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Forest Service

National Forest in North Carolina
Southern Region

Uwharrie National Forest

Travel Analysis Project Report

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Executive Summary

Objectives of Forest-Wide Travel Analysis Project Report (TAP)

The objectives of Forest-wide TAP conducted over the past year were to:

- identify key **issues** related to the Uwharrie National Forest transportation system, in particular affordability and cumulative effects;
- identify **benefits, problems and risks** related to the Uwharrie National Forest's transportation system;
- identify **management opportunities** related to the existing transportation system to suggest for future consideration as National Environmental Policy Act (NEPA) decisions (examples included items such as road decommissioning within priority watersheds and needed aquatic passage improvement projects);
- create a map to **inform the identification of the future Minimum Road System (MRS)**; and
- **indicate the location of unneeded roads and possible new road needs**.

(Note: Forest Service regulations at 36 CFR 212.5(b)(1) require the Forest Service to identify the **MRS** needed for safe and efficient travel and for administration, utilization, and protection of National Forest System (NFS) lands.)

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Interdisciplinary Team and Specialized Support

The TAP was conducted by an Interdisciplinary Team (IDT) with extensive internal participation, and limited participation by partners and the general public. The primary participants were:

- Cliff Northrop, Assistant Forest Engineer – Travel Analysis Team Leader
- Deborah Walker, District Ranger
- Lynn Hicks, Engineering, Heritage, Recreation, Lands and Special Uses Staff Officer
- Teresa Savery, Recreation Program Specialist(s)
- Kelly Cagle, FMO
- Mark Carter, Forest Management
- Joel Hardison, Archeologist
- Rodney Smith, Recreation
- Olive Jones, GIS
- Karl Buchholz, Civil Engineer, Editor
- Gisele Majidi-Weese, Civil Engineer, Editor

This document has been reviewed by various Forest Service representatives of the National Forests in North Carolina and the Southern Region and is available to other Forests and the public upon request. The Uwharrie National Forest TAP will be part of the project file for future Environmental Assessment (EA) projects.

Overview of the Uwharrie National Forest Road System

The Uwharrie National Forest TAP scale is Forest-wide and is not being completed in conjunction with an EA. The Uwharrie National Forest road system currently comprises some 103 miles, all of which the Forest is responsible for. This road system provides access to approximately 51,274 acres of National Forest, as well as to interspersed private tracts and nearby local communities (see **Figure 1**). The system supports both recreation and resource management. It is comprised of a combination of old “public” roads, roads constructed to access timber sales and subsequent silvicultural activities, roads constructed to access recreation areas, and a variety of other routes. These range from double lane paved roads to single lane gravel or native surface roads that may be useable by passenger cars, to high clearance routes, to travel ways that are closed for periods of time greater than one year. Funding for the construction or reconstruction of all types was generally provided either by congressional appropriations, authorized as a component of a timber sale, or were constructed by private entities prior to the acquisition of the land by the USDA Forest Service. Maintenance funding is primarily by congressional appropriations, partners, and timber sales generally fund any maintenance required during the life of a particular sale operation.

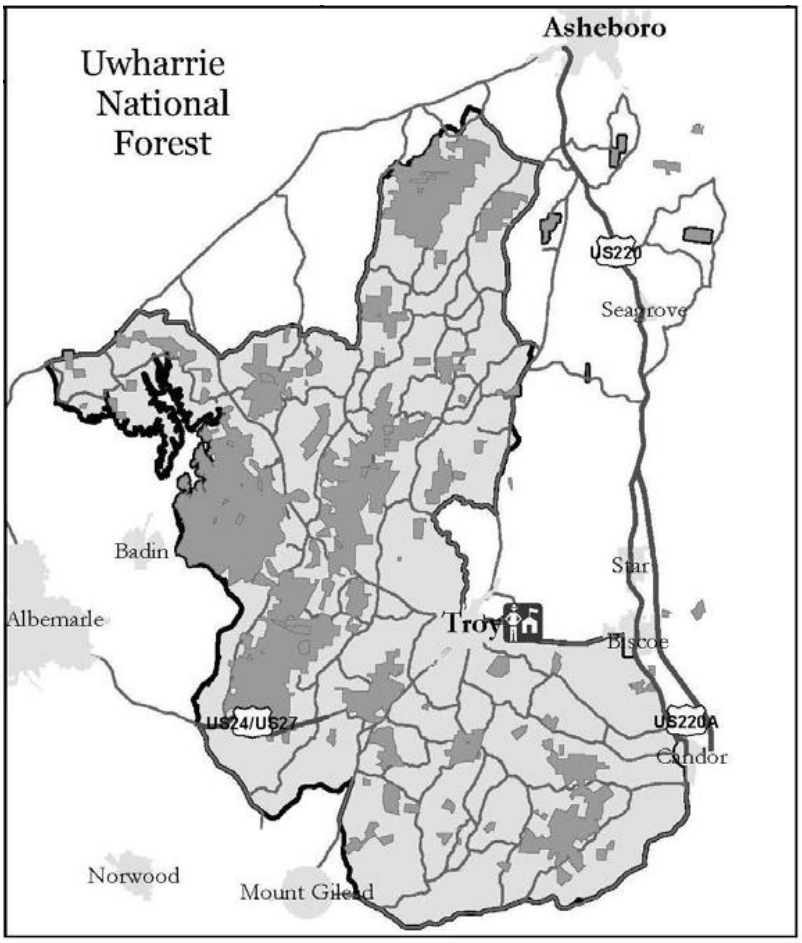


Figure 1: Uwharrie National Forest

Key Issues, Benefits, Problems and Risks, and Management Opportunities Identified

- **Current appropriations and supplemental revenue sources are not sufficient to adequately maintain the Uwharrie National Forest's 200 mile road system as currently configured**. Without changes, the existing road system requires an annual expenditure of approximately $**116,620**. Approximately $170,000 dollars are currently available, (FY14 road maintenance budget plus Coop road maintenance funds), resulting in a surplus of $53,380. The Forest received approximately $32,000 in allocated funds in 2017. Much of these funds go towards overhead costs. The Forest also collects monies from cooperative use agreements with private entities. This amount typically comes to roughly $88,900 annually. In 2016 and 2017, the National Forests in North Carolina, through an agreement with the NC Wildlife Resource Commission reached an agreement to accomplish $48,000 and $49,200,

respectively, in road maintenance and repair. This agreement will be repeated going forward with similar values of work being accomplished. This is an average of $48,600 annually. Another source of funding that is available to the Forest is through the enforcement of special use agreements that require compensation from the user commensurate with the level of use. This would potentially result in approximately $500 in additional road maintenance funding. Combining these revenue sources results in a road maintenance budget of $170,000. This is nearly %146 of the minimum funding required to maintain the Uwharrie National Forest's road system

- **There is limited system mileage which primarily serves either as access to private inholdings, or as general access to adjacent communities** (approximately 4 miles). The State of North Carolina owns and manages its road system through the Department of Transportation (NCDOT). NCDOT has strict guidelines for assumption of ownership and jurisdiction of roads. Roads would be required to meet standards for secondary roads in order to be considered for transfer of jurisdiction and maintenance costs to NCDOT. Approximately 10 miles of NFSR system roads are eligible for transfer of maintenance responsibility to either the State of North Carolina or private parties. Six of these miles that should be considered for transfer of maintenance responsibility to the state were previously identified under the now defunct Forest Highway program.
- **Certain roads, particularly those located in areas with poorly drained soils, may be causing undue stress to water quality** and associated aquatic organisms, especially if they cannot be regularly and properly maintained. This is particularly the case in watersheds that are classified as "impaired". The Uwharrie National Forest has zero miles of Forest Service roads located in impaired watersheds. In some cases there appear to be opportunities to decrease the total system maintenance costs, while at the same time better protecting water quality by decommissioning those roads with the highest risk and least benefit. The TAP has identified 19.4 miles of National Forest System roads to be removed from the system. Of these, 12.8 miles are trails. Another 0.1 mile is used exclusively for access to the administrative site and should, therefore, be removed from the road system. The other 6.5 miles have been identified by the TAP to be considered for decommissioning.
- **There are a number of roads that will likely be needed at some time in the future, but which do not appear to be needed for actions currently being proposed.** Storage of these roads (closure for at least a year, with only custodial maintenance provided) should be strongly considered. The TAP analysis suggests that

approximately 0.9 mile should be considered for conversion to storage and custodial maintenance until needed.

- **In order to meet budgetary limitations, some roads currently opened year round have been identified to be considered for seasonal closure** (0.6 miles); **and some roads currently maintained for passenger car use have been identified to be considered for conversion to high clearance use only** (0 miles).
- Relatively high road densities may be impacting some sensitive wildlife species in a few specific areas of the Forest. Overall, however, road densities do not exceed those allowed by the Forest Plan. As configured the overall road density, exclusive of non-FS jurisdiction roads, is 1.19 miles/square mile, and the open road density is 0.37 miles per square mile.
- **The Uwharrie National Forest has one road bridge and two major culverts on the road system**. These structures are less than ten years old, do not have any load restrictions, and have an expected service life of 50 years.
- **Opportunities should be sought to increase road maintenance revenues** where possible through the use of commercial road use collections, stewardship contracts, and partnerships, including volunteer groups, such as hunters, equestrian organizations, ATV user groups and others, as well as State and local agencies.

Comparison of Existing System to Minimum Road System

Refer to Appendix F for a summary of proposed changes to the existing road system suggested by the TAP, as information available to inform future NEPA analyses and decisions.

Next Steps

- TAP recommendations will be used to inform NEPA decisions, many of which will eventually be implemented in conjunction with various restoration projects on the Forest.
- Prior to implementing these recommendations, NEPA determinations will be conducted at the appropriate scale, using the TAP to inform issues, particularly cumulative effects and affordability.
- The road system should be revisited with an updated Forest-wide TAP, probably on about a 10-year cycle, with the next one due by approximately the year 2025.

Public Involvement

In order to satisfy the requirement for public involvement and best serve the process of informing future NEPA decisions regarding cumulative effects and affordability, as well as Forest planning, participation opportunities for comment on TAP recommendations were provided to the various agencies and key stake holders, including NC Wildlife Resource

Commission, the NCDOT, the NC Forest Service, environmental groups, equestrian, mountain bike, outfitters, special interests groups and elected officials.

Context

Alignment with National and Regional Objectives

Sub-Part "A" Travel Analysis is required by the 2005 Travel Management Rule (36 CFR 212.5). Forest Service Manual 7712 and Forest Service Handbook 7709.55-Chapter 20 provides specific direction, including the requirement to use a six step interdisciplinary, science-based process to ensure that future decisions are based on an adequate consideration of environmental, social and economic impacts of roads. The six steps are as follows:

Step 1 – Setting Up the Analysis
Step 2 – Describing the Situation
Step 3 – Identifying Management Concerns
Step 4 – Assessing Problems, Benefits and Risks
Step 5 – Describing Opportunities and Setting Priorities
Step 6 – Reporting

A letter from the Chief of the Forest Service, dated March 29, 2012, was issued to replace a November 10, 2010 letter previously issued on the same topic. It reaffirms agency commitment to completing Travel Analysis reports for Subpart A of the Travel Management Rule by 2015, and also provides additional National direction related to this work, addressing process, timing and leadership expectations. The letter requires documentation of the analysis by a travel analysis report, which includes a map displaying the existing road system and possible unneeded roads. It is intended to inform future proposed actions related to identifying the MRS. The TAP process is designed to work in conjunction with other frameworks and processes, the results of which collectively inform and frame future decisions executed under NEPA. This letter, including a diagram which further illustrates the relationship between NEPA and TAP is included in Appendix G.

The document entitled "Sub-Part "A" Travel Analysis (TAP), Southern Region Expectations, Revised to align with 2012 Chief's Letter" and attached in Appendix H, supplements the National direction for Forest-scale TAPs developed for the Southern Region.

Coordination with Forest Plan

The current Forest Plan for the Uwharrie National Forest was adopted in 2012. It provides specific direction for overall management of the Uwharrie National Forest. The Forest-wide TAP tiers to the Uwharrie National Forest's Forest Plan by informing future NEPA actions that implement the Forest Plan and have transportation components. The TAP has been informed

by the Watershed Condition Framework, and likewise, the TAP is intended to inform future Forest restoration activities, including watershed restoration.

Management Areas

Please refer to the Land and Resource Management Plan (LRMP) and the LRMP Appendices for the Uwharrie National Forest, 2012, for detailed descriptions, including standards and guidelines for road standards and management direction for each of the four Management Areas (MA), MA 1, MA 3, MA 4, and MA 8, within the Uwharrie National Forest.

Budget and Political Realities

The roads located on the Uwharrie National Forest are a combination of historic trails that have undergone improvement over the years, roads that were built in the decades of the 1950's, 1960's, 1970's and 1980's to access timber sales, roads constructed for access to communities, either internal or adjacent to the Forest, roads constructed by recreational users, and roads constructed or otherwise acquired through a variety of means to comprise the current system. As is the case for much of the rest of the infrastructure on the Forest, funding has been inadequate to properly maintain all of the Forest's roads and bridges. In some cases these roads and bridges have become superfluous to our administrative needs, and many no longer meet public needs either. Changes are becoming inevitable, being driven both by the budget as well as by the need to have the most efficient and effective transportation system on the ground as possible. The TAP process is an attempt to begin to identify a proposed MRS, which will only come into place as NEPA decisions are made and then actual on-the-ground decisions are implemented. The MRS will probably change over time as well, as public needs and financial resources change. Therefore, it is expected that new Forest-wide TAP analyses will continue to be needed, probably on about a 10-year cycle.

Fixing America's Surface Transportation (FAST) Act

On December 4, 2015, President Obama signed the Fixing America's Surface Transportation (FAST) Act (Pub. L. No. 114-94) into law. The FAST Act authorizes $305 billion over fiscal years 2016 through 2020 for transportation programs. The National Forests in North Carolina will apply for all of this money. The FLTP provides dedicated funding to improve access within Federal lands owned by the Federal government. The Forest Service annually receives $15 to $19 million from this funding. The Uwharrie National Forest has designated 14.4 miles of NFSR to be included in the FLTP system. The projects to be funded by the FLTP are selected by the Region 8 (Southern Region) Regional Forester with input from the Region 8 Director of Engineering. The amount of funding that each Forest unit receives varies from year to year depending on the priorities for the Region. To date, the Uwharrie National Forest has not received any FLTP funding.

Under MAP-21, the Forest Highway program was repealed and in its place a new program, the Federal Lands Access Program (FLAP), was created. This program differs from the old Forest Highways program in that funding is available to improve access to all Federal lands and not just National Forests. Similar to the Forest Highway program, FLAP transportation projects are funded for infrastructure that is under State, county or other local government jurisdiction. No road network needs to be designated and, as a result, no projects located on the NFSR system are eligible for FLAP funding.

Emergency Relief for Federally Owned Roads

The Federal Government, through the USDOT Federal Highway Administration, has provided the Emergency Relief for Federally Owned Roads (ERFO) Program to provide financial assistance to repair and reconstruct open federally owned roads that have been damaged by natural disasters or catastrophic events. The National Forests in North Carolina have benefited from these programs in the past and expect this resource to remain available in the event it is needed.

Alignment with Watershed Condition Framework

Along with the other National Forests across the country, the Uwharrie National Forest recently conducted an analysis of its watersheds, categorized them as to their condition and prioritized them for future efforts at improvement. Three categories were identified: Class 1 – Functioning Properly, Class 2 – Functioning at Risk, and Class 3 – Impaired Function. These classifications were performed on watersheds at the 6th order Hydrologic Unit Classification (HUC) according to standard procedures described in the "Watershed Condition Framework (WCF)" technical guide, found at http://www.fs.fed.us/publications/watershed/Watershed_Condition_Framework.pdf. It was determined that one (1) watershed on the Uwharrie National Forest is Class 1 and twelve (12) are Class 2. The Uwharrie National Forest does not have any Class 3 (impaired) watersheds. None of the watersheds on the Uwharrie National Forest were selected as priority watersheds. It is possible that one or more of the watersheds on the Uwharrie National Forest may be selected for priority work at some time in the future.

The Forest-wide TAP analysis was heavily informed by the WCF. Any watershed improvement work will be informed in the future by the TAP and the watershed analysis for individual 6th level watersheds (see map in **Appendix I**).

Overview of the Uwharrie National Forest and the Supporting Transportation System

General Description of the Uwharrie National Forest Land Ownership Patterns, Land Use and Historic Travel Routes

The Uwharrie National Forest is comprised of 51,274 acres, occupying almost 23% of the proclamation boundary. Almost all is forested, with about 5,069 acres (or 9.9%) being Wilderness or otherwise classified as Roadless, and 46,205 acres (or 90.1%) being available for active forest management. Interspersed within the proclamation boundary and adjacent to the National Forest are a few large forest industry tracts, some small farms and a variety of other ownership types. There are a few small communities within the proclamation boundary as well, the larger ones being Troy and Eldorado. When the land came under the ownership of the Uwharrie National Forest it was riddled with a legacy of historic travel routes that were primarily located low in the watersheds, alongside stream channels, presumably as these were the simplest locations on which to construct primitive travel ways. Over the past few decades, the Uwharrie National Forest has been slowly working towards relocating many of these roads up the slopes and away from the streams.

The lands of the Uwharrie National Forest are administered by the Uwharrie Ranger District. The number of acres administered by the District is indicated in **Table 1**:

Table 1: Uwharrie National Forest Acreage

District	Total Acreage	Wild and Roadless Acres
Uwharrie National Forest	51,274	5,069

There are four (4) major developed recreation areas on the Forest: Arrowhead, Badin Lake, Canebrake, and Flintlock . There are other smaller developed day use areas and campgrounds across the Forest. In addition, the Forest allows dispersed recreation on some 51,000 acres. Many recreation sites on the Forest collect fees from users. These fees are returned to the Forest and are available for use to maintain and improve recreational facilities including roads that access these facilities. This is another source of revenue that is often used to accomplish road maintenance.

Motorized and Non-Motorized Trails

Also there are 16 miles of OHV trails and 105 miles of non-motorized trails supporting a variety of uses, including OHVs, equestrian, biking, pedestrian, and mixed use. Motor vehicles are

restricted to those roads shown on the official Motor Vehicle Use Map (MVUM) included in **Appendix C**.

Description of the Uwharrie National Forest's Transportation System

Several Federal and State highways, including NC 109 and NC 24/27, and quite a number of roads under state jurisdiction traverse various parts of the Uwharrie National Forest. Some of these State secondary roads are part of the Federal Lands Access Highway system, which provides access to relatively large tracts of the Forest. There are approximately 10 miles of Federal Lands Access Highways on the Uwharrie. Federal Lands Access Highways replace Forest Highways which were eliminated with the implementation of the MAP-21 Transportation Act. These are roads maintained under state jurisdiction, which on occasion receive reconstruction project funding through the Highway Trust Fund.

There are approximately 96 total miles of National Forest system road under the jurisdiction of the Uwharrie National Forest. This mileage is comprised of 34 miles suitable for passenger car use, almost all of which are open to the public on a year round basis, 56 miles only suitable for high clearance vehicular traffic, and 55 miles which are at least seasonally closed. There are 6 miles on the system inventory that are closed for periods of time greater than one year, being in "storage" for future use when needed.

Maintenance Levels

The Forest Service catalogs its roads in the official inventory, I-Web, by Maintenance Levels (ML), loosely defined as follows:

- ML 5 – Single or Double Lane Paved Roads with high degree of user comfort;
- ML 4 – Moderate User Comfort; primarily double lane aggregate roads with ditches;
- ML 3 – Lowest level maintained to accommodate passenger car traffic;
- ML 2 – Maintained primarily only to accommodate use by high clearance vehicles; and
- ML 1 – Basic Custodial Care. Closed to all traffic for periods greater than one year.

Table 2 and **Figure 2** below show the current breakdown of the Uwharrie National Forest road system by operational maintenance level:

Table 2: Uwharrie National Forest Road System Mileage by Operational ML

Maintenance Level	ML 5	ML 4	ML 3	ML 2	ML 1	Total
NFS Road Mileage	3.1 mi	5.6 mi	21.4 mi	47.5 mi	25.8 mi	103.4 mi

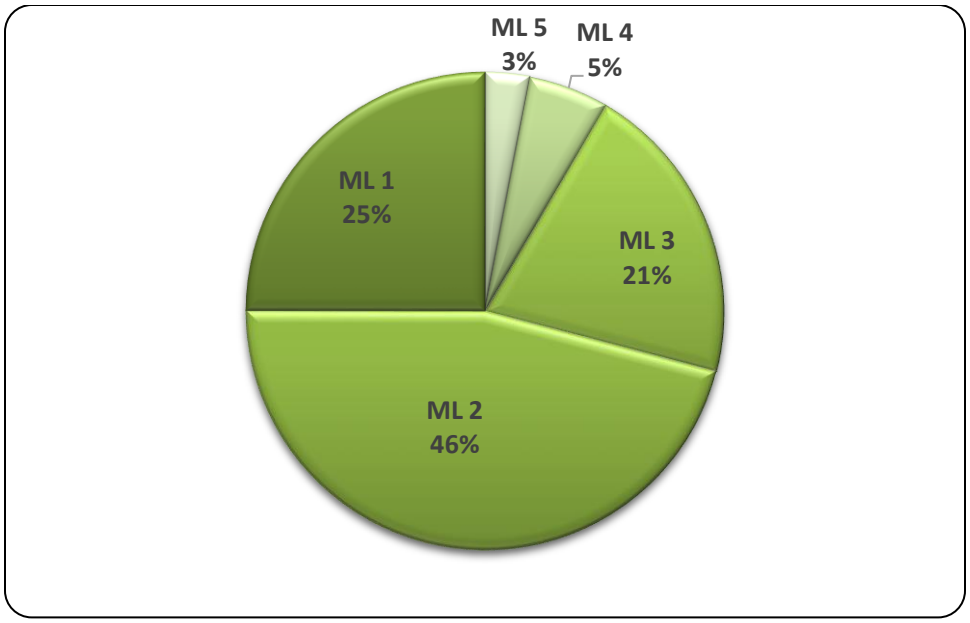


Figure 2: Uwharrie National Forest Roads by Operational ML (percent)

Private and Co-op Roads

Certain roads located on the Uwharrie National Forest are needed to provide access to private tracts of land, or by municipalities or large private landowners in cooperation with the Forest. The maintenance responsibility for and jurisdiction of these roads are identified in the official inventory. Costs for maintaining these roads are generally pro-rated to the appropriate benefitting entity, as further specified in the enabling agreements.

Unauthorized Roads

At any given time there may be roads found to be in existence on the landscape that are not shown in the inventory or on an official map. These roads are considered to be unauthorized roads, unneeded for use by the Uwharrie National Forest. They are subject to decommissioning at any time funding becomes available for that purpose.

Road Maintenance Funding

The Uwharrie National Forest maintains its road system primarily with funding provided through the annual Interior and Related Agency's budget, specifically the CMRD line item. Apart from overhead and special projects, the Uwharrie National Forest received approximately $44,000 of this funding in Fiscal Year (FY) 2016 for contracting and operations. Another source of revenue available for certain types of maintenance on the Uwharrie National Forest road system is CMLG. No CMLG funding was received in FY 2016 for roads on the Uwharrie National Forest. Roads that support forest management operations may be maintained with timber sale

or stewardship dollars during the life of the operation, but that is not typically a long term solution. The Uwharrie National Forest annually generates approximately $500 in CWFS funds for road maintenance. Finally, partners and user groups may provide some road maintenance support. In 2015 and 2016 the Uwharrie National Forest entered into a project agreement with the NC Wildlife Resources Commission, either in cash or in on-the-ground value, related to maintenance of the road system. This funding, which totals $48,000 and $49,200 for fiscal years 2016 and 2017, respectively, is focused on maintenance of roads and road segments that support hunting and fishing access across the Forest. Also expected are funds from NC Recreation Trail Program (RTP) Grants. In 2016, the Uwharrie received an RTP grant of approximately $100,000. Much of this money is intended to be used to fund maintenance of roads accessing the OHV trails at Badin Lake. Similar grants are expected annually going forward. If this continues, deferred maintenance issues can begin to be addressed.

Cost of Operating and Maintaining the Uwharrie National Forest Roads and Bridges

Operations Costs

As indicated in the previous section, approximately $170,000 of appropriated funds are available annually with which to operate and maintain the Uwharrie National Forest road system. Of this, approximately $20,000 (12%) are required to cover fixed costs, including management salaries, rent, fleet, travel, training and cost pool contributions. This amount also covers items such as data management, contract preparation and administration and upward reporting. This base amount is required regardless of the size of the road system being managed. A remainder of approximately $21,000 are applied for road maintenance activities, which must also include replacement of deficient bridges. In addition, approximately $11,000 in maintenance funds are generated each year from timber sales. These funds are used to maintain roads impacted by haul and other activities associated with timber sales.

Road Maintenance Costs

The primary components of road maintenance on the Uwharrie National Forest include (in addition to inspections) 1) blading and ditching, 2) surfacing (repaving in the case of some ML4 and ML5), 3) signs and markings, 4) drainage structures, and 5) mowing and brushing. **Table 3** displays typical unit costs for these items on the Uwharrie National Forest road system by maintenance level:

Table 3: Average Annual Cost per Mile (Excluding Bridge and Major Culvert Replacement)

Maintenance Activity	Frequency	ML 1	ML 2	ML 3	ML 4 Aggregate	ML 4 Asphalt	ML 5
Road Reconditioning (Grading, Ditching & Shoulders)	Biannual for ML 3 and ML4 Once every 5 years for ML 5 shoulders	$7	$20	$500	$1,000	$100	$100
Aggregate Surface Replacement	Assume 4% annual surface material loss	$0	$30	$2,000	$3,000	$0	$0
Shoulder Replacement	ML 5 only once per 5 years	$0	$0	$0	$0	$0	$200
Asphalt Repair	Assume 30 Year Life of Asphalt Surface	$0	$0	$0	$0	$4,000	$5,200
Drainage Repair or Replacement	One >36" CMP per mile per 10 year	$0	$0	$500	$500	$600	$600
Drainage Repair or Replacement	One <36" CMP per mile per 5 years - ML 1, 2 dips	$3	$40	$300	$300	$300	$300
Sign Replacement or Repair	Average	$0	$0	$60	$200	$200	$300
Gate Repair	Once per 5 years	$0	$10	$40	$0	$0	$0
Vegetation Removal, Mechanized	Mechanical - once per 5 years ML 3,4 &5, once per 10 years ML 2	$0	$0	$100	$300	$300	$300
Vegetation Removal	Herbicide once per 4 years	$0	$0	$0	$0	$0	$0
Hazard Tree Removal	Annual	$0	$0	$100	$100	$100	$100
TOTALS		**$10**	**$100**	**$3,600**	**$5,400**	**$5,600**	**$7,100**

Bridge Maintenance and Reconstruction Costs

The Uwharrie National Forest has 1 bridge and 2 major culverts. These have to be inspected every other year, at an average cost of about $257 per bridge inspection. These structures are less than 10 years old and are not load limited in any way. No bridge or major culvert replacements are anticipated for the next 25 years.

Operation and Maintenance Costs for the Uwharrie National Forest Roads and Bridges

Combining the information from the previous sections results in the **Table 4** below, which shows the total annual cost to maintain the Uwharrie National Forest roads and bridges to standard as the system currently exists:

Appendix E shows the cost of maintaining the recommended MRS that balances costs and revenue.

Table 4: Typical Annual Road Maintenance Costs on the Uwharrie National Forest

Maintenance Item	Mileage	Unit Cost	Total Cost
Fixed Cost to Operate	1	$20,000	$20,000
Maintenance of Level 1 Roads	25.8	$10	$258
Maintenance of Level 2 Roads	50.3	$100	$5,030
Maintenance of Level 3 Roads	22.5	$2,600	$58,500
Maintenance of Level 4 Roads	5.6	$3,560	$19,936
Maintenance of Level 5 Roads	3.1	$4,160	$12,896
Inspection of 50% of Bridges Each Year	1	$257	$257 (included in fixed costs)
Replacement of Deficient Bridges	0	$150,000	$0
Total Annual Cost			**$116,620***

*Note: Compare current available budget of $170,000 to the needed amount of $116,620.

Assessment of Issues, Benefits and Risks

Economics

The primary economics issues relate to the inability to adequately maintain the existing road system with current available funding sources. As indicated previously, $**170,000** are available annually from the Forest and the Forest's partners with which to operate and maintain the system. The needed funding for the system as currently configured is approximately $**116,620.** As a result of the $**53,380** surplus, a portion of the deferred maintenance backlog on the system will be addressed. BMPs will be implemented to better protect water quality and associated aquatic organisms and the restrictions and closure of roads and bridges can be prevented or reversed. The system will be able to better meet the needs of both the recreating and travelling public, and to provide for adequate resource access for forest management activities, including prescribed fire and fire suppression.

Environmental and Social

The primary issues in the environmental arena relate to 1) erosion of the roadbed, cut slopes, fill slopes and ditches, with the resulting sediment discharge affecting water quality and associated aquatic organisms; 2) in some cases, road density effects on certain wildlife species, such as bear; and 3) the roads serving as a conduit for invasive species. In the social arena, the effects are primarily the demand for adequate access, sometimes offset by the need for providing solitude. Law enforcement faces increasing challenges due to the high demand for recreation site use. Access is needed by a wide variety of Forest users, including bikers, hikers, hunters, fishermen and other recreationists, as well as for forest management activities, such as restoration projects and fire suppression. At the same time, some of these roads are the only access routes to some communities. Roads require regular surveillance and inventorying, as they can easily become sites for crime, illegal dumping and similar activities.

Safety and Function

The primary issues related to safety and function of the Uwharrie National Forest road system include 1) maintenance of a clear and smooth travel way, 2) access in the proximity of the intended use, 3) steep road grades, 4) functioning of the drainage features, 5) width and stability of the road bed, 6) proper signs and markings, 7) and structurally and functionally sufficient bridges.

Measurement and Rating

Benefits and risks of the overall system were tabulated and appear in **Table D-2** of **Appendix D**. The standard list of questions in the Forest Service Handbook was used as a guide to further assist in identifying the benefits and risks. The degree of risk was rated subjectively as being high, medium or low for the system by appropriate specialists. Then, after considering the

entire system, each road was also considered. Those with particular issues, benefits and/or risks different from those of the entire system were listed and further described below for further consideration. As related projects become identified at some time in the future, this list may be referenced to inform projects or proposed changes in the MRS.

Recommendations and Proposed Mitigation Measures

Rationale Used to Arrive at Proposed Minimum Road System

The Chief's letter, dated March 29, 2012, reaffirms that "the Agency expects to maintain an appropriately sized and environmentally sustainable road system that is responsive to ecological, economic, and social concerns. The National Forest road system of the future must continue to provide needed access for recreation and resource management, as well as support watershed restoration and resource protection to sustain healthy ecosystems". Budget realities being what they are, roads that are not needed for any resource use cannot be supported in the future. Roads that appear to be unneeded, or which appear to have both low benefit and high risk to various environmental or social values were flagged for consideration as decommissioning candidates. There are **4.0 miles** in this category (Table 5 and Appendix B).

Table 5: Uwharrie NF Roads Recommended for Decommissioning (Likely Not Needed)

Road Number	Road Name	Segment Mileage
FS 6581	Dutch John Branch	0.19
FS 6613	Button Buck	0.20
FS 6621	Hamilton	0.86
FS 6689	Dutch John Spur	0.42
FS 6698	Abner	0.48
FS 6707	Pleasant Grove	0.50
FS 6714	Laurel Hill	0.55
FS 6726A	West Polly Branch Spur	0.24
FS 6740	A-Four	0.10
FS 6751A	High Top Ext	0.46
Total Mileage		**4.0**

Roads recommended for Transfer of Maintenance Responsibility or Removal from System

Roads that primarily provide access to the public, the local community or roads where transfer opportunities exist need to be considered for transfer of maintenance responsibility as appropriate. The State will often assume jurisdiction of a road that serves as community access. This is the case for 7.3 miles identified as Forest Highway 49 under the now defunct Forest Highway Program that are currently maintained by NCDOT. An additional **3.5** miles of Badin

Lake Road (NFSR 597) have been identified as having potential for transfer to State maintenance. Before NCDOT will assume jurisdiction of any road, it has to meet several requirements for including the design standards for secondary roads (Table 6).

An additional **14.9** miles are no longer needed in the road system because they should be converted to motorized trail or because they are used solely to access administrative sites.

Table 6: Uwharrie National Forest Roads and Trails Recommended for Removal from NFS System

Road / Trail Number	Road / Trail Name	Segment Mileage
FS 597	Badin Lake Road	3.5
Trails	Various	14.9
Total Mileage		**18.4 miles**

Totaling the mileages from Tables 5 and 6 yields **22.4 miles** of roads and trails that can be considered for removal from the Forest Service maintained road system.

Miles by ML Proposed as Unneeded by Watershed Condition Class

Table 7 lists roads proposed as "unneeded", sorted by the condition of the watershed in which they lie, and with an indication of which ones are located in priority watersheds. The total number of miles on the Uwharrie National Forest which have been suggested as "likely not needed" by the TAP is **4.0 miles**. The number of not needed miles based on priority watersheds is **19.3 miles**.

Table 7: Uwharrie National Forest Road Segments Recommended for Removal from System Based on Watershed Condition

Route Number	Route Name	Segment Mileage
508	Sawmill Orv	0.70
509	Dickey Bell Orv	2.31
510	Daniel Orv	1.25
511	Wolf Den Orv	0.60
511A	Wolfden Spur Orv	0.01
512	Slab Pile Orv	0.80
513	Dutch John Orv	1.40
514	Rocky Mt Loop Orv	2.30
515	Falls Dam Orv RT	1.75
516	Wolf Den	1.14
517A	Woodrun Spur	0.45
536	Uwharrie Office	0.06
6556	Machine Br	1.00
6558	Arrowhead Trail	1.00
6581	Dutch John Branch	0.19
6613	Button Buck	0.20
6621	Hamilton	0.86
6677	Rabbit Mt	0.51
6689	Dutch John Spur	0.42
6698	Abner	0.48
6707	Pleasant Grove	0.50
6714	Laurel Hill	0.55
6726A	West Polly Branch Spur	0.24
6740	A-Four	0.10
6751A	High Top Ext	0.46
Total Mileage		**19.3**

Roads not planned as needed for project access within the next decade, and which appear to be currently receiving extremely low use by the public or appear unneeded for management purposes, such as fire suppression access, were identified to be considered for storage; there are approximate **0.91 miles** of roads in this category (Table 8).

Table 8: Uwharrie National Forest Roads Recommended for Storage

Current RMO	Revised RMO (Optimal)	Road Number	Segment Mileage
D1[1]	D0[2]	6559	0.094
D1	D0	6586	0.811
Total Mileage			**0.91**

Some roads that are primarily needed only for administrative use, by hunters or currently useable by passenger vehicles, were recommended to be considered for conversion to a lower objective maintenance level roads, that is, open only for high-clearance vehicles (not suitable for passenger cars). Approximately **31.3 miles** were identified that should be considered in this category (Table 9). In general, roads receiving the highest amount of use, especially by the motoring public, or which access major developed recreation areas, should not be downgraded in objective maintenance level.

Table 9: Uwharrie National Forest Roads Recommended for Reduction in Objective ML

Road Number	Road Name	Segment Mileage	Existing Objective ML	Recommended Objective ML
597	Badin Lake	4.691	5	4
597A	Badin Lake R.A.	1.374	5	4
597B	Cove	0.287	5	4
597C	Badin Lake Campground	0.565	5	4
6520	Seven Acre	0.998	2	1
6521	Black Mountain	1.010	2	1
6522	Walker Creek	0.838	2	1
6533	Strider	0.451	2	1
6534	High Pine Church	1.068	2	1
6548	Trouble	0.096	2	1
6559	A-Seven	0.094	2	1
6586	Shingle Trap	0.811	2	1
6602	E-Four	0.199	2	1
6604	E-Two	0.097	2	1
6620	C-Twenty Four	0.210	2	1
6623	Morgan	0.672	2	1
6648	Haystack	0.342	2	1

[1] D1 - Linear Wildlife Opening. Closed with a gate or other structure. Allow occasional access for mowing operations and administrative use and fire protection. Create and maintain as wildlife habitat. Future access for timber harvesting activities.

[2] D0 - Road in Storage. Culverts pulled, out sloped roads, no maintenance except to prevent environmental damage. Physically closed to prohibit all motorized access. Future access for vegetation management activities

Road Number	Road Name	Segment Mileage	Existing Objective ML	Recommended Objective ML
6651	Cedar Cr	0.356	2	1
6652A	Morris Mtn Ext	1.315	2	1
6655	West Morris MT.	0.170	2	1
6656	Poison Fork	0.312	2	1
6657A	Dark Mt Spur	0.634	2	1
6658	Flint Hill	0.846	2	1
6659	Wildlife Road	0.749	2	1
6660	Macedonia Church	0.174	2	1
6679	Lick Mtn	3.100	2	1
6680	State Road Ext	0.800	2	1
6681	Clarks Creek	1.335	2	1
6687	Upper Woodrun	1.380	2	1
6688	RANGE Road	0.405	2	1
6690	Roberdo Wildlife	0.324	2	1
6691	Fire Road	0.352	2	1
6693	Pond	0.170	2	1
6694	Landfill	0.648	2	1
6697	School	0.098	2	1
6703	Poole	0.621	2	1
6705	Toms Branch	0.138	2	1
6718	PEARLY	0.542	2	1
6719	Little Big Branch	0.460	2	1
6729	Cheek Creek	0.737	2	1
6745	Henderson	0.356	2	1
6746	Dutchmans Creek	0.828	2	1
6753	Millstone Mountain	0.661	2	1
Total Mileage		**31.3**		

Inclement weather has a particularly costly impact on native and gravel surfaced roads. Therefore, to the extent possible, roads should be identified for seasonal closure. The TAP recommends that **0.62 miles** that are currently opened year-round be identified and converted to seasonally closure (**Table 10** and map in **Appendix L**).

Table 10: Uwharrie NF Existing Open Roads Recommended for Seasonal Closure

Road Number	Road Name	Current Status	Segment Mileage
FS 517	Woodrun	Open	0.62

Miles by ML Proposed as Unneeded, by Watershed Condition Class

All existing roads on the Uwharrie are needed for future management. The total number of miles on the Uwharrie National Forest which have been suggested as "unneeded" by the TAP is zero. The number of un-needed miles in "at risk" and "impaired" watersheds is zero and zero respectively. The number of un-needed miles in priority watersheds is zero.

Recommended Conversion of Existing Road System to Minimum Road System

Appendix F lists the existing road system miles by maintenance level, and then proposes changes which respond to the rationale above to comprise the future minimum road system. Although some roads have been suggested to comprise these changes, there are others which have not yet been identified. During the next decade the suggested changes in overall road system makeup should inform projects, and additional individual road change proposals will be identified, with the goal of achieving the proposed minimum road system, and associated financial sustainability as quickly as is practical.

Best Management Practices (BMPs) Applicable to the Uwharrie National Forest

When maintaining the forest roads located on the Uwharrie National Forest the following BMPs should be adhered to as a minimum:

- National BMPs for Water Quality Management on Forest System Lands
- Applicable State of North Carolina BMPs
- Best Management Practices listed in the current Forest Plan.
- Completed Watershed Action Plans

Appendices

A-1. Map of Existing Road System

A-2. Map of Existing Road Maintenance Levels

B. Map of Likely Needed - Likely Not Needed Roads

C. Motor Vehicle Use Map

D. Benefits and Risks of Existing Road System

E. Maintenance Costs of Existing Road System and Recommended Minimum Road System (MRS)

F. Comparison of Existing and Recommended MRS (miles by ML)

G. Chief's Letter of Direction

H. Southern Region Expectations

I. Uwharrie 6th Order Hydrologic Unit Classification (HUC)

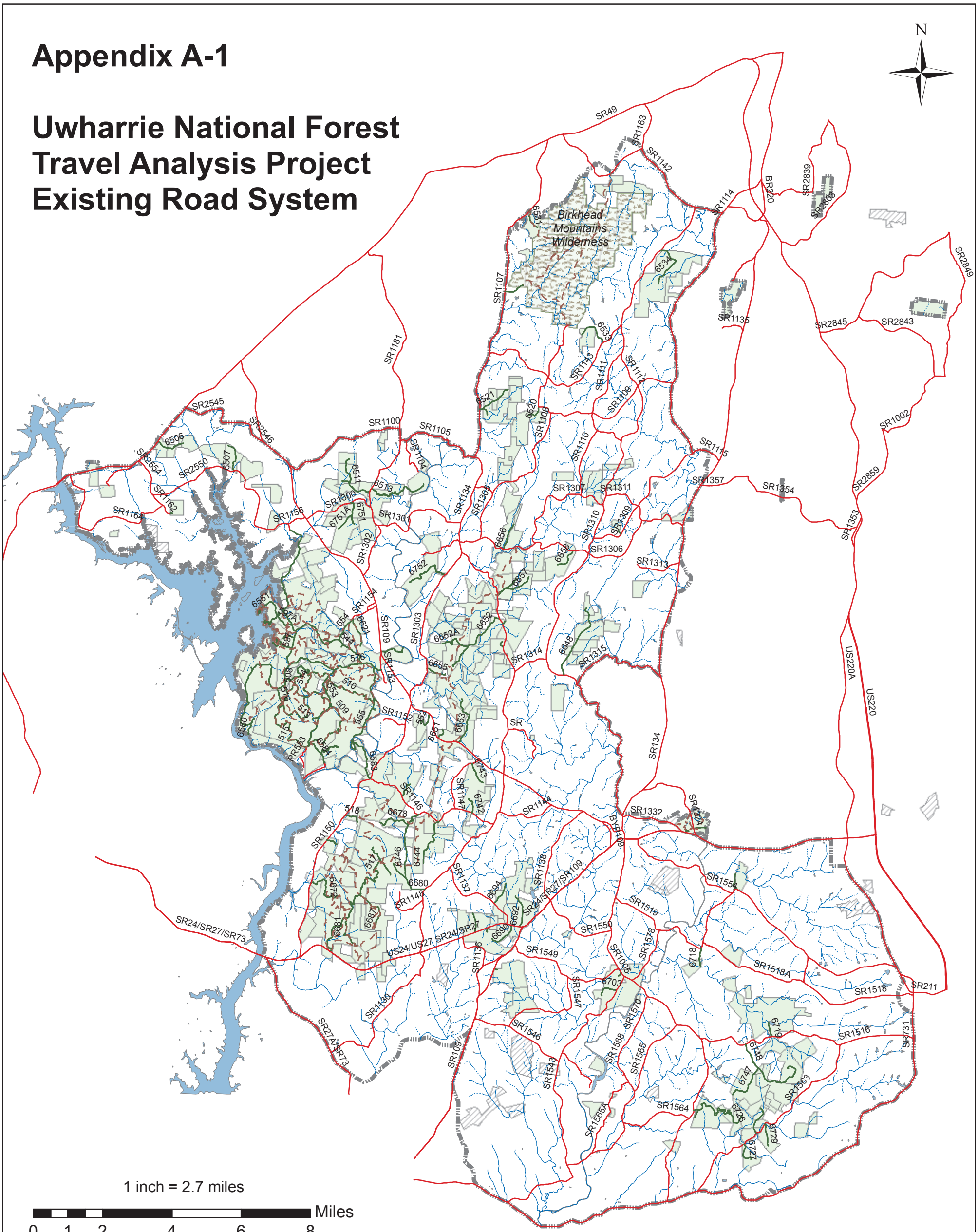
J. Uwharrie National Forest Management Areas

K. Current Road System Benefits, Problems, and Risks

L. Open Roads Recommended for Seasonal Closure

Appendix A-1

Uwharrie National Forest
Travel Analysis Project
Existing Road System



1 inch = 2.7 miles

Miles

0 1 2 4 6 8

Legend

System Type

- Forest Service Road
- Municipal Road
- Trails

Streams

- Intermittent Streams
- Perennial Streams
- Waterbody

- Wilderness

Ranger District

- Uwharrie Ranger District

Owner Classification

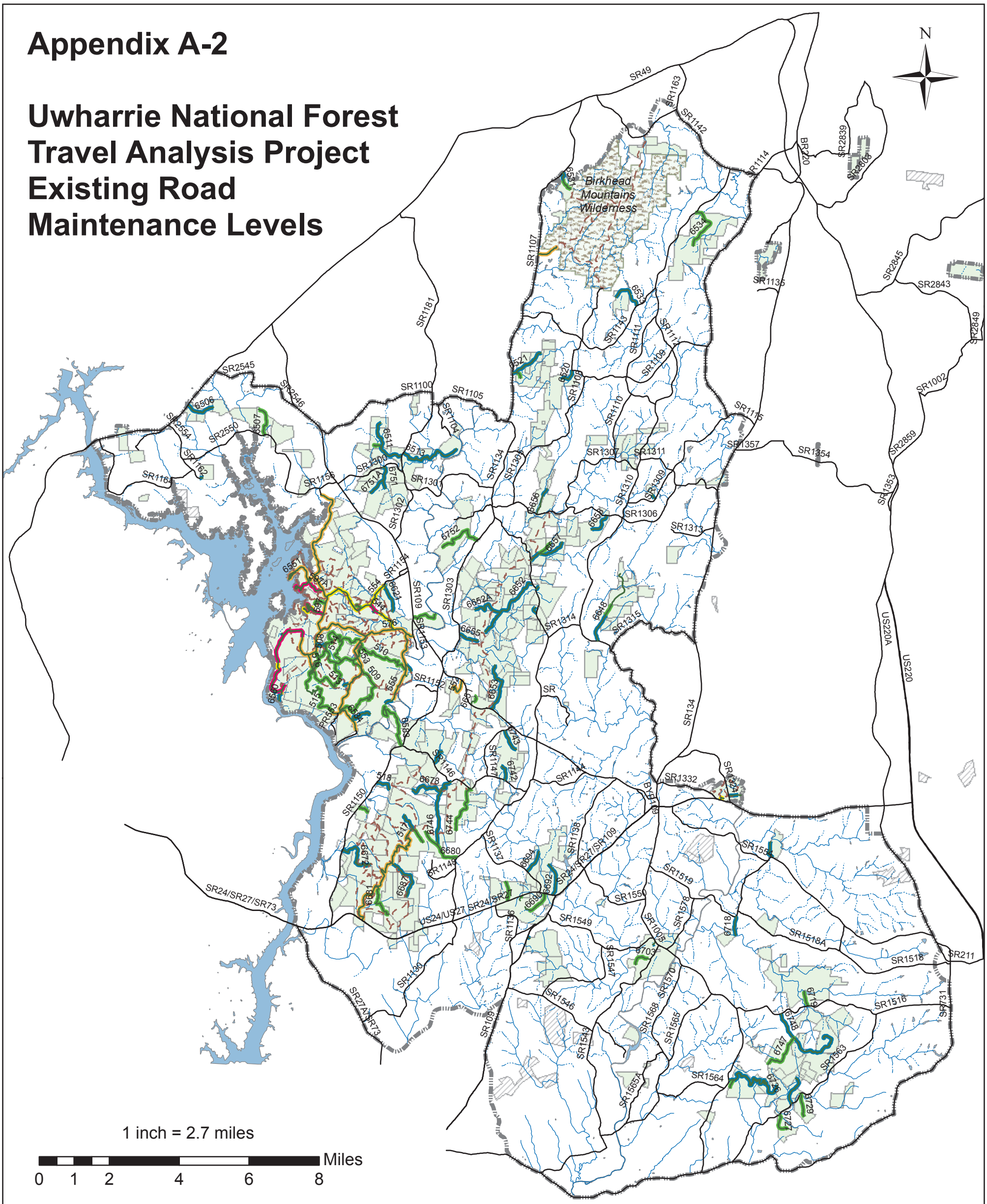
- NON-Forest Service
- USDA Forest Service

The Forest Service uses the most current and complete data available. GIS data and product accuracy may vary. They may be: developed from sources of differing accuracy, accurate at only certain scales, based on modeling or interpretation, incomplete while being created or revised, etc. Using GIS products for purposes other than those for which they were created, may yield inaccurate or misleading results. The Forest Service reserves the right to correct, update, modify, or replace GIS products without notification. The Forest Service will not be liable for any activity involving this information.

Date: 3/31/2017

Appendix A-2

Uwharrie National Forest Travel Analysis Project Existing Road Maintenance Levels



Legend

System Type

- Forest Service Road
- Municipal Road
- Trails

Operational Maintenance Level

- 1 - Basic Custodial Care (CLOSED)
- 2 - High Clearance Vehicles
- 3 - Suitable for Passenger Cars
- 4 - Moderate Degree of User Comfort
- 5 - High Degree of User Comfort

Streams

- Intermittent Streams
- Perennial Streams
- Waterbody
- Wilderness

Ranger District

- Uwharrie Ranger District

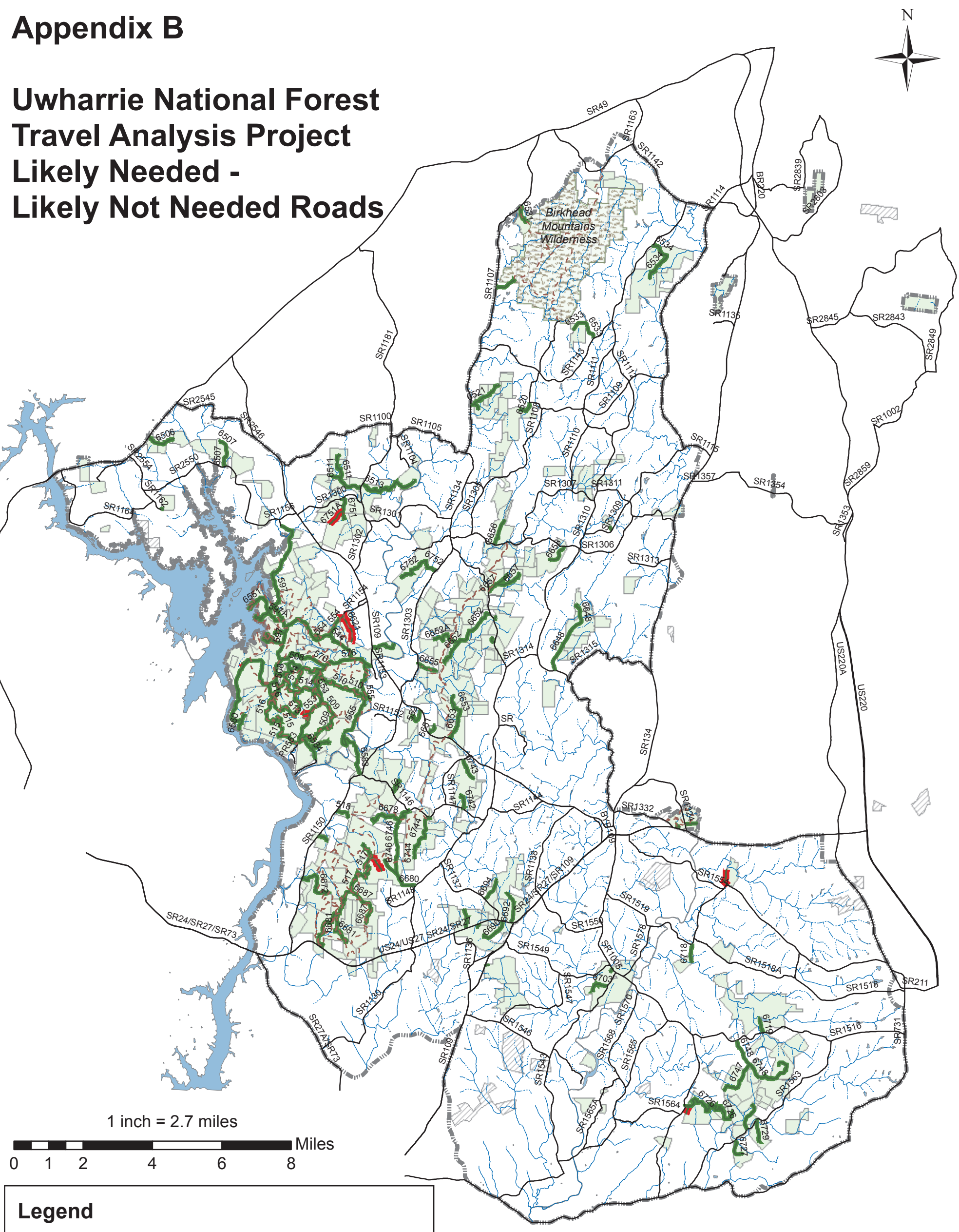
Owner Classification

- NON-Forest Service
- USDA Forest Service

Date: 3/23/2017

Appendix B

Uwharrie National Forest
Travel Analysis Project
Likely Needed -
Likely Not Needed Roads



Legend

Road Assessment
- Likely Needed
- Likely Not Needed

System Type
- Forest Service Road
- Municipal Road
- Trail

Streams
- Intermittent Streams
- Perennial Streams

- Waterbody
- Wilderness

Ranger District
- Uwharrie Ranger District

Owner Classification
- NON-Forest Service
- USDA Forest Service

The Forest Service uses the most current and complete data available. GIS data and product accuracy may vary. They may be: developed from sources of differing accuracy, accurate at only certain scales, based on modeling or interpretation, incomplete while being created or revised, etc. Using GIS products for purposes other than those for which they were created, may yield inaccurate or misleading results. The Forest Service reserves the right to correct, update, modify, or replace GIS products without notification. The Forest Service will not be liable for any activity involving this information.

Date: 3/23/2017

Appendix C – Motor Vehicle Use Map

The following link will launch the most recent MVUM for the Uwharrie National Forest.

http://www.fs.usda.gov/main/nfsnc/maps-pubs

Appendix D – Benefits and Risks of Existing Road System

Table D-1. Risk and Benefits Categories Considered in the Analysis

Risk	Benefit
Fire Suppression	Recreation
Rare Species and Habitats	Social
Heritage Resources	Resource Management
Public Safety	Fire Management
Aquatic Biota Vulnerability	Traffic Volume
Wildlife Risk	Other
Maintenance Cost Risk	

Scoring and Rating

The Uwharrie National Forest IDT analyzed each NFS road for the individual risks and benefits listed in Table D-1. This analysis generated a high, medium or low rating for each criterion. These numeric ratings were combined to generate a summary risk and benefit ranking for each road.

There are seven risk criteria and six benefit criteria for each road analyzed. Scores were based on a point system in which a high rating yielded 2 points, a medium rating yielded 1 point and a low ranking yielded 0 points. The Fire Management benefit and Maintenance Cost risk are two exceptions to this scoring system. These criteria have a four point scoring system where 3 is very high, 2 is high, 1 is medium and 0 is low. This yields a Risk score range from 0 to 15 and a Benefit score range from 0 to 13.

Table D-2. Current Risk and Benefit Assessment of NFS Roads on the Uwharrie National Forest

Criteria		Miles of Roads					Total
Benefit	Risk	ML-1	ML-2	ML-3	ML-4	ML-5	Miles
H	L	0.0	0.0	0.9	1.4	0.0	2.3
H	M	0.0	0.0	9.8	2.8	1.9	14.5
H	H	0.0	0.0	0.0	0.0	0.0	0.0
M	L	5.7	0.3	4.6	0.6	0.8	12.0
M	M	0.0	5.9	0	0.8	0.0	6.7
M	H	0.0	0.0	0.0	0.0	0.0	0.0
L	L	19.9	41.3	1.4	0.0	0.1	62.7
L	M	0.2	0.0	4.7	0.0	0.3	5.2
L	H	0.0	0.0	0.0	0.0	0.0	0.0
Totals		**25.8**	**47.5**	**21.4**	**5.6**	**3.1**	**103.4**

Appendix E – Maintenance Costs of Existing Road System and Recommended Minimum Road System (MRS)

Table E1: Annual Cost of Maintaining the Existing Uwharrie National Forest Roads and Bridges

Maintenance Level	Miles by Operational Maintenance Level	Unit Mtce Cost	Total Annual Rd Mtce Cost	Number of Bridge Replacements (next 10 years)	Average Replacement Cost	Total Replacement Cost	Average Annual Cost of Bridge Replacements	Avg Annual Rd & Bridge Mtce Cost
1	25.8	$10	$258	0	$110,000	$0	$0	$258
2	50.3	$100	$5,030	0	$120,000	$0	$0	$5,030
3	22.5	$2,600	$58,500	0	$125,000	$0	$0	$58,500
4	5.6	$3,560	$19,936	0	$150,000	$0	$0	$19,936
5	3.1	$4,160	$12,896	0	$150,000	$0	$0	$12,896
Totals	**107.3**		**$96,620**			**$0**	**$0**	**$96,620**
Fixed Cost Totals (Overhead + Bridge Inspections)								**$20,000**
Grand Total								**$116,620**

Table E2: Annual Cost of Maintaining the Uwharrie National Forest Recommended (Optimal) Minimum Roads System including Bridges (Excluding Overhead and Bridge Inspections)

Objective Maintenance Level	Miles by Objective Maintenance Level	Unit Mtce Cost	Total Annual Rd Mtce Cost	Number of Bridge Replacements (next 10 years)	Average Replacement Cost	Total Replacement Cost	Average Annual Cost of Bridge Replacements	Avg Annual Rd & Bridge Mtce Cost
1	25.9	$10	$259	0	$110,000	$0	$0	$259
2	28.6	$100	$2,860	0	$120,000	$0	$0	$2,860
3	15.5	$2,600	$40,300	0	$125,000	$0	$0	$40,300
4	15.2	$3,560	$54,112	0	$150,000	$0	$0	$54,112
5	2.8	$4,160	$11,648	0	$150,000	$0	$0	$11,648
Totals	**88.0**		**$109,179**			**$0**	**$0**	**$109,179**
Fixed Cost Totals (Overhead + Bridge Inspections)								**$20,000**
Grand Total								**$129,179**

Appendix F – Comparison of Existing and Recommended MRS (Miles by ML)

Table F1: Existing vs. Recommended Minimum Road System ML Miles

Objective Maintenance Level	Existing Road System Miles (Operational ML)	Minimum Road System Suggested Miles	Change +/-	Comments
1	25.8	25.9	+0.1	Change not significant
2	47.5	28.6	-18.9	Many existing ML2 roads moved to ML1
3	21.4	15.5	-5.9	Some miles moved to ML 4
4	5.6	15.2	+9.6	Some miles moved from ML 3
5	3.1	2.8	-0.3	Slight reduction
Unneeded	0	22.4		22% Reduction in mileage on system
Totals	**103.4**	**88.0**	**-15.4**	

Appendix G – Chief's Letter of Direction

File Code: 2300/2500/7700 **Date:** March 29, 2012
Route To:

Subject: Travel Management, Implementation of 36 CFR, Part 202, Subpart A (36 CFR 212.5(b))

To: Regional Foresters, Station Directors, Area Director, IITF Director, Deputy Chiefs and WO Directors

This letter is to reaffirm agency commitment to completing a travel analysis report for Subpart A of the travel management rule by 2015 and update and clarify Agency guidance. This letter replaces the November 10, 2010, letter on the same topic.

The Agency expects to maintain an appropriately sized and environmentally sustainable road system that is responsive to ecological, economic, and social concerns. The national forest road system of the future must continue to provide needed access for recreation and resource management, as well as support watershed restoration and resource protection to sustain healthy ecosystems.

Forest Service regulations at 36 CFR 212.5(b)(1) require the Forest Service to identify the minimum road system needed for safe and efficient travel and for administration, utilization, and protection of National Forest System (NFS) lands. In determining the minimum road system, the responsible official must incorporate a science-based roads analysis at the appropriate scale. Forest Service regulations at 36 CFR 212.5(b)(2) require the Forest Service to identify NFS roads that are no longer needed to meet forest resource management objectives.

Process

Travel analysis requires a process that is dynamic, interdisciplinary, and integrated with all resource areas. With this letter, I am directing the use of the travel analysis process (TAP) described in Forest Service Manual 7712 and Forest Service Handbook (FSH) 7709.55, Chapter 20. The TAP is a science-based process that will inform future travel management decisions. Travel analysis serves as the basis for developing proposed actions, but does not result in decisions. Therefore, travel analysis does not trigger the National Environmental Policy Act (NEPA). The completion of the TAP is an important first step towards the development of the future minimum road system (MRS). All NFS roads, maintenance levels 1-5, must be included in the analysis.

For units that have previously conducted their travel or roads analysis process (RAP), the appropriate line officer should review the prior report to assess the adequacy and the relevance of their analysis as it complies with Subpart A. This analysis will help determine the appropriate scope and scale for any new analysis and can build on previous work. A RAP completed in accordance with publication FS-643,

"Roads Analysis: Informing Decisions about Managing the National Forest Transportation System," will also satisfy the roads analysis requirement of Subpart A.

Results from the TAP must be documented in a **travel analysis report**, which shall include:

- A map displaying the roads that can be used to inform the proposed action for identifying the MRS and unneeded roads.
- Information about the analysis as it relates to the criteria found in 36 CFR 212.5(b)(1).

Units should seek to integrate the steps contained in the Watershed Condition Framework (WCF) with the six TAP steps contained in FSH 7709.55, Chapter 20, to eliminate redundancy and ensure an iterative and adaptive approach for both processes. We expect the WCF process and the TAP will complement each other. The intent is for each process to inform the other so that they can be integrated and updated with new information or where conditions change. The travel analysis report described above must be completed by the end of FY 2015.

The next step in identification of the MRS is to use the travel analysis report to develop proposed actions to identify the MRS. These proposed actions generally should be developed at the scale of a 6th code sub watershed or larger. Proposed actions and alternatives are subject to environmental analysis under NEPA. Travel analysis should be used to inform the environmental analysis.

The administrative unit must analyze the proposed action and alternatives in terms of whether, per 36 CFR 212.5(b)(1), the resulting road system is needed to:

- Meet resource and other management objectives adopted in the relevant land and resource management plan;
- Meet applicable statutory and regulatory requirements;
- Reflect long-term funding expectations;
- Ensure that the identified system minimizes adverse environmental impacts associated with road construction, reconstruction, decommissioning, and maintenance.

The resulting decision identifies the MRS and unneeded roads for each sub watershed or larger scale. The NEPA analysis for each sub watershed must consider adjacent sub watersheds for connected actions and cumulative effects. The MRS for the administrative unit is complete when the MRS for each sub watershed has been identified, thus satisfying Subpart A. To the extent that the sub watershed NEPA analysis covers specific road decisions, no further NEPA analysis will be needed. To the extent that further smaller-scale, project-specific decisions are needed, more NEPA analysis may be required.

A flowchart displaying the process for identification of the MRS is enclosed with this letter.

Timing

The travel analysis report **must be completed by the end of FY 2015**. Beyond FY 2015, no Capital Improvement and Maintenance (CMCM) funds may be expended on NFS roads (maintenance levels 1-5) that have not been included in a TAP or RAP.

Leadership

The Washington Office lead for Subpart A is Anne Zimmermann, Director of Watershed, Fish, Wildlife, Air and Rare Plants. Working with her on the Washington Office Steering Team are Jim Bedwell, Director of Recreation, Heritage, and Volunteer Resources, and Emilee Blount, Director of Engineering. I expect the Regions to continue with the similar leadership structures which have been established.

Your leadership and commitment to this component of the travel management rule is important. Together, we will move towards an ecologic, economic, and socially sustainable and responsible national road system of the future.

/s/ James M. Pena (for):
LESLIE A. C. WELDON

Deputy Chief, National Forest System

Appendix H – Southern Region Expectations

Sub-Part "A" Travel Analysis (TAP)

Southern Region Expectations Revised to align with 2012 Chief's Letter

A. **Background.** During the period 2005 - 2010 the National Forests of the Southern Region successfully completed **Sub-Part "B"** (Designation of Roads, Trails and Areas for Motor Vehicle Use) Travel Analysis. The result was a set of Motor Vehicle Use Maps (**MVUMs**) which prescribe the Forest Service roads that allow traffic; and in doing so it also prohibited cross-country travel by off-highway vehicles (OHVs). Forests are now beginning work on **Sub-Part "A"** (Administration of the Forest Transportation System) Travel Analysis to identify the **minimum road system** needed for safe and efficient travel and for the protection, management and use of NFS lands; **and also to identify roads no longer needed to meet forest resource management objectives.**

TAP analysis identifies risks and benefits of individual roads in the system, but especially **cumulative effects and affordability of the entire system**. Consideration is given to the access needed to support existing Forest Plans, and for informing future Forest Plans and resulting projects. TAP is intended to identify opportunities to assist managers in addressing the unique ecological, economic and social conditions on the national forests and grasslands.

B. **Agency Direction.** Sub-Part "A" Travel Analysis is required by the 2005 Travel Management Rule (36 CFR 212.5). Forest Service Manual 7712 and Forest Service Handbook 7709.55 Chapter 20 provides specific direction, including the requirement to use a six step interdisciplinary, science-based process to ensure that future decisions are based on an adequate consideration of environmental, social and economic impacts of roads. A letter from the Chief of the Forest Service dated March 29, 2012 was issued to replace a November 10, 2010 letter previously issued on the same topic. It reaffirms agency commitment to completing travel analysis reports for Subpart A of the travel management rule by 2015, and also provides additional national direction related to this work, addressing process, timing and leadership expectations. The letter requires documentation of the analysis by a **travel analysis report**, which includes a map displaying the existing road system andpossible unneeded roads. It is intended to inform future proposed actions related to

identifying the minimum road system. The TAP process is designed to work in conjunction with other frameworks and processes, the results of which collectively inform and frame

future decisions executed under NEPA. These other analyses and procedures include Watershed Analysis Framework and mapping; Recreational Framework planning and analyses; and forest-wide planning under the new Planning Rule. This document (**Southern Region Expectations**) supplements the national direction for Sub-Part "A" TAPs developed for the Southern Region.

C. **Geographic Scale.** Like smaller scale road analyses (RAPS) that have been underway at the project level, TAPs consider economic, environmental and social effects of roads. Analysis at the smaller project scale, however, does not adequately address cumulative effects and affordability. The Chief's letter requires that proposed NEPA actions be informed by work at the 6th order HUC watershed as a minimum. **Southern Region Expectations** are for a Unit TAP at the District level or equivalent; and since budgets are generally allocated to the Forest level, District analyses are not considered complete until all other Districts on the same Forest are also complete and have been integrated to create a Forest Scale TAP. As projects which involve travel (road) decisions are subsequently proposed on a unit, additional project level analysis will be required in advance of associated NEPA decisions only if the proposal varies substantially from the Unit Scale TAP covered by it. The purpose would be to show any additional impact on cumulative effects and affordability.

D. **Process, Review and Approval.** Forest IDTs are expected to conduct analyses, with guidance and review by the Regional Office TAP Review Team (members listed below). Standard boilerplate, spreadsheets and Executive Summary format will be developed by the Review team for incorporation into the TAP reports. Final review will be by the Forest Supervisor, indicating that the analyses comply with national and regional direction. Upon completion of the last District TAP on a Forest, the Forest Supervisor needs to submit a forest-wide Executive Summary and verify that the cumulative results meet the expectations defined in this guidance.

The Regional TAP Review Team consists of Team Leader Paul Morgan (Engineering), Emanuel Hudson (Biological and Physical Resources), Mary Hughes Frye (Recreation), Paul Arndt (Planning) and various other ad hoc members as needed.
They will submit their review comments to the TAP Steering Team prior to officially conveying them to the Forest. The Steering Team will be responsible for overall direction and oversight of the process. This team consists of Randy Warbington, TAP

Steering Team Lead and Director of Engineering, Dave Schmid, Director of Biological and Physical Resources, Chris Liggett, Director of Planning, and Ann Christensen, Director of Recreation as well as George Bain, Forest Supervisor on the Chattahoochee Oconee NF's and Steve Bekkerus, Regional Legislative Affairs Specialist.

E. **Information Systems.** Analysis will be based upon field-verified spatial data (GIS, or Geographic Information System road and trail layers), and official tabular data (from I-Web, the corporate Forest Service data base) as applicable. ARC Map products will be included as a part of all completed Unit Scale TAPs, and will be provided to the Regional Office TAP review team as a part of the final TAP report.

F. **Access.** As prescribed by 16USC532 the Forest Roads and Trails Act TAPs should identify an adequate system of roads and trails to provide for intensive use, protection, development, and management of National Forest System lands. As such, they should address user safety and environmental impacts, and provide for an optimum balance of access needs and cost. Roads, trails and bridges that are unsafe and where unacceptable risks cannot be eliminated or mitigated due to a lack of funding should be identified for closure or possible decommissioning. Unneeded, temporary and unauthorized routes should be identified for possible decommissioning. TAPs should support current Forest Plan direction and anticipate future Forest Plan analysis needs, as well as Recreational Framework planning and analyses. As unit scale TAPs are completed, associated MVUMs must be reviewed. After appropriate NEPA decisions are made to implement TAP recommendations, future MVUM revisions need to be revised to assure that they are in agreement with those decisions.

G. **Environmental.** One major analysis component of the TAPs is impact of the road system on water quality. In those cases where high road densities on National Forest lands are a major factor in causing watersheds to be at risk or impaired, some roads should be identified for decommissioning in order to reduce the impacts and change the classification. Also, it should be recognized that some existing roads are poorly located and should be eliminated, while some new roads might be needed to replace them and provide essentially equivalent access in better locations, generally farther away from live streams or wetlands. The Watershed Condition Framework should inform each unit's travel analysis. An overriding objective for all roads should be compliance with provisions cited in National Best Management Practices for Water Quality Management on National Forest System Lands, April 2012.

While a reduction in maintenance levels may be a desired option for cost reduction, it is not an appropriate strategy when it results in more environmental impacts. Similarly, changes in recreational use should be considered, especially for roads that cannot be maintained to standard and which may begin to attract challenge-oriented four-wheelers that create even further impacts on the environment and on the road.

H. **Financial.** Units should consider all expected sources of funding available to maintain the road system to appropriate standards (based upon 3 year history and current trends), and include all costs that are required to comply with applicable BMPs for their maintenance. Include associated bridge maintenance as well, and replacement costs for those routes which include bridges that are deficient or expected to need major work in the next ten year period. Identify and account for fixed costs (program management, fleet, etc.) when analyzing financial feasibility. Ultimately units must balance the costs of maintaining the identified system such that the recommendation will not result in accrual of deferred maintenance on roads and bridges once the TAP is implemented (i.e. there should be a zero balance between anticipated maintenance revenue and anticipated maintenance cost on an annual basis).

The focus of this analysis should not be primarily on disinvestment, i.e. just reducing passenger car roads to high clearance roads in order to meet funding constraints. Roads receiving minimal maintenance have the high likelihood, at least those roads located relatively low in the watershed, of creating additional siltation impacts. They can also have unintended consequences for recreation management. Therefore a better strategy might be to identify roads not required for current operations but which might be needed at some time in the future for seasonal or intermittent closure, or **"storage".** Other strategies might include scheduling maintenance over a two to three year cycle on less used roads, adding seasonal restrictions, identifying roads to transfer to state or local jurisdiction, and identifying unneeded roads for possible decommissioning. Total mileage of high clearance roads should not generally increase over the amount in the current system unless it is determined that there has been substantial maintenance level "creep" over the years and therefore a substantial increase in high clearance roads is warranted. It is expected, however, that the number of roads identified to be placed in storage will generally increase from the current level.

Finally it should be noted that similar to the road system, the trail system is also over-committed to be managed within its maintenance budget. Therefore, unless maintenance funding is verified to be available over the long-term, it is not acceptable to identify roads for conversion to trails; the more appropriate options would be storage or decommissioning, depending upon future need.

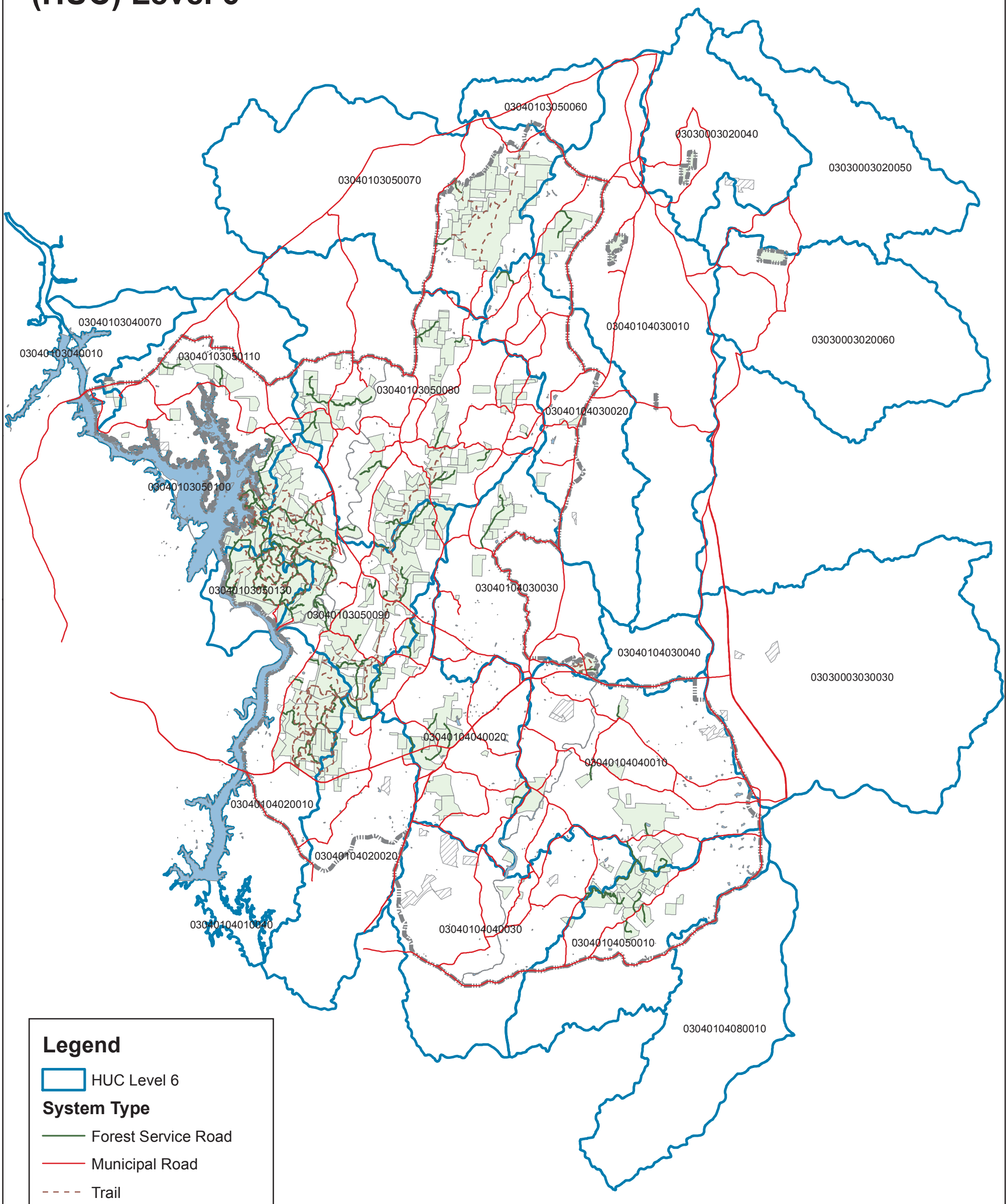
I. **Public Involvement and NEPA** (National Environmental Protection Act) **Requirements.** Unit scale TAPs are not NEPA decisions; they are analyses intended to inform future projects regarding affordability and cumulative effects. These projects, depending upon the specific impacts, will generally require NEPA decisions prior to implementation. The public will need to be provided opportunities for comment on TAP recommendations near to the time that that actual projects are being proposed. This would be expected to include a broad spectrum of participation by citizens, other agencies, and tribal governments as appropriate.

J. Products. All final products to be posted on an internal website or on the "O" drive available for access by other Forests and the Regional Office. The final product should consist of the following items:

1) A **Travel Analysis Report** summarizing the process the results of all analyses conducted;
2) A map showing the entire Road System, ML 1-5, and delineating potential unneeded roads;
3) **A list of roads that are proposed for transfer to another jurisdiction and whether acceptance by that jurisdiction is likely within the next three years;**
4) A tabular **summary of issues, benefits and risks** for each road in the system. (Although not included in this write-up an example format is available and will be provided to each unit as they begin work on their TAP);
5) A spreadsheet identifying available maintenance funding and expected costs for applying **affordable operational maintenance levels** and associated **BMPs** (best management practices) to the road system to result in **a financial strategy that balances funding and costs** such that no deferred maintenance will accrue if fully implemented; and
6) Signature sheets with dates, indicating preparation and review officials, **and Review by the Forest Supervisor**.

Appendix I

Uwharrie National Forest Hydrologic Unit Classification (HUC) Level 6



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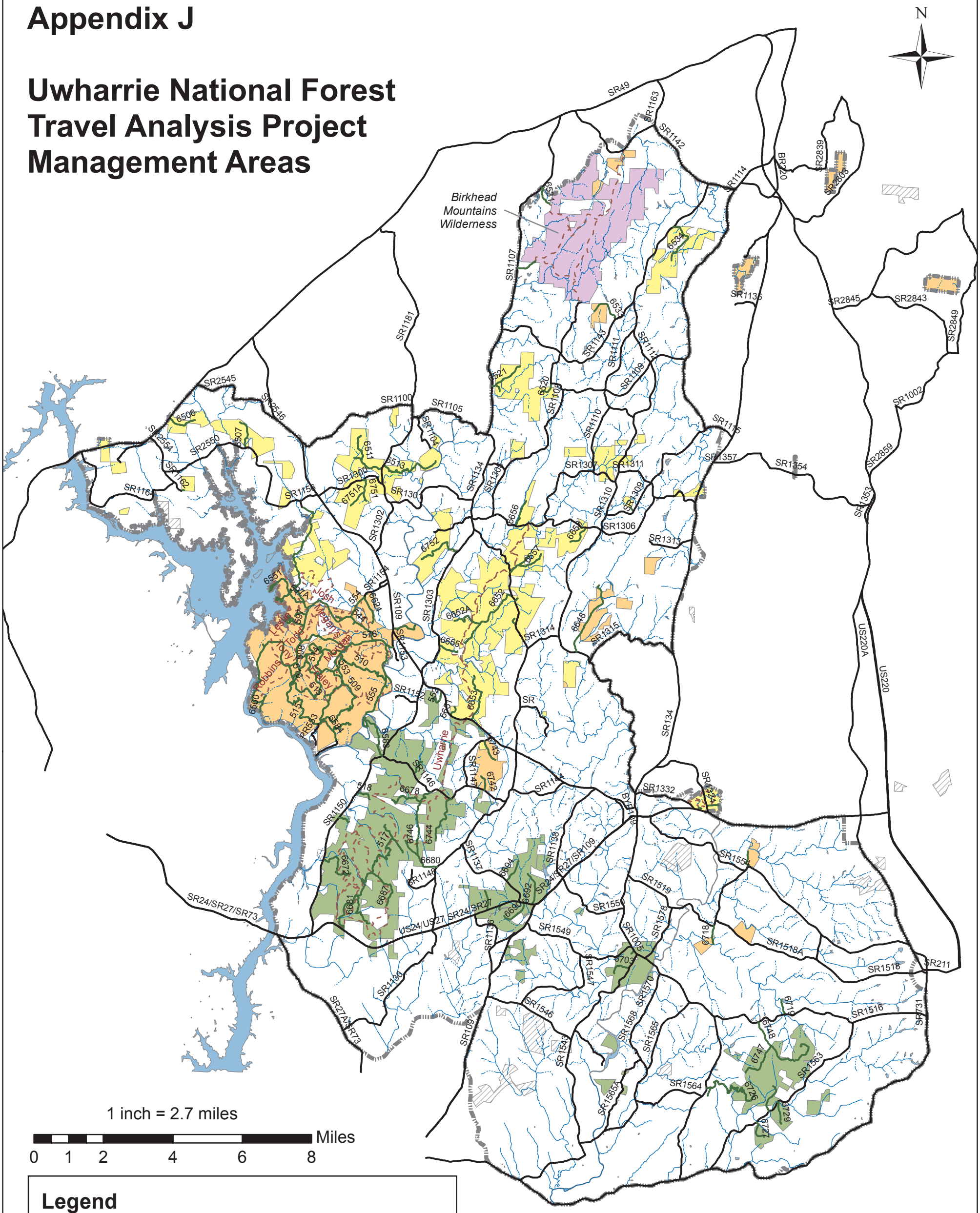
Date: 3/23/2017

Appendix J

Uwharrie National Forest Travel Analysis Project Management Areas



1 inch = 2.7 miles

Miles

0 1 2 4 6 8

Legend

System Type

- Forest Service Road
- Municipal Road
- Trail

Streams

- Intermittent Streams
- Perennial Streams
- Waterbody

Ranger District

- Uwharrie Ranger District

Owner Classification

- NON-Forest Service

Management Area

- MA 1
- MA 3
- MA 4
- MA 8

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Date: 3/24/2017

Appendix K – Current Road System Benefits, Problems, and Risks

In 2003, the Interdisciplinary Team (IDT) assessed various benefits, problems, and risks of the road system. Resource specialists concentrated on project specific issues. The current IDT should refer to the 2003 Forest-Scale Roads Analysis Project (RAP) for the Uwharrie National Forest. The Forest-scale RAP provides a broad framework for managing all the Uwharrie National Forest road resources and addresses project specific issues and explains how and where these issues are pertinent in the Uwharrie National Forest TAP boundary. This report is not meant to be a stand-alone document.

For resource specialists' responses to the following road-related analysis questions, please refer to the 2003 Forest-scale RAP for the Uwharrie National Forest and also to the 2017 TAP report. The following roads analysis questions assessing benefits, problems, and risks were addressed in the 2003 RAP. Please refer the 2003 Forest-Scale RAP for the Uwharrie National Forest for detailed responses. In general, road benefits are the potential uses and socioeconomic gains provided by roads and related access and problems are conditions for certain environmental, social, and economic attributes that managers deem to be unacceptable. Risks are likely future losses in environmental, social, and economic attributes if the road system remains unchanged.

Ecosystem Functions and Processes (EF)

EF (1): What ecological attributes, particularly those unique to the region, would be affected by roading of currently unroaded areas?
EF (2) (A): To what degree do the presence, type, and location of roads increase the introduction and spread of exotic plant and animal species, insects, diseases, and parasites?
EF 2 (B): What are the potential effects of such introductions to plant and animal species and ecosystem function in the area?
EF (3): To what degree do the presence, type, and location of roads contribute to the control of insects, diseases, and parasites?
EF (4): How does the road system affect ecological disturbance regimes in the area?
EF (5): What are the adverse effects of noise caused by developing, using, and maintaining roads?

Aquatic, Riparian Zone, and Water Quality (AQ)

AQ (1): How and where does the road system modify the surface and subsurface hydrology of the area?
AQ (2): How and where does the road system generate surface erosion?
AQ (3): How and where does the road system affect mass wasting?
AQ (4): How and where do road-stream crossings influence local stream channels and water quality?

AQ (5): How and where does the road system create potential for pollutants, such as chemical spills, oils, de-icing salts, or herbicides to enter surface waters?
AQ (6): How and where is the road system "hydrologically connected" to the stream system? How do the connections affect water quality and quantity (such as, the delivery of sediment and chemicals, thermal increases, and elevated peak flows)?
AQ (7): What downstream beneficial uses of water exist in the area? What changes in uses and demand are expected over time? How are they affected or put at risk by road derived pollutants?
AQ (8): How and where does the road system affect wetlands?
AQ (9): How does the road system alter physical channel dynamics, including isolation of floodplains; constraints on channel migration; and the movement of large wood, fine organic matter, and sediment?
AQ (10): How and where does the road system restrict the migration and movement of aquatic organisms? What aquatic species are affected and to what extent?
AQ (11): How does the road system affect shading, litter fall, and riparian plant communities?
AQ (12): How and where does the road system contribute to fishing, poaching, or direct habitat loss for at-risk aquatic species?
AQ (13): How and where does the road system facilitate the introduction of non-native aquatic species?
AQ (14): To what extent does the road system overlap with areas of exceptionally high aquatic diversity or productivity, or areas containing rare or unique aquatic species or species of interest?

Terrestrial Wildlife (TW)
TW (1): What are the direct effects of the road system on terrestrial species habitat?
TW (2): How does the road system facilitate human activities that affect habitat?
TW (3): How does the road system affect legal and illegal human activities (including trapping, hunting, poaching, harassment, road kill, or illegal kill levels)? What are the effects on wildlife species?
TW (4): How does the road system directly affect unique communities or special features in the area?

Economics (EC)
EC (1): What are the monetary costs associated with the current road system? How do these costs compare to the budgets for management and maintenance of the road system?
EC (2): What are the indirect economic contributions of roads including market and non-market costs and benefits associated with road system design, management and operations?

EC (3): What are the direct economic impacts of the current road system and its management upon communities around the forest?

Commodity Production – Timber Management (TM)

TM (1): How does road spacing and location affect logging system feasibility?
TM (2): How does the road system affect managing the suitable timber base and other lands?
TM (3): How does the road system affect access to timber stands needing silvicultural treatment?

Minerals Management (MM)

MM (1): How does the road system affect access to locatable, leasable, and salable minerals?
MM (2): How does the road system affect access to private minerals?
MM (3): How does the road system affect access to stone pits?

Range Management (RM)

RM (1): How does the road system affect access to range allotments?

Water Production (WP)

WP (1): How does the road system affect access, constructing, maintaining, monitoring, and operating water diversions, impoundments, and distribution canals or pipes?
WP (2): How does road development and use affect the water quality in municipal watersheds?
WP (3): How does the road system affect access to hydroelectric power generation?

Special Forest Products (SP)

SP (1): How does the road system affect access for collecting special forest products?

Special – Use Permits (SU)

SU (1): How does the road system affect managing special-use permit sites (concessionaires, communications sites, utility corridors, and so on)?

General Public Transportation (GT)

GT (1): How does the road system connect to public roads and provide primary access to communities?
GT (2): How does the road system connect large blocks of land in other ownership to public roads (ad hoc communities, subdivisions, inholdings, and so on)?

GT (3): How does the road system affect managing roads with shared ownership or with limited jurisdiction? (RS 2477, cost-share, prescriptive rights, FLPMA easements, FRTA easements, DOT easements)?
GT (4): How does the road system address the safety of road users?

Administrative Uses (AU)
AU (1): How does the road system affect access needed for research, inventory, and monitoring?
AU (2): How does the road system affect investigative or enforcement activities?

Protection (PT)
PT (1): How does the road system affect fuels management?
PT (2): How does the road system affect the capacity of the Forest Service and cooperators to suppress wildfires?
PT (3): How does the road system affect risk to firefighters and to public safety?
PT (4): How does the road system contribute to airborne dust emissions resulting in reduced visibility and human health concerns?

Recreation – Unroaded Recreation (UR)
UR (1): Is there now or will there be in the future excess supply or excess demand for unroaded recreation opportunities?
UR (2): Is developing new roads into unroaded areas, decommissioning of existing roads, or changing the maintenance of existing roads causing substantial changes in the quantity, quality, or type of unroaded recreation opportunities?
UR (3): What are the effects of noise and other disturbances caused by developing, using, and maintaining roads on the quantity, quality, and type of unroaded recreation opportunities?
UR (4): Who participates in unroaded recreation in the areas affected by constructing, maintaining, and decommissioning roads?
UR (5): What are these participants' attachments to the area, how strong are their feelings, and are alternative opportunities and locations available?
UR (6): How are developing new roads into unroaded areas affecting the visual management system?

Recreation – Road Related (RR)
RR (1): Is there now or will there be in the future excess supply or excess demand for roaded recreation opportunities?

RR (2): Is developing new roads into unroaded areas, decommissioning existing roads, or changing maintenance of existing roads causing significant changes in the quantity, quality, or type of roaded recreation opportunities?
RR (3): What are the adverse effects of noise and other disturbances caused by constructing, using, and maintaining roads on the quantity, quality, or type of roaded recreation opportunities?
RR (4): Who participates in roaded recreation in the areas affected by road constructing, maintaining, or decommissioning?
RR (5): What are these participants' attachments to the area, how strong are their feelings, and are alternative opportunities and locations available?
RR (6): How does road management affect wilderness attributes, including natural integrity, natural appearance, opportunities for solitude, and opportunities for primitive recreation?
RR (7): How does the road system affect the visual management system?

Cultural and Heritage (CH)
CH (1): How does the road system affect access to paleontological, archeological, and historic sites and the values people hold for these sties?
CH (2): How does the road system management affect the exercise of American Indian treaty rights?
CH (3): How does road use and road management affect roads that constitute historic sites?

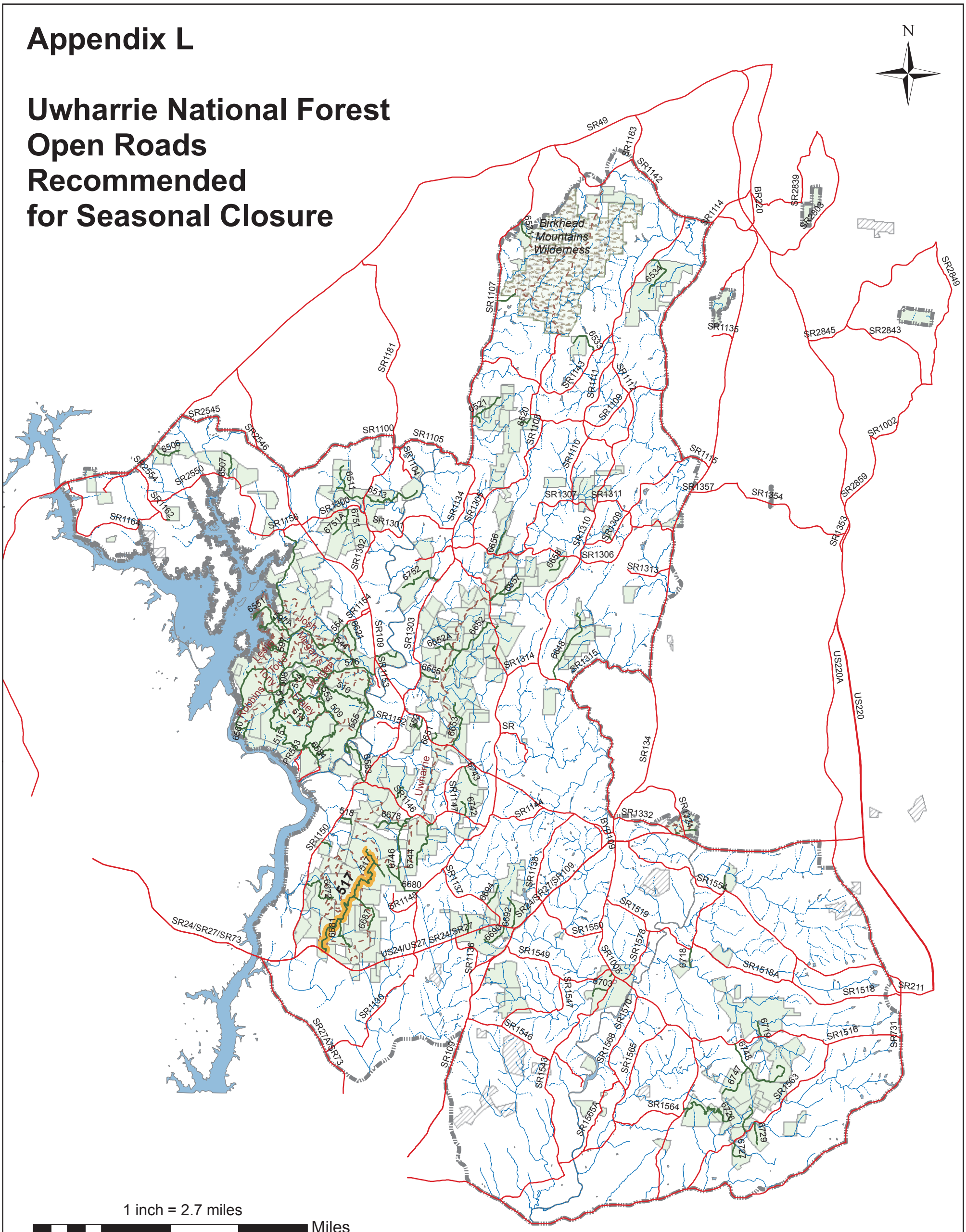
Social Issues (SI)
SI (1): Who are the direct users of the road system and of the surrounding areas? In which activities are they directly participating on the forest? Where are these activities taking place on the forest?
SI (2): Why do people value their specific access to national forest and grasslands – what opportunities does access provide?
SI (3): What are the broader social and economic benefits and costs of the current forest road system and its management?
SI (4): How does the road system and road management contribute to or affect people's sense of place?
SI (5): What are the current conflicts between users, uses, and values (if any) associated with the road system and road management? Are these conflicts likely to change in the future with changes in local population, community growth, recreational use, resource developments, etc.?

Civil Rights and Environmental Justice (CR)

CR (1): Is the road system used or valued differently by minority, low-income, or disabled populations than by the general population? Would potential changes to the road system or its management have disproportionate negative impacts on minority, low-income, or disabled populations?

Appendix L

Uwharrie National Forest Open Roads Recommended for Seasonal Closure



1 inch = 2.7 miles

Miles

0 1 2 4 6 8

Legend

System Type

- Forest Service Road
- Municipal Road
- Trail

Road Management

- Open Road - Recommended for Seasonal Closure

Streams

- Intermittent Streams
- Perennial Streams

- Waterbody
- Wilderness

Ranger District

- Uwharrie Ranger District

Owner Classification

- NON-Forest Service
- USDA Forest Service

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Date: 3/31/2017