Caldwell	1799	Roberts Lane
11	Caldwell	1349	Roby Martin Rd
11	Caldwell	1810	Rock Creek Cir
11	Caldwell	1373	Rocky Knob Rd
11	Caldwell	1757	Rocky Mtn Rd
11	Caldwell	1143	Rocky Rd
11	Caldwell	1339	Rocky Rd
11	Caldwell	1907	Rolling Acres Rd
11	Caldwell	1151	Rosedale Dr
11	Caldwell	1237	Roy Dula Place
11	Caldwell	1329	Rudisill Dr
11	Caldwell	1257	Rural Dr
11	Caldwell	1147	Rural Retreat
11	Caldwell	1785	Ruritan Club Rd
11	Caldwell	1934	S. Rosedale Dr
11	Caldwell	1295	Sandi Dr
11	Caldwell	1735	Satterwhite Circle
11	Caldwell	1122	Saw Mills Sch Rd
11	Caldwell	1728	Scout Rd
11	Caldwell	1353	Setzer's Creek Rd
11	Caldwell	1350	Setzers Gap
11	Caldwell	1587	Severt Circle
11	Caldwell	1350	Shallow Creek Rd
11	Caldwell	1252	Shamrock Heights
11	Caldwell	1296	Shannon Dr
11	Caldwell	1386	Sheely Rd

Div	County	SR #	Road Name
11	Caldwell	1859	Shelton Ave
11	Caldwell	1730	Sheriffs Rd
11	Caldwell	1313	Shew Hollar Rd
11	Caldwell	1392	Shewcraft Place
11	Caldwell	1381	Shiloh Church Rd
11	Caldwell	1889	Shive Rock Way
11	Caldwell	1522	Slope Terrace
11	Caldwell	1304	Small Circle
11	Caldwell	1134	Smokey Creek Rd
11	Caldwell	1816	South Shore Ct
11	Caldwell	1196	Southhaven Ct
11	Caldwell	1196	Southhaven Dr
11	Caldwell	1807	Southlake Dr
11	Caldwell	1933	Southwest Blvd.
11	Caldwell	1821	Sparks Dr
11	Caldwell	1284	Spartan Dr
11	Caldwell	1380	Spears Rd
11	Caldwell	1549	Spring Meadow Rd
11	Caldwell	1802	Spring Valley Pl
11	Caldwell	1546	St John Rd
11	Caldwell	1265	Stage Coach Tr
11	Caldwell	1920	Staircase Rd
11	Caldwell	1129	Stamey Rd
11	Caldwell	1712	Starcross Rd
11	Caldwell	1845	Starnes Rd
11	Caldwell	1725	Station Rd
11	Caldwell	1513	Steeltown Rd
11	Caldwell	1503	Stone Mtn Rd
11	Caldwell	1411	Stone Place
11	Caldwell	1351	Summerlin Place
11	Caldwell	1570	Sun Pl
11	Caldwell	1199	Sunset Dr
11	Caldwell	1199	Sunset St
11	Caldwell	1168	Sunshine Ln
11	Caldwell	1819	Suttlemyre Lane
11	Caldwell	1165	Swanson Dr
11	Caldwell	1287	Tablerock Rd
11	Caldwell	1914	Tate Place
11	Caldwell	1702	Taylor Farm Rd
11	Caldwell	1748	Temple Hill Ch Rd
11	Caldwell	1231	Terrace Dr
11	Caldwell	1232	Thad Miller Rd
11	Caldwell	1834	Timberlane Terr
11	Caldwell	1359	Tolbert Rd
11	Caldwell	1510	Tom Dula Rd
11	Caldwell	1768	Tremont Cr
11	Caldwell	1279	Trenton Park
11	Caldwell	1836	Triplett Dr
11	Caldwell	1576	Trivette Place
11	Caldwell	1126	Troy Rd
11	Caldwell	1266	Tumbleweed Dr
11	Caldwell	1112	Turner Rd
11	Caldwell	1905	Tuthill Dr
11	Caldwell	1830	Twin Meadow Dr
11	Caldwell	1790	Union Bapt Rd
11	Caldwell	1197	Union Ch Rd
11	Caldwell	1134	Union Grove Rd
11	Caldwell	1366	Upton Place
11	Caldwell	1832	Valley Run St
11	Caldwell	1338	Valley View Cr
11	Caldwell	1796	Victoria Lane
11	Caldwell	1145	Virginia St
11	Caldwell	1404	W. Caldwell Dr
11	Caldwell	1154	Walker Circle
11	Caldwell	1955	Walnut Dr
11	Caldwell	1515	Walsh Rd
11	Caldwell	1167	Walt Arney Rd
11	Caldwell	1144	Ward Green St
11	Caldwell	1708	Warlick Place
11	Caldwell	1346	Warrior Rd
11	Caldwell	1122	Water Works Rd
11	Caldwell	1371	Waterfalls Rd
11	Caldwell	1312	Watson St
11	Caldwell	1572	Wayside Place
11	Caldwell	1395	Wendy Hill Pl
11	Caldwell	1593	Wenwood Dr
11	Caldwell	1405	West Lenoir Dr
11	Caldwell	1596	Westfield Court
11	Caldwell	1294	Westwood Dr
11	Caldwell	1517	Whisnant Rd
11	Caldwell	1548	Wildwood Rd
11	Caldwell	1838	Williams Pl
11	Caldwell	1275	Willmont St
11	Caldwell	1403	Willow St
11	Caldwell	1582	Willowbrook Rd
11	Caldwell	1267	Windsong Circle
11	Caldwell	1903	Windy Oaks Ct
11	Caldwell	1512	Winkler Way Rd
11	Caldwell	1759	Wolfe Rd
11	Caldwell	1904	Wonderland Trl
11	Caldwell	1534	Woodhaven St
11	Caldwell	1828	Woodlawn Dr
11	Caldwell	1900	Woodridge Court
11	Caldwell	1766	Woodrow Place
11	Caldwell	1753	Wyke Rd
11	Caldwell	1246	York Rd
11	Caldwell	1783	Younttown Rd
11	Caldwell	1511	Zacks Fork Rd

Appendix F

North Carolina Department of Transportation
Pedestrian Policy Guidelines

Effective October 1, 2000

Executive Summary

The North Carolina Department of Transportation (NCDOT) Pedestrian Policy and Guideline modifications (made effective on October 1, 2000) provide an updated procedure for implementing the Pedestrian Policy adopted by the Board of Transportation in August, 1993 and the Board of Transportation Resolution on September 8, 2000. The resolution reaffirms the Department's commitment to improving conditions for bicycling and walking, and recognizes non-motorized modes of transportation as critical elements of the local, regional, and national transportation system. The resolution encourages all North Carolina cities and towns to make bicycling and pedestrian improvements an integral part of their transportation planning and programming. The revised guidelines state the requirements for the Department to participate in the funding of pedestrian facilities included in the Transportation Improvement Program's (TIP) highway construction projects. Basic requirements for the Department to cost share are:

- Municipality determines warrants for pedestrian facilities
- Written request from municipality for sidewalks by the Project Final Field Inspection (FFI) date
- Commitment demonstrated by agreement execution prior to project let date
- Cost share provision applicable to all pedestrian facilities including multi-use trails and greenways
- Funding caps are no longer applicable to cost share

Appendix F is applicable to the continuing development of the City of Lenoir Greenway and other bicycle and pedestrian facilities throughout the Caldwell County Urban Area. Questions and/or written requests for improvements should be forwarded to Laurie Smith, Enhancement and Agreements Administrator, for inclusion in a municipal agreement.

Requirements for NCDOT Funding

Replacement of Existing Sidewalks:

The NCDOT will pay 100% of the cost to replace an existing sidewalk that is removed to facilitate the widening of a road.

Transportation Improvement Program Incidental Projects:

Defined: Incidental pedestrian projects are defined as TIP projects where pedestrian facilities are included as part of the roadway project.

Requirements:

1. The municipality and/or county notify the NCDOT in writing of its desire for the Department to incorporate pedestrian facilities into project planning and design. Notification states the party's commitment to participate in the cost of the facility as well as being responsible for maintenance and liability. Responsibilities are defined by agreement. Execution is required prior to contract let. The municipality is responsible for evaluating the need for the facility (i.e. generators, safety, continuity, integration, existing or projected traffic) and public involvement.

2. Written notification must be received by the Project Final Field Inspection (FFI) date. Notification should be sent to the Deputy Highway Administrator of Pre-construction with a copy to the Project Engineer and the Agreements Section of the Program Development Branch. Requests received after the FFI date will be incorporated into the TIP project, if feasible, and only if the requesting party commits by agreement to pay 100% of the cost of the facility.

3. The NCDOT will review the feasibility of including the facility in our project and will try to accommodate all requests where the Department has acquired appropriate right-of-way on curb and gutter sections and the facility can be installed in the current project berm width. The standard project section is a 10-foot berm that accommodates a 5-ft sidewalk. In accordance with AASHTO standards, the NCDOT will construct 5-foot sidewalks with wheelchair ramps. Betterment cost (ie: decorative pavers) will be a Municipal responsibility.

4. If the pedestrian facility, including multi-use trails and greenways, is not contained within the existing project berm width, the Municipality is responsible for providing the right-of-way and/or construction easements as well as utility relocations, at no cost to the Department. Note the cost sharing approach shown in provision 5 is not applicable for right-of-way or easement cost.
5. Cost sharing approach is used to demonstrate the Department's and the municipality's/county's commitment to pedestrian transportation (sidewalks, multi-use trails and greenways). The matching share is a sliding scale based on population as shown in Table F-1.

Table F-1

Incidental Projects Cost Participation Break Down

Municipal Population	Participation	
	DOT	Local
> 100,000	50%	50%
50,000 to 100,000	60%	40%
10,000 to 50,000	70%	30%
< 10,000	80%	20%

Note: The cost of bridges will not be included in the shared cost of the pedestrian installation if the NCDOT is funding the installation under provision 6 - pedestrian facilities on bridges.

5. For bridges on streets with curb and gutter approaches, the NCDOT will fund and construct sidewalks on both sides of the bridge facility if the bridge is less than 200 feet in length. If the bridge is greater that 200 feet in length, the Department will fund and construct a sidewalk on one side of the bridge structure. The bridge will also be studied to determine the costs and benefits of constructing sidewalks on both sides of the structure. If in the judgement of the Department sidewalks are justified, funding will be provided for installation. The above provision is also applicable to dual bridge structures. For dual bridges greater than 200 feet in length, a sidewalk will be constructed on the outside of one bridge structure. The bridges will also be studied to determine if sidewalks on the outside of both structures are justified.

6. **Funding Caps** are no longer applicable.

7. This policy does not commit the NCDOT to the installation of facilities in the Department's TIP projects where the pedestrian facility causes an unpractical design modification, is not in accordance with AASHTO standards, creates an unsafe situation, or in the judgement of the Department is not practical to program.

Independent Projects

Defined: The NCDOT has a separate category of funds for all independent pedestrian facility projects in North Carolina where installation is unrelated to a TIP roadway project. An independent pedestrian facility project will be administered in accordance with the Enhancement Program Guidelines.

Appendix G

Transportation Improvement Program Project Process

The process for requesting projects to be included in the Transportation Improvement Program (TIP) is described briefly in this appendix.

The Metropolitan Planning Organization's Transportation Advisory Committee (TAC) and the Rural Planning Organization's TAC are responsible for submitting a TIP priority list to the TIP Section of the NCDOT Program and Development Branch. The cities and counties, which are represented by these planning organizations, should provide a list of their own project priorities through their Technical Coordinating Committee member, as shown on Appendix Page G-3. This is often in the form of a resolution that has been adopted by the areas elected officials. A TIP request for a few carefully selected projects is likely to be more effective than requesting all the projects proposed in the thoroughfare plan.

After determining which projects are of the highest priority for the area as a whole, a TIP project request should be sent to the Board of Transportation Member through the TIP section of the Program and Development Branch. The TIP project request should include a letter with a prioritized summary of requested projects, as well as a TIP candidate project request form (if not already and existing TIP project) and a project location map for each project. An example of each of these items is included in this appendix.

Note: the TIP is moving from an even year cycle to an odd year cycle.
Currently the NCDOT is approving a 2006-2012 TIP. NCDOT plans to also adopt a 2007-2013 TIP, which will move the TIP cycle to odd years. The TIP following that will be for years 2009-2015. The Board of Transportation is doing this so that newly appointed Board Members will not be approving a final TIP only a few months after being installed into their positions.

Example

* *Note: This is not an official request submitted to the Board of Transportation. This is intended to be an example of a Transportation Improvement Program (TIP) Request.*

Month ##, Year

North Carolina Board Member
N. C. Board of Transportation
N. C. Department of Transportation
P. O. Box 25201
Raleigh, NC 27611-5201

Dear Board Member:

SUBJECT: 2000-2006 TIP Project Requests for *Generic City*

Enclosed find the projects requested by *Generic City* for consideration in the next TIP update. The list is presented by priority, as approved by the *Generic City* Council at their *Month* meeting.
Generic City also endorsed the existing schedule of projects contained in the current TIP for the city, with one request. The City requests that TIP Project R-*XXXX* remain as a high priority and kept on the existing schedule.

We thank you for the opportunity to participate in development of the State TIP. Please contact us immediately if additional information is needed concerning any of the enclosed project requests.

Sincerely,

John Q. Public

cc: Division Engineer
Enclosure

Generic City

City Council
2000 Proposed Highway Projects (Final)

1) <u>SR 1111 (Town Street) & SR 1112 (Industry Drive) TIP Project R-XXXX</u>

- From SR 1113 (Country Road) to NC 11
- Widen roadway to a multilane facility, with some new location

2) <u>US 11</u>

- From SR 1112 (Industry Drive) to SR 1113 (Country Road)
- Widen roadway to a multilane facility

3) <u>NC 11</u>

- From SR 1114 (Any Road) to the existing four lane section just south of I-85
- Widen roadway to a multilane facility

4) <u>US 11 Business (Business Road)</u>

- From SR 1115 (Some Road) to NC 12
- Widen facility to a five lane cross section

5) <u>New Connector</u>

- From US 11 to US 112 Business (City Street)
- New Facility

Highway Program
TIP Candidate Project Request

(Please Provide Information if Available)

Date ##/##/## Priority No. #

County *Generic* City/Town *Generic*

Requesting Agency *Generic City Council* NCTIP No. *R-####* (if available)

Route (US, NC, SR/Local Name) *SR 1111(Town Street) and SR 1112(Industry Drive)*

Project Location (From/To/Length) *From SR 1113 (Country Road) to NC 11, #.# miles*

Type of Project (Widening, New Facility, Bridge Replacement, Signing, Safety, Rail Crossing, Bicycle, Enhancement, etc.)
Widen roadway to a multi-lane facility, with some new location.

Existing Cross Section *24* Feet, Type

Existing Row *60 to 80* Feet Existing ADT *8,000 (1997)*

Estimated Cost, ROW $ *900,000* Construction $ *4,000,000*

Brief Justification for Project *As a major thoroughfare, this facility carries increasing traffic volumes between the industial sites along this route to NC 11 and the I-85 corridor. In the adopted thoroughfare plan for Generic City, it is recommended that this facility should be widened to a multi-lane cross section due to the increasing volume and the potential for more development in this area. The City requests that this project continue to be funded.*

Project Supported By (Agency/Group)

Other Information/ Justification

- ☒ Part of Thoroughfare Plan
- ☐ Part of Comprehensive Plan
- ☐ Serves School
- ☐ Serves Hospital
- ☐ Obsolete Facility
- ☐ Serves Park
- ☐ High Accident (#)
- ☐

Appendix H

Feasibility Study FS-9911C
US 321 Improvement Alternatives

Alternatives

Appendix H is a listing of the six alternatives that were considered by the Program & Development Branch, Feasibility Studies Unit in the completion of FS-9911C. The project limits for this study were from US 70 in Hickory to Southwest Boulevard Interchange in Lenoir.

- Alternative 1 is to convert US 321 to a freeway utilizing the existing median.
- Alternative 2 is to convert US 321 to a freeway utilizing a widened 46-foot median.
- Alternative 3 is to widen US 321 to a 6-lane roadway utilizing the existing median and adding no new interchanges.
- Alternative 4 is to widen US 321 to a 6-lane roadway with a widened 46-foot median and adding no new interchanges.
- Alternative 5 is to widen US 321 to a 6-lane roadway utilizing the existing median and adding some new interchanges.
- Alternative 6 is to widen US 321 to a 6-lane roadway with a widened 46-foot median and adding some new interchanges.

These alternatives include the cost estimates for the construction and right-of-way of the project sections as well as estimates for residential and business relocations.

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FEASIBILITY STUDY

Hickory, Granite Falls, Sawmills, Hudson, and Lenoir,

US 321 From US 70 in Hickory
To Southwest Boulevard (SR 1933) in Lenoir

Catawba, Burke, and Caldwell Counties

Division 11, 12 and 13

FS-9911C

Prepared by the
Program Development Branch
Division of Highways
N. C. Department of Transportation

Derrick W. Lewis, P.E.
Feasibility Studies Engineer

H. Franklin Vick, P.E.
Head of Feasibility Studies

7/9/01
Date

Hickory, Granite Falls, Sawmills, Hudson, and Lenoir
US 321 From US 70 in Hickory
To Southwest Boulevard (SR 1933) in Lenoir

Catawba, Burke, and Caldwell Counties
FS-9911C

I. General Description

This feasibility study describes upgrading US 321 to a freeway from the US 70 Interchange in Hickory to the Southwest Boulevard (SR 1933) interchange in Lenoir, a distance of approximately 13.6 miles. The project location is shown in Figures 1, 2 and 3. If this facility is upgraded to a freeway, the following improvements will be needed:

- For the majority of US 321 in the project area, the existing four-lane divided highway should be improved to include two 12-foot travel lanes per direction, 10-foot wide outside shoulders, and 4-foot wide inside shoulders. However, US 321 from Clement Boulevard (SR 1371) to US 321A will need to be widened to provide three 12 foot travel lanes per direction because of the increased traffic volumes in this section.
- The recommended right of way width south of the Catawba River is 200 feet with full control of access. North of the Catawba River, the recommended right of way width is 250 feet with full control of access.
- Given the substandard design of the existing partial cloverleaf interchange at SR 1107 (Falls Avenue), this interchange should be reconstructed as a half cloverleaf interchange on the southside of SR 1107.
- In order to accommodate the proposed improvements to US 321, many of the existing structures along this facility will need to be widened or replaced (See Appendix A for a detailed listing of the structures).
- New interchanges are recommended at the following intersections (See Appendix B for a cost estimate and relocated residential and business breakdown for each interchange):
    - 2nd Avenue NW (SR 1306)
    - Clement Boulevard (SR 1371
    - Grace Chapel Road (SR 1751)
    - US 321 A
    - Pinewood Road (SR 1109)
    - Mission Road / Lower Cedar Valley Road (SR 1108)
    - Pine Mountain Road (SR 1952) / Mountain Road (SR 1809)
    - Mt. Herman Road (SR 1160)

- This study does not include a detailed service road study. However, if this project is funded, the department will evaluate the need for service roads during later planning and design stages if this project is constructed.
- The existing median width along most of this project is approximately 30 feet. Therefore, we recommend that a 22-foot median with a concrete barrier be provided from US 70 to north of the proposed Clement Boulevard interchange. Then the median widens out north of Catawba River, because of the more rural setting north of the Catawba River. However, because of the narrow depressed median in this area, we evaluated two median widths on this section. Alternative 1 retains the existing 30-foot median, while Alternative 2 widens the median to a standard 46-feet. Regardless of the alternative, we included the cost of median guardrail to enhance the traffic safety of this facility.

With either alternative, it is anticipated that there will be 290 residences and 201 businesses relocated due to this project. The total cost of Alternative 1, including construction and right-of-way, is estimated to be $327,000,000. The total cost of Alternative 2, including construction and right-of-way, is estimated to be $360,400,000.

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 study is to evaluate the impacts of converting US 321 from Hickory to Lenoir into a freeway facility. US 321 is designated a major thoroughfare in the Hickory-Newton-Conover Thoroughfare plan, the Caldwell County Urban Area Thoroughfare plan, and the Lenoir-Hudson Thoroughfare Plan. On the North Carolina Statewide Functional Classification System, US 321 is designated a Principal Arterial.

The current year Average Daily Traffic (ADT) along US 321 within the project limits varies from 28,000 to 40,900 vehicles per day (vpd). For the design year 2025, the estimated traffic volumes on US 321 will range between 46,600 and 66,500 vpd. Truck traffic is estimated to make up between seven and nine percent of the daily traffic.

Currently the majority of the intersections along this section of US 321 operate at Level of Service (LOS) "F". If no improvements are made, this section of US 321 will continue to operate at a "F" LOS in the design year 2025. If

US 321 is upgraded into a controlled-access freeway, it should operate at LOS "C" in the current year and at LOS "D" in the design year 2025.

III. Description of Project Segments

Due to the length of the project, diversity of development and variation in urban and rural settings, this project has been divided into two segments.

Segment 1

Segment 1 is from the US 70 / US 321 interchange in Hickory to US 321A in Caldwell County, a distance of 4.6 miles (See Figure 1). The proposed cross section for US 321 from US 70 to Clement Boulevard is a four-lane freeway, including a 22-foot median with a concrete median barrier. From Clement Boulevard to US 321A, the proposed cross-section is a six-lane freeway. The median width for this portion of US 321 transitions from the recommended 22 feet to either the existing 30 feet *(Alternate A)* or the standard 46 feet median *(Alternate B)* near the Catawba River. This segment also includes the proposed interchanges at 2nd Avenue NW (SR 1306), Clement Boulevard (SR 1371), Grace Chapel Road (SR 1751), and US 321A. Individual interchange cost and right-of-way impact estimates are located in Appendix B.

For this segment, it is anticipated that there will be 103 residences and 83 businesses relocated due to this project. The total cost of this segment is as follows:

Alternative A

Construction	$ 90,500,000
Right-of-way	$ 73,900,000
Segment Cost	$ 164,400,000

Alternative B

Construction	$ 94,100,000
Right-of-way	$ 73,900,000
Segment Cost	$ 168,000,000

Segment 2

Segment 2 is from US 321A in Caldwell County to the Southwest Boulevard (SR 1933) interchange in Lenoir, a distance of 9.0 miles (See Figures 2 and 3). The proposed cross section for this segment of US 321 is a four-lane freeway. The median width for this segment of US 321 is either the existing 30-foot median *(Alternative A)* or a standard 46-foot median *(Alternative B)*. The existing Falls Avenue (SR 1107) interchange and the proposed interchanges at Pinewood Road (SR 1109), Mission Road / Lower Cedar Valley Road (SR 1108), Pine Mountain Road (SR 1952) / Mountain Road (SR 1809), and Mt. Herman

It is anticipated that there will be 28 residences and 23 businesses relocated due to this alternative. The total cost of this simple widening alternative is as follows:

Construction	$ 95,100,000
Right-of-way	$ 14,800,000
Segment Cost	$ 109,900,000

IV. Additional Comments

A detailed environmental study was not conducted for this feasibility study. However, we have screened the existing information available for this area for environmental and historic concerns.

Based on maps at the Department of Environment, Health & Natural Resources and Natural Heritage Section, impacts to threatened or endangered species are not anticipated in the project area. In addition, no historic properties are anticipated along this project.

Due to the potential for construction in the area of the Catawba River, Little Gunpowder Creek, and Gunpowder Creek, wetland permits and mitigation may be required. The estimates included in this study do not include any costs for wetland mitigation.

The Congestion Management Section of the Traffic Engineering and Safety Systems Branch has requested that $8,455,490 in Intelligent Transportation System Devices be included in this project. We have not incorporated these devices into the project scope or cost estimates. However, we recommend the inclusion of ITS measures be evaluated during later planning and design stages.

Road (SR 1160) are also included in this segment. Individual interchange cost and right-of-way impact estimates are located in Appendix B.

For this segment, it is anticipated that there will be 187 residences and 118 businesses relocated due to this project. The total cost of this segment is as follows:

Alternative A

Construction	$ 62,100,000
Right-of-way	$ 100,500,000
Segment Cost	$ 162,600,000

Alternative B

Construction	$ 91,900,000
Right-of-way	$ 100,500,000
Segment Cost	$ 192,400,000

For the entire project, it is anticipated that there will be 290 residences and 201 businesses relocated due to this project. The total cost of each alternative is as follows:

Alternative A

Construction	$ 152,600,000
Right-of-way	$ 174,400,000
Segment Cost	$ 327,000,000

Alternative B

Construction	$ 186,000,000
Right-of-way	$ 174,400,000
Segment Cost	$ 360,400,000

IV. Other Alternates Considered

While converting US 321 into a freeway is considered the best alternative from a traffic safety and operational perspective, it comes at a significant cost in both construction and right of way. Given the anticipated cost of the freeway conversion, we also considered the simple widening of US 321 to a six-lane divided highway, with intersection improvements, to be a logical alternative to the freeway conversion. A simple widening of US 321 with sufficient intersection improvements should provide an acceptable "D" LOS in the 2025-design year, and significantly reduce the construction cost and anticipated right of way impacts. Under this alternative, the existing median is retained and the substandard Falls Avenue (SR 1107) interchange is reconstructed as previously recommended. In addition, most of the structures along this facility will either need replacement or widening in order to accommodate the proposed improvements (See Appendix A for a structure inventory).

APPENDIX A - FS-9911C
Existing Structure Inventory

Structure Number	Feature Intersected	Structure Description	Structure Length	Vertical Clearance	Horizontal Clearance	Year Constructed	Sufficiency Rating	Proposed Treatment
Catawba County								
US 70 in Hickory to Burke County Line								
133	14th Street & 2nd Street SW (SR 2231) (over)	Reinforced concrete deck on I-Beams, Y Shaped Abutment Bridge	111'	15' 11"	28'	1955	62	Replace Structure in order to provide for proposed US 321 improvements
142	1st Avenue SW (SR 1692) (over)	Reinforced concrete deck on I-Beams	185'	15' 3"	28'	1955	73	Replace Structure in order to provide for proposed US 321 improvements
R146	Southern Railroad (over)	Reinforced concrete deck on continuous I-beams	159'	16' 2"	35'	1955	N/A	Replace Structure in order to provide for proposed US 321 improvements
C296	Unknown Creek	Double 10' X 10" culvert, 120' 8" along centerline	21	N/A	48'	1957	80.4	Lengthen Structure in order to provide for proposed US 321 improvements
Caldwell & Burke County								
Burke County Line to just South of Southwest Boulevard (SR 1933) in Lenior								
366	Catawba River	Reinforced concrete deck on I-beams. US 321 NB Lanes	944'	N/A	40'	1983	97.0	Widen structure in order to provide for US 321 improvements
367	Catawba River	Reinforced concrete deck on I-beams. US 321 SB Lanes	825'	N/A	28'	1962	73.8	Replace Structure in order to provide for proposed US 321 improvements
12	Falls Avenue (SR 1107) (Over)	Reinforced concrete deck on concrete girders	172'	15' 3"	38'	1953	78.0	Replace Structure in order to provide for proposed US 321 improvements
13	Dudley Avenue (SR 1002) (Under)	Reinforced Concrete deck on Prestressed concrete girders. US 321 NB	135'	15' 8"	36.7'	1969	96.0	Retain existing structure with freeway alternative. Widen existing structure with widening alternative.
14	Dudley Avenue (SR 1002) (Under)	Reinforced Concrete deck on Prestressed concrete girders. US 321 SB	135'	16'	27.9'	1953	47.7	Replace Structure in order to provide for proposed US 321 improvements
C24	Little Gunpowder Creek	Single 37' 5" X 18' Arch Culvert, 147' 6" along centerline	41'	N/A	64'	1954	80.5	Lengthen Structure in order to provide for proposed US 321 improvements
32	Gunpowder Creek	Reinforced concrete deck on Prestressed Girders. US 321 NB	173'	N/A	36.8'	1969	96.9	Retain existing structure for freeway alternative. Widen existing structure with widening alternative.
33	Gunpowder Creek	Reinforced concrete deck on reinforced concrete deck girders. US 321 SB	158'	N/A	28'	1954	70.1	Replace Structure in order to provide for proposed US 321 improvements

APPENDIX B - FS-9911C
Interchange Inventory

Intersecting Roadway	Proposed Interchange Configuration	Construction Cost	ROW Cost	Residential Relocatees	Business Relocatees
Section 1 US 321 from US 70 in Hickory to US 321A					
2nd Avenue NW (SR 1306)	Partial Cloverleaf interchange on the south side of 2nd Street NW. Proposed interchange carries 2nd Street NW over US 321	10,500,000	15,500,000	46	13
Clement Boulevard (SR 1371)	Interchange has a tight diamond ramp configuration on the east side of US 321 with combination ramp & loop in the northwest quadrant. This interchange bridges over US 321, the parallel railroad and Old Lenior Road (SR 1314) before connecting with 12 Avenue NW.	16,000,000	15,500,000	0	19
Grace Chapel Road (SR 1751)	Standard Diamond Interchange with US 321 over Grace Chapel Road . Includes a extension of Grace Chapel Road to SR 1782 to access property on the west side of US 321. Also includes a short connection between SR 1759 and SR 1778 on east side of US 321.	12,300,000	4,000,000	22	0
US 321A	Partial cloverleaf interchange on the north side of US 321A with US 321 over. Includes Relocation of SR 1100 to relocate opposite the SB ramp terminal and Alex Lee Boulevard to intersect opposite NB ramp terminal	10,400,000	12,100,000	5	2
Section 2 US 321 from US 321A to the Southwest Boulevard (SR 1933) Interchange					
Falls Avenue (SR 1107)	Replace the existing substandard Partial Cloverleaf interchange (SE and NW quadrants) with a partial cloverleaf interchange on the South side of Falls Avenue (Over)	6,100,000	6,200,000	23	13
Pinewood Road (SR 1109)	Construct a partial cloverleaf interchange on the north side of Pinewood Road with the structure carring Pinewood Road over US 321.	10,500,000	5,200,000	6	3
Mission Road / Lower Cedar Valley Road (SR 1108)	Construct a standard diamond interchange with SR 1108 over US 321. Includes a relocation of SR 1108 in the interchange area and a service road connecting Mission Road to SR 1192 on the west side of US 321.	8,600,000	11,900,000	18	12
Pine Mountain Road (SR 1952) / Mountain Road (SR 1809)	Construct a standard diamond interchange with Pine Mountain Road / Mountain Road over US 321. Includes a relocation of SR 1952 in order to properly intersect SR 1809,	6,700,000	16,400,000	22	16
Mt. Herman Road (SR 1160)	Construct an interchange which is a standard diamond configuration on the east side of US 321 and a ramp / loop in the northwest quadrant. Includes a new service road in the southwest quadrant across from the ramp terminal to access the Community College. Also includes a service road in the northwest quadrant to provide access to properties up to the Fairgrounds.	11,000,000	4,600,000	3	1

Appendix I

US 321 Corridor Preservation

The following information is a summary of the US 321 Corridor Preservation Study completed by Vickie L. Embry, Regional Traffic Engineer. The study makes recommendations along the US 321 corridor, which if implemented will improve safety, improve traffic operations, better manage development and protect the long-term safety and operation of the corridor. US 321 and US 421 are the two main strategic corridors for northwestern North Carolina. Land use and access management are very important in order to maintain the integrity of these corridors. For photographs of the specific locations of the intersections, driveways or median cuts described below contact the Division 11 Office for a copy of the Study.

US 321 is on the National Highway System, Statewide Strategic Corridor List and the North Carolina Intrastate system. From the Burke County line to the intersection of US 64/NC 18 crash data reveals that from 4/1/99 to 3/31/02 there has been a total of 697 crashes. There are 35 Crossovers and 8 signalized intersections.

Suggested access management techniques along the corridor:

- Limit conflict points through median closures and directional median openings.
- Separate conflict areas through the spacing of driveways and providing for corner clearance.
- Removal of turning traffic from the through traffic by extending turning lanes.
- Reduce conflicting traffic volumes by providing connections between adjacent properties, providing for alternate access and implementation of internal site circulation.
- Improvement of driveway operations by providing smooth roadway geometrics, adequate turning radii and adequate sight distance.

Recommendations for intersections along the corridor:

(The numbered intersection locations flow from south to north along the US 321corridor)

1) Lakefront Drive and Corbin Road – 2 collisions, limited sight distance, poor alignment, recommend directional leftovers.
2) Grace Chapel Road – 34 collisions, recommend upgrading signals, extend signal loops with recent project to extend left turn lanes.
3) Midway Sand Road – 2 collisions, recommend directional leftovers.
4) MDI – 27 collisions, recommend extending signal loops, extend left turn lanes and provide for protected left turns.
5) Poovey's Grove Church Road – 2 collisions, poor alignment, recommend median closure.
6) New Farm Road – 3 collisions, recommend southbound directional leftover and extending the left turn lane.
7) US 321-A – 7 collisions recommend northbound directional leftover and extending the left turn lane.
8) Dirt Road between US 321-A and the information center – recommend median closure.
9) Information Center – 1 collision, recommend directional leftovers and extending the left turn lanes.
10) Galaxy Place – recommend median closure.

11) York Road – recommend directional leftovers with bulb out for U-turns and extending the left turn lanes.
12) Woodlane Street – 10 collisions, recommend directional leftovers and extending the left turn lanes.
13) ABC store north of Falls Avenue – 3 collisions, recommend closure or southbound leftover and extending the left turn lane.
14) Convenience store driveway south of Pinewood Road – 3 collisions, recommend northbound leftover and extending the left turn lane.
15) Pinewood Road – 54 collisions, recommend extending signal loops with recent project to extend turn lanes.
16) Highland Avenue – 12 collisions, poor alignment, recommend median closure.
17) Commercial driveway between Highland Avenue and Coble Dairy Road – 1 collision, recommend directional leftovers.
18) Coble Dairy Road – 2 collisions, recommend directional leftovers.
19) Prosperity Road – 1 collision, recommend directional leftovers and extend left turn lanes.
20) Cloninger Road – recommend southbound directional leftover.
21) Lower Cedar Valley Road – 30 collisions, existing project to extend turn lanes and left turn lane to be added on Mission Road with traffic signal head revision.
22) Median cut near Smokey Mountain Furniture north of Lower Cedar Valley Road – 1 collision, recommend directional leftovers and extend left turn lanes.
23) Kirby property south of Pine Mountain Road – recommend median closure.
24) Pine Mountain Road – 77 collisions, recommend extending signal loops and recent project to extend turn lanes.
25) Trucking terminal north of Pine Mountain Road – recommend southbound directional leftovers and extending the left turn lane.
26) CCC&TI south entrance – 2 collisions, recommend median closure.
27) CCC&TI north entrance – 3 collisions, recommend northbound leftover and extending the left turn lane.
28) Mt. Herman Road – 47 collisions, recommend extending signal loops with recent project to extend turn lanes.
29) Car dealership north of Mt. Herman Road – recommend southbound directional leftover.
30) Fairwood Drive – 4 collisions, recommend directional leftovers.
31) Joyceton Road – 5 collisions, recommend directional leftovers.
32) Broyhill Center – recommend median closure of the animal hospital crossover.
33) Ideal Road – 9 collisions, recommend median closure.
34) Median cut north of Ideal Road – limited sight distance, recommend median closure.
35) Action Sign - recommend directional leftovers and extend left turn lanes.
36) Lowes food south of McLean Drive – 3 collisions, recommend directional leftovers and extend left turn lanes.
37) McLean Drive – 15 collisions, no recommendations
38) Claron Place – recommend median closure.
39) Hillhaven Drive – recommend extending left turn lanes.
40) Median cut south of Smith's Crossroads – 15 collisions, recommend median closure.
41) Smith's Crossroads- TIP project U-4435 recommends the construction of an interchange.

Appendix J

Public Involvement & News Articles

The Plan was originally initiated in 1997 under the direction of Forest Robson, P.E.. Mr. Robson successfully engaged the community and local officials, and with their participation, defined the Planning Area Boundary for the Study. Unique to any of our previous small urban studies, the Caldwell County Urban Area plan was to combine a total of six municipalities as well as the majority of the County into one large modeled study. Mr. Robson oversaw the collection of the network and socio-economic data used for the construction, and calibration of the base year model. In August of 1998 Mr. Robson left the Small Urban Planning Unit for another opportunity within NCDOT. Significant progress was made on the study after being reassigned to Kurt Freitag in the fall of 1999.

Timeline

The following is a timeline of major meetings and opportunities for involvement, between November 1999, when Kurt Freitag became involved with the study, and March 2002, when the final plan was mutually adopted by the Board of Transportation.

- November 17, 1999 - Meeting with the Caldwell County Urban Area Managers at the Hudson Administrative Offices.

- December 9, 1999 - Meeting with the Caldwell County Urban Area Officials in the Caldwell County Commissioner's Room.

- March 30, 2000 - Meeting with the Caldwell County Urban Area Managers at the Granite Falls Recreation Center.

- June 9, 2000 - Thoroughfare Plan Update at the Western Piedmont Council of Government Offices.

- August 9, 2000 - Thoroughfare Plan Update with the Caldwell County Urban Area Managers in the joint Lenoir/Caldwell County Chamber.

- October 18, 2000 - Discussion of the Caldwell County Urban Area Preliminary Thoroughfare Plan Recommendations at the Baton Elementary School (Held at 6:00 p.m. and open to the public)

- May 21, 2001 - Meeting on the Preliminary Thoroughfare Plan Recommendations with the Lenoir Planning Board in the joint Lenoir/Caldwell County Chamber.

- June 28, 2001 - Meeting on the Preliminary Thoroughfare Plan Recommendations (Lenoir Area) with the Lenoir City Council in the joint Lenoir/Caldwell County Chamber.

- June 13, 2001 - Meeting on the Preliminary Thoroughfare Plan Recommendations with the Caldwell County Area Managers in the joint Lenoir/Caldwell County Chamber.

- September 13, 2001 - Meeting on the US 321 Corridor with Caldwell County and City of Hickory Area Officials.

- September 26, 2001 - Meeting on the Thoroughfare Plan Recommendations with the Caldwell County Inter-modal Committee in the joint Lenoir/Caldwell County Chamber.

- October 23, 2001 - Presentation on the Thoroughfare Plan Recommendations Public Information Meeting at the Broyhill Civic Center from 3:00 p.m. until 7:30 p.m.

- January 7, 2002 - Presentation on the Thoroughfare Plan Recommendations to the Caldwell County Planning Board in the joint Lenoir/Caldwell County Chamber.

- January 24, 2002 - Public Hearing and Local Adoption of the Thoroughfare Plan at 6:30 p.m. in the joint Lenoir/Caldwell County Chamber:
  Town of Cajah's Mountain
  Caldwell County
  Town of Gamewell
  Town of Granite Falls
  Town of Hudson
  Town of Sawmills

- February 5, 2002 - Public Hearing and Local Adoption of the Thoroughfare Plan in the joint Lenoir/Caldwell County Chamber:
  City of Lenoir

- February 8, 2002 - Recommended for Approval by the Statewide Planning Branch

- March 7, 2002 - Adoption of the Thoroughfare Plan by North Carolina Department of Transportation

Figures J.1 and J.2 illustrate a survey and welcome used for the Public Information Meeting held on October 23, 2001 at the Broyhill Civic Center. Figure J.3 provides information on Public Involvement Opportunities in the Highway Development Process. Towards the end of this appendix is a history of the press coverage on the thoroughfare plan and related issues.

CALDWELL COUNTY URBAN AREA THOROUGHFARE PLAN
DROP-IN SESSION SURVEY

Please complete this survey after you have discussed the thoroughfare plan with N.C. Department of Transportation and Caldwell County representatives.

1. Do you support the DOT's concept of long-range transportation planning to help guide local communities with the development and prioritizing of their future transportation projects? Yes__ No__ Why or why not?

2. What do you think is the biggest transportation problem in the Caldwell County Urban Area?

3. Place a (✓) next to the top 5 most needed recommendations for the Caldwell County Urban Area. Place an (X) next to the least 5 needed recommendations **(See Recommendations Map Provided for # locations)**

___ US 321 Widening W/ Access Management Along Corridor **#1 on map**
___ Smith's Crossroads Single Point Diamond Interchange **#2**
___ Wilkesboro Boulevard Widening (to Blue Creek Road) **#3**
___ Connelly Springs Road Widening (North of SW Blvd. to US 32 1) **#4**
___ Connelly Springs Road Widening (South of SW Blvd. to Burke Co.) **#5**
___ US 64/NC18 Widening (Gamewell South to Burke County) **#6**
___ Existing McLean Dr. and US 321-A Widening (to Pleasant Hill Rd.) **#7**
___ US 321-A Widening (from Pine Mountain Road to Central Avenue) **#8**
___ Falls Avenue Widening (from Crestview Street to US 321) **#9**
___ Hospital Avenue to Pennell Street New Location (2 lanes) **#10**
___ Lower Creek Drive to Wilkesboro Blvd. New Location (2 lanes) **#11**
___ McLean Drive Extension (to Hibriten Drive) New Location (2 lanes) **#12**
___ Spruce Street to Delwood Drive New Location (2 lanes) **#13**
___ SW Blvd. at US 321 to Alfred Hartley Road New Location (2 lanes) **#14**
___ Alfred Hartley Road to Wilkesboro Blvd. New Location (2 lanes) **#15**
___ Pleasant Hill Road to Mt. Herman Road New Location (2 lanes) **#16**
___ Orchard Road to Pleasant Hill Road New Location (2 lanes) **#17**
___ Crump Road to Orchard Road New Location (2 lanes) **#18**

___ Rocky Road to Crump Road New Location (2 lanes) **#19**
___ Pine Mountain Road to US 321 New Location (2 lanes) **#20**
___ Mission Road to Cajah Mountain Road New Location (2 lanes) **#21**
___ McCall Town Road to Premiere Road New Location (2 lanes) **#22**
___ Dry Ponds Road to Pinewood Road New Location (2 lanes) **#23**
___ Pinewood Road to Wyke Road New Location (2 lanes) **#24**
___ Myers Road to US321 New Location (2 lanes) **#25**
___ Duke Avenue to US 321-A New Location (2 lanes) **#26**
___ Grace Chapel Rd. to NC 127 in Alexander Co. New Location (2lns) **#27**
___ Grace Chapel Rd. to NC 127 in Catawba Co. New Location (2lns) **#28**
___ Taylorsville Rd. (US64/NC90) Improve the existing 2 lanes **#29**
___ Hibriten Drive improve the existing 2 lanes **#30**
___ Grace Chapel Rd (US321 to New Location) improve the existing 2 lanes **#31**
___ Spruce Street (Pennton Avenue to Willow St.) improve existing 2 lanes **#32**
___ Colletsville Road (Valway Rd. to Mulberry Creek) improve existing 2lanes **#33**
___ Construct Median (from Smith's Crossroads to Greenhaven Drive) **#34**
___ Convert to Two-Way Traffic (Sections of Main & Mulberry Streets) **#35**

4. Please list any other comments or concerns that you would like the Thoroughfare Plan to address.

5. If you have any questions that were not answered in the drop-in session, please include the question with your name, phone #, and or email below. Your question will be answered as soon as possible.

_____

_____

NCDOT and Caldwell County would like to thank you for completing this survey.
Your input will help guide Thoroughfare Plan recommendations.

Please place completed surveys in the box provided.

Or mail to: Kurt Freitag NCDOT Statewide Planning Branch, 1554 Mail Service Center, Raleigh NC 27699-1554
Please return any mailed surveys by November 15, 2001

Figure J.1

WELCOME!

Caldwell County Thoroughfare Plan

Public Informational Drop-In Session

Tuesday, October 23, 2001

3:00 - 7:00 p.m.

Please be sure to:

- ❑ **Take a moment to look over the maps**
- ❑ **Talk with the NCDOT & local representatives**
- ❑ **Pick up copies of the handouts**
- ❑ **Fill out a survey form**
- ❑ **Ask questions!**
- ❑ **Offer comments!**

THANK YOU FOR JOINING US THIS EVENING!

Figure J.2

Public Involvement Opportunities in the Highway Development Process

(This is a typical example for a major project. The actual process and public involvement opportunities are established at an appropriate level for each project based on its complexity, and may vary in accordance with federal and state legal requirements.) ● = ***indicates typical public participation opportunities*** *(varies depending upon specific project)*

I. Develop Local Area Thoroughfare Plan

Study Initiation

- Conduct initial field trip
- Meet with local policy boards and technical staff
- ● Conduct goals and objectives survey
- ● Establish local steering committee (upon local request)

Data Collection

- Collect socio-economic data (land use, population, traffic volumes and employment data)
- Collect transportation network data
- Research environmental and cultural concerns
- ● Receive input from various local area sources (needs, problems, concerns, etc.)
- ● Local area develops future year socio-economic forecasts

Data Analysis

- Model existing transportation network
- Generate design year transportation information
- Conduct deficiency analysis

Discuss Findings with Local Area Policy Boards, Technical Staff, and Public

- ● Discuss deficiencies with local area
- ● Discuss possible alternative solutions

Plan Development

- Develop alternative plans
- Review project impacts
- Conduct cost-benefit analyses
- Discuss alternatives with local area staff and policy boards
- ● Conduct public information workshop(s)
- Discuss and resolve public comments with local staff
- Select recommended plan in cooperation with local staff and policy boards

Plan Adoption

- ● Local government conducts public hearing(s)
- ● Present plan for adoption by local government and the North Carolina Board of Transportation

Plan Implementation

- Local government enforces land use controls
- ● Present project requests through TIP process

II. Develop Transportation Improvement Program (TIP)

- ● Local governments select priorities to include in TIP
- ● Board of Transportation holds annual public meetings statewide to update the previous year's TIP
- Transcribe comments and material received at public meetings, and submit to Transportation Board
- Transportation Board members work with NCDOT staff to update TIP
- ● Release draft Transportation Improvement Program to the press, public and governments for review.
- Finalize TIP following comments
- Board of Transportation adopts state TIP
- ● Metropolitan Planning Organizations receive public comment and approve local TIP
- Secretary of Transportation approves local TIPs

III. Develop Environmental Documents

Notify Public and Government Agencies of Project Study

- ● Hold citizen information workshops
- Evaluate comments received at workshops
- ● Form citizen's advisory group to get local citizens involved (upon local request)

Select corridors to be studied

- Identify feasible corridors and evaluate costs and environmental impacts
- ● Hold information workshop on selected corridors
- NCDOT staff uses recommendations from local citizens, governments and state agencies to prepare a draft Environmental Impact Statement (EIS) or Environmental Assessment (EA)

Prepare Draft Environmental Document

- ● Make draft EIS or EA, which addresses the impacts of each corridor, available to public and send to review agencies and local officials for comment
- ● Hold public hearing on location of corridor (10-day comment period follows public hearing)
- NCDOT holds post hearing meeting and a corridor is recommended using technical data and information received in conjunction with the public hearing
- Notify public of selected corridor

Prepare Final Environmental Document

- Begin preliminary design of highway in selected corridor {1}
- If final EIS/Finding of No Significant Impact (FONSI) required, send to State Clearinghouse (N.C. Dept of Administration) and federal agencies for 30-day comment period
- Send notification of Final EIS to Review Agencies and Federal Register
- Publish record of decision on preliminary design using comments from public, review agencies and the FHWA
- ● Hold public hearing on project design (10-day public comment period follows public hearing) {1}
- Hold post hearing meeting where any changes in design are made if necessary.

{1} *These steps are combined with corridor location for most smaller projects.*

Questions? Call Citizen Participation Unit (919) 250-4092
North Carolina Department of Transportation, P.O. Box 25201 Raleigh, N.C. 27611

2/1/96

Figure J.3

Blank Sheet

Widening existing 321 choice of DOT engineers

10-19-00

By PATRICIA TALLENT
News-Topic County Editor

BATON COMMUNITY – N.C. Department of Transportation (DOT) staff recommend widening U.S. 321 South to six lanes because it would be less expensive than making it a limited access highway with a parallel service road, said N.C. Board of Transportation member Sam Erby of Granite Falls.

Erby said it would cost an estimated $323 million to make U.S. 321 South a controlled access highway with a service road. It would displace 290 residences and 197 business. The cost of widening the existing U.S. 321 to six lanes would only be an estimated $106 million, he said. It would displace only 28 residences and 19 businesses.

Erby made the comment during a meeting Thursday at Baton Elementary School in which Caldwell County officials were presented the DOT's preliminary Caldwell County Thoroughfare Plan. It has taken several years to get the plan completed due to changes in DOT personnel.

Caldwell County Commissioner Ron Beane expressed concern that widening the existing U.S. 321 South to six lanes "is just compounding the problem."

DOT staff encouraged the county to limit driveway access on U.S. 321 as a method to limit access on the highway.

DOT *continues on next page*

Continued from page 1

Erby also informed elected officials that the U.S. 321 South project like U.S. 321 North will be done in three sections. The first section to be constructed will be from Catawba County to Granite Falls. The second section will be from Granite Falls to the Loop and the third section will be from the Loop to the end of the highway.

Motorists should be able to travel on the first section of U.S. 321 North by the end of December, Erby said. The contractor has until June 2001 to complete landscaping and other final work on that section. Construction of the second section to Blackberry Road should begin in July 2004, Erby said. It will take that long to purchase right-of-way and design and plan the project, he said.

The final section of U.S. 321 North through Blowing Rock has not been decided. "We have five groups supporting five different routes," Erby said. "We have spent $3.1 million just studying the route. I will tell you that as a board member I will not vote to spend any more money to study the route."

Caldwell County, Lenoir, Watauga County and Boone are on record supporting the safest, most economical route, with the least environmental impact, Erby said. Blowing Rock has not endorsed any route. The DOT favors widening the existing highway. After an impact study is done on some historic areas, the DOT will be considering which route to build, he said.

As for U.S. 321 South, Erby said the first step will be for local officials to get the project on the DOT's long-range Transportation Improvement Program (TIP).

The second priority project on the plan is construction of a Single Point Diamond Interchange at Smith's Crossroads intersection to Greenhaven Drive. The median would have turn bays at existing signal lights. DOT officials said they have not determined the exact impact on businesses. In the interim, the DOT hopes to extend the northbound right turn on U.S. 321 on to Wilkesboro Boulevard.

The purpose of the thoroughfare plan is to "develop an urban thoroughfare plan for roads to ensure safety, improve traffic flow and travel cost, while minimizing the disruption of houses and businesses. A good transportation system is vital to economic development, Erby said.

Even though projects are included in the long-range DOT Transportation Improvement Program (TIP) nothing happens until the projects are funded, Erby said. "Once they make the TIP they can be moved forward or they can slip a year or two," he said. He urged local government officials to stay in constant contact with the DOT to ensure projects remain on the TIP and are funded.

The number one priority on the draft thoroughfare plan is widening U.S. 321 South, Erby said. "It is a major project and will be the largest project in Division 11. "Under the best of situations even if we started today it would take seven years to get it completed."

Erby said the DOT last week let the last contract for widening U.S. 421. The project has cost $409 million in the past three years, he said.

The Caldwell County Thoroughfare plan was completed by Kurt Freitag - the fourth engineer assigned to the project. Erby said the DOT is having trouble retaining employees, who are being recruited by the private sector. "We had 16,000 employees and now we are down to about 14,000 employees," he said. "Division 11 has 987 employees."

Freitag said the plan "is not a promise that the DOT will build the roads. That is up to Caldwell County. Elected officials will have to tell the DOT that they need the roads. It also does not contain the final location of the road. The road has to go through environmental impact studies."

The county's last thoroughfare plan was developed in 1992. The new plan is based on data projections through 2025. "This is only a preliminary recommendation," Freitag said. "We want feedback from elected officials. Our next step will be public information sessions to get input from the public."

Also recommended in the plan is five-laning the following roads:

- Wilkesboro Avenue from Tanglewood Drive to Blue Creek Road in Lenoir.
- McLean Drive and U.S. 321A in Lenoir from McLean Drive at U.S. 321 to Southwest Boulevard. The project is unfunded on the TIP.
- U.S. 321-A from McLean Drive to Southwest Boulevard in Lenoir.
- Connelly Springs Road from Southwest Boulevard to north of Walt Arney Road in Lenoir.

The plan recommends a five-lane Connelly Springs Road Connector from north of Walt Arney Road to U.S. 321 in Lenoir with new interchange at U.S. 321, partly under construction. It recommends four-laning Connelly Springs Road from Southwest Boulevard to the county line in the Baton community.

Also recommended is four-laning U.S. 64/N.C. 18 from the county line to south of Calico Road with an extension of the five-lane section from south of Calico Road to Hartland Road. The project is in the TIP for construction after 2008.

It also recommends that Main Street from College Avenue to West Avenue in Lenoir be changed from a one-way street to a two-way street.

The following road are recommended to be widened to three lanes:

- U.S. 321A from Southwest Boulevard to Pleasant Hill Road. The project is unfunded in the TIP.
- U.S. 321A from Pine Mountain Road to Central Avenue in Granite Falls. The project is unfunded in the TIP.
- Falls Avenue from west of Crestview Street to U.S. 321. The project is unfunded in the TIP.

The plan recommends turn lanes the following roads:

- U.S. 321 at Midway Sand Place - c struct northbound left turn land. The p ject currently is under construction.
- Connelly Springs road at Caja Mountain Road - construct southbou left turn lane, under construction.

The plan recommends the follow two-lane roads on new locations:

- Ridge Street to Main Street in Len
- Hospital Avenue to Pennell Street Lenoir.
- McLean Drive Extension in Len The project is in the TIP, with constructi scheduled for 2001.
- Southwest Boulevard to Alfr Hartley Road in Lenoir.
- Alfred Hartley Road to Taylorsv Road (U.S. 64/N.C. 90) in Lenoir.
- Taylorsville Road to Wilkesbo Avenue (N.C. 18 in Lenoir.
- Rocky Road to Crump Road Gamewell.
- Crump Road to Orchard Road Cajah's Mountain.
- Orchard Road to Pleasant Hill Ro in Cajah's Mountain.
- Pleasant Hill Road to Mt. Herm Road in Hudson. The project is in the T to be constructed in 2008.
- Pine Mountain Road to U.S. 321 Hudson.
- Cajah's Mountain Road to Missi Road in Sawmills. The project is in the T to be constructed in 2003.
- McCall Town Road to Premiere Roa
- Hickory Nut Ridge Road to D Ponds Road.
- Laurel Road to Central Avenue Granite Falls.
- Dry Ponds Road to Pinewood road Granite Falls.
- Pinewood Road to Wkye Road Granite Falls.
- Myers Road to U.S. 321 in Grani Falls.
- Duke Avenue to U.S. 321A in Grani Falls.
- Grace Chapel Road to N.C. 1 (Northern Connector). The project unfunded in the TIP.
- Grace Chapel Road to N.C. 1 (Southern Connector). The project unfunded in the TIP.

It also includes the following brid replacements:

- Broadway Street over Blairs For Creek, construction 2004.
- Mulberry Street over Lower Cree construction 2004.
- Harrisburg Drive over Lower Creel construction 2001.
- Smokey Creek Road over Smoke Creek, under construction.
- Deal Mill Road over Gunpowde Creek, construction 2002.
- Lower Cedar Valley Road over Litt Gunpowder Creek, construction 2001.
- U.S. 321 over the Catawba Rive rehabilitate deck bridge in 2008.

Local News

Traffic plan would eliminate some businesses

By PATRICIA TALLENT, News-Topic County Editor

Posted: Friday, October 27, 2000

LENOIR - A proposed single-diamond interchange at Smith's Crossroads would entirely change the intersection's appearance and eliminate businesses, including Burger King, Eckerd Drug and McDonald's, said Lenoir Planning Director Chuck Beatty.

Beatty informed the council of the effect of the proposed interchange in the N.C. Department of Transportation's (DOT) preliminary Caldwell County Thoroughfare Plan at the Lenoir City Council's Committee of the Whole meeting Thursday. The plan was developed by the DOT for the county and its municipalities. It will replace the existing Lenoir-Hudson Thoroughfare Plan.

The diamond interchange would make U.S. 321 North and South a continuous road. A ramp from U.S. 321 would connect motorists to N.C. 64 and 90 and to Morganton Boulevard.

"This would get rid of too much of our commercial property," commented Lenoir Mayor Pro Tem Betty Buss.

Councilman Ed George said extending turn lanes on U.S. 321 would help relieve back-up traffic resulting from people trying to turn. Council members said it's difficult to get out of existing shopping centers in the Crossroads area. "You have three choices and they are all bad," Buss said.

"The only solution may be a new highway somewhere else," said Councilman George Bernhardt Sr.

Through the years, the Smith Crossroads intersection has been a diamond, an oval and a crossroads, Councilman Tom Broach said. "The change helped until the traffic increased," he said.

The proposed widening of U.S. 321 South to the Catawba River bridge will put additional traffic on the road, Beatty said. With the amount of projected traffic on U.S. 321 in the future, he said some type of interchange will be needed at the Crossroads in the future. U.S. 321 at the Catawba River bridge area is already at its design capacity of 35,000 to 40,000 vehicles daily. Future projections are for 80,000 vehicles daily.

One council person said a loop bypass is needed to take truck traffic off U.S. 321.

"If they started trying to get the diamond interchange constructed tomorrow it would take 10 years," Bernhardt said.

After much discussion, the council agreed to ask the DOT in addition to the diamond interchange to look at alternatives to relieve traffic congestion at Smith's Crossroads.

Another way to relieve traffic from U.S. 321 would be connecting to U.S. 321 the proposed construction of two-lane roads on a new location from Southwest Boulevard at U.S. 321 to Alfred Hartley Road and from Alfred Hartley Road to Wilkesboro Avenue, Bernhardt said. The roads are included in the draft Thoroughfare Plan.

Until the new interchange is constructed, the DOT plan recommends extending the northbound right turn lane on U.S. 321.

Lenoir City Manager Jim Hipp said the cost is going to be more anticipated because a traffic sign will have to be moved. He said DOT officials are trying to find more money to fund the project.

Council members agreed to ask the DOT to include widening of Harper Avenue in the plan. That project has been a top priority of the city of Lenoir for years.

Council members also discussed whether to recommend that the DOT widen the existing U.S. 321 South to six lanes or make it a limited access highway and construct a parallel service road.

The DOT staff has recommended widening the existing U.S. 321 South because it would be less expensive and disturb fewer businesses and residences. The DOT estimates it would cost $323 million to make U.S. 321 South a controlled access highway with a service road. It would displace 290 residences and 197 businesses.

The DOT estimates widening the existing U.S. 321 to six lanes would cost $106 million and displace 28 residences and 19 businesses. Council decided to leave the proposed widening of U.S. 321 in the thoroughfare plan.

The council also decided to ask the DOT in addition to converting from one-way to two-way Main Street from West Street to College Street to look at making Harper Avenue and West Avenue two-way streets.

Council also agreed to ask the DOT to add improving Hibriten Drive to the thoroughfare plan. The council asked that the following new two-lane roads on a new location be deleted: Ridge Street to Main Street and British Woods Drive to Norwood Street. They said the DOT should consider continuing to N.C. 18 construction of a new street from Spruce Street to Delwood Drive included in the plan.

Beatty noted that the plan includes construction of the following new two-lane roads that would link Connelly Springs Road to N.C. 18, Crump Road to Orchard Road and Rocky Road to Crump Road.

The thoroughfare plan also includes replacing the Harrisburg Drive bridge over Lower Creek, with construction in 2001. The city has been waiting on the bridge replacement for years.

Hipp also informed the council that the DOT will hold a meeting from 2 to 4 p.m. Nov. 8 at the J.E. Broyhill Civic Center to receive public comments on it's draft Transportation Improvement Program (TIP). The TIP is the long-range plan for major transportation projects.

In other business, Hipp said a city committee will be looking at a timetable for construction of the city's new greenway along Zack's Fork and Lower Creek. Bernhardt suggested the committee look at a fund raising project for benches and possibly ornamental light poles along the greenway. Benches and lights in a greenway in Newland were funded by such a project, he said.

"It would be very expensive for the city, but it would be a nice project for civic groups," he said. "We also need to look at plans for shade trees."

Hipp also reported that the DOT plans to hold a public information meeting in November on the environmental impact study on the McLean Drive-Hibriten Drive Connector. Hipp said the city hopes to put the project out to bid, award the contract and have the road under construction by the end of the calendar year. Construction of the road will probably be done through two contracts since Lowes Home Improvements is talking about constructing the first 1,400-foot section of the road, he said.

Hipp also announced that the city will rededicate the Lenoir Aquatics & Fitness Center at 2 p.m. Sunday, Nov. 5. After the dedication ceremony, the center will hold an open house and the swim team will be doing demonstrations. Refresh-ments will be served. The public is invited to attend.

charlotte.com The Charlotte Observer

Posted at 6:28 p.m. EST Tuesday, November 7, 2000

Plan calls for 6-lane U.S. 321

Proposal for Caldwell's roads would realign N.C. 18 crossing

By ERICA BESHEARS

LENOIR -- A popular route for Charlotte-area residents to head to the mountains would be widened to six lanes, according to the draft of a 25-year plan for Caldwell County roads.

The plan drafted by the N.C. Department of Transportation calls for widening U.S. 321 to six lanes between Hickory and Lenoir and revamping Smith's Crossroads, the congested intersection of U.S. 321 and N.C. 18.

It may take a little while for local officials to embrace the plan's touchier aspects, particularly the widening of U.S. 321 and the changing of Smith's Crossroads, which could claim some local businesses.

"I think we need to keep looking at it," Caldwell County commissioner Larry Taylor said.

The plan for U.S. 321 would only widen it to six lanes. It would not restrict driveway access or eliminate traffic lights. Some local officials worry that simply adding lanes will not solve the road's biggest problem - the dozens of roads, businesses and homes whose driveways empty directly onto the highway.

The state looked at turning U.S.321 into a restricted-access freeway, like it is between Hickory and Gastonia, said Kurt Freitag, the transportation engineer who worked on the plan. But it would cost too much to buy rights-of-way from all the businesses, build access roads and create interchanges, he said.

"Cost was a big deal on 321," he said. "The time to make roads with no driveways on them is at the beginning."

The cost of building a freeway was estimated at $323 million. The price tag for simply widening U.S. 321: $108 million.

But Freitag said other parts of the plan could take pressure off U.S. 321. When Connelly Springs Road is widened to four lanes, it will be a more direct link between Lenoir and Interstate 40 than U.S.321.

Even more controversial could be the plan for Smith's Crossroads, the biggest bottleneck in Caldwell County. Freitag has proposed an interchange where N.C.18 would cross over U.S. 321 on a bridge. People traveling on U.S.321 wouldn't have to stop at a red light, so it would help traffic flow through the area.

Here's the problem: several businesses on the corners of the intersection would have to relocate. Other businesses along the busy strip would lose their access to U.S. 321.

"Their plan would take a lot of businesses," said Ed George, a Lenoir City Council member. "That didn't come across too favorable."

He would prefer sprucing up the intersection to allow better right turns, at least in the short term.

But Freitag said that of all the possible fixes, his proposed interchange would be the least disruptive. And he says doing nothing is not an option - by 2025, the congestion at Smith's Crossroads will be off the chart.

The suggestions in the plan are preliminary and are so far in the future that most have not been funded. Thoroughfare plans are supposed to help local planners address land-use zoning that matches future road construction.

It also helps local officials request road improvements to the DOT. Freitag said he hoped to work with local officials to smooth out differences and get the plan adopted. "DOT's not going to force this plan on anybody," he said. "It's not everything that they would ideally want. I want it to be a realistic plan." "DOT's not going to force this plan on anybody."

Kurt Freitag
Transportation engineer

Local News

DOT supporting traffic flow changes in Lenoir

By PATRICIA TALLENT, News-Topic County Editor

Posted: Thursday, December 07, 2000

LENOIR - N.C. Department of Transportation (DOT) officials support Lenoir's decision to change traffic flow in downtown Lenoir and are preparing cost estimates to convert one-way streets back into two-way streets.

"Due to the completion of the Lenoir Southwest Bypass Loop, through traffic needs in Lenoir have been reduced," DOT Division Engineer R.C. McCann said in a letter to Lenoir officials. "Therefore, the Department of Transportation will support the decision of the city to make changes to the traffic flow pattern in uptown Lenoir."

McCann said he has asked DOT Division Traffic Engineer Dean Ledbetter to prepare two estimates for changing downtown state system streets back to a two-way traffic pattern. One estimate will be for Main Street only. The other estimate will be for completely eliminating the one-way system on state system streets in Lenoir.

The estimates will be for the cost for revisions to the traffic signals. The cost of the proposed work would be paid by the city, Ledbetter said. "The DOT will bear the cost of the pavement markings and the signage required for such a changeover," Ledbetter said.

In the letter, Ledbetter also answered maintenance concerns of Lenoir city officials. Lenoir officials had asked whose responsibility it was to mow on the N.C. 18 Bypass. Ledbetter said the DOT is responsible for mowing on the bypass.

On the cleaning of drainage inlets, Ledbetter said the inlets have been checked and cleaned by the DOT.

Ledbetter said the storm drain manhole on Mulberry Street is the city's responsibility. "It is our understanding that the repairs have been completed," he said.

Ledbetter said the DOT encourages the "city to clean and sweep all the streets, as they have time. This is a good service to the city, to NCDOT, and the citizens."

On proposed improvements, Ledbetter said the DOT is looking at possible changes to the roadway at the intersection of U.S. 321 and N.C. 18 (Smith's Crossroads) to lengthen the right turn lane to eastbound N.C. 18.

The DOT also is conducting a traffic signal investigation at the intersection of N.C. 18 at Hibriten Drive.

Local News

DOT plan to widen Hwy. 18 far from finalized

By PATRICIA TALLENT, News-Topic County Editor

Posted: Friday, March 23, 2001

GAMEWELL - The widening of U.S. 64/N.C. 18 to four lanes between Gamewell and Morganton is bound to impact some residences and businesses, but at this point in the process N.C. Department of Transportation (DOT) officials have not determined how many or which ones will be affected.

A number of citizens turned out Thursday at Gamewell Middle School to ask questions and comment on the project during a citizens informational workshop. The major question on their minds was the impact on their residences. The widening project currently is scheduled to begin in fiscal year 2008.

Stephen Roberts of the DOT Highway Division said the exact location of the road has not been selected. The DOT currently owns 100 feet of right of way along N.C. 18 and a total of 250 to 300 feet of right of way will be needed to widen the road, Roberts said.

"We are really in the preliminary stages," Roberts said. "At this point we are not sure how many houses and businesses would be affected. We won't know until the preliminary engineering is completed, which should be around the time the Environmental Assessment is completed. After we have a proposed location we will hold a public hearing."

The DOT proposal would widen existing U.S. 64/N.C. 18 from two lanes to a four-lane divided highway between Morganton and Gamewell. DOT officials say the project will increase capacity, improve travel between Morganton and Lenoir, and enhance safety.

According to the current schedule, the Environmental Assessment should be completed in 2002. The Environmental Assessment looks at concerns such as wetlands and stream impact and the impact on homes and businesses. The final Environmental Document is expected to be completed in March 2003.

Right of way acquisition is scheduled to begin in fiscal year 2006. Construction would then begin in fiscal year 2008 and probably take two years. DOT officials say the schedules "are subject to change depending on the availability of sufficient highway funds."

The project is expected to cost $31,750,000, which includes $3.1 million to acquire right of way and $28.4 million for construction. Approximately 9,400 to 12,200 vehicles per day traveled N.C. 18 in the year 2000. The number of vehicles per day on the road is expected to increase by 2025 to 17,800 to 22,600 vehicles per day.

East side, west side and symmetric widening along with some new locations are being evaluated for the project. The alternatives are:

- Section 1A: East side widening - north of the Catawba River to north of Piedmont Road.
- Section 1B: New location - north of the Catawba River to north of Piedmont Road.
- Section 2: West side widening - north of Piedmont Road to Duckworth Drive. East Side Widening - Duckworth Drive to Hartland Road.
- Section 3: West side widening - Hartland Road to Antioch Road. East side widening - Hartland Road to Antioch Road.
- Section 4: West side widening - Antioch Road to south of Calico Road. East side widening - Antioch Road to south of Calico Road.
- Section 5: West side widening - south of Calico Road to Rocky Road. East side widening - south of Calico Road to Rocky Road. Symmetric widening - south of Calico Road to Rocky Road.

Sections 1A, 1B, 2, 3 and 4 include a four-lane divided highway with a 46-foot median. Section 5 includes a four-lane divided highway with a 20-foot median.

Written comments or requests for more information my be sent to Mark L. Reep, P.E., Project Development Engineer; Project Development and Environmental Analysis Branch; N.C. Department of Transportation, 1548 Mail Service Center; Raleigh, N.C. 17699-1548. E-mail: mreep@dot.state.nc.us.

Local News

DOT plans local road improvements

By PATRICIA TALLENT, News-Topic Staff County Editor

Posted: Monday, May [illegible]

LENOIR - More than $3.6 million in paving projects and other secondary road improvements are proposed for Caldwell County by the N.C. Department of Transportation (DOT) during the fiscal year that begins July 1, 2001.

The DOT will hold a public hearing on the proposed road improvements at 7 p.m. Monday in the City/County Chambers of the Caldwell County office building in Lenoir.

The total $3,643,175 allocation consists of $1,586,366 from the Secondary Road Fund and $2,056,809 from the Highway Trust Fund.

The DOT proposes to spend $2.7 or 75.9 percent of the funds to pave rural roads and $545,000 to pave subdivision and residential roads.

Four rural roads will be paved with $2.2 million. In priority order the projects are:

- (1) S.R. 1501 - Old Sampson Road, 1.40 mile from S.R. 1504 to Wilkes County line; grade, drain, base and pave; $740,000.
- (2) S.R. 1350A - Setzer's Gap Road, 1.40 mile from S.R. 1353 to S.R. 1349; grade, drain, base and pave; $735,000.
- (3) S.R. 1730A - Duck Creek Road, 1 mile from S.R. 1729 to S.R. 1731; grade, drain, base and pave; $470,000.
- (4) S.R. 1762 - Fox Winkler Road, .87 mile from S.R. 1718 to end of maintenance; grade, drain, base and pave; $275,000.

The DOT proposes to spend $545,00 to pave six subdivision and residential roads. The projects in priority order are:

- (1) S.R. 1556 - Laytown Place, .50 mile from S.R. 1507 to end of maintenance; grade, drain, base and pave; $190,000.
- (2) S.R. 1388 - Helton Hartley Place, .30 mile from U.S. 64/N.C. 90 to end of maintenance; grade, drain, base and pave; $95,000.
- (3) S.R. 1529 - Carolina Drive, .20 mile from end of pavement to end of pavement; grade, drain, base and pave; $30,000.
- (4) S.R. 1843 - Hall Place, .40 mile from S.R. 1740 to end of maintenance; grade, drain, base and pave; $110,000.
- (5) S.R. 1390 - Bush Place, .27 mile from S.R. 1341 to end of maintenance; grade, drain, base and pave; $100,000.
- (6) S.R. 1764 - New Farm Road, .10 mile from end of pavement to end of maintenance; grade, drain, base and pave; $20,000.

The DOT proposes to spend $240,000 or 18 percent of the funds to improve two paved roads. The projects in priority order are:

- S.R. 1751 - Grace Chapel Road, to widen to 20 feet the pavement for 1.80 miles from the existing 20-foot pavement to S.R. 1107, $190,000.
- S.R. 1310 - Abington Road, to widen pavement to 22 feet for 1 mile from S.R. 1301 to S.R. 1314, $50,000.

The DOT also will spend $253,855 on spot stabilization on 36 roads and $162,832 on maintenance of paved and unpaved roads. A total of $221,488 will be placed in reserve for surveys, right of way acquisition, overdrafts, road additions and entrances to fire departments and rescue squads.

Local News

Possible ~~exchange~~ Interchange previewed by DOT

By PATRICIA TALLENT, News-Topic County Editor

Posted: Wednesday, May 23, 2001

LENOIR - N.C. Department of Transportation staff member Kurt Freitag said he was surprised at how well a single-point diamond interchange worked at Smith's Crossroads in a computer simulation.

The diamond interchange is included in a proposed Caldwell County Thoroughfare Plan developed by DOT staff in Raleigh. Lenoir officials have expressed concern about the impact of the proposed interchange on businesses at the Smith's Crossroads.

"The interchange at Smith's Crossroads is the worst spot in the city," Freitag told the Lenoir Planning Board Monday. "N.C. Board of Transportation Member Sam Erby has secured some money in the interim to extend the northbound right turn lane on U.S. 321."

Freitag said he hoped showing a computer simulation of how the proposed single-point diamond would work would show Lenoir officials how well it would work.

The single-point diamond interchange is "a relatively new concept in North Carolina," Freitag said. "It has been used in Raleigh on the outer loop. It requires a lot less right of way than the conventional interchange."

The single-point diamond interchange "is a relatively new variant of the diamond interchange," said DOT officials. It also is known as the urban interchange. Advantages of the interchange include:

- Compact layout.
- Requires less right of way acquisition.
- Allows concurrent left turns for greater capacity.

Disadvantages of the single-point diamond intersection include:

- Complex intersection and signal phases that may be unfamiliar to drivers.
- Multilane ramps or surface streets can lead to very large areas of uncontrolled pavement (used by vehicles in more than one direction).

A single-point diamond interchange has ramps placed close together to make them effectively part of the same intersection. This allows one traffic signal to control all crossing movements, and enables concurrent opposing left turns, which increases the capacity of the interchange.

Freitag used a computer simulation of traffic at Smith's Crossroads during one day in 1999 at a peak hour during the day. The simulation showed vehicles backing up Hill Haven.

Freitag then did a computer simulation of a conservative estimate of increased traffic expected on the intersection in 2025. The simulation took into account the use of the McLean Drive Extension as a cut through to avoid Smith's Crossroads.

The computer simulation showed traffic at the intersection backed up north on U.S. 321 for a mile to McLean Drive. Traffic on the south side of U.S. 321 was backed up for almost a mile.

"A person would have to wait through multi-lights to get through the intersection," Freitag said. "That kind of backup is unacceptable for a small or a large town."

The proposed single-point diamond interchange would have 1,200 foot long ramps. There would be no stopping on U.S. 321 which would run under a bridge.

"In the simulation there is no backup of traffic," Freitag said. "I was surprised. I expected some backup. We realize that it would impact some businesses. They would have to move, but they would be compensated. You have to look at what would serve the total good."

The sample interchange would eliminate the fast food restaurants and Eckerd Drugs, the Japanese Restaurant, and Fast Stop Gas Station, Freitag said. "Pennton Avenue would be cut off because of the ramps," he added. "Exactly what businesses would be eliminated would depend on the actual road design."

Freitag said he would like the Lenoir Planning Board and City Council's blessing on the proposed thoroughfare plan which has been under discussion for about two years. "The plan is not set in stone and could be amended at any time," he said.

Freitag said the plan represents ideas for roads and may not represent the specific alignment of roads. The plan for roads needed in the next 25 years shows major improvements will be needed to major thoroughfares in the county, including U.S. 321, N.C. 18 and Connelly Springs Road.

"The plan is not perfect because of some right of way problems and topography," he said. "The project represents ideas for roads. The roads will have to under go environmental studies and the public hearing process."

The 19 major projects in the plan are not listed in priority order. The plan includes widening to six lanes U.S. 321 from Smith's Crossroads intersection to the Catawba River.

"The DOT has completed a feasibility study and does not recommend making U.S. 321 a limited access road with service roads because of the impact on businesses and the cost," Freitage said. "It would cost well over $300 million. The DOT recommends widening U.S. 321 to six lanes. Driveways could still be combined and served by parallel service roads.'

The plan also recommends widening to five lanes:

- Wilkesboro Boulevard from the end of the existing five-lane section to Blue Creek Road.
- McLean Drive and U.S. 321 from McLean Drive at U.S. 321 to Southwest.
- Connelly Springs Road from Southwest Boulevard to north of Walt Arney Road and new alignment from north of Walt Arney Road and new alignment from north of Walt Arney Road to U.S. 321 with new interchange at U.S. 321. The project is included in the DOT TIP and is partly under construction.

The plan also includes widening U.S. 321A to three lanes from Southwest Boulevard to Pleasant Hill Road. The project is unfunded in the TIP.

It also includes upgrading the following two-lane roads:

- Taylorsville Road (U.S. 64/N.C. 90) from Wilkesboro Avenue to Alexander County. In the TIP, but unfunded.
- Hibriten Drive from Wilkesboro Boulevard to McLean Drive Extension (widen to 24 feet and straighten S curve).
- Collettsville Road (N.C. 90) pave unpaved sections and bring up to secondary road standards.

In other business the board tabled a request by Daniel Woodle for a Special Use District for property at the end of Shelby Lane for a residential development. The proposed project would include 56 single-family lots, 18 condominiums and approximately 3 acres of open space. Planning Board Members delayed the action until a right of way issue is resolved. The issue of access from Shelby Lane may have to be resolved in court, Huffstetler said.

Marion Rothrock, engineer for the project, expressed concern about delaying the project. Planning board members said they would hold a special meeting if necessary on the matter.

The board did vote to recommend city council approve a floodplain development permit requested by Ernie Cline for property on U.S. 321 (Hickory Boulevard). Cline said he plans to fill in four feet of dirt on the property. He will have to return to the city for a permit when he develops the property.

Council favors interchange to relieve 321 congestion

6/29/01

By PATRICIA TALLENT
News-Topic County Editor

LENOIR – A proposed single-point diamond interchange that would carry local travelers above through traffic could be the only solution to congestion and eventual gridlock at Smith's Crossroads, Lenoir City Council members said Thursday.

"I realize it's a difficult decision because it will impact businesses, but those businesses will be compensated and can relocate," said N.C. Department of Transportation staff member Kurt Freitag. "I don't see any other reasonable solution. A signal only works to a certain point and then it can't handle the traffic. You have to consider how to best serve the majority of people."

The diamond interchange at Smith's Crossroads is included in a proposed Caldwell County Thoroughfare Plan developed by DOT staff in Raleigh. The interchange and the Caldwell County Thoroughfare Plan still have to go through a public input meeting and be formally approved by the Lenoir City Council and other local governments in Caldwell County and the N.C. Department of Transportation (DOT).

Even if the interchange is approved, local government officials would have to lobby the DOT board for funding for the project, Freitag said. It usually takes 20 to 25 years to get a project built, but it could be built in 10 to 15 years because as an interstate thoroughfare it is eligible for federal Highway Trust Funds.

"With traffic projected at over 50,000 vehicles in a 24-hour period it is warranted," said Freitag.

Councilman George Bernhardt expressed concern that construction of the diamond interchange would not occur before Smith Crossroads experiences severe traffic congestion. Freitag acknowledged that might be true.

"We (DOT) often are only doing catch-up work," Freitag said.

"I don't know of anything else we can do," said Lenoir Mayor David Barlow. "At least the businesses would have time to relocate."

"The interchange at Smith's Crossroa is the worst spot in the city," Freitag sa "N.C. Board of Transportation ment Sam Erby has secured some money in t interim to extend the northbound rig turn lane on U.S. 321."

The single-point diamond interchange "a relatively new concept in Nor Carolina," Freitag said. "It has been used a couple of places in Charlotte and Raleigh on the outer loop. It requires a less right of way than the conventio interchange."

The proposed single-point diamo interchange would consist of bridgi Harper Avenue and U.S. 64/N.C. 18 o U.S. 321. The bridge would be in the fo of a bow tie with ramps of 1,200 to 1,5 feet. The bridge would have a single traf signal intersection in the center. All t turns would be together. Harper Aver would be realigned with Morgant Avenue. Proposed service roads would c nect businesses along U.S. 321. Penn Avenue would be cut off from access to U 321 because of the ramps, he added.

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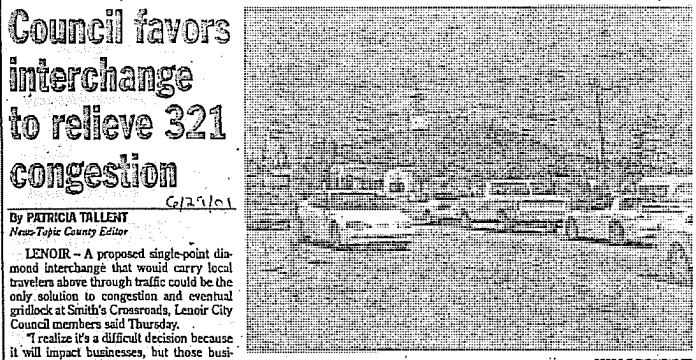
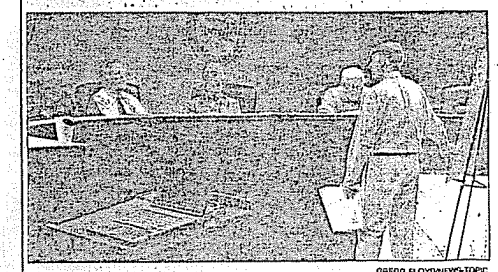


GREGG FLOYD/NEWS-TO

Traffic at the intersection of U.S. Highway 321 and Wilkesboro Boulevard Lenoir is cause for concern among city officials.



GREGG FLOYD/NEWS-TOPIC

Kurt Freitag, with the NCDOT, goes over the DOT's proposed plan for a single point diamond interchange to improve traffic flow at Smith's Crossroads.

CONGESTION continues on pag

Continued from page 1

Erby also informed elected officials that the U.S. 321 South project like U.S. 321 North will be done in three sections. The first section to be constructed will be from Catawba County to Granite Falls. The second section will be from Granite Falls to the Loop and the third section will be from the Loop to the end of the highway.

Motorists should be able to travel on the first section of U.S. 321 North by the end of December, Erby said. The contractor has until June 2001 to complete landscaping and other final work on that section. Construction of the second section to Blackberry Road should begin in July 2004, Erby said. It will take that long to purchase right of way and design and plan the project, he said.

The final section of U.S. 321 North through Blowing Rock has not been decided. "We have five groups supporting five different routes," Erby said. "We have spent $3.1 million just studying the route. I will tell you that as a board member I will not vote to spend any more money to study the route."

Caldwell County, Lenoir, Watauga County and Boone are on record supporting the safest, most economical route, with the least environmental impact, Erby said. Blowing Rock has not endorsed any route. The DOT favors widening the existing highway. After an impact study is done on some historic areas, the DOT will be considering which route to build, he said.

As for U.S. 321 South, Erby said the first step will be for local officials to get the project on the DOT's long-range Transportation Improvement Program (TIP).

The second priority project on the plan is construction of a Single Point Diamond Interchange at Smith's Crossroads intersection to Greenhaven Drive. The median would have turn bays at existing signal lights. DOT officials said they have not determined the exact impact on businesses. In the interim, the DOT hopes to extend the northbound right turn on U.S. 321 on to Wilkesboro Boulevard.

The purpose of the thoroughfare plan is to "develop an urban thoroughfare plan for roads to ensure safety, improve traffic flow and travel cost, while minimizing the disruption of houses and businesses. A good transportation system is vital to economic development, Erby said.

Even though projects are included in the long-range DOT Transportation Improvement Program (TIP) nothing happens until the projects are funded, Erby said. "Once they make the TIP they can be moved forward or they can slip a year or two," he said. He urged local government officials to stay in constant contact with the DOT to ensure projects remain on the TIP and are funded.

The number one priority on the draft Thoroughfare plan is widening U.S. 321 South, Erby said. "It is a major project and will be the largest project in Division 11. "Under the best of situations even if we started today it would take seven years to get it completed."

Erby said the DOT last week let the last contract for widening U.S. 421. The project has cost $409 million in the past three years, he said.

The Caldwell County Thoroughfare plan was completed by Kurt Freitag - the fourth engineer assigned to the project. Erby said the DOT is having trouble retaining employees, who are being recruited by the private sector. "We had 16,000 employees and now we are down to about 14,000 employees," he said. "Division 11 has 987 employees."

Freitag said the plan "is not a promise that the DOT will build the roads. That is up to Caldwell County. Elected officials will have to tell the DOT that they need the roads. It also does not contain the final location of the road. The road has to go through environmental impact studies."

The county's last thoroughfare plan was developed in 1992. The new plan is based on data projections through 2025. "This is only a preliminary recommendation," Freitag said. "We want feedback from elected officials. Our next step will be public information sessions to get input from the public."

Also recommended in the plan is five-laning the following roads:

- Wilkesboro Avenue from Tanglewood Drive to Blue Creek Road in Lenoir.
- McLean Drive and U.S. 321A in Lenoir from McLean Drive at U.S. 321 to Southwest Boulevard. The project is unfunded on the TIP.
- U.S. 321-A from McLean Drive to Southwest Boulevard in Lenoir.
- Connelly Springs Road from Southwest Boulevard to north of Walt Arney Road in Lenoir.

The plan recommends a five-lane Connelly Springs Road Connector from north of Walt Arney Road to U.S. 321 in Lenoir with new interchange at U.S. 321, partly under construction. It recommends four-laning Connelly Springs Road from Southwest Boulevard to the county line in the Baton community.

Also recommended is four-laning U.S. 64/N.C. 18 from the county line to south of Calico Road with an extension of the five-lane section from south of Calico Road to Hartland Road. The project is in the TIP for construction after 2008.

It also recommends that Main Street from College Avenue to West Avenue in Lenoir be changed from a one-way street to a two-way street.

The following road are recommended to be widened to three lanes:

- U.S. 321A from Southwest Boulevard to Pleasant Hill Road. The project is unfunded in the TIP.
- U.S. 321A from Pine Mountain Road to Central Avenue in Granite Falls. The project is unfunded in the TIP.
- Falls Avenue from west of Crestview Street to U.S. 321. The project is unfunded in the TIP.

The plan recommends turn lanes at the following roads:

- U.S. 321 at Midway Sand Place - construct northbound left turn land. The project currently is under construction.
- Connelly Springs road at Cajah's Mountain Road - construct southbound left turn lane, under construction.

The plan recommends the following two-lane roads on new locations:

- Ridge Street to Main Street in Lenoir
- Hospital Avenue to Pennell Street in Lenoir.
- McLean Drive Extension in Lenoir The project is in the TIP, with construction scheduled for 2001.
- Southwest Boulevard to Alfred Hartley Road in Lenoir.
- Alfred Hartley Road to Taylorsville Road (U.S. 64/N.C. 90) in Lenoir.
- Taylorsville Road to Wilkesboro Avenue (N.C. 18 in Lenoir.
- Rocky Road to Crump Road in Gamewell.
- Crump Road to Orchard Road in Cajah's Mountain.
- Orchard Road to Pleasant Hill Road in Cajah's Mountain.
- Pleasant Hill Road to Mt. Herman Road in Hudson. The project is in the TIP to be constructed in 2008.
- Pine Mountain Road to U.S. 321 in Hudson.
- Cajah's Mountain Road to Mission Road in Sawmills. The project is in the TIP to be constructed in 2003.
- McCall Town Road to Premiere Road.
- Hickory Nut Ridge Road to Dry Ponds Road.
- Laurel Road to Central Avenue in Granite Falls.
- Dry Ponds Road to Pinewood road in Granite Falls.
- Pinewood Road to Wkye Road in Granite Falls.
- Myers Road to U.S. 321 in Granite Falls.
- Duke Avenue to U.S. 321A in Granite Falls.
- Grace Chapel Road to N.C. 127 (Northern Connector). The project is unfunded in the TIP.
- Grace Chapel Road to N.C. 127 (Southern Connector). The project is unfunded in the TIP.

It also includes the following bridge replacements:

- Broadway Street over Blairs Fork Creek, construction 2004.
- Mulberry Street over Lower Creek, construction 2004.
- Harrisburg Drive over Lower Creek, construction 2001.
- Smokey Creek Road over Smokey Creek, under construction.
- Deal Mill Road over Gunpowder Creek, construction 2002.
- Lower Cedar Valley Road over Little Gunpowder Creek, construction 2001.
- U.S. 321 over the Catawba River, rehabilitate deck bridge in 2008.

Editorials

Bridging Smith's Crossroads

By ,

Posted: Friday, July 06, 2001

The negative impacts of growth have been discussed in this space before, but problems have often outnumbered possible solutions.
A state Department of Transportation official last week offered one possible answer to the traffic congestion at Smith's Crossroads in Lenoir – quite literally a concrete solution.
The idea involves a single-point diamond interchange, a fancy name for an overpass that would carry local travelers over the highway and allow traffic that is just passing through to continue on without stopping. The diamond interchange at Smith's Crossroads is included in a proposed Caldwell County Thoroughfare Plan developed by DOT staff in Raleigh.
That doesn't mean it's a sure thing. The project would still have to go through a public input meeting and be formally approved by the Lenoir City Council and other local governments in Caldwell County and the N.C. Department of Transportation (DOT).
Even if the interchange is approved, local government officials would have to lobby the DOT board for funding for the project, according to Kurt Freitag, a DOT staff member. It usually takes 20 to 25 years to get a project built, but it could be built in 10 to 15 years because as an ~~interstate~~ Intra thoroughfare it is eligible for federal Highway Trust Funds.
"With traffic projected at over 50,000 vehicles in a 24-hour period it is warranted," said Freitag. Computer simulations show that such a project would virtually eliminate traffic backups for decades.
While a diamond interchange may do the trick, it certainly won't be a free ride.
No estimate has been calculated yet but you can bet it will be many millions of dollars.
Making room for the access ramps will also mean that several highway businesses will be displaced. Depending on the final design, the interchange could eliminate the fast food restaurants, First Citizens Bank, Eckerd Drugs, the Japanese Restaurant, and Fast Stop Gas Station.
The cost of doing nothing, however, is also high.
A conservative estimate of increased traffic expected on the intersection in 2025 shows vehicles being backed up a mile on both sides of the intersection. And that's taking into account the use of the McLean Drive Extension as a cut-through to avoid Smith's Crossroads.
"A person would have to wait through multi-lights – up to probably six or seven – to get through the intersection," Freitag said. "That kind of backup is unacceptable."
But is the diamond interchange the answer? Maybe. It's a move in the right direction and we have to do something. By the time a final design is approved and funded 10 to 15 years from now there might be even better solutions that will be much less invasive. We have to start somewhere.

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Local News

DOT officially recommends U.S. 321 widening

By PATRICIA TALLENT, News-Topic County Editor

Posted: Friday, July 20, 2001

LENOIR - A N.C. Department of Transportation (DOT) feasibility study recommends widening U.S. 321 South to six lanes because it would be less expensive than making U.S. 321 a limited access freeway with a parallel service roads.
It would cost an estimated $327 to $360 million to make U.S. 321 South a controlled access highway with service roads. An estimated 290 residences and 197 businesses would be displaced.
The cost of widening the existing U.S. 321 to six lanes from U.S. 70 in Hickory north to Southwest Boulevard, south of Lenoir, would be an estimated $109.9 million. It would displace only 28 residences and 23 businesses.
"While converting U.S. 321 into a freeway is considered the best alternative from a traffic safety and operational perspective, it comes at a significant cost in both construction and right of way," the study said. "A simple widening of U.S. 321 with sufficient intersection improvements should provide an acceptable (DOS) Design Level of Service in the 2025 design year, and significantly reduces the construction cost and anticipated right of way impacts."
The existing median would be retained and the substandard Falls Avenue interchange would be reconstructed as recommended.
"Most of the structures along this facility will either need replacement or widening in order to accommodate the proposed improvements," the report said.
The DOT estimates that to widen U.S. 321 to six lanes would cost a total of $109,900,000, which includes $14,800,000 for right of way acquisition and $95,100,000 for construction.
The results are no surprise to Caldwell County officials who were told by OOT staff and officials what the study said during meetings on the proposed Caldwell County Thoroughfare Plan.
Some Caldwell County officials have said in those meetings they prefer U.S. 321 South to be a limited access freeway with parallel service roads. They have said widening the existing U.S. 321 South to six lanes will compound traffic congestion problems on the highway. DOT staff in the meetings encouraged county officials to limit driveway access on U.S. 321 as a method to limit access on the highway.
The study says the Congestion Management Section of the Traffic Engineering and Safety Systems Branch has requested $8,455,490 in Intelligent Transportation System Devices for the project. The feasibility study does not include the devices in the project and provides no cost estimate for the devices.
The study recommends the devices be evaluated in later planning and design stages.
DOT officials have said the U.S. 321 South project like U.S. 321 North will be done in three sections. The first section to be constructed would be from Catawba County to Granite Falls. The second section will be from Granite Falls to the Loop and the third section will be from the Loop to the end of the highway.
U.S. 321 South currently is an unfunded project on the DOT's long-range Transport-ation Improvement Program (TIP). The next step for local officials will be to lobby the DOT to fund the project. Even though projects are included in the long-range DOT Transport-ation Improvement Program (TIP) nothing happens until the projects are funded.
Widening U.S. 321 South is the number one priority on the draft Thoroughfare plan.
Caldwell County and municipal officials soon will be holding public input meetings on the proposed plan which lists future needed major thoroughfare projects.
N.C. Board of Transportation member Sam Erby told county officials during a meeting about the proposed Thoroughfare Plan that even if the DOT started widening U.S. 321 today it would take at least seven years to complete.
Today the current average daily travel count along U.S. 321 South varies from 28,000 to 40,900 vehicles per day. By 2025, DOT officials estimate traffic volumes will range between 46,600 and 66,500 vehicles per day. Truck traffic is estimated to make up between 7 and 9 percent of the daily traffic.
A detailed environmental study of widening U.S. 321 to six lanes has not been conducted. However, DOT officials have screened the area for environmental and historic concerns. "Impacts to threatened or endangered species are not anticipated in the project area," the study says. "In addition, no historic properties are anticipated along this project."
The study says wetland permits and wetland mitigation costs may be incurred due to the potential for construction in the area of the Catawba River. Study estimates do not include money for wetland mitigation.

Local News

Hearing on road realignment set

By DAVE CRUZ, News-Topic Staff Writer

Posted: Friday, October 12, 2001

Click to Enlarge Image
The Cajah Mountain Road and Mission Road in Sawmills will soon have a new look when the NC Dept. of Transportation joins the two.

SAWMILLS - The realignment of the Mission Road and Cajah Mountain Road at U.S. 321-A in Sawmills to form one four-way intersection has the wide-spread support of the Sawmills Town Council and State Highway Commissioner Sam Erby and will happen in 2003.
But the path that the N.C. Department of Transportation (NCDOT) will take to join those two roads has not been set in stone and the NCDOT engineers in charge of the project want to hear suggestions from the public during a forum to be held at Sawmills Town Hall Monday, Oct. 15, from 4 to 7 p.m.
Those who reside or own property near U.S. 321-A on both roads and on U.S. 321-A should be especially interested in seeing the NCDOT's preliminary plan for realigning the two roads.
Doug Jeremiah, an NCDOT project development engineer, said he, along with Teresa Hart, senior project engineer, and District Design Engineer Kipp Turner, will be on hand to present the plan and answer any questions the public may have. Erby may also be there, he said.
"We should be able to reach a decision on the final design by the end of the year. The input we'll be getting from the public at Monday's meeting will help us reach that decision," Jeremiah said.
Although the distance between Mission Road and Cajah Mountain Road is relatively short, there's a lot of residential, business and a possible church property that could be affected when the two are joined. Jeremiah said the NCDOT is scheduled to start acquiring the rights-of-way for the intersection realignment in April 2002.
On the north side of Mission Avenue, just before it connects to U.S. 321-A, there are heavily-wooded residential lots with houses on them. On the east side on U.S. 321-A, between the two roads, are three houses and a used car lot. There's the old Thomasville Furniture plant and an upholstery shop on the other side of the highway. On the south side of Cajah Mountain Road, the Mount Zion Baptist Church is not far from U.S. 321-A.
Jeremiah said safety is the main reason for realigning the intersection. By linking the two roads and eliminating the turns motorists had taken to travel between the two thoroughfares, it will make the intersection safer.
Sawmills Town Councilman and mayoral candidate Bobby Austin said the intersection realignment is important to the town because it will bring relief to the traffic problems the town is currently experiencing, especially in the morning.
Austin said the current alignment of the roads creates traffic snarls there, especially for motorists attempting to get to South Caldwell High School, located off Mission Road, from Cajah Mountain Road.
Jeremiah said construction of the intersection is scheduled to start in August 2003.

Local News

DOT unveils Mission Road, Cajah's Mt. Road realignment

By DAVE CRUZ, News-Topic Staff Writer

Posted: Wednesday, October 17, 2001

SAWMILLS - A steady flow of concerned Sawmills residents went through Sawmills Town Hall Monday afternoon to get a look at the N.C. Department of Transportation's (DOT) preliminary plans to realign the intersections of Cajah's Mountain Road, Mission Road and U.S. 321-A and most of them seemed relatively pleased with what they saw.
With numerous residential properties that could have been affected by the realignment, it appears that the private property affected by joining Cajah's Mountain and Mission roads, with the exception of a used car lot, is mostly undeveloped property.
"We tried to avoid the relocation of residents," said DOT Project Engineer Doug Jeremiah. "We did the best we could in that regard."
The project consists of the realignment of the existing intersections of Mission Road and Cajah's Mountain Road with U.S. 321-A to provide a common intersection.
From U.S. 321-A, a .2-mile section of Cajah's Mountain Road will be constructed and the entrance to that road will be moved south 330 feet. A .03-mile section of Mission Road will be built and the entrance of that road will be moved north 220 feet.
From Helena Street, headed east, the new section of Cajah's Mountain Road connects Helena Street and skirts around the Mount Zion Baptist Church Cemetery. The north end of Helena Street will dead end into the new road.
The road then goes through the lumber yard of the old Thomasville Furniture plant where a new intersection is created joining Kendell Place to the Helena Street portion and then continuing on through the lumber yard until it joins U.S. 321-A.
The proposed entrance to Mission Road appears to be right in the middle of what is now Smith's Used Auto Sales. Mission Road continues through an undeveloped parcel of property belonging to the Gragg family and skirts close by a residence sitting back from the existing Mission Road.
Car lot owner Donald Smith wasn't exactly pleased with the news that he'd have to move his business by August 2003, but listened patiently as a DOT engineer explained the property appraisal and right-of-way acquisition process to him.
Smith said he's owned the property for three years and has operated his business on it for two. He said he plans on staying in the used car business and moving to another location.
Harold Gragg said he wishes the DOT would have given him formal notice before Monday's meeting that Mission Road was being routed across his mother's property.
Aubrey Champion said Cajah's Mountain Road is too winding to ever be safe. He said new four-lane road needs be constructed from Baton to U.S. 321 in Sawmills and shared his ideas with DOT engineers.
Project plans also call for curb and gutter and sidewalk to be constructed along the east side of U.S. 321-A from Sawmills School Road to the new intersection. U.S. 321-A will be also be resurfaced and widened by two feet on the east side in areas where sidewalk is to be provided.
Sidewalk will be constructed along the north side of Mission Road from the new intersection to Baird Drive. Curb and gutter will be constructed along both sides of Mission Road from the new intersection to Baird Drive and from the new intersection on Cajah's Mountain Road to the Mount Zion Baptist Church parking.
The are six residential lots on Mission Road that the DOT will have to acquired the right-of-way for the curb and gutter and sidewalk proposed there.
The estimated cost of the project is $2.6 million, with $2 million earmarked for construction costs and $600,000 for right-of-way acquisition.
"The planning and design for the proposed project is underway. The current scheduled calls for the right-of-way acquisition to be in April 2002. The schedule also calls for construction to begin in August 2003. These schedules are subject to change depending on the availability of sufficient highway funds," stated Jeremiah.
Jeremiah said the purpose for the road realignment is safety. There were 73 accidents in the project area from January 1998 to December 2000, he stated. The accident rate there is about double the state average on similar-type roads.
"The majority of the collisions occurring on Mission Road and Cajah's Mountain Road are located at the intersections of with U.S. 321-A. The proposed improvement to intersections of U.S. 321-A with Mission Road and Cajah's Mountain Road should improve the safety along the roadways by reducing the number of intersections and turning movements for through traffic traveling from Mission Road to Cajah's Mountain Road or vice versus," stated Jeremiah.
To receive additional information or to comment on the project, Jeremiah can be reached by phone at (919) 773-7844 ext. 207 or fax at (919) 733-9794 or e-mail at djeremiah@dot.state.nc.us. Mail to Jeremiah should be sent to the Project Development and Environmental Analysis Branch, North Carolina Department of Transportation, 1588 Mail Service Center, Raleigh, N.C. 27699-1584.
N.C. Board of Transportation Member Sam Erby Jr. was also present at Monday's meeting. He can be reached for comment by phone at (336) 667-9711 or fax at (336) 667-4549. His mailing address is P.O. Box 250, N. Wilkesboro, N.C. 28659.

Local News

Thoroughfare plan approved by towns

By DAVE CRUZ, News-Topic Staff Writer

Posted: Friday, January 25, 2002

LENOIR - In a mass public hearing held in Lenoir Thursday night and attended by elected officials with the Caldwell County Board of Commissioners, Lenoir City Council the Cajah's Mountain Board of Alderman and town councils of Sawmills, Gamewell, Granite Falls, Hudson and Rhodhiss, the Caldwell County Thoroughfare Plan was approved unanimously by the governments with a quorum.

The governments of Lenoir and Rhodhiss were unable to produce a quorum and will have to hold public hearings on the matter at later dates. No representatives from Cedar Rock participated in the meeting.

It was announced that Lenoir City Council will hold a public hearing on the Thoroughfare Plan at its Feb. 5 meeting.

The mass hearing was the last step in approving the plan for funding consideration by the state. Highway Commissioner Sam Erby of Granite Falls was in attendance at the gathering and said that the N.C. Department of Transportation (NCDOT) has a budget of $65 billion to spend on transportation improvement.

"I want to make sure we get our fair share," Erby said.

The gathering voted the six-laning of U.S. 321 from Smith's Crossroad to the Catawba River as its top priority project.

Although the project is currently unfunded, Erby said funding for advanced planning of the project and the single-point diamond interchange at Smith's Crossroad was approved, which will result in the project being completed three to four years sooner. Erby said the NCDOT also holds much of the right-of-way in the northbound lanes for the U.S. 321 project.

Concerning the four-laning of U.S. 64/N.C. 18 from Burke County to Calico Road and the five-laning of that road between Calico and Hartland Roads, Erby said the NCDOT ran into some "glitches" in acquiring the right-of-way on "historical sites."

The N.C. 64/N.C. 18 widening project is funded for an estimated cost of $32 million. Construction of that project is scheduled to start after 2008.

Thoroughfare Plan Chairman Brad Herman told the gathering the plan is the product of three and a half years of effort studying the transportation needs of Caldwell County and consulting with officials from local governments, law enforcement and emergency response agencies.

Herman said the plan takes into account current traffic and congestion problems and future problems created by the construction of schools and new residential developments.

"This plan is not etched in stone. As we move into the future, it may not be what we want," Herman said. "For now, just the plan is being approved."

Also recommended in the plan are the five-laning of Wilkesboro Avenue from Tanglewood Drive to Blue Creek Road in Lenoir, McLean Drive in Lenoir, U.S. 321-A from McLean Drive to Southwest Boulevard in Lenoir and Connelly Springs Road from Southwest Boulevard to north of Walt Arney Road in Lenoir.

The plan recommends a five-lane Connelly Springs Road connector from north of Walt Arney Road to U.S. 321 in Lenoir. It also recommends four-laning Connelly springs Road from Southwest Boulevard to the Burke County line.

Local News

Smith's Crossroads project in DOT plan

By PATRICIA TALLENT, News-Topic County Editor

Posted: Friday, March 08, 2002

LENOIR - A single-point diamond interchange at Smith's Crossroads designed to more efficiently move traffic could be completed sooner than expected, but is still probably 10 to 15 years from construction, say Lenoir officials.

The N.C. Board of Transportation last month approved adding plans for the new interchange at U.S. 64/N.C. 18/N.C. 90 and U.S. 321 (Smith's Crossroads) to the Transportation Improvement Program (TIP). The TIP is the N.C. Department of Transportation's (DOT) seven-year plan for statewide transportation projects.

"It's very good news for Lenoir and Caldwell County," said Lenoir Mayor David Barlow. "We are pleased that something positive has happened and the DOT will provide some funds for preliminary funding for the intersection. However, we want to make it clear, especially to the businesses affected that the new interchange is probably still 10 to 15 years away. Of course, we (Lenoir officials) feel it is needed now. The Smith's Crossroads is the worse intersection in the county and maybe in the state, especially at certain times of the day. At least this is a step forward to getting it constructed."

"This future project is essential in improving traffic flow through the city of Lenoir and Caldwell County," N.C. Board of Transportation member Sam Erby of Granite Falls said in a news release. "The support from citizens and officials in Caldwell County and in the city of Lenoir made this project possible."

The first stage toward construction of the new interchange at Smith's Crossroads "is to begin planning and environmental studies on this future project," Erby said.

Although the project is included for planning, the state plan is reviewed periodically. Projects on the plan can be moved up or delayed depending on available revenue. Items in the plan compete with projects throughout the state for funds. "Lenoir and Caldwell County officials will have to continue to lobby for the project to be funded," Barlow said.

The proposed single-point diamond interchange would carry local travelers above through-traffic. Lenoir officials at first were reluctant to support the project because a number of businesses will have to relocate. However, city officials endorsed the project after viewing a computer simulation developed by DOT of projected future traffic at the intersection. DOT officials said the interchange "could be the only solution to congestion and eventual gridlock at Smith's Crossroads."

Businesses to the south on U.S. 321 would not be impacted much by the interchange, but businesses to the north would be impacted significantly. The Lenoir Golf Club would not be impacted, DOT officials have said.

The sample interchange would eliminate the fast food restaurants, First Citizens Bank, Eckerd Drugs, the Japanese restaurant, and Fast Stop Gas Station. Exactly what businesses would be eliminated would depend on the actual road design, DOT officials have said.

N.C. Department of Transport-ation staff member Kurt Freitag, who worked on the proposal, said affected businesses will be compensated and can relocate. Freitag said a traffic signal "only works to a certain point and then it can't handle the traffic."

The diamond interchange at Smith's Crossroads was included in the Caldwell County Thoroughfare Plan developed by DOT staff in Raleigh. Lenoir, Caldwell County and other municipalities have approved the thoroughfare plan.

Freitag told Lenoir officials when the proposal was unveiled that it would take years to get the interchange constructed. It usually takes 20 to 25 years to get a project built, but the project could be built in 10 to 15 years if it received federal Highway Trust Funds as an interstate thoroughfare, he said. "With traffic projected at over 50,000 vehicles in a 24-hour period it is warranted," Freitag said.

At this meeting, Lenoir officials expressed concern that construction of the diamond interchange would not occur before Smith Crossroads experiences severe traffic congestion. Freitag acknowledged that might be true. However, he said Erby obtained money in the interim to extend the northbound right turn lane on U.S. 321."

The single-point diamond interchange is a relatively new concept in North Carolina. It has been used in a couple of places in Charlotte and in Raleigh on the outer loop. The interchange requires less right of way than the conventional interchange.

The proposed single-point diamond interchange would consist of bridging Harper Avenue and U.S. 64/N.C. 18 over U.S. 321. The bridge would be in the form of a bow tie with ramps of 1,200 to 1,500 feet. The bridge would have a single traffic signal intersection in the center. All left turns would be together. Harper Avenue would be realigned with Morganton Boulevard. Proposed service roads would connect businesses along U.S. 321. Pennton Avenue would be cut off from access to U.S. 321 because of the ramps.

A DOT computer simulation of traffic at Smith's Crossroads on a day in 1999 at a peak hour showed vehicles backing up Hill Haven. DOT officials also did a computer simulation of a conservative estimate of increased traffic expected on the intersection in 2025. The simulation took into account the use of the planned McLean Drive Extension as a cut-through to avoid Smith's Crossroads.

The computer simulation showed traffic at the intersection backed up north on U.S. 321 for a mile to McLean Drive. Traffic on the south side of U.S. 321 was backed up for almost a mile. Freitag said a person would have to wait possibly up to six or seven light changes to get through the intersection.

The proposed single-point diamond interchange would have 1,200-foot long ramps. There would be no stopping on U.S. 321 which would run under a bridge.

A computer simulation of the estimated increased traffic with a single-point diamond interchange at Smith's Crossroads showed no traffic backing up.

A single-point diamond interchange has ramps placed close together. DOT officials say this design allows one traffic signal to control all crossing movements, and enables concurrent opposing left turns, which increases the capacity of the interchange. Planned enhancements would include pedestrian and bikeways connecting to Lenoir's planned greenway. DOT officials have said the interchange would be expensive, but have no cost estimates at this time.

Local News

Initial steps to be taken on U.S. 321 widening

By PATRICIA TALLENT, News-Topic County Editor

Posted: Saturday, May 11, 2002

LENOIR - Planning and environmental studies on widening U.S. 321 to six lanes from Hickory to Lenoir are expected to begin early next year, say N.C. Department of Transportation (DOT) officials.

The N.C. Board of Transportation approved funding for the studies at a meeting in Raleigh last week.

"Performing these studies now, could help this project move to a faster completion," said Sam Erby, Caldwell County's representative on the Board of Transportation. "This project is expected to help with traffic on a road that has more than 40,000 commuters per day in some locations."

Widening U.S. 321 South is the number one priority on the county Thoroughfare plan. U.S. 321 South has been an unfunded project on the DOT's long-range Transportation Improvement Program (TIP). Erby told county officials during a meeting earlier this year that even if the DOT started widening U.S. 321 today it would take at least seven years to complete.

Today the current average daily travel count along U.S. 321 South varies from 28,000 to 40,900 vehicles per day. By 2025, DOT officials estimate traffic volumes will range between 46,600 and 66,500 vehicles per day. Truck traffic is estimated to make up between 7 and 9 percent of the daily traffic.

Funding for the planning and environmental study is part of $15 million included in special provisions in the budget bill passed by the General Assembly last fall. The project will extend over 22 miles of U.S. 321. The studies are expected to cost more than $950,000.

DOT officials said in a feasibility study that they have screened the area for environmental and historic concerns. "Impacts to threatened or endangered species are not anticipated in the project area," the study says. "In addition, no historic properties are anticipated along this project."

The feasibility study says wetland permits and wetland mitigation costs may be incurred due to the potential for construction in the area of the Catawba River. Estimates in the feasibility study do not include any money for wetland mitigation.

The DOT feasibility study recommends widening U.S. 321 South to six lanes because it would be less expensive than making U.S. 321 a limited access freeway with a parallel service roads.

It would cost an estimated $327 to $360 million to make U.S. 321 South a controlled access highway with service roads. An estimated 290 residences and 197 businesses would be displaced.

The cost of widening the existing U.S. 321 to six lanes from U.S. 70 in Hickory north to Southwest Boulevard south of Lenoir is estimated at $109.9 million. It would displace only 28 residences and 23 businesses.

"While converting U.S. 321 into a freeway is considered the best alternative from a traffic safety and operational perspective, it comes at a significant cost in both construction and right of way," the study said. "A simple widening of U.S. 321 with sufficient intersection improvements should provide an acceptable (DOS) Design Level of Service in the 2025 design year, and significantly reduces the construction cost and anticipated right of way impacts."

The existing median would be retained and the substandard Falls Avenue interchange would be reconstructed as recommended.

"Most of the structures along this facility will either need replacement or widening in order to accommodate the proposed improvements," the report said.

The DOT estimates that to widen U.S. 321 to six lanes would cost a total of $109,900,000, which includes $14,800,000 for right of way acquisition and $95,100,000 for construction.

Some Caldwell County officials have said in those meetings they prefer U.S. 321 South t: be a limited access freeway with parallel service roads. They have said widening the existing U.S. 321 South to six lanes will compound traffic congestion problems on the highway. DOT staff in the meetings encouraged county officials to limit driveway access on U.S. 321 as a method to limit access on the highway.

The study says the Congestion Management Section of the Traffic Engineering and Safety Systems Branch has requested $8,455,490 in Intelligent Transportation System Devices for the project. The feasibility study does not include the devices in the project and provides no cost estimate for the devices. The study recommends the devices be evaluated in later planning and design stages.

DOT officials have said the U.S. 321 South project like U.S. 321 North will be done in three sections. The first section to be constructed would be from Catawba County to Granite Falls. The second section will be from Granite Falls to the Loop and the third section will be from the Loop to the end of the highway.

May 8, 2002

Release No: 229

Transportation Board Approves Funds for U.S. 321 Studies in Caldwell, Catawba and Burke Counties

Raleigh — The N.C. Board of Transportation approved funding for planning and environmental studies to begin early next year on U.S. 321 from Hickory to Lenoir at its meeting last week in Raleigh.

Funding for the studies is part of the $15 million included in the special provisions in the budget bill passed by the General Assemble last fall. The studies are expected to begin early next year. The project will extend over 22 miles of U.S. 321. The studies are expected to cost more than $950,000.

"Performing these studies now, could help this project move to a faster completion," said Sam Erby, who represents Caldwell County on the Board of Transportation. "This project is expected to help with traffic on a road that has more than 40,000 commuters per day in some locations."

NCDOT

For other transportation questions, call the department's Customer Service Office toll free at:

1-877-DOT-4YOU

Local News

2-way traffic switch to take more time, money

By PATRICIA TALLENT, News-Topic County Editor

Posted: Saturday, June 29, 2002

LENOIR - Do not look for one-way streets in downtown Lenoir to be changed to two-way any time soon.

N.C. Department of Transportation (DOT) officials in a recent letter to Lenoir officials said a metal pole that needs to be replaced will add $9,075 to the cost of the project and six to seven months. DOT officials previously estimated Lenoir's share of the project at $47,750, which is included in the city's budget for next year.

"We have concerns about the strength of the metal pole and mast arm and whether they were designed to hold two signal heads," DOT Division 11 Engineer R.C. McCann said in a letter to Lenoir officials. "It was found during an inspection that the metal pole in question has been damaged, apparently due to an automobile accident and will need to be replaced."

City officials will have to decide whether to replace the metal pole or use a wood pole and spanwire as part of the signal revisions, McCann said. The metal pole would cost an estimated $9,075. A wood pole with spanwire would cost an additional $890.

Lenoir officials have been working with the DOT on the project for more than two years. The change is part of Lenoir's downtown revitalization efforts. City officials say the change will make it easier for motorists to get around in the downtown.

Two years ago DOT officials indicated support for the conversion of Main Street and Mulberry Street to two-way streets. DOT officials last year said the two approved streets would be changed to two-way traffic this spring. Part of the delay has been to change and redesignate some routes.

Although Lenoir officials are not happy with the delay, it probably will coincide with the completion by a private consultant of a feasibility study on converting West Avenue and Harper Avenue from one-way to two-way streets, Lenoir City Manager Jim Hipp told the Lenoir City Council Thursday during a Committee of the Whole meeting. The city may be able to do both projects at the same time.

In other business, Hipp reported that the Local Government Commission in Raleigh has approved Lenoir's financing of phase one water and sewer improvements and the McLean Drive Extension. All right of way issues for the road projects have been resolved and the contractor can begin the project after it receives approval from the N.C. Board of Transportation, Hipp said. The board is expected to consider the matter on July 11.

"The contractor should be able to begin construction by Aug. 1," Hipp said. "The contractor has one year to complete the project."

The council in June approved the low bid of $2 million from Huffman Grading for construction of the McLean Drive Extension. The Council in May selected BB&T to finance construction of the McLean Drive Extension. The local share of the McLean Drive project is $1.2 million financed over 10 years at 4.69 percent interest. Caldwell County and Lenoir will pay $613,400 each to fund the local share with annual interest of $325,000.

In other business, Hipp said a local bill may be needed to help city employees resolve a problem involving the Local Government Retirement System. Some retired city employees have received an exemption on their state income tax for their retirement money, while others have not.

The city asked for a ruling from the retirement system and was informed that Lenoir retirees who did not have vested service prior to 1989 are subject to being taxed, Hipp said. Retirement system officials have no plans to back collect for any taxes, he said.

The problem occurred as a result of Lenoir having a private retirement system and then

Local News

Six-laning of U.S. 321 a top priority

By PATRICIA TALLENT, News-Topic County Editor

Posted: Friday, October 19, 2001

LENOIR - Six-laning U.S. 321 North is the top transportation priority of the newly formed Caldwell County Intermodal Transportation committee.

Improving U.S. 321 North was one of the projects Caldwell County officials asked the N.C. Department of Transportation (DOT) at a meeting in Boone on Thursday to include on its Transportation Improvement Program (TIP). The TIP is the department's seven-year transportation plan. The DOT plans to release its draft 2004-2010 TIP in the summer of 2002.

Caldwell officials are seeking funds from the DOT to six-lane U.S. 321 from U.S. 70 in Catawba County to north of Lenoir in Caldwell County.

They also are asking that the DOT on U.S. 321 South from Smith Crossroads to the Catawba River remove cut-throughs that are closer than one-fourth mile or do not have deceleration lanes.

Caldwell officials also support continuing U.S. 321 North from its present four-lane through Blowing Rock to the four-lane section north of Blowing Rock.

Caldwell officials also hope to restrict driveway access and new driveways on U.S. 321 where possible through zoning and enforcement by cities and Caldwell County.

The committee's second priority is asking the DOT to move up widening of the Connelly Springs to construction before 2008.

The third priority is a request that the DOT do a feasibility study on continuing the Southwest Boulevard at U.S. 321 South of Hibriten Mountain to U.S. 64-N.C. 90 near the Oak Hill community to N.C. 18 - two miles east of the village of Cedar Rock.

A new project for county officials is the fourth priority. Caldwell officials are asking the DOT to do a study to determine the feasibility of a new road using a portion of the old Poovey's Grove Road and a new road, using city of Hickory property north of MDI, to create a new connection between U.S. 321 at the MDI traffic signal to Grace Chapel Road.

The committee's fifth priority project is continuing the mini loop using existing roads to connect U.S. 64 - N.C. 18 West. This project would consist of:

- Improving Pleasant Hill Road to a "high-traffic" two-lane facility by widening and straightening curves, to a new intersection with Orchard Drive.
- Widening and improving the road bed and aligning the intersection of Orchard Drive with Crump Road, at Clark's Chapel road.
- Widening and improving the road bed and aligning the intersection of Crump Road and Rocky Road at Miller Hill Road.
- Mt. Herman Road - construct a new road on existing and new roadbed, beginning at Pleasant Hill Road, intersection S.R. 1160 near U.S. 321 South.

It also would include construction of a road to connect U.S. 321 at Pinewood in Granite Falls to U.S. 64-N.C. 18 at Calico Road on new and existing roadbed (possible route - Dry Ponds Road, Goat Farm Road).

The committee's sixth priority is construction of a road using existing and new roadbed connecting Grace Chapel Road to Icard Dam Bridge and continuing to N.C. 127 in Alexander County. This project also is in the Hickory Metropolitan Planning Organization's plan.

The seventh priority is improving U.S. 321A from Lenoir through Granite Falls to improve safety and traffic flow. Center turn lanes would be constructed where feasible and street lighting installed at major intersections.

The committee also is requesting special funds from the DOT for the following projects:

- Landscaping at interchanges in municipalities, where appropriate.
- To establish a policy to provide funds and labor to help stabilize and make safer rail crossings in conjunction with North

Local News

County officials want access limited to U.S. 321

By PATRICIA TALLENT, News-Topic County Editor

Posted: Friday, November 23, 2001

LENOIR - A zoning overlay district on U.S. 321 South between Lenoir and Hickory would help limit driveways and strip mall development, said Brad Herman, chairman of Caldwell County's new Intermodal Transportation Committee.

The committee is asking local governments with jurisdiction along the highway to ask the Western Piedmont Council of Governments (WPCOG) to recommend a zoning overlay zone for U.S. 321 South. The WPCOG has already completed a study on the highway.

Caldwell County local government officials had asked the DOT to consider constructing a parallel limited access road. However, a N.C. Department of Transportation (DOT) feasibility study recommends widening U.S. 321 South to six lanes because it would be less expensive than making U.S. 321 a limited access freeway with parallel service roads.

It would cost an estimated $327 to $360 million to make U.S. 321 South a controlled access highway with service roads. An estimated 290 residences and 197 businesses would be displaced.

The cost of widening the existing U.S. 321 to six lanes from U.S. 70 in Hickory north to Southwest Boulevard (the Loop) south of Lenoir would be an estimated $109.9 million. It would displace only 28 residences and 23 businesses.

"While converting U.S. 321 into a freeway is considered the best alternative from a traffic safety and operational perspective, it comes at a significant cost in both construction and right of way," the study said. "A simple widening of U.S. 321 with sufficient intersection improvements should provide an acceptable (DOS) Design Level of Service in the 2025 design year, and significantly reduces the construction cost and anticipated right of way impacts."

The existing median would be retained and the substandard Falls Avenue interchange would be reconstructed as recommended.

"Most of the structures along this facility will either need replacement or widening in order to accommodate the proposed improvements," the report said.

The DOT estimates that to widen U.S. 321 to six lanes would cost a total of $109,900,000, which includes $14.8 million for right of way acquisition and $95.1 million for construction. Even if the project began today it would still be at least seven years to complete, say DOT officials.

The results are no surprise to Caldwell County officials who were told by DOT staff and officials what the study said during meetings on the proposed Caldwell County Thoroughfare Plan.

Some Caldwell County officials have said in those meetings they prefer U.S. 321 South to be a limited access freeway with parallel service roads. They have said widening the existing U.S. 321 South to six lanes will compound traffic congestion problems on the highway. DOT staff in the meetings encouraged county officials to limit driveway access on U.S. 321 as a method to limit access onto the highway.

The study says the Congestion Management Section of the Traffic Engineering and Safety Systems Branch has requested $8,455,490 in Intelligent Transportation System Devices for the project. The feasibility study does not include the devices in the project and provides no cost estimate for the devices. The study recommends the devices be evaluated in later planning and design stages.

DOT officials have said the U.S. 321 South project like U.S. 321 North will be done in three sections. The first section to be constructed would be from Catawba County to Granite Falls. The second section will be from Granite Falls to the Loop and the third section will be from the Loop to the end of the highway.

U.S. 321 South currently is an unfunded project on the DOT's long-range Transportation Improvement Program (TIP). The next step for local officials will be to lobby the DOT to fund the project. Even though projects are included in the long-range DOT Transportation Improvement Program (TIP) nothing happens until the projects are funded.

Widening U.S. 321 South is the number one priority in Caldwell County's recently completed Thoroughfare plan. The long-range transportation plan is being endorsed by Caldwell County and municipal officials.

Today the current average daily travel count along U.S. 321 South varies from 28,000 to 40,900 vehicles per day. By 2025, DOT officials estimate traffic volumes will range between 46,600 and 66,500 vehicles per day. Truck traffic is estimated to make up between 7 and 9 percent of the daily traffic.

A detailed environmental study of widening U.S. 321 to six lanes has not been conducted. However, DOT officials have screened the area for environmental and historic concerns. "Impacts to threatened or endangered species are not anticipated in the project area," the study says. "In addition, no historic properties are anticipated along this project."

The study says wetland permits and wetland mitigation costs may be incurred due to the potential for construction in the area of the Catawba River. Estimates in the study do not include any money for wetland mitigation.

Editorials

Limiting access on U.S. 321

By RICHARD TUTTELL, News-Topic Executive Editor

Posted: Friday, November 30, 2001

In an ideal situation, major highways would be designed to include frontage roads and limited access points.

Why would you want to limit access to a highway? Safety and efficiency are two of the best reasons.

Traffic flows best on a highway when it is not mixed in with short trips. When vehicles are entering and leaving the road every few hundred feet, because every business along the highway has one or more driveways, the capacity of the road to carry traffic is reduced and accidents are more likely to occur.

Frontage, or service roads, run parallel to the highway, providing access to the businesses and funneling traffic needed to enter or exit the highways into a limited number of intersections that can be controlled by stop lights.

That's the ideal, but what happens when existing highways like U.S. 321 that do not have frontage roads are reaching their capacity?

That is the question officials in Caldwell County have to deal with now. And the answer is that there's no quick or cheap solution.

Caldwell County local government officials have asked the N.C. Department of Transportation (DOT) to consider constructing a parallel limited access road. However, a DOT feasibility study recommends widening U.S. 321 South to six lanes because it would be less expensive than making U.S. 321 a limited access freeway with a parallel service roads.

The cost is estimated at $327 to $360 million to make U.S. 321 South a controlled access highway with service roads. An estimated 290 residences and 197 businesses would be displaced.

The cost of widening the existing U.S. 321 to six lanes from U.S. 70 in Hickory north to Southwest Boulevard (the Loop) south of Lenoir would be an estimated $109.9 million. It would still displace 28 residences and 23 businesses. Of that $109.9 million, $14.8 million would be needed just for right of way acquisition.

Even if the project was funded and work began today it would still be at least seven years to complete, say DOT officials. And while the project is in the DOT's long-range Transportation Improvement Program, it is not funded, so nothing will happen until money is allocated.

One stopgap option that has been suggested is a zoning overlay district on U.S. 321 South between Lenoir and Hickory that would help limit future driveways and strip mall development. Caldwell County's new Intermodal Transportation Committee has suggested the zoning as a way to encourage local governments to restrict highway access when approving development plans.

That would provide an immediate and cost-effective way to keep from compounding the problem, but it won't help prevent a bad situation from getting worse. Only time and a whole lot of money will provide for a permanent solution.

Local News

Councilmen to attend DOT road hearing; join caucus

By DAVE CRUZ, News-Topic Staff Writer

Posted: Wednesday, January 16, 2002

GAMEWELL - The members of the Gamewell Town Council, at Monday night's meeting, voted to participate in a county program and a regional political action committee they hope will also benefit their constituents.

Regarding Caldwell County's Thoroughfare Plan, the council voted to participate in a collective meeting and public hearing that the Caldwell County Board of Commissioners and seven municipal governments will hold on Thursday, Jan. 26, at 6:30 p.m. in the County/City Chambers in Lenoir.

The public hearing is required by the N.C. Department of Transportation (NCDOT) in order to fund the road improvement projects outlined in the Thoroughfare Plan.

The council also voted to join the Western North Carolina Local Government Caucus.

In a letter to the council, Haywood County Manager C. Jack Horton stated that the regional caucus would be comprised of 26 western North Carolina counties and the 96 municipalities contained within.

Horton stated that two representatives from each county, one representing the county government and another one representing the municipalities in that county, need to be selected by the governments in those 26 counties. The caucus will be comprised of 52 delegates in all.

"Our region of 26 counties and 96 municipalities can have a voice in state policy and funding of needed projects from both federal and state sources," Horton stated, explaining the need for the caucus.

"We feel that by joining forces and supporting each other we can be successful."

Regarding the council's and Town Attorney Bruce Cannon's ongoing struggle to obtain the easements for Phase II of the town's sewer expansion project, Mayor Jack Roberts said Cannon was in midst of securing the last easement through a condemnation agreement.

Roberts said he anticipated that council will be able to advertise for construction bids on the estimated $1.2 million project in February and to award the contract the following month.

The proposed project will make sewer available to households and businesses bordered by Rocky Road, Calico Road, Hartland Road and U.S. 64/N.C. 18.

Snags in securing all the easements for the project have so far resulted in a seven-month delay in starting the construction phase of the project.

In other business, Roberts authorized Town Administrator Betty Blankenship to notify the N.C. Department of Transportation (NCDOT) about dangerous road conditions in the town.

Councilman Johnny Lefever told the council that water builds up on an area of U.S. 64/N.C. 18 that was recently re-paved. He said the standing water causing cars to hydroplane and for drivers to lose control of their vehicles.

Councilman Hunter "Pedro" Crump said many of the town's drivers have complained of trouble seeing the stop sign on Rocky Road at the Miller Hill Road intersection. He stated that advance notice of the stop sign is needed.

In other business, the council re-elected Crump to serve as the mayor pro-tem.

Roberts also used Monday's meeting to announce his committee selections. The Finance Committee is comprised of Councilman Dennis Mackie, chairman, and Crump. Councilman Robert "Buck" Herman, chairman, and Mackie are the Streets and Highways Committee.

Councilman Cecil Triplett and Lefever comprise the Parks and Recreation Committee. Mackie, chairman, and Crump oversee Zoning and Land Use. Lefever and Roberts are on the West Caldwell High School Committee. Herman and Triplett will represent the council in dealings with Gamewell Elementary School and Crump and Mackie will do the same with Gamewell Middle School.

The Charlotte Observer — Catawba

Posted on Wed, Apr. 16, 2003 — The Charlotte Observer

Preparing for busier U.S. 321

Caldwell sees widening `boom' in 10 years

GREG LACOUR
Staff Writer

The state is a decade or more from widening U.S. 321 from four lanes to six through Caldwell County. But planners for the county and the cities and towns lining the highway already are thinking about ways they can prepare for the surge in development the widening is expected to bring.

One way, which they'll discuss during a meeting Thursday in Hudson: a district that would impose uniform zoning restrictions along the highway, whether in Hudson, Sawmills, Granite Falls, Lenoir or the unincorporated county.

Each government has jurisdiction over part of a roughly 12-mile stretch of 321, from the Catawba River bridge to Smith's Crossroads -- where 321 meets U.S. 64/N.C. 18 -- in Lenoir. Each has its own zoning ordinance that governs land use issues such as signs, landscaping and the distances buildings have to be from roads.

Many of the particulars are the same. But there are small differences, and developers have told county officials and the county Economic Development Commission that it's hard to keep up with the ordinances.

Sawmills, for example, doesn't allow new billboards more than 20 feet tall or with a total area of more than 480 square feet, about the size of the floor of a two-car garage. Granite Falls, just down the road, has limits at 30 feet in height and 300 square feet in area.

Uniform regulations for the whole 321 corridor -- essentially, a half-mile on either side of the road -- would simplify matters, especially when the N.C. Department of Transportation widens the highway, said Janet Winkler, the EDC chairman.

4-21-03

Planners hear case for common zoning along 321

By PATRICIA TALLENT, News-Topic County Editor

HUDSON - Unattractive stacked signs and vehicles being used for advertisements are among the unsightly sights on U.S. 321 that Caldwell County and municipal planners hope to prohibit when future development occurs along the major highway.

Elected officials and managers from Caldwell County, Lenoir, Sawmills, Hudson and Granite Falls met at the Hudson Uptown Building (HUB) on Thursday to seek support for the development of uniform land use zoning along U.S. 321 from Lenoir to Hickory. Also attending the meeting were representatives from the Caldwell County Economic Development Commission, Caldwell County Chamber of Commerce and Hickory.

The widening of U.S. 321 from Lenoir to Hickory to six lanes is probably at least a decade away, but local officials feel it's important now to look at uniform zoning for the highway.

The meeting was led by Greg Pilkenton, a Lenoir Planning Board member for 15 years and a Caldwell County Planning Board member for five years.

Five local governments in Caldwell County currently have zoning jurisdiction along the 12-mile stretch of U.S. 321 from the Catawba River bridge to Smith's Crossroads, Pilkenton said. The local governments have individual zoning ordinances that govern land use, including signs, landscaping and building setbacks.

Different people have different views about U.S. 321, Pilkenton said. Caldwell residents are concerned about the quickest mode of travel and avoiding traffic signals, he said. "They want it to be like U.S. 321 from Interstate 40 to Gastonia, which has no traffic lights," he said. "They also want places to shop and to eat and places of entertainment."

Visitors want to stop at the furniture outlet stores on U.S. 321 or are traveling the highway to tourist spots like Wilson Creek and Green Mountain Park or passing through on their way to Blowing Rock or Boone, Pilkenton said. "The first thing they see here in Caldwell County is U.S. 321," he said. "It's the main channel."

Elected local government officials think about commercial opportunities on U.S. 321, Pilkenton said. Development increases the county's tax base and provides residents with places to shop and creates jobs, he said.

Developers want unified zoning along U.S. 321, Pilkenton said. "They want the same zoning and setbacks along the highway," he said. "They are not concerned about crossing lines."

County and municipal planners soon will be meeting with Western Piedmont Council of Governments (WPCOG) staff members to begin developing proposed uniform zoning for U.S. 321 from Lenoir to Hickory. Discussions will center on landscaping, buffer requirements for property owners, sign and billboard standards and standards for driveways and other entrances. The group hopes to be able to develop a uniform zoning ordinance for U.S. 321 over the next year to 18 months.

One of the primary concerns in the future is to limit the number of accesses on U.S. 321, Pilkenton said. "Now from Valmead to the river bridge in Hickory there are 397 driveways," he said. "We have 100-foot lots with two access cuts."

To limit the number of driveways on U.S. 321, planners will be looking at access roads - a single point collector road that provides access for a number of businesses, Pilkenton said. U.S. 321 currently has 58 streets and 37 median cuts, he said.

U.S. 321 from Lenoir to Hickory has nine traffic signals, Pilkenton said. "I remember when there were no traffic signals from Smith Crossroads to the bridge in Hickory," he said. "Now it takes double the amount of time to travel from Lenoir to the bridge."

Planners also will consider mixed use development including commercial, industrial and residential development along U.S. 321, Pilkenton said. They will be looking at uniform regulations for signs, including billboards, free standing signs and signs on buildings. Uniform development standards also will be developed for parking lots, lighting and buffers.

Transitional zones are areas of U.S. 321 that are changing from residential to commercial. In those areas, planners will be looking at transitional zoning, such as residential houses being used for professional offices, Pilkenton said.

Developing uniform standards will require "the formation of a partnership of all the municipalities on U.S. 321 from Lenoir to the river bridge in Hickory," Pilkenton said. "The only way it can be done is through mutual agreements. We have talked about it enough; now it's time to do something."

Pilkenton gave a slide presentation of undesirable development along U.S. 321 and desirable development. Examples of desirable development include new developments like Lowe's Home Improvements in Lenoir, Ruby Tuesday in Lenoir, Burger King and Arby's in Hudson and the furniture outlet being built in Granite Falls. The developments have attractive landscaping and lighting, he said.

"These are desirable developments they add to the tax base, give residents and tourists places to eat and shop, and provide employment," Pilkenton said.

Lenoir now has new development standards for landscaping, lighting, parking and other items. Billboards now are required to be on metal monopoles and are no longer allowed to be stacked. "The city controls parking, lighting and hours of operation in new planned developments," Pilkenton said.

Also located on U.S. 321 is Merchants Distributors Inc. (MDI) - the second largest taxpayer in Caldwell County, Pilkenton said. NEPTCO also is located on U.S. 321. "We need more industrial development along U.S. 321," Pilkenton said. "It adds to the tax base and provides jobs."

Not all development along U.S. 321 contributes to the county's tax base, Pilkenton said. The Civic Center, Caldwell Community College and Technical Institute, the Broyhill Walking Park and the half a dozen churches on U.S. 321 are tax-exempt, he said. "That's valuable property that provides no tax benefit," Pilkenton said.

Manufactured home sale lots on U.S. 321 also are not attractive and do not contribute greatly to the tax base, Pilkenton said. "On U.S. 321 from the bridge to Lenoir for a good distance you would think all Caldwell County is about is mobile home sales," he said. "We have lots on 10 acre tracts. The homes displayed do not raise the value of the property."

5-13-03

Uniform zoning along 321

By RICHARD TUTTELL, News-Topic Executive Editor

Caldwell County's economic efforts were featured in a statewide Associated Press article last week, which noted that "Instead of complaining and pointing fingers, leaders from the county, the city of Lenoir and smaller communities like Hudson and Sawmills and Granite Falls forged a remarkable kinship. The group's goal is to restore prosperity ..."

The cooperative spirit was in evidence Thursday when elected officials and managers from Caldwell County, Lenoir, Sawmills, Hudson and Granite Falls met on uniform land use zoning along U.S. 321 from Lenoir to Hickory. Also attending the meeting were representatives from the Caldwell County Economic Commission, Caldwell County Chamber of Commerce and Hickory.

Five local governments in Caldwell County have zoning jurisdiction along the 12-mile stretch of U.S. 321 from the Catawba River bridge to Smith's Crossroads. Those local governments have individual zoning ordinances that govern and use, including signs, landscaping and building setbacks.

Officials would like to see commercial development along the county's major highway, and developers would like to see unified zoning along U.S. 321 so they don't have to deal with different regulations every few miles.

County and municipal planners will be meeting with staff from the Western Piedmont Council of Governments to discuss landscaping, buffer requirements for property owners, sign and billboard standards and standards for driveways and other entrances. The group hopes to be able to develop a uniform zoning ordinance for U.S. 321 over the next year to 18 months.

Considering that local officials have been unable to agree to uniform zoning standards for the entire county in past years, that time frame may be a tad optimistic. But then again, our local officials seem more inclined these days to work together, even if it means compromising.

Developing uniform standards will require "the formation of a partnership of all the municipalities on U.S. 321 from Lenoir to the bridge in Hickory," said Greg Pilkenton, who has served on both the Lenoir and Caldwell County planning boards. "The only way it can be done is through mutual agreements. We have talked about it enough; now it's time to do something."

Not just any type of highway development will do. Examples of desirable development cited at Thursday's meeting included the new Lowe's Home Improvements in Lenoir, Ruby Tuesday in Lenoir, Burger King and Arby's in Hudson and the furniture outlet being built in Granite Falls. The developments have attractive landscaping and lighting.

That's the type of thing everyone should want to see along Caldwell County's primary thoroughfare, and uniform zoning is one way to get it.

6-5-03

Closing U.S. 321 crossovers

By RICHARD TUTTELL, News-Topic Executive Editor

Anyone who drives between the Catawba River bridge and Smith's Crossroads in Lenoir on U.S. Highway 321 on a regular basis knows it takes far longer to go that distance than it should.

A big part of the reason may be the 43 intersections that lie within that stretch of road. Each one of them holds the potential to slow the flow of traffic because each one gives drivers the opportunity to enter or leave the highway.

Eight of those intersections are equipped with traffic lights that bring all traffic to a halt at various times.

The N.C. Department of Transportation (DOT) has come up with the idea of closing a dozen of those intersections, the ones that are called crossovers because they don't have traffic signals. Doing away with one-third of the unsignalized intersections, DOT believes will improve safety and traffic flow.

And those DOT officials in Raleigh who are making this proposal are probably right. The problem is they come to this conclusion several years too late.

Limiting the number of turnarounds - and the number of driveways on U.S. Highway 321 for that matter - should have been done when the road was being planned. It's very difficult to make changes now, taking way access points that drivers and businesses have become used to.

While DOT can do what it wishes with the state-owned right of way, to its credit it has asked for local input. Good thing too. Members of the Caldwell County Transportation

Committee who reviewed the proposal only support closing half of the 12 crossovers targeted by DOT. Two others would be considered by the committee only with local municipal government backing.

Bob Frye, chairman of the county committee, notes that the engineer who came up with the proposal in Raleigh has no way of knowing the impact of closing some of the crossovers. "Even the division officials concur with us that some crossovers should not be closed because they are used as truck turnarounds," Frye said.

DOT staff in Raleigh also do not know the potential economic development impact of closing some crossovers, Frye added. "Some areas along U.S. 321 are critical to the growth of the county and to provide jobs for people who don't have them now," he said.

On the other hand there are some that could reportedly be closed without disrupting anyone.

We're certainly for anything that can improve traffic flow and safety on U.S. 321, but DOT's own statistics show that most accidents on U.S. 321 occur at signalized intersections - not at the crossovers proposed to be closed. We also know that the real impact of closing these access points will not be known until the barriers go up and the complaints start rolling in.

2-13-04

Two-way streets may cost $410,000

By PATRICIA TALLENT, News-Topic County Editor

ptallent@charter.net

It may cost up to $410,000 to convert West Avenue, Mulberry Street, Main Street and Harper Avenue from one-way to two-way streets, said Lenoir City Manager Jim Hipp.

Hipp gave the new cost estimates for the conversion of the four streets to the Lenoir Economic Development Board at a meeting earlier this week.

Lenoir's consulting engineers' Carter and Burgess met with N.C. Department of Transportation (DOT) officials and have a revised cost estimate on the conversion, Hipp said.

"The elimination of a loop system has significantly reduced the cost," Hipp said. "That means that fiber optic cable will not have to be installed. The cost also has been reduced by the city not having to replace every pole. The contingency also has been reduced to 30 percent."

DOT officials have said they will not change Harper Avenue to a two-way street unless Lenoir converts West Avenue, Mulberry Street and Main Street to two-way streets.

Lenoir's cost to change West Avenue, Mulberry Street and Main Street to two-way streets is estimated at $160,000 to $200,000, Hipp said. The new proposal includes using three existing signal heads.

DOT officials have agreed to pay for the majority of the cost of converting Harper Avenue if the city agrees to take over maintenance of the road. The DOT can allocate $250,000 from the Small Urban Roads Program for the project, Hipp said.

Lenoir also would have to contribute an estimated $210,000 to pay for the cost of intersection improvements and widening turning lanes on Harper Avenue, Hipp said.

Some board members asked whether DOT officials had not earlier agreed to pay all the cost of the project if the city took over maintenance of the road. City officials always knew there would be some cost to the city, Hipp said.

"The DOT says we should pay for the intersection improvements and widening turn lanes since we are the ones who requested the change," Hipp said.

Lenoir's audit showed that Lenoir has $265,000 in a Powell Bill fund balance, Hipp said.

"Using the funds for the project is a legitimate expense," Hipp said. "That is not the type of fund balance you want to carry over. That means the city would be about $100,000 short."

Board members asked whether DOT Board member Sam Erby can get additional money for the project. Board member Lenoir City Councilman Lewis Price said Erby probably has some "discretionary money" he could use for the project.

The $250,000 in Small Urban Road funds from the DOT have to be spent or obligated for the project by June 30, Hipp said. The next step is for the city council to consider approving a municipal agreement with the DOT, he said. After an agreement is approved, changing the streets to two-way will take about 90 days, Hipp said.

Lenoir should require the DOT to resurface Harper Avenue before the city takes over maintenance of the road, Price said. Hipp said the city can ask DOT officials about resurfacing Harper Avenue.

The proposed project does not include converting Church and Boundary streets to two-way streets, Hipp said.

"The conversion of Harper Avenue, West Avenue and Main and Mulberry streets to two-way streets will be a tremendous benefit to downtown businesses," said Chuck Luddeke, a developer of the newly announced Hog Waller Marketplace. "Not changing Church Street to a two-way street would personally benefit us because we would like to

close off the street and hold outdoor festivals there."

Board member Bruce Hayes said some property owners say Mulberry Street is not wide enough to be a two-way street. DOT officials have said the street is wide enough, Hipp said.

Board member Lee Carol Giduz said officials from municipalities that have successfully revitalized downtowns say they would not have been successful without the conversion to two-way streets.

"It slows down traffic," Giduz said. "It also eliminates truck traffic through the downtown. It makes the downtown more car friendly."

The Caldwell Arts Council also received an award at the Main Street meeting held in January in Morganton for being a champion of Lenoir's Main Street efforts, said Lenoir Economic Development Director Kaye Edmisten.

Parking tickets

In other business, Lenoir Police Chief Joey Reynolds said Lenoir Police are cracking down on parking violations in the downtown. Police wrote a total of 502 parking tickets from November 2003 to January 2004, Reynolds said.

The officer writing tickets has changed his schedule and is now doing paper work at a different time of the day and writing tickets later in the day, Reynolds said. He said the officer wants to develop a brochure on parking to give to downtown merchants. City officials are trying to encourage employees of downtown businesses to use off-street parking lots so on-street parking will be available for customers.

The most tickets - a total of 171 - were given out on Main Street, Reynolds said. A total of 119 parking tickets were issued on West Avenue. The least amount of tickets - eight - were issued on Boundary Street.

The most tickets - 119 - were issued on Tuesdays and on Thursdays, Reynolds said. More tickets - 268 - were issued between 11 a.m. and noon, he said. The most tickets - 66 - were issued between 11 a.m. and noon on Tuesday.

The majority - 373 tickets - were issued for parking over the two-hour time limit. The most tickets - 117 - were issued on Mondays on Ashe Avenue.

During the period, there were a number of repeat violators. One vehicle received 17 parking tickets during the time period. A total of 13 of those tickets were received on West Avenue and five were received on Main Street.

Two vehicles received seven parking tickets each, primarily on Main street. One vehicle received six parking tickets, primarily on West Avenue. Three vehicles received five parking tickets, primarily on West Avenue, Mulberry Street and Main Street.

Lenoir Economic Development Board Chairman Joe Gibbons said the board would like for the city to look at eliminating the 19 different parking zones in the downtown.

The board also has considered asking the city to increase the fine for a parking ticket from $5 to $10, Gibbons said. However, he said state statutes prohibit municipalities from having parking tickets more than $5. Reynolds said he is checking to see if there are any additional civil penalties the department can levy for parking violations.

The board also has thought about asking that parking hours be extended, Gibbons said.

"That was when we thought the parking hours were from 9 a.m. to 4 p.m., but they are 8 a.m. to 5 p.m.," he said. "That's more than adequate."

Giduz also reported that the board's Design Committee is considering proposing new grant categories. The city currently only gives matching grants to downtown business owners for facade improvements to buildings.

Other categories could include grants for maintenance such as painting, exterior restoration and interior rehabilitation, Giduz said. Those types of grants would require more money and the committee is looking at other sources of revenues to provide the grants, she said.

Edmisten also reported that 82 citizen surveys have been received in the mail about downtown revitalization. She said some of the surveys included three and four pages typed or hand-written with ideas about the downtown.

She said 14 surveys were hand-delivered to the News-Topic, which printed the survey in the newspaper. A total of 165 surveys have been received on-line, she said.

2-25-04

Sawmills looks at 321 overlay

By EILEEN WALSH, News-Topic Staff Writer, ewalsh@newstopic.net

With the goals of increasing safety and access to Caldwell County's major highway, the draft of the U.S. Hwy. 321 Overlay District was presented to Sawmills Town Council members for their review on Tuesday night.

A final draft of the proposal is expected in about two months from the Caldwell County Planning Board.

Over the past six months or so, the planning staffs of Caldwell County, Lenoir, Hudson, Granite Falls and Sawmills have been working on the overlay district for the U.S. Hwy. 321 corridor with the intent of developing one set of unified guidelines for the entire corridor.

"With the safety and access issues on (Hwy) 321," Frye said, "we came together so it would be identical from Lenoi to Hickory, and to Blowing Rock."

Frye said none of the towns working together had ordinances concerning access management, and most don't address the landscaping issue.

Development standards of the area will include uniform lan use regulations, access management policies, aesthetics requirements, and right-of-way encroachments.

At the request of council member Gerelene Blevins, a letter will be drawn and signed by all Sawmills Town Council members thanking DOT board member Sam Erby for all the work and assistance he has given the town of Sawmills and Caldwell County. Erby, she said, was instrumental in

resolving both school traffic and railroad crossing issues.

"He really has helped Sawmills and Caldwell County," she said.

The contract auditing firm of Pegg, Bowman and Starr was not renewed by council members, due to not meeting the town's needs or expectations. Frye noted missed deadlines missed appointments and such. It was also noted that the firm has had a substantial rate increase. The town council voted to give the contract to Martin Starnes and Associate of Lenoir, which also does the town auditing of Hudson an Granite Falls. Martin Starnes and Associates will also char about $1,800 less for a three-year contract than the curre auditing firm.

"We were very impressed with what (Martin Starnes and Associates) had to say," said Frye. "When we checked the references, everyone spoke very highly of them."

Appendix K

North Carolina Department of Transportation Contact List

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Note: The Caldwell County Urban Area is* now *under the Hickory Metropolitan Planning Organization's Jurisdiction

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1554 Mail Service Center
Raleigh, NC 27699-1554
(919) 733-4705

Division 11 Project Manger
Mark Freeman , PE
P.O. Box 250
North Wilkesboro, NC 28659
(336) 903-9138

Thoroughfare Planning Engineer
Mr. Kurt W. Freitag
1554 Mail Service Center
Raleigh, NC 27699-1554
(919) 733-4705

Additional Resources and Contacts

North Carolina Department of Transportation

Customer Service Office
1-877-DOT4YOU
(1-877-368-4968)

Secretary of Transportation
1501 Mail Service Center
Raleigh, NC 27699-1501
(919) 733-2520

Board of Transportation Member
Current contact information for the Board of Transportation may be accessed from the NCDOT homepage (http://www.dot.state.nc.us/board)
Or by calling the Customer Service Office.

Highway Division
Division specific contact information can be found at
http://apps01.dot.state.nc.us/apps/directory/toc.html

Division Engineer
Contact the Division Engineer with general questions concerning NCDOT activities within each Division; information on Small Urban Funds.

Division Construction Engineer
Contact the Division Construction Engineer for information concerning major roadway improvements under construction.

Division Traffic Engineer
Contact the Division Traffic Engineer for information concerning high- collision locations.

District Engineer
Contact the District Engineer for information regarding Driveway Permits, Right of Way, Encroachments, and Development Reviews.

County Maintenance Engineer
Contact the County Maintenance Engineer regarding any maintenance activities, such as drainage.

Centralized Personnel

Transportation Planning Branch
Contact the Transportation Planning Branch with long-range planning questions.
1554 Mail Service Center
Raleigh, NC 27699-1554
(919) 733-4705

Secondary Roads Office
Contact the Secondary Roads Office for information regarding the Industrial Access Funds Program.
P.O. Box 25201
Raleigh, NC 27699
(919) 733-2039

Program Development Branch
Contact the Program Development Branch for information concerning Roadway Official Corridor Maps and the Transportation Improvement Program (TIP)
1534 Mail Service Center
Raleigh, NC 27699-1534
(919)733-2039

Project Development & Environmental Branch
Contact PDEA for information on environmental studies for projects that are included in the TIP.
1548 Mail Service Center
Raleigh, NC 27699-1548
(919) 733-3141

Highway Design Branch
Contact the Highway Design Branch for information regarding alignment for projects that are included in the TIP.
1584 Mail Service Center
Raleigh, NC 27699-1584
(919) 250-4001

Public Transportation Division
Contact the Public Transportation Division for information public transit systems.
1550 Mail Service Center
Raleigh, NC 27699-1550
(919) 733-4713

Other Departments

Contact information for other departments within the NCDOT not listed here are available at the NCDOT homepage at http://apps01.dot.state.nc.us/apps/directory/toc.html or by calling the Customer Service Office.

Other State Government Offices

Division of Community Assistance

Contact the Division of Community Assistance for information regarding the Community Planning Program. You may find their contact information at *http://www.dca.commerce.state.nc.us*