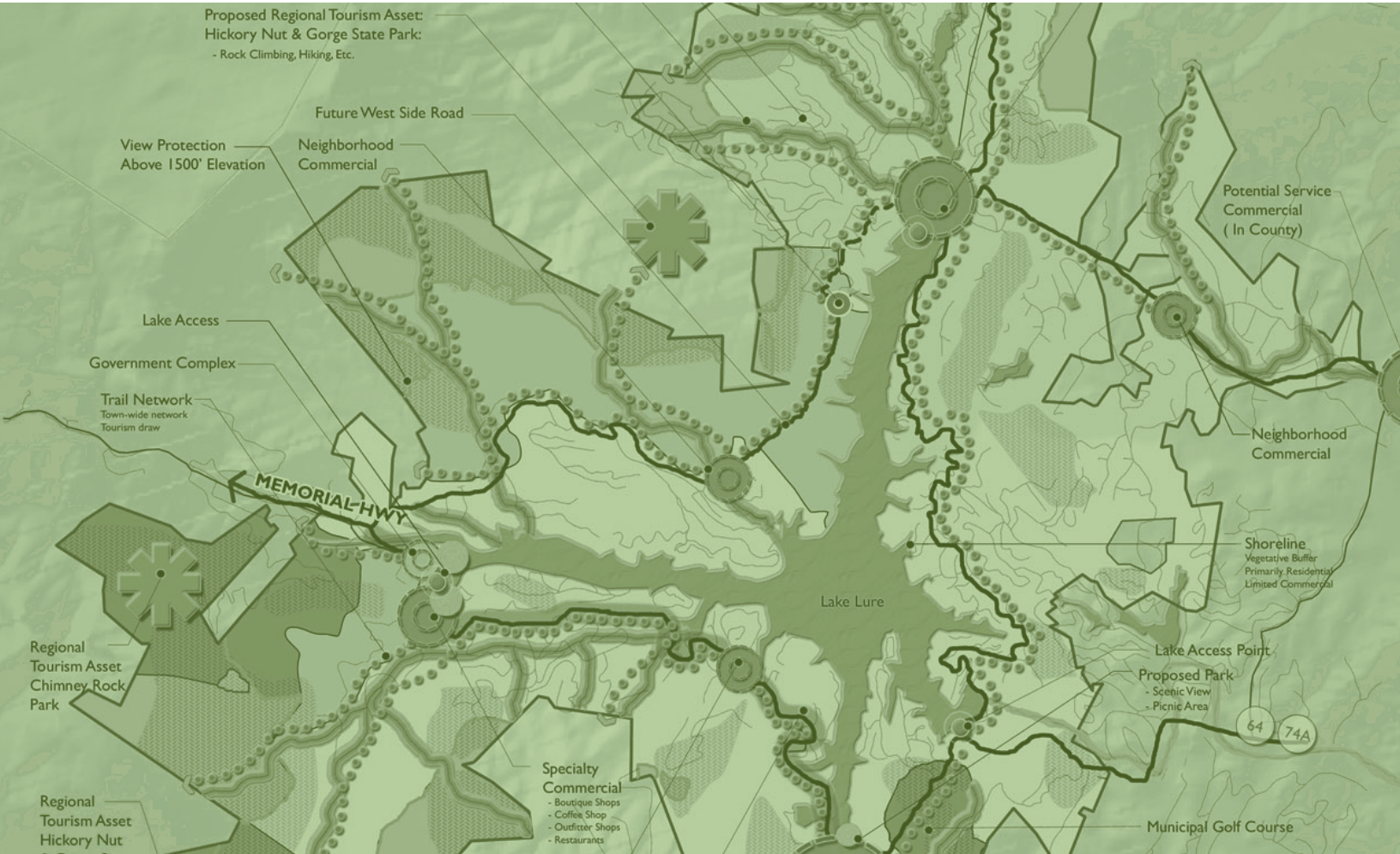


Town of Lake Lure 2007-2027 Comprehensive Plan



Town of Lake Lure Comprehensive Plan

June 2007

prepared for
Town of Lake Lure
2948 Memorial Highway
P O Box 255
Lake Lure, NC 28746
www.townoflakelure.com

prepared by
LandDesign, Inc.

TABLE OF CONTENTS

CODES

1	1.0 Introduction 1.1. Context 1.2. Purpose of the Plan 1.3. Process to Develop the Plan 1.4. Community Input 1.5. Vision Goals 1.6. Organization of the Plan 1.7. Key Terminology	
2	2.0 Economic Development 2.1. Introduction 2.2. Inventory and Existing Conditions 2.3. Summary of Issues and Opportunities 2.4. Goals, Objectives and Policies	ED
3	3.0 Transportation / Circulation 3.1. Introduction 3.2. Inventory and Existing Conditions 3.3. Summary of Issues and Opportunities 3.4. Goals, Objectives and Policies	TC
4	4.0 Utility Infrastructure 4.1. Introduction 4.2. Inventory and Existing Conditions 4.3. Summary of Issues and Opportunities 4.4. Goals, Objectives and Policies	UI
5	5.0 Parks & Recreation 5.1. Introduction 5.2. Inventory and Existing Conditions 5.3. Summary of Issues and Opportunities 5.4. Goals, Objectives and Policies	PR
6A	6.0 A. Lake Management 6.1. Introduction 6.2. Inventory and Existing Conditions 6.3. Summary of Issues and Opportunities 6.4. Goals, Objectives and Policies	LMDS – Dam & Sewer LMEP – Emergency Prep. LMLS – Lake Structures LMR – Recreation LMLE – Enforcement
6B	6.0 B. Boat Management 6.1. Introduction 6.2. Inventory and Existing Conditions 6.3. Summary of Issues and Opportunities 6.4. Goals, Objectives and Policies	LMBA

TABLE OF CONTENTS (CONTINUED)

CODES

7	7.0 Community Services & Facilities SF	
	7.1. Introduction	
	7.2. Inventory and Existing Conditions	
	7.3. Summary of Issues and Opportunities	
	7.4. Goals, Objectives and Policies	
8	8.0 Community Appearance & Design Standards CA	
	8.1. Introduction	
	8.2. Inventory and Existing Conditions	
	8.3. Summary of Issues and Opportunities	
	8.4. Goals, Objectives and Policies	
9	9.0 Government & Administration GA	
	9.1. Introduction	
	9.2. Inventory and Existing Conditions	
	9.3. Summary of Issues and Opportunities	
	9.4. Goals, Objectives and Policies	
10	10.0 Natural Environment & Open Space NE	
	10.1. Introduction	
	10.2. Inventory and Existing Conditions	
	10.3. Summary of Issues and Opportunities	
	10.4. Goals, Objectives and Policies	
11	11.0 Land Use & Growth Management LU	
	2.5. Introduction	
	2.6. Inventory and Existing Conditions	
	2.7. Summary of Issues and Opportunities	
	2.8. Goals, Objectives and Policies	
12	12.0 Final Concept Plan & Development Scenarios	
	12.1. Introduction	
	12.2. Concept Development	
	12.3. Concept Evaluation	
	12.4. Development Scenarios	
A	Appendices	
	A. Demographics	
	B. Implementation Matrix	
	C. 2006 Comprehensive Plan Survey Results	
	D. Stakeholders Interviewees	
	E. Community Meetings	
	F. Resources	
	G. Lake Lure Boating Management Plan Review & Recommendations	
	H. Lake Lure Dam	

LIST OF FIGURES & TABLES

1.0 Introduction

Figure 1 – Context Map

2.0 Economic Development

Table 2.1 – Developments and proposed developments within and near Lake Lure’s jurisdiction

Table 2.2 – Occupational types as of 2000 – Lake Lure, NC

Table 2.3 – Industry types as of 2000 – Lake Lure, NC

3.0 Transportation / Circulation

Table 3.1 – Average Annual Daily Traffic Counts

4.0 Utility Infrastructure

Figure 2 – Infrastructure Map

5.0 Parks & Recreation

Table 5.1 – Park Level of Service

Table 5.2 – Facility Level of Service

6.0 B Boat Management

Table 6B.1 - Portion of respondents engaging in boating activities on Lake Lure

Table 6B.2 - Recent permit history for motorboats >10 hp on Lake Lure

Table 6B.3 – General features of questionnaire respondents

7.0 Community Services & Facilities

Figure 3 – Communities Facilities Map

10.0 Natural Environment & Open Space

Table 10.1 – Plant Species

Table 10.2 – Vertebrate Species

Figure 4 – Elevation Map

Figure 5 – Environmental Map

11.0 Land Use & Growth Management

Table 11.1 – Acreage by Zoning District

Table 11.2 – Acreage by Land Use

Figure 6A – Existing Land Use Map

Figure 6B- Generalized Land Use Characteristics

Figure 7 – Existing Zoning Map

Figure 8 – Future Land Use Map

12.0 Final Concept Plan & Development Scenarios

Figure 9 – Concept A

Figure 10 – Concept B

Figure 11 – Concept C

Figure 12 – Final Concept

Appendix E

Figure 13 – Town Center

Figure 14 – Mixed-Use Node

Figure 15 – Residential development

ACKNOWLEDGEMENTS

The Town of Lake Lure's Comprehensive Plan was developed through a process initiated by the Town of Lake Lure and managed by the consultant team of LandDesign, Inc. and the Community Development Director. This document represents the efforts of the Comprehensive Plan Steering Committee who guided the planning process and should be recognized not only for the effort expended, but also for their continued commitment to the Comprehensive Plan. The following were members of the Comprehensive Plan Steering Committee:

Diane Barrett
Tony Brodfuhrer
Bill Bush
Kate Haskell
Norton Elder
Paula Jordan
Jack Lawrence
Dick McCallum
Jack Mowat
Fred Noble
Chuck Place
Robin Proctor
Bud Schichtel
Linda Swift
Bob Washburn
Dick Washburn (Committee Chair)

Many other groups and individuals contributed to the development of the Comprehensive Plan. Stakeholders interviewed during the process represented members from the Zoning and Planning Board, Town Council, Lake Advisory Committee, Board of Adjustments, Town Staff, the Mayor of Lake Lure, Jim Proctor, and the community at large. (A complete list of stakeholders can be found in Appendix D.) Planners, open space professionals, key business and community leaders, and concerned citizens participated in a series of meetings and workshops; their efforts are reflected in the outcome of plan. These groups and individuals are gratefully acknowledged for their invaluable contributions through their participation, their energy, and their passion.

1.0 Introduction

1.1.	Context	1-1
1.2.	Purpose of a Comprehensive Plan	1-3
1.3.	Process to Develop the Plan	1-4
1.4.	Community Input Summary	1-6
1.5.	Vision Goals	1-6
1.6.	Organization of the Plan	1-7
1.7.	Key Terminology	1-7

1

1.1 CONTEXT

Lake Lure is a small town located in the northwest corner of Rutherford County in North Carolina. Nestled in the Blue Ridge Mountains, the physical setting of the town is a primary attraction for all of those who visit and live there. Its rural charm, spectacular views and natural resources define Lake Lure’s mountain character. The town encompasses the 720-acre Lake Lure, which offers opportunities for boating and other water-related activities, (as well as two other lakes: the 51-acre Bald Mountain Lake and a much smaller lake within Shumont Estates). From several vantage points around and on the lake are priceless vistas to the surrounding tree-covered mountains.

Lake Lure is close to a number of cities and towns that are popular destinations in the western part of the state. Rutherfordton, the county seat, lies within 18 miles of Lake Lure. Only six miles east of Rutherfordton is Forest City, the commercial hub of Rutherford County. Asheville, a city in western North Carolina that was also a resort destination in its early years, is just 26 miles to the northwest. The downtowns of both Rutherfordton and Asheville have a rich architectural heritage and are on the National Register of Historic Places (US National Park Service, 2006).

The natural heritage of the region is also important. Two area attractions, Chimney Rock and the proposed Hickory Nut Gorge State Park, are located within and adjacent to the town on the northwest, west, and southwest sides. The features of these areas are considered to be regional assets and also attract tourists from across the United States. (See Figure #1, Context Map.)

The history of Lake Lure dates back to 1925 when “Dr. Lucius B. Morse envisioned a world-class resort in western North Carolina [to be] developed by Chimney Rock Mountains, Incorporated. A lake created by impounding the Rocky Broad River at Tumbling Shoals formed the centerpiece of this resort. This lake became Lake Lure. As a first step in the development of the resort, Chimney Rock Mountains, Incorporated spent approximately \$600,000 to acquire 220 tracts of land. In total, Chimney Rock Mountains, Incorporated acquired about 8,000 acres or

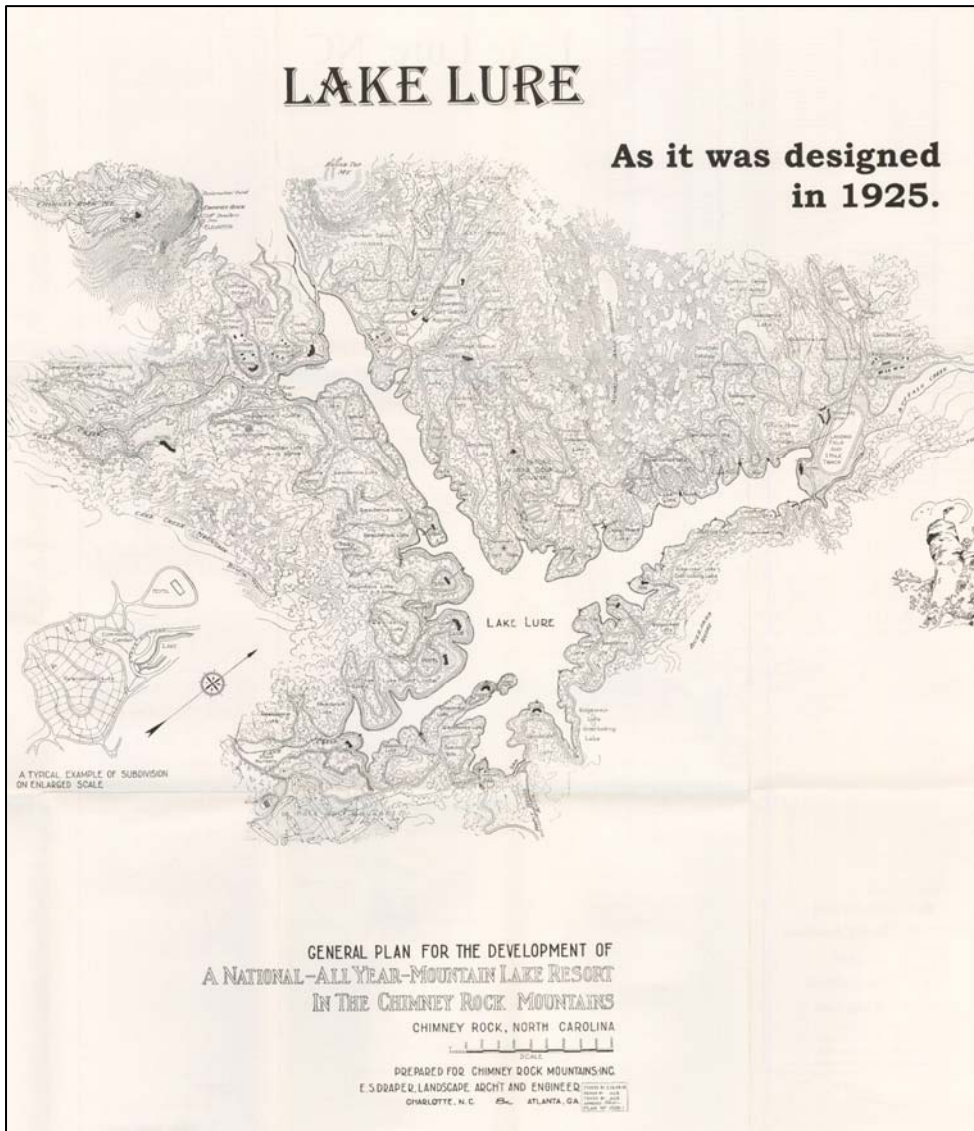
Vision Statement

“Lake Lure, the gem of the Carolinas, is a mountain lake community that has a harmonious balance of interests of our citizens, businesses and visitors, achieved through open communication and managed growth that emphasizes fiscal responsibility and stewardship of our natural beauty and environment.”

--Created by the Lake Lure Strategic Planning Steering Committee and modified by the Comprehensive Plan Steering Committee.

12 square miles, including the valley in which Lake Lure lies and the hills and mountains above” (Sherk, 2005).

Carolina Mountain Power Company was responsible for constructing the dam that impounded Lake Lure, which became official town property in 1965 and has remained the focal point of the community. Surrounded by natural beauty, Lake Lure has remained a popular western North Carolina vacation destination since its incorporation in 1927. To this day, Lake Lure still attracts thousands of visitors every year. Some of these visitors, in fact, have chosen to make Lake Lure their permanent home while others have chosen Lake Lure as the location for a vacation or second home.



This original plan for Lake Lure as a resort destination is on display in Town Hall.

Recently, a variety of factors, including exposure through national publications, have played a role in raising awareness and popularity of western North Carolina. As a result, development is happening at an increasing rate within and around Lake Lure. The impacts of such growth, direct and indirect, convinced members of the community to move forward with a comprehensive plan for the town to better manage future growth and development and to preserve the features that have attracted residents and tourists to the area over the last 80 years.

1.2 Purpose of the Comprehensive Plan

Adopting the comprehensive plan is one step toward ensuring that new development and the infrastructure and services that accompany it help Lake Lure remain a more vibrant and active town, while much of the natural environment remains intact. Such a plan is a reflection of the community's desires and serves as a policy guide that will aid decision makers over the coming years. In order to be an effective guide, the plan must be comprehensive in the sense that it examines a number of key, interrelated factors simultaneously. More importantly, it is strategic, identifying the most critical issues and defining short and long-term strategies for addressing those issues.

Comprehensive plans are the most common plans used to guide development. It is a means of establishing long-term vision typically looking 15 to 20 years into the future. Though this plan is the first of its kind in Lake Lure, it is not the first plan to guide development in the town. Previous planning efforts produced similar plans, such as the Lake Lure Land Use Plan (1997), which provided specific recommendations regarding a future land use pattern for the town. In addition, the Report and Recommendations (1999) were prepared by the Strategic Planning Steering Committee as a way of defining short-term action steps for addressing a set of development issues similar to the issues identified in this plan. These plans and studies were among the many documents reviewed in the initial stages of this process to bring forward the ideas that are still relevant today.

Like other general plans before it, this plan will provide the framework for every planning effort that follows and serve as the “glue” that connects topic-specific plans and studies to each other. It is the basis for a number of strategic efforts aimed at addressing issues and opportunities.

This plan shall be utilized as a dynamic, living document that provides context for local officials who will make decisions regarding growth and

development in the community, services and facilities to support development, and efficient allocation of public funds. This plan also aids decisions of any group or individual who is concerned with growth and development as it serves to coordinate activities for developers, land trusts, environmental agencies, utility providers, private land owners, etc. This plan can be interwoven into Lake Lure's daily decision making process.

This 2027 plan has a planning horizon of 20 years. Although the document provides a broad vision and goals that the community should work toward over the next two decades, it must be reviewed annually and updated at least once every five years. These periodic reviews and updates allow for acknowledgement of changing circumstances.

1.3 Process to Develop the Plan

The planning process was orchestrated to involve the community at various levels. The process itself was divided into the following phases as highlighted below.

1. Project Initiation – This short phase included the creation of the Comprehensive Plan Steering Committee (CPSC) composed of residents in the community representing a variety of interests. Members were appointed by the town council, and charged with the responsibility of providing guidance to ensure the final comprehensive plan reflects the desires and expectations of the entire community. Also during this phase, the data collection process was initiated. The data included information needed to conduct analyses of existing conditions, as well as existing plans, regulations, studies and reports. (See the Acknowledgements page following the Table of Contents for a list of the Comprehensive Plan Steering Committee members and Appendix F for materials reviewed. A list of Stakeholders may be found in Appendix D.)
2. Research and Analysis – This phase of the report included a wide spectrum of tasks. The research was based upon the information provided by the town and supported by input obtained through activities listed below.
 - Stakeholder Interviews – Key stakeholders who included community and neighborhood leaders, property owners' association representatives, business leaders, representatives of town, county and state departments and committees, and other individuals whose input supplemented the data collected. (See Appendix D)



Steering committee members offer ideas and comments on initial plan concept ideas.

- 2006 Community Survey – During April and May of 2006, almost 3,000 surveys were mailed to property owners in Lake Lure. Of that number, 941 surveys were returned. The survey involved full and part-time residents and reached its objectives as outlined in Appendix C.
 - Comprehensive Plan Steering Committee Meeting (CPSC) – This meeting was used to present and discuss findings, and develop a list of issues and opportunities to be addressed in the plan.
 - First Community Meeting – This meeting was used to introduce the process to the community and engage participants in a discussion of goals based on the issues identified. Initial survey results were among the information presented (see Appendices C and E).
 - Zoning and Planning Board – Representatives from the Zoning and Planning Board provided instrumental information for an in-depth analysis to past and present plans for Lake Lure. Information gathered from them was paramount in the development of initial and final concept maps.
3. Framework Concepts – Alternative concepts were developed to integrate the essence of the issues and opportunities gathered from phase two. The CPSC helped to establish possible directions for the plan with alternatives developed through a two part charrette.
 4. Plan Development – This phase involved a second community meeting, which allowed Lake Lure citizens to express their thoughts about their future. (See Appendix E.) The input that followed the evaluation of plan concepts (known as Concept A, Concept B, and Concept C) served as the foundation to the Final Concept Plan (see Figure #12). These concepts, or maps, express diagrammatical relationships between land uses and served as a tool for expressing overall goals for the future growth and development of the town. The latter portion of the fourth phase was used to prepare development scenarios that illustrate examples of how development might occur given ideas regarding potential policies. (See Section 12, Final Concept Plan & Development Scenarios.)

5. Plan Documentation and Adoption – This was the final phase of the process during which policies were developed and action items were prioritized. These policies and action items were presented at the third community meeting for input prior to the finalization of this report.

In its entirety, the plan was developed over a period of 16 months. As mentioned previously, the element of community input was an integral factor in the developmental process of the comprehensive plan. Hence, the information gathered is considered invaluable and integrated in nearly every level of this plan.

1.4 Community Input Summary

The community input process consisted of four methods for obtaining input: the CPSC meetings, key stakeholder interviews, a series of community meetings and a community-wide survey. The CPSC helped steer the direction of the comprehensive plan via meetings and work sessions. The key stakeholder interviews consisted of two full days of in-person interviews with a variety of key stakeholder groups. Three public meetings were included as critical components of the public process to solicit feedback and guidance at designated intervals during the project. The final community input technique was the community-wide survey.

The original purpose of the survey was to supplement other input and provide an alternative means of obtaining input from residents and non-residents, voters and non-voters. In delivering the survey, the town chose to distribute the survey to all property owners, giving the entire community an opportunity to respond. Out of 2,992 surveys sent, 941 were completed and returned. The response rate was an overwhelming 31.5%. The most interesting aspect of the survey is that its results aligned with and supported the qualitative input received through community meetings, from the CPSC, and from the key stakeholders. Specific results of the survey are presented in Appendix C.

1.5 Vision Goals

The purpose of the vision goals is to add clarity to the vision by establishing a clear direction and clear objectives for the comprehensive plan. Although there are goals systematically addressed in each section of the comprehensive plan, there are overarching goals, called vision goals, which are integrated at nearly every level. It is important to review the goals at this juncture for two reasons: 1) the importance of the community input has been thoroughly reviewed and highly influenced the vision goals and 2) within each section, issue-specific goals relate to

one (or more) of the following vision goals directly or indirectly. Hence, for clarity purposes, the following are the major goals of the comprehensive plan.

- **Manage growth conservatively**
- **Develop a sustainable economy**
- **Promote and preserve Lake Lure’s character**
- **Enhance and preserve the environment**
- **Improve public infrastructure**
- **Provide public services efficiently**

Each of the vision goals will be addressed fully in the remaining pages of this plan. Although the vision goals are neither repeated nor mentioned further, each serves as an important reference to grasp the plan in its entirety.

1.6 Organization of the Plan

The plan is organized according to the fluency of topics, not by priority. Within each section devoted to a specific topic, the reader will find information presented in four subsections: Introduction, Inventory and Existing Conditions, Summary of Issues and Opportunities, and Goals, Objectives, and Policies. Section 12 includes the final comprehensive plan illustration along with development scenarios, which is the essence of the plan. Following the last section is an appendix, which includes information referenced in the comprehensive plan, such as the Implementation Matrix, 2006 Community Survey, Stakeholders Interviews, Comprehensive Plan Steering Committee, Community Meetings, and Resources. Each is explained further in those sections.

1.7 Key Terminology

To better understand this report, it is necessary to understand the terminology by which it is written. Although the following terms have been expanded upon further in the entirety of this report, each has been identified and briefly summarized for the reader’s comprehension:

- *Lake Lure Community Development Department*: Also referred to as the ‘Community Development Department’, this is the municipality’s department in charge of planning and zoning activities, including comprehensive plan implementation and carrying out adopted policies.
- *Comprehensive Plan Steering Committee*: Also referred to as the ‘CPSC’ or the ‘Steering Committee’, this group was

- comprised of citizens and property owners representing a broad cross-section of the Lake Lure community and guided the comprehensive plan process.
- *Stakeholders:* A variety of land owners, developers, agency representatives, and others from Lake Lure who were able to enhance the research by providing an additional layer of information regarding local issues and opportunities.
 - *2006 Community Survey:* A survey that was conducted in conjunction with this comprehensive planning process to gain knowledge of the community's attitudes toward growth and development within Lake Lure.
 - *Implementation Matrix:* This matrix summarizes the policies set forth in the plan and the related action items. It reflects priorities determined during the process. More importantly, it serves as a worksheet for those involved in initializing, monitoring and measuring progress on implementation activities. It indicates items that should be the focus of first-year activities, and facilitates the prioritization of future implementation activities.
 - *Development Scenarios:* A method used to communicate the spirit of the comprehensive plan by illustrating the result of putting the policies into action. (Three development scenarios were completed and can be found in Section 12.)
 - *Extra-Territorial Jurisdiction:* Also referred to as ETJ, it is the legal ability of a government to exercise planning and zoning authority beyond its boundaries. This permits governing bodies to make certain decisions about land development beyond the corporate limits.
 - *Goals:* Value-based statements that are not necessarily measurable. For the purposes of this plan, they express an ideal future condition.
 - *Objectives:* More specific, measurable statements of desired outcomes rather than goals.
 - *Policies:* Rules or courses of action that indicate *how* the goals and objectives of the plan should be realized.
 - *Level of Service (LOS):* A user's quality of service through or over a specific facility (highway, intersection, crosswalk, etc.) is classified by level of service (LOS). Level of service is designated "A" through "F." LOS A represents uninterrupted flow. LOS F represents a highly congested, packed condition. LOS evaluations focus on the peak 15 minutes of flow. LOS F represents more than 45 passenger cars per mile per lane (pc/mi/ln) as defined in the Highway Capacity Manual by the Transportation Research Board of the National Research Council.
 - *Undeveloped Land:* Land in its natural state before development.

- *Protected Land:* Land that has been protected from future development through a mechanism that takes away existing and potential development rights.
- *Scenic Overlay District:* A district superimposed over one or more general-use zoning designations for a particular purpose, such as protecting scenic viewsheds, for example.

2.0	Economic Development	2-1
2.1.	Introduction	2-1
2.2.	Inventory and Existing Conditions	2-1
2.3.	Summary of Issues and Opportunities	2-12
2.4.	Goals, Objectives and Policies	2-12

2

2.1 INTRODUCTION

Lake Lure's proximity to regional points of interest, its natural setting, and its recreational opportunities contribute to its successful tourism industry, which is a primary component of its economy. Within recent years, Lake Lure has experienced greater growth in economic prosperity, fueled by tourism. Tourism affects Lake Lure's seasonal population flux.

With so many visitors, interest in the area as a location for permanent and second homes has also risen. In particular, the demand for single-family housing has steadily increased between 1990 and 2006. This has resulted in growth in the real estate and construction industries, making those industries two of the stronger components of the local economy.

Sustaining a strong economy is important to the town and depends on a number of factors including the quality of the environment, the quality of life for the residents, and the quality of visitor experience. This section examines opportunities for economic growth while considering the demographics of the town.

2.2 Inventory and Existing Conditions

The current economic state of Lake Lure is affected by a variety of issues related to demographics and industry. All information presented in this section is relevant to the economic vitality of Lake Lure.

Demographics

Demographics are essential for the delivery of a cohesive economic development analysis. This section provides data regarding estimated and projected population, housing, income, and occupations (See *Appendix A*).

Population

The population of Lake Lure has grown at an average rate of 3% per year over the 30-year period from 1970 to 2000. In recent years, the increase in the permanent resident population was much higher for Lake Lure than Rutherford County from the period of 1990 to 2000. The percentage increase between 1970 and 2000 for Lake Lure was 48.6% versus 10.4% for Rutherford County.

In order to project future population in Lake Lure, a range has been established to illustrate a conservative (low end) and an aggressive (high end) estimation. The conservative end of the spectrum assumes a 3% continued growth rate (as experienced from the period of 1970 to 2000) in the population. At this rate,

Lake Lure will have nearly doubled its permanent population by the year 2030 to 2,068. The aggressive end of the spectrum assumes that the pace of population growth is consistent at 48.6% with the rate experienced over the last decade (compounded every 10 years). At this rate, Lake Lure can anticipate a permanent population of 3,369 by 2030. Therefore, the projected range of population could be between 2,068 and 3,369 for the year 2030.

Keeping with Lake Lure’s vision, the projected permanent population is likely to be equal to or lower than 1,800. This number was derived from the following equation: The total amount of acres in Lake Lure (8,082), multiplied by the percentage of vacant land available for development (81.6%), divided by the average number of acres per unit (4 acres), multiplied by the average number of persons per household, (2.07) multiplied by the percentage of full-time owner occupied housing units compared to the total amount of housing units (22.1%) added to the 2000 Census population of 1,027. The projected increase is 754 permanent residents, or a 73.4% increase based on the 2000 permanent population

Lake Lure’s median age of 58.6 is well above that of the state’s and county’s median ages by 23.3 and 20.3 years, respectively. This is a reflection of the attraction of retirees to Lake Lure.

Population Estimates and Projections – Lake Lure, NC

	1970	1980	1990	2000	2010	2020	2030
Permanent Population	456	488	691	1,027	1,320	1,787	2,068
% Change From Pervious Period	-----	7%	42%	48.6%	N/A	N/A	N/A

Source: North Carolina State Data Center & Census.gov

Population - Rutherford County, NC

	1970	1980	1990	2000
Population	47,337	53,787	56,918	62,899
% Change From Previous Period	-----	13.6%	5.8%	10.5%

Source: North Carolina State Data Center & Census.gov

Median Age - Lake Lure, NC

Location	Median Age
Lake Lure	58.6
Rutherford County	38.3
North Carolina	35.3

Source: U.S. Census Bureau, 2000 Census

Age Distribution – Lake Lure, NC

Age	Male	Female
1-5	17	16
6-17	38	36
18-24	16	17
25-34	33	19
35-59	166	182
60-64	58	56
65-84	183	175
85+	10	5
Total	521	506

Source: U.S. Census Bureau, 2000 Census

Income

The range of income in Lake Lure is broad. Over 57% of households in Lake Lure earn between \$25,000 and \$99,000. The overwhelming majority of households, 88%, have incomes below \$100,000 per annum. According to the 2000 Census, the per capita income was \$23,459, which is roughly \$2,000 above the national average. Lake Lure’s median household income was \$38,417. This is also significantly higher than Rutherford County’s median household income of \$31,122, which is \$7,295, or 18%, lower than the Lake Lure’s median household income.

Roughly 10% of Lake Lure’s population is considered “below poverty.” On the opposite end of the spectrum, a small fraction, 1%, of all households have an income above \$200,000.

Income Characteristics – Lake Lure, NC

Characteristic	1999	2006
Median Income	\$38,417	\$42,216
Median Family Income	\$45,833	\$53,603
Per Capita Income	\$23,459	\$25,779
Families Below Poverty	17	18
Individuals Below Poverty	99	107

Source: Multiple Listing Services, Inc.

Household Income Distribution in 2000 – Lake Lure, NC

Range of Income	Percentage of households earning income within range indicated
Less than \$10,000	11%
\$10,000 to \$14,999	9%
\$15,000 to \$24,999	11%
\$25,000 to \$34,999	13%
\$35,000 to \$49,999	16%
\$50,000 to \$74,999	18%
\$75,000 to \$99,999	10%
\$100,000 to \$149,999	10%
\$150,000 to \$199,999	1%
\$200,000 or more	1%

Source: U.S. Census Bureau, 2000 Census

Housing

Housing is an important economic indicator. Housing prices, housing occupancy, housing supply, and the rate of housing development together give an indication of how strong the housing market is in given area.

According to the survey, nearly 39% of the respondents live in Lake Lure year-round. This could be reflective of an increase from the 2000 Census, which indicated only 25.3% of the population lived in Lake Lure year-round. It also indicates a growing second home market. Additionally, of the total housing units in Lake Lure, only 22.1% are occupied by their owners. This suggests that there is an extremely high rental market for homes in Lake Lure.

With an average household size, according to the 2000 Census, of 2.07, Lake Lure can expect a range of 565 to 1,171 (according to the conservative and aggressive population projections, respectively) additional housing units will be needed to accommodate the permanent population projected by 2030. However, recent trends suggest that the demand for housing in the future will increase as a result of both population growth and the second home market. If only 22% of homes in Lake Lure today are occupied by permanent residents, it is possible that the number of housing units constructed by 2030 could exceed the predicted range of households. This would account for the units constructed as second homes.

This increase in the demand for housing is already being reflected in the increase in home prices. According to the 2000 Census, the median home value in Lake Lure had increased to \$196,800. This figure is nearly \$120,000 higher than Rutherford County’s median home value of \$77,600.

The 2000 Census indicated that the majority of homes were for sale within or below the range of \$200,000 to \$249,000. According to the National Association of Realtors, there were 118 listings at a median price of \$277,000 as of August 2006.

Occupied Housing – Lake Lure, NC

HOUSING CHARACTERISTICS	2000	2006	% Change
Renter Occupied	67	73	7.4%
Owner Occupied	428	463	8.1%
Occupied Housing Units	495	536	8%
Vacant*	1462	1558	6.5%
Total Housing Units	1957	2094	7%

Source: U.S. Census Bureau, 2000 Census, and Multiple Listing Services, Inc.

**Vacant, according to the 2000 Census, these units were utilized for seasonal, recreational, occasional use, or vacant (e.g. not occupied)*

Owner Occupied Housing – Lake Lure, NC

	2000	2006	% Change
Owner occupied housing units (non-rental and over 5 month occupation)	21.8%	22.1%	.3%

Source - Multiple Listing Services, Inc.

Home Prices as of 2000 – Lake Lure, NC

Home Prices	Number of units for sale in range indicated
Less than \$10,000	0
\$10,000 to \$14,999	0
\$15,000 to \$19,999	0
\$20,000 to \$24,999	4
\$25,000 to \$29,999	0
\$30,000 to \$34,999	0
\$35,000 to \$39,999	2
\$40,000 to \$49,999	2
\$50,000 to \$59,999	10
\$60,000 to \$69,999	6
\$70,000 to \$79,999	14
\$80,000 to \$89,999	5
\$90,000 to \$99,999	5
\$100,000 to \$124,999	43
\$125,000 to \$149,999	27
\$150,000 to \$174,999	35
\$175,000 to \$199,999	27
\$200,000 to \$249,999	67
\$250,000 to \$299,999	44
\$300,000 to \$399,999	37
\$400,000 to \$499,999	11
\$500,000 to \$749,999	14
\$750,000 to \$999,999	9
\$1,000,000 or more	8

Source: U.S. Census Bureau, 2000 Census

Future residential development in Lake Lure is primarily focused on single-family dwellings. Developments proposed within and beyond Lake Lure's boundary will add an additional 4,643 units to the region, among which a majority will be single-family residences.

The table below indicates developments within or close to the Lake Lure area. According to a local Realtor, each is in various stages of construction, but has been actively marketed and sold. Also, many of the units have been sold to speculators and are already entering the resale market.

Table 2.1: Developments and proposed developments within and near Lake Lure’s jurisdiction

Development Name	Acreage	Potential number of units to be developed
Grey Rock	4000	900
Bright’s Creek-Fazio Golf Course	4325	1,050
Vista-Blacksmith Mountain	N/A	90
Vista-Bills Mountain	700	200
Vista-Riverbank	75	45
Highlands	180	80
Creston	1100	100
Grand Oaks	N/A	100
White Oak-Nicklaus Golf Course	4500	900
Broad River Plantation	N/A	60
Peaks at Lake Lure	N/A	60
Brookside Forest	100	50
Sweetbriar Farms	N/A	100
Laurel Lakes	N/A	68
Hidden Lakes	N/A	100
Clearwater Creek	N/A	84
Blue Heron Point	50.98	45
Cedar Mountain Estates	N/A	30
King Ranch/Farm	N/A	540
Fire Fly Cove	N/A	41
TOTAL	N/A	4,643

Source: Local real estate office



Housing development in Lake Lure has been a key aspect of the town’s economy. Firefly Cove, a nationally marketed community, has attracted investors throughout the nation. This is one of many recent examples of investment within and beyond Lake Lure’s incorporated boundaries.

Employment

According to the 2000 Census, Lake Lure’s unemployment rate was impressively low at 1%, especially compared to Rutherford County’s, which is 8.6%. According to the 2000 Census, 40% of Lake Lure residents that are between the ages of 18 and 65 work primarily in a professional or managerial capacity. However, many are not employed in Lake Lure. According to the stakeholder interviews and public meetings, within the specific industry categories, many positions are held by employees living outside of Lake Lure. Roughly 27% of the jobs held in Lake Lure are related to arts, entertainment, recreation, accommodation, and food services mostly associated with the tourism industry. Other industries that account for the majority of employment in Lake Lure include the following: educational, health and social services; construction; retail trade; and finance, insurance, real estate, and rental and leasing.

Table 2.2: Occupational types as of 2000 – Lake Lure, NC

Occupations*	Percentage of total occupations
Management, professional, and related occupations	40.1%
Service Occupations	17.6%
Sales and office occupations	31.3%
Construction, extraction, and maintenance occupations	3.4%
Production, transportation, and material moving occupations	7.7%

*Source: U.S. Census Bureau, 2000 Census
Retirees are not included.

Table 2.3: Industry types as of 2000 – Lake Lure, NC

Type of Industry	Number of people employed	Percent of people employed
Agriculture, forestry, fishing and hunting, and mining	0	0.0
Construction	35	9.9
Manufacturing	25	7.1
Wholesale trade	2	0.6
Retail trade	35	9.9
Transportation and warehousing, and utilities	17	4.8
Information	12	3.4
Finance, insurance, real estate, and rental and leasing	36	10.2
Professional, scientific, management, administrative, and waste management services	16	4.5
Educational, health and social services	43	12.2

Arts, entertainment, recreation, accommodation and food services	94	26.7
Other services (except public administration)	18	5.1

Source: U.S. Census Bureau, 2000 Census

Industry

Lake Lure has no industry in the traditional sense, yet the town has an opportunity to leverage its recreational and natural resources to strengthen and further link the services and tourism that fuel the economy today. Studies conducted by a John L. Crompton, a professor at Texas A&M University who specializes in marketing and financing in parks, recreation and conservation, indicate a strong link between economic development and a community’s recreational and natural resources. According to Crompton, recreation and access to natural areas play a major role in economic development in that they attract tourists, businesses, and retirees while enhancing real estate values (Crompton, 1999). Economic development could occur in a fashion that supports a strong concept for the future of Lake Lure as a unique community with an emphasis on recreation and natural heritage that appeals to residents and visitors alike. In other words, decisions about growth and development should be guided by a desire to protect and promote the recreational and natural assets of the area while ensuring a balance between quality of life for residents and quality of the visitor experience. The following provides more detailed information about current industries that should be a component of the local economy in the future and how each might be connected to the concept of Lake Lure as a recreational and natural heritage community.



Lake Lure’s beach is a main attraction. The beach is located adjacent the town center, which is comprised of commercial and municipal uses.

Tourism

Tourism is a large part of Lake Lure’s local economy. According to the 2000 Census, businesses associated with tourism (arts, entertainment, recreation, accommodation, and food services) employed the greatest number of people working in Lake Lure. Originally designed as a tourist destination by capitalizing on the area’s unique natural beauty, Lake Lure is known as a vacation destination. In 2006, Lake Lure benefited from a large tourism event for the Home & Garden Television (HGTV) 2006 Dream Home tours, as well as recent press in national publications such as a 2005 issue of Forbes Magazine that compared Lake Lure to Martha’s Vineyard, the Hamptons (Long Island, NY) and Lake Tahoe. All four were on the list of top 10 vacation rental destinations in the US. The home tour event and recent press have indirectly marketed Lake Lure’s offerings, which are primarily linked to recreational and natural resources, to an international audience. Among the features and attractions that



The current town center is home to commercial services, Lake Lure’s maintenance facility, and residences. There is tremendous opportunity for infill development that would support the vision for Lake Lure.

make up this collection of regional tourism assets are the lake itself, Chimney Rock Park, and numerous wilderness lands in close proximity to Lake Lure (including lands that will become the Hickory Nut Gorge State Park).

Lake Lure has begun to build upon its resources by organizing recreation-oriented special events (e.g. Olympiad). Private companies are promoting and providing other adventure recreation activities, such as rock climbing. Lake Lure has the opportunity to maintain tourism as a key component of the local economy by marketing a collection of regional assets to an adventure/outdoor recreation-based audience.

Also, an inventory of natural habitats is being created. Visitors seeking a nature-oriented experience would benefit from the completion of this inventory. It is discussed in more detail in the Natural Environment and Open Space section.

Improving Lake Lure's tourism capture rate is essential for increasing visitor spending while simultaneously prolonging the opportunity for visitors to discover other recreational opportunities. For example, an overnight stay (as opposed to a day trip) in Lake Lure for boating will increase potential exposure rates to other outdoor recreation opportunities, such as hiking. Strategically planned special events would also offer a great opportunity to raise awareness of outdoor activities throughout the year, such as rock climbing, which is a popular winter activity in Lake Lure. This could help to lengthen the season and strengthen tourism-dependent businesses.

Retail Trade

The community has expressed support (via community meetings, the survey, etc.) for more shops, restaurants, and other commercial services, as long as all are provided at a small scale that will not be detrimental to the character of the town. Lake Lure has much to gain from concentrated development, as discussed in the *Land Use and Growth Management* section. Though residential development generates the largest percent of the revenues that comprise the annual budget, the town could benefit from the revenues generated from sales tax, property tax, and reduced infrastructure costs associated with commercial development. With the recreation and nature-based activities, especially those that will be provided with the development of the Hickory Nut Gorge State Park, the town has an opportunity to promote existing businesses and recruit businesses that could be patronized by the visitors and residents taking advantage of



Concentrating commercial uses in the town center, developing a pedestrian-friendly design, and maximizing existing land uses in the area will improve economic activity and create a vibrant town center as depicted in this image.

these activities. Locating these businesses in the town center, which could serve as a “trail head” of a pathway leading into the future state park, could be highly advantageous.

Real Estate

The real estate market has been strong in Lake Lure, especially in recent years. Certain indicators are present, such as rising home prices, an increase in the number of real estate professionals serving the area (includes rental leasing), and the increase in number of real estate offices in town. When interviewed, representatives of the real estate industry indicated that the second home market continues to move in an upward direction throughout the region.

Although the housing market has been strong in the past, there is a possibility of the market becoming soft or less liquid, particularly the secondary housing market (National Association of Affordable Housing Lenders). Evidence suggests that macroeconomic trends such as a rise in interest rates, coupled with an increase in housing supply, could lead to a decrease in the value of property (Board of Governors of the Federal Reserve System). This would adversely affect communities, such as Lake Lure, with an emphasis on the secondary housing market.

The housing market could remain strong and, more importantly, property values could be maintained or increased, if the lifestyle in Lake Lure continues to be associated with a unified concept of recreation and natural heritage. Homebuyers today who are seeking quality of life value open space and recreation. According to Crompton, “no matter how quality of life is defined, park and recreational opportunities are likely to be a major component of it” (Crompton, 2001).

Construction

According to the 2000 Census, the construction industry has employed 10% of Lake Lure’s workforce. Additionally, a strong demand for single family homes within and outside of Lake Lure has fueled the construction industry. This industry could remain strong as long as the real estate market remains strong. In the building industry, emphasis on environmental sensitivity is increasing.

Educational, Health and Social Services

According to the 2000 Census, 12.2% of the jobs in Lake Lure are associated with the educational, health and social services industry, and there is community support for more of these services within Lake Lure. This, too, could build on the opportunities associated with recreation and the natural environment. For example, Lake Lure could be the location of a special school which is discussed at greater lengths in the Community Service and Facilities section.

2.3 Summary of Issues and Opportunities

- The town needs an overall economic development strategy that is based on a long-term vision. There is a need to leverage assets to strengthen and diversify the economy in the event of a slow down of any of the major sectors.
- There are significant economic development opportunities (existing and future) that have not been harnessed that could provide areas of untapped revenue streams for the town and local businesses (gateway to Hickory Nut Gorge State Park, arts, special events, a special use school, etc.)

2.4 Goals, Objectives and Policies

ED Goal 1: Diversified economy for a long-term stability

Objective: ED-1-1: Develop a unified economic development strategy based on the combination of recreation and natural heritage assets.

Policy ED-1-1.1:

Study the potential for recreation and natural resources to be a basis for an economic development strategy. *Inventory all of the assets (existing and future) within and near Lake Lure and examine the range of connections between them that could strengthen the concept.*

Objective ED-1-2: Capitalize on economic opportunities to provide balance and stability in the future of the local economy consistent with a unified concept.

Policy ED-1-2.1:

Attract a “special-use” school within Lake Lure.

(1) Evaluate the possibility of attracting a special-use school that is connected to a broader economic development concept. *The special-use school could be a catalyst project geared towards special uses such as environmental management, cultural classes, arts and crafts, eco-tourism, performing arts, etc.* This could provide opportunities for internships and part-time jobs in related field(s).

(2) Locate potential areas for the special-use school based on criteria such as parcel size, land value, feasibility, accessibility, etc., and promote these sites in communications with potential schools. *More information can be found in the Parks and Recreation section.*

Objective ED-1-3: Encourage businesses (that are desired and non-existent within Lake Lure’s jurisdiction) to locate operations within commercial nodes.

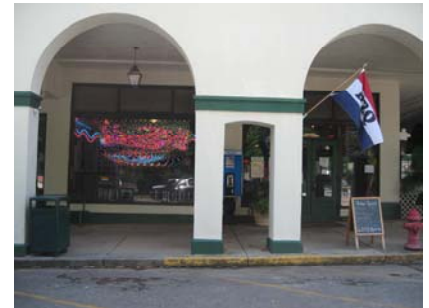
Policy ED-1-3.1:

Attract new businesses to town center and service commercial nodes.

(1) Consult all economic strategists to explore opportunity in Lake Lure’s markets. *Conduct an market analysis to determine which businesses would succeed in Lake Lure. Use data to attract desired businesses to the town.*

(2) Engage in dialogue with developers and businessmen/women to attract small businesses that are desired within Lake Lure such as boutiques, apparels, restaurants, art centers, sporting goods, etc.

(3) Promote the town center as a catalyst project. *The Town Center Concept Plan (see Figure #13) illustrates one approach to defining Lake Lure’s core. The concept integrates aspects of specialty retail, restaurants, a gateway to Hickory Nut Gorge State Park, and a trail system. This concept could spark development interest in a concentrated area, and the town*



A local restaurant is a commercial land use in the town center. There is an opportunity to develop this area as a commercial node and increase the variety of retail and services offered in Lake Lure.

could use it to attract developer(s) to implement the plan.

ED Goal 2: A balance between residential life and tourism

Objective: ED-2-1: Maintain and enhance tourism by developing a unified tourism strategy based on the combination of recreation and natural heritage assets.

Policy ED-2-1.1:

Communicate the vision for Lake Lure with the assistance of the Economic Development Commission.

(1) Start a cohesive marketing package that promotes the vision that is based on the combination of assets in the Lake Lure area. *A broader understanding of the vision achieved through marketing activities (i.e. communication to various audiences) increases the chance of realizing the vision. More people can play a role in advancing defined goals.*

(2) Designate a liaison to improve communications with the EDC.

Policy ED-2-1.2:

Improve the special events calendar to include activities year-round.

(1) Evaluate the current special events programs by various entities and determine areas for improvement through town support to engage residents and visitors in more activities. *This may include developing programs in off-season months.*

Policy ED-2-2.1:

Create gateways from Lake Lure into Hickory Nut Gorge State Park.

(1) Assess tourism attractions and potential businesses that will succeed, such as restaurants, outdoor stores, hotels, horseback riding, trail guides, etc.

(2) Create small area plans to carefully guide the development of area to preserve the town's character through scale, architecture, and landscaping to maximize business opportunity.

Policy ED-2-2.2:

Improve beach appearance and operations

(1) Improving the appearance of beach; improve facilities, amenities, and landscape to encourage investment in the town center. *The improvements will improve the success of the Town Center.*

(2) Expand the operating schedule of the beach beyond peak season months to increase the annual volume of visitation.

Objective: ED-2-2: Address the impacts of rental housing on the local economy.

Policy ED-2-3.1:

In conducting study of impacts of vacation rentals (See policy LU-1-2.3), consider the effects on tourism and the economy.



The beach area with the mountain range in the background is a premier attraction in Lake Lure. The beach area could be improved and its schedule could be extended to improve operations.

3.0 Transportation/Circulation 3-1

- 3.1. Introduction 3-1
- 3.2. Inventory and Existing Conditions 3-1
- 3.3. Summary of Issues and Opportunities 3-8
- 3.4. Goals, Objectives and Policies 3-8

3**3.1 INTRODUCTION**

Access to and circulation within Lake Lure is a challenge given the limited road network and the lack of alternative forms of transportation. The task of maintaining or improving transportation with the town will become more complex as development continues, the community grows, and more visitors discover the area. The terrain and the lake are among the features that present unique constraints that are not easily addressed by traditional transportation solutions. In order to achieve an efficient and safe transportation system for future generations, a strategy has to be developed to provide a range of choices that improve mobility over the long term while maintaining the character of the town.

3.2 Inventory and Existing Conditions

Lake Lure's transportation system is comprised mostly of state and local roads. The quality of the winding, two-lane roads contribute to Lake Lure's mountain character and has helped to secure a scenic byway designation for the major thoroughfare, US 64/74A and NC 9 (see Figure #2, Infrastructure Map), which traverses through the heart of Lake Lure along the lake's southerly edge. However, the widths, alignments, and grades of the roads, all influenced by topography, have raised additional concerns regarding safety and the town's ability to address issues associated with increasing traffic. A minimal amount of pedestrian and boating facilities encourage walking and boating as alternative means of travel, therefore are considered components of the existing transportation system.

Additionally, Lake Lure is a member of the North Carolina's Isothermal Rural Planning Organization (RPO). According to the Isothermal RPO, its mission is "to develop a long-range transportation plan that improves the quality of daily travel for our citizens and visitors and to promote the development of safe and effective travel modes throughout [the] region." Rutherford County, which encompasses Lake Lure, is second after Polk County on the Isothermal RPO priority list for a Comprehensive Transportation Plan to be executed by the North Carolina Department of Transportation. The plan is to be initiated by January 2007 and tentatively completed by June 2008.

Road Network

Lake Lure's road network is a combination of state, town, and privately maintained roads. As a component of the network, private roads are of concern only from the standpoint of access for emergency vehicles and maintenance by the town if such roads are dedicated to the town in the future. Mobility in the town depends on the connectivity and quality of all three types.



Meandering roadways are common throughout Lake Lure. Constantly changing and captivating, views from these roads are an asset to the town.

The topography of the area limits the possibilities of adding new routes to the network to enhance connectivity. However, circulation can be improved simply by extending roads to create a complete loop around the lake. Without a loop, access between the northern and western parts of Lake Lure is poor. Driving from the municipal buildings to points along the north side of the lake, for instance, takes approximately 25 minutes. This is an issue in terms of emergency vehicle response time from the Lake Lure Police Department and the Chimney Rock Volunteer Fire Department. In addition, the lack of a loop prevents traffic from being diverted onto an alternate route in the event US 64/74A is temporarily closed due to an unforeseen circumstance that blocks both lanes (e.g., accident, fallen tree, flooding, etc.). While the road extension will likely occur through private development, there may be opposition to the connection, as this would enable travel into and through the gated portion of Rumbling Bald Resort that currently has a single, secure entrance. To date, Rumbling Bald Resort has resisted connections for security reasons.

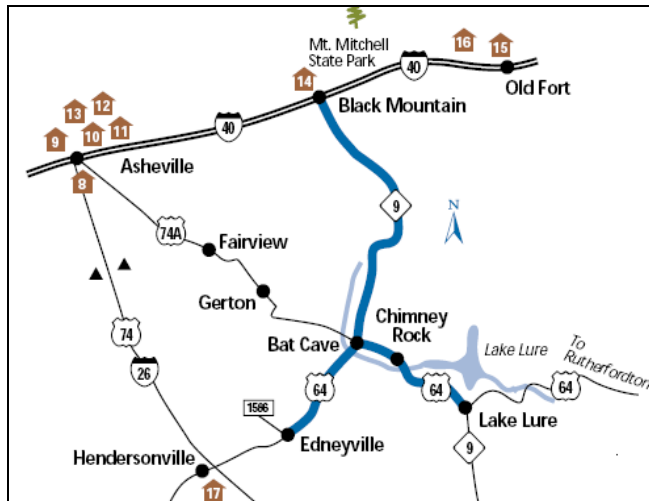
Major Roadways

Most of the major roads in the town are maintained by the North Carolina Department of Transportation (NCDOT). These roads, though narrow and winding, provide the most direct access to the developed areas of town and are used as through routes by visitors traveling to area destinations.

US Highway 64/74A is the major east-west thoroughfare through the town and connects Lake Lure to Asheville in the west and Rutherfordton in the east. It is the town's "Main Street," named Memorial Highway, and passes through the town center. This two-lane road is also part of the "Black Mountain Rag Scenic Byway" designated by the State of North Carolina.



Visitors to Lake Lure arrive on narrow and winding roads but are greeted to spectacular views of the lake.



*Source: North Carolina Scenic Byways
 This map displays the Black Mountain Rag Scenic Byway.

NC Highway 9 serves as the southern entrance into town from US 74, as well as Columbus, NC and Spartanburg, SC. This segment of NC 9, which provides convenient access to the new commercial development just inside the town limits, merges with US 64/74A along the southern shore of Lake Lure. This intersection offers a stunning view of the lake as travelers approach from the south. NC 9 follows the alignment of US64/74A into Bat Cave where it continues north to Black Mountain.

Buffalo Shoals Road (SR 1306) is the only state road within the town limits that provides north-south access along the east side of the lake. This winding road connects the Rumbling Bald Resort to US 64/74A. In addition, Buffalo Shoals Road provides a connection along Buffalo Creek Road, which provides access to the east side of Lake Lure. It also connects to Bill’s Creek Road, another north-south route serving the town, though it lies entirely in Rutherford County.

Buffalo Creek Road (SR 1008) is the east-west road connecting Buffalo Shoals Road to the Bill’s Creek community in Rutherford County. From Bill’s Creek Road, which connects to US 64/74A, this roadway provides the easiest access into the northern part of the town, particularly Rumbling Bald Resort.

Boys Camp Road provides access along the northwest side of the lake. The road begins at US 64/74A near the Rocky Broad River and roughly parallels the lakeshore in an easterly direction. This



This is an example of a minor roadway under construction. This particular road will lead to a future residential subdivision development.

two-lane winding road was taken over from the state for maintenance by the town in 1989. Holmstead Road, an old jeep trail, and Boys Camp Road may be extended to complete the loop around the lake. This has been discussed as the alignment for the potential road connection to formally connect Boys Camp Road to the Rumbling Bald Resort community along the west side of the lake.

Minor Roadways

The town currently maintains approximately 27 miles of local roadways. Like the state-maintained roads, these roads are narrow and winding. They carry less traffic than the major roads but are an important component of the system. The town eventually assumed responsibility to maintain road constructed over several decades by private developers and the NCDOT.

Many of the roads within the residential areas are private roads. Created as part of the subdivision process, these roads comprise a significant portion of the road network, and new private roads are currently being built within new subdivisions. Residents depend largely on these roads for local trips.

Design

The topography and other constraints of the area make construction, maintenance, and use of the roads challenging. Whether constructed by the state or a private developer, the approaches to road construction have been varied in response to such constraints. Many roads can be described as steep, narrow, and winding with many sharp turns. Such conditions make travel on these roads difficult, especially for emergency vehicles.

Other issues pertain to the impacts to the environment. For example, extensive clearing to accommodate roads leads to the loss of vegetation, which has the following related impacts: (1) development is more visible, diminishing the quality of the scenic views, and (2) slopes are less stable and, in an exposed condition, are more susceptible to erosion which can negatively affect water quality.

The town has developed a set of standards for roads that have been incorporated into the town's subdivision regulations. In addition to standardizing design and construction techniques, these standards aim to maximize consistency in the design and construction of future roads in the town. These standards apply only to town roads. State roads will continue to be constructed according to state standards. In either case, improvements must be made to



A lack of streetscape guidelines has resulted in roadways that give priority to vehicular traffic; this image depicts an area that is not conducive to pedestrian travel.

specific standards, such as maximum grades and minimum curve radii, to better address the direct and indirect environmental impacts of new roads.

While all private roads are maintained by a property owners association or other private entity, the newer private roads are being constructed to recently developed standards set forth in the town's subdivision regulations to ensure consistent design that facilitates maintenance activities and maneuvering of emergency vehicles. This is especially important when and if such roads are dedicated to the town.

Traffic

According to the NCDOT, traffic volumes are low on most roads in Lake Lure, including the heavily traveled US 64/74A. The following table highlights the Average Annual Daily Traffic (AADT) for Lake Lure during the past 15 years. AADT is the number of vehicles passing a single point on a road over the course of a year divided by the 365 days in a year. For example, if 500,000 vehicles pass a single point in a year, the AADT is 1,369 vehicles per day. These volumes assume peak and non-peak traffic numbers to generate the average number. The AADT counts have not increased dramatically over the past 15 years and have, historically, remained at a consistent level.

Table 3.1: Average Annual Daily Traffic Counts

Location	1990	1995	1999	2000	2001	2002	2003	2004	2005
	*	*							
US 64/74A towards Rutherfordton from the intersection of NC 9	2700	3000	3000	2200	2200	2200	1600	2500	2100
US 64/74A/ NC-9 towards Lake Lure from the intersection of NC 9	2900	3000	2600	2800	2900	2700	2600	3300	2200
Along NC 9	1300	1600	1300	1400	1300	1100	1100	1500	1400
US 64/74A/ NC-9 in Chimney Rock	n/a	n/a	4000	3100	2700	2700	2200	3200	2500
Buffalo Shoals Road	n/a	n/a	240	270	270	310	n/a	420	n/a
Bill's Creek Road	n/a	n/a	n/a	n/a	n/a	n/a	1500	n/a	1500

Source: <http://www.ncdot.org/it/gis/DataDistribution/TrafficSurveyMaps/>

*Denotes annual traffic counts cited from the 1997 Land Use Plan

This is only a snapshot of averages. Like many western North Carolina towns, there is a seasonal variation in traffic volumes, which can substantially increase during peak season weekends and special events. With seasonal residents in town for the summer months and tourists traveling into and through the town on their way to the lake, Chimney Rock Park and other destinations, traffic volumes build on US-64/74A, especially along the designated NC Scenic Byway portion of the highway. Throughout the peak season in Lake Lure, traffic volumes likely exceed the counts recorded by NCDOT and the roadways become relatively congested. Though further study is needed to confirm these peak periods, the town needs creative transportation solutions that will work most effectively with the existing transportation network.

As development continues, however, AADT volumes will increase. Buffalo Shoals Road is one route used by residents east and north of the lake. Traffic volumes are expected to increase on the segment north of the lake and Buffalo Creek Road as new development occurs within and north of Rumbling Bald Resort. Specifically, Grey Rock, a new development with 900 homes planned (which has two main entrances), and the proposed expansion of Rumbling Bald Resort, which calls for new commercial space and additional (up to) 540 residential units, will utilize these two roads as major entry routes. Since the average single-family household generates 10 one-way trips per day, Lake Lure can anticipate at least 5,400 additional trips on these roads from Rumbling Bald Resort alone over the next decade or two, if these developments are built out as proposed.

NC 9 is a critical segment entering into Lake Lure as it is the only major thoroughfare access to the town from the south and a likely location of future commercial development in the town. As additional commercial development occurs, traffic volumes along NC 9 will also increase.

The typical response to an increase in traffic is the addition of roadway capacity achieved with the construction of new roads and/or the widening of existing roads. Though the increases anticipated will not warrant a road widening according to NCDOT, the desire to address traffic is strong, as indicated by the community's input. With topographic constraints and the lack of support from the community for widening any of the existing two-lane roads, other solutions are needed to maintain or enhance mobility.



The walkway around a portion of the lake encourages pedestrian activity and connects key destinations such as the beach and town center area to Morse Park.

Alternative Modes of Transportation

Alternative modes of transportation should complement the road network by expanding the range of travel options. If such alternatives are chosen, traffic volumes may increase at a slower rate. Typical alternatives include walking and bicycling, and facilities that accommodate one or both are often incorporated into the road network. In some areas, transit service is provided an additional option.

The topography affects the feasibility of providing and using pedestrian and bicycle facilities. Therefore, such facilities have been provided in limited amounts in low-lying, flatter areas of town, and where development is compact enough that walking from one point to another is just as easy as or easier than driving. Specifically, in accordance with the recommendations of the Town Center Walkway Master Plan, walking conditions have been improved with the addition of a boardwalk and other pathways in the town center, allowing for safe travel between the beach, Morse Park and the Lake Lure Inn.

Currently, the town is working on an expansion of this existing path system. Future expansion of the walkway includes extending the path along Memorial Highway (US 64/74A) to connect to the Lake Lure Post Office. Most of the additional pathway will be constructed on town owned property. In the absence of town property or dedicated right-of-way along US 64/74A (according to the District Engineer for NCDOT District 1, Division 13), the project will rely on a combination of easements and NCDOT encroachment agreements to extend the 6-foot wide paved greenway. Phase Two of the project will connect the Town Center to the center of Chimney Rock via a proposed 6-foot paved path.

Residents have expressed a desire for improvements for walking and bicycling in other areas of town. There is potential for the development of a pedestrian path along Buffalo Creek Road to connect residential neighborhoods to commercial services via a combination of paved walking trails and sidewalks.

Lake Lure has a unique opportunity to include boating as a means of travel within the town. In addition to recreation, the lake could also support some amount of boating that enhances mobility in the town. During the community input process, participants indicated the need to explore the potential for boat transportation around the lake and opportunities for temporary or hourly boat parking in the town center near the beach to encourage travel by boat.

3.3 Summary of Issues and Opportunities

- The road network is not as connected as it could be. As a result, the road network does not allow for optimal emergency response time or diversion of traffic in the event of a major road closure (e.g., US 64/74A).
- Current state and local roadway standards are addressing past issues of inconsistency in the design and construction, but the standards do not adequately minimize direct and indirect environmental impacts of roadway construction.
- Though NCDOT data indicates that traffic volumes are not alarming and do not warrant improvements to the current roadway infrastructure, residents are concerned about higher traffic volumes during peak periods that create an undesirable level of congestion on the roads.
- There is a lack of alternative means of transportation within the town to truly provide a reasonable set of options. Mobility today depends a great deal on the road network.
- In regard to transportation improvements, the preservation of scenic views is a priority.

3.4 Goals, Objectives and Policies

TC Goal 1: An efficient, multi-modal transportation system that enhances mobility

Objective TC – 1-1: Improve mobility within the Town by providing facilities that encourage use of alternative means of transportation

Policy TC-1-1.1:

Develop a detailed town-wide bikeway and pedestrian master plan, and construct facilities in accordance with the plan recommendations. *This plan shall address a variety of ways to realize bicycle and pedestrian improvements. At a minimum, the following should be examined during the development of the plan: 1) Possible improvements to major roadways to accommodate non-motorized travel where appropriate (e.g., on-street bicycle lanes, paved shoulders, wide outside lanes, and pedestrian walkways). 2) Guidelines to ensure connectivity and consistent design and construction of bicycle and pedestrian facilities by both public and private entities.*

(1) Apply for planning grant from the NCDOT.

Policy TC – 1-1.2:

Evaluate the feasibility of providing temporary/hourly boat parking in the town center. *This may require the construction of a separate dock with several boat slips in a convenient location (e.g., near the beach).*

Policy TC – 1-1.3:

If warranted, provide an adequate amount of temporary/hourly boat parking. *To be successful, boat owners in the community must be made aware of this facility (and encouraged to use their boats as a transportation option).*

Objective TC – 1-2: Improve mobility within the town by providing alternative transportation services.

Policy TC-1-2.1:

Provide limited transit service during peak season and special events. *This may be in the form of a “park-and-ride” system that allows visitors to park at Lake Lure’s gateways and ride a small bus or trolley into the town center. The park-and-ride system could be achieved through a combination of private and public funding. Circulators in many cities and towns are often funded in part by local businesses.*

Policy TC-1-2.2:

Seek assistance from private transportation providers to provide alternative transportation solutions.

Policy TC-1-2.3:

Support alternative transportation improvements by private development as long as each is consistent with the town’s adopted plans, regulations and guidelines.

Policy TC-1-2.4:

Identify areas on or along roadways, such as NC-9, where pedestrian and bicycle traffic can be safely accommodated. *Connection between commercial areas and other development concentrations may be appropriate for facilities that provide such linkages.*



A trolley program throughout peak months could be utilized to shuttle visitors to satellite parking lots, key destinations, and reduce traffic.

Topography and other physical restraints must be taken into consideration in planning for and constructing such facilities.

TC Goal 2: A transportation network that is managed and improved to meet the needs of the community and supports proposed land use patterns

Objective TC – 2-1: Ensure the transportation network is continually improved to adequately serve existing and anticipated development.

Policy TC-2-1.1:

Identify specific areas where roadway improvements are needed, including roads determined to be substandard.

- (1) Enhance the Capital Improvement Program (CIP) by developing a section dedicated to roadway projects for local roads
- (2) Work with the RPO to update the comprehensive transportation plan to reflect improvements to be made by NCDOT.

Policy TC-2-1.2:

Continue effective communication with organizations, municipalities, and the NCDOT to ensure an efficient and balanced transportation system.

- (1) Continue to coordinate long-range transportation planning projects with adjacent localities, NCDOT, Isothermal RPO and other regional initiatives.

Policy TC-2-1.3:

Require developers to submit a traffic impact analysis, prepared by a licensed professional (traffic engineer), to determine if traffic volumes generated surpass the capacity of the road system and/or a reduction in service level. Require this analysis to be submitted with development plans at the appropriate point in the development approval process. *Developers shall be required to make roadway or*

other transportation improvements to mitigate the impacts of the proposed development.

Policy TC-2-1.4:

Establish design guidelines for roadway improvements that minimize impacts to adjacent properties, such as disturbance or clearing of vegetation.

Policy TC-2-1.5:

Develop a peak season parking management plan for special events and peak season periods, and execute it. *The process to develop the plan shall include the following:*

- *Evaluate existing parking inventory in the town center.*
- *Identification/prioritization of future parking improvements (e.g., reconfiguration of existing parking, provision of new parking areas, and provision of parking areas at the gateways to support a park-and-ride system).*

TC Goal 3: Consistency in roadway design and construction standards

Objective TC – 3-1: Ensure all new roads within the town are constructed in accordance with a set of standards that result in better, more uniform design and sensitivity to the environment, taking into consideration variations in road size.

Policy TC-3-1.1:

Continue to require private roads being constructed within new developments in the town to meet the standards set forth in the subdivision regulations.

Policy TC-3-1.2:

Modify standards in the subdivision regulations to achieve a more sensitive approach to roadway construction.

- (1) Examine issues with and revise maximum grade, tangent length, and vertical and horizontal curve

radii of roadways in order to reduce environmental impacts.

- (2) Encourage and explore one-way loops to limit environmental disturbance.

TC Goal 4: A connected roadway network

Objective: TC – 4-1: Require new roads to connect to the existing road network as much as possible to maximize circulation, especially for emergency vehicles, throughout the town.

Policy TC-4-1.1:

Provide for emergency vehicle access on all sides of Lake Lure.

- (1) In the short term, locate emergency vehicles in key locations to ensure response times are minimized.

- (2) Continue conversations/ negotiations with the Rumbling Bald Resort POA and its representatives regarding emergency vehicle access via a controlled gate on the west side of town in the area shown on the Comprehensive Plan. *Technologies such as Siren Operated Sensors (SOS) automatically open security gates as the vehicle approaches when the siren is in use.*

- (3) Identify areas that need roadway improvements and identify sources. *For example, the Holmestead Road (jeep trail that extends from Boys Camp Road to Rumbling Bald Resort) could be improved/upgraded to accommodate emergency vehicles between the Rumbling Bald Resort area and the Boys Camp area, provided the owner of the right-of-way agrees to such improvements and Rumbling Bald Resort agrees to an emergency access gate where such a road meets the boundary of the resort.*

- (4) Improve Boys Camp Road to improve safety.
- (5) Traffic and geometry improvements at US-64/74A and NC-9.
- (6) US-64 in front of beach to improve parking and roadway interface.
- (7) Maintain pedestrian-ways to the Town Center and Buffalo Creek Road.
- (8) Identify substandard roads and bring them up to town standards.

4.0	Utility Infrastructure	4-1
4.1.	Introduction	4-1
4.2.	Inventory and Existing Conditions	4-1
4.3.	Summary of Issues and Opportunities	4-7
4.4.	Goals, Objectives and Policies	4-8

4

4.1 INTRODUCTION

The original master plan for Lake Lure included thoughtful consideration of the utility infrastructure. The utility systems, which include water, sewer and electricity, have served the town for many years. Recently, service demands, new regulations, and specific water and sewer system issues have forced the town toward major utility improvements. Significant engineering efforts, new facility implementation and existing facilities remediation have been accomplished in recent years, however, further work remains to be accomplished. Resident and non-resident population growth will continue to increase demand on the town's utility systems.

Input received during interviews and meetings indicated a high level of sensitivity to environmental protection and stewardship with respect to land use decisions, and this sensitivity should be reflected in utility infrastructure goals and planning. Utility infrastructure planning should be responsive to the physical and visual concerns of the town's residents while addressing state and federal regulations.

Details of the water and sewer systems are pertinent to understanding the town's utility status and are partially covered in separate studies and reports. This section builds upon information previously reported in studies such as the 201 Facilities Plan by McGill and Associates (2005), the Isothermal Planning and Development Commission 1997 Report, and the Water and Sewer Regionalization Assessment in 2003-2004 also prepared by McGill.

4.2 Inventory and Existing Conditions

The town is responsible for a number of utility services including water supply and distribution, wastewater collection and treatment, and hydroelectricity. Each of the existing utilities is critical to maintain the quality of life and accommodate potential growth. Generally, the current state of the Lake Lure's utility infrastructure is as follows:

Water

The Town of Lake Lure currently owns and operates a water supply storage and distribution system. The system partially serves the area within the town limits as well as areas outside the town as shown on Figure # 2, Infrastructure Map

The town is served by five deep wells as follows:

<u>Well</u>	<u>Yield</u>
Vess	66,240 GPD
Powers	75,000 GPD
Price	34,560 GPD
Island Creek 1	7,200 GPD
Island Creek 2	8,640 GPD

The town's water system is also interconnected with the Village of Chimney Rock water system. A master water meter has been installed connecting lines to Chimney Rock's water system for resources sharing between both communities. The town must pay the village for water supply over 10,000 GPD. Present Chimney Rock water supply capacity based on a maximum 12-hour-per-day pumping schedule:

Chimney Rock Well #1	43,200 GPD
Chimney Rock Well #2	15,840 GPD
Chimney Rock Well #3	17,280 GPD

Present Lake Lure water storage capacity is as follows:

System-wide service

	Gallons	Overflow (feet)
Washburn Reservoir	80,000	1,380.0
Chimney Rock Reservoir	100,000 *	1,233.0
Island Creek Tank	200,000	1,380.0

* This number is equal to the allotted capacity in the 250,000 gallon tank per an Interlocal Agreement.

Localized service

	Gallons	Overflow (feet)
Chalet Club Reservoir	20,000	1,525.0
Highlands Reservoir	67,117	1,645.0

A developer is presently installing water wells and a storage reservoir in the Boys Camp Road area. Two wells have been

drilled so far with a combined yield of 32 GPM. The developer is committed to providing a minimum 41 GPM. The proposed reservoir is 127,000 gallons with overflow at 1,562 feet. The proposed tank has yet to be approved. Additional space will be provided at the site for the town to construct a future tank, potentially 125,000 gallons with the same overflow elevation.

The exact number of water connections is unknown (customer base noted in the Regionalization Assessment was 324). As shown in Figure #5, which displays the areas where water lines are located in the town, Lake Lure's existing water system does not serve all of its residents. Those who are not served by the system are served by individual wells. Additionally, the Rumbling Bald Resort area within the town is served by the Carolina Water Service (CWS) system, a private utility.

The Regionalization Assessment identified the need for water system capital improvements for Lake Lure. When the study assessment was completed, the projected costs tallied in excess of \$3 million (this amount was exclusive of the newly completed elevated storage tank project). The list of improvements underscored the need for an upgrade of the current water distribution system. Since the assessment was completed, some of the capital improvement recommendations have been implemented. Although the town has added water supply and storage capacity with the Island Creek wells and elevated tank, system improvement needs remain.

The shape and size of Lake Lure creates hydraulic remoteness. In order to serve the remaining areas within the town limits that are not already served by other parties, numerous water system extensions will be required. Distance from the existing storage tanks and topography will also necessitate additional storage reservoir(s) and booster station(s). Additional water supply well(s) may also be needed to serve these areas due primarily to distance from the existing wells to the future customers / tanks and system leaks.

Lake Lure continues to experience development inside and adjacent to its corporate limits with associated requests for

water services. In response to such requests, the town has acted on a case-by-case basis. Currently, the town has not adopted a service/extension policy.

Wastewater

Wastewater Collection System and Treatment Plant:

Based on the 2001 Facilities Plan by McGill the existing Lake Lure sewer system serves 777 residential customers from the Town of Lake Lure and the Village of Chimney Rock and 121 commercial customers. As shown in Figure #5, which displays the areas where wastewater lines are located in the town, Lake Lure's existing wastewater system does not serve the entire jurisdictional area.

As a result of the significant infiltration into the town's collection system as documented in the 201 Facilities Plan, flows into the town's wastewater treatment plant have at times reached or exceeded the plant's permitted capacity (0.995 MGD). During these periods the town has been unable to respond immediately to specific requests from proposed new development and, in fact, the town has recently imposed a moratorium on new connections. The historical efforts at dealing with the excessive infiltration, primarily due to the major sewer collection lines being situated within the lake, have been to conduct remedial repairs in an attempt to seal off leaks. Thus, the more recent approach to the town's plant capacity issue has been a cyclical (generally on an annual basis) occurrence of repair/reduction in infiltration during draw down of the lake, followed by a rise in plant flows from either new connections or infiltration. The McGill 2005 Study recommended that the town conduct a comprehensive Infiltration/Inflow (I/I) Study, and implement necessary repairs. This study began in 2006. Completion of TV inspections of the major sewer lines, exclusive of the main trunk sewer down the center of the lake, has provided direction for continuation of these investigations. While there is optimism that the continued efforts at remediation of the I/I problem will allow the systematic growth and development of the town, there is a degree of uncertainty associated with this program.

The town has implemented recommendations from the 201 Facilities Plan to construct upgrades to the waste treatment plant which would address NPDES permit violations. It is

anticipated that these upgrades will be completed by the third quarter of 2007. However, these upgrades do not include expansion of plant capacity. If the I/I remediation program is unsuccessful in reducing infiltration to a degree that provides sufficient excess capacity for the projected future growth of the town, other alternatives will need to be evaluated. The 2025 projected wastewater flow from the town as indicated in the 201 Facilities Plan is 1,060,000 GPD. As noted previously, flows to the plant have been as high as 0.999 MGD according to the 201 Facilities Plan. A significant portion of the I/I must be removed from the system if sufficient capacity in the existing plant is to be available for the anticipated growth. While an aggressive I/I remediation program has the potential to remove a significant quantity of the excessive infiltration, it may not be possible to achieve removal to the extent necessary to avoid a plant expansion so long as the collection sewer under the lake continues to be utilized. It must be emphasized, as the 201 Facilities Plan notes, “At the indicated rate of increase, the capacity of the existing wastewater treatment plant will be exceeded within the planning period of this document unless I/I into the existing collection system can be significantly reduced.”

As the town pursues the I/I remediation, careful monitoring of its success will establish the extent to which planning and/or engineering of additional alternative collection system strategies or plant expansion should be contemplated. Current preference by the town’s consultants is to avoid a plant expansion if possible. In any event, allocation of resources to this effort is paramount in the town’s long-range utility infrastructure capital improvements planning.

Septic system failures, predominantly over peak summer weekends, have occurred. In recognition of this problem, as well as in addressing the infiltration problem and the view of the potential negative impacts to the lake from existing septic systems, the 201 Facilities Plan proposed a series of 15 new collection system projects that would install new gravity sewers and allow for town residents currently using septic systems to connect to the town’s wastewater collection system.

Per another recommendation from the 201 Facilities Plan, the town has developed and adopted new design and construction standards for water and sewer facilities.

Implementation of these standards involves the following: detailed plan review; education of developers, builders and contractors about the town's requirements; coordination to control certificate of occupancy until the utility systems are complete in accordance with the town's standards; continuous inspection of the utility construction; and documentation in the form of as-builts and certifications to consistently maintain accurate records of the town's system. The rate of growth and corresponding demands on town staff may dictate the need for additional resources to fully implement these recommendations, either in the form of additional staff or consultant services. The adopted standards should be readily available to the development and engineering community.

The 2005 McGill study further recommends that a more definitive policy be adopted relative to new connections or requests for service (i.e. capacity). One key element of this policy is the commitment of capacity be made only with a corresponding expiration date for the commitment. Currently, the town requires that any new development that receives a sewer capacity commitment immediately begin payment of monthly sewer service charges in order to have reserved capacity. The adoption of the 201 Facilities Plan recommendation if deemed appropriate by the town would need to be reconciled with the current policy of collecting service charges prior to customer occupancy.

Privately-owned Carolina Water System (CWS) serves portions of Lake Lure east of Snug Harbor in the vicinity of Memorial Highway. CWS serves the Lake Lure Golf & Beach Resort, Apple Valley and Shumont Estates under contract with the Fairfield Mountains Property Owners Association.

Hydroelectric Power

Lake Lure owns the hydroelectric dam at the lower end of the lake. According to Duke Energy, the hydroelectric facility consists of two vertical shaft powerhouse Francis-type hydroelectric turbines and generators with a capacity of 3,400 kilowatts. According to the National Inventory of Dams, the dam is approximately 480 feet in length and has a structural height of 124 feet. The dam generates power that is sold to Duke Energy, and funds are paid to the Town of Lake Lure for its use. The revenues from operation of the dam have traditionally supplemented the hydroelectricity fund. Lake Lure recently

signed another contract with Duke Energy, agreeing to continue selling power to Duke Energy for the next five years. According to the town's Web site, the dam was constructed in 1927. Given the age of the dam, roughly 80 years old, it carries a potential financial burden as it requires yearly maintenance and inspection. The town has recently contracted with a firm to conduct a full inspection of the dam and its condition in response to concerns raised by NCDENR. For more information see the *Government and Administration* section.

4.3 Summary of Issues and Opportunities

- Some areas within the town that should be served are not provided water and/or sewer service.
- Currently, there is an insufficient water supply to accommodate future populations. Future population growth will require additional well capacity or other sources of water supply.
- The existing water distribution system (line size and network) is not capable of providing fire protection flow and/or pressure to many homes within Lake Lure.
- The sewer system has excessive infiltration, which reduces capacity needed to serve existing and future development.
- The waste treatment plant capacity will be inadequate to serve existing and future development unless the Infiltration/Inflow remediation program is very successful or alternative collection system strategies are implemented.
- There are periodic and/or temporary delays in sewer service for new development as evidenced by the correct moratorium on new connections.
- The 201 Facilities Plan indicated that some homes with on-site septic systems have experienced problems and are potential sources of contamination for the lake. This problem is exacerbated as the septic systems continue to age.
- The town lacks a long-range infrastructure plan (LRIP) that would create a schedule for improvements and prioritize needs.
- There is a need to further establish funding methods to finance future capital improvements, particularly those recommended in a future LRIP.
- There is a potential need for support staff (i.e. an engineer) to aid the town manager with the oversight of

current and future projects, procedures, policies, and maintenance.

4.4 Goals, Objectives and Policies

UI Goal 1: Adequate service provision in developed areas or areas that will develop in the near future

Objective:

UI-1-1: Provide service to developed areas needing service and areas for which development is planned.

Policy UI -1-1.1:

Improve capacity and allocation of it to meet current and future demands for water/sewer service.

(1) Conduct a water supply analysis and groundwater reconnaissance studies. *The results should establish anticipated groundwater supply capacity. Tie these demands to timing of projected growth to allow the development and integration of additional supplies on a timely basis to avoid water shortages. This study would factor in any additional supply contributed from private development projects now underway.*

(2) Identify specific areas that should be included in the water distribution system. *A hydraulic model of the existing Town and ultimate service area should be developed to identify correct line sizes and other system components to provide a desired level of fire protection for the town. This study would identify existing undersized lines.*

(3) Continue and complete the study to evaluate the current condition of the infiltration/inflow problem as outlined in the 201 Facilities Plan.

(4) Require that each allocation of sewer capacity or each approved sewage connection has an expiration date. This expiration policy should apply to all new commercial, institutional, industrial and multi-unit residential development. *If the development that has*

received the sewage capacity has not been constructed by a specified deadline, then it forgoes the balance of its allocation. Therefore, the town can reallocate the unused sewage capacity to another development.

- (5) Negotiate a long-term agreement with Carolina Water System, including a policy basis for wastewater treatment charges.

UI Goal 2: Utility systems are improved and expanded in concert with the Comprehensive Plan

Objective:

UI-2-1: Conduct long-range planning for utilities that acknowledges the development patterns envisioned and documented in the comprehensive plan.

Policy UI -2-1.1:

Develop a long-range infrastructure plan (LRIP) that supports the comprehensive plan.

- (1) Calculate anticipated growth and infrastructure demands.
- (2) Build upon previous body of engineering work, expanding and updating it.
- (3) Establish budgets and a prioritization of water/sewer projects that respond to the anticipated growth and priorities in the comprehensive plan. *Set forth a schedule that details future projects (3-, 5-, and 10-year projects) for water/sewer facilities, lines, connections, etc.*

UI Goal 3: Uniformity in water distribution and wastewater collection systems

Objective:

UI-3-1: Ensure all components of each system are extended, designed, and constructed in the same manner for consistency in service provision and efficient maintenance.

Policy UI-3-1.1:

Define the utility provision and extension terms for existing development.

(1) Adopt a new policy for the existing septic systems to require connection to the town's sewer system as installed and create a program to assist property owners financially as necessary. *The 201 Facilities Plan identifies 15 areas that should receive priority for service due to higher densities in close proximity to the lake with potential for failing septic systems.*

(2) When evidence exists that a given septic system is failing or has a history of failures, require the owner of that septic system to connect to the town's system.

Policy UI-3-1.2:

Define the utility provision and extension terms for new development.

(1) Require all new development to provide water and sewer facilities. *These shall be at no cost to the town.*

(2) Adopt a policy that will standardize the process for utility system extensions. *Future connections to the town's water and sewer system should have a uniform approach for the connection process.*

(3) Eliminate "negotiation" process for utilities extension. *Develop a systematic application process and standard fees for every development. Regiment the fee structure.*

UI Goal 4: Adequate funding for utility infrastructure improvements

Objective:

UI – 4-1: Ensure the availability of funding of short- and long-term utility infrastructure improvements.

Policy UI-4-1.1:

Update the Capital Improvements Program (CIP) to address immediate utility service issues and anticipate/estimate future expenditures.

- (1) Set forth and establish budgets for immediate needs projects and 3-, 5-, and 10-year planning horizon projects.

Policy UI-4-1.2:

Establish funding specifically for the CIP and its necessary actions/improvements.

- (1) Conduct a study to assess revenue projections from current utility customers commensurate with future CIP needs. *An analysis of fees and/or charges shall be conducted to determine reasonable amounts for services from plan review, inspection and connection fees to capacity charges. These fees and charges should be evaluated on the basis of both equity and cost of the provision of a specific service, as well as projected costs for replacement of utilized capacity.*

- (2) Seek alternative funding sources.

- Appeal to the NC Clean Water Management Trust Fund to obtain funds for future projects with important water quality benefits.
- Assess the opportunity to finance future projects with tax increment financing (TIFs), or self-financing bonds, as they are called in NC. *This approach requires unique circumstance(s) and evidence that without public investment in infrastructure, the development project as proposed would not be possible. Experienced legal advice is recommended, but could potentially represent an alternate funding source.*
- Explore possibility of an Adequate Public Facilities Ordinance (APFO) to offset costs associated with new development. *This would be part a an*

overall study of the potential benefits and impacts of an APFO. Depending on the range of services that the new development has an impact on (defined in the APFO), some or all of the revenue generated may be applied to improving/extending water and sewer systems.

UI Goal 5: Improved management of operations

Objective:

UI-5-1: Provide additional staff to support existing staff with utility infrastructure development and maintenance.

Policy UI-5-1.1:

Create a position for and hire support staff (or consultant) to implement and monitor Lake Lure's standards, policies, and procedures. *Define and create a position that assumes (should include but not be limited to) the following duties: developments, infrastructure, and improvements, plan review and approval, inspections, review of as-builts, etc. He or she shall also serve as liaison among between Lake Lure and entities such as Duke Energy, North Carolina Utilities Corporation, developers, and homeowners.*

5.0	Parks & Recreation	5-1
5.1.	Introduction	5-1
5.2.	Inventory and Existing Conditions	5-1
5.3.	Summary of Issues and Opportunities	5-16
5.4.	Goals, Objectives and Policies	5-17

5

5.1 INTRODUCTION

Lake Lure is located in a natural playground setting offering a variety of recreational opportunities. From passive recreation, such as walking and hiking, to adventure sports, such as rock climbing and mountain biking, Lake Lure and the surrounding area has a variety of opportunities for all ages. However, some of these opportunities, which lie outside the town limits, are provided by other private and public entities. To date, Lake Lure has not provided a formal recreation program for its local residents but does have local public parks and recreation facilities. These facilities are sufficiently utilized by residents and visitors alike and offer a combination of both active and passive recreation opportunities. Lake Lure has an active park and recreation board.

5.2 Inventory and Existing Conditions

The following recreation and parks inventory highlights the town's recreation facilities, regional recreation offerings and private recreation providers in the Lake Lure area. This section also provides an analysis of the town's existing overall park level of service, potential classifications for the park system and existing recreation facility level of service.

Town Recreation Facility Inventory

The following section identifies town-owned recreation facilities available for public use.

Lake Lure Beach and Water Works:

Lake Lure Beach and Water Works is a special use public recreation facility approximately 3 acres in size, located in the town center area. The facility is currently operated through a contract with a private company and contains various amenities including a beach area, concession stands, restrooms, water slides, water games and picnic areas. This facility is available for public use between Memorial Day and Labor Day each year and requires an admission fee based on individual, group and season pass rates. Rental space for a variety of special, corporate, and family events is also available at this facility.

Morse Park Meadows:

Morse Park Meadows is a 19-acre public community park facility located adjacent to the Lake Lure Town Hall. This park contains amenities such as a playground, picnic areas, grills, basketball court, two tennis courts, walking trails and restrooms. This entire facility is open



Lake Lure Beach Area



Morse Park Playground

to the public and all or portions of it may be rented for private functions. This park is well used by both local residents and visitors alike.

Lake Lure Marina:

Lake Lure Marina is a town-owned facility in Morse Park that offers a variety of boating and lake-based recreation opportunities. Currently, the marina operations are contracted through a concessions agreement with the local boat tour company. Various rentals include: hydrobikes, rowboats, kayaks, canoes, paddle boats, electric boats, john boats, and pontoon boats. The Lake Lure Marina also has a number of covered and uncovered public boat slips available for rent throughout the year.



Morse Park Pathway

Lake Lure Pavilion:

The Lake Lure Pavilion is a public facility that may be rented throughout the year by residents and visitors. This facility, often used for weddings, offers beautiful views of the lake, the rugged rock faces and forested slopes of the surrounding mountains. One may also see Chimney Rock Park and the public beach with the Lake Lure Inn and the Arcade Building as its backdrop.



Lake Lure Marina

Lake Lure Beach Picnic Area:

The Lake Lure Beach picnic area is located near the town center adjacent to the lake and contains covered tables and charcoal grill areas. This facility is available for public use between Memorial Day and Labor Day each year and requires an admission fee based on individual, group and season pass rates.



Town Center Walkway

Town Center Walkway:

The town center walkway is a pedestrian-oriented recreation trail that is planned to run parallel to Memorial Highway (US 64/74A) beginning at the intersection of Boys Camp Road heading east through the Town Center and finishing at the Lake Lure Post Office. Currently portions of 1.3-mile walkway have been constructed along the Lake Lure Beach Area.

Community Center:

The Lake Lure Youth Center is a facility that offers recreation and youth activity programs, which are administered by the Lake Lure Police Department. The

building has the potential for expansion to include a branch office of the county's Tourism Development Authority (TDA) and/or additional public office space. The building currently houses the Hickory Nut Gorge Chamber of Commerce which operates the Visitor's Center.

Lake Lure Golf Course:

Lake Lure owns a 9-hole municipal golf course reportedly designed by the famous Scottish born golf course architect Donald Ross. Mr. Ross designed over 400 courses in his lifetime between 1872 and 1948. He is best known for his design of Pinehurst Country Club #2. Open year round, the Lake Lure Golf Course provides public golfing at a reasonable fee. Weekend greens fees with a cart are \$26.85 for 18 holes as compared to private area courses where weekend greens and cart fees range from \$45 to \$65. Located along Memorial Highway, the nine-hole course has enough land for a potential nine-hole course expansion to 18-holes. Although the town has indicated interest in the past to conduct a market study for expansion of the golf course, the market study was not completed. However, the town consulted an engineering firm to provide a grade analysis for an additional nine holes to the golf course.

A system of soft surface hiking trails is currently under construction in the natural area originally intended as the 'back nine' holes. The trails should offer no obstruction to future redesign efforts.

Lake Lure:

Lake-based recreation is one of the top reasons people choose to come to Lake Lure to either live or vacation. The lake is approximately 720 acres and it provides many water-based recreational opportunities, including boating, swimming, fishing, water-skiing and wake boarding. These activities are available either privately or through local tourism companies.

Various lake management issues have been raised recently, including the potential for overcrowding. A concurrent Lake Use study was conducted to explore management options to fully maximize lake use with

regards to overall user safety. *For further information see Section 6A: Lake Management of this document.*

Regional Recreation Facility Inventory

The regional recreation inventory denotes existing facilities found in the Lake Lure region that are destination-based recreation attractions.

Hickory Nut Gorge:

The Hickory Nut Gorge, which contains Lake Lure at its lowest point, stretches from Bear Wallow Mountain down to the lake and encompasses over 14,500 acres in both Rutherford and Henderson counties. This natural area houses a significant biodiversity of rare plant and animal species. Numerous caves, waterfalls, and forests attract thousand of tourists each year and will continue to be the anchor for environmental recreation activities such as hiking and camping for the Lake Lure area. (source: www.nature.org)

Chimney Rock Park:

Chimney Rock Park is one of the natural wonders of North Carolina. With over 1,000 acres of nature based recreation, Chimney Rock Park provides numerous recreation opportunities for all ages. The park was purchased by the State of North Carolina in 2007.

A unique piece of property, the park has historically provided many recreational activities including hiking and rock climbing with breathtaking scenic views reaching 75 miles out over the western North Carolina landscape. With a 400-foot waterfall and scenic views as its two major attractions, Chimney Rock Park also hosts numerous recreational and educational opportunities. The park offers a variety of environmental education programs, a nature education center, rock climbing instruction and various camping and scouting programs. Current admission rates to the park are \$14 for adults and \$6 dollars for youth from the ages of 6-15 admission is free for children under the age of 6.

Hickory Nut Gorge State Park (Future):

Recently, the Carolina Mountain Land Trust and the Nature Conservancy purchased 1,568 acres of natural area in the Hickory Nut Gorge. The state hopes to

acquire more acreage. This area has been designated as part of a future state park to be called the Hickory Nut Gorge State Park. This tract is home to awesome views from its Blue Ridge Escarpment vantage points and contains much of Hickory Nut Gorge's unique biodiversity of plants and animals. It is anticipated that this state park will dramatically increase the area's recreation opportunities and become a major provider in the regional recreation tourism industry. The General Assembly established Hickory Nut Gorge State Park and appropriated \$15 million in fiscal year 2006. The Nature Conservancy also owns 900-plus acres on Rumbling Bald Mountain and the state now owns about 100 acres near or on Rumbling Bald Mountain. Both of these areas are also slated to be part of the new state park.

Ski Areas:

Within an hour and a half's drive of Lake Lure, opportunities for winter sport activities exist at the Cataloochee Ski Area and Wolf Ridge Ski Resort, formerly known as Wolf Laurel. These winter resorts offer downhill skiing, trail skiing, snow tubing and a ski school.

Other Recreation Providers

The following section highlights important private and non-private recreation providers located within the local area. These recreation providers offer valuable recreational services to Lake Lure residents and visitors.

Lake Lure Adventure Company:

The Lake Lure Adventure Company is a private recreation provider that offers water-skiing, wake boarding, wake surfing, boat rentals and fishing opportunities for both residents and visitors. The private provider also offers a number of instructional and education water-based courses.

Lake Lure Tours:

Lake Lure Tours is a private recreation provider offering scenic boat tours, dinner cruises and boat rentals on Lake Lure under a concession agreement with the town. Lake Lure Tours is also currently the private recreation provider and operator of the Lake Lure Beach and Water Work recreation area and Town Marina.

Rumbling Bald Resort:

Rumbling Bald Resort is a local private recreation provider that offers two daily-fee, open to the public, 18-hole championship golf courses (Apple Valley and Bald Mountain Golf Courses), indoor and outdoor pools, tennis, mini-golf, hiking, fitness center, outdoor outing tours, beachside cabana and various recreation programs – All of the facilities are reserved for resort guests and residents except for the golf courses, which provide fee-based golf to the general public.

Riding Stables:

Horseback riding in western North Carolina is a popular recreation activity. Currently, two stables offer riding opportunities within Lake Lure: Cedar Creek Stables and Riverside Riding Stables.

Bill's Creek Community Center:

The Bill's Creek Community Center is located just outside of Lake Lure's town limits and offers a variety of recreational facilities including a ballfield, tennis/basketball court, playground, picnic areas and community meeting space.

Camp Lurecrest:

Camp Lurecrest is a private religious camp which provides a variety of education offerings, summer camps and ministry retreats and conferences. The camp includes cabin facilities, basketball court, outdoor pool, volleyball court, low ropes course, climbing wall, lake-based activities and various meeting space.

Women's Fitness Center:

Curves for Women, a private fitness provider, offers fitness and aerobic opportunities for women of all ages. This provider is located in the Bill's Creek area outside of the Lake Lure limits.

Fishing Guides:

Various professional fisherman offer guided trips on Lake Lure and within the surrounding area. The following companies currently offer private fee-based fishing trips within Lake Lure: Fishtale Guide Service, Lewis No Clark Expeditions, Pro Bass Fishing Personal

Guide Service and The Granddaddy Fly-Fishing Experience.

Park Level of Service

Level of service (LOS) for parks represents the minimum amount of land needed to serve a population of 1,000 based on a particular park type. It is generally recommended that the town provide up to 10 acres of parkland per 1,000 in population. This allocation of park land is often divided among park types or park classifications. Currently, the Town of Lake Lure does not formally classify its parks. The town owns approximately 22 acres of existing traditional park land with a majority of the land used for passive recreation activities. This calculation does not include the golf course and lake acreages. The golf course, a pay-for-play recreational opportunity, was not included in the calculation because it is a golf course, not a park. Similarly, the lake, although a natural resource, was excluded in calculation of park LOS. Based on the 2006 full-time resident population of 1,066, Lake Lure has a high park level of service of approximately 20.6 acres of park land per 1,000 residents. However, due to the seasonal influx of close to 3,600 people (full and part-time residents – 1,957 households times x 1.84 people per household) during the peak recreation periods, the available park resources function at a level of service of 6.1 acres per 1,000, which is below park level of service recommendations of 10 acres per 1,000 population. If we assume the full and part-time population also includes additional seasonal visitors, we can make a general, low-end estimate that the town functions at the 5,000 person population level during seasonal peak times. During peak-season, the recreation level of service would decrease to 4.4 acres per 1,000 of population.

Table 5.1: Park Level of Service:

Type	Population	Park Acres	LOS	LOS Goal	Surplus/Deficiency
Full-Time Population	1,066	22	20.6 acres per 1,000 people	10 acres per 1,000 people	10.6-acre surplus
Full-Time & Part-Time Population	3,600 (estimate)	22	6.1 acres per 1,000 people	10 acres per 1,000 people	14-acre deficiency
Full -Time, Part-Time and Tourist Population	5,000 (estimate)	22	4.4 acres per 1,000 people	10 acres per 1,000 people	28-acre deficiency

An issue for Lake Lure to consider is whether or not to plan for future recreation services at the 5,000 person population level. If this is the desired service provision, it will ensure that the town will be proactively planning to have enough recreational land to meet its part-time resident population and tourist demands for the next 20 years. By planning to add 28 acres of town-owned recreation land and facilities, Lake Lure will function at an optimal level of service and meet the goal of providing a minimum 10 acres of tax-based non-user fee park land for every 1,000 residents while also providing core park infrastructure to help promote additional recreation-based tourism development.

Park Classification

The following park classifications are suggested as guidelines for park and recreation facility development. The National Recreation and Park Association (NRPA) supports these classifications as guidelines for development and community park evaluation. It is important to classify the existing park system in order to efficiently plan for future expansion efforts, set public expectations for park uses and to help determine appropriate geographic park location and size for each proposed facility. The following park descriptions are cited from 1995 Park Recreation and Open Space Guidelines (Mertes and Hall 1995)

Mini Parks:

Mini parks are the smallest park classifications and are used to address limited recreation needs. Mini parks contain a variety of programmed active and passive recreation facilities and include playgrounds, picnic areas and green space.

The following are examples of a typical mini park:

- Scenic overlooks (An example would be the overlook located at intersection of NC 9 and US 64/74A near Larkin's. This site is currently being upgraded).
- Small park active and passive areas adjacent to greenways and neighborhoods.
- A small play area.

Locations:

Mini parks often tend to take advantage of a specific location and uniqueness. The service areas for these parks are often less than a quarter-mile in radius. Accessibility by way of trails and sidewalks increase park accessibility and is an important consideration in the development of these types of parks. Potential sites for mini parks in Lake Lure include the proposed park locations highlighted in the town center walkway project. Located adjacent to the proposed recreation trail, approximately midway from the town Center and the Lake Lure Post Office, these sites provide an excellent opportunity for mini park development. Another site for a potential mini park includes the area along the lake near the US 64/74A and NC 9 intersection. This site provides opportunities for passive green space and lake views as you enter into the town.

Size Criteria:

Mini parks are generally between 2,500-square- feet and one acre in size. Anything larger would be considered a neighborhood park. The selection criteria for mini parks include the need for access from the surrounding area and linkages to adjacent trail and sidewalk systems.

Mini Park Development:

Generally, the design criterion for a mini park is often dictated by the site location, topography and recreational activities that are proposed to be included.

Typical Mini-Park (up to 1 acre)

- Playground
- Open Space Area/Nature Exploration Area
- Picnic Area

Neighborhood Parks:

Neighborhood parks are the basic units of the comprehensive park system and should be developed for both active and passive

recreation. Neighborhood parks should be designed to create a sense of place and belonging to the specific neighborhood(s).

Location Criteria:

A neighborhood park should be centrally located in its service area. These service areas should radiate approximately up to a half-mile in distance around the park. The distances might vary due to topography and population density. In Lake Lure, it would be advantageous to consider developing neighborhood parks in accordance with future development patterns. As more neighborhoods are built, the need for public recreation facilities will increase.

Size Criteria:

The general rule is that neighborhood parks are between 5 –15 acres in size. This size is denoted as large enough to host a variety of formal recreational opportunities and programs. The primary component for selection of neighborhood parks is the location within the town's context. It is imperative that a neighborhood park be easily accessible by the immediate neighborhood. Traffic and sidewalk availability affects the determination of a neighborhood park.

Neighborhood Park Uses:

As stated by Mertes and Hall, development of a neighborhood park should seek to achieve a balance between active and passive park uses. Active recreational facilities are intended to be used in an informal and unstructured manner. Neighborhood parks are not intended to be used for highly programmed activities that result in overuse, noise, parking and congestion.

Menus of potential active recreation facilities include play structures, court games, informal play space, ball fields, tennis courts, volleyball courts, shuffleboard courts, and horseshoe areas. Facilities for passive activities include trails, picnic/seating areas and open space. As a general rule, active recreation facilities should consume roughly 50% of the park's acreage. The remaining 50% should be used for passive activities.

Typical Neighborhood Park (5-15 acres)

- Ball Field
- Walking Path (half-mile)
- Basketball Court
- Picnic Area
- Playground

- Open Space Area/Nature Exploration Area

Community Parks:

Community parks are larger than neighborhood parks and provide activities catering to larger quantities of people. Community parks are often the focal point of the local park system.

Location Criteria:

A community park should service a majority of the town's population and should be easily accessible via major roads. The service area should not exceed three miles in radius. The community park should also be located in an area that can easily be connected to various planned and existing trails and greenway systems. One potential area in Lake Lure for a community park would be along the NC 9 corridor near the municipal golf course.

Size Criteria:

Generally, the size of a community park is from 20 acres to 60 acres. Its actual size should be based on community need, desired program options and land availability. When developing a community park, certain features should be taken into consideration. Proper location within the community as well as appropriate environmental context is necessary. Ease of access throughout the community is needed, as well as a centrally located place within the existing park framework.

Community Park Uses:

A menu of potential active recreation facilities include large play structures and/or creative play attractions, informal ball fields for youth play, tennis courts, volleyball courts, shuffleboard courts, horseshoe areas, ice skating rinks, and swimming pools. Passive recreation facilities include an extensive network of internal trails, individual and group picnic areas, open space/nature areas, and ornamental gardens. Facilities for cultural activities, such as plays and concerts, are also appropriate for a community park. In most communities golf courses are not included in the community park menu. However, Lake Lure could elect to designate its 9-hole municipal golf course part of the community park menu if so desired.

Currently, Morse Park functions as a Community Park within the Town of Lake Lure, but without a variety of sport field facilities normally associated with a typical community park. The location along the lake, array of attractions and its size, makes this park a popular destination for all residents.

Typical Community Park Menu (20-60 acres):

- 1 Little League Field
- 1 Softball Field
- 1 Baseball Field
- 1 Soccer/Multi-Purpose Field
- 1 Playground
- 2 Basketball Courts
- 2 Tennis Courts
- Picnic Area
- Walking Path/Trail (1-mile)
- Open Space Area/Nature Exploration Area (1 acre min.)

Natural Useable Public Open Space/Greenspace:

Natural Usable Public Open Space/Greenspace areas are natural places provided by the town, which are accessible and useable by the general public and can be included as a component of other park classifications. These areas are part of an open/greenspace network which provides opportunities for passive recreation pursuits. Recreation space is often misinterpreted and cited as open space use and vice versa. Actually, open space is any space not occupied by a built structure. Often, non-useable open space skews park analyses by including non-usable recreation land limited by its location and natural characteristics. The Usable Public Open Space/Greenspace category is designated for natural settings that are identified and suitable for public use. This classification is important to limit land dedications for recreation that do not provide adequate opportunities for recreation use. A program to develop additional natural useable open space as part of Morse Park along the riverside is currently being discussed by the Parks and Recreation Board.

Location Criteria:

Public open space and greenspace can take a variety of shapes and sizes. This type of space can range from expansive natural areas to a small urban green space. It is important to note that open/green spaces provide key connecting nodes in an efficient and effective greenway network.

Size Criteria:

Public open space can be developed on a variety of land sizes and shapes. It is important to note that strategic location is more often a primary factor in acquisition than is size. Once again, location and availability are keys for the development of natural usable public open/greenspace. The practical limit of acreage set



Multi-Use Trail Greenway



Soft Surface Trail Greenway

aside under this classification is in resource quality, availability, development consideration and acquisition costs.

Usable Open/Greenspace Uses:

A variety of passive uses, as well as environmental benefits, can be provided within these types of parks. Passive recreation can range from picnicking to hiking to nature tours and dog walking. Passive parks are used within their surrounding contexts whether urban or natural. Often, environmental concepts can be incorporated into these parks, including wetland mitigation and natural habitat preservation.

Greenways:

Greenways can serve a variety of functions and uses within the park and recreation environment. They can tie park components together to form a cohesive park, recreation and open space system. They also can establish natural habitat corridors and flood relief. When greenways become structured and designed, they can offer pedestrian and biking opportunities within the community and provide alternatives to conventional transportation. Greenways also have been proven to enhance adjacent properties and become a central focus for relocation and attracting new residents. Greenways and usable open space, as mentioned above, are similar in some aspects. For greenways, the emphasis is on trail usage and connections as opposed to the nodal points of destination as seen in usable public open space.

Location Criteria:

Land availability and opportunity are the primary factors determining location. "Natural" greenways generally follow suitable natural resource areas. Man-made greenways are corridors that are built as part of development projects or during renovation of old development areas. Man-made greenways, include residential subdivisions, revitalized river fronts, abandoned railroad beds, old industrial sites, safe power line rights-of-way, pipeline easements, road rights-of-way, etc" Since greenways are the preferred way to get people from their homes and into the parks, adjacency to development areas and parks is important. The town center walkway is a specific example of a man-made greenway within Lake Lure. This walkway connects residents to shopping and attractions along the lake edge.

The location of greenways is integral to the trail system plan and in some cases they can also be considered light traffic facilities. There are great opportunities to expand and develop Lake Lure's

greenway system. Expanding the town center walkway is one opportunity that needs to be explored further.

Size Criteria:

According to Mertes and Hall, location, resource availability and opportunity are the primary factors determining the width of greenway corridors. Although corridor width can be as little as 25 feet in a subdivision, 50 feet is usually considered the minimum. Widths over 200 feet are considered optimal. Natural corridors are generally sought out for greenway development. Often this is not feasible for a community. Man-made greenways are then designed and built to fill this void. It is important to note that greenways due to physical attributes may not always connect. Town infrastructure should continue to bring the park system together by filling the gaps and voids between parks, trails and designated greenways with appropriate sidewalks and urban bikeways.

Greenway Uses:

Greenways can be designed and developed for numerous reasons. Some of the most prominent activities include hiking, walking, jogging, bicycling and in-line skating. Greenways can begin to change recreation behaviors and transportation demands by exposing new recreation and transportation options for the local residents.

Currently the Town of Lake Lure provides most of its non-user fee public recreation offerings around its town center in the form of Morse Park, the town's existing community park facility and the town center walkway. Lake Lure is also developing a future mini park at the intersections of US 64/74A and NC 9 to help provide passive recreation opportunities at key locations. As the recreation land grows in Lake Lure, it is important to further study areas that are currently underserved by non-fee based public park and recreation facilities. Future facility expansion efforts need to be studied in detail to provide for efficient and effective locations for future recreation service offerings and to meet the level of service (LOS) goals described in the previous section.

Recreation Facility Level of Service

The following table highlights the current recreation facility level of service in Lake Lure. Understanding that Lake Lure's population fluctuates greatly during the season, the table identifies facility service based on a 1,000-person population and a 5,000-person population. The following list of facilities to

population ratios was generated from the 1990 Recreation, Park, and Open Space Standards and Guidelines; Ashburn, VA: National Recreation and Park Association, and by North Carolina standards issued by the North Carolina Department of Environment and Natural Resources. This section is a general guide that highlights current service issues in regards to recreational facilities and does not include boating activities on the lake.

If the Town of Lake Lure chooses to deliver recreation service based on a 5,000-population standard, the town would need to develop the following facilities within the next 20 years in order to provide a comprehensive menu of recreation facilities that serve full-time residents, part-time residents and additional tourists at peak seasonal populations.

- 1 Baseball Field
- 1 Multi-Purpose/Soccer Field
- 1 Volleyball Court
- 1 Large Playground
- 1 Small Playground
- 2 Miles of Trails (1.3 miles currently planned-town center walkway)

The above recreation facilities could easily be accommodated within the framework of the 28 acres of recommended future municipal park land to be developed within the next 20 years.

Table 5.2: Facility Level of Service

Facility	National Standard (quantity/pop.)	State (NCDENR) Standard	Existing Facilities	Need @ 1,000 Population (State)	Need @ 5,000 Population includes existing facilities (State)
Baseball Field	1/5000	n/a	0	0	1 (National Standard)
Soccer /Multi Purpose Field	1/10000	1/5000	0	0	1
Football Field	1/20000	1/20000	0	0	0
Basketball Court	1/5000	1/5000	1	0	0
Tennis Court	1/2000	1/2000	2	0	0
Volleyball Court	1/5000	1/5000	0	0	1
Large Rec. Center (Gym)	1/25000	1/25000	0	0	0
Small Rec. Center (No Gym)	1/10000	1/10000	0	0	0
Playground	1/2000	1/2000	1	0	1.5
Picnic Shelter	1/2000	1/2000	2	0	0
Swimming Pool (Lake Beach)	1/20000	1/20000	1	0	0
Trails - Miles	1/region	.4/1000	1.3	.4	2
Golf Course	1/25000	1/25000	1	0	0

5.3 Summary of Issues and Opportunities

- Currently, the town functions at a lower park level of service during peak seasons when part-time residents come back to Lake Lure and weekly tourists reside in the various rental homes and apartments.
- The town has not developed a variety of parks that are geographically located and sensitive to population service areas. Currently, all of the town's public recreation land is located near the town center.
- As pointed out in various public input forums, there is a need to connect open spaces and parks via trails, greenways and sidewalks. According to the visitor's center, there has been a consistent interest in hiking trails by residents and tourists. The need for pedestrian safety throughout Lake Lure has been raised by the steering committee and citizens. It has also been

identified that an opportunity exists to use recently planned and future trails to connect to open space and park areas as part of a town-wide greenway system.

- Making local parks a viable component to the tourism economy is another opportunity identified in the public process. Capitalizing on park actives around the town center and future developable nodes presents an opportunity to integrate public recreation into the tourism economy. This is an opportunity to increase special events offerings to further compliment the local tourism economy.
- Lake Lure has the opportunity to build on successful planning efforts such as the town center walkway as catalyst for developing a comprehensive system of pedestrian and bicycle facilities.
- Currently, the town does not have a specific parks, recreation and special events department within its existing organizational framework. In order to capitalize on the tremendous potential for the development and expansion of the current park system, it has been identified that a stand alone department is worthy of consideration. Recently, the parks and recreation board has been reactivated after a period of inactivity and could help direct the growth and development of future park and recreation services and facilities.

5.4 Goals, Objectives and Policies

PR Goal 1: A town-wide system of parks, recreation facilities and open space interconnected by trails, greenways and sidewalks.

Objectives PR-1-1: Develop and adopt a Parks, Recreation, Trails and Open Space Plan by the year 2008. *This will help define a specific plan of action for new parks, trails and open space development based on public recreation needs and community input. The plan should include detailed analysis of funding opportunities, potential partnerships, information and communication efforts, analysis of existing and future facilities and potential linkages.*

Policy PR-1-1.1:

Complete a town-wide parks, recreation, trails and open space plan and execute strategic steps to accomplish its objectives.

(1) Acquire parkland in accordance to the park and recreation plan in advance and in conjunction with local development.

(2) Evaluate the feasibility of fee in lieu and/or land dedication efforts for the acquisition and development of future public park land.

(3) Develop a “purchase of development rights” program that can preserve future parks and open space.

Objective PR-1-2: Establish a permanent, ongoing source of funding for recreation programming, operations and maintenance, as well as park acquisition and development to further expand the town-wide park and recreation system.

Policy PR-1-2.1:

Dedicate a portion of capital improvements program funds specifically for park and recreation projects.

(1) Evaluate the proposed parks, recreation, trails and open space plan recommended capital projects and strategically determine which projects are achievable in the short, mid, and long-term based on town support and financial capabilities.

Policy PR-1-2.2:

Evaluate all potential sources of funding for park development and recreation planning projects.

(1) Explore opportunities to secure funding from state and federal park, recreation and trail grants.

(2) Apply for PARTF Grant Funding – *The North Carolina Parks and Recreation Trust Fund (PARTF) program provides dollar-for-dollar grants to local governments. Recipients use the grant to acquire land and/or to develop parks and recreational projects that serve the general public. Source: Park and Recreation Trust Fund Grant Application.*

Objective PR-1-3: Establish and maintain optimal amounts of formal recreation-based parkland.

Policy PR-1-3.1:

Acquire and develop park acreage shown as net park and recreation space, exclusive of riparian corridors, wetlands, steep topography, heavily wooded areas and other beneficial natural areas.

(1) Aggressively pursue conservation easements either through fee simple purchase, purchase of development rights program or voluntary donations.

(2) Explore and utilize all forms of parkland acquisition, such as fee simple purchase, leasing, property transfers, trades, easements, joint agreements, and private donations to help acquire future park land.

PR Goal 2: Park development that meets the needs of existing, future and peak seasonal populations.

Objective PR-2-1: Develop facilities and programs to be universally accessible to all people regardless of physical ability, financial welfare, and residency.

Policy PR-2-1.1:

Create new recreation facilities and programs that are designed in accordance with the American with Disabilities Act (ADA).

(1) Ensure the parks, recreation, trails and open space plan includes facilities and programming recommendation designed for all age groups.

Objective PR-2-2: Develop a variety of future public recreation program offerings based on current and future recreation demand

Policy PR-2-2.1:

Adopt LOS standard for recreation parkland at a minimum of 10 acres of park land for every 1,000 full and part time residents.

- (1) Establish and maintain approximately 28 additional acres of park land to service a population of 5,000 (full -time residents, part-time residents and visitors).
- (2) Develop park and recreation facilities that are strategically located throughout the town based on LOS radii.
- (3) Provide recreation facilities and programs that appeal to full-time residents, part-time residents and visitors.
- (4) Develop recreation facilities that can be used year-round, as well as have the capacity to host recreation activities during peak seasonal demand.

Policy PR-2-2.2:

Develop a level of service standard for individual recreation facilities based on ratios of facility type per number of full and part-time resident populations combined.

- (1) Formally classify all existing parks and develop a classification hierarchy for future park development.
- (2) Adopt a park facility level of service measure to ensure a wide variety of individual recreation facilities (tennis courts, baseball fields etc.) are developed within future parks to meet the needs of both full and part-time residents.

Policy PR-2-2.3:

Recognize and plan for potential shifts in demographics and their impact on recreation needs.

- (1) Consider the potential for future demographic changes and how they will affect the utilization of park space and facilities as outlined in the parks, recreation, trails and open space plan.

Policy PR-2-2.4:

Develop a recreation programming action plan as part of a parks, recreation, trail and open space plan.

- (1) Coordinate recreation programming expansion efforts with new park development.
- (2) Coordinate recreation programs with other jurisdictions to provide comprehensive, complimentary and efficient recreation programming opportunities.
- (3) Adopt a benefit-based recreation program philosophy for all programming activities and implement a recreation cost recovery pricing model for all program offerings.
- (4) Provide appropriate and all inclusive recreational programs for all genders, ages, and levels of skill and ability.
- (5) Develop a specific recreational programming strategy and conceptual development plan for each new park site

Policy PR-2-2.5:

Develop multi-use trails to provide access to parks and open space and to meet demands for walking, hiking, running and biking.

- (1) Prepare a trail system assessment to establish a hierarchy of trails, bicycle and pedestrian facilities in accordance with NC DOT standards as well as a prioritization schedule of all future trail projects such as future trail corridors leading from the proposed Hickory Nut Gorge State Park to the Town Center. (See *Transportation / Circulation* section.)

PR Goal 3: An integrated community park and recreation system that enhances the local tourism economy year-round.

Objective PR-3-1: Utilize public recreation to attract additional visitors and to become an integral part of the local tourism economy.

Policy PR-3-1.1:

Develop a community-based recreation tourism strategy to complement regional tourism attractions in order to provide additional strength for the local economy.

Policy PR-3-1.2:

Optimize existing and future community recreation facilities to complement the variety of unique recreation offerings in the region.

Policy PR-3-1.3:

Collaborate with private recreation providers to expand recreational opportunities and program offerings.

Policy PR-3-1.4:

Collaborate with area counties and the state to develop regional recreation offerings.

Objective PR-3-2: Educate the public on how parks and recreation efforts can benefit both healthy lifestyles and the Lake Lure's tourism industry.

Policy PR-3-2.1:

Develop an education program that highlights the quality of life benefits of becoming active in local parks and recreation offerings.

Policy PR-3-2.2:

Develop an education program depicting how future parks and recreation improvements can complement and enhance the local tourism economy.

Objective PR-3-3: Establish a Parks, Recreation and Special Events Director if warranted by future staff planning study.

Policy PR-3-3.1:

Continue to use the existing Parks Advisory Board to help coordinate future park and recreation expansion efforts.

(1) Hire a director whose basic duties include planning, organizing, and executing community events, recreation programs, services, and will be held accountable for park planning and park development, and ongoing capital improvements to park and recreation facilities in concert with Public Works and Community Development.

(2) Create a yearly funding source from the capital budget for the Parks, Recreation and Special Event Department operations.

6A.0	Lake Management	6A-1
6A.1.	Introduction	6A-1
6A.2.	Inventory and Existing Conditions	6A-2
6A.3.	Summary of Issues and Opportunities	6A-8
6A.4.	Goals, Objectives and Policies	6A-11

6A

6A.1 INTRODUCTION

Impounded in 1925 as the centerpiece of a real estate development, Lake Lure has had four different owners over its history. The Town of Lake Lure, its present owner, purchased the dam and the 720-acre reservoir in 1966. The challenges of owning and managing a complex facility that includes a hydroelectric plant, sewer system and 22 miles of shoreline are staggering enough for professionals. To do it with a manager/council form of government assisted by volunteers from the community posed some very interesting questions when developing a comprehensive Lake Management Plan in 1999.

The slow evolution of management practices has been less than scientific, yet relatively effective. The necessity for a Lake Management Plan surfaced in 1994 after the first of several catastrophic floods. Following this event and subsequent communication with the North American Lake Management Society (NALMS) and the North Carolina Lake Management Society (NCLMS), the learning curve was shortened dramatically and partnerships have been building in all directions. The NCLMS sponsored a lake management workshop at Lake Lure in the fall of 1996. Since then, goals have come into sharper focus, the network of resources has grown dramatically, and our town's residents have a heightened interest in being better stewards of their "centerpiece."

As the recreational use demands have increased with the exponential growth of the community, the town council pro-actively explored its latitude to regulate the boating activities on the lake in 2001. In 2003 the North Carolina General Assembly conveyed regulatory authority to an entity that it created at the town's request: the Lake Lure Marine Commission. During 2004, Dr. G.W. Sherk, an internationally-renowned waterway rights attorney, was retained by the town to research and define the town's ownership of the lake. The result of his work is the publication *The Law of Lake Lure*, which not only establishes the town's rights of ownership of the artificial water body, but also emphasizes the town's tremendous task to responsibly manage every facet of operation associated with the impoundment, the resource that with ownership carries the burden of accountability to all of Lake Lure's citizens.

Since its construction, the impoundment known as Lake Lure has been utilized as a multi-purpose facility. Beyond the primary purpose of drawing potential real estate investors to the Hickory Nut Gorge region, the lake has an ingenious design that continues to serve the residents in these numerous ways (listed in order of historic priority):

Recreation for Residents and Visitors

Swimming: Due to its location near the eastern continental divide and the incorporation of a sewer system in the original design, swimmers enjoy a class B trout water quality - better than most of the drinking water in the world.

Boating: Because the town owns the lake, the town has been able to adopt local regulations affecting access through boat permit fees and establishing safety standards not found on other lakes. As a result, Lake Lure has one of the safest boating records in the state.

Fishing: Once heralded as one of the top fishing lakes in the country, Lake Lure’s fishery suffered from neglect for many years. Current and proposed programs are starting to bring it back to its potential.

Water Sports: Water-skiing and other forms of water sports activities have been enjoyed on the lake since it was completed in 1925. Boating and water safety classes have helped educate participants in past years along with ski clubs that incorporated safety education into their programs of show and tournament skiing.

Hydroelectric Plant

The purchase of the lake and the hydroelectric plant has been one of the most important chapters in the town’s history. The generation of electricity supplements the tax base and helps the town provide services and maintain the infrastructure. Even before the town’s purchase, it has historically been operated as a “run of the river” operation with no more water released than flows from its tributaries unless droughts or floods necessitate otherwise. The lake is maintained at full pond, and lake levels are not to fluctuate (be lowered) more than six inches below full pond under normal circumstances.

Flood Control

While this was not the main purpose of the construction of the dam as may be the case with other impoundments, the Lake Lure dam does serve this purpose for the residents around the lake and downstream.

6A.2 Inventory and Existing Conditions

To manage the lake in a fashion that is consistent with the purposes summarized above, a number of conditions and associated issues must be considered. The following is a detailed inventory of facilities, operations, and procedures having to do with the proper maintenance of the lake. Each are monitored by the Lake Advisory Committee; at least one committee member is assigned to each element to ensure adequate attention is given on a regular basis.

Dam Operation and Sewer System

Both the dam and the sewer system, with its network of pipes under the lake and treatment plant below the dam, create challenging operational and maintenance hurdles for the town due to their age and unique design. The dam operator(s), town council, town manager, and the Lake Advisory Committee have developed open channels of communication to facilitate meeting these challenges. Periodic inspections of the dam and the sewer system are conducted to detect existing or potential problems. The most recent dam inspection was conducted in November 2006 and found the Lake Lure Dam to be generally good condition. The report noted that the town’s staff does a good job maintaining the dam and that no immediate actions are required at this time. The entire Lake Lure Dam report may be found as Appendix H at the end of the 2026 Lake Lure Comprehensive Plan.

A Standard Operations Procedure Manual for the dam/sewer plant operator was created in 2001 to safeguard the knowledge that has been accumulated over the years by the operators of these facilities. This manual includes regulatory guidelines established by federal, state and local agencies, plus policies established by the Town of Lake Lure.

It has become more critical over the years that the town establish and maintain a good communication link with the North Carolina Dam Safety engineer who monitors the integrity of the dam structure, gates and hydroelectric plant. The dam's Emergency Action Plan must be updated in accordance with the state's requirements. In addition, the town would be prudent to annually review all of the Federal Energy Regulatory Commission (FERC), Environmental Protection Agency (EPA) and other federal and state agency requirements with regard to dam and sewer plant operation.

The dam/sewer system operators monitor the structural integrity of the manhole system around the perimeter of the lake on a regular basis.

A lack of guidelines for property owners who wish to attach sewer lines to the manholes has been a source of controversy over the years. Creating standards is important for these individual "private" lines that pass above and below the "shoreline" between lakefront homes and the manholes. Plus, clarification on "right-of-way" issues remains an open action item for lake/sewer system management.

Dredging and Watershed Stabilization

Since Lake Lure's creation in 1925, the continuous flow of silt, sand and other debris has filled the lake at the mouths of its major tributaries. The recent increase in land disturbance within the lake's 95-square-mile watershed has amplified the sedimentation problem.

Hydraulic and Mechanical Sediment Removal

Attempts to reverse or slow down this condition have been very expensive. The town has purchased and sold several dredges over the years after inefficient attempts of the town's work force to perform maintenance dredging in the Rocky Broad River west of the main channel. As a result, outside dredging contractors have been employed to perform both the maintenance dredging as well as the periodic "big dig" that becomes necessary if the maintenance dredging is not performed regularly or a major storm brings massive amounts of material from upstream landslides.

Monitoring and Stabilization

On a more preventative approach, the town entered into a grant contract with the Environmental Quality Institute at the University of North Carolina at Asheville (UNCA) in 1996 to utilize its laboratories in a volunteer-performed water monitoring program known as the Volunteer Water Information Network (VWIN). Samples are taken monthly at nearly a

dozen sites on all of the tributaries feeding the lake and within the lake, as well. Tests for clarity, dissolved oxygen and temperatures at predetermined depths are also part of the lake sampling in the warmer seasons. With the help of local, state and federal agencies, the Upper Broad River Watershed Protection Program (UBRWPP) was established in 1998 with funding from the state's Clean Water Management Trust Fund. Both the VWIN and UBRWPP are aimed at addressing the stabilization of the watershed. In 2006, the town adopted the Soil Erosion and Sedimentation Control Regulations and created a staff position for an Erosion Control Officer.

Emergency Preparedness

Because of the recent explosive development, population influx in the summer and holidays, changing weather systems that bring heat and dry-spells, storms and heavy rainfall, natural disasters such as floods, human-caused disasters such as chemical spills, and the inherent risks of a dam, the town has put in place people and processes to handle a diverse and unpredictable set of emergency situations.

Emergency Management Office

The Town of Lake Lure's Fire and Emergency Management Office is staffed with three full-time personnel: a coordinator, assistant coordinator and a secretary. This office is charged with preparing for and responding to natural hazards as well as fires and other emergencies.

This office is responsible for maintaining and overseeing the town's Emergency Operations Plan and the Emergency Action Plan for the Lake Lure Dam as well as managing the Town Emergency Operations Center and response efforts in the event of a disaster.

The town council has adopted an all-hazard Emergency Operations Plan to identify response roles to hazards in the town. The plan includes response to flooding, winter storms, fires, earthquakes, hazardous materials incidents, evacuation and other emergencies. The plan was developed by input from all local emergency response agencies.

Emergency Action Plan for the Lake Lure Dam

The town hired an engineering firm to produce inundation maps and emergency operation procedures for the Lake Lure Dam. These maps and procedures were developed with input from Lake Lure Emergency Management and the hydroelectric plant operator. The plan is updated annually or more, if needed, by the Emergency Management Office.

Integrated Flood, Observation & Warning System (IFLOWS)

The system of automated flood warning devices located in parts of western North Carolina can now be monitored on an Internet Web site. Lake Lure Emergency Management monitors applicable rain and stream gauges in times of heavy precipitation to aid in response and evacuation efforts. Lake Lure Emergency Management has received funding this year to augment this system. The improvements will include a lake level gauge in Lake Lure and

additional stream gauges up the river. The installation of radio equipment and software in the Emergency Management Office will improve early warning.

Emergency Facilities

There are three identified emergency shelters in the Lake Lure, Chimney Rock and Bill's Creek communities. They are the Bill's Creek Fire Department, Chimney Rock Fire Department and Fairfield Mountains Fire Department-Station #1.

The town now has a designated Emergency Operations Center located at the Lake Lure Fire and Emergency Management Office in the Fairfield Mountains Fire Department-Station #2.

Warning Systems for the Public

Lake Lure and Chimney Rock Village have installed outdoor warning sirens to warn of flooding along the Broad River and the lake. There are a total of nine outdoor sirens from the county line near Bat Cave to the River Creek Campground in Bill's Creek. Three of these sirens are located adjacent to the lake. These sirens provide warning for most of the lake.

The town also has a contract with "Code Red," an emergency notification provider for the area. The company has the ability to notify every landline in town with an emergency message within minutes of activation.

Lake Lure Fire Boat

The Town of Lake Lure purchased a new fireboat in 2005 for the fire departments. This boat has dramatically improved response capabilities on and near the lake for fire and rescue emergencies. The operation of this boat has improved fire insurance ratings for everyone living within 1,000 feet of the shore. This results in about 25% savings in homeowners insurance annually for these homeowners. The fire departments are currently working to raise funds for a future fireboat house.

Water Quality

Lake water and all feeding streams are sampled monthly for the presence of certain metals, oxygen levels and temperature (see VWIN section for details). In addition, the lake is monitored for bacteria in the summer months every two weeks when the population, lake use and temperature levels are at their highest.

In the event of hazardous chemicals or unknown substance entering the lake, the fire departments and Emergency Management will respond to determine the source and magnitude of the problem, as well as the required response. After evaluating the situation, the Rutherford County Hazmat Team and the North Carolina Hazmat Team will be requested if necessary. "Code Red," the phone notification system, can be used to contact and warn residents in the proximity of the problem.

Surface Debris Removal

When storms and flooding occur, the incoming streams bring not only sediment but also tons of debris. The town has acquired large nets similar to those used on commercial trawlers to use to trap and remove logs and other floating debris from making its way to the dam or and number of coves. Not only is the debris unsightly and the source of an organic overload on the ecosystem, the floating or semi-submerged material also represents a real safety hazard to powerboat operators and their equipment. Use of the lake may be temporarily suspended. Town maintenance personnel and volunteers are called upon to clean up the lake in a timely fashion.

Fishery and Ecosystem

The Town of Lake Lure assumed the responsibility of fishery management from the North Carolina Wildlife Resources Commission (WRC) in the early 1990s. Since that time, the town has funded stocking the lake with several thousand trout, bass and bream. Creel limits and a catch and release season have also been implemented.

Since the WRC biologists can no longer be relied upon to serve as consultants on maintaining the fishery and ecosystem, the town must contract with independent biologists to perform periodic fishery analysis.

The VWIN program, regular testing for bacteria, dredging and surface debris removal efforts are all contributing elements in safeguarding the ecosystem of the lake. Maintaining marshes, wetlands and tree-lap (the fallen trees around the shoreline) creates habitat and spawning beds for all of the aquatic life forms.

Lake Structures

In 1992, the Lake Advisory Committee, at the request of town council, created the Ordinance Regulating the Construction and Use of Lake Structures, now renamed, Lake Structures Regulations. The zoning administrator, now known as the zoning enforcement officer, was placed in charge of issuing permits and inspecting the structures. The Zoning Board of Adjustments was asked to also serve as the Lake Structures Appeals Board, to review applications for variances and grant or deny any variances to the regulations.

The Lake Advisory Committee has worked with the town's administration to review and update these regulations and fostered a good working relationship with the government agencies that have proven to be valuable partners with its ongoing development and enforcement. They include the Army Corps of Engineers, NC WRC, NC Department of Water Quality, Rutherford County building inspectors, NCLMS, Isothermal Planning and Development, USDA/NRCS and the Mountain Valleys Resource Conservation and Development.

Recreation and Special Events

The portion of the plan devoted to boat use (Section 8B) was created after a year of evaluating survey data, hearing public comments at open forums, and on-site monitoring of boating activities by independent consultants. Dr. Ken Wagner and Barbara Wiggins, authorities on lake management, have provided a thorough evaluation and list of policies for the recreational and commercial boating use in the Lake Lure Boating Management Plan Review and Recommendations found as Appendix G in this plan. Section 6B summarizes that report. The following is a summary of other recreational activities and related facilities not addressed in the boat use section.

In brief, boating, swimming, fishing and water sports (water-skiing, tubing, knee boarding, wake boarding, etc.) are addressed in the Lake Lure Marine Commission's Lake Use Regulations, which are reviewed regularly by the LAC and LLMC.

The sales figures for boat permit fees, marina slip rental, and other lake-related income are reviewed annually to evaluate trends in lake use and to determine possible adjustments to fees or regulations.

Fishing tournaments, boat parades, rowing teams' spring training and antique boat rallies are examples of special events that are evaluated for the marine commission by the LAC.

The marina and beach are currently leased to a private venture which has proven to be a successful partnership. They have improved both the vitality and quality of the operation of these important assets of Town of Lake Lure.

The town authorized the Lake Advisory Committee to determine the placement of "Slow-No Wake" buoys. Current and potential placement sites are examined on a boat tour in the early spring of each year. Buoys are placed by the committee based on subjective observations and in response to written requests from lakefront property owners.

Law Enforcement

The town has maintained a police presence on the lake since the late 1950s. The NC WRC has also scheduled seasonal patrols on the lake by its enforcement personnel since the early 1960s. Jurisdiction over the boating and recreational regulations was conveyed to the Lake Lure Marine Commission by the North Carolina General Assembly in 2003. With this conveyance, the WRC enforcement officers along with the town's police can now enforce both the state's boating laws and local regulations that are unique to Lake Lure.

The safety and well-being of all who use and enjoy Lake Lure should be the top priority of all discussions and lake-related recommendations. Future town councils and committees should be vigilant, not only with maintaining safety, but also be careful not to over-restrict the activities and watercraft that can be used on Lake Lure. Any new ordinances should be carefully developed through

proper study and be designed to fulfill specific safety criteria to ensure the ongoing exceptional record of the lake and still allow some freedoms.

The patrolling of the lake has been a continuing concern of the LAC. Recommendations over the past few years have centered on frequency of patrols, time of patrols and enforcement of the ordinances. For the safety of all who enjoy the lake, the LAC has always considered the patrolling and enforcement of the state and local ordinances to be a high priority.

The following **Lake Enforcement & Patrol** mechanisms are currently in place:

- Police patrol (one principal patrol boat + one backup)
- NC WRC boat (minimal patrol during the past few years)
- Zoning administration, lake structures and erosion control inspections (by boat)
- Lake Lure Lakefront Owner's Association (LLLOA) Cove Watch Program
- Citizens on Patrol program coordinated by the police department
- Lake Use Regulations
- Lake Structures Regulations
- NC state boating regulations
- Lake commercial licensing program and commercial capacity modeling
- Boat permit program

6A.3 Summary of Issues and Opportunities

Dam Operation and Sewer System

- Dam inspection and safety issues are addressed by NCDENR Dam Safety Engineer and it is the responsibility of the town to preserve the integrity of the structure and update the required documents and action plans.
- Annually reviewing FERC, EPA and other federal and state requirements is a function of the responsibility associated with lake management.
- An SOP was developed to safeguard the knowledge of the operation of these facilities. As equipment is upgraded or changed, the SOP manual must also be updated.
- The water quality of the lake is dependant on the functionality of the sewer system. Expansion of the sewer plant's capacity and establishing guidelines for hook-ups is critical for the long term health of the lake.
- Establishing "run of the river" operation of the hydroelectric plant and water retention rights are important components in future negotiations with the sale of electricity and the demand for water from downstream communities.
- Request that Lake Lure place a representative on / becomes a member of the Broad River Water Authority.

Dredging and Watershed Stabilization

- Sedimentation at the mouths of the major tributaries has been a historical threat to the health of the lake and will become an even greater threat to operational capabilities – both for navigation

and hydroelectric impoundment capacity – with the increase in development and land disturbance.

- Soundings of depth measurements are performed annually and the latest technology is being explored to enhance the mapping of the lake bed.
- A maintenance dredging program and contribution to a dedicated reserve fund for emergency excavation after major storm events have become essential annual town budget items.
- The town has provided support for the VWIN and Upper Broad River Protection Program in their efforts to prevent erosion upstream and has adopted land disturbance regulations enforced by the town's erosion control officer within the town planning jurisdiction.
- Partnerships have been established with soil and water conservation agencies, dredging companies and material classifying/hauling contractors.

Emergency Preparedness

- The Emergency Management Office, fire and police departments and town personnel are dedicated and vigilant in monitoring, managing and responding to the ever-changing conditions of Lake Lure.
- The town has learned many lessons from the flood events of the 1990s and has become better equipped to respond to similar events in the future.
- With the ever-growing development on the shoreline, the addition of a fireboat to the local fire departments' fleet of vehicles increases their ability to respond in a shorter time-frame to both lakeshore and boat fires.
- Regular testing for bacteria at key points on the lake ensures that the water quality remains pure.
- Volunteers and town maintenance personnel have reduced the surface debris clean-up time after major storm events from weeks to days with the use of large trawler-style nets.

Fishery and Ecosystem

- The town assumed the responsibility of fishery management of Lake Lure in the early 1990s when the state's WRC decided to curtail its regional biologist's activities on the lake. With the 2006 fish kills drawing public attention to water quality issues, the town's responsibility as fishery managers is amplified.
- Since the early 1990s, the town has stocked the lake with thousands of fish – all of the same types as what would be considered indigenous: trout, bass, crappie, etc. Creel limits and catch and release seasons have also been established. Recently, there have been concerns voiced by fishing guides that the fish population has diminished. Independent biologists have been enlisted to reevaluate the stocking program and perform a fishery analysis that will establish the most effective stocking and regulatory options.
- Ecosystem issues are being addressed by VWIN, bacteria testing is being performed by the town and DWQ enforces the trout waters buffer. Attention to wetlands, marshes and tree-lap as habitat for aquatic life are important considerations for future restrictions and regulations. Concern about dissolved oxygen deficiencies and nutrient loading that leads to algae blooms are equally important and deserve monitoring.

Lake Structures

- The town owns the lake and regulates to the boundary elevation of 995' MSL.
- Structures are allowed to be constructed by upland property owners as long as they are permitted and are within the standards established by the town's Lake Structures Regulations.
- The Lake Advisory Committee periodically reviews the effectiveness of the regulations and recommends amendments to the town council. The zoning officer approves / disapproves permits and enforces the regulations. The Lake Structures Appeals Board examines requests for variances and approves / denies variances. Appeals from these decisions go to the town council.
- Open lines of communication have been established to enhance the continuity of the town's regulations with those established by federal, state and local agencies that have jurisdiction over structures that may be built at or below the lake boundary.

Recreation and Special Events

- The Boat Management section 6B addresses the majority of the recreation and commercial boating activities.
- The Lake Lure Marine Commission was created by the North Carolina General Assembly to regulate activities on the waters of Lake Lure. The Lake Use Regulations were adopted by the marine commission and are enforced by both local and state enforcement personnel.
- The Lake Advisory Committee is responsible for making recommendations to the marine commission on possible amendments to regulations, applications for special events such as boat parades, ski shows, rowing events and fishing tournaments. The Lake Advisory Committee is also responsible for the placement of uniform waterway markers, such as "Slow-No-Wake" buoys.
- The beach and marina operations which were once managed in-house by town staff are now leased to a private operator.

Law Enforcement

- At times in the past, citizens have been critical of lake enforcement activities for being too invasive. Chief among the complaints were random safety inspections and multiple inspections on the same boat over a short period of time.
- There are certain lake-specific regulations that are most often violated. Education and enforcement activities should focus on these.
- Many of lake management programs in place are supported by extensive volunteer efforts. Examples include database maintenance, application review and capacity modeling, vacation rental research, lake depth soundings and emergency debris net deployment. Ideally, most of these activities should be performed by town staff.
- Eventually, there needs to be a lake enforcement officer / manager who is a point of contact for citizens.

6A.4 Goals, Objectives and Policies

LMDS Goal 1: A constant lake level is maintained for recreation while maximizing hydroelectric output.

Objective:

LMDS-1-1: Ensure the continued integrity of the dam structure and provide a stable full pond environment for recreation while utilizing the “run of the river” flow to generate electricity.

Policy LMDS -1-1.1:

Utilize a “run of the river” operation of the hydroelectric facility at the dam to maintain a constant lake level (within six (6) inches of the full pond level of 990 feet above MSL) unless droughts, floods, utility purposes, or required maintenance necessitate retention or release.

- (1) Install gauges on tributaries for the purposes of monitoring flows into the lake.

Policy LMDS -1-1.2:

Manage operations in accordance with all applicable regulations and standards.

- (1) Adhere to DENR dam safety requirements.
- (2) Annually review FERC, EPA and other pertinent regulatory agency requirements.
- (3) Update the SOP Manual when any changes are made to the dam/sewer plant operation.
- (4) Lower the lake level approximately five (5) feet during the winter months for maintenance every third year.

Policy LMDS -1-1.3:

Clearly establish the town’s right to retain water within the impoundment at the discretion of the dam’s management.

Town should establish representation/membership on BRWA Board of Directors.

LMDS Goal 2: Expand sewer system capacity for future demand and define connection standards.

Objective:

LMDS-2-1:

Preserve the water quality of the lake with the expanding population of the community.

Policy LMDS -2-1.1:

Utilize the latest technology to monitor, maintain and improve the efficiency of the sewer system and protect the water quality of the lake.

Policy LMDS -2-2.1:

Establish standards for the “private” lines which connect to the manholes and define right-of-way easements to facilitate connections for lakefront properties.

LMDW Goal 1: Establish a maintenance dredging program and capital reserve for emergency excavation.

Objective:

LMDW-1-1: Ensure the ongoing removal of sediment from the mouth of the Rocky Broad River at the west end of the Main Channel and any other major tributary to the lake in the battle against the unending inundation of silt, sand and other materials.

Policy LMDW -1-1.1:

The town will establish a maintenance dredging program.

- (1) Update all lake bed profiles and depth soundings on an annual basis.
- (2) Based on the readings, prioritize the schedule for maintenance dredging.
- (3) Utilize hydraulic and mechanical dredging equipment to keep these key areas at historic depths.
- (4) Create settling basins to trap the sediment in accordance with the rules set forth in the Clean Water Act with appropriate permits from DWQ and USACE.
- (5) The town will contribute a minimum of \$100,000 per year from lake receipts (including boat permits) to a capital reserve fund for maintenance dredging activities.

Policy LMDW -1-2.1:

The town will contribute a minimum of \$100,000 per year from lake and hydro fund receipts to a capital reserve fund for emergency excavation after a major storm event or accumulation that was not captured by the maintenance dredging.

LMDW Goal 2: Stem the flow of sediment by stabilizing the source.

Objective:

LMDW-2-1: Promote watershed stabilization efforts.

Policy LMDW -2-1.1:

To mitigate the effects of land disturbance:

- (1) The town will support the work of local watershed stabilization organizations.
- (2) The town will enact and enforce local land disturbance regulations to prevent damage to all of the waterways within the planning and zoning jurisdiction of the town.
- (3) Reclamation to pre-construction depths will be the financial responsibility of any party found in violation of land disturbance regulations that results in sedimentation altering lake depths (shallower than pre-construction depths).

LMEP Goal 1: Establish adequate and effective response to all emergencies.

Objective:

LMEP-1-1: Be prepared for all anticipated emergencies by monitoring, equipping, staffing, educating and communicating appropriately.

Policy LMEP -1-1.1:

Reduce the impact of emergencies.

- (1) The town's emergency coordinator will annually update and regularly publicize the town's emergency action plans and warning protocol.
- (2) Equipment and shelters used for such emergencies will be maintained in good condition.
- (3) Monitoring of water quality will be done on a monthly basis unless *E. coli* colonies exceed 250 parts per million (PPM) – in which case the testing will be performed weekly until the source of the contamination is discovered and stopped.
- (4) The town's fireboat will be maintained and manned for rapid response to shoreline and boat fires.
- (5) Nets for containing spills and collecting floating debris from storms will be maintained in good condition. The town will equip the appropriate departments with adequately powered watercraft to tow the nets when filled with debris.

Policy LMEP -1-1.2:

Establish a communication program for notifying citizens of emergency situations and activities (Web site, phone calls, color flags on the lake, etc.).

LMFE Goal 1: Maintain trout water status and a stable environment for aquatic habitats.

Objective:

LMFE-1-1: The town, as owner and caretaker of Lake Lure, accepts the responsibility of preserving the aquatic habitat within the boundaries of the town and supporting all efforts to do the same within the watershed.

Policy LMFE -1-1.1:

Regulate land disturbance activities and protect delicate wetlands and marshes as a means to preserve the exceptional water quality and the habitat for aquatic life in Lake Lure and its tributaries.

LMFE Goal 2: Enhance Lake Lure's fishery .

Objective:

LMFE-2-1: Balance the fish population of various game and forage species that are considered indigenous to the lake to enhance the fishery.

Policy LMFE -2-1.1:

The town will contract with independent biologist(s) on a periodic basis to analyze the lake's fishery resource to report on its health and make recommendations for stocking program.

Policy LMFE -2-2.1:

The town will stock the lake annually based on the biologist's recommendations.

Policy LMFE -2-3.1:

Fishing activities will be regulated through regulations established by the Lake Lure Marine Commission and the NC WRC. These regulations will be actively enforced by the town's lake patrol.

LMLS Goal 1: All lake structures are erected and maintained according to the lake structures regulations.

Objective:

LMLS-1-1:

Policy LMLS-1-1.1

Improve the safety and appearance of the structures permitted within the boundaries of Lake Lure.

- (1) Develop minimum appearance and material standards for all lake structures developed in the future.
- (2) Identify all shoreline areas subject to substantial erosion and establish an erosion control plan to mitigate it.
- (3) Update and enforce construction standards for the various types of lake structures for safety and appearance.
- (4) Communicate and coordinate between the town council, marine commission, Lake Structures Appeals Board, Community Development Department, and all outside governmental agencies that oversee such lake structures to ensure compliance with current laws and regulations.
- (5) Conduct a review of all existing lake structures to ensure proper maintenance. *All maintenance issues uncovered must be reported to the town and notice sent to the property owner with a deadline for compliance.*

LMLS Goal 2: Balance between lake use with upland property needs.

Objective:

LMLS-2-1: Limit shoreline structure density.

Policy LMLS-2-1.1:

Develop a long-range plan for shoreline structures for environmental and boat user needs.

- (1) Determine the number of marinas and locations.
- (2) Determine the number and locations of cluster moorings.
- (3) Review the number of slips allotted to marinas, cluster moorings, and individual lot owners according to their shoreline measurements.

LMR Goal 1: Permit lake recreation that the size and shape of Lake Lure will safely accommodate.

Objective:

LMR-1-1: Continue to maintain and improve and enhance safe water activities.

Policy LMR-1-1.1:

Review all of the town's lake ordinances on an annual basis to ensure the health, safety and welfare of the users of the lake are considered and followed.

- (1) Commercial boating operations shall be regulated separately by the marine commission after review by the Lake Advisory Committee (LAC) for the varied forms of business activities. Currently there are eight (8) categories with specific permit levels for each, different permit costs, and various operating restrictions.
- (2) Non-commercial boating operations shall also be regulated by the marine commission after review by the LAC with different permit costs for non-residents and residents. Permit limits exist for both non-residents and residents. Also established are horsepower limits and specified hours of operation.
- (3) Safe swimming practices are limited to specific beach areas or when accompanied by a boat unless within 50 feet of shore.
- (4) Placement of slow-no-wake buoys 75 feet from the shoreline in selected locations are to protect boaters and swimmers.
- (5) Special events such as those of the Lake Lure Ski Club, visiting rowing teams and other users need to be approved by the marine commission after review by the LAC.
- (6) Evaluation of the operational cost of the lake should be completed annually to inform the LAC concerning the future cost of permits to use the lake.
- (7) The Hickory Nut Gorge Chamber of Commerce, the town and other organizations should promote lake recreational activities during the non-peak season as this time is currently underutilized. The Olympiad has also recently had several lake activities during the peak season.
- (8) The town shall perform water quality checks in selected locations monthly during the peak season and as needed in the non-peak season to ensure the safe use of the lake. Corrective actions are mandatory when unsafe conditions occur.

LMLE Goal 1: Adequately and effectively enforce lake use regulations.

Objective:

LMLE-1-1: Ensure there is an adequate and effective on-lake patrol presence to achieve compliance with regulations and ensure safe boating.

Policy LMLE -1-1.1:

Utilize a schedule of minimum on-water patrol requirements.

The following is a recommended on-water patrol schedule for the town’s police officers or lake operations staff. This schedule should be assessed and revised annually. In the event of mechanical problems with the primary boat, the backup boat or another town boat is to be used. Monthly patrol logs are to be kept and a patrol schedule report issued.

	Peak Season Holiday Weekends	Peak Season Weekends	Peak Season Weekdays	Shoulder Season Weekends	Off Season
Period	Memorial Day Fourth of July Labor Day	June July August	June July August	May September	October November December January February March April
Hours Covered	F: 3pm – 9pm Sa: 9am – 9pm Su: 9am – 9pm M: 9am – 9pm	F: 3pm – 9pm Sa: 9am – 9pm Su: 9am – 9pm	Mon - Fri: 9am – 9pm	Fri, Sat, Sun: 9am to 5pm	
On-Water Patrol	Minimum of one patrol boat at all times, two boats from 12:00 to 4:00	Minimum 6 hours of patrol each day	Minimum 2 hours of patrol each day	Minimum 2 hours of patrol each day	Minimum 2 hours of patrol each week
Total On- Lake Hours	54 hrs x 3 weekends	18 hrs x 13 weekends	2 hrs x 65 days	6 hrs x 8 weekends	2 hrs x 30 weeks
634 hours	162 hours	234 hours	130 hours	48 hours	60 hours

Policy LMLE-1-1.2:

Define the expectations for lake enforcement patrol activities

- (1) Establish and maintain positive relationships with boaters.

The principle objective of lake patrol should be to maintain safe boating conditions and activities. To this end, officers should strive to make themselves visible and interact frequently with boaters. This does not simply mean enforcement stops and safety checks, but welcome greetings, orientations, offers of assistance, etc. Officers or staff need to establish a positive relationship with the boating community and reinforce their mission of ensuring safety for all. They should become well acquainted with regular boaters and aim to have some contact with all boaters, particularly infrequent boaters, visitors or guests.

(2) Increase boater education.

The lake patrol officers or staff should strive to educate any boaters who are engaged in activities that are prohibited, reckless or discourteous. Most violations of lake regulations occur due to an unawareness of the law. Not all boat operators are residents who are familiar with the local and state regulations. There are visitors operating residents' boats, visitors who are operating rental livery boats and out-of-town visitors who bring their own boats. Additionally, there will always be residents who may not be aware of all the regulations.

(3) Retain the option to issue warnings instead of citations.

In accordance with the practices above, it is appropriate at times for the officer to simply issue warnings rather than a citation, according to the officer's judgment. In all cases the warning or citation is then reported on the officer's Daily Activity Report. This report form is turned in to the police department on a daily basis.

(4) Conduct regular shoreline inspections.

There is no need to perform a defined circuit of cove inspections during each lake patrol. The full lake shoreline, including all coves, should be inspected on a regular, random basis, much as a neighborhood would be occasionally patrolled by a land-based officer. During inspections, officers should be alert to:

- *Evidence of problems with lake structures or violations of the Lake Structures Regulations.*
- *Evidence of problems with homes (e.g, open doors while unoccupied, smoke).*
- *Improper moorings (blocking traffic, ordinance violations).*
- *Wake (speed) violations.*

(5) Perform periodic boat permit checks.

The boat permit is the most fundamental boating management tool for the town and needs to be verified on every boat. All discussions with boat operators should include a check of the permit sticker and/or certificate.

(6) Perform fishing license checks.

Fishing licenses should be inspected from all fishermen observed on land or in a vessel on the lake.

Policy LMLE-1-1.3:

Focus lake patrol on the following critical areas:

- (1) Wake speed in no-wake zones
- (2) Wake speed before or after hours

This is commonly violated and difficult to enforce. It is most frequently seen as fishing boats speeding across the lake before 7 a.m. or boats returning home at high speed after 9 p.m.

(3) Towing more than two (2) individuals

This is an expressly prohibited activity that is too commonly seen. In most cases, it is due to a lack of awareness of the regulation. This could include three (3) or more skiers or tubes behind a single boat or three (3) or more people sharing a tube.

Note: Boats engaged in practices or shows of the Lake Lure Ski Club are exempt from this restriction. These boats will display a club sticker.

(4) Rental boat operators

In comparison to boat owners, this group of operators generally has less experience piloting a boat. Renters have a responsibility to understand and follow all lake regulations. Rental operation managers have a responsibility to communicate the lake regulations to each renter. During lake patrols, particular attention needs to be paid to rental boats in operation on the lake. These boats will display a commercial boat permit sticker, although not all commercial boats are rentals.

(5) Boats without permits

The regulations clearly prohibit the operation of any vessel on the lake without a valid permit.

(6) Unsafe boating

Boating in an unsafe manner is a violation of state law. Common examples include:

- *Not keeping a safe distance from other boats and skiers.*
- *Passengers hanging their feet over front of boat.*
- *Overloaded or unbalanced boat.*

Large groups on pontoon boats are sometimes unaware of how their weight distribution is affecting the boat. This is often more easily seen from shore or other boats. Unbalanced or overloaded boats can flip or be driven underwater if uncorrected.

- *Reckless boating.*

When on patrol, officers need to observe all boating behaviors and alertly intervene with any activities that pose a risk to life or property.

LMLE Goal 2: Respond to citizens' reports or complaints of lake-related issues adequately.

Objective:

LMLE – 2-1: Ensure there is adequate response and follow up to citizens' reports or complaints

Policy LMLE-2-1.1:

Establish procedures for handling all lake-related citizen calls.

- (1) Emergency calls should be made to 911.
- (2) Other calls for lake enforcement should be made to the police non-emergency line: 625-4685.
- (3) During regular hours, calls are answered by police department and dispatched at the police station. When the police department is not manned, calls are answered by Rutherford County Central Communications.
- (4) 100% of all lake/boating calls to these numbers must be documented with the following information:
 - date and time
 - caller name
 - caller phone number
 - activity or issue reported
 - area of lake
- (5) In cases where a citizen call requests an investigation or enforcement action, a follow-up call should be made to provide the citizen with details of the response (e.g., was an officer dispatched, was there intervention?)

LMLE Goal 3: Enhance recordkeeping and lake enforcement data.

Objective:

LMLE-3-1: Provide additional information on patrols, observations and enforcement actions that will be used to guide future policies and regulations.

Policy LMLE-3-1.1:

Provide additional information on patrols, observations and enforcement actions that will be used to guide future policies and regulations.

- (1) Patrol log
All patrol activities and observations must be recorded using an enhanced activity logging system. It is particularly important to record any observed

activities that resulted in written or verbal warnings. This helps to build an accurate record of boating behavior.

(2) Recorded activities

Current Activity Name	Proposed Activity Name (for ease of reporting)
Lake Patrol	Lake – Patrol
Cove Check	Lake – Cove Check
Lake Permit Check	Lake – Boat Permit Check
Safety Check (lake)	Lake – Safety Check
Life Jacket Check	Remove – duplicate of above?
Fishing License Check	Lake – Fishing License Check
Boater Assist	Lake – Boater Assist
Stranded Boat	Lake – Stranded Boat
Towed Stranded Boat	Lake – Towed Stranded Boat
Overtured Boat	Lake – Overtured Boat
Citation (lake)	Lake – Citation
Lake Ordinance Violation	Lake – Ordinance Violation
Alcohol Citation (lake)	Lake – Alcohol Violation
Boating While Impaired	Lake – Boating While Impaired
Unauthorized Swimmer	Lake – Unauthorized Swimmer
Verbal Warning (lake)	Lake – Verbal Warning
Warning Citation (lake)	Lake – Warning Citation

This list of recorded activities contains both the generic (ordinance violation) and the specific (unauthorized swimmer). In its current state, a summary report wouldn't provide enough detail on the specific types of infractions or activities logged— you'd need to get more detail from the citation or warning records.

(3) Recording Warning and Citations

All citations and warnings should be recorded with the following minimum information:

- a. operator information (name and address)
- b. owner information (if different from operator)
- c. observed activity or ordinance infraction.

Policy LMLE-3-1.2:

Produce regular reports that are to be used by the police department, marine commission and Lake Advisory Committee.

(1) Monthly reporting

There are four reports that are to be prepared and distributed monthly to the marine commission and Lake Advisory Committee:

- Patrol times – listing the date, start and stop times of all lake patrols and responses.
- Activity report – summary of lake-related activities logged during patrols and responses.
- Citations and warnings detail – detailed information from each citation or warning.
- Citizen calls (lake related) – record of citizen calls and on-lake response (activity reported, date/time, and caller information unless the call was taken from an anonymous caller or from a caller who requested that law enforcement not reveal their identity).

LMLE Goal 4: Control launch points on the lake.

Objective:

LMLE-4-1: Implement a program of launch ramp management.

Policy LMLE-4-1.1:

Regulate launch ramp operations.

(1) Launch Ramp Operation Permit

There are two categories of launch ramps on Lake Lure: private use and general use. Private use ramps are typically located on residential lots and are for use only by the owner. General use ramps are typically associated with public or private marinas that are accessible by multiple boat owners.

All operators of general use ramps must possess a valid launch ramp operation permit issued by the marine commission (applications available in the town offices). Ramp operators are responsible for enforcing regulations that require all boats placed on Lake Lure to possess a valid permit. Police and town staff should periodically inspect launch ramps and ramp management procedures.

(2) Securing Launch Ramps

Launch ramps that do not possess an operation permit or are not open to general use must be secured against use (by other than the owners or designees) with a chain and padlock.

(3) Launch Ramp Signs

Each general launch ramp shall be posted with a sign that informs the user of critical lake regulations.

LMLE Goal 5: Effective administration of all lake-related programs, policies, issues and activities.

Objective:

LMLE-5-1: Shift lake-related administrative activities to dedicated town staff.

Policy LMLE-5-1.1:

Staff a permanent position of Lake Operations Director to coordinate and execute the myriad lake-related activities, recordkeeping and reporting. This position should be the primary on-water education and enforcement presence.

Policy LMLE-5-1.2:

Prepare a standard operations manual for all lake-related activities. This manual will detail staff policies, procedures and expectations.

6B.0 Boat Management - Boating Activity

6B.1.Introduction	6B-1
6B.2.Inventory and Existing Conditions	6B-2
6B.3.Summary of Issues and Opportunities	6B-4
6B.4.Goals, Objectives and Policies	6B-7

6B**6B.1 INTRODUCTION**

The Town of Lake Lure has evaluated options for keeping boating density at a safe level, so that overall enjoyment of the lake will not be diminished by the ever increasing pressure of recreational pursuits on the lake relative to the region's current and projected growth. The intent of this process was to explore the range of possible management options, reduce that range to those approaches that are applicable and feasible in Lake Lure, and to seek a combination of controls that can be applied as equitably as possible to maximize lake use without compromising user safety. A very inclusive and public process has been conducted, with decisions made based on the best possible combination of science, economics, and social acceptability. All of this was discussed in the Lake Lure Boating Management Plan, which is part of the appendix of this document.

Lake Lure was formed in 1925 when the Rocky Broad River was dammed. The Town of Lake Lure was incorporated in 1927 and the associated community has been growing ever since, most notably in very recent years. Lake Lure covers 720 acres with several major arms and numerous smaller coves. Topography is steep, both around the lake and within the lake itself; water depth is substantial within 50 feet of shore except near inlets and in coves. The dam controls outflow and generates electricity. Full pool elevation is maintained in Lake Lure as much as possible. The vast majority of residences around the lake are tied into a sanitary sewer for wastewater management. The watershed of Lake Lure covers approximately 96 square miles of fairly hilly terrain. Erosion and sediment loading are issues, but many areas are outside of the control of the Town. Water quality in the Rocky Broad River, other tributaries, and in Lake Lure is not ideal, but supports the intended uses of the lake. Lake Lure undergoes thermal stratification during the growing season, and waters deeper than about 20 ft are devoid of oxygen during much of the summer. Lake Lure hosts minimal aquatic plant growths, owing to steep underwater sediment slopes and limited light penetration. Fish and other wildlife abound in and around Lake Lure.

Recreational facilities on the lake consist of a Town Beach complex, with swimming area, park and boat launch, as well as an accompanying marina. Most land around the lake is privately held. There are a number of additional beaches and several boat ramps, as well as private community marinas. The majority of boating activity comes from shorefront residences. Many lakefront homes have multiple boats and there are over 300 boat slips associated with private developments that abut the lake. Off-lake residents and even residents of other towns can purchase boat permits for Lake Lure.



Lake Lure from the air.



Lake Lure topography.

Table 6B.1: Portion of respondents engaging in boating activities on Lake Lure

Frequency of Activities Enjoyed on Lake Lure				
Activity	% Much	% Little	% Never	% No answer
Motorized Towing	22%	26%	27%	26%
Motorized Pleasure	55%	19%	9%	18%
Motorized Fishing	14%	28%	34%	25%
Non-motorized Paddling	14%	24%	36%	26%
Non-motorized Sailing	2%	5%	60%	33%
Non-motorized Fishing	5%	19%	47%	29%

6B.2 Inventory & Existing Conditions

Control of Boating Use on the Lake

The Town enacted a number of rules to moderate use of the lake and set boundaries on how some uses impact others. These rules have served the users fairly well, but have not decreased the desire to boat on the lake. A boat permit system has been in place for over 40 years, but has evolved to address issues of fairness and limited resource availability over time. Yet overall boat density on hot summer days is perceived as a rising threat and is not implicitly controlled by the permit system. Town liability for boating accidents is a very real concern. To approach management scientifically, we need to understand use patterns and carrying capacity at Lake Lure.

There are multiple ways to estimate carrying capacity, or the number of boats that can be on the lake without unacceptable impacts. The key factors in estimating carrying capacity for boats from a safety perspective include useable area for each type of boat, the use pattern for boats of different types, the feasible hours of operation for each boat type, and the available space. For commercial boats, where activities and schedules are more predictable, a reasonably complete estimate of carrying capacity can be developed. Members of the Lake Lure Marine Commission have done this using a proprietary model developed by those members. As a result, commercial permits have accounted for 5% of the boats on Lake Lure over the past four years (2003-2006, Table 2).

Table 6B.2: Recent permit history for motorboats >10 hp on Lake Lure

Year	2003		2004		2005		2006		4-Yr Avg	
	# Permits	%	# Permits	%	# Permits	%	# Permits	%	# Permits	%
Annual Motorized Resident	1,148	89	1,052	91	921	85	937	86	1015	88
Annual Motorized Non-Resident	81	6	45	4	53	5	53	5	58	5
Commercial	52	4	56	5	70	6	64	6	61	5
Non-Resident Commercial	9	1	0	0	0	0	0	0	2	0
Complimentary	0	0	0	0	32	3	26	2	15	1
Municipal		0		0	4	0	13	1	4	0
Resident Rate for Non-Resident		0		0	1	0	1	0	1	0
Total	1,290	100	1,153	100	1,081	100	1,094	100	1155	100

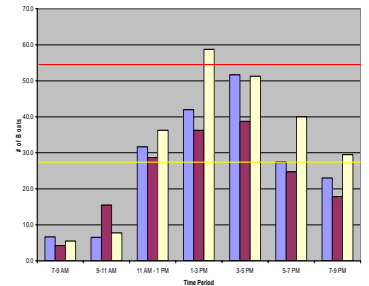
Non-commercial uses by residents of the Town of Lake Lure have not been limited beyond the constraints of permit pricing. An exercise conducted as part of this effort indicates that motorboats with engines >10 hp should be subject to some control to maximize safety on the lake. This has caused some controversy over the amount of resource area and time potentially allocated to commercial and non-commercial uses during public discussions. Interested parties should bear in mind that commercial uses include boats involved in tours, shoreline facility repairs, guided fishing, and ski training, all of which provide important functions to the community, add to the local economy, and offer opportunity to people who might otherwise not be able to enjoy the lake or might increase recreational pressure through the use of more private boats.

While variability can be high and the current permit system does not adequately control peak density, problems have been infrequent when fewer than 1000 permits are issued for motorboats >10 hp. Allowing more permits while maintaining a safe lake is possible with secondary controls, a variety of which have been evaluated in developing the management plan, but all of which were generally unacceptable to the lake user population through a questionnaire and meetings.

Boating Use Pattern

Quantitative data were collected for boat use patterns, both through a questionnaire and by direct observation during the summer of 2006. Carrying capacity estimates were generated and are sometimes exceeded on summer weekends and holidays with nice weather between the hours of 11 AM and 5 PM, mainly as a function of operation of boats >10 hp for high speed activities. There is some evidence of self regulation of larger boats, but peak densities do achieve possible danger levels, especially for untrained or inexperienced powerboat operators. Risks are low during most weekdays and any day with rainy weather.

Pattern of Use of Motor Boats > 10 hp on summer weekend days



Time Period during the day versus Number of Boats.

Table 3. General Features of Questionnaire Respondents			
Feature	Total	Average	
Total number of Surveys returned	844		
Years at Lake Lure		12.2	
Motorized Boat Permits > 10 hp	585	0.8	
Motorized Boat Permits < 10 hp	60	0.1	
Non-motorized Boat Permits	60	0.4	
	% Yes	% No	% No Answer
Year Round Resident	33	65	2
Registered Voter	30	66	4
Own a House	77	20	3
Live on Shorefront	36	61	2
Live in Defined Community	37	60	3
Boat Use a Factor in Home Purchase	67	26	7
Home Rented to Others	11	80	9
Boat Included in Rental	17	77	5
Trained Boat Operator	44	43	14
	Boats >10 hp	Boats < 10 hp	Non-motorized
Total Weeks of Use (All Boats of Type)	3878	453	1510
Weeks of Boating per Summer per Boat	6.6	1.2	3.3
Days of Boating per Week per Boat	2.3	0.5	1.2
Hours of Boating per Day per Boat	2.5	0.5	1.1

6B.3 Summary of Issues and Opportunities*

*The complete list of findings and recommendations are within the 2006 Boating Management Plan in the appendix of this document.

Management Options for Boating Use

There was a very wide range of potential management options that could be applied at Lake Lure. The key was to select options that represent the least intrusive and most equitable means to ensure safety to the greatest feasible degree. The objective was to maximize safety and enjoyment of the lake. Those goals may have seemed antagonistic at times, as some of the enjoyment comes from inherently risky activities, but the overall enjoyment of the lake by the greatest number of people did depend on facilitating a safe experience. Management options were divided into four major categories (Access Control, Time Zoning, Space Zoning, and Training and Behavioral Modification) plus an enforcement category that applied to all of the others. The associated options were reviewed in the 2006 report in some detail.

Recommended adjustments

A considerable amount of public discussion was conducted and input was considered in developing a proposed management plan. A number of adjustments were feasible and appeared appropriate based on the work done in 2006. The following relatively simple, albeit possibly controversial,

There was a very wide range of potential management options that could be applied at Lake Lure.

adjustments were recommended for implementation in preparation for the 2007 boating season and in the future:

- Maintain all existing rules with regard to permitting and safety controls for boats on Lake Lure, most notably the no wake zone restrictions (areas and time).
- Maintain the commercial boat permitting system as it was administered, with minor adjustments as warranted. Allocating some portion of the commercial acre-hour allotment to a controlled rental operation and limiting rental property permits for boats >10 hp to weekday use only are options that may be useful in managing future demand and safety.
- Limit the number of permits issued for non-commercial motorboats >10 hp to be used during the peak season to 1000, including weekly peak-season permits (15 weekly permits = 1 annual permit). Grant permits on a priority system based on permit holders from 2006, followed by date of application by new permit holders, with an application deadline for past permit holders of May 15th, and only one permit for a boat >10 hp granted to all new applicants.
- When all permits for boats >10 hp have been assigned, provide up to 250 “weekday only” permits for this class of boats.
- Do not place a permit limit on boats <10 hp or fishing boats of any motor size during peak season for any boats during the non-peak season until such time as observation data indicate a need.
- Promote education of boaters through the permit system and require all permit holders to sign an acknowledgement form indicating that they understand the Lake Lure rules and will be responsible for the operation of their permitted boat(s).
- Require operators of motorboats >10 hp to complete a safety course, and require operators under the age of 16 to be supervised by an onboard person competent (by training) in boating safety.
- Provide a police boat patrol on the lake to enforce the rules, focusing on education and cooperation by boaters first, followed by penalties for violations as warranted.
- At a minimum, the patrol boat should be on the lake between 11 AM and 7 PM on all weekend days and holidays with suitable weather between Memorial Day weekend and Labor Day weekend, and on anticipated busy weekdays during summer. Wider coverage would be desirable, if affordable, but these represent the critical enforcement days and hours based on boat density.
- Hire a boating education and enforcement officer dedicated to Lake Lure. Ideally, a full-time lake operations director would be hired to oversee all areas of lake management including permit applications, education, training sessions, and coordination of on-lake activities. This person might

be the primary on-lake enforcement officer, or along with his/her other duties, may just coordinate police assignments and fill in as needed.

- A call number should be established for reporting boating safety problems or related issues to a dispatcher who can reach the patrol boat for a rapid response.
- Enforce a safe operating distance of 75 ft among boats (and among boats and people) when either boat is moving faster than no wake speed. This provides a density dependent mechanism to minimize safety risks as boat density increases. This safety buffer may eliminate high speed activities during some peak use periods in parts of the lake.

The primary benefits of this plan include:

- Promotion of physical and temporal separation of some uses to maximize safety.
- Encouragement of the distribution of lake use in its current pattern, known to present limited and predictable safety risks.
- Protection of the privilege of those now holding permits.
- Allows only educated and trained boat operators.
- Provides an appropriate level and focus of enforcement.
- Provides a density-dependent mechanism for controlling higher risk activities.

The negative aspects of this plan include:

- As the Town grows, not everyone can hold a permit for a boat >10 hp on Lake Lure.
- Requires capable boaters to take official training.
- Requires a different approach and more effort by the police force.
- May curtail high speed activities that many enjoy during busy periods.

More major adjustments may not be necessary, but would warrant considerably more public input if implementation was pursued. No secondary access limitations (e.g., boat flag system) were recommended, although it could be revisited in the future if safety problems related to crowding are perceived to persist.

It should be remembered that getting more big boats on the lake represents a diminishment of utility and quality for other uses as well as a safety risk. However, given that the focus of recreational boat use on Lake Lure involves boats >10 hp, recommendations for permit system changes emphasized greater use of off-peak resource hours by larger boats. This may warrant further discussion going forward.

In order to gain appropriate information, the Town should conduct periodic assessments of boat use patterns, much as performed in this analysis. Both questionnaire surveys and observational data are needed.

Additional options and alternatives were discussed, but the plan was believed to provide the necessary tools to protect lake users into the indefinite future. The suggested plan elements were believed to be sufficient to manage boat density and safety indefinitely, if implemented properly and monitored for any needed adjustments periodically.

6B.4 Goals, Objectives and Policies*

*The complete list of findings and recommendations are within the 2006 Boating Management Plan in the appendix of this document.

Goal 1: Keep boating density at a safe level, to prevent diminished enjoyment due to increased recreational pressure.

Objective LMBA 1: Prevent crowding beyond a safe density.

Policy LMBA 1: Use permitting system to control density as much as possible.

1 Limit number of permits for boats >10 hp. Based on experience and data for Lake Lure, 1000 peak season permits can be issued. It is unlikely that more than 1100 permits can be issued. 15 weekly permits count as 1 peak season permit. Permits issued in 2005 and 2006 were <1000, so no resident was denied a non-commercial permit for capacity reasons. Start with 1000 permits, perform boat surveys when limit is reached, determine if average boat density on nice weather, summer weekends and holidays has noticeably increased. If not, consider adding 25-50 permits. Repeat study until 10 ac/boat threshold is crossed at unacceptable level (measured in one 2-hr period over 3 days of observation in 2006; suggest threshold at one 2-hr period on all 3 days of observation going forward).

2 Boating operator training/licensing may limit the number of boats on the lake by virtue of need for trained operator at all times. Although there is no limit on how many operators become trained, this may limit access by transient potential boaters, allowing more permits to be offered with no increase in actual boat density, on average.

Prevent Crowding Beyond a Safe Density



3. Utilize a transferable permit that could be issued to all holders of multiple permits for boats >10 hp, ensuring that only one boat could be used on the lake during peak season weekends and holidays.

Goal 2: Enhance safety with operator training and age requirements.

Objective LMBA 2: Maximize boating safety on the lake at all times, independent of boat density.

Policy LMBA 2: Require education and training of all boat operators.

1. Education and training of boat operators. Require all operators to complete a boat operation and safety course, either a standard course like that offered by the Coast Guard or a specific course developed for Lake Lure. Provide information on local rules and courtesy policies, and require a signature on a form acknowledging that the operator understands these rules and policies. Provide trained operators with a Lake Lure Boating License.
2. Require a trained operator to be on any boat >10 hp whenever it is operated. Require anyone under the age of 16 (trained or not) to be accompanied by a trained operator 16 years of age or older.

Goal 3: Establish a safety cushion requirement that will address overcrowding without eliminating activities.

Objective LMBA 3: Maximize safety when crowding does occur, as some periods of elevated boat densities appear unavoidable.

Policy LMBA 3: Implement additional level of boating management controls.

1. Establish a rule that boats moving at more than “headway” speed (can be defined as no wake or a specified speed limit, typically 6 mph) must remain >75 ft from any other boat or person (swimmer, downed skier, etc.). Where boat density increases to a potentially unsafe level, this will restrict high speed activities, eliminating towing and faster cruising.

2. Avoid a ban on towing or establishment of a speed limit on summer weekends and holidays since this appears to be an unacceptable option, as it would restrict privileges unnecessarily much of the time.

Goal 4: Fine tune enforcement activities to address the dangers of an increased demand on the resource.

Objective LMBA 4: Maximize adherence to boating rules on Lake Lure.

Policy LMBA 4: Provide adequate enforcement and presence of town authorities on the lake.

1 Provide appropriate enforcement. Based on documented use pattern, a patrol boat should be on the lake at all times from 11 AM to 7 PM on nice weather, summer weekends or holidays. The patrol boat can be on the lake less continuously at other times and on other days. Enforcement should focus on education of boaters and record keeping for infractions, with fines or other actions directed against repeat offenders.

2 Provide a call in number for citizens to contact the enforcement agency or lake operations director to report observed violations. Respond to notification within 30 minutes. Keep records of calls to track both offense frequency and possible abuse of the system. Additionally, consider a “license plate” system (to replace stickers) that would provide more information to enforcement officers.

Goal 5: Develop and adjust a permitting matrix in alignment with the peak and off-peak use patterns.

Objective LMBA 5: Maximize opportunity for boaters on Lake Lure while recognizing necessary safety limits.

Policy LMBA 5: Adjust permit limits where possible to expand access during low use periods.

1 Offer weekday only permits during the peak season. There is unused capacity during the week (except on holidays); at

least a 25% increase in traffic by boats >10 hp could be sustained with minimal increase in risk. An initial limit of 250 weekday only permits is suggested.

2 Make “Weekly Permits” a weekday only permit. Also, if pressure to get more boats >10 hp on the lake increases beyond what the permit system can accommodate, it would be advantageous to establish a “yacht club” with community owned boats that could be signed out by members. This would come out of the commercial allocation of acre-hours (with possible expansion of that allocation), and would provide opportunity for those who can’t get or don’t want boat permits but would like to use the lake for higher speed activities. The community ownership concept allows much greater predictability and control with regard to boat density and operator safety.

7.0	Community Services & Facilities	7-1
7.1.	Introduction	7-1
7.2.	Inventory and Existing Conditions	7-1
7.3.	Summary of Issues and Opportunities	7-8
7.4.	Goals, Objectives and Policies	7-9

7

7.1 INTRODUCTION

The services provided in the Town of Lake Lure range from lake dredging to emergency response. Although not all of the services are provided directly by the town, it is important to consider all services throughout the town to thoroughly understand challenges as growth and development continues.

7.2 Inventory and Existing Conditions

This section of the comprehensive plan discusses various community services and facilities. It highlights conditions for police, fire and emergency medical services, public works, utilities, parks and recreation, education and healthcare.

Police, Fire, & EMS

The town's police department currently employs nine officers who are assigned to patrol all five zones encompassing the Town of Lake Lure:

- Zone #1 - All areas north of Lake Lure Village Resort, including Rumbling Bald Resort (formerly Fairfield Mountains Resort), and all property on Buffalo Creek Road
- Zone #2 - Buffalo Shoals Road north to Buffalo Creek Road
- Zone #3 - Snug Harbor Circle to Island Creek Road
- Zone #4 - Chimney Rock Park east to Snug Harbor Circle
- Zone #5 - Boys Camp Road and all roads adjacent, including Lake Lure Village Resort and Blue Heron Point.

The town's police department currently owns two police boats for lake patrol duties. All of the officers take part in controlling the lake.

The town funds the Fire and Emergency Management Coordinators Office for fire protection and emergency management and contracts with three volunteer fire departments: Fairfield Mountains Volunteer Fire Department, Chimney Rock Volunteer Fire Department, and Bill's Creek Volunteer Fire Department. Both the Fairfield and Bill's Creek departments operate two facilities each. They, plus the Chimney Rock department give Lake Lure five firefighting facilities. Together, the fire departments operate four pumpers, four pumper/tankers,



Location of maintenance facility could be utilized better by commercial development.

two tankers, four brush units, and two support units out of four stations. Two of the five stations are Fairfield fire stations and are located within the town limits, one is along Memorial Highway near the north end of the municipal golf course and the other is on Buffalo Creek Road. The remaining three stations are located within the Chimney Rock and Bill's Creek communities. The three departments support one another, responding to incidents inside and outside the corporate limits of Lake Lure with the help of approximately 70 volunteer firefighters.

The Insurance Service Office (ISO) standards use a scale of 1 (most capable of coping with a fire) to 10 (no protection available). These standards require Lake Lure to have four engine companies and two service companies. To obtain its maximum credit possible, Lake Lure must have 80 people per each emergency response. In 1996, 2000, 2004, and 2006, Lake Lure averaged 31, 27, 23, 17 personnel per emergency response, respectively. (Lake Lure was last inspected by ISO in 2004, when there were approximately 10 additional personnel attending each emergency response than in 2006) According to Lake Lure's Fire Coordinator, the average response has declined by a 50% over the past decade. Specifically, Bill's Creek, Chimney Rock, and Fairfield fire department has a response time of approximately 7, 9, and 6 minutes, respectively. (These numbers involve a large number of variables and can be misrepresentative of each department's response time.) Response time is measured from when an alarm is first signaled to the time the first emergency responder arrives at the scene.

The town owns a fireboat that provides high-pressure water to fire trucks on shore where there are no water supplies available. It also functions as a "water cannon" to help fight fires near the lake's edge. The Fire and Emergency Management Coordinators Office and volunteer departments are also supported by the North Carolina State Forest Service's firefighting airplane, which can carry and drop up to 1,400 gallons of water skimmed from the surface of Lake Lure on a fire with great accuracy. Currently, Lake Lure has a split-ISO rating, with a portion of the town rated as a "class 6" and another portion of the town rated as a "class 9." Those homes that received a higher rating of "class 6" did so due to their close proximity (within 1,000 feet) of a water source (e.g. lake or fire hydrant). This rating of class 6 has benefited portions of the community directly by reducing homeowner insurance rates within the town limits. Those areas with an ISO rating of class 9 do not have sufficient access to a water source.



Bill's Creek, Chimney Rock, and Fairfield fire departments service Lake Lure.

Currently, no EMS station is located in Lake Lure or Chimney Rock. There is one EMS station located on Bills Creek Road. This station includes two emergency units, the county EMS unit and the volunteer Hickory Nut Gorge EMS unit. Hickory Nut Gorge EMS is a volunteer organization that operates out of the county's facility adjoining the Mountain Branch Library located in Bill's Creek. All volunteers have had Emergency Medical Technicians (EMT) training, but are not paramedics. Thus, their aid has been limited in the past. Recently, the county transferred one vehicle and associated staffing from the Spindale facility to the Bills' Creek facility. The staff of fully-trained paramedics is permanently based at the Mountain Branch Library, and are available 24 hours per day, 7 days a week. Therefore, there are two separate organizations operating out of the library. Key stakeholders participating in the process have identified the need to attract younger volunteer staff and to hire additional paid fire and emergency personnel to ensure adequate public safety services.

To be prepared in the event of major emergencies, Lake Lure has adopted three types of emergency-related plans. Currently, Lake Lure has three such plans:

1. Lake Lure Emergency Operations Plan: This plan should not conflict with the county's plan to respond to emergencies within the town. The town is in the process of updating the plan which involves the coordination of a local emergency planning committee, consisting of the town manager, police chief, fire coordinator, public works director, hydroplant operator, three volunteer fire chiefs, local volunteer EMS chief, county emergency management, and the county fire marshal. Although the town is in the process of developing the plan, it is awaiting the updated plan from the county to avoid any conflicts in its own plan.
2. Emergency Operations Plan for Lake Lure Dam: A consultant is responsible for maintaining the emergency operations plan for the dam, but Lake Lure is responsible for updating necessary information on an annual basis. Such information includes personnel contacts and other records.
3. Hazard Mitigation Plan: Recently, the Federal Emergency Management Agency (FEMA) has required that each jurisdiction that wants to be eligible for federal assistance, must adopt a Hazard

Mitigation Plan. In 2005, Lake Lure adopted a Hazard Mitigation Plan that outlines the required information. Such information includes a prioritized list of potential disasters. Lake Lure identified the dam breaking, forest fires, snow storms, and flooding as primary disasters each were ranked accordingly. Lake Lure is required to develop steps to improve response to such potential disasters. However, Lake Lure had already taken the necessary measures prior to FEMA requirements by distributing disaster response brochures (for a dam break) and utilizing a siren to caution in a hazardous event.

Other related emergency services provided by the town include clearing trees from roads for emergency access, evacuating citizens in time of danger, operating shelters when needed, searching for lost people and assisting with EMS and rescue squad when requested.

Public Works Department

The public works department is responsible for a number of services and facilities listed below. Street light service is provided by Duke Energy and the Rutherford Electric Membership Corporation (REMC).

Streets:

The town's public works department is responsible for the maintenance of town streets. This includes the maintenance of the street surface and subsurface, roadside drainage, street signs, street lights, and pavement markings. Currently, there are 27 miles of public roadway maintained by Lake Lure. This does not include private dedicated roads. (See the *Transportation and Circulation* section regarding transportation issues and potential improvements.)

Town Buildings:

The town's public works department is responsible for building maintenance. The following buildings are owned and/or maintained by the town:

- Town Hall / police headquarters
- Visitor Center

- Public works headquarters
- Public works storage building
- Public works shed & recycling center
- Marina building
- ABC Store
- Well houses
- Small beach house
- Gazebo
- Picnic sheds at Morse Park

Water System:

The town's public works department is responsible for ensuring an adequate supply of high quality water and is also responsible for the system's construction and maintenance of the pipes and manholes. The public works department performs water system chemical monitoring and water meter reading and prepares reports for various regulatory agencies.

Stormwater Management:

The town's public works department is responsible for catch basins and manholes. (See *Utilities Infrastructure* Section for additional information)

Other Services:

The town provides a number of other services, such as sanitation, recycling, grounds maintenance, landscaping and lake clean-up, by contracting with private entities. For example, the town has a contract with a private company for weekly curbside garbage pickup. The town's Public Works Department is responsible for overseeing sanitation and recycling (a drop-off center is located in the town center near the Arcade building) as well as supervises lake-dredging operations, landscaping and maintaining of all property by the town.

Utilities Department

Wastewater:

The town's utilities department is responsible for ensuring that wastewater is properly treated in accordance with state and federal environmental regulations. The department tests samples daily of wastewater at various locations. The samples are

laboratory tested in house and additional tests are conducted to by an outside lab for further analysis. In addition to testing, the department also prepares reports for various regulatory agencies regarding wastewater treatment. (See *Utilities Infrastructure* Section for additional information)

Dam:

The town's utility department manages the hydroelectric system at the dam. The primary function of the system is to generate electricity while controlling the level of Lake Lure.

The utilities department's management duties include monitoring lake levels, assessing the need for floodgate usage, and production of power. Heavy maintenance of the hydroelectric plant and the dam is outsourced when needed.

Currently, the town sells hydroelectric power to Duke Energy. The town generated approximately \$245,000 in gross revenue from the electric fund in 2006.

Parks and Recreation

A variety of park and recreation structures and grounds are maintained by the town. Currently, a park and recreation department does not exist within the town's organizational framework. All maintenance is performed by Public Works. The volunteer parks and recreation board has recently been reactivated. (See the *Parks and Recreation* section for a detailed list of the facilities.) Each facility has various maintenance requirements from structures to grounds. Each facility must be maintained at high service levels due to the nature of the public spaces.

A concession agreement exists with outside contractors for the operations of the Lake Lure Beach and Water Works and the Lake Lure Marina which includes daily business operations and programming.

Education

There are no public schools within Lake Lure. School age children are bused to various county schools outside of the town: Pinnacle Elementary School, Rutherford-Spindale Middle School and Rutherford-Spindale Central High School.



The Public Works department maintains Morse Park's grounds and structures.

According to the community survey, over 130 school-age children live in Lake Lure. With an average household size of 1.84 (indicative of childless households) and the characteristics of the population in the town today (residents that are seasonal, retired, and/or second homeowners), school needs in Lake Lure are not expected to change in the near future. (See Appendix A) The Rutherford County Schools Strategic Plan completed in 2003 did not cite any specific action for new schools within or near Lake Lure. However, stakeholders interviewed have expressed interest in exploring the potential for a charter school, a specialized athletic/adventure recreation school, or a school teaching technical expertise in Lake Lure.

Library

The Rutherford County operates the Mountain Branch Library in Bill's Creek.

Healthcare

According to the 2000 Census, the median age in Lake Lure is 58.6 years old. With an aging population, the demand for healthcare facilities in town is increasing. Over 60% of the survey respondents agreed that the town should try to attract a variety of medical service providers and has cited healthcare facilities as the third most favored development type in Lake Lure. Healthcare facilities in Lake Lure are currently limited to the privately-owned William Burch Medical Center located on Memorial Highway and the Valley Family Health Center in nearby Bat Cave.

Local area hospitals within a 30- to 60-minute drive include:

- Rutherford Hospital (143 beds, Rutherfordton, NC)
- Pardee Memorial Hospital (222 beds, Hendersonville, NC)
- Park Ridge Hospital (103 beds in Fletcher, NC)
- Mission-St. Joseph's Hospital (800 beds, Asheville, NC)

Cultural

The need for space for meetings and performing arts, accommodations for artist studios, and a library expansion were all mentioned in discussions regarding the enhancement of cultural opportunities in the town. The Rutherford County Arts Council began life in 1971 as the Performing Arts Guild. Today, the Arts Council continues its long-held commitment both to arts in education and to the production of high-quality cultural events. There are a variety of regional cultural facilities such as

the Flat Rock Playhouse and Asheville's Thomas Wolfe Auditorium. These facilities provide opportunities for cultural arts and theater, but there are few such opportunities in the immediate area.

7.3 Summary of Issues and Opportunities

- Responding to emergencies is challenging for Lake Lure for a number of reasons:
 - There is a lack of qualified personnel and willing fire and emergency volunteers:
 - There is a need for the police department to obtain additional staff members and lake patrol staff
 - There is a need to purchase better training equipment
 - There is a need to attract and retain younger volunteers for all services
 - There is a need for paid firefighter staff to increase the number of responders.
 - There is a need for EMS services in the southwest section of the town.
 - As growth and development continues, both emergency and police services may be more challenging to provide.
- Parts of Lake Lure have an ISO rating level of 9 while other parts of the town have achieved a level 6 rating.
- There is a growing concern about the limited supply of healthcare facilities in or within a short driving distance of Lake Lure. There is an opportunity to support future healthcare-related land uses and attract/accommodate visiting nurse services.
- School age children are bused to three Rutherford County schools outside of Lake Lure, Pinnacle Elementary School, Rutherford – Spindale Middle School and Rutherford – Spindale Central High School. In addition, some students from Lake Lure attend schools in Polk County and Henderson County.
- Stakeholders expressed interest in the potential for a charter school or specialty school (e.g., athletic, adventure recreation, etc.) in Lake Lure.
- The substantial increase in population during peak-season presents a problem for the town's capacity for service (fire, police, and infrastructure-oriented services).
- A need for meeting space, accommodations for artist studios, and a library expansion were all mentioned in key stakeholder discussions regarding the enhancement of cultural opportunities.

7.4 Goals, Objectives and Policies

SF Goal 1: Improved location and organization of the community's facilities

Objective SF-1-1: Optimize town-owned/leased property for desired land uses

Policy SF-1-1.1:

Relocate specific buildings to effectively utilize land use by creating space for future development. Determine and evaluate alternative sites for relocation of the town's maintenance yard located within the town center.

Policy SF-1-1.2:

Improve government-owned buildings and land to fulfill future staff requirements

(1) Consider expansion of the existing town marina building as future demand rises.

(2) Evaluate future expansion options for the municipal golf course buildings. *This may include additions of restrooms, meeting space, and supporting building(s). It is possible that the improvement and expansion of the golf course could improve utilization of the course.*

(3) Evaluate the potential to locate future town offices adjacent to the community center in order to fulfill future capacity needs.

(4) Evaluate the need for expanding or relocating the police department facility (e.g. wing of municipal center). *If an expansion is deemed appropriate, consider a second floor addition. Additional parking can be accommodated by re-striping existing asphalt surface area to maximize amount of parking spaces. As an alternative, consider relocating the police department to provide additional room for expansion of town hall functions.*

- (5) Explore opportunities with the state to develop parking and building facilities to accommodate tourist and resident visitation to the proposed Hickory Nut Gorge State Park.

SF Goal 2: Adequate system of community services

Objective SF-2-1: Improve the community's welfare through the improvement or development of community services and programs.

Policy SF-2-1.1:

Provide special educational services within the town to inform public of Lake Lure's historical, natural, and cultural assets.

- (1) Encourage a special-use school, such as a cultural, environmental or technical school.

(2) Communicate regularly with Rutherford County Schools. *By sharing information, especially if there is a perception that the composition of population is transitioning to include younger families with children, Rutherford County Schools can better address Lake Lure's concerns and needs when updating the long-range facilities plan.*

- (3) Encourage participation in school board meetings, and have representation on the school board.

(4) Establish annual (or more frequent, if warranted) meetings with a representative of Rutherford County Schools to review and discuss information collected by both the town and Rutherford County Schools.

Policy SF-2-1.2:

Attract an arts school and performing arts program

- (1) Evaluate the need for an art school and performing art program.

(2) Coordinate with regional artisan groups such as the Performing Arts Center and Rutherford County Arts Council.

(3) Evaluate and determine potential locations for amphitheatres, stages, and facilities based on criteria such as land value, feasibility, accessibility, etc.

Policy SF-2-1.3:

Improve emergency services throughout the town.

(1) Develop recruiting efforts and network to increase the number of fire and EMS volunteers to ensure response times are not increased with the growth of town. *Continue to recruit outside of Lake Lure's corporate boundaries to attract volunteers from areas in the county that are provided services.*

(2) Develop an EMS facilities plan to identify needs related to future growth. *Evaluate EMS services and service areas town-wide and determine additional EMS locations as growth continues to maintain or improve response times.*

(3) Consider hiring paid firefighters to increase existing levels of fire services. *Recruit full-time paid firefighters with additional population growth. Additional firefighters (and respondents to emergencies in general) greatly improve ISO ratings.*

(4) Explore options for increasing police staff to allow two full-time police officers to be on duty at all times. *As the town continues to grow, hire additional patrol officers maintain or improve response times.*

(5) Communicate with Lake Lure employers to request their support for employee participation as volunteers in emergency services programs.

(6) Develop a police department facilities plan to identify needs related to future growth. *Consider*

police substations in the more populated areas to maintain or improve response times.

(7) Maintain sites identified as area helicopter landing zones for use in emergencies. *Morse Park meadow and Lake Lure Village Resort are among the emergency landing zones.*

(8) Continue conversations with the Rumbling Bald Resort POA to determine ways to eliminate the barriers to circulation created by the resort's security gates, at least for emergency access. *Providing this access could reduce response time for emergency vehicles traveling from Chimney Rock to Rumbling Bald Resort.*

Policy SF-2-1.4:

Improve access to medical facilities and services.

(1) Accommodate medical facilities in town by modifying zoning (regulations and map) so that such facilities can locate in areas identified as suitable in the plan. *Communicate with area healthcare providers to increase awareness of desire for medical services and facilities within the town as well as available sites for locating facilities.*

SF Goal 3: Town-sponsored activities that facilitate social interaction between residents

Objective SF-3-1: Develop additional town-sponsored events

Policy SF-3-1.1:

Explore opportunities for bringing the community together for social interaction and networking through special event offerings.

(1) Conduct a survey to determine the types of social activities residents would like to see developed. *Based on the result, determine whether desired activities require the expansion of a program or programs currently (or potentially) offered by the town.*

8.0 Community Appearance & Design Standards 8-1

- | | | |
|------|-------------------------------------|-----|
| 8.1. | Introduction | 8-1 |
| 8.2. | Inventory and Existing Conditions | 8-1 |
| 8.3. | Summary of Issues and Opportunities | 8-4 |
| 8.4. | Goals, Objectives and Policies | 8-4 |

8

8.1 INTRODUCTION

Lake Lure's appearance, and the image it projects, is determined primarily by the natural and built environments, especially those which can be seen initially from public vantage points such as the roadways. The combination of the two creates the sense of place that attracts so many visitors to the area and influences their decisions to return. When describing the town's unique character, residents often refer to its natural beauty, specifically the lush landscape and the scenic views. The small town feel, which is determined mostly by the low-density development pattern, and the scale and style of architecture, is also among the characteristics used to describe the place. As evidenced by recent community efforts, maintaining and improving the community's appearance is important to its residents.

8.2 Inventory and Existing Conditions

Various features have been identified that have the greatest effect on community appearance. Each contribute to the quality of the environment and each may be threatened by future growth. Among them are landscape/landscaping, architecture, quality of development, signs, roadways, and lighting. In addition to these features that are all physical components of the environment, noise pollution has been identified as another issue that affects the appearance of the town in that it shapes residents' and visitors' image of Lake Lure. The specific conditions associated with each aspect of community appearance are described in more detail below.

Landscape/Landscaping

While evolving from its mountain landscaping to landscaping of a more suburban nature, and as noted in the Natural Resources section, Lake Lure is blessed with dense vegetation, a prominent component of the landscape. With each new development, natural vegetation is cleared. Providing landscaping on developed sites helps to soften development. Trees and shrubs visually break up the hard surfaces of the built environment, reduce the glare created by it, and screen the less attractive components of development (e.g., mechanical equipment, dumpsters, vehicles/parking areas). The replacement of indigenous vegetation through street tree planting and site-appropriate landscaping is encouraged and, in some zoning districts, is required. Commercially zoned districts, such as the Ingles site, would apply landscape requirements.

Architecture

Lake Lure's original Mediterranean-Mission-style architecture, which has been replicated throughout its municipal and some



Maintaining scenic viewsheds is key to protecting the community appearance of Lake Lure.

commercial buildings, is now one of several types in found in the town. Cabins nestled in the trees on the hillsides and along the lake's edge are constructed using natural materials and colors so as to blend with their surroundings.

Historic properties, be they designated or on a study list, help to define the character of Lake Lure but are not currently protected.

Residents of Lake Lure are also concerned with the appearance of the newer architecture and the impact of it on viewsheds and the overall appearance of the town. The need for architectural standards for residential and commercial development has been expressed via the survey results, stakeholder interviews and community meetings. According to the survey, 80% of the respondents would like to establish architectural guidelines for new commercial development and over 60% would like to see architectural guidelines drafted for residential development. Residents are also concerned about the increasing volume and size of some new residential construction as it is on a scale larger than what has historically been built in Lake Lure.

Quality of Development

Development, and its smooth blending with the environment, is also key to maintaining community appearance. Development that is sensitive to the environment considers multiple elements. For example, the placement of buildings, the size and location of parking areas, the integration of landscaping, the architectural materials, entry signs or monuments, and the configuration of roadways relative to the topography all contribute to the quality of development. The successful design approach minimizes the impact of each and, in some cases, reinforces the character of the town.

While the quality of new development in the town is a concern, residents and property owners are worried about the impact of poorly designed development within the view of Lake Lure. Developments beyond - but visible from within - Lake Lure's boundaries threaten the town's appearance. The clearing of trees for roads and building sites is having the greatest impact as such changes can be seen on distant ridgelines and mountainsides from miles away and from multiple vantage points. This presents a serious problem as watersheds are negatively impacted, viewsheds are interrupted and the town's character is adversely altered. (For more information please see the *Natural Environment and Open Space* section.) Lake Lure has no control over development beyond its current boundaries.



One type of sign used to mark the entry into Lake Lure.

Signs

Signs along roadways can interrupt views and otherwise negatively affect the appearance of the town, especially if the size, quantity and design are not in keeping with the character of the area. Many of the concerns expressed by the residents were in response to signs that are located in the county, just outside the town limits. Such signs, which include small billboards, are varied in their design, style, size and materials. Grouped together, they present a cluttered appearance. Most of the signs within the town's jurisdiction are understated, and the newer signs conform to the sign regulations, originally adopted by the town in 1979 and amended multiple times since then. While the town cannot control the design of signs in the county, it can maintain and improve signage within the town through ongoing enforcement of the sign regulations. Signs must serve a purpose (e.g., identification and direction) without detracting from the quality of the environment.

Signs can be used to enhance the community appearance by adhering to a common set of design standards and through repetition. Gateways, or entrances, into town are an example of an opportunity to reinforce character through coordinated signage. A single sign type repeated at each entry point can introduce the town, create a sense of arrival, and be used to convey the theme or sense of place. Lake Lure has four primary entrances into the town. Improvements to the gateway entrance at the intersection of NC-9 and US-64/74A, spearheaded by the park and recreational board, are underway.

Roadways

Lake Lure has attractive road corridors and scenic byways that could lose their aesthetic quality if development along them removes or changes the appealing features that earned the scenic byway designation. Currently, Lake Lure lacks controls that would substantially protect these corridors from being transformed into less attractive routes. Please see the *Transportation and Circulation* section for more information.

Lighting

Light pollution is a factor that diminishes the quality of life for residents in Lake Lure. An often cited example in community meetings is the larger commercial development, such as the Ingles grocery store. According to the survey (See Appendix C) and stakeholder interviews, there is a desire to improve regulatory measures to limit light pollution.

Noise

Noise generated from vehicles, specifically improperly muffled vehicles, creates undesirable levels of noise. Amplifying the problem, the steep slopes of the mountains that surround the lake create a wall off which noise is deflected. According to the survey (See Appendix C) and stakeholder interviews, there is a desire to improve regulatory measures to limit noise pollution.

8.3 Summary of Issues and Opportunities

- The scenic byway and other roadway corridors are not protected from future development and related changes that would adversely affect the appearance of them.
- There is a lack of sense of arrival to the town. Work has begun on one “gateway;” however, no plans for similar treatment of other town gateways have been developed.
- Structures in the town that have historic value need to be identified and protected.
- There is a lack of a means to communicate to developers the community’s character and the desired quality of development.
- Future development beyond Lake Lure’s jurisdictional boundary has the potential to degrade the quality of existing viewsheds that contribute greatly to the town’s general appearance.
- Excessive light pollution and noise pollution negatively affect the character of the community.

8.4 Goals, Objectives and Policies

CA Goal 1: A clear ‘sense of place’ for Lake Lure

Objective CA-1-1: Further develop Lake Lure’s ‘sense of place’ by creating design standards.

Policy CA-1-1.1:

Develop design guidelines that supplement standards contained in the zoning regulations and convey the community’s expectations.

(1) Gather public input and create an inventory of a full range of features that contribute to the character of the town

(2) Create a set of community design guidelines (visual manual) to align future development with Lake Lure’s sense of place. *This will depict the design standards (with graphics and text) to*

clearly communicate the desired aesthetics that Lake Lure wishes to accomplish. Architectural styles, building height, building orientation, materials, and landscaping are among the types of features for which standards may be developed.

(3) Improve public buildings and civic space in accordance with the guidelines to demonstrate importance of adhering to them.

Policy CA-1-1.2:

Develop and adopt a scenic overlay zoning district that applies to the designated North Carolina Scenic Byway corridor. *A scenic overlay district is superimposed over one or more general-use zoning designations for a particular purpose, such as protecting scenic viewsheds, for example. Include setbacks, landscaping, driveways; these shall be among the elements for which specific regulations are defined.*

Policy CA-1-1.3:

Develop streetscape design guidelines

(1) Enhance roadway corridors by developing uniform standards for streetscape elements. The design of each and the combination of them shall reinforce the town's character. Guidelines may address a wide range of elements including sidewalks, bicycle facilities, landscaping, signage and lighting and other streetscape amenities, street intersection crosswalks.

(2) Coordinate with NCDOT to ensure such guidelines may be implemented within NCDOT rights-of-way.

(3) Implement streetscape design guidelines in the town center. *Use the town center as precedence for private development to follow.*

Objective CA-1.2: Preserve character-defining elements



Commercial developments lack regulations to improve appearance.

Policy CA-1-2.1: Develop a study to identify structures that locally have historic value. *This study should inventory structures and properties that are already designated by the state, are on the National Register of Historic Places or are on a study list. In addition, this should include the structures and properties that are deemed to have historic value by the residents and property owners of Lake Lure.*

Objective CA-1-3: Create a ‘sense of arrival’ at or near Lake Lure’s corporate limits.

Policy CA-1-3.1:
Develop gateways for the entrances to Lake Lure

(1) Define gateways to Lake Lure and develop a coordinated set of design plans for all gateways to create a uniform sense of arrival at the entrances of the town.

Objective CA-1-4: Evaluate and improve current regulations to enhance the quality of the environment.

Policy CA-1-4.1: Limit light and noise pollution

(1) Develop a regulation to restrict light pollution, controlling foot-candles, specifying down-lighting, and a maximum height for cut-offs / directional parking and other light luminaries. *A balance needs to be determined between public safety and illumination of business areas.*

(2) Identify the most common sources of noise pollution and develop regulations to minimize them (i.e. motorcycles).

Objective CA-1-5: Influence the quality of development beyond Lake Lure that impact viewsheds within the town’s limits so that these areas are consistent with Lake Lure’s character.

Policy CA-1-5.1:
Consider extending Lake Lure’s current and future regulations to areas beyond Lake Lure’s current



Viewsheds to distant mountain ranges are instrumental to Lake Lure’s community appearance. However, areas beyond Lake Lure’s incorporated boundaries are not subject to the town’s regulations or any development regulations.

jurisdiction if an extraterritorial jurisdiction (ETJ) is established. (See policies regarding enforcement in *Government & Administration*.)

(1) Identify areas that are beyond Lake Lure's boundaries that are visible and could directly impact the appearance and image of the town if developed. Determine how town's regulations would offer protection from negative impacts, and strengthen regulations as appropriate.

(2) Apply the town's regulations to areas within the ETJ once established, as appropriate

9.0 Government and Administration

9.1.	Introduction	9-1
9.2.	Inventory and Existing Conditions	9-1
9.3.	Summary of Issues and Opportunities	9-7
9.4.	Goals, Objectives and Policies	9-7

9

9.1 INTRODUCTION

The town offers a variety of municipal services from public safety to utilities to recreation. As with any successful municipality, carrying out the government's municipal functions requires a range of administrators, along with committees and/or boards, to oversee operations. A solid organizational and fiscal structure is crucial. This section of the comprehensive plan discusses the administration and opportunities for strengthening it to meet future needs of the town.

9.2 Inventory and Existing Conditions

This section highlights government structure, administration responsibilities, and fiscal responsibilities.

Government/Administration:

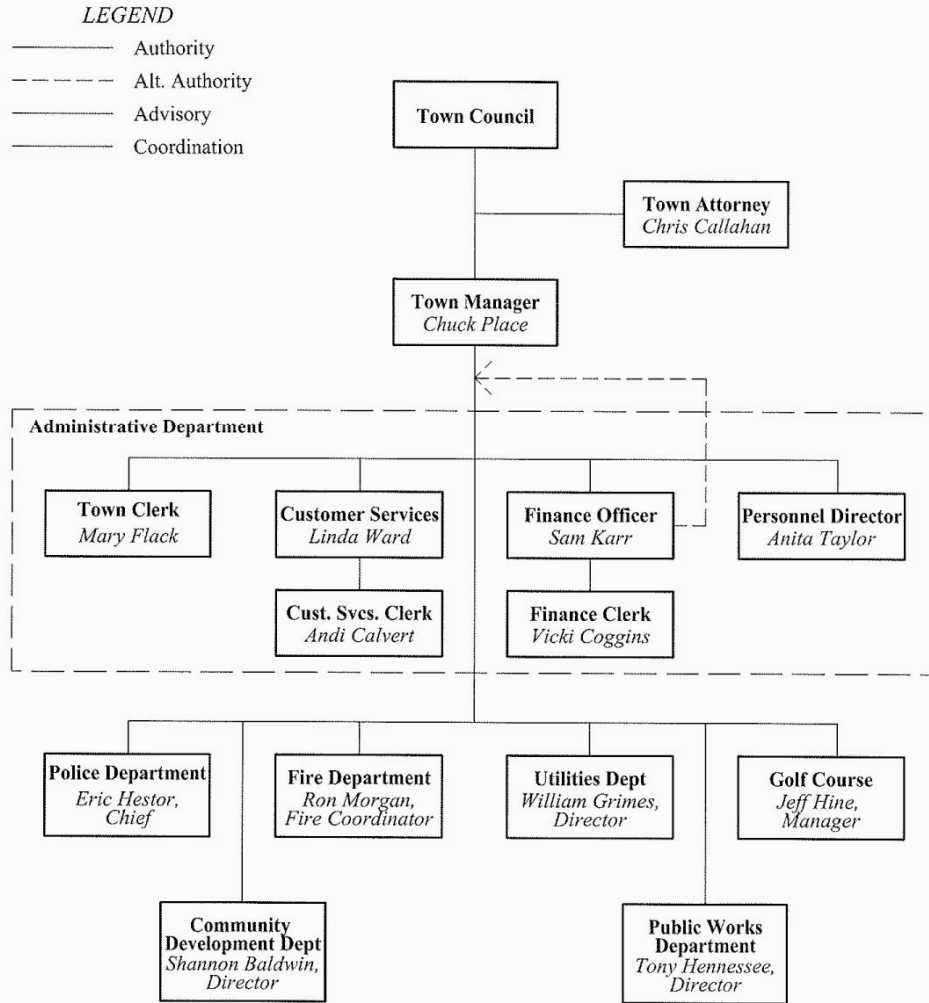
The town currently operates under the council-manager form of government. The original town charter was revised on May 15, 1987 upon ratification by the North Carolina General Assembly. The mayor of Lake Lure serves a two-year term. Town council members serve four-year terms. The council is responsible for appointing a town manager who serves for an indefinite term. As briefly stated on the town's Web site, the town manager 'serves as the chief administrative officer of the town and is responsible for the efficient administration of all town operations and departments.' The manager is responsible for carrying out the policies of the town and regulations.

The town manager functions as the head of the administrative department, which includes the town clerk, finance officer, personnel director and customer services supervisor. In addition, the manager is responsible for the following departments:

- Community Development
- Public Works
- Utilities
- Police
- Fire
- Golf Course

According to the General Statutes of North Carolina, it is also the duty of town manager to submit a yearly proposed budget for each fiscal year to the mayor and council. This budget highlights proposed revenues and expenditures for the coming fiscal year. In addition to developing and managing the budget, the town manager develops a capital improvement plan to allocate funds to specific future capital improvements.

Town of Lake Lure
Table of Organization
DEPARTMENTAL ORGANIZATION



Lake Lure's Municipal Organizational Chart

One major challenge the town is facing is the lack of staff to adequately carry out the full range of administrative functions. Related to this challenge are three key issues: enforcement, area served, and the seasonal population increase.

There is a lack of regular enforcement of existing regulations. Despite the government's commitment to the environment and other community elements that the regulations are intended to protect and its efforts to create appropriate regulatory constraints, with the amount of development activity occurring in the town, enforcement of existing regulations presents challenges for current staff, especially given the range of responsibilities assigned to each individual. Regulations will prove to be more effective with adequate support for current staff.

Lake Lure's municipal government oversees an unusually large amount of land given its population size. Although the town's population according to 2005 estimates from the North Carolina Office of State Budget and Management is 1,066, the area the government is responsible for is 13.25 square miles, which includes a 1.15-square-mile lake. The distribution of land around the lake creates logistical problems for service provision. More staff is needed to sufficiently cover the physical area of the town. (For more information see the *Community Services and Facilities* section.)

According to the town's municipal Web site, the population of Lake Lure rises to about 10,000 people during peak season months. This increase in population is a burden on the government's administration and its capacity. Public safety is one of many government services that are challenged to perform its daily functions during this period.

Lake Lure has several distinct boards such as the Zoning and Planning Board, Lake Structures Appeals Board, ABC Board, Parks and Recreation Board, and Board of Adjustment. Within each board, members are appointed to three-year terms.

Lake Lure is additionally supported by committees that complement various staff functions. Standing committees include the Lake Advisory Committee and the Golf Course Advisory Committee. Other committees are created for specific tasks as needed. Within each committee, members are appointed to two-year terms.

The Lake Lure Marine Commission was established in 2003 under authorization from the North Carolina General Assembly to “make regulations applicable to Lake Lure and its shoreline area concerning all matters relating to or affecting the use of Lake Lure.” In addition, the Lake Advisory Committee is appointed by the town council to make recommendations to council and to the marine commission on matters affecting the management of the lake. Furthermore, there is an unclear division of enforcement responsibilities, which makes it difficult for the town to determine effectiveness of enforcement. Currently, the town council is responsible for lake issues pertaining to structures and development along the lake’s edge. The commission is responsible for activities on the lake, such as boating. The enforcement responsibilities are unclear at this point in time. While the town’s police department monitors lake activities, it is not enforcing violations related to structures and their use. For example, an approved boat dock could have a number of boats tied up to it that exceeds the allowable amount. No method of enforcement is in place to control this.

Budget/Finances:

The Town of Lake Lure operates on a fiscal year accounting system from July 1 through June 30. The finance officer is responsible for the administration of the town’s financial operations, including accounting and financial reporting, purchasing and inventory management, permits and fees collection, tax collection, information technology services, and utility billing and collections.

The town’s operations are conducted using a variety of funds such as the Water/Sewer Fund, the Hydroelectric Fund, the General Fund, and the Capital Reserve Fund. The details of each fund’s balance for 2005-2006 are as follows:

- The Hydroelectric Fund had \$1,056,887 in cash. This money is derived from the production and sale of electric power.
- The Water and Sewer Fund, which operates as a proprietary fund (profit generating entity) consists of fixed assets, cash, and cash equivalents. It had a value of \$2,949,826.
- The Capital Reserve Fund had \$110,000 in cash. This fund is specifically allocated for silt removal. This fund does not conform to the fiscal calendar as the other funds.
- The General Fund had \$1,781,807 in cash. This money is primarily obtained from property taxes.

As the budgets are proposed each year, it is highly unlikely the actual revenues and expenditures will be identical to the forecasts. The proposed 2005-2006 budget reflects the revenues and expenditures associated with the general fund and are summarized on the following page. Notable details of the budget for 2005-2006 include the following:

- The town operates with no debt service. This means that there is literally no interest on debt to be paid. However, there is debt and debt interest that has been incorporated into other aspects of the budget. For example, payments have been drawn from the fire department’s budget for recent renovations to the firehouse and a new fireboat. The amount originally borrowed was \$236,000.
- Administration charges are assessed for water and sewer and hydroelectricity.
- Current revenues in the general fund are derived mainly from Ad Valorem taxes (property taxes) and state shared revenues. Property taxes are the largest revenue producer for Lake Lure’s municipal government. The amount of revenue generated from property taxes is 43% of the total revenue.
- Other sources of revenue are generated through charges in connection with land use fees, miscellaneous (permits, fees, etc), the beach, etc.

2006-2007 Annual Budget: Summary of Revenue and Expenditures:

Annual Budget: Summary of Revenues & Expenditures			
<i>General Fund - Revenues</i>		<i>General Fund - Expenditures</i>	
Ad Valorem Taxes	\$1,420,685	Governing Body	\$37,073
Miscellaneous	414,110	Administration	567,560
State Shared	902,751	Police	659,574
Land Use Fees	26,450	Fire	404,436
Golf Course	230,000	EMS	500
Lake	227,865	Public Works	576,588
Beach	68,000	Sanitation	146,600
Marina	29,100	Golf Course	396,302
Adm Charge - W/S	25,000	Lake	23,300
Adm Charge - Hydr	25,000	Beach	2,500
Trans Hydro - Silt	100,000	Comm Center	35,223
Appr. Fund Balance	\$14,134	Marina	53,200
Total	\$3,375,125	Non-Gov't	112,765
		Debt Service	35,000
		Contingency	68,000
		Total	\$3,375,125

* Source – Town of Lake Lure

In upcoming years, there will be a need for improvement on public infrastructure, expansion of services (e.g., police, fire, EMS) and additional administration. This will adversely affect the budget and costs will need to be offset by additional revenues generated through a variety of sources. There are debts that have been recently assumed by the town in 2006-2007, such as the State Revolving Loan from the State of North Carolina. The value of this debt is \$1,119,085 and is to be paid over the next 20 years. This amount is not yet reflected in the 2007-2008 budget.

Financial Description of Government Service Liabilities:

Hydro-Electricity:

The 2005-2006 projected revenue to be generated from the dam was \$245,000. The actual revenue received from the dam was \$409,231, which is a combination of operational and non-operational revenue. Operational revenue generated \$402,429 while non-operational revenue was attributed to a FEMA reimbursement of \$5,211. Interest income totaled \$1,591.

The power that is generated is sold to Duke Energy through the substation above the dam. Historically, Lake Lure has signed 15-year contracts with Duke Energy. The contracts were trimmed to 5-year term agreements after 1998. The payment structure of the contract specifies that Lake Lure is paid according to two peak hourly and non-peak hourly rates and peak season and non-peak season rates. The amount paid to Lake Lure is dependent on the amount of kilowatts generated.

Future dam expenditures for maintenance of the dam structure are expected to be costly as the age and deterioration of the dam increases. This could place additional demands on the budget.

Lake Lure Golf Course:

The town-owned golf course has an impact on the town's budget in that it does not generate revenues equal to or greater than its overall expense. In 2005, the budget was affected by the golf course's \$22,943 net loss. Often, it is very difficult to balance revenues and expenditures for public golf courses due to a variety of unknowns, such as maintenance issues and levels of play. A number of potential improvements could be made to help generate additional revenue. Various capital investments such as course expansion and joint business ventures are just a

few opportunities that warrant further exploration. See *Community Facilities and Services* for additional information.

9.3 Summary of Issues and Opportunities

- There is a need to further explore future staff capacity levels within the municipal government.
- There is a need to clearly define enforcement responsibilities of each town department, especially as it pertains to the lake.
- Lake Lure has unusual service demands:
 - Lake Lure experiences a large population influx during the summer months. This seasonal population influx is a concern for a government that is arranged to manage town operations at population levels well below seasonal peaks.
- The geographic area of the town provides additional strain on staff services.
- The budget, which was balanced in 2005 with no debt service, will need to increase and/or be supplemented with other funding sources to achieve community goals.
- There is a need to explore avenues to generate consistent yearly revenues needed for public reinvestment.
- Opportunity to identify unprofitable operations and seek ways to increase revenue.

9.4 Goals, Objectives and Policies

GA Goal 1: Improved government operations

Objective GA-1-1: Increase staff resources and improve efficiency within the government.

Policy GA -1-1.1: Improve current municipal staffing efficiency and effectiveness.

(1) Hire a short-range planner/subdivision administrator to facilitate subdivision plan review and manage short-range projects. *This individual would also support the community development director with long-range planning activities, such as Comprehensive Plan implementation, though the director may also choose to create an implementation committee for support in such activities.*

(2) Building on the recent personnel study, conduct a ‘staffing study’ to determine short and

long-term additions to all staffing areas to handle the anticipated workload that will be driven by adopted comprehensive plan policies and future growth. More specifically, the study should (a) determine what skills current staff members possess, (b) identify gaps given the proposed first-year implementation activities recommended in the comprehensive plan, (c) define the type and number of positions to be added, and (d) create the appropriate job descriptions for the positions to be advertised and filled. Based on the results and recommendations of the staffing study, determine the budget requirements to hire and accommodate additional staff (salary, office space, equipment purchases, etc.). If budget limitations warrant, prioritize the filling of positions, and proceed with hiring for the positions identified as high priority.

Policy GA -1-1.2:

Ensure policies and regulations are enforced thoroughly.

- (1) Clearly define the responsibilities of each department for enforcement of existing regulations.
- (2) Seek opportunities to bridge gaps and perform monitoring in an efficient manner. *For example, consider hiring a lake structures administrator to inspect structures such as docks for code violations. Coordinate with other departments for joint utilization of staff who can efficiently perform enforcement duties, such as water monitoring, and train volunteers to assist as members of the Police Auxiliary. For example, the police department could assume lake structure use enforcement on behalf of the staff person responsible for lake structures.*
- (3) Hire additional field staff for inspections and enforcement as new regulations are adopted, as needed.

(4) Create and publish a document that clearly lists all fines and possible infractions.

Policy GA -1-1.3:

Utilize technology (GIS) for better information management, evaluation of development proposals, and better enforcement.

GA Goal 2: *Fiscally sound budget*

Objective GA-2-1: Improve fiscal budgets of the town to better serve the community.

Policy GA -2-1.1:

Consider ways to improve operations.

(1) Evaluate all such operations and conduct a cost/benefit analysis.

(2) Commission a study to evaluate the benefits of outsourcing the management of operations and/or maintenance of any town-owned facility. *Determine a course of action according to the study.*

(3) Explore options that may result in increased revenues with second party involvement, such as: (1) Evaluate the possibility of expanding the operations of the golf course to include a secondary set of services (e.g. restaurant) that would create a revenue stream year round. (2) Explore possibility of further investment (e.g. capital improvements and expansion of course to 18 holes) to improve future revenue streams. Analyze the possibility of increased lease revenues with or without further investment (e.g. restrooms, cart barn, and additional facilities).

Policy GA -2-1.2:

Improve the municipality's annual revenue streams

(1): Evaluate and consider an appropriate increase in soil/erosion violation fees. Use the estimated revenue from this fee to offset the cost of services provided by the town related to water quality or enforcement.

(2) Explore options for and establish other fees that can be charged as a flat monthly fee to cover specific costs.

(3) Evaluate Lake Lure’s budget over the past 10 years to determine annual increase in cost of services to justify any proposed fee increases. Review existing fees for annexation, boat permits, tap fees for sewer water, facility rental, fire inspection, golf course, marina rental, water/sewer rates, and zoning/land uses permit fees, and increase where needed.

(4) Increase the commercial property tax base by increasing the amount of commercial and mixed-use development in appropriate locations (e.g. commercial service node, town center node, etc.)

(5) Seek grants to supplement the current revenue streams, as discussed in sections 2-10.

Policy GA -2-1.3:

Enhance the Capital Improvement Plan (CIP)

(1) Broaden the Capital Improvement Plan to include additional specific categories as needed. *For examples, create stand-alone categories for recreation and bicycle and pedestrian improvements.*

(2) Develop a three, five, and 10-year schedule for all capital improvement plan categories.

GA Goal 3: Improved education and communication within the community

Objective GA-3-1: Communicate current and future initiatives that directly and indirectly impact the community.

Policy GA-3-1.1:

Create an educational outreach program.

(1) Develop an educational section on the Web site that conveys information on a wide variety of topics, including regulations, the environment, conservation easements, etc.

(2) Consistently update the monthly newsletter and post to the Web site at a set designated time each month.

(3) Conduct a survey to determine the best ways to communicate information to all property owners. *Property owners can then express their preferred method of communication.*

(4) Create avenues for trained volunteers to submit photos and other evidence of issues, particularly violations of codes, to town staff.

Policy GA-3-1.2:

Increase awareness of policies and regulations adopted by the town.

(1) Create a system of delivering information to the public notifying them of policy and regulation changes. Timely notification for review and comment on new regulations and policies before they are adopted is also important. *For example, the monthly newsletter could include more detail to inform people of changes.*

(2) Publish a list of code violations on town's Web site. *This would inform people that certain infractions were acknowledged and that fines were imposed on those who violated the codes. Ultimately, it would improve public's perception of enforcement.*

(3) Create a page that allows the public to review, search, and understand codes in an interactive manner. Include a variety of written examples or illustrations of how the codes should be followed. Provide examples of infractions and clearly state the problem with the infractions for illustration purposes.

10.0	Natural Environment & Open Space	10-1
10.1.	Introduction	10-1
10.2.	Inventory and Existing Conditions	10-1
10.3.	Summary of Issues and Opportunities	10-11
10.4.	Goals, Objectives and Policies	10-11

10

10.1 INTRODUCTION

Lake Lure is a place of natural and scenic beauty which sets this town apart from others as a true gem of the Carolinas. A place with a variety of habitats, elevation differences and natural features, Lake Lure's character is rooted in its pristine natural setting. The Town of Lake Lure has recognized the natural environment as its premium asset, a precious and unique commodity that needs to be strategically protected as future development occurs.

10.2 INVENTORY AND EXISTING CONDITIONS

The recent pace of development within both the town and surrounding areas has caused concern about developmental impacts to the natural environment. Balancing growth with the natural environment is needed to ensure the quality of life for not just residents, but for wildlife and the natural environment as well. The following section highlights natural environment and open space conditions regarding water quality, sedimentation and erosion, flora and fauna habitats, ridgelines, soils and steep slope areas and their impacts on Lake Lure.

Water Quality, Sedimentation and Erosion Control

The following section highlights existing conditions and issues regarding water quality, sedimentation impacts and erosion control efforts.

Water Quality

Maintaining Lake Lure's high level of water quality has been a major source of concern in recent years. Protecting water quality ultimately protects the public's health. High quality water provides clean drinking water, supports healthy natural environments and contributes greatly to recreation and tourism activities. Not only have efforts been identified to maintain the lake's water quality but also the quality of the water in all of Lake Lure's tributaries. (See Figure # 5, Environmental map)

Lake Lure has a large floodplain within its incorporated boundaries that has caused an enormous amount of damage to structures when flooding events occur. This has been a reoccurring problem as Lake Lure has encountered a number of flooding events within the past decade that have cost several million dollars in damages and clean up. This has occurred as recently as July of 2006. The town has taken measures to limit damage due to flooding by establishing a floodplain ordinance to restrict development within the identified floodplain. However, the regulations have not been enforced effectively due to the lack

of accurate data. The State of North Carolina and the Federal Emergency Management Administration (FEMA) are in the process of updating the model that will establish new Base Floodplain Elevations (BFE). Upon receipt of the new data, floodplain regulations will be updated and enforced accordingly and a FIRM Community Panel Map will be created.

Recently, the town applied for and received a grant from the North Carolina Department of Environment and Natural Resources, which is administered by the Land Resource Division. Since Lake Lure is considered to be a “start-up” program, the \$15,822 awarded grant can be spent as the town deems necessary to improve the control of soil erosion and sedimentation. As of December 2006, the town has spent a total of \$17,050, of which \$15,822 will be reimbursed back to the town from the Land Resource Division. The grant is considered to be an agreement between the Land Resource Division and the Town of Lake Lure.

Specifically, the town has utilized the grant to obtain sophisticated software, Geographic Information System (GIS), to improve the mapping of the floodplains. GIS is “a system for management, analysis, and display of geographic knowledge, which is represented using a series of information sets such as maps and globes, geographic data sets, processing and work flow models, data models, etc.” The data will allow recently added personnel, such as the code enforcement officer/environmental manager, to monitor soils and sedimentation and enforce violations. The data will enable the town to create and attach data (e.g. notices of violations, special use permits) to specific parcels for other departmental usage.

According to the 2003 Broad River Basin-wide Water Quality Plan conducted by the North Carolina Division of Water Quality, water quality can be negatively impacted by human disturbance. Pollutants are deposited into water bodies through two types of sources, point and non-point, and contribute to water quality degradation. Point source pollution is generated from piped discharges of wastewater treatment plants, industrial plants and stormwater management facilities. Non-point pollution is often the consequence of various development-related activities and conditions. Examples are chemicals deposited on impervious surfaces (e.g. oil on paved parking surfaces), sediment generated by construction activities and timber harvesting, and fertilizers used on golf courses and in agricultural practices. Most of these



Examples chemicals deposited on impervious surfaces such as oil on paved parking surfaces. Most of these pollutants are carried to lakes, rivers and streams by stormwater runoff.



Streams such as this one can receive chemicals from point and non-point sources of pollution.

pollutants are carried to lakes, rivers and streams by stormwater run-off.

The 2006 North Carolina Waterbodies Reports, prepared by the North Carolina Division of Water Quality (DWQ), states the lake itself has few water quality protections associated with its state primary freshwater classification of Class B or the supplemental trout water designation. (Class B waters are those used primarily for recreation, which include swimming, skin diving, water skiing, and similar uses involving human body contact with water.) However, the North Carolina Division of Land Resources does require a 25-foot vegetated buffer between trout waters and graded construction sites. The following is an excerpt from the North Carolina Administrative Code Title 15 A Department of Environment and Natural Resources Chapter 4 Sedimentation Control.

15A NCAC 04B .0125 BUFFER ZONE REQUIREMENTS

(a) Unless otherwise provided, the width of a buffer zone is measured from the edge of the water to the nearest edge of the disturbed area, with the 25 percent of the strip nearer the land-disturbing activity containing natural or artificial means of confining visible siltation.

(b) The 25 foot minimum width for an undisturbed buffer zone adjacent to designated trout waters shall be measured horizontally from the top of the bank.

(c) Where a temporary and minimal disturbance is permitted as an exception by G.S. 113A-57(1), land-disturbing activities in the buffer zone adjacent to designated trout waters shall be limited to a maximum of ten percent of the total length of the buffer zone within the tract to be distributed such that there is not more than 100 linear feet of disturbance in each 1000 linear feet of buffer zone. Larger areas may be disturbed with the written approval of the Director.

(d) No land-disturbing activity shall be undertaken within a buffer zone adjacent to designated trout waters that will cause adverse temperature fluctuations, as set forth in 15A NCAC 2B .0211 "Fresh Surface Water Classification and Standards", in these waters.

Water quality will continue to be an issue as development occurs within Lake Lure and throughout the entire Upper Broad River Sub-Basin, especially if enforcement of the 25-foot buffer is a challenge. Its geographic position at the bottom of the 94-square mile sub-basin leaves the lake as a prime target for non-point pollution in the form of sedimentation.

Sedimentation

Sedimentation is a major threat to water quality in all water bodies in developing areas. It is even more important in Lake Lure due to its location in the watershed. Sediment is soil particles carried by stormwater into various waterbodies such as

streams, lakes, and rivers. According to Western North Carolina Tomorrow, sedimentation is the largest pollutant by volume and can fill waterways and impoundments quickly compromising their environmental and recreational values.

In Lake Lure, stormwater run-off from construction sites and other land-disturbing activities carries over 40,000 tons of sediment and deposits it on the lake's floor annually. The town conducts ongoing dredging activities to remove the sediment.

Erosion Control

Preserving water quality is becoming more and more difficult as the rate of development increases. Erosion control is the key to managing water quality that is threatened most by sedimentation. Construction activities (e.g., site clearing and grading), increasing amounts of impervious surfaces that increase the velocity of stormwater run-off, and other land-disturbing activities expose soils allowing stormwater to carry particles toward lakes, rivers, and streams. Through four community input opportunities (community meetings, stakeholder interviews, CPSC meetings and the community survey), erosion control was cited as a major issue and a key concern in preserving the quality of Lake Lure's natural environment and resources. Close to 50% of the community survey respondents indicated a need for new or improved erosion control techniques. In addition to local community input, the 2003 Broad River Basin-wide Water Quality Plan reported that Division of Water Quality biologists have found a degradation of aquatic communities at numerous sites throughout the entire Broad River basin in association with narrow or nonexistent zones of vegetative buffers. Minimal buffer areas, where provided, do not create the barrier needed to prevent sediment from reaching the water's edge, allowing it to flow into the lake via streams and rivers in the Upper Broad River Sub-Basin.

Lake shore stabilization is another issue directly related to erosion control efforts. A change in the development pattern is occurring along the lakeshore with older and smaller traditional cottage cabins redeveloping and transitioning into larger home sites. With this type of development occurring, concerns about the integrity of the lake edge have surfaced through the public process. Though a 25-foot vegetative buffer along the lake and stream edges are required, little has been done to enforce these regulations. In addition, existing older seawalls continue to erode due to continuous wave action at the base of the walls, causing the walls to lose structural integrity and erode natural



Ridgelines and vegetation, steep slopes are key attributes to Lake Lure's natural environment. Lake Lure has a large amount of vantage points that capture breath taking views to distant ridgelines, tree-covered mountains, and hillsides.

shoreline areas. In response, the town has addressed this issue by amending its standards for lake structures.

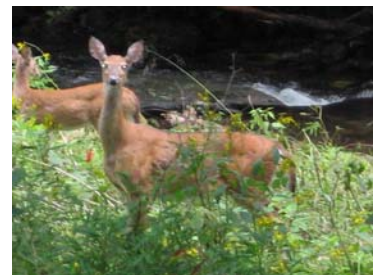
Lake Lure has a representative on the Upper Broad River Watershed Protection Committee (UBRWPC), which formed to address sedimentation issues at the regional level. The UBRWPC helps to identify regional sources of erosion and provides solutions to specific sedimentation problems.

The Town of Lake Lure has taken positive steps to reduce erosion impacts locally. With a grant the town recently received, the town has been able to enhance the soil and erosion control program by purchasing computer equipment and software to utilize and benefit from Geographic Information System (i.e. GIS). The town has also added staff, an erosion control officer/environmental manager, to monitor land disturbance activities and to enforce adopted regulations. This position, which was part-time until July 2006, is now a full-time position. Chapter 96 of the Town of Lake Lure Soil Erosion and Sedimentation Control Regulations requires any land disturbance activity over 100 square feet to have a sedimentation and erosion control plan being considered for amendment. Plans that involve such disturbances must be submitted for review and approval by the town prior to the issuance of construction permits or any activity beginning on the site.

Lake Lure lacks a post-construction stormwater quality policy. The impact of stormwater from new development may be mitigated by practices which treat, store and infiltrate run-off before it can affect bodies of water downstream. It is possible to reduce the flow of run-off and improve water quality through the use of innovative site designs that reduce impervious area. Smaller-scale, low impact development practices also help lower the amount of run-off into streams, rivers and lakes.

Flora and Fauna

Rutherford County is home to a variety of endangered plant and animal species. Many species have been found specifically within the Hickory Nut Gorge area. According to the Nature Conservancy, the Gorge is home to “37 rare plant species, 6 rare natural community types and 14 rare animal species, including cave-obligate invertebrates, spiders, salamanders, bats and woodrats. Its ecological features include Bat Cave (just outside of Lake Lure) known to be the longest granite fissure cave in the world with additional cave systems found throughout the gorge.”



Wildlife is able to move freely within open space and undeveloped areas. This snapshot was taken near the town center where deer grazed near the stream.

The area caves, waterfalls and elevation differences are features of the unique habitats for a variety of flora and fauna. Predominant natural community types include the following: Oak Hickory Forests, Moist Hardwood Forests and Flood Plain Forest.

The following charts divide the Rutherford County plant species into three categories: endangered, threatened and species of concern (U.S. Fish and Wildlife Threatened and Endangered Species List, 2002).

- *Federal Species of Concern* denotes a species under consideration for listing at this time.
- *Threatened* denotes a taxon, or organism, likely to become endangered within the foreseeable future throughout all or a significant portion of its range.
- *Endangered* denotes a taxon in danger of extinction throughout all or a significant portion of its range.

Table 10.1: Plant Species:

<i>Plant</i>	<i>Federal Species of Concern</i>	<i>Threatened</i>	<i>Endangered</i>
Blue Ridge ragwort	X		
Butternut	X		
Rock gnome lichen			X
Granite dome goldenrod	X		
Gray's saxifrage	X		
Mountain catchfly	X		
Small whorled pogonia		X	
Sweet Pinesap	X		
White irisette			X

Table 10.2: Vertebrate Species:

<i>Vertebrate</i>	<i>Federal Species of Concern</i>	<i>Endangered Species</i>
Cerulean warbler	X	
Eastern small-footed bat	X	
Green salamander	X	
Indiana bat		X

American bald eagle		X
Northern pine snake	X	
Southern Appalachian eastern wood rat	X	

Source: U.S. Fish & Wildlife Threatened and Endangered Species List, 2002

According to town staff, bald eagles have been observed on the western edge of the lake. However, ecological occurrence documentation has not been submitted to the North Carolina Natural Heritage Program. In 2006, a nest was discovered in the Blue Heron Point subdivision which prompted the North Carolina Division of Water Quality to ask the town and volunteers to submit information on bald eagle observations at that site. A volunteer observer and monitoring program has been started and information gathered will be recorded in a database and GIS shape file for future use.

In response to the community’s desire to protect local flora and fauna and their habitats, the town has adopted an amendment to the subdivision regulations (Ordinance 06-10-10) to protect tree cover during residential development. This ordinance, developed with assistance from a volunteer Tree Management Committee, is designed to prevent excessive removal of trees and native shrubs and to minimize land disturbances by mandating tree densities, tree species and tree protections during subdivision development. This ordinance is a positive step in securing protections for Lake Lure’s pristine natural environment. New developments have now been limited in their clearing potential, which will positively enhance the natural plant animal habitats of Lake Lure. Progress is also being made on the creation of an ordinance to protect trees on individual lots.

Ridgelines

Ridgeline protection is an issue throughout western North Carolina. Development in such visually prominent locations within the landscape can interrupt views and have a significant economic impact; the views are one of the features that have attracted the many people visiting and investing in the region.

The North Carolina Ridge Protection Act of 1983 was developed and adopted in response to the significant viewshed impacts of the condominium development on top of Sugar Mountain, Little Sugar Top Mountain, which is highly visible from a popular tourist attraction, Grandfather Mountain, which boasts some of the best views in western North Carolinas. This act protects mountain ridges whose elevation is at or above 3,000 feet and is



Development, road construction, and removal of vegetation adversely affect erosion. Exposed soils allow stormwater to gain velocity during precipitation events; the stormwater gathers sediment and pollutants and carries them into streams, creeks, and lakes.

also 500 or more feet above the elevation of an adjacent valley floor. The Act defines a "ridge" as the elongated crest or series of crests at the apex or uppermost point of intersection between two opposite slopes or sides of a mountain, and includes all land within 100 feet below the elevation of any portion of such line or surface along the crest. (See Figure # 4, Elevation map).

Elevations over 3,000 feet do not exist within Lake Lure's current jurisdictional boundary. In fact, the majority of land within the town is under the 1500' elevation. However, some ridgelines that meet the definition set forth in the Act can be found just outside of the town's jurisdiction. These and ridgelines at lower elevations are very much a component of the views enjoyed from a number of vantage points throughout the town. The protection of each is important to the residents and property owners in Lake Lure. The community survey results underscored the importance of this issue; 87% of the participants support ridgeline protection.

Steep Slopes

Steep slopes are areas where land (grade) ascends rapidly over a short distance from a relatively horizontal plane. Lake Lure has many areas of 20% slope or more and some places where slopes exceed the 40%. Most of the 40% and steeper slopes are located above the 1500' elevation line.

Building on steep slopes is a major issue in Lake Lure, as development increases in these areas. The survey respondents and participants in the public meetings indicated a desire for regulations to protect existing trees, environmentally sensitive areas and steep slopes during development. Developing on steep slopes increases the potential for adverse watershed and environmental impacts and decreased structural integrity of buildings. Development on steep slopes challenges the integrity of the slopes as trees and other vegetation that hold/stabilize the soil are removed. Steep slopes are also home to soil formations that are prone to erosion and lack of percolation. Soils are often shallow and unstable in these areas, resulting in erosion, vegetative loss, and reduced water quality. Like ridgeline development, it is also more visible than development in other locations.

Development on steep slopes is of greater concern to the community and all of western NC now than in the recent past. These areas were previously thought to be un-buildable. With recent engineering advances in roadway and building



Although provisions are in development, the Town has not adopted conservation regulations to protect vegetation, hillsides, and steep slopes. This creates potential erosion issues and adversely alters existing viewsheds.

construction, and land values that justify the costs of employing the more costly techniques, development on steep slopes is more feasible.

Soils

Four major soil associations are found within Lake Lure: Pacelot-Rion, Evard-Cowee-Fannin, Ashe-Edneyville-Rock Outcrop-Cleveland and Greenlee-Tate according to the General Soils Map of Rutherford County 1997, Soil Survey of Rutherford County, NC.

The following descriptions of the four classifications are cited from the Soil Survey of Rutherford County, USDA-NRCS Soil Survey Division, 1997:

Pacelot-Rion

Pacelot-Rion soils are strongly sloping to very steep, very deep, well drained soils that have clayey or loamy subsoil. This soil association exhibits erodibility, slope and restricted permeability characteristics when developed.

Evard-Cowee-Fannin

Evard-Cowee-Fannin soils are well drained soils that are very deep and moderately deep and have a predominantly stony surface layer and loamy subsoil. This soil association exhibits erodibility, slope, limited depth to bedrock and restricted permeability characteristics when developed.

Ashe-Edneyville-Rock Outcrop-Cleveland

This soil association contains rock outcrops and moderately steep to very steep, shallow to very deep soils that have a predominantly loamy subsoil and formed in residuum affected by soil creep and weathered mainly from high-grade metamorphic rock. This soil association exhibits erodibility, slope, rooting hazards, and limited depth to bedrock characteristics when developed.

Greenlee-Tate

Greenlee-Tate soils are strongly sloping to steep, very deep soils that have a predominantly extremely bouldery surface and loamy subsoil. This soil association exhibits erodibility, slope, restricted permeability and large stone occurrence characteristics when developed.

Soils associated with wetlands, lakes or river bottoms that are frequently flooded or waterlogged are known as “hydric” soils.



Distant ridgelines and tree-covered mountains are essential to Lake Lure's natural environment.

Hydric soils do not support freestanding vegetation but often have a layer of decomposing plant material on the surface. Lake Lure has six hydric soil types: Chewacla, Dogue, Fluvaquents-Udifluvents, Helena-Worsham, Lotla and Wehadkee.

The soil types within Lake Lure play a vital role in determining construction practices and development potential of tracts of undeveloped land within Lake Lure. As noted in previous subsections, these restrictive soil characteristics present numerous challenges for development. The challenges related to erodibility and permeability present the biggest challenge for development, however, commonly used mitigation techniques allow further development as suggested in previous sub-sections. These restrictive soil characteristics present numerous challenges for development, however, they are related to erosion and permeability. Commonly used mitigation techniques allow further development.

Open Space

Open space is any privately- or publicly-owned land in an undeveloped state. In that state, such undeveloped land contributes to vital ecological functions and often contain important natural resources or cultural resources worthy of potential conservation and protection. Such areas may contain, but are not limited to woodlands, farmland, old fields, floodplains, and wetlands. The majority of the land, 82%, within Lake Lure's jurisdictional boundary is undeveloped.

Given the mutually exclusive nature of development and preservation of open space, the increase in residential and commercial development will reduce existing open space quantities. However, development can integrate open space in a manner that preserves the valuable features of open space (and maintains the benefits of it) while complementing new development and serving as an amenity to it.

Currently, Lake Lure does not require open space be set aside as development occurs. Requirements to protect and preserve open space during the development process are an option worthy of further detailed exploration. In addition to developing requirements, it was identified that public education efforts should be explored to help educate developers and residents alike about the benefits of conservation design from large subdivisions to individual building lots.



Roadways and construction increase run-off as sediment is carried into streams, lakes, and rivers.

10.3 SUMMARY OF ISSUES AND OPPORTUNITIES

- Potential for further development on steep slopes and ridges could adversely affect the natural environment and scenic views.
- Potential for further development on sensitive soils could cause additional erosion and sedimentation problems.
- Standards have been added to the subdivision regulations to preserve trees and existing vegetation; however, the regulation is limited to subdivisions. There is an opportunity for these regulations to be expanded to all developments. Work has started to address tree preservation on individual lots.
- The water quality issue is directly related to sedimentation. Lake Lure annually receives high amounts of sediment at the bottom of its lake. Sedimentation is due to erosion caused by development and other land-disturbing activities upstream and outside of the town's jurisdiction. Sediment is carried to water bodies via stormwater runoff. Additional impervious surface increases runoff velocity and, therefore, increases erosion. One of the more serious impacts is the amount of sedimentation in the lake that requires regular dredging, a costly maintenance activity for the town.
- Lake Lure has experienced major flood events throughout the past decade. This presents a dangerous and costly environment for those who live within the town's floodplain.
- Required vegetative buffers, including the 25-foot buffer required along trout waters, are too narrow to reduce the velocity of stormwater carrying pollutants or to filter such pollutants before either enter the lake and streams.
- New developments, especially residential subdivisions, are not required to preserve or integrate open space within it.

10.4 GOALS, OBJECTIVES AND POLICIES

NE Goal 1: Preservation and enhancement of open space, particularly Lake Lure's environmentally sensitive areas

Objective: NE-1-1: Maintain open space in a manner that allows development to harmoniously blend with the natural environmental.

Policy NE-1-1.1:

Raise awareness of open space conservation initiatives and benefits.

- (1) Conduct public meetings and open forums to inform the public of current environmental initiatives. *This would complement or be an extension of the Carolina Mountain Land Conservancy's current program that aims to raise awareness of the benefits of conservation easements.*
- (2) Educate developers and real estate agencies about the value of the environment, open space and recreational opportunities available in homebuyers' decisions.

Policy NE-2-1.1:

Identify open space worthy of protection, such as environmentally sensitive areas, and pursue protection through a range of methods.

- (1) Formally define "environmentally sensitive" areas and locate accordingly. *At a minimum, map environmentally sensitive areas in accordance with the definition to document the inventory of lands meeting the definition. A more thorough approach would involve the creation of a comprehensive land and water environmental survey by qualified naturalists to inventory and establish the areas that harbor the endangered species of flora and fauna, unique geological formations, delicate ecosystems and waterways that should be retained in their current, natural state.*
- (2) Pursue conservation easements for natural areas identified in the composite map.
- (3) Create a trust that allows donators to transfer their property to the town for preservation purposes.
- (4) Consider partnering with state-funded agencies, universities and private

conservation groups to undertake this inventory.

- (5) Explore the potential to collect land transfer fees that could fund a specific activity, such as land acquisition for open space purposes to preserve environmentally sensitive areas. *This would require special legislation from the state.*

Policy NE-1-1.3:

Improve all developments by promoting environmental conservation in the development process.

- (1) Require a fixed percentage of land to be set aside as open space in all future developments.
- (2) Establish methods to limit or restrict ‘clear-cutting’ techniques in all developments. *This could include establishing maximums for disturbed area and/or impervious area within lots.*
- (3) Incorporate tree protection regulations into the zoning regulations so they apply to all development types, not just subdivisions.
- (4) Establish a “Purchase Development Rights Program” that allows the town to purchase development rights from land owners for conservation purposes. *This will limit the future use of the land and reduce the landowner’s property taxes. This could give the owners a right to develop their land in a limited manner. The balance of development rights are sold to the local municipality in exchange for a reduction in property taxes for the owner.*
- (5) Allow conservation subdivision development as a by-right option in all residential districts. *Develop subdivision standards that allow a cluster development option as a means to preserve open space. This should be provided as an option within the subdivision regulations and should not require a special permit. Consider a*

density bonus as an incentive; allowable density can be exceeded if open space requirements are exceeded. See Image 15 for a comparison of conventional and conservation subdivision.

(6) Explore the possibility of creating a financial incentive program for conservation development. *This incentive program could be a reduction in permit fees or a reduction in impact fees.* Clearly define the requirements for financial incentives and publish information for public records.

Policy NE-1-1.4:

Consider environmental value of land owned by the town.

(1) In conducting inventory, document clearly the characteristics of parcels owned by the town that meet environmental objectives. *This is critical for determining whether such parcels should remain in town ownership when land sales are contemplated by the town.*

(2) Utilize data contained in the detailed inventory, if conducted, to identify parcels to be acquired by the town. *This may also be helpful in considering land swaps, allowing for development in appropriate locations while preserving environmentally sensitive lands.*

NE Goal 2: A linked system of green open spaces

Objectives:

NE-2-1: Provide for connections that benefit the natural environment, such as wildlife corridors.

Policy NE-2-1.1:

Ensure open space is linked via trails, greenways, and open space corridors throughout the town.

(1) Create an open space plan. *This plan should build on a mapped inventory of environmentally sensitive areas (see above), identify open space*

land that is already protected, and generally locate proposed open space to be protected.

Policy NE-2-1.1:

Seek opportunities to link open space (existing and proposed) in Lake Lure to adjacent open space to create a regional system of open space.

(1) Establish a regional effort that targets environmental conservation within and outside of Lake Lure's jurisdictional limits.

(2) Host regular meetings with neighboring jurisdictions to coordinate open space preservation efforts.

NE Goal 3: Implementation of subdivision regulations addressing design practices

Objective:

NE-3-1: Minimize negative impacts from grading on steep slopes and post-construction stormwater run-off.

Policy NE-3-1.1:

(1) Define steep slopes relative to topography in Lake Lure specifically.

(2) Modify subdivision regulations to minimize density and grading impacts on steep slopes. *This could include requirements for increasing lot size with steeper slopes.*

(3) Adopt regulations to minimize grading impacts on steep slopes within non-residential development or any type of development not subject to subdivision regulations.

NE Goal 4: High water quality in local lakes, rivers and streams.

Objective:

NE-4-1: Improve and maintain water quality for the enjoyment of the community and to support natural habitats.

Policy NE-4-1.1:

Monitor water quality regularly.

(1) Establish better, more regular means of communication with the State of North Carolina, specifically the DWQ, to strengthen efforts to test stream pollutant levels, water temperatures, etc.

Policy NE-4-1.2:

Establish effective buffers as a way of strengthening water quality protection measures.

(1) Increase the width of the required lake edge buffer and require stream buffers. *The width of these buffers shall be a minimum of 50 feet measured horizontally from lake's edge (standard elevation) or the top of the stream bank.*

(2) Specify in regulations accepted methods for delineating buffer zones.

(3) Establish minimum planting requirements to ensure adequate buffer vegetation. *Buffers shall maintain existing vegetation. Where such vegetation does not exist, buffers shall be planted with native vegetation, particularly pollutant-absorbing plants to filter chemicals in runoff entering streams and lakes. Review the standards for buffer planting currently required by the NC Division of Land Quality (NCDLQ) to ensure future standards established by the town enhance rather than conflict with the NCDLQ's standards.*

(4) Establish limitations for clearing within the required buffer to ensure the effectiveness of the buffer is maintained.

(5) Avoid embankment fill for bridge approaches, using causeways over floodplain to preserve existing vegetation wherever possible.

(6) Review staff resources and add personnel as needed to adequately monitor adherence to buffer regulations. *Staff will be required to inspect buffers established during construction phase of development and conduct buffer walks to check for encroachments or other violations.*

Policy NE-4-1.3:

Manage upstream development activities that result in sedimentation and other impacts that threaten water quality.

(1) Conduct a Watershed Study to specifically identify regional erosion and sedimentation issues and problem areas that directly impact Lake Lure.

(2) Evaluate impervious cover impacts on surface water hydrology, quality, and ecology. *This will be helpful in determining what types of regulations (i.e. impervious surface limitations) are appropriate.*

(3) Classify “Watershed Study” into three broad impact classifications: low, medium, and high. *These categories will be useful to assess the potential for watershed restoration and provide a baseline for watershed protection. The lower the overall characteristic, the lower the adverse impacts of phosphorous loads, sediment inputs, bacterial loads, and shoreline erosion.*

(4) Adopt regulations to mitigate impacts in accordance with the findings of the Watershed Study. *Regulations could address a number of factors that contribute to the degradation of water quality, including impervious surface areas limits.*

(5) Explore additional solutions to management of sedimentation and dredging to reduce the cost of sedimentation removal activities.

(6) Continue participation on and support of Upper Broad River Watershed Protection Committee.

Policy NE-3-1.4:

Utilize the recently established Geographic Information System (GIS) to better inform development approval decisions.

(1) Use Spatial Analyst software to better understand steep slope conditions

(2) Map soil types to locate highly-erodible soils and aid decisions for erosion control measures.

(3) Utilize updated floodplain maps to improve accuracy of floodplain area and to enforce floodplain regulations

Policy NE-3-1.5:

Educate the public about importance of water quality.

(1) Educate public about buffers and benefits of maintaining existing native vegetation. *On public property, conduct stream walks, post interpretive signs and involve the public in replanting efforts.*

(2) Create an informational pamphlet and distribute to businesses, private landowners, and developers to inform them of environmental impacts associated with increases in impervious surface area. *The information should include: 1) examples of impervious surface areas (e.g. rooftops, parking lots, etc) 2) effects of impervious surfaces (e.g. preclusion of precipitation infiltration into soils, which causes reduction in groundwater recharge, subsequently lowering the water table, depleting groundwater supplies, and reducing ecologically*

significant base flow into streams, wetlands, and Lake Lure) 3) presentation of mitigation strategies (e.g. green roofs, paving materials, etc.) 4) landscaping best practices.

(3) Coordinate with neighboring jurisdictions to expand educational efforts beyond Lake Lure's jurisdiction.

11.0	Land Use & Growth Management	11-1
11.1.	Introduction	11-1
11.2.	Inventory and Existing Conditions	11-1
11.3.	Summary of Issues and Opportunities	11-7
11.4.	Goals, Objectives and Policies	11-8

11

11.1 INTRODUCTION

Lake Lure’s natural assets, such as lakes, tree-covered mountains, and priceless viewsheds, have attracted visitors to the area for nearly two hundred years. Throughout the past decade, Lake Lure has experienced a significant increase in demand for land, specifically for single-family residences. As the town has attracted more visitors, many have subsequently purchased homes in the area for vacation and/or investment purposes while others have relocated permanently to Lake Lure. Similarly, continued tourism interest has increased the demand for seasonal housing and commercial services. Both of these factors have contributed to Lake Lure’s growth and have had an impact on land use. Through proper growth management and land use planning, development can maintain its course without jeopardizing the quality of the environment or the quality of life for residents and visitors.

11.2 Inventory and Existing Conditions

The Town of Lake Lure encompasses 8,850 acres. The two largest bodies of water, Lake Lure (720 acres) and Bald Mountain Lake (51 acres), occupy a total of 771 acres. A high percentage of the remaining 8,079 acres of land in the town is undeveloped or is unable to be developed. The vast amount of undeveloped land includes properties that contribute significantly to Lake Lure’s natural environment and character. However, the majority of this land is not protected from future development. This subsection provides detailed descriptions of development patterns within the town, and since many development-related concerns are associated with subdivisions beyond the town limits, those issues are also noted.

Land Use and Development within Lake Lure’s Jurisdiction

While Lake Lure is developed primarily for residential uses, commercial and civic uses are also significant components of the land-use mix. The Existing Land Use Map (Figure #6A) reveals this as well as the presence of some unique uses, such as a camp (i.e., Lurecrest). There are several uses that the community has expressed a desire or need for, so the range of uses could be expanded over time. The following describes the existing land use pattern in more detail. Included at the end of this section is the current Existing Zoning Map (Figure #7) that is a reflection of the existing and potential development pattern as envisioned prior to this planning process. Table 11.2 provides a summary of the zoning districts and the total land area associated with each district.

Residential Development

Single-Family Residential

As previously mentioned, Lake Lure’s land use type is mainly single-family residential. The majority of land



Lake views from single-family homes are highly sought after by Lake Lure property owners and visitors.

within the town's corporate boundaries is zoned for single-family residential. (See Figure #7, Existing Zoning Map) The current zoning maps suggest that Lake Lure will maintain predominately single-family residential pattern of development.

The impact of residential development has been raised as an issue recently. The increase in single-family residential development has caused concern that scenic views and other sensitive areas could be negatively affected. Interestingly, according to the survey, nearly 50% of the respondents think Lake Lure should slow its residential development pace, as opposed to 30% who preferred to retain the current pace of development. The community has expressed a need to address negative development impacts, particularly in subdivisions. The survey indicated nearly 87% of the respondents agreed on the need to develop better guidelines regarding residential subdivision development. These items were also emphasized in the community meetings, stakeholder interviews, and steering committee meetings. The town has created and implemented subdivision regulations to control single-family residential development within its jurisdiction. These regulations address a variety of standards for design, from roadway to drainage requirements.

The second home market in Lake Lure is a major force behind the town's continued growth, housing demand, and economy. According to Multiple Listing Services, only 22.1% of the occupied housing in Lake Lure was owned by a full-time resident (classified as someone who resides in Lake Lure five months or longer per year). Many of these homeowners live in Lake Lure at various times throughout each year, but maintain a primary residence elsewhere. Despite the amount of time the home is utilized, it is important in terms of land use, as a large percentage of Lake Lure is developed for single-family housing.

Questions have been raised about the definition of residential uses, as many homes are rented to visitors spending a week or two at a time in Lake Lure on vacation. Utilization of property in this manner is very different from the traditional use of single-family homes. In the R-1 zone, for example, renting a single-family residence is not permitted. This is a problem because renters often create problems for nearby homeowners such as undesired noise, parking problems, etc.



Single-family residential is the primary land use in Lake Lure. Large homes, such as this one, are commonly found on the lakefront.



Homeowners build in areas of extreme topographic conditions to capture views of the lake.

Currently, there is a lack of clarity in or enforcement of current regulations.

Multi-Family Residential

Other than single-family detached homes, housing choices in Lake Lure are limited. While the vast majority of attached housing is in the form of condominiums located mostly within Rumbling Bald Resort, multi-family developments have recently been completed. Additionally, future developments will include multi-family units. For example, developers of Bald Mountain at Lake Lure are proposing 120 units (multi-family and duplex). However, according to the survey results, there is a great deal (over 74%) of opposition to multi-family homes. As housing prices and property values rise, a lack of housing choices reduces opportunities for workforce housing in the town.



A multi-family development in Lake Lure: apartments located near the Ingles grocery store.

Commercial Development

The range of uses found within Lake Lure is reflective of its long history as a resort community and vacation destination. Included in the set of uses are several types of lodging, other service-oriented uses and tourism-related uses. Among them are a large hotel (the Lake Lure Inn), lodges, bed-and-breakfast establishments, time-share units, golf clubs and outdoor adventure guide businesses.

Most of the commercial development in Lake Lure is concentrated in the town center, where a variety of restaurants and a few stores can be found. (See Figure # 7, Existing Zoning Map) These businesses benefit from proximity to the Lake Lure Inn, the beach, and the municipal buildings. Other commercial development in town has consisted mainly of small retail in key locations along the major routes. Until recently, these commercial businesses met only a few of the needs of most residents, who travel frequently to Rutherfordton, Hendersonville and other nearby cities to shop. In 2005, Ingles, an Asheville-based grocery store chain, opened a grocery store on the west side of NC-9 just inside the town limits giving residents a more convenient shopping option.



Commercial land use has been developed along Lake Lure's roadways. There is an opportunity to cluster commercial services and retail in commercial nodes to avoid commercial strips along road corridors.

Most of the recent commercial development has occurred along segments of US-64/74A and NC-9. They have gravitated to these major roadways as such routes carry the most traffic (potential patrons), provide easy access and offer terrific visibility. In addition, the available parcels of land are easier to develop as they are relatively flat and are close to available

infrastructure. As a result, the pattern of commercial development is taking on a linear, or “strip,” pattern. The occasional fruit and vegetable stand, once one of a few commercial establishments located along the roadside, is now flanked by real estate offices, small convenience stores and restaurants, and other service-related businesses.

In addition to affecting the character of these corridors, this pattern of development can increase left turns and have a negative impact on traffic flow. Through the survey, community meetings, and CPSC meetings, community members demonstrated interest in small retail and other commercial development; however, over 86% of survey respondents agreed that it should be concentrated in a few designated areas. A majority of the respondents opposed the conventional shopping center and “strip” development along roadway corridors.

Commercial lakefront development is another land use concern. The encroachment of commercial land uses along the lakefront could be accommodated under existing regulations. However, additional commercial development on the lakefront would detract from Lake Lure’s beauty and potentially could decrease the environmental quality of the lake. Of those surveyed, 83.6% cited the need to limit commercial development on the lakefront; however, 61% of the respondents do favor lakefront restaurants. Lakefront commercial establishments require a minimum of 100 feet of lake frontage.

Commercial development is discussed at greater length in the Economic Development section.

Civic Uses

Civic uses serving Lake Lure’s small population are located within and near the town limits (see Figure #3, Community Facilities Map). Within the town are a number of civic uses, including the offices and support facilities of various town departments located primarily in the town center. On the western edge of town along Memorial Highway are the town hall and police department occupying a single building. Adjacent to this building is the visitors’ center, which houses the youth center. Within this area are several of the town’s recreational facilities, such as the town marina and Morse Park, which are described in more detail in the *Parks and Recreation* section. In the heart of the town center, behind the arcade building, is the town’s maintenance facilities that include two buildings and



Another example of commercial development along Lake Lure’s roadways.

outdoor storage. Other civic uses include the library, such as the one located on Bills Creek Road.

While it is appropriate for many of the municipal uses to be located in the town center to reinforce it as the heart and focal point of the community, some civic uses may be better located elsewhere. A library is an example of a civic use that can be located in a place (or places) that maximizes access for all citizens in its service area. As is the case for Lake Lure, such locations are not always the geographic center or town center. The town maintenance facility is another civic use that can and should be located outside of the town center, as the land values and potential opportunities would suggest a better use. As development in Lake Lure continues, civic uses will likely continue to be both concentrated in the town center and distributed around town, depending on the purpose and/or service area of each.

For more information about the town's services and facilities, see the *Community Services and Facilities* section.

Mixed-Use

Currently, Lake Lure lacks mixed-use development as a component of the development pattern. This refers to multiple uses within a single development or even the same structure. Ideally, the mix includes both residential and non-residential uses. For example, a two-story building could have a residential use on the second floor and a commercial use on the first floor. Lake Lure has an R-4 zoning district that allows for single-family dwellings and offices in the same development but does not provide options for flexible design that can integrate residential and non-residential uses in a seamless manner (e.g. co-exist within the same building).

Educational Facilities

The Town of Lake Lure currently does not have a designated public or private school located within the town limits. Rutherford County School's most current facilities plan, Rutherford County School Strategic Plan, does not indicate a need for a school in Lake Lure within the next four years. Through the community input process, participants expressed support for a private school or charter school. Many were interested in attracting a special use school to Lake Lure. The possibility of attracting a school focused on the natural environment, outdoor adventure recreation and/or specialty crafts and trades is thought to be worthy of future consideration.

Table 11.1: Acreage by Zoning District

District	Name	Total Acres*	% of total acreage in town*
CG	Commercial General	103.2	1.1%
CN	Commercial Neighborhood	11.9	0.1%
CSC	Commercial Shopping Center	14.0	0.1%
CTC	Commercial Town Center	16.9	0.1%
GU	Government	268.1	2.9%
L-1	Lake	818.6	8.8%
Lake	N/A	72.1	.8%
M-1	Reserved Mountainous	314.0	3.4%
R-1	Single-Family Residential	859.0	9.2%
R-1A	Single-Family Residential	1636.3	17.5%
R-1B	Single-Family Residential	610.6	6.5%
R-1C	Single-Family Residential	539.0	5.8%
R-1D	Single-Family Residential	188.4	2.0%
R-2	General Residential	140.9	1.5%
R-3	Resort Residential	3489.0	37.3%
R-4	Residential / Office	99.5	1.1%
S-1	Scenic Natural Attraction	166.7	1.8%
Total		9348.2	100%

*Data provided by North Carolina Division of Community Assistance and is consistent with zoning data from Rutherford County.



This is an entrance to a residential neighborhood that is representative of newer developments outside of the town limits.

Table 11.2: Acreage by Land Use

Land Use	Acres*	% of total acreage in town*
Rural	3492	43%
Rural Residential	444	6%
Residential	2389	29%
Resort Residential	1622	21%
Multi-Use	77	1%
Commercial	39	0%
	8063	100%

*Data provided by Rutherford County GIS. Data excludes roadways and lakes.

Land Use and Development Outside of Lake Lure's Jurisdiction

Development pressures are of concern beyond Lake Lure's corporate boundary as changes in the development pattern in these county-controlled areas are affecting Lake Lure. Subdivisions are being created in the higher elevations, boasting home sites with spectacular views toward the lake. Residents and citizens value the natural beauty from vantage points within Lake Lure's jurisdiction, but such development outside of Lake Lure has the potential to alter existing viewsheds. Lake Lure's regulations are not applicable to areas beyond its current jurisdiction. This also applies to "holes," or enclaves, within Lake Lure's jurisdiction, currently not within the corporate limits of the town.

11.3 Summary of Issues and Opportunities

- There continues to be a high demand for single-family housing in Lake Lure and surrounding communities. This demand has fueled the growth of residential subdivision development in Lake Lure and surrounding areas.
- There is potential for future development to occur along steep slope areas and have an impact on scenic viewsheds.
- Though limited, there is potential for commercial development (e.g. restaurants) to encroach along the lakefront.
- The impacts of single-family residences being utilized as vacation rentals along the lake front are a concern to many citizens, especially those with homes in close proximity to these rental properties.
- Commercial developments are stretching out along major roadways and lack concentration in any one specific area within town (except town center).
- There is a need to preserve open space as development pressures increase and the amount of undeveloped land is reduced.
- There are underutilized public buildings and facilities that occupy key parcels that are more suitable for commercial development or more intensive uses.
- A majority of recent development that has adversely affected Lake Lure's viewsheds lie beyond the town's limits. Therefore, the developments are not subject to Lake Lure's regulations.
- Currently, the zoning regulation does not accommodate a mixed-use development pattern created by a range of residential and non-residential land uses in the same development.
- There is a lack of commercial services that the community has expressed a desire for, such as small-scale retail, restaurants, performing arts center and healthcare services.

11.4 Goals, Objectives and Policies

LU Goal 1: Land uses coincide with long term vision

Objective LU-1-1: Direct future development to support the development patterns reflected and proposed in the Comprehensive Plan. (See Figure #8, Future Land Use Map.) *The Future Land Use Map is an interpretation of the Final Concept Plan, indicating the land use pattern that might be realized as the plan is implemented over time. It is intentionally not parcel-specific. It is provided as a tool to guide decisions regarding future development and redevelopment. Each specific development / redevelopment proposal should be evaluated against it to determine if the proposal is consistent with the general intent of the Comprehensive Plan.*

Policy LU-1-1.1:

Create zoning districts or modify existing zoning districts to accommodate uses as indicated in Comprehensive Plan, specifically the Final Concept Plan and the Future Land Use Map. *Table 11.3 summarizes the land use areas shown on the Existing Land Use Map and indicates the appropriate zoning district(s) to be used to accommodate the range of uses envisioned in each area.*

- (1) Create a mixed-use zoning district and promote mixed-use developments within specified nodes in areas as suggested in the *Final Concept Plan and Supporting Development Scenarios* section.
- (2) Zone the specified mixed-use nodes (specialty and service) and the local commercial nodes to allow for a greater mixture of uses in these areas. *This will allow for development of residential and non-residential (commercial) within the same development, including a vertical mixture (typically residential on the second floor and retail on the first floor).*
- (3) Allow flexibility in zoning / land use decisions that would support the long-term preservation of locally-defined historic

structures / properties. (See Community Appearance.)

Policy LU-1-1.2:

Modify the zoning map to be consistent with the land uses indicated on Figure 8, the Future Land Use Map, and to reflect new districts developed to accommodate the range of uses specified in the plan for key areas.

Policy LU-1-1.3:

Improve development regulations to preserve open space.

(1) Evaluate current regulations and identify the most appropriate minimum open space requirements that should be incorporated.

(2) Develop specific open space standards, such as minimum amount and minimum percent to be improved for access/use, and modify the district standards accordingly.

Policy LU-1-1.4:

Concentrate commercial development in designated nodes. (*See Figure 8, Future Land Use Map*).

(1) Rezone the Town Center area for development in more compact form. Development of the Town Center in a compact form results in an arrangement of buildings, streets and public spaces that maximizes utilization of the land. For example, buildings have multiple stories that are situated in close proximity to streets and each other. Open space and parking is limited to small spaces that do not interrupt the built environment.

(2) Provide for commercial development through zoning near lake access points. *Such commercial developments may include restaurants, retail, etc.*

(3) Rezone the commercial services node and neighborhood to the mixed-use districts.

Policy LU-1-1.5:
Attract a special-use school

- (1) Evaluate potential locations for a special-use school.
- (2) Make known the availability of sites suitable for special-use school and support interested entities in the acquisition and rezoning, if any, of selected site.

Policy LU-1-1.6:
Attract a performing arts program.

- (1) Evaluate potential locations for a performing arts center.
- (2) Make known the availability of sites suitable for a performing arts center and support interested entities in the acquisition and rezoning, if any, of selected site.

Policy LU-1-1.7:
Attract healthcare services

- (1) Initiate and maintain communication with healthcare providers (e.g. Rutherford Hospital) to provide a health care facility, pharmacy, visiting nurse service, and medical offices. Relay to providers that the community is highly interested in their services and offer town assistance on efforts to locate such facilities in Lake Lure.
- (2) Identify potential sites, such as suggested in the service commercial node (see Final Concept Plan) for healthcare services. *The specific site of the service commercial node should be easily accessible to the population of Lake Lure and is located along a major thoroughfare providing convenient access.*

Policy LU-1-1.8:
Maximize utilization of land in commercial nodes for commercial uses by relocating public buildings



Condominiums in the town center add to the area's mixture of uses.

to appropriate sites that are less suitable for commercial development.

(1) Evaluate sites for potential relocations of public facilities.

(2) Relocate public facilities, such as the town's maintenance facility, and other identified locations (see *Community Services and Facilities section*).

Policy LU-1-1.9:

Develop overlay zone for the scenic byway segment of US-64/74A and NC-9. *An overlay district is superimposed over one or more general-use zoning designations for a particular purpose, such as protecting scenic viewsheds, for example.*

(1) Define a scenic overlay area for the scenic byway segment of US-64/74A and NC-9 that continues to protect the character, and scenic quality of the current scenic byway. *Refer to the Final Concept Plan to determine general geographic boundaries suggested for parameters of scenic overlay.*

(2) Develop and adopt Scenic Byway Overlay District with standards to preserve the scenic qualities of the Black Mountain Rag Scenic Byway (US-64/74A and NC-9). *Standards should address, at a minimum, landscaping, tree preservation, building setback, driveways, parking and lighting.*

Objective LU-1-2: Restrict development in specific areas within Lake Lure

Policy LU-1-2.1:

Establish overlay zoning district to restrict development above 1,500-foot elevation. *In addition to reducing the amount of development at elevations, this will protect viewsheds, vegetation, and steep slopes.*

(1) Clearly define the standards for development in this area, and develop and adopt the overlay district. *Regulations need to address all factors that have a direct impact on the quality of development at this highly visible elevation: tree protection/area of disturbance maximums, building height, development density, etc.*

(2) Modify the Official Zoning Map to reflect the addition of this new overlay district. *Use the 1,500-foot contour as the line delineating the boundary of the district.*

(3) Educate property owners of the benefits of a 1,500-foot protection line. *Promote public involvement to improve surveillance and aid enforcement.*

Policy LU-1-2.2:

Limit future commercial development along the lake front. *Two approaches: 1) Adjust zoning in this area to ensure commercial development will not be permitted along lakefront; or, 2) Increase the setback requirements of future commercial development from lake's shore line.*

Policy LU-1-2.3:

Study the impacts (e.g. economic, quality of life, etc.) of vacation rentals, particularly those along the lakefront, to determine the need for controls (e.g. additional regulations) or other measures to ensure that the value and enjoyment of all lakefront properties are maintained, and adopt controls for vacation rentals as determined by the study recommendations. Once regulatory controls have been put in place, the Town should then study the effects of those controls and of the impacts of residential vacation rentals on single-family residential zoning districts. Should those studies indicate that the objectives of the regulatory controls are not being achieved, it is the desire of Council and the intent of the Comprehensive Plan that future ordinance(s) be enacted to further regulate and if necessary, prohibit residential vacation rentals in the R-1, R-1A, R-1B, R-1C, R-1D, R-2, and M-1 zoning

districts and to amortize them in such districts for a appropriate period of time. (**Amended 11-10-09**)

LU Goal 2: Growth and development beyond current town limits is managed to have a positive impact on the community and be consistent with adopted goals

Objective LU-2-1: Maintain a consistent approach to development and sensitivity to the natural environment and the town's character.

Policy LU-2-1.1:

Establish an extra-territorial jurisdiction (ETJ) to ensure that developments in areas adjacent to the town boundaries do not adversely impact the town.

- (1) Map potential ETJ boundaries using a set of criteria that include ridgelines, drainage areas, etc.
- (2) Engage in conversations with Rutherford County, adjacent communities and state to communicate ETJ boundary concept.
- (3) Apply adopted regulations, including signage and subdivision regulations, to the area within the established ETJ.

Policy LU-2-1.2:

Consider extending ETJ into the unincorporated enclaves within Lake Lure's jurisdiction if the town determines that such extension would result in a more consistent development pattern town-wide. *This extension would close the "holes" in the jurisdictional area.*

Table 11.3: Proposed Land Use and Zoning Conversion

Land Use Area (on Future Land Use Map)	Recommended Zoning
<p>Very Low Density Residential Area to be developed, if developed at all, for very low density residential uses due to characteristics such as relative distance from primary transportation routes making these areas less accessible, steep slopes, and higher elevations.</p>	R-1D***
<p>Residential Area that is currently developed for single-family residential uses or will likely be developed for primarily single-family residential uses. Other uses may include a limited amount of residential amenities provided for the use and enjoyment of the residents of the neighborhood (e.g., small parks and open spaces, trails, clubhouses, pools, tennis courts). While most residential units are and will likely be detached units, a limited amount of attached units are possible with a conservation subdivision approach, an alternative to conventional single-family development in that it preserves open space in conjunction with creating a more compact form of development.</p>	R-1, R-1A, R-1B, R-1C
<p>Resort Residential While predominantly residential, this area is characterized by a range of residential uses with an array of resort amenities. The residential units include detached, attached, and multi-family units mostly in the form of single family homes, townhouses, and condominiums. Such units are typically designed for either full- or part-time residency and/or rental vacation homes. Overall, the density is low (gross density) as only a percentage of gross land area is devoted to residential uses; residential uses are complemented by recreational uses that are common to resort development, such as golf courses. In addition, other resort-oriented uses, such as clubhouses, pools, marinas, spas, office, restaurants, and commercial hospitality uses (e.g., hotels, motels, and lodges), are likely included in the mixture of uses.</p>	R-3
<p>Residential/Office Area that exists along the US-74A/US-64/NC-9 corridor where a predominantly residential pattern of development has been converted over time into office and other small commercial uses. Residential and office uses are likely to continue in this area fronting this roadway.</p>	R-4***
<p>Governmental Area devoted to governmental and civic uses. This is where governmental functions are and should be concentrated. Over time, additional space can and should be created in this area to accommodate growing governmental functions through building expansions and infill development.</p>	GU
<p>Open Space Areas currently—and to be—devoted to open space uses, including parks that are designed for passive recreational activities. The planned state park, which lies within the town limits and includes a portion of Chimney Rock Park that is to become part of the state park, is included in this open space area.</p>	S-1
<p>Recreational**** Areas that include properties owned by the town that are designed and used primarily by the public for active recreational uses. These facilities are may be maintained and operated by the town or other entities.</p>	GU
<p>Camp/School***** Area that is and may continue to be used for special purposes, such as education, that is in keeping with the character of and vision for the town. Camps owned and operated by scouts, churches, and similar organizations as well as schools intended for special training or interests are envisioned for this area. However, some residential and lodging uses may be components of these areas.</p>	R-2**
<p>Mixed-Use Specialty Commercial A mixed-use area that accommodates a wide range of commercial and residential uses. Similar to the scale and composition of the centers of small towns in the Carolinas, this is the location for specialty retail stores (typically under 10,000 square feet per tenant space), restaurants, services, hotels, offices. As development and redevelopment occurs, this area will likely buildings 2 stories and higher, organized around small civic spaces, such as formal greens and courtyards. The first floor of most buildings will be devoted to commercial uses while residential uses could occupy upper floors. The exact mixture (amount and location of specific uses) will be determined by market demand.</p>	CTC

<p>Mixed-Use Service Commercial**** A mixed-use area that accommodates a wide range of commercial and residential uses. Unlike the specialty commercial area, the mixture of uses in this area will be more horizontal (uses separated into different buildings), and the commercial uses will tend to be more service-oriented and accommodate tenants with greater floor area requirements (i.e., greater than 10,000 square feet). Open space and connections between uses will be emphasized, but the configurations of each will differ from the specialty commercial. The exact mixture (amount and location of specific uses) will be determined by market demand. Typically, this type of commercial node would accommodate approximately 100,000 to 300,000 square feet of commercial space and serve an area that lies within a 3 to 5 mile radius. Additionally, this commercial space will serve a population ranging from 40,000 to 150,000, with a 50,000 population average. (source: <i>Urban Land Use Planning</i>)</p>	<p>C-1, CG, CSC</p>
<p>Local Commercial Areas in which local services are clustered to meet the needs of residents in the immediate vicinity. Typically, this type of commercial node would accommodate approximately 30,000 to 100,000 square feet of commercial space and serve an area that lies within a 1.5 mile radius. Additionally, this commercial space will serve a population ranging from 2,500 to 40,000, with a 10,000 population average. (source: <i>Urban Land Use Planning</i>)</p>	<p>CN*</p>

**This district may require modifications to expand the range of uses to include complementary uses that are suitable for a mixed-use environment. Standards shall control scale.*

*** This district may require modifications to reduce the range of uses to exclude uses that are more suitable for other locations and districts.*

****Overlay districts may be developed to provide an additional layer of design standards to maintain specific aesthetic and/or character-defining qualities in the same areas where this district is utilized.*

*****A new district may be required.*

12.0	Final Concept Plan & Development Scenarios	12-1
12.1.	Introduction	12-1
12.2.	Concept Development	12-1
12.3.	Concept Evaluation	12-2
12.4.	Development Scenarios	12-2

12

12.1 INTRODUCTION

Though the many elements of the comprehensive plan have been examined individually to identify the specific issues the town is facing and the appropriate direction with regard to those issues, the consideration of all these elements simultaneously through this process has allowed the community to crystallize a vision for the future of Lake Lure. Further, it has allowed the community to identify the big ideas underlying this vision in an illustrative concept plan.

12.2 CONCEPT DEVELOPMENT

The steps toward developing this concept plan included the establishment of a baseline that reflects the future of the town based on recent trends. This concept, Concept A, also assumes build-out based on current zoning (see Figure #9). This concept is also known as the “trend line” concept. It offers a preview of the future of Lake Lure if existing conditions maintained their paths. The concept includes a continuation of non-residential commercial development, no additional shoreline protection that has recently been the subject of enforcement, limited park and recreational facilities, and no view protection. The outcome is not desirable as it does not respond to the community’s needs and desires and compromises the natural environment. The purpose of this concept is to provide the community with a benchmark for improvement. Therefore, each of the following concepts (Concepts B, C, & D) is capable of clearly illustrating improvements.

Next, assuming the trend line concept is not a reflection of community desires, a second concept, Concept B, was developed (see Figure #10). This concept is a conservative plan that balances the community’s future desires with an emphasis on existing conditions. The plan offers substantial consideration for the natural environment and the concentration of a range of uses in areas where development can be supported. Specific features of this concept include the following:

- Protection of land at higher elevations (above 1,500-foot elevation) and within viewsheds with the preservation of open space and limitations on development activity.
- Conservation of environmentally sensitive areas with alternative development techniques and open space preservation.
- Enhancement of water quality with the strengthening of buffers along the shorelines of most water bodies.
- Concentration of a mixture of land uses in key areas where the infrastructure is available and the impact to the environment is less.
- Circulation pattern that minimizes need for road widening (which would have an impact on the environment and the town’s

character) by incorporating a range of transportation options that include alternatives to vehicular travel.

A bolder concept that builds on the sound ideas of Concept B was then developed to illustrate the greater potential Lake Lure has, given the unique set of assets that exist within and near the town. This refined concept, Concept C (see Figure #11), includes all of the features of Concept B, but emphasizes the opportunity to distinguish Lake Lure from other mountain communities as a recreation and natural heritage destination. The natural features, such as unique vegetation, dramatic views of rock faces on the mountainsides, waterfalls, and scenic water vistas, combine with recreational opportunities, such as hiking, rock climbing, boating, golfing, and horseback riding, to strengthen the appeal and character of the town. By leveraging these assets, the town can establish an identity that is special in the region. This concept could guide discussions regarding growth and development that benefit residents while enhancing the experience for those who visit Lake Lure, and provide a basis for long-term economic development strategies. Some specific ideas that could support this concept include the addition of a special-use school that is environmentally- and/or sports-oriented, the expansion of the annual Olympiad sponsored by the town, and the attraction of specific groups throughout the year who would take advantage of key opportunities (e.g. a college rowing team training on the lake).

12.3 CONCEPT EVALUATION

These three options were presented at the second community meeting. Participants were asked to evaluate the three concepts and identify the features of each that best reflect the overall vision for the future of the town. The vast majority of attendees supported Concept C and expanded upon the specific ideas expressed through that concept. Concept B, however, was viewed as a short-term means to reach Concept C. Following the meeting, the CPSC assisted the consultant in refining the vision in a fourth concept, the Final Concept Plan (see Figure #12), which acknowledges to the extent possible the recommendations set forth in sections 2 through 11. The Final Concept Plan is provided as a tool to guide decisions regarding future development and redevelopment. Each specific development / redevelopment proposal should be evaluated against it to determine if the proposal is consistent with the general intent of the Comprehensive Plan.

12.4 DEVELOPMENT SCENARIOS

Three areas of town are of great importance to the citizens of Lake Lure: the town center, the area described as the service commercial node along NC-9, and the undeveloped areas in the higher elevations and steeper slopes that are the targets for residential development in the near future. As a way of conveying the potential for each of these areas given the community's vision and plan recommendations, three illustrations, or "development scenarios," were prepared for discussion at the second community meeting. Each scenario is conceptual and represents simply one way in which development might occur in these areas in a manner consistent with the comprehensive plan. The following descriptions of each scenario highlight some exciting ideas expressed during the planning process.

Town Center – The focal point of the community, the town center is situated in an area that could serve as a unique trailhead marking an entry into the future state park. In this location, and building on the existing uses, the town center is ideally suited for infill development that would include a mixture of complementary uses, particularly recreation-oriented retail. The hotel and arcade building provide a context for the creation of a compact, vibrant center of activity. Organized around a formal green that can be utilized for community gatherings, new and existing development would enhance this area and compliment the beach (See Figure #13 in Appendix E).

Mixed-Use Node – This area that encompasses the recently constructed Ingles grocery store is an ideal location for a variety of residential and commercial uses. With access from a number of arterial roads serving the town, this area could easily locate retail, office, healthcare, and recreational uses with more compact residential development. The pattern illustrated calls for seamless integration of uses that is an alternative to strip commercial development, a possible pattern that could emerge along NC-9 under current circumstances. This area might also serve as an entrance into the proposed special-use school (See Figure #14 in Appendix E).

Residential Development – Several areas in town, even some once thought to be undevelopable, are now the areas where new residential development is being proposed. Conventional subdivisions are having an impact on the very features that contribute to the quality of the environment and the uniqueness of Lake Lure. This scenario demonstrates an alternative to conventional subdivision: conservation subdivision, which aims to preserve a portion of a site for open space. Typically, this alternative limits development to a portion of the site by encouraging smaller lots sizes. While the developed portion results in a more compact form than the conventional approach would, the gross

density allowed by zoning is maintained. In some cases, the gross density may be exceeded slightly to create an incentive for developers to choose this option. The benefit is in the trade-off: protection of important lands that are valued for environmental purposes (See Figure #15 in Appendix E).

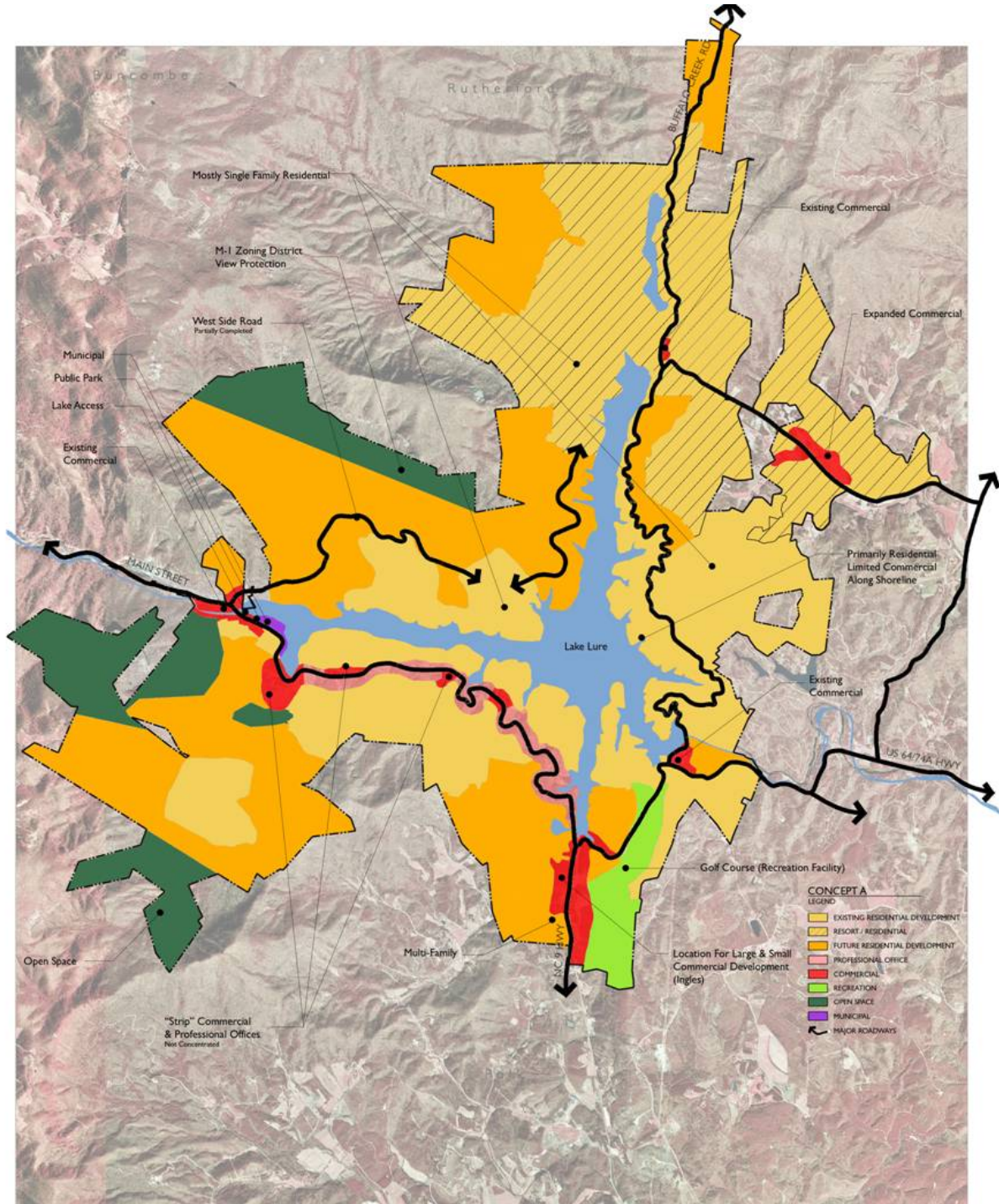


Figure 9 - Concept A

This map is a reduced version of a full-size map on display in the Lake Lure Town Hall.

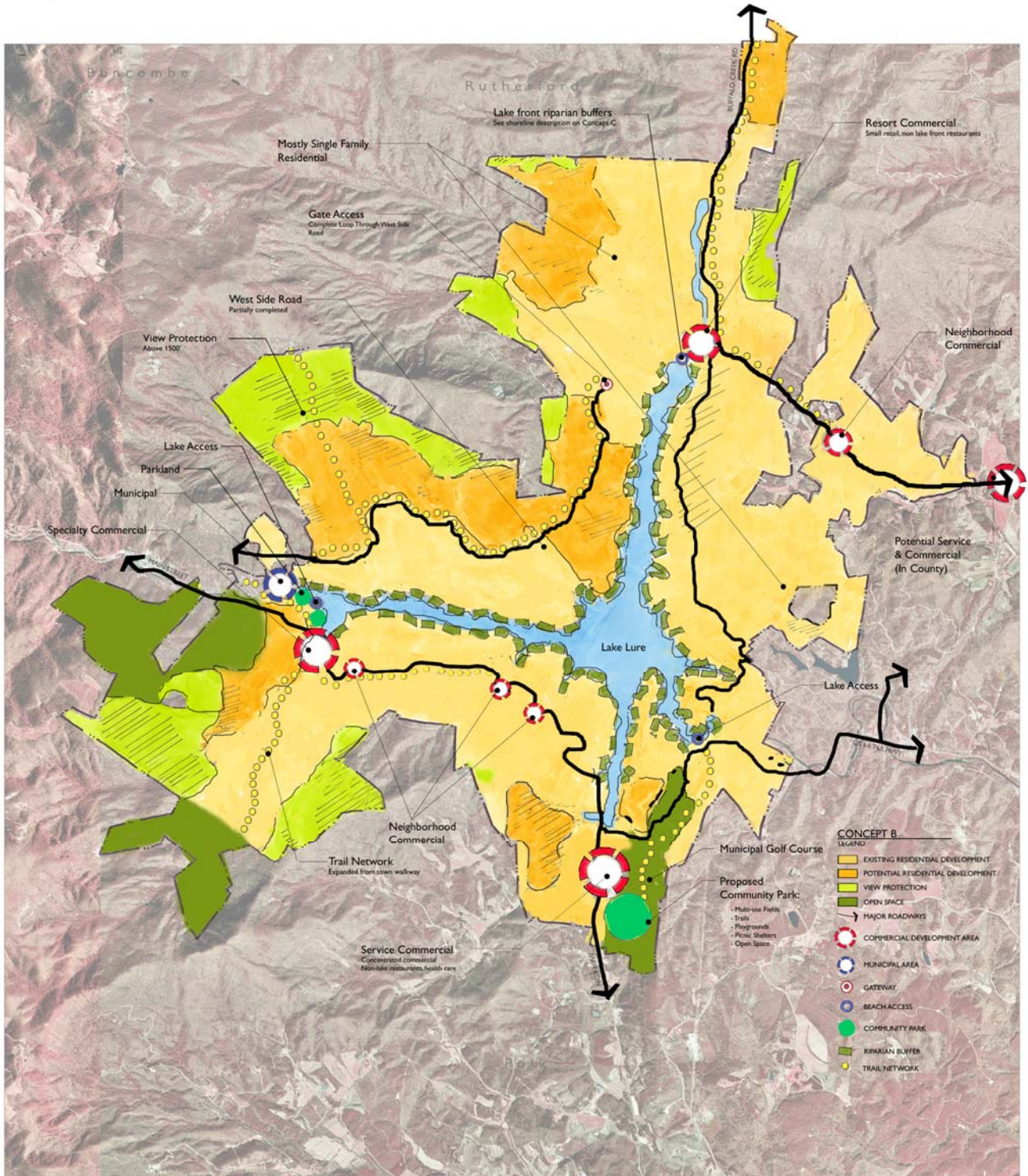


Figure 10 - Concept B

This map is a reduced version of a full-size map on display in the Lake Lure Town Hall.

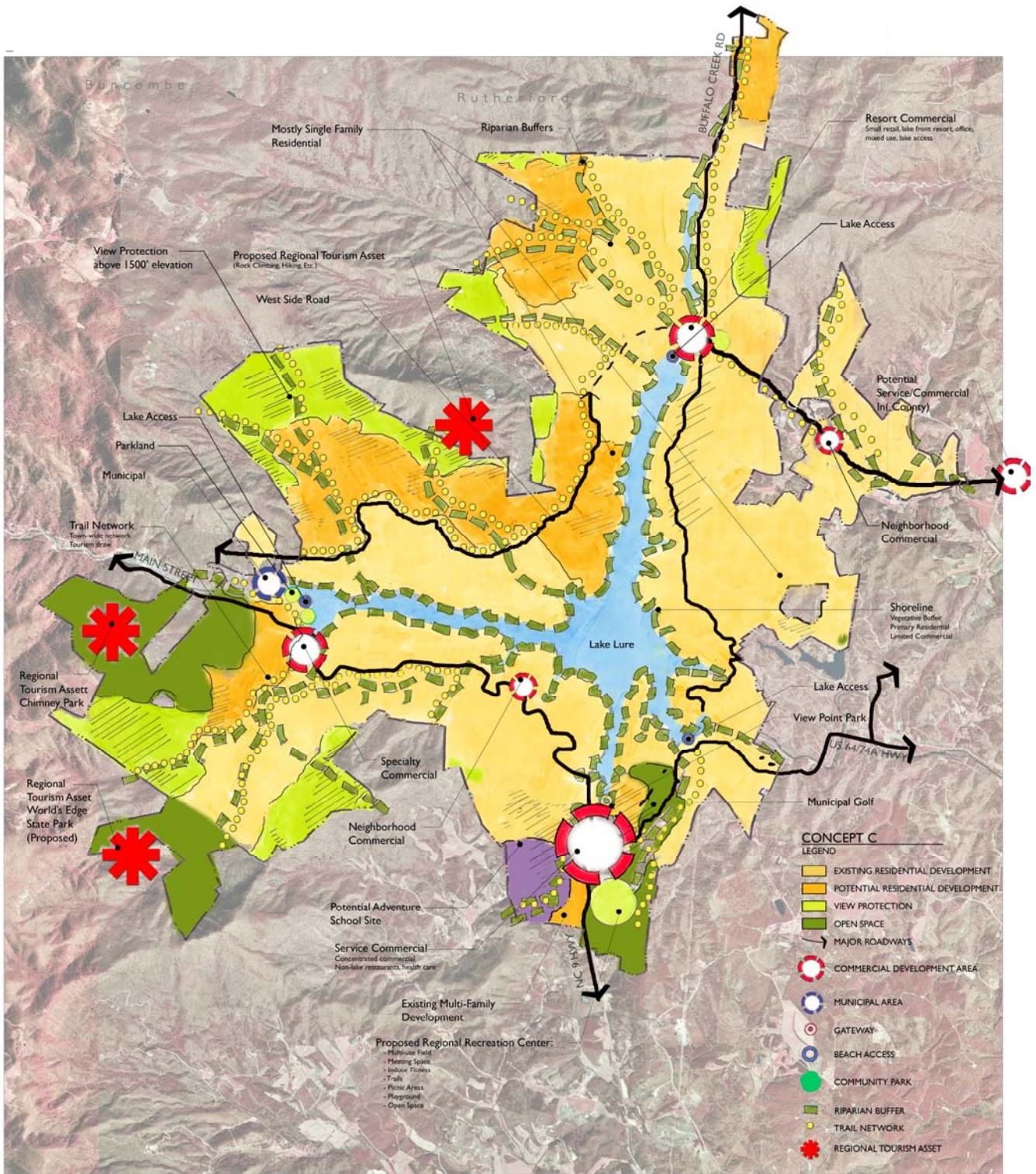


Figure 11 - Concept C

This map is a reduced version of a full-size map on display in the Lake Lure Town Hall.

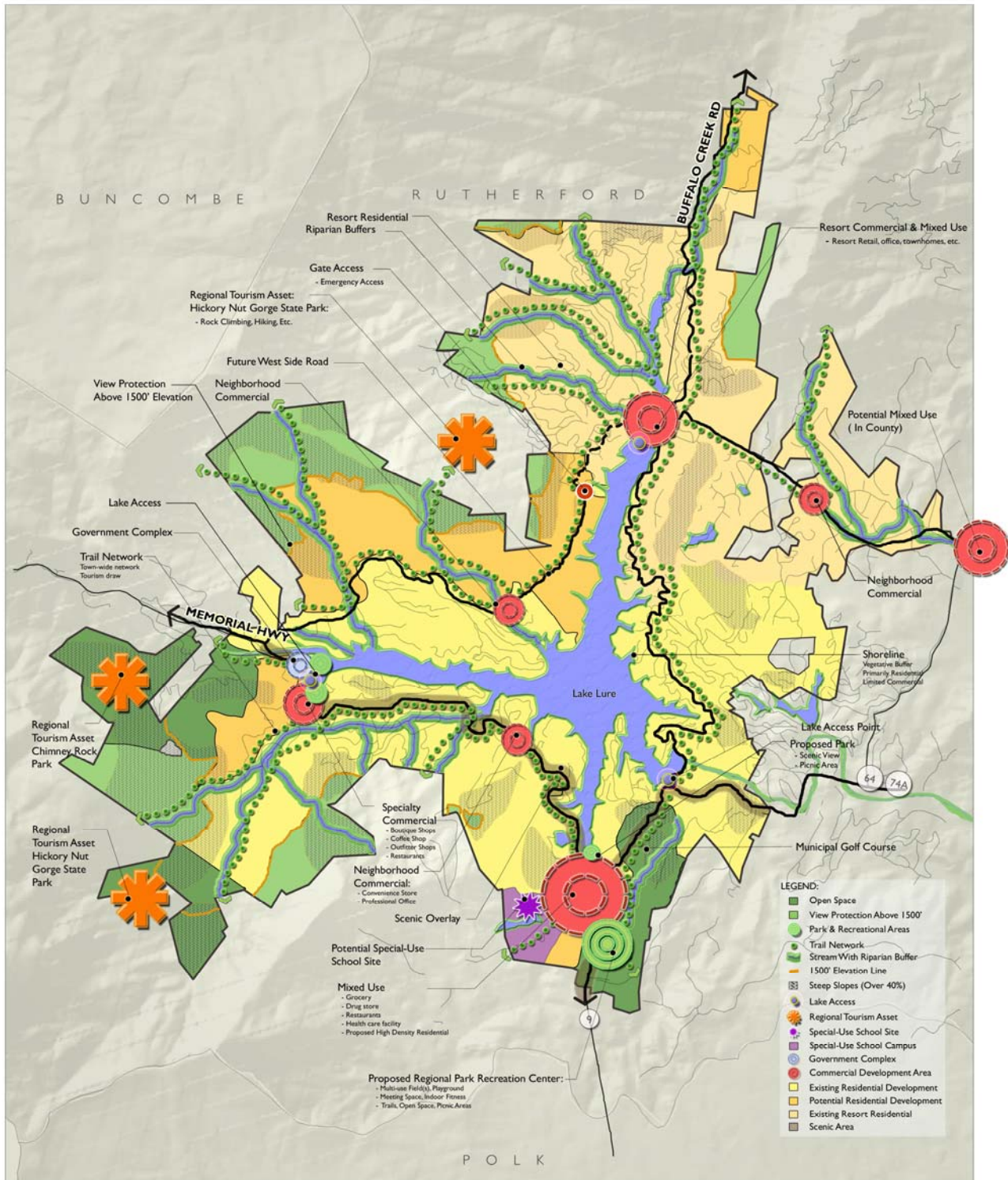
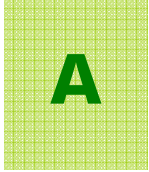


Figure 12 - Final Concept Plan

This map is a reduced version of a full-size map on display in the Lake Lure Town Hall.

The Final Concept Plan is provided as a tool to guide decisions regarding future development and redevelopment. Each specific development / redevelopment proposal should be evaluated against it to determine if the proposal is consistent with the general intent of the Comprehensive Plan.



Appendices Table of Contents

- A. Demographics
- B. Implementation Matrix
- C. 2007 Comprehensive Plan Survey Results
- D. Stakeholders Interviewees
- E. Community Meetings
- F. Resources
- G. Lake Lure Boating Management Plan Review & Recommendations
- H. Lake Lure Dam

DEMOGRAPHICS

The following tables represent information collected from the North Carolina Data Center and the Federal Government's 2000 Census.

Population:

Population Estimates and Projections – Lake Lure, NC

	1980	1990	2000	2010	2020	2030
Population	488	691	1027	1320	1787	2068
Percentage Change	-	42%	48.6%	N/A	N/A	N/A

Source : U.S. Census Bureau - <http://demog.state.nc.us/>

Population Projections - Rutherford County, NC

	1980	1990	2000
Population	53787	56956	62899
Percent Change	-	5.9	10.4%

Source : U.S. Census Bureau - <http://demog.state.nc.us/>

Census Population - 2000 (& Percent Change)

Lake Lure	1,027
Chimney Rock Twp.	2,246
Rutherford County	62,899
North Carolina	8,049,313

Source : U.S. Census Bureau - www.census.gov Summary File 1

Population Breakdown:

The specific gender, age, and age distribution are as follows:

Gender – Lake Lure, NC

Male	501
Female	506

Median Age:

Lake Lure	58.6
Rutherford County	38.3
North Carolina	35.3

DEMOGRAPHICS (CONTINUED)

Age Distribution – Lake Lure, NC

Age	Male	Female
1-5	17	16
6-17	38	36
18-24	16	17
25-34	33	19
35-59	166	182
60-64	58	56
65-84	183	175
85+	10	5
Total	521	506

Source : U.S. Census Bureau, 2000 Census

Housing:

Occupied Housing– Lake Lure, NC

Renter Occupied	67
Owner Occupied	428
Occupied Housing Units	495
Vacant Housing	1462
Total Housing Units	1957

Renter Occupied Housing– Lake Lure, NC

	Lake Lure	NC	US
Renter occupied housing units	67	N/A	N/A
Average number of household members	1.84	2.34	2.36
Average number of vehicles	1.45	1.32	1.19
Median year householder moved in	1997	1995	1998
Median rent asked for vacant units	2,001	440	469

Source: US Census Bureau, 2000 Census

DEMOGRAPHICS (CONTINUED)

Owner Occupied Housing-- Lake Lure, NC

	Lake Lure	NC	US
Owner occupied housing units	21%	61%	60%
Average number of vehicles	4.59	1.61	1.64
Median year structure was built	1983	1979	1971
Median value	196,800	95,800	111,800
Median price asked for vacant home	119,600	97,500	89,600

Source : U.S. Census Bureau, 2000 Census

Home Prices as of 2000 - Lake Lure, NC:

Home Prices	Number Available
Less than \$10,000	0
\$10,000 to \$14,999	0
\$15,000 to \$19,999	0
\$20,000 to \$24,999	4
\$25,000 to \$29,999	0
\$30,000 to \$34,999	0
\$35,000 to \$39,999	2
\$40,000 to \$49,999	2
\$50,000 to \$59,999	10
\$60,000 to \$69,999	6
\$70,000 to \$79,999	14
\$80,000 to \$89,999	5
\$90,000 to \$99,999	5
\$100,000 to \$124,999	43
\$125,000 to \$149,999	27
\$150,000 to \$174,999	35
\$175,000 to \$199,999	27
\$200,000 to \$249,999	67
\$250,000 to \$299,999	44
\$300,000 to \$399,999	37
\$400,000 to \$499,999	11
\$500,000 to \$749,999	14
\$750,000 to \$999,999	9
\$1,000,000 or more	8

Source : U.S. Census Bureau, 2000 Census

DEMOGRAPHICS (CONTINUED)

Income:

Lake Lure's per capita income is as follows:

Income Characteristics– Lake Lure, NC

Median Income (1999)	38,417
Median family Income (1999)	45,833
Per Capita Income	23,459
Families Below Poverty	17
Individuals Below Poverty	99

Source : U.S. Census Bureau, 2000 Census

Median Household Income Distribution – Lake Lure, NC:

Amount	# of House Holds
Less than \$10,000	50
\$10,000 to \$14,999	42
\$15,000 to \$24,999	52
\$25,000 to \$34,999	61
\$35,000 to \$49,999	75
\$50,000 to \$74,999	84
\$75,000 to \$99,999	47
\$100,000 to \$149,999	49
\$150,000 to \$199,999	3
\$200,000 or more	4

Source : U.S. Census Bureau, 2000 Census

Employment:

Occupation – Lake Lure, NC:

Occupations	(%)
Management, professional, and related occupations	40.1%
Service Occupations	17.6%
Sales and office occupations	31.3%
Construction, extraction, and maintenance occupations	3.4%
Production, transportation, and material moving occupations	7.7%

Source : U.S Bureau of the Census, Census 2000

DEMOGRAPHICS (CONTINUED)

Industry:

Commercial and Retail Development: Currently the commercial make-up of Lake Lure and the surrounding communities within the region are composed of the following industries:

Industries - Lake Lure, NC:

	Number	Percent
Agriculture, forestry, fishing and hunting, and mining	0	0.0
Construction	35	9.9
Manufacturing	25	7.1
Wholesale trade	2	0.6
Retail trade	35	9.9
Transportation and warehousing, and utilities	17	4.8
Information	12	3.4
Finance, insurance, real estate, and rental and leasing	36	10.2
Professional, scientific, management, administrative, and waste management services	16	4.5
Educational, health and social services	43	12.2
Arts, entertainment, recreation, accommodation and food services	94	26.7
Other services (except public administration)	18	5.1
Public administration	19	5.4

Source : U.S Bureau of the Census, Census 2000 Table DP-3

Social Characteristics:

School Enrollment & Educational Attainment - Lake Lure, NC:

School Enrollment	#	%
Population 3 years and over enrolled in school	105	100.0
Nursery school, preschool	6	5.7
Kindergarten	8	7.6
Elementary school (grades 1-8)	45	42.9
High school (grades 9-12)	24	22.9
College or graduate school	22	21.0
Education Attainment		
Population 25 years and over	829	100.0
Less than 9th grade	15	1.8
9th to 12th grade, no diploma	41	4.9
High school graduate (includes equivalency)	183	22.1
Some college, no degree	233	28.1
Associate degree	75	9.0
Bachelor's degree	195	23.5
Graduate or professional degree	87	10.5
Percent high school graduate or higher	93.2	(X)
Percent bachelor's degree or higher	34.0	(X)

Source : U.S. Census Bureau, 2000 Census

IMPLEMENTATION MATRIX

The matrix is comprised of a series of “action” items that essentially summarize the policies in the plan (provided in sections 2.0 through 11.0). The implementation matrix was created to be used during the upcoming implementation phase (following the adoption of the comprehensive plan). During this phase, those participating in the monitoring of implementation activities and measuring progress will have this available as a type of worksheet, a starting point in an exercise of prioritizing activities.

The proposed first year activities are indicated by a check in the designated column, and were determined with input from the CPSC and the community members who attended the Third Community Meeting. Those responsible for creating a strategic implementation plan are encouraged to do a thorough evaluation of the priorities indicated based on budget constraints and other relevant circumstances.

Economic Development (From Section 2.0)

POLICY/ACTION REFERENCE	POLICY/ACTION STATEMENT	1st Year	2-5 Years	5+ Years
Policy ED-1-1.1:	Study the potential for recreation and natural resources to be a basis for an economic development strategy.		X	
Policy ED-1-2.1:	Attract a “special-use” school within Lake Lure.		X	
ED-1-2.1: (1)	Evaluate the possibility of attracting a special-use school that is connected to a broader economic development concept.		X	
ED-1-2.1: (2)	Locate potential areas for the special-use school based on criteria such as parcel size, land value, feasibility, accessibility, etc., and promote these sites in communications with potential schools.		X	
Policy ED-1-3.1:	Attract new businesses to town center and service commercial nodes.		X	
ED-1-3.1: (1)	Consult all economic strategists to explore opportunity in Lake Lure’s markets.		X	
ED-1-3.1: (2)	Engage in dialogue with developers and businessmen/women to attract small businesses that are desired within Lake Lure such as boutiques, apparels, restaurants, art centers, sporting goods, etc.		X	
ED-1-3.1: (3)	Promote the town center as a catalyst project.		X	
Policy ED-2-1.1:	Communicate the vision for Lake Lure with the assistance of the Economic Development Commission.		X	
ED-2-1.1: (1)	Start a cohesive marketing package that promotes the vision that is based on the combination of assets in the Lake Lure area.		X	
ED-2-1.1: (2)	Designate a liaison to improve communications with the EDC.		X	
Policy ED-2-1.2:	Improve the special events calendar to include activities year-round.		X	
ED-2-1.2: (1)	Evaluate the current special events programs by various entities and determine areas for improvement through town support to engage residents and visitors in more activities.		X	
Policy ED-2-2.1:	Create gateways from Lake Lure into Hickory Nut Gorge State Park.			X
ED-2-2.1: (1)	Assess tourism attractions and potential businesses that will succeed, such as restaurants, outdoor stores, hotels, horseback riding, trail guides, etc.		X	

ED-2-2.1: (2)	Create small area plans to carefully guide the development of area to preserve the town's character through scale, architecture, and landscaping to maximize business opportunity.			X
Policy ED-2-2.2:	Improve beach appearance and operations.		X	
ED-2-2.2: (1)	Improving the appearance of beach; improve facilities, amenities, and landscape to encourage investment in the town center.		X	
ED-2-2.2: (2)	Expand the operating schedule of the beach beyond peak season months to increase the annual volume of visitation.		X	
Policy ED-2-3.1:	In conducting study if impacts of vacation rentals, consider the effects on tourism and the economy.			

Transportation / Circulation (From Section 3.0)

POLICY/ACTION REFERENCE	POLICY/ACTION STATEMENT	1st Year	2-5 Years	5+ Years
Policy TC-1-1.1:	Develop a detailed town-wide bikeway and pedestrian master plan, and construct facilities in accordance with the plan recommendations.	X		
Policy TC – 1-1.2:	Evaluate the feasibility of providing temporary/hourly boat parking in the town center.		X	
Policy TC – 1-1.3:	If warranted, provide an adequate amount of temporary/hourly boat parking.		X	
Policy TC-1-2.1:	Provide limited transit service during peak season and special events.		X	
Policy TC-1-2.2:	Seek assistance from private transportation providers to provide alternative transportation solutions.		X	
Policy TC-1-2.3:	Support alternative transportation improvements by private development as long as each is consistent with the town’s adopted plans, regulations and guidelines.		X	
Policy TC-1-2.4:	Identify areas on or along roadways, such as NC-9, where pedestrian and bicycle traffic can be safely accommodated.			
Policy TC-2-1.1:	Identify specific areas where roadway improvements are needed, including roads determined to be substandard.		X	
TC-2-1.1: (1)	Enhance the Capital Improvement Program (CIP) by developing a section dedicated to roadway projects for local roads.		X	
TC-2-1.1: (2)	Work with the RPO to update the comprehensive transportation plan to reflect improvements to be made by NCDOT.	X		
Policy TC-2-1.2:	Continue effective communication with organizations, municipalities, and the NCDOT to ensure an efficient and balanced transportation system.		X	

TC-2-1.2: (1)	Continue to coordinate long-range transportation planning projects with adjacent localities, NCDOT, Isothermal RPO and other regional initiatives.		X	
Policy TC-2-1.3:	Require developers to submit a traffic impact analysis, prepared by a licensed professional (traffic engineer), to determine if traffic volumes generated surpass the capacity of the road system and/or a reduction in service level. Require this analysis to be submitted with development plans at the appropriate point in the development approval process.	X		
Policy TC-2-2.4:	Establish design guidelines for roadway improvements that minimize impacts to adjacent properties, such as disturbance or clearing or vegetation.			
Policy TC-2-1.5:	Develop a peak season parking management plan for special events and peak season periods, and execute it.		X	
Policy TC-3-1.1:	Continue to require private roads being constructed within new developments in the town to meet the standards set forth in the subdivision regulations.	X		
Policy TC-3-1.2:	Modify standards in the subdivision regulations to achieve a more sensitive approach to roadway construction.		X	
TC-3-1.2: (1)	Examine issues with and revise maximum grade, tangent length, and vertical and horizontal curve radii of roadways in order to reduce environmental impacts.		X	
TC-3-1.2: (2)	Encourage and explore one-way loops to limit environmental disturbance.			
Policy TC-4-1.1:	Provide for emergency vehicle access on all sides of Lake Lure.		X	
TC-4-1.1: (1)	In the short term, locate emergency vehicles in key locations to ensure response times are minimized.			
TC-4-1.1: (2)	Continue conversations/ negotiations with the Rumbling Bald Resort POA and its representatives regarding emergency vehicle access via a controlled gate on the west side of town in the area shown on the Comprehensive Plan.		X	
TC-4-1.1: (3)	Identify areas that need roadway improvements and identify sources.		X	

TC-4-1.1: (4)	Improve Boys Camp Road to improve safety.			
TC-4-1.1: (5)	Traffic and geometry improvements at US-64/74A and NC-9.			
TC-4-1.1: (6)	US-64 in front of beach to improve parking and roadway interface.			
TC-4-1.1: (7)	Maintain pedestrian-ways to the Town Center and Buffalo Creek Road.			
TC-4-1.1: (8)	Identify substandard roads and bring them up to town standards.			

Utility Infrastructure (From Section 4.0)

POLICY/ACTION REFERENCE	POLICY/ACTION STATEMENT	1 st Year	2-5 Years	5+ Years
Policy UI -1-1.1:	Improve capacity and allocation of it to meet current and future demands for water/sewer service.		X	
UI -1-1.1: (1)	Conduct a water supply analysis and groundwater reconnaissance studies.	X		
UI -1-1.1: (2)	Identify specific areas that should be included in the water distribution system.	X		
UI -1-1.1: (3)	Continue and complete the study to evaluate the current condition of the infiltration/inflow problem as outlined in the 201 Facilities Plan.	X		
UI -1-1.1: (4)	Require that each allocation of sewer capacity or each approved sewage connection has an expiration date. This expiration policy should apply to all new commercial, institutional, industrial and multi-unit residential development.		X	
UI -1-1.1: (5)	Negotiate a long-term agreement with Carolina Water System, including a policy basis for wastewater treatment charges.			
Policy UI -2-1.1:	Develop a long-range infrastructure plan (LRIP) that supports the comprehensive plan.	X		
UI -2-1.1: (1)	Calculate anticipated growth and infrastructure demands.	X		
UI -2-1.1: (2)	Build upon previous body of engineering work, expanding and updating it.	X		
UI -2-1.1: (3)	Establish budgets and a prioritization of water/sewer projects that respond to the anticipated growth and priorities in the comprehensive plan.	X		
Policy UI-3-1.1:	Define the utility provision and extension terms for existing development.		X	
UI-3-1.1: (1)	Adopt a new policy for the existing septic systems to require connection to the town's sewer system as installed and create a program to assist property owners financially as necessary.	X		
UI-3-1.1: (2)	When evidence exists that a given septic system is failing or has a history of failures, require the owner of that septic system to connect to the town's system.			
UI-3-1.2: (1)	Require all new development to provide water and sewer facilities.		X	

UI-3-1.2: (2)	Adopt a policy that will standardize the process for utility system extensions.		X	
UI-3-1.2: (3)	Eliminate “negotiation” process for utilities extension.		X	
Policy UI-4-1.1:	Update the Capital Improvements Program (CIP) to address immediate utility service issues and anticipate/estimate future expenditures.		X	
UI-4-1.1: (1)	Set forth and establish budgets for immediate needs projects and 3-, 5-, and 10-year planning horizon projects.		X	
Policy UI-4-1.2:	Establish funding specifically for the CIP and its necessary actions/improvements.		X	
UI-4-1.2: (1)	Conduct a study to assess revenue projections from current utility customers commensurate with future CIP needs.		X	
UI-4-1.2: (2)	Seek alternative funding sources.		X	
Policy UI-5-1.1:	Create a position for and hire support staff (or consultant) to implement and monitor Lake Lure’s standards, policies, and procedures.	X		

Parks & Recreation (From Section 5.0)

POLICY/ACTION REFERENCE	POLICY/ACTION STATEMENT	1st Year	2-5 Years	5+ Years
Policy PR-1-1.1:	Complete a town-wide parks, recreation, trails and open space plan and execute strategic steps to accomplish its objectives.	X		
PR-1-1.1: (1)	Acquire parkland in accordance to the park and recreation plan in advance and in conjunction with local development.			X
PR-1-1.1: (2)	Evaluate the feasibility of fee in lieu and/or land dedication efforts for the acquisition and development of future public park land.		X	
PR-1-1.1: (3)	Develop a “purchase of development rights” program that can preserve future parks and open space.		X	
Policy PR-1-2.1:	Dedicate a portion of capital improvements program funds specifically for park and recreation projects.		X	
PR-1-2.1: (1)	Evaluate the proposed parks, recreation, trails and open space plan recommended capital projects and strategically determine which projects are achievable in the short, mid, and long-term based on town support and financial capabilities.		X	
Policy PR-1-2.2:	Evaluate all potential sources of funding for park development and recreation planning projects.		X	
PR-1-2.2: (1)	Explore opportunities to secure funding from state and federal park, recreation and trail grants.		X	
PR-1-2.2: (2)	Apply for PARTF Grant Funding		X	
Policy PR-1-3.1:	Acquire and develop park acreage shown as net park and recreation space, exclusive of riparian corridors, wetlands, steep topography, heavily wooded areas and other beneficial natural areas.		X	
PR-1-3.1: (1)	Aggressively pursue conservation easements either through fee simple purchase, purchase of development rights program or voluntary donations.		X	
PR-1-3.1: (2)	Explore and utilize all forms of parkland acquisition, such as fee simple purchase, leasing, property transfers, trades, easements, joint agreements, and private donations to help acquire future park land.		X	
Policy PR-2-1.1:	Create new recreation facilities and programs that are designed in accordance with the American with Disabilities Act (ADA).		X	

PR-2-1.1: (1)	Ensure the parks, recreation, trails and open space plan includes facilities and programming recommendation designed for all age groups.			X
Policy PR-2-2.1:	Adopt LOS standard for recreation parkland at a minimum of 10 acres of park land for every 1,000 full and part time residents.		X	
PR-2-2.1: (1)	Establish and maintain approximately 28 additional acres of park land to service a population of 5,000 (full -time residents, part-time residents and visitors).		X	
PR-2-2.1: (2)	Develop park and recreation facilities that are strategically located throughout the town based on LOS radii.		X	
PR-2-2.1: (3)	Provide recreation facilities and programs that appeal to full-time residents, part-time residents and visitors.		X	
PR-2-2.1: (4)	Develop recreation facilities that can be used year-round, as well as have the capacity to host recreation activities during peak seasonal demand.		X	
Policy PR-2-2.2:	Develop a level of service standard for individual recreation facilities based on ratios of facility type per number of full and part-time resident populations combined.		X	
PR-2-2.2: (1)	Formally classify all existing parks and develop a classification hierarchy for future park development.		X	
PR-2-2.2: (2)	Adopt a park facility level of service measure to ensure a wide variety of individual recreation facilities (tennis courts, baseball fields etc.) are developed within future parks to meet the needs of both full and part-time residents.		X	
Policy PR-2-2.3:	Recognize and plan for potential shifts in demographics and its impact on recreation needs.		X	
PR-2-2.3: (1)	Consider the potential for future demographic changes and how it will effect the utilization of park space and facilities as outlined in the parks, recreation, trails and open space plan.		X	
Policy PR-2-2.4:	Develop a recreation programming action plan as part of a parks, recreation, trail and open space plan.		X	

PR-2-2.4: (1)	Coordinate recreation programming expansion efforts with new park development.		X	
PR-2-2.4: (2)	Coordinate recreation programs with other jurisdictions to provide comprehensive, complimentary and efficient recreation programming opportunities.		X	
PR-2-2.4: (3)	Adopt a benefit-based recreation program philosophy for all programming activities and implement a recreation cost recovery pricing model for all program offerings.		X	
PR-2-2.4: (4)	Provide appropriate and all inclusive recreational programs for all genders, ages, and levels of skill and ability.		X	
PR-2-2.4: (5)	Develop a specific recreational programming strategy and conceptual development plan for each new park site.		X	
Policy PR-2-2.5:	Develop multi-use trails to provide access to parks and open space and to meet demands for walking, hiking, running and biking.		X	
PR-2-2.5: (1)	Prepare a trail system assessment to establish a hierarchy of trails, bicycle and pedestrian facilities in accordance with NC DOT standards as well as a prioritization schedule of all future trail projects such as future trail corridors leading from the proposed Hickory Nut Gorge State Park to the Town Center.		X	
Policy PR-3-1.1:	Develop a community-based recreation tourism strategy to complement regional tourism attractions in order to provide additional strength for the local economy.		X	
Policy PR-3-1.2:	Optimize existing and future community recreation facilities to complement the variety of unique recreation offerings in the region.		X	
Policy PR-3-1.3:	Collaborate with private recreation providers to expand recreational opportunities and program offerings.		X	
Policy PR-3-1.4:	Collaborate with area counties and the state to develop regional recreation offerings.		X	

Policy PR-3-2.1:	Develop an education program that highlights the quality of life benefits of becoming active in local parks and recreation offerings.		X	
Policy PR-3-2.2:	Develop an education program depicting how future parks and recreation improvements can complement and enhance the local tourism economy.		X	
Policy PR-3-3.1:	Continue to use the existing Parks Advisory Board to help coordinate future park and recreation expansion efforts.		X	
PR-3-3.1: (1)	Hire a director whose basic duties include planning, organizing, and executing community events, recreation programs, services, and will be held accountable for park planning and park development, and ongoing capital improvements to park and recreation facilities in concert with Public Works and Community Development.		X	
PR-3-3.1: (2)	Create a yearly funding source from the capital budget for the Parks, Recreation and Special Event Department operations.		X	

Lake Management (From Section 6A)

POLICY/ACTION REFERENCE	POLICY/ACTION STATEMENT	1 st Year	2-5 Years	5+ Years
Policy LMDS-1-1.1:	Utilize a “run of the river” operation of the hydroelectric facility at the dam to maintain a constant lake level (within six (6) inches of the full pond level of 990 feet above MSL) unless droughts, floods, utility purposes, or required maintenance necessitate retention or release.			
LMDS-1-1.1: (1)	Install gauges on tributaries for the purposes of monitoring flows into the lake.			
Policy LMDS-1-1.2:	Manage operations in accordance with all applicable regulations and standards.			
LMDS-1-1.2: (1)	Adhere to DENR dam safety requirements.			
LMDS-1-1.2: (2)	Annually review FERC, EPA and other pertinent regulatory agency requirements.			
LMDS-1-1.2: (3)	Update the SOP Manual when any changes are made to the dam/sewer plant operation.			
LMDS-1-1.2: (4)	Lower the lake level approximately five (5) feet during the winter months for maintenance every third year.			
Policy LMDS-1-1.3:	Clearly establish the town’s right to retain water within the impoundment at the discretion of the dam’s management.			
Policy LMDS-2-1.1:	Utilize the latest technology to monitor, maintain and improve the efficiency of the sewer system and protect the water quality of the lake.			
Policy LMDS-2-2.1:	Establish standards for the “private” lines which connect to the manholes and define right-of-way easements to facilitate connections for lakefront properties.			
Policy LMDW-1-1.1:	The town will establish a maintenance dredging program.			
LMDW-1-1.1: (1)	Update all lake bed profiles and depth soundings on an annual basis.			
LMDW-1-1.1: (2)	Based on the readings, prioritize the schedule for maintenance dredging.			
LMDW-1-1.1: (3)	Utilize hydraulic and mechanical dredging equipment to keep these key areas at historic depths.			

LMDW-1-1.1: (4)	Create settling basins to trap the sediment in accordance with the rules set forth in the Clean Water Act with appropriate permits from DWQ and USACE.			
LMDW-1-1.1: (5)	The town will contribute a minimum of \$100,000 per year from lake receipts (including boat permits) to a capital reserve fund for maintenance dredging activities.			
Policy LMDW-1-2.1:	The town will contribute a minimum of \$100,000 per year from lake and hydro fund receipts to a capital reserve fund for emergency excavation after a major storm event or accumulation that was not captured by the maintenance dredging.			
Policy LMDW-2-1.1:	Mitigate the effects of land disturbance.			
LMDW-2-1.1: (1)	The town will support the work of local watershed stabilization organizations.			
LMDW-2-1.1: (2)	The town will enact and enforce local land disturbance regulations to prevent damage to all of the waterways within the planning and zoning jurisdiction of the town.			
LMDW-2-1.1: (3)	Reclamation to pre-construction depths will be the financial responsibility of any party found in violation of land disturbance regulations that result in sedimentation altering lake depths (shallower than pre-construction depths).			
Policy LMEP-1-1.1:	Reduce the impact of emergencies.			
LMEP-1-1.1: (1)	The town's emergency coordinator will annually update and regularly publicize the town's emergency action plans and warning protocol.			
LMEP-1-1.1: (2)	Equipment and shelters used for such emergencies will be maintained in good condition.			
LMEP-1-1.1: (3)	Monitoring of water quality will be done on a monthly basis unless <i>E. coli</i> colonies exceed 250 parts per million (PPM) – in which case the testing will be performed weekly until the source of the contamination is discovered and stopped.			
LMEP-1-1.1: (4)	The town's fireboat will be maintained and manned for rapid response to shoreline and boat fires.			

Policy LMFE-1-1.2:	Establish a communication program for notifying citizens of emergency situations and activities (Web site, phone calls, color flags on the lake, etc.).			
Policy LMFE-1-1.1:	Regulate land disturbance activities and protect delicate wetlands and marshes as a means to preserve the exceptional water quality and the habitat for aquatic life in Lake Lure and its tributaries.			
Policy LMFE-2-1.1:	The town will contract with independent biologist(s) on a periodic basis to analyze the lake's fishery resource to report on its health and make recommendations for stocking program.			
Policy LMFE-2-2.1:	The town will stock the lake annually based on the biologist's recommendations.			
Policy LMFE-2-3.1:	Fishing activities will be regulated through regulations established by the Lake Lure Marine Commission and the NC WRC. These regulations will be actively enforced by the town's lake patrol.			
Policy LMLS-1-1.1:	Improve the safety and appearance of the structures permitted within the boundaries of Lake Lure.			
LMLS-1-1.1: (1)	Develop minimum appearance and material standards for all lake structures developed in the future.			
LMLS-1-1.1: (2)	Identify all shoreline areas subject to substantial erosion and establish an erosion control plan to mitigate it.			
LMLS-1-1.1: (3)	Update and enforce construction standards for the various types of lake structures for safety and appearance.			
LMLS-1-1.1: (4)	Communicate and coordinate between the town council, marine commission, Lake Structures Appeals Board, Community Development Department, and all outside governmental agencies that oversee such lake structures to ensure compliance with current laws and regulations.			
LMLS-1-1.1: (5)	Conduct a review of all existing lake structures to ensure proper maintenance.			
Policy LMLS-2-1.1:	Develop a long-range plan for shoreline structures for environmental and boat user needs.			

LMLS-2-1.1: (1)	Determine the number of marinas and locations.			
LMLS-2-1.1: (2)	Determine the number and locations of cluster moorings.			
LMLS-2-1.1: (3)	Review the number of slips allotted to marinas, cluster moorings, and individual lot owners according to their shoreline measurements.			
Policy LMR-1-1.1:	Review all of the town's lake ordinances on an annual basis to ensure the health, safety and welfare of the users of the lake are considered and followed.			
LMR-1-1.1: (1)	Commercial boating operations shall be regulated separately by the marine commission after review by the Lake Advisory Committee (LAC) for the varied forms of business activities. Currently there are eight (8) categories with specific permit levels for each, different permit costs, and various operating restrictions.			
LMR-1-1.1: (2)	Non-commercial boating operations shall also be regulated by the marine commission after review by the LAC with different permit costs for non-residents and residents. Permit limits exist for both non-residents and residents. Also established are horsepower limits and specified hours of operation.			
LMR-1-1.1: (3)	Safe swimming practices are limited to specific beach areas or when accompanied by a boat unless within 50 feet of shore.			
LMR-1-1.1: (4)	Placement of slow-no-wake buoys 75 feet from the shoreline in selected locations are to protect boaters and swimmers.			
LMR-1-1.1: (5)	Special events such as those of the Lake Lure Ski Club, visiting rowing teams and other users need to be approved by the marine commission after review by the LAC.			
LMR-1-1.1: (6)	Evaluation of the operational cost of the lake should be completed annually to inform the LAC concerning the future cost of permits to use the lake.			

LMR-1-1.1: (7)	The Hickory Nut Gorge Chamber of Commerce, the town and other organizations should promote lake recreational activities during the non-peak season as this time is currently underutilized. The Olympiad has also recently had several lake activities during the peak season.			
LMR-1-1.1: (8)	The town shall perform water quality checks in selected locations monthly during the peak season and as needed in the non-peak season to ensure the safe use of the lake. Corrective actions are mandatory when unsafe conditions occur.			
Policy LMLE-1-1.1:	Utilize a schedule of minimum on-water patrol requirements.			
Policy LMLE-1-1.2:	Define the expectations for lake enforcement patrol activities.			
LMLE-1-1.2: (1)	Establish and maintain positive relationships with boaters.			
LMLE-1-1.2: (2)	Increase boater education.			
LMLE-1-1.2: (3)	Retain the option to issue warnings instead of citations.			
LMLE-1-1.2: (4)	Conduct regular shoreline inspections.			
LMLE-1-1.2: (5)	Perform periodic boat permit checks.			
LMLE-1-1.2: (6)	Perform fishing license checks.			
Policy LMLE-1-1.3:	Focus lake patrol on critical areas:			
LMLE-1-1.3: (1)	Wake speed in no-wake zones.			
LMLE-1-1.3: (2)	Wake speed before or after hours.			
LMLE-1-1.3: (3)	Towing more than two (2) individuals.			
LMLE-1-1.3: (4)	Rental boat operators.			
LMLE-1-1.3: (5)	Boats without permits.			
LMLE-1-1.3: (6)	Unsafe boating.			
Policy LMLE-2-1.1:	Establish procedures for handling all lake-related citizen calls.			
LMLE-2-1.1: (1)	Emergency calls should be made to 911.			
LMLE-2-1.1: (2)	Other calls for lake enforcement should be made to the police non-emergency line: 625-4685.			

LMLE-2-1.1: (3)	During regular hours, calls are answered by police department and dispatched at the police station. When the police department is not manned, calls are answered by Rutherford County Central Communications.			
LMLE-2-1.1: (4)	100% of all lake/boating calls to these numbers must be documented with the following information: date and time, caller name, caller phone number, activity or issue reported, area of lake.			
LMLE-2-1.1: (5)	In cases where a citizen call requests an investigation or enforcement action, a follow-up call should be made to provide the citizen with details of the response (e.g., was an officer dispatched, was there intervention?)			
Policy LMLE-3-1.1:	Provide additional information on patrols, observations and enforcement actions that will be used to guide future policies and regulations.			
LMLE-3-1.1: (1)	Patrol log.			
LMLE-3-1.1: (2)	Recorded activities.			
LMLE-3-1.1: (3)	All citations and warnings should be recorded with the following minimum information: operator information (name and address), owner information (if different from operator), observed activity or ordinance infraction.			
Policy LMLE-3-1.2:	Produce regular reports that are to be used by the police department, marine commission and Lake Advisory Committee.			
Policy LMLE-4-1.1:	Regulate boat ramp operations.			
LMLE-4-1.1: (1)	Launch Ramp Operation Permit.			
LMLE-4-1.1: (2)	Secure Launch Ramps.			
LMLE-4-1.1: (3)	Launch Ramp Signs.			
Policy LMLE-5-1.1:	Staff a permanent position of Lake Operations Director to coordinate and execute the myriad lake-related activities, recordkeeping and reporting. This position should be the primary on-water education and enforcement presence.			
Policy LMLE-5-1.2:	Prepare a standard operations manual for all lake-related activities. This manual will detail staff policies, procedures and expectations.			

Boat Management (From Section 6B)

POLICY/ACTION REFERENCE	POLICY/ACTION STATEMENT	1 st Year	2-5 Years	5+ Years
Policy LMBA-1:	Use permitting system to control density as much as possible.			
LMBA-1: (1)	Limit number of permits for boats >10 hp. Based on experience and data for Lake Lure, 1000 peak season permits can be issued. It is unlikely that more than 1100 permits can be issued. 15 weekly permits count as 1 peak season permit. Permits issued in 2005 and 2006 were <1000, so no resident was denied a non-commercial permit for capacity reasons. Start with 1000 permits, perform boat surveys when limit is reached, determine if average boat density on nice weather, summer weekends and holidays has noticeably increased. If not, consider adding 25-50 permits. Repeat study until 10 ac/boat threshold is crossed at unacceptable level (measured in one 2-hr period over 3 days of observation in 2006; suggest threshold at one 2-hr period on all 3 days of observation going forward).			
LMBA-1: (2)	Boating operator training/licensing may limit the number of boats on the lake by virtue of need for trained operator at all times. Although there is no limit on how many operators become trained, this may limit access by transient potential boaters, allowing more permits to be offered with no increase in actual boat density, on average.			
LMBA-1: (3)	Utilize a transferable permit that could be issued to all holders of multiple permits for boats >10 hp, ensuring that only one boat could be used on the lake during peak season weekends and holidays.			
Policy LMBA-2:	Require education and training of all boat operators.			
LMBA-2: (1)	Education and training of boat operators. Require all operators to complete a boat operation and safety course, either a standard course like that offered by the Coast Guard or a specific course developed for Lake Lure. Provide information on local rules and courtesy policies, and require a signature on a form acknowledging that the operator understands these rules and policies. Provide trained operators with a Lake Lure Boating License.			
LMBA-2: (2)	Require a trained operator to be on any boat >10 hp whenever it is operated. Require anyone under the age of 16 (trained or not) to be accompanied by a trained operator 16 years of age or older.			

Policy LMBA-3:	Implement additional level of boating management controls.			
LMBA-3: (1)	Establish a rule that boats moving at more than “headway” speed (can be defined as no wake or a specified speed limit, typically 6 mph) must remain >75 ft from any other boat or person (swimmer, downed skier, etc.). Where boat density increases to a potentially unsafe level, this will restrict high speed activities, eliminating towing and faster cruising.			
LMBA-3: (2)	Avoid a ban on towing or establishment of a speed limit on summer weekends and holidays since this appears to be an unacceptable option, as it would restrict privileges unnecessarily much of the time.			
Policy LMBA-4:	Provide adequate enforcement and presence of town authorities on the lake.			
LMBA-4: (1)	Provide appropriate enforcement. Based on documented use pattern, a patrol boat should be on the lake at all times from 11 AM to 7 PM on nice weather, summer weekends or holidays. The patrol boat can be on the lake less continuously at other times and on other days. Enforcement should focus on education of boaters and record keeping for infractions, with fines or other actions directed against repeat offenders.			
LMBA-4: (2)	Provide a call in number for citizens to contact the enforcement agency or lake operations director to report observed violations. Respond to notification within 30 minutes. Keep records of calls to track both offense frequency and possible abuse of the system. Additionally, consider a “license plate” system (to replace stickers) that would provide more information to enforcement officers.			
Policy LMBA-5:	Adjust permit limits where possible to expand access during low use periods.			

LMBA-5: (1)	Offer weekday only permits during the peak season. There is unused capacity during the week (except on holidays); at least a 25% increase in traffic by boats >10 hp could be sustained with minimal increase in risk. An initial limit of 250 weekday only permits is suggested.			
LMBA-5: (2)	Make “Weekly Permits” a weekday only permit. Also, if pressure to get more boats >10 hp on the lake increases beyond what the permit system can accommodate, it would be advantageous to establish a “yacht club” with community owned boats that could be signed out by members. This would come out of the commercial allocation of acre-hours (with possible expansion of that allocation), and would provide opportunity for those who can’t get or don’t want boat permits but would like to use the lake for higher speed activities. The community ownership concept allows much greater predictability and control with regard to boat density and operator safety.			

Community Services & Facilities (From Section 7.0)

POLICY/ACTION REFERENCE	POLICY/ACTION STATEMENT	1st Year	2-5 Years	5+ Years
Policy SF-1-1.1:	Relocate specific buildings to effectively utilize land use by creating space for future development. Determine and evaluate alternative sites for relocation of the town's maintenance yard located within the town center.		X	
Policy SF-1-1.2:	Improve government-owned buildings and land to fulfill future staff requirements.		X	
SF-1-1.2: (1)	Consider expansion of the existing town marina building as future demand rises.		X	
SF-1-1.2: (2)	Evaluate future expansion options for the municipal golf course buildings.		X	
SF-1-1.2: (3)	Evaluate the potential to locate future town offices adjacent to the community center in order to fulfill future capacity needs.		X	
SF-1-1.2: (4)	Evaluate the need for expanding or relocating the police department facility (e.g. wing of municipal center).		X	
SF-1-1.2: (5)	Explore opportunities with the state to develop parking and building facilities to accommodate tourist and resident visitation to the proposed Hickory Nut Gorge State Park.			
Policy SF-2-1.1:	Provide special educational services within the town to inform public of Lake Lure's historical, natural, and cultural assets.		X	
SF-2-1.1: (1)	Encourage a special use school, such as a cultural, environmental or technical school.		X	
SF-2-1.1: (2)	Communicate regularly with Rutherford County Schools.		X	
SF-2-1.1: (3)	Encourage participation in school board meetings, and have representation on the school board.		X	
SF-2-1.1: (4)	Establish annual (or more frequent, if warranted) meetings with a representative of Rutherford County Schools to review and discuss information collected by both the town and Rutherford County Schools.		X	
Policy SF-2-1.2:	Attract an arts school and performing arts program.			

SF-2-1.2: (1)	Evaluate the need for an art school and performing art program.			
SF-2-1.2: (2)	Coordinate with regional artisan groups such as the Performing Arts Center and Rutherford County Arts Council.			
SF-2-1.2: (3)	Evaluate and determine potential locations for amphitheatres, stages and facilities based on criteria such as land value, feasibility, accessibility, etc.			
Policy SF-2-1.3:	Improve emergency services throughout the town.	X		
SF-2-1.3: (1)	Develop recruiting efforts and network to increase the number of fire and EMS volunteers to ensure response times are not increased with the growth of town.	X		
SF-2-1.3: (2)	Develop an EMS facilities plan to identify needs related to future growth.	X		
SF-2-1.3: (3)	Consider hiring paid firefighters to increase existing levels of fire services.	X		
SF-2-1.3: (4)	Explore options for increasing police staff to allow two full-time police officers to be on duty at all times.	X		
SF-2-1.3: (5)	Communicate with Lake Lure employers to request their support for employee participation as volunteers in emergency services programs.	X		
SF-2-1.3: (6)	Develop a police department facilities plan to identify needs related to future growth.	X		
SF-2-1.3: (7)	Maintain sites identified as area helicopter landing zones for use in emergencies.	X		
SF-2-1.3: (8)	Continue conversations with the Rumbling Bald Resort POA to determine ways to eliminate the barriers to circulation created by the resort's security gates, at least for emergency access.	X		
Policy SF-2-1.4:	Improve access to medical facilities and services.			
SF-2-1.4: (1)	Accommodate medical facilities in town by modifying zoning (regulations and map) so that such facilities can locate in areas identified as suitable in the plan.			

Policy SF-3-1.1:	Explore opportunities for bringing the community together for social interaction and networking through special event offerings.	X		
SF-3-1.1: (1)	Conduct a survey to determine the types of social activities residents would like to see developed.	X		
Policy SF-3-1.2:	Attract an arts school and performing arts program		X	
SF-3-1.2: (1)	Evaluate the need for an art school and performing art program.		X	
SF-3-1.2: (2)	Coordinate with regional artisan groups such as the Performing Arts Center and Rutherford County Arts Council.		X	
SF-3-1.2: (3)	Evaluate and determine potential locations for amphitheatres, stages, and facilities based on criteria such as land value, feasibility, accessibility, etc.		X	

Community Appearance & Design Standards (From Section 8.0)

Policy CA-1-1.1:	Develop design guidelines that supplement standards contained in the zoning regulations and convey the community's expectations.	X		
CA-1-1.1: (1)	Gather public input and create an inventory of a full range of features that contribute to the character of the town.	X		
CA-1-1.1: (2)	Create a set of community design guidelines (visual manual) to align future development with Lake Lure's sense of place.	X		
CA-1-1.1: (3)	Improve public buildings and civic space in accordance with the guidelines to demonstrate importance of adhering to them.			X
Policy CA-1-1.2:	Develop and adopt a scenic overlay zoning district that applies to the designated NC Scenic Byway corridor.	X		
Policy CA-1-1.3:	Develop streetscape design guidelines.	X		
CA-1-1.3: (1)	Enhance roadway corridors by developing uniform standards for streetscape elements. The design of each and the combination of them shall reinforce the town's character. Guidelines may address a wide range of elements including sidewalks, bicycle facilities, landscaping, signage and lighting and other streetscape amenities, street intersection crosswalks.	X		
CA-1-1.3: (2)	Coordinate with NCDOT to ensure such guidelines may be implemented within NCDOT rights-of-way.	X		
CA-1-1.3: (3)	Implement streetscape design guidelines in the town center.	X		
Policy CA-1-2.1:	Develop a study to identify structures that locally have historic value.			
Policy CA-1-3.1:	Develop gateways for the entrances to Lake Lure	X		
CA-1-2.1: (1)	Define gateways to Lake Lure and develop a coordinated set of design plans for all gateways to create a uniform sense of arrival at the entrances of the town.	X		

Policy CA-1-4.1:	Limit light and noise pollution		X	
CA-1-4.1: (1)	Develop a regulation to restrict light pollution, controlling foot-candles, specifying down-lighting, and a maximum height for cut-offs / directional parking and other light luminaries.		X	
CA-1-4.1: (2)	Identify the most common sources of noise pollution and develop regulations to minimize them (i.e., motorcycles).		X	
Policy CA-1-5.1:	Consider extending Lake Lure’s current and future regulations to areas beyond Lake Lure’s current jurisdiction if an extraterritorial jurisdiction (ETJ) is established.	X		
CA-1-5.1: (1)	Identify areas that are beyond Lake Lure’s boundaries that are visible and could directly impact the appearance and image of the town if developed. Determine how town’s regulations would offer protection from negative impacts, and strengthen regulations as appropriate.	X		
CA-1-5.1: (2)	Apply the town’s regulations to areas within the ETJ once established, as appropriate.	X		

Government & Administration (From Section 9.0)

POLICY/ACTION REFERENCE	POLICY/ACTION STATEMENT	1st Year	2-5 Years	5+ Years
Policy GA -1-1.1:	Improve current municipal staffing efficiency and effectiveness.	X		
GA -1-1.1: (1)	Hire a short-range planner/subdivision administrator to facilitate subdivision plan review and manage short-range projects.	X		
GA -1-1.1: (2)	Building on the recent personnel study, conduct a ‘staffing study’ to determine short and long-term additions to all staffing areas to handle the anticipated workload that will be driven by adopted comprehensive plan policies and future growth. More specifically, the study should (a) determine what skills current staff members possess, (b) identify gaps given the proposed first-year implementation activities recommended in the comprehensive plan, (c) define the type and number of positions to be added, and (d) create the appropriate job descriptions for the positions to be advertised and filled. Based on the results and recommendations of the staffing study, determine the budget requirements to hire and accommodate additional staff (salary, office space, equipment purchases, etc.). If budget limitations warrant, prioritize the filling of positions, and proceed with hiring for the positions identified as high priority.	X		
Policy GA -1-1.2:	Ensure policies and regulations are enforced thoroughly.		X	
GA -1-1.2: (1)	Clearly define the responsibilities of each department for enforcement of existing regulations.		X	
GA -1-1.2: (2)	Seek opportunities to bridge gaps and perform monitoring in an efficient manner.		X	
GA -1-1.2: (3)	Hire additional field staff for inspections and enforcement as new regulations are adopted, as needed.		X	
GA -1-1.2: (4)	Create and publish a document that clearly lists all fines and possible infractions.		X	
Policy GA -1-1.3:	Utilize technology (GIS) for better information management, evaluation of development proposals, and better enforcement.	X		
Policy GA -2-1.1:	Consider ways to improve operations.		X	
GA -2-1.1: (1)	Evaluate all such operations and conduct a cost/benefit analysis.		X	

GA -2-1.1: (2)	Commission a study to evaluate the benefits of outsourcing the management of operations and/or maintenance of any town-owned facility.		X	
GA -2-1.1: (3)	Explore options that may result in increased revenues with second party involvement, such as: (1) Evaluate the possibility of expanding the operations of the golf course to include a secondary set of services (e.g. restaurant) that would create a revenue stream year round. (2) Explore possibility of further investment (e.g. capital improvements and expansion of course to 18 holes) to improve future revenue streams. Analyze the possibility of increased lease revenues with or without further investment (e.g. restrooms, cart barn, and additional facilities).		X	
Policy GA -2-1.2:	Improve the municipality's annual revenue streams.	X		
GA -2-1.2: (1)	Evaluate and consider an appropriate increase in soil/erosion violation fees. Use the estimated revenue from this fee to offset the cost of services provided by the town related to water quality or enforcement.	X		
GA -2-1.2: (2)	Explore options for and establish other fees that can be charged as a flat monthly fee to cover specific costs.	X		
GA -2-1.2: (3)	Evaluate Lake Lure's budget over the past 10 years to determine annual increase in cost of services to justify any proposed fee increases. Review existing fees for annexation, boat permits, tap fees for sewer water, facility rental, fire inspection, golf course, marina rental, water/sewer rates, and zoning/land uses permit fees, and increase where needed.	X		
GA -2-1.2: (4)	Increase the commercial property tax base by increasing the amount of commercial and mixed-use development in appropriate locations (e.g. commercial service node, town center node, etc.)		X	
GA -2-1.2: (5)	Seek grants to supplement the current revenue streams, as discussed in sections 2-10.	X		
Policy GA -2-1.3:	Enhance the Capital Improvement Plan (CIP)	X		
GA -2-1.3: (1)	Broaden the Capital Improvement Plan to include additional specific categories as needed.	X		
GA -2-1.3: (2)	Develop a three, five, and 10-year schedule for all capital improvement plan categories.	X		
Policy GA-3-1.1:	Create an educational outreach program.		X	

GA-3-1.1: (1)	Develop an educational section on the Web site that conveys information on a wide variety of topics, including regulations, the environment, conservation easements, etc.		X	
GA-3-1.1: (2)	Consistently update the monthly newsletter and post to the Web site at a set designated time each month.		X	
GA-3-1.1: (3)	Conduct a survey to determine the best ways to communicate information to all property owners.			
GA-3-1.1: (4)	Create avenues for trained volunteers to submit photos and other evidence of issues, particularly violations of codes, to town staff.			
Policy GA-3-1.2:	Increase awareness of policies and regulations adopted by the town.	X		
GA-3-1.2: (1)	Create a system of delivering information to the public notifying them of policy and regulation changes. Timely notification for review and comment on new regulations and policies before they are adopted is also important.	X		
GA-3-1.2: (2)	Publish a list of code violations on town's Web site.	X		
GA-3-1.2: (3)	Create a page that allows the public to review, search, and understand codes in an interactive manner. Include a variety of written examples or illustrations of how the codes should be followed. Provide examples of infractions and clearly state the problem with the infractions for illustration purposes.	X		

Natural Environment & Open Space (From Section 10.0)

POLICY/ACTION REFERENCE	POLICY/ACTION STATEMENT	1 st Year	2-5 Years	5+ Years
Policy NE-1-1.1:	Raise awareness of open space conservation initiatives and benefits.		X	
NE-1-1.1: (1)	Conduct public meetings and open forums to inform the public of current environmental initiatives.		X	
NE-1-1.1: (2)	Educate developers and real estate agencies about the value of the environment, open space and recreational opportunities available in homebuyers' decisions.			
Policy NE-2-1.1:	Identify open space worthy of protection, such as environmentally sensitive areas, and pursue protection through a range of methods.		X	
NE-2-1.1: (1)	Formally define "environmentally sensitive" areas and locate accordingly.	X		
NE-2-1.1: (2)	Pursue conservation easements for natural areas identified in the composite map.		X	
NE-2-1.1: (3)	Create a trust that allows donators to transfer their property to the town for preservation purposes.		X	
NE-2-1.1: (4)	Consider partnering with state-funded agencies, universities and private conservation groups to undertake the inventory.			
NE-2-1.1: (5)	Explore the potential to collect land transfer fees that could fund a specific activity, such as land acquisition for open space purposes to preserve environmentally sensitive areas.		X	
Policy NE-1-1.3:	Improve all developments by promoting environmental conservation in the development process.		X	
NE-1-1.3: (1)	Require a fixed percentage of land to be set aside as open space in all future residential developments.	X		
NE-1-1.3: (2)	Establish methods to limit or restrict 'clear cutting' techniques in all developments.	X		
NE-1-1.3: (3)	Incorporate tree protection regulations into the zoning regulations so they apply to all development types, not just subdivisions.	X		

NE-1-1.3: 4)	Establish a “Purchase Development Rights Program” that allows the town to purchase development rights from land owners for conservation purposes.		X	
NE-1-1.3: (5)	Allow conservation subdivision development as a by-right option in all residential districts.		X	
NE-1-1.3: (6)	Explore the possibility of creating a financial incentive program for conservation development.			X
Policy NE-1-1.4:	Consider environmental value of land owned by the town.			
NE-1-1.4: (1)	In conducting inventory, document clearly the characteristics of parcels owned by the town that meet environmental objectives.			
NE-1-1.4: (2)	Utilize data contained in the detailed inventory, if conducted, to identify parcels to be acquired by the town.			
Policy NE-2-1.1:	Ensure open space is linked via trails, greenways, and open space corridors throughout the town.	X		
NE-2-1.1: (1)	Create an open space plan.	X		
Policy NE-2-1.1:	Seek opportunities to link open space (existing and proposed) in Lake Lure to adjacent open space to create a regional system of open space.		X	
NE-2-1.1: (1)	Establish a regional effort that targets environmental conservation within and outside of Lake Lure’s jurisdictional limits.	X		
NE-2-1.1: (2)	Host regular meetings with neighboring jurisdictions to coordinate open space preservation efforts.		X	
Policy NE-3-1.1:	Minimize negative impacts from grading on steep slopes and post-construction stormwater run-off.	X		
NE-3-1.1: (1)	Define steep slopes relative to topography in Lake Lure specifically.	X		
NE-3-1.1: (2)	Modify subdivision regulations to minimize density and grading impacts on steep slopes.			
NE-3-1.1: (3)	Adopt regulations to minimize grading impacts on steep slopes within non-residential development or any type of development not subject to subdivision regulations.			
Policy NE-4-1.1:	Monitor water quality regularly.			

NE-4-1.1 (1)	Establish better, more regular means of communication with the State of North Carolina, specifically the DWQ, to strengthen efforts to test stream pollutant levels, water temperature, etc.			
Policy NE-4-1.2:	Establish effective buffers as a way of strengthening water quality protection measures.	X		
NE-4-1.1: (1)	Increase the width of the required lake edge buffer and require stream buffers.	X		
NE-4-1.1: (2)	Specify in regulations accepted methods for delineating buffer zones.		X	
NE-4-1.1: (3)	Establish minimum planting requirements to ensure adequate buffer vegetation.	X		
NE-4-1.1: (4)	Establish limitations for clearing within the required buffer to ensure the effectiveness of the buffer is maintained.	X		
NE-4-1.1: (5)	Avoid embankment fill for bridge approaches, using causeways over floodplain to preserve existing vegetation wherever possible.	X		
NE-4-1.1: (6)	Review staff resources and add personnel as needed to adequately monitor adherence to buffer regulations.	X		
Policy NE-4-1.3:	Manage upstream development activities that result in sedimentation and other impacts that threaten water quality.		X	
NE-3-1.2: (1)	Conduct a Watershed Study to specifically identify regional erosion and sedimentation issues and problem areas that directly impact Lake Lure.		X	
NE-3-1.2: (2)	Evaluate impervious cover impacts on surface water hydrology, quality, and ecology.		X	
NE-3-1.2: (3)	Classify “Watershed Study” into three broad impact classifications: low, medium, and high.		X	
NE-3-1.2: (4)	Adopt regulations to mitigate impacts in accordance with the findings of the Watershed Study.		X	
Policy NE-3-1.4:	Utilize the recently established Geographic Information System (GIS) to better inform development approval decisions.	X		
NE-3-1.4: (1)	Use Spatial Analyst to better understand steep slope conditions	X		

NE-3-1.4: (2)	Map soil types to locate highly-erodible soils and aid decisions for erosion control measures.	X		
NE-3-1.4: (3)	Utilize updated floodplain maps improve accuracy of floodplain area and to enforce floodplain regulations	X		
Policy NE-3-1.5:	Educate the public about importance of water quality.		X	
NE-3-1.5: (1)	Educate public about buffers and benefits of maintaining existing native vegetation.		X	
NE-3-1.5: (2)	Create an informational pamphlet and distribute to businesses, private landowners, and developers to inform them of environmental impacts associated with increases in impervious surface area.		X	
NE-3-1.5: (3)	Coordinate with neighboring jurisdictions to expand educational efforts beyond Lake Lure's jurisdiction.			

Land Use (From Section 11.0)

POLICY/ACTION REFERENCE	POLICY/ACTION STATEMENT	1 st Year	2-5 Years	5+ Years
Policy LU-1-1.1:	Create zoning districts or modify existing zoning districts to accommodate uses as indicated in Comprehensive Plan, specifically the Concept Plan and the Future Land Use Map.	X		
LU-1-1.1: (1)	Create a mixed-use zoning district and promote mixed-use developments within specified nodes in areas suggested in the <i>Final Concept Plan and Supporting Development Scenarios</i> .	X		
LU-1-1.1: (2)	Zone the specified mixed-use nodes, local nodes, and specialty commercial nodes to allow for a greater mixture of uses in these areas.	X		
LU-1-1.1: (3)	Allow flexibility in zoning / land use decisions that would support the long-term preservation of locally-defined historic structures / properties.			
Policy LU-1-1.2:	Modify the zoning map to be consistent with the land uses indicated on Figure 8, Future Land Use Map, and to reflect new districts developed to accommodate the range of uses specified in the plan for key areas.		X	
Policy LU-1-1.3:	Improve development regulations to preserve open space.	X		
LU-1-1.3: (1)	Evaluate current regulations and identify the appropriate districts within which minimum open space requirements should be incorporated.	X		
LU-1-1.3: (2)	(2) Develop specific open space standards, such as minimum amount and minimum percent to be improved for access/use, and modify the district standards accordingly.	X		
Policy LU-1-1.4:	Concentrate commercial development in designated nodes.		X	
LU-1-1.4:(1)	Rezone the Town Center area for development in more compact form. Development of the Town Center in a compact form results in an arrangement of buildings, streets and public spaces that maximizes utilization of the land. For example, buildings have multiple stories that are situated in close proximity to streets and each other. Open space and parking is limited to small spaces that do not interrupt the built environment.		X	

LU-1-1.4:(2)	Provide for commercial development through zoning near lake access points.		X	
LU-1-1.4:(3)	Rezone the commercial services node and neighborhood to the mixed-use districts.		X	
Policy LU-1-1.5:	Attract a special-use school		X	
LU-1-1.5:(1)	Evaluate potential locations for a special-use school.		X	
LU-1-1.5:(2)	Make known the availability of sites suitable for special-use school and support interested entities in the acquisition and rezoning, if any, of selected site.		X	
Policy LU-1-1.6:	Attract a performing arts program		X	
LU-1-1.6:(1)	Evaluate potential locations for a performing arts center.		X	
LU-1-1.6:(2)	Make known the availability of sites suitable for a performing arts center and support interested entities in the acquisition and rezoning, if any, of selected site.		X	
Policy LU-1-1.7:	Attract healthcare services.	X		
LU-1-1.7:(1)	Initiate and maintain communication with healthcare providers (e.g. Rutherford Hospital) to provide a health care facility, pharmacy, visiting nurse service, and medical offices. Relay to providers that the community is highly interested in their services and offer town assistance on efforts to locate such facilities in Lake Lure.	X		
LU-1-1.7:(2)	Identify potential sites, such as suggested in the service commercial node (see Final Concept Plan) for healthcare services.	X		
Policy LU-1-1.8:	Maximize utilization of land in commercial nodes for commercial uses by relocating public buildings to appropriate sites that are less suitable for commercial development.		X	
LU-1-1.8:(1)	Evaluate sites for potential relocations of public facilities.		X	
LU-1-1.8:(2)	Relocate public facilities, such as the town's maintenance facility, and other identified locations		X	
Policy LU-1-1.9:	Develop overlay zone for the scenic byway segment of US-64/74A and NC-9.		X	
LU-1-1.9: (1)	Define a scenic overlay area for the scenic byway segment of US-64/74A and NC-9 that continues to protect the character, and scenic quality of the current		X	

	scenic byway.			
LU-1-1.9: (2)	Develop and adopt Scenic Byway Overlay District with standards to preserve the scenic qualities of the Black Mountain Rag Scenic Byway (US-64/74A and NC-9).		X	
Policy LU-1-2.1:	Establish overlay zoning district to restrict development above 1,500-foot elevation.	X		
LU-1-2.1: (1)	Clearly define the standards for development in this area, and develop and adopt the overlay district.	X		
LU-1-2.1: (2)	Modify the Official Zoning Map to reflect the addition of this new overlay district.	X		
LU-1-2.1: (3)	Educate property owners of the benefits of a 1,500-foot protection line.	X		
Policy LU-1-2.2:	Limit future commercial development along the lake front.	X		
Policy LU-1-2.3:	Study the impacts (e.g. economic, quality of life, etc.) of vacation rentals, particularly those along the lakefront, to determine the need for controls (e.g. additional regulations) or other measures to ensure that the value and enjoyment of all lakefront properties are maintained, and adopt controls for vacation rentals as determined by the study recommendations. Once regulatory controls have been put in place, the Town should then study the effects of those controls and of the impacts of residential vacation rentals on single-family residential zoning districts. Should those studies indicate that the objectives of the regulatory controls are not being achieved, it is the desire of Council and the intent of the Comprehensive Plan that future ordinance(s) be enacted to further regulate and if necessary, prohibit residential vacation rentals in the R-1, R-1A, R-1B, R-1C, R-1D, R-2, and M-1 zoning districts and to amortize them in such districts for a appropriate period of time. (Amended 11-10-09)	X		
Policy LU-2-1.1:	Establish an extra-territorial jurisdiction (ETJ) to ensure that developments in areas adjacent to the town boundaries do not adversely impact the town's image and quality of views.	X		
LU-2-1.1:(1)	Map potential ETJ boundaries using a set of criteria that include ridgelines, drainage areas, etc.	X		
LU-2-1.1:(2)	Engage in conversations with Rutherford County and state to communicate ETJ boundary concept.	X		
LU-2-1.1:(3)	Apply adopted regulations, including signage and	X		

	subdivision regulations, to the area within the established ETJ.			
Policy LU-2-1.2:	Consider extending ETJ into the unincorporated enclaves within Lake Lure's jurisdiction if the town determines that such extension would result in a more consistent development pattern town-wide.	X		

THE TOWN OF LAKE LURE, NC
COMPREHENSIVE PLAN SURVEY RESULTS

October 24, 2006

Prepared for:

The Town of Lake Lure, NC

Prepared by:

LandDesign.

Table of Contents

Background	3
Method	3
Response Rate	3
Highlights	3
Survey Results	4
Community Information	5
Lake Lure Vision	7
Land Use and Community Character	8
Natural Resources	10
Housing	12
Development and Growth	13
Transportation	19
Municipal Services	20
Demographics	24
Qualitative Information	25
Statistic Definitions	58
Survey Instrument	59

Background

During April and May of 2006, the Town of Lake Lure administered a community wide Comprehensive Plan household survey to all Lake Lure property owners. The survey questionnaire was jointly developed by Town staff, the Comprehensive Plan Steering Committee (CPSC) and the consultant through various work sessions and reviews. The survey objectives were to:

1. To gain public information to help inform the Comprehensive Plan process.
2. Benchmark of attitudes and perceptions regarding a variety of key town issues.
3. Input on ideas for future facilities and services.
4. Establishment of baseline measurements for comparison in future surveys.

Method

The comprehensive plan survey was delivered to all Lake Lure property owners via US mail. Each survey package contained 2 different surveys - the Comprehensive Plan Survey and Lake Use Survey (prepared by the lake use consultant.) In order to reduce survey costs, it was designated by the Town to use one mailing package to deliver both surveys to all property owners. Originally, the comprehensive plan survey was designed to be administered as a scientific sample survey with multiple waves to reduce non response errors and to ensure adequate response rates. The survey was delivered to individual households of all Town property owners regardless of resident or non resident status.

Response Rate

The Town received completed questionnaires from 940 household surveys out of 2,992 survey mailers. This represents a response rate of approximately 31.4 percent at the 95 percent confidence level with a margin of error of plus-or-minus 3.0 percentage points. Background information gathered from the respondents was highly reflective of the town's resident and non-resident composition.

- Out of the 940 total responses approximately 296 (31.5%) were full-time residents.
- Over 86% of the respondents were over the age of 50.
- 38% of the respondents work full-time while 34% are retired.

Highlights

Overall the survey results were very consistent across the board. A large majority of the questions resulted in high levels of agreement. There were 20 plus questions that resulted in an agreement level over 70%. Any result depicting 70% or higher levels of agreement can be identified as a strong directional indicator. The surveys results also yielded a high number of write in comments for various qualitative questions.

The following section is a brief overview of the questions and related responses that received the highest levels of overall agreement. Detailed survey results can be found in the following pages which include the survey instrument, statistical breakdown of each question and write in comments received from the respondents.

Environment & Open Space

The environmental and open space questions yielded very high agreement levels for the following topics:

- Regulations for tree protection (89%)

- Trees required for commercial development (88%)
- Environmental guidelines for subdivisions (88%)
- Regulations for natural appearance of ridgelines (87%)
- View protection - new development impact (85%)
- Environmental guidelines for lots (77%)

Land Use & Growth Management

Land Use and Growth Management questions yielded very high agreement levels for the following topics:

- Favor single family (93%)
- Concentrate commercial development (86%)
- Limit commercial on the lake shore (86%)
- Want non-lakefront restaurants (84%)
- Oppose industrial (84%)
- Favor health care facilities (79%)
- Favor smaller retail and commercial (77%)
- Oppose multi-family (74%)

Most Favored Types of Development (based on Q43-60)

<u>Development Type</u>	<u>Somewhat and Strongly Favored Combined Score</u>
1. Single Family Homes	876
2. Non Lakefront Restaurants	787
3. Health Care Facilities	742
4. Park and Recreation Areas	736
5. Small Retail and Commercial	723
6. Retirement Homes	599
7. Tourist Lodging	585
8. Lake Front Restaurants	576
9. Assisted Living	428
10. Shopping Centers	375

Most Opposed Types of Development (based on Q43-60)

<u>Development Type</u>	<u>Somewhat and Strongly Opposed Combined Score</u>
1. Mobile Homes	847
2. Industrial	791
3. Multi Family Homes	702
4. Modular Homes	650
5. Campgrounds/RV	587
6. Rental Housing	576
7. Shopping Centers	495
8. Nursing Homes	432
9. Assisted Living	385
10. Lake Front Restaurants	278

Government & Administration

Government and administration questions yielded very high agreement levels for the following topics:

- Developer to pay for infrastructure (90%)
- Light and noise ordinances (80%)

Community Appearance/Design

Community appearance and design questions yielded very high agreement levels for the following topics:

- Architectural guidelines commercial (82%)
- Signs-regulations (79%)
- Limit to 45' ht. (72%)

Parks & Recreation

Park and recreation questions yielded very high agreement levels for the following topic:

- Favor park and recreation areas (78%)

Vision

Vision questions yielded very high agreement levels for the following topics:

- Natural Beauty – place (97%)
- Mountain Town Character (90%)
- Mostly Residential (84%)

SURVEY RESULTS

The following are the results for each survey question.

Community Information

1. Are you a full time resident of the Town of Lake Lure

	(n)	(%)
No	639	68.0%
Yes	296	31.5%
No Response	5	0.5%
Total	940	100.0%

2. If you live in the Town of Lake Lure, which of the following applies to you? (check all that apply)

	(n)	(%)
I live in a private and/or gated community	310	33.0%
I live on the Lake	225	23.9%
I live on property other than those described above	153	16.3%
No Response	252	26.8%
Total	940	100.0%

3. How many years have you lived in Lake Lure?

	(n)	(%)
I don't live in Lake Lure	222	23.6%
1-5 years	177	18.8%
6-10 years	160	17.0%
11-20 years	119	12.6%
More than 20 years	100	10.6%
Less than one year	60	6.4%
No Response	103	10.9%
Total	941	100.0%

4. How many years have you owned property in Lake Lure?

	(n)	(%)
1-5 years	229	24.3%
More than 20 years	227	24.1%
11-20 years	204	21.7%
6-10 years	202	21.5%
Less than one year	68	7.2%
I don't own property in Lake Lure	5	0.5%
No Response	6	0.6%
Total	941	100.0%

5. How much time do you spend at your Lake Lure property each year?

	(n)	(%)
1-2 Months	290	30.8%
Year Round	290	30.8%
3-5 Months	165	17.5%
6-9 Months	67	7.1%
10-12 Months	26	2.8%
No Response	103	10.9%
Total	941	100.0%

6. If you consider your property in the Town of Lake Lure your second residence, do you plan on making it your primary residence within 5 years?

	(n)	(%)
No	284	30.2%
Not Applicable	259	27.6%
Undecided	200	21.3%
Yes	144	15.3%
No Response	53	5.6%
Total	940	100.0%

Lake Lure Vision

Questions 7-11 response measured on 5 point level of agreement scale as shown below.

1 - Strongly Disagree	2 - Disagree	3- Neutral	4- Agree	5- Strongly Agree
-----------------------	--------------	------------	----------	-------------------

7. Lake Lure should remain as unchanged as possible over the next twenty years.

	(n)	(%)		
Agree	518	55.0%	Mean	3.46892
Disagree	280	29.8%	Standard Error	0.043376
Undecided	119	12.6%	Median	4
No Response	24	2.6%	Mode	5
Total	941	100.0%	Standard Deviation	1.313502

8. Lake Lure should be a place of growth and development.

	(n)	(%)		
Disagree	449	47.7%	Mean	2.69747
Agree	305	32.4%	Standard Error	0.041795
Undecided	155	16.5%	Median	3
No Response	32	3.4%	Mode	2
Total	941	100.0%	Standard Deviation	1.260115

9. Lake Lure should remain a place of natural beauty.

	(n)	(%)		
Agree	914	97.1%	Mean	4.749193
Undecided	12	1.3%	Standard Error	0.016067
No Response	12	1.3%	Median	5
Disagree	3	0.3%	Mode	5
Total	941	100.0%	Standard Deviation	0.489724

10. Lake Lure should be a place of many cultural opportunities and amenities.

	(n)	(%)		
Agree	455	48.4%	Mean	3.375685
Undecided	258	27.4%	Standard Error	0.038311
Disagree	200	21.3%	Median	3
No Response	28	3.0%	Mode	4
Total	941	100.0%	Standard Deviation	1.157612

11. Lake Lure should maintain its “mountain town” character.

	(n)	(%)		
Agree	849	90.2%	Mean	4.445887
Undecided	42	4.5%	Standard Error	0.025586
Disagree	33	3.5%	Median	5
No Response	17	1.8%	Mode	5
Total	941	100.0%	Standard Deviation	0.777733

12. Lake Lure should remain mostly residential over the next 20 years.

	(n)	(%)		
Agree	794	84.4%	Mean	4.206486
Disagree	67	7.1%	Standard Error	0.030278
Undecided	64	6.8%	Median	4
No Response	16	1.7%	Mode	5
			Standard	
Total	941	100.0%	Deviation	0.920874

Land Use and Community Character Results

Questions 12-24 response measured on 5 point level of agreement scale as shown below.

1 - Strongly Disagree	2 - Disagree	3- Neutral	4- Agree	5- Strongly Agree
-----------------------	--------------	------------	----------	-------------------

13. Commercial recreation and tourism development should be encouraged within the Town limits.

	(n)	(%)		
Agree	372	39.5%	Mean	2.946565
Disagree	346	36.8%	Standard Error	0.039977
Undecided	199	21.1%	Median	3
No Response	24	2.6%	Mode	4
Total	941	100.0%	Standard Deviation	1.210571

14. A variety of health care facilities need to be developed within the Town limits (medical offices, dentists, clinics etc.).

	(n)	(%)		
Agree	617	65.6%	Mean	3.722462
Undecided	214	22.7%	Standard Error	0.030935
Disagree	95	10.1%	Median	4
No Response	15	1.6%	Mode	4
Total	941	100.0%	Standard Deviation	0.941346

15. The Town should limit commercial development on the lake shore.

	(n)	(%)		
Agree	814	86.5%	Mean	4.380388
Disagree	70	7.4%	Standard Error	0.031705
Undecided	44	4.7%	Median	5
No Response	13	1.4%	Mode	5
Total	941	100.0%	Standard Deviation	0.965825

16. The Town needs to better regulate signs and billboards along its roadways within the Town limits.

	(n)	(%)		
Agree	742	78.9%	Mean	4.190323
Undecided	156	16.6%	Standard Error	0.028734
Disagree	32	3.4%	Median	4
No Response	11	1.2%	Mode	5
Total	941	100.0%	Standard Deviation	0.876258

17. The Town should allow buildings taller than the current 45' foot limit.

	(n)	(%)		
Disagree	677	71.9%	Mean	1.966631
Agree	142	15.1%	Standard Error	0.039366
Undecided	110	11.7%	Median	2
No Response	12	1.3%	Mode	1
Total	941	100.0%	Standard Deviation	1.199841

18. The traditional character of the town is being threatened by new development within the Town limits.

	(n)	(%)		
Agree	504	53.6%	Mean	3.594565
Undecided	229	24.3%	Standard Error	0.038875
Disagree	187	19.9%	Median	4
No Response	21	2.2%	Mode	5
Total	941	100.0%	Standard Deviation	1.17915

19. The traditional character of the town is being threatened by new development outside of the Town limits.

	(n)	(%)		
Agree	499	53.0%	Mean	3.558215
Undecided	215	22.8%	Standard Error	0.040101
Disagree	205	21.8%	Median	4
No Response	22	2.3%	Mode	5
Total	941	100.0%	Standard Deviation	1.215655

20. The Town should look to extend its jurisdiction beyond the current municipal boundary.

	(n)	(%)		
Agree	404	42.9%	Mean	3.248643
Undecided	292	31.0%	Standard Error	0.037759
Disagree	225	23.9%	Median	3
No Response	20	2.1%	Mode	3
Total	941	100.0%	Standard Deviation	1.14591

21. The Town should consider annexation opportunities.

	(n)	(%)		
Agree	386	41.0%	Mean	3.170492
Undecided	282	30.0%	Standard Error	0.037744
Disagree	247	26.2%	Median	3
No Response	26	2.8%	Mode	3
Total	941	100.0%	Standard Deviation	1.141711

22. Lake Lure should develop stronger architectural guidelines for new commercial construction/development.

	(n)	(%)		
Agree	776	82.5%	Mean	4.145946
Undecided	92	9.8%	Standard Error	0.030079
Disagree	57	6.1%	Median	4
No Response	16	1.7%	Mode	4
Total	941	100.0%	Standard Deviation	0.914823

23. Lake Lure should develop architectural guidelines for new residential construction/development.

	(n)	(%)		
Agree	572	60.8%	Mean	3.596983
Disagree	178	18.9%	Standard Error	0.037617
Undecided	178	18.9%	Median	4
No Response	13	1.4%	Mode	4
Total	941	100.0%	Standard Deviation	1.145919

24. The Town should develop ordinances for light and noise pollution.

	(n)	(%)		
Agree	755	80.2%	Mean	4.115054
Undecided	112	11.9%	Standard Error	0.03029
Disagree	63	6.7%	Median	4
No Response	11	1.2%	Mode	4
Total	941	100.0%	Standard Deviation	0.923727

Natural Resources Results

Questions 25-30 response measured on 5 point level of agreement scale as shown below.

1 - Strongly Disagree	2 - Disagree	3- Neutral	4- Agree	5- Strongly Agree
-----------------------	--------------	------------	----------	-------------------

25. Current federal, state, county, and town regulations are adequately protecting the natural resources of the town.

	(n)	(%)		
Disagree	379	40.3%	Mean	2.70354
Undecided	297	31.6%	Standard Error	0.036214
Agree	228	24.2%	Median	3
No Response	37	3.9%	Mode	3
Total	941	100.0%	Standard Deviation	1.088828

26. The Town should develop regulations to protect the natural appearance of the ridgelines.

	(n)	(%)		
Agree	819	87.0%	Mean	4.321081
Undecided	72	7.7%	Standard Error	0.027228
Disagree	34	3.6%	Median	4
No Response	16	1.7%	Mode	5
Total	941	100.0%	Standard Deviation	0.828104

27. The Town should develop regulations to protect trees, environmentally sensitive areas and steep slopes during development

	(n)	(%)		
Agree	840	89.3%	Mean	4.377155
Undecided	49	5.2%	Standard Error	0.027019
Disagree	39	4.1%	Median	5
No Response	13	1.4%	Mode	5
Total	941	100.0%	Standard Deviation	0.823073

28. The Town should require tree planting for all new commercial development.

	(n)	(%)		
Agree	828	88.0%	Mean	4.382131
Undecided	70	7.4%	Standard Error	0.02676
Disagree	31	3.3%	Median	5
No Response	12	1.3%	Mode	5
Total	941	100.0%	Standard Deviation	0.815623

29. The Town needs to develop additional public parks.

	(n)	(%)		
Agree	447	47.5%	Mean	3.428108
Undecided	318	33.8%	Standard Error	0.034587
Disagree	160	17.0%	Median	3
No Response	16	1.7%	Mode	3
Total	941	100.0%	Standard Deviation	1.051936

30. The Town should provide more public access to the water for recreational uses.

	(n)	(%)		
Disagree	478	50.8%	Mean	2.600432
Agree	243	25.8%	Standard Error	0.041766
Undecided	205	21.8%	Median	2
No Response	15	1.6%	Mode	2
Total	941	100.0%	Standard Deviation	1.270948

31. Would you be willing to pay additional tax dollars for open space acquisition and protection?

	(n)	(%)
Yes	330	35.1%
No	301	32.1%
No Opinion	196	20.9%
No Response	112	11.9%
Total	939	100.0%

Housing Results

Questions 32-35 response measured on 5 point level of agreement scale as shown below.

1 - Strongly Disagree	2 - Disagree	3- Neutral	4- Agree	5- Strongly Agree
-----------------------	--------------	------------	----------	-------------------

32. The Town should encourage a broad mix of housing types, (condos, apartments, single family homes etc.) particularly those that provide for affordable housing options.

	(n)	(%)		
Disagree	464	49.3%	Mean	2.594595
Agree	267	28.4%	Standard Error	0.040313
Undecided	194	20.6%	Median	2
No Response	16	1.7%	Mode	2
Total	941	100.0%	Standard Deviation	1.226058

33. The town should develop regulations for vacation rental homes within residential areas.

	(n)	(%)		
Agree	558	59.3%	Mean	3.484256
Disagree	212	22.5%	Standard Error	0.0395
Undecided	151	16.0%	Median	4
No Response	20	2.1%	Mode	4
Total	941	100.0%	Standard Deviation	1.198741

34. Guidelines should be crafted that encourage environmental sensitivity for residential subdivisions.

	(n)	(%)		
Agree	824	87.6%	Mean	4.235231
Undecided	64	6.8%	Standard Error	0.027134
Disagree	43	4.6%	Median	4
No Response	10	1.1%	Mode	4
Total	941	100.0%	Standard Deviation	0.827929

35. Guidelines should be crafted that encourage environmental sensitivity for individual residential lots.

	(n)	(%)		
Agree	721	76.6%	Mean	3.956803
Undecided	105	11.2%	Standard Error	0.033587
Disagree	100	10.6%	Median	4
No Response	15	1.6%	Mode	4
Total	941	100.0%	Standard Deviation	1.022066

36. Would you prefer to live in a gated community within Lake Lure?

	(n)	(%)
No	460	49.0%
Yes	273	29.1%
No Opinion	189	20.1%
No Response	17	1.8%
Total	939	100.0%

**37. As the Town of Lake Lure continues to grow, what kinds of housing types would you like to see permitted by the town?
(Please check all that apply)**

	(n)	(%)
Single Family Homes	895	33.9%
Estate Homes	486	18.4%
Townhomes	376	14.2%
Condominiums	359	13.6%
Duplexes	164	6.2%
Apartments	148	5.6%
Modular Homes	113	4.3%
Time Share Units	78	3.0%
Mobile Homes	21	0.8%
Total	2640	100.0%

Development and Growth Results

Questions 38-42 response measured on 5 point level of agreement scale as shown below.

1 - Strongly Disagree	2 - Disagree	3- Neutral	4- Agree	5- Strongly Agree
-----------------------	--------------	------------	----------	-------------------

38. Lake Lure should concentrate commercial development in designated commercial areas.

	(n)	(%)		
Agree	810	86.1%	Mean	4.184699
Undecided	62	6.6%	Standard Error	0.026869
Disagree	43	4.6%	Median	4
No Response	26	2.8%	Mode	4
Total	941	100.0%	Standard Deviation	0.812771

39. Lake Lure should investigate the need for education facilities.

	(n)	(%)		
Agree	472	50.2%	Mean	3.422951
Undecided	289	30.7%	Standard Error	0.033407
Disagree	154	16.4%	Median	4
No Response	26	2.8%	Mode	4
Total	941	100.0%	Standard Deviation	1.010513

40. Lake Lure should try to attract various medical providers.

	(n)	(%)		
Agree	637	67.7%	Mean	3.79034
Undecided	203	21.6%	Standard Error	0.02887
Disagree	71	7.5%	Median	4
No Response	30	3.2%	Mode	4
Total	941	100.0%	Standard Deviation	0.871373

41. New development should have limited impact on views.

	(n)	(%)		
Agree	804	85.4%	Mean	4.339227
Undecided	62	6.6%	Standard Error	0.028593
Disagree	39	4.1%	Median	5
No Response	36	3.8%	Mode	5
			Standard	
Total	941	100.0%	Deviation	0.860167

42. The Town should encourage developers to help pay for needed public infrastructure. (roads, utilities etc.)

	(n)	(%)	Range	1 thru 5
Agree	848	90.1%	Mean	4.502726
Undecided	40	4.3%	Standard Error	0.02571
Disagree	29	3.1%	Median	5
No Response	24	2.6%	Mode	5
Total	941	100.0%	Standard Deviation	0.778563

Questions 43-60 response measured on 5 point level of agreement scale as shown below.

1 -Strongly Oppose	2- Somewhat Oppose	3- Somewhat Favor	4 - Strongly Favor
--------------------	--------------------	-------------------	--------------------

43. Single Family Homes

	(n)	(%)		
Favor	876	93.4%	Mean	3.746336
No Opinion	18	1.9%	Standard Error	0.01595
Oppose	8	0.9%	Median	4
Non Response	36	3.8%	Mode	4
			Standard	
Total	938	100.0%	Deviation	0.475026

44. Gated Communities

	(n)	(%)		
Favor	549	58.5%	Mean	2.900126
Oppose	241	25.7%	Standard Error	0.037079
No Opinion	108	11.5%	Median	3
Non Response	41	4.4%	Mode	4
			Standard	
Total	939	100.0%	Deviation	1.042824

45. Retirement Homes

	(n)	(%)		
Favor	599	63.8%	Mean	2.927318
Oppose	197	21.0%	Standard Error	0.03298
No Opinion	87	9.3%	Median	3
Non Response	56	6.0%	Mode	3
			Standard	
Total	939	100.0%	Deviation	0.931657

46. Tourist Lodging

	(n)	(%)		
Favor	585	62.2%	Mean	2.796894
Oppose	251	26.7%	Standard Error	0.031116
No Opinion	54	5.7%	Median	3
Non Response	50	5.3%	Mode	3
			Standard	
Total	940	100.0%	Deviation	0.900207

47. Health Care Facilities

	(n)	(%)		
Favor	742	79.0%	Mean	3.332539
Oppose	95	10.1%	Standard Error	0.026886
No Opinion	58	6.2%	Median	3
Non Response	44	4.7%	Mode	4
			Standard	
Total	939	100.0%	Deviation	0.778762

48. Multi-Family Homes

	(n)	(%)		
Oppose	702	74.6%	Mean	1.778037
Favor	154	16.4%	Standard Error	0.028437
No Opinion	34	3.6%	Median	2
Non Response	51	5.4%	Mode	1
			Standard	
Total	941	100.0%	Deviation	0.831983

49. Rental Housing

	(n)	(%)		
Oppose	576	61.3%	Mean	2.015738
Favor	249	26.5%	Standard Error	0.030521
No Opinion	61	6.5%	Median	2
Non Response	54	5.7%	Mode	2
			Standard	
Total	940	100.0%	Deviation	0.877182

50. Campgrounds/RV

	(n)	(%)		
Oppose	587	62.4%	Mean	1.9319
Favor	250	26.6%	Standard Error	0.033326
No Opinion	55	5.8%	Median	2
Non Response	49	5.2%	Mode	1
			Standard	
Total	941	100.0%	Deviation	0.964141

51. Industrial

	(n)	(%)		
Oppose	791	84.1%	Mean	1.370629
Favor	67	7.1%	Standard Error	0.022797
No Opinion	25	2.7%	Median	1
Non Response	57	6.1%	Mode	1
			Standard	
Total	940	100.0%	Deviation	0.667761

52. Mobile Homes

	(n)	(%)		
Oppose	847	90.0%	Mean	1.18527
Favor	22	2.3%	Standard Error	0.016412
No Opinion	23	2.4%	Median	1
Non Response	49	5.2%	Mode	1
			Standard	
Total	941	100.0%	Deviation	0.483806

53. Modular Homes

	(n)	(%)		
Oppose	650	69.1%	Mean	1.758007
Favor	193	20.5%	Standard Error	0.031238
No Opinion	42	4.5%	Median	1
Non Response	56	6.0%	Mode	1
			Standard	
Total	941	100.0%	Deviation	0.906976

54. Assisted Living

	(n)	(%)		
Favor	428	45.5%	Mean	2.40172
Oppose	385	41.0%	Standard Error	0.035193
No Opinion	83	8.8%	Median	3
Non Response	44	4.7%	Mode	3
			Standard	
Total	940	100.0%	Deviation	1.004074

55. Nursing Homes

	(n)	(%)		
Oppose	432	45.9%	Mean	2.264295
Favor	355	37.7%	Standard Error	0.034937
No Opinion	100	10.6%	Median	2
Non Response	54	5.7%	Mode	3
			Standard	
Total	941	100.0%	Deviation	0.980099

56. Small Retail and Commercial

	(n)	(%)		
Favor	723	77.0%	Mean	3.060748
Oppose	131	14.0%	Standard Error	0.026212
No Opinion	28	3.0%	Median	3
Non Response	57	6.1%	Mode	3
			Standard	
Total	939	100.0%	Deviation	0.766889

57. Non Lake Front Restaurants

	(n)	(%)		
Favor	787	83.6%	Mean	3.284211
Oppose	68	7.2%	Standard Error	0.023462
No Opinion	39	4.1%	Median	3
Non Response	47	5.0%	Mode	3
			Standard	
Total	941	100.0%	Deviation	0.686041

58. Lake Front Restaurants

	(n)	(%)		
Favor	576	61.3%	Mean	2.80117
Oppose	278	29.6%	Standard Error	0.034641
No Opinion	40	4.3%	Median	3
Non Response	46	4.9%	Mode	3
			Standard	
Total	940	100.0%	Deviation	1.012914

59. Shopping Centers

	(n)	(%)		
Oppose	495	52.7%	Mean	2.252874
Favor	375	39.9%	Standard Error	0.036193
No Opinion	30	3.2%	Median	2
Non Response	40	4.3%	Mode	1
			Standard	
Total	940	100.0%	Deviation	1.06755

60. Park and Recreation Areas

	(n)	(%)		
Favor	736	78.3%	Mean	3.282172
Oppose	110	11.7%	Standard Error	0.027744
No Opinion	56	6.0%	Median	3
Non Response	38	4.0%	Mode	4
			Standard	
Total	940	100.0%	Deviation	0.807442

Most Favored Types of Development (based on Q43-60)

Development Type	Somewhat and Strongly favored Combined Score
1. Single Family Homes	876
2. Non Lake Front Restaurants	787
3. Health Care Facilities	742
4. Park and Recreation Areas	736
5. Small Retail and Commercial	723
6. Retirement Homes	599
7. Tourist Lodging	585
8. Lake Front Restaurants	576
9. Assisted Living	428
10. Shopping Centers	375

Most Opposed Types of Development (based on Q43-60)

Development Type	Somewhat and Strongly Opposed Combined Score
1. Mobile Homes	847
2. Industrial	791
3. Multi Family Homes	702
4. Modular Homes	650
5. Campgrounds/RV	587
6. Rental Housing	576
7. Shopping Centers	495
8. Nursing Homes	432
9. Assisted Living	385
10. Lake Front Restaurants	278

61. What should the pace of RESIDENTIAL development within the Town be over the next 10 years?

	(n)	(%)
Slower than Current Pace	446	47.4%
Current Pace	283	30.1%
Faster than Current Pace	77	8.2%
No Opinion	88	9.4%
Non Response	46	4.9%
Total	940	100.0%

62. What should the pace of COMMERCIAL development within the Town be over the next 10 years?

	(n)	(%)
Slower than Current Pace	395	42.0%
Current Pace	258	27.4%
Faster than Current Pace	150	15.9%
No Opinion	92	9.8%
Non Response	46	4.9%
Total	941	100.0%

Transportation Results

Questions 63-69 response measured on 5 point level of agreement scale as shown below.

1 - Strongly Disagree	2 - Disagree	3- Neutral	4- Agree	5- Strongly Agree
-----------------------	--------------	------------	----------	-------------------

63. The Town should build a road on the west side of the lake that connects to roads on the east side of the lake for public use.

	(n)	(%)		
Disagree	367	39.0%	Mean	2.837958
Agree	326	34.7%	Standard Error	0.044286
Undecided	208	22.1%	Median	3
No Response	39	4.1%	Mode	4
Total	940	100.0%	Standard Deviation	1.329303

64. The Town should build a road on the west side of the lake that connects to roads on the east side of the lake for emergency use only.

	(n)	(%)		
Disagree	345	36.7%	Mean	2.782658
Agree	241	25.6%	Standard Error	0.037558
Undecided	302	32.1%	Median	3
No Response	53	5.6%	Mode	3
Total	941	100.0%	Standard Deviation	1.119194

65. Overall, Lake Lure is a safe place to walk and bicycle.

	(n)	(%)		
Agree	466	49.5%	Mean	3.235165
Disagree	263	27.9%	Standard Error	0.038146
Undecided	181	19.2%	Median	4
No Response	31	3.3%	Mode	4
Total	941	100.0%	Standard Deviation	1.150728

66. The Town should develop more sidewalks and bike paths.

	(n)	(%)		
Disagree	83	8.8%	Mean	3.775956
Agree	623	66.2%	Standard Error	0.031448
Undecided	209	22.2%	Median	4
No Response	26	2.8%	Mode	4
Total	941	100.0%	Standard Deviation	0.951258

67. Traffic congestion is a major problem during the summer.

	(n)	(%)		
Disagree	124	13.2%	Mean	3.721311
Agree	584	62.1%	Standard Error	0.034056
Undecided	207	22.0%	Median	4
No Response	26	2.8%	Mode	4
Total	941	100.0%	Standard Deviation	1.030144

68. Traffic congestion is a major problem year round.

	(n)	(%)		
Disagree	600	63.8%	Mean	2.306167
Undecided	236	25.1%	Standard Error	0.028199
Agree	72	7.7%	Median	2
No Response	33	3.5%	Mode	2
Total	941	100.0%	Standard Deviation	0.849726

69. Public transportation, such as small buses and seasonal/special event water taxis, is needed in Lake Lure.

	(n)	(%)		
Disagree	355	37.8%	Mean	2.802198
Agree	262	27.9%	Standard Error	0.036671
Undecided	293	31.2%	Median	3
No Response	30	3.2%	Mode	3
Total	940	100.0%	Standard Deviation	1.106236

Municipal Services Results

70-A. Lake Dredging

	(n)	(%)
No Change	583	62.2%
New or Improved Services	220	23.5%
Reduce Service	19	2.0%
No Response	116	12.4%
Total	938	100.0%

70-B. Lake Dredging- I would support higher taxes

	(n)	(%)
Yes	137	61.7%
No Response	85	38.3%
Total	222	100.0%

71-A Stocking the Lake

	(n)	(%)
New or Improved Services	594	63.3%
Reduce Service	210	22.4%
No Change	33	3.5%
No Response	101	10.8%
Total	938	100.0%

71-B Stocking the Lake - I would support higher taxes

	(n)	(%)
Yes	110	51.9%
No Response	102	48.1%
Total	212	100.0%

72-A - Sewer

	(n)	(%)
No Change	508	54.2%
New or Improved Services	311	33.2%
No Response	106	11.3%
Reduce Service	13	1.4%
Total	938	100.0%

72-B Sewer - I would support higher taxes

	(n)	(%)
Yes	171	54.6%
No Response	142	45.4%
Total	313	100.0%

73-A - Water

	(n)	(%)
No Change	577	61.5%
New or Improved Services	243	25.9%
No Response	108	11.5%
Reduce Service	10	1.1%
Total	938	100.0%

73-B Water - I would support higher taxes

	(n)	(%)
Yes	171	54.6%
No Response	142	45.4%
Total	313	100.0%

74-A - Street Maintenance

	(n)	(%)
No Change	542	57.8%
New or Improved Services	290	30.9%
No Response	104	11.1%
Reduce Service	1	0.1%
Total	937	100.0%

74-B Street Maintenance - I would support higher taxes

	(n)	(%)
Yes	131	44.7%
No Response	162	55.3%
Total	293	100.0%

75-A - Fire Protection

	(n)	(%)
No Change	575	61.4%
New or Improved Services	258	27.5%
No Response	98	10.5%
Reduce Service	6	0.6%
Total	937	100.0%

75-B Fire Protection - I would support higher taxes

	(n)	(%)
Yes	153	58.8%
No Response	107	41.2%
Total	260	100.0%

76-A - EMS Services

	(n)	(%)
No Change	509	54.3%
New or Improved Services	324	34.5%
No Response	100	10.7%
Reduce Service	5	0.5%
Total	938	100.0%

76-B EMS Services - I would support higher taxes

	(n)	(%)
Yes	194	59.3%
No Response	133	40.7%
Total	327	100.0%

77-A - Police

	(n)	(%)
No Change	588	62.8%
New or Improved Services	175	18.7%
No Response	103	11.0%
Reduce Service	71	7.6%
Total	937	100.0%

77-B Police - I would support higher taxes

	(n)	(%)
Yes	101	57.1%
No Response	76	42.9%
Total	177	100.0%

78-A - Parks and Recreation

	(n)	(%)
No Change	490	52.3%
New or Improved Services	327	34.9%
No Response	99	10.6%
Reduce Service	21	2.2%
Total	937	100.0%

78-B Parks and Recreation - I would support higher taxes

	(n)	(%)
Yes	172	52.1%
No Response	158	47.9%
Total	330	100.0%

79-A - Boat Patrol

	(n)	(%)
No Change	588	62.7%
New or Improved Services	171	18.2%
No Response	100	10.7%
Reduce Service	79	8.4%
Total	938	100.0%

79-B Boat Patrol - I would support higher taxes

	(n)	(%)
Yes	80	46.2%
No Response	93	53.8%
Total	173	100.0%

80-A - Garbage Services

	(n)	(%)
No Change	698	74.5%
New or Improved Services	135	14.4%
No Response	99	10.6%
Reduce Service	5	0.5%
Total	937	100.0%

80-B Garbage Services - I would support higher taxes

	(n)	(%)
Yes	65	47.8%
No Response	71	52.2%
Total	136	100.0%

81-A - Erosion Control Enforcement

	(n)	(%)
No Change	365	38.9%
New or Improved Services	458	48.8%
No Response	107	11.4%
Reduce Service	8	0.9%
Total	938	100.0%

81-B Erosion Control Enforcement - I would support higher taxes

	(n)	(%)
Yes	221	48.0%
No Response	239	52.0%
Total	460	100.0%

Q82, 83 and 84 see next section after Q90.

Demographics Results

85. Gender

	(n)	(%)
Male	547	58.6%
Female	261	27.9%

No Response	126	13.5%
Total	934	100.0%

86. Age

	(n)	(%)
18 & Under	2	0.2%
19-29	1	0.1%
30-39	27	3.2%
40-49	118	13.9%
50-59	288	34.0%
60-69	274	32.3%
70+	167	19.7%
No Response	63	7.4%
Total	847	100.0%

87. In which of the following areas is your primary residence and/or property generally located?

	(n)	(%)
Area 2	244	26.2%
Area 3	244	26.2%
Area 4	196	21.0%
Area 1	118	12.6%
No Response	131	14.0%
Total	933	100.0%

88. If you live in Lake Lure full time, how many school age children do you have?

(n) 184

89. Employment Status

	(n)	(%)
Full Time	351	37.7%
part Time	41	4.4%
Retired	316	34.0%
Homemaker	18	1.9%
Disabled	5	0.5%
Unemployed	0	0.0%
Student	0	0.0%
Self Employed/ Home Office Business	65	7.0%
Other	8	0.9%
No Response	126	13.5%
Total	930	100.0%

90. Please indicate which of the following applies to you. (Check all that apply)

	(n)	(%)
Registered voter in Lake Lure	268	10.7%
Taxpayer in Lake Lure	751	30.0%
Primary residence outside of Lake Lure	483	19.3%
Owner of residential land w/ structure	644	25.7%

Owner of vacant land	277	11.0%
Owner of commercial land w/ structure	22	0.9%
Business owner	53	2.1%
Renter	9	0.4%
Total	2507	100.0%

Qualitative Questions Results

Qualitative Questions Results

82. What are Lake Lure's 3 greatest strengths weaknesses?

STRENGTHS

Please note if the comment was mentioned more than once cumulative numbers are highlighted in parentheses.

- "little town" ways
- "private lake" within city limits
- 20 miles to anywhere
- 4 Seasons
- A place apart
- A traditional town with traditional life
- Access
- Accessibility (3)
- Activities (3)
- Addition of Ingles
- Adequate basic services
- Adequate facilities
- Adjacent to but not affiliated with Chimney Rock
- Affordability (3)
- Affordable taxes
- Ambiance
- Appeal as a family resort
- Appeal to visitors
- Appreciation of property
- Architectural character
- Area (2)
- Attitude of people
- Attractive natural climate
- Availability to points south
- Awesome beauty
- Awesome scenery
- Balance of land use
- Basically quiet, peaceful, family oriented
- Beach
- Beach resort
- Beach, golf course, municipal building
- Beach/Tranquil
- Beautiful (10)
- Beautiful area (6)
- Beautiful area for homes
- Beautiful environment
- Beautiful lake (7)
- Beautiful landscapes
- Beautiful locations
- Beautiful man-made lake
- Beautiful mountains
- Beautiful mountains/woods
- Beautiful natural reserve
- Beautiful place
- Beautiful place to live
- Beautiful residential areas (2)
- Beautiful ridgeline/mountain views
- Beautiful scenery (4)
- Beautiful sights
- Beautiful surroundings (2)
- Beautiful views
- Beautiful views
- Beautiful views
- Beautiful views
- Beautiful views
- Beautiful, clean lake/view
- Beauty(353)
- Beauty and reputation
- Beauty of area (11)
- Beauty of area/lake
- Beauty of lake (3)
- Beauty of lake/mountains (4)
- Beauty of mountains (5)
- Beauty of setting
- Beauty of surroundings
- Beauty of the mountain (2)
- Beauty of town/area
- Beauty/Charm
- Beauty/Clean lake
- Beauty/Clean water (2)
- Beauty/Climate
- Beauty/Geography
- Beauty/Peacefulness
- Beauty/Scenery (4)
- Beauty/Setting
- Beauty/tranquil setting
- Beauty/Water quality of lake
- Boat patrol
- Boat traffic is manageable
- Boating
- Boating and fishing
- Boats
- Character (2)
- Character of town
- Charm (3)

- Chimney Rock (3)
- Chimney Rock Park
- Citizen volunteers
- Citizens willing to protect town
- Clean (6)
- Clean air (7)
- Clean air/water
- Clean and clear lake water
- Clean drinking water
- Clean lake (5)
- Clean lake water (5)
- Clean water (9)
- Clean water/air
- Clean, mountains
- Clean/Pleasant neighborhoods
- Clean/Pure drinking water
- Cleanliness (2)
- Cleanliness of lake water
- Cleanliness/Area and lake
- Cleanliness/Color of lake
- Climate (27)
- Climate/Location (2)
- Climate/Tourism
- Close proximity to major metro
- Close to home
- Close to larger communities
- Closeness to Asheville/Hendersonville
- Closeness to metro areas
- Combination of lake/mountain views
- Combination of mountains/water
- Commercial development
- Commercial not overwhelming
- Commercial properties
- Commitment to stewardship
- Community
- Community activities
- Community involvement
- Community spirit
- Compact size
- Concentrated development
- Concerned citizens
- Concerned leaders in local government
- Congestion
- Connection with heritage
- Constant growth control
- Control growth
- Control number of boats/No jet skis
- Control of lake access
- Control of lake use/land use
- Control of residential building
- Controlled boating
- Controlled development
- Controlled lake traffic
- Controlled lake usage
- Controlling lake access
- Convenient to larger cities
- Cool, clean water
- Cooperative city hall
- Cost of living
- Country atmosphere
- Courtesy oriented stores
- Cozy feeling (2)
- Creeksides
- Cultural mix
- Cultural shops
- Culture
- Current lake rules on jet skis
- Cute
- Dark skies, little light pollution
- Development has effected way of life
- Difficult access
- Diversity
- Doesn't look commercialized
- Down-to-Earth attitude
- Ease of access from Charlotte
- Easy access (2)
- Easy access to bigger cities
- Economical (2)
- Efforts to deal with development
- EMS
- Encouraging craft shows
- Enthusiastic townspeople
- Environment (6)
- Environment being preserved
- Environment/Quiet
- Environmental beauty
- Environmentally clean
- Excellent mountain view/Good climate
- Exclusiveness
- Fairfield golf
- Fairfield Mountains
- Fairfield Resort (2)
- Fairly off main roads
- Family atmosphere (2)
- Family oriented
- Family recreation
- Favorable climate
- Finance (2)
- Fire protection/EMS
- Fishing (2)
- Fishing close to home
- Food
- Foresight to control change
- Fre=riendly locals
- Fresh environment
- Friendliness (9)
- Friendliness of local merchants
- Friendliness of people (4)
- Friendliness of police/council
- Friendliness of Town Hall
- Friendliness/Willing to help
- Friendly area
- Friendly atmosphere (5)
- Friendly community (5)
- Friendly culture
- Friendly environment
- Friendly folks
- Friendly people (21)
- Friendly people willing to volunteer
- Friendly public presence
- Friendly residential atmosphere
- Friendly small town
- Friendly small town mtn. lake character
- Friendly town character

- Friendly town environment
- Friendly/Safe
- Fun Lake
- Gem of Carolinas lake
- Generally quiet and peaceful
- Geographic Location
- Geography/Mountains
- Gift shops
- Golf (5)
- Golf courses (4)
- Good CPW
- Good cross section of people
- Good friendly people
- Good golf courses
- Good government (2)
- Good lake regulation
- Good law enforcement
- Good leadership
- Good location to airports
- Good people (4)
- Good place to live
- Good place to raise family
- Good police
- Good police protection (2)
- Good police/Fire protection
- Good restaurants
- Good roads (2)
- Good value
- Good volunteer participation
- Good walking trails
- Good weather (2)
- Good year-round climate
- Good zoning department
- Good, caring town staff
- Gorgeous area
- Government stays out of your affairs
- Great golfing areas
- Great lake
- Great people (2)
- Great restaurants
- Great retirement area
- Great small town feeling
- Great view with lake
- Great views (2)
- Great water
- Grocery store (2)
- Growth is limited by terrain
- Habitat for woodland creatures
- Hard to get to
- Historic buildings
- Historic sights
- History (2)
- History and culture
- Home town and quaint
- Home town feel (2)
- Hospitality (2)
- HSO
- Hydro-electric
- Ideal climate
- Enactment of regulations for building on lake
- Incredible beauty
- Ingles (2)

- Integrity of govt/residents
- Intimate
- Involved citizens
- Isolated/Not desolate
- Isolation (3)
- Just enough commercial
- Just enough opportunities
- Keep private for homeowners
- Lack of commercialism
- Lack of congestion
- Lack of density
- Lack of development
- Lack of Gatlinburg atmosphere
- Lack of people on lake
- Laid back atmosphere (5)
- Laid back country atmosphere
- Laid back lifestyle
- Laid back, friendly, quaint
- Lake (115)
- Lake access
- Lake access for residents
- Lake access well controlled
- Lake activities (2)
- Lake and environment
- Lake and water activities
- Lake beauty (2)
- Lake beauty/mountains
- Lake front residential homes
- Lake is beautiful
- Lake itself
- Lake Lure (2)
- Lake not usually over-crowded
- Lake opportunities
- lake preservation
- Lake recreation
- Lake sports
- Lake town experience resort
- Lake water quality (2)
- Lake, Mountains
- Lake/Enjoyment of lake
- Lake/Fishing
- Lake/Mountains (2)
- Lake/River waters
- Lake/Views
- Lake/water quality
- Lake's natural beauty
- Larkins
- Laws/restrictions already in place
- Leadership
- Less dense
- Limited availability
- Limited boat traffic
- Limited boat traffic on lake
- Limited commercial (2)
- Limited commercial use
- Limited number of residents
- Limited traffic at east end
- Limiting boat access
- Limits on boat size
- Little congestion
- Little or no crime
- Living slow pace

- Local beauty
- Local people (3)
- Local population
- Local volunteers/Town staff
- Local, quaint feel
- Location (46)
- Location for movies
- Location in mountains
- Location is great
- Location to larger cities
- Location/Activities
- Location/Physical beauty
- Lodging
- Lots of older people
- Lots of trees
- Low crime (2)
- Low crime element
- Low crime rate (4)
- Low density homes
- Low density level
- Low key feel
- Low noise level
- Low population density
- Low tax rate
- Low taxes (3)
- Low traffic (2)
- Low-key, quiet lifestyle
- Maintenance of beach/golf resort
- Majority of lake is single family
- Mayor
- Mild climate (2)
- Minimal commercial boats
- Minimal commercialism
- Minimum commercial establishments
- Mix of friendly people
- Moderate weather (2)
- Most people
- Mountain atmosphere (2)
- Mountain beauty (9)
- Mountain character
- Mountain charm
- Mountain community (2)
- Mountain environment
- Mountain feel
- Mountain feeling
- Mountain location
- Mountain resort atmosphere
- Mountain scenery
- Mountain setting
- Mountain town
- Mountain town character (2)
- Mountain town feeling
- Mountain views (8)
- Mountains (25)
- Mountains surrounding lake
- Mountains/Hydro dam
- Mountains/views
- Mountains/woods
- Multi use community
- National park/Wildlife
- Natives
- Natural appearance
- Natural attractions
- Natural beauty (25)
- Natural beauty/Mountain water
- Natural beauty/Open spaces
- Natural environment (2)
- Natural resource (4)
- Natural scenic beauty (2)
- Natural setting and beauty
- Naturalness
- Nature (2)
- Nature mindset
- Nature/Beauty (2)
- Nature/Birds
- Nearness to other towns
- Neighbors
- New grocery store (2)
- New Ingles
- New state park
- Nice climate
- Nice for vacation
- Nice in the summer
- Nice people (2)
- Nice place to live
- Nice, quiet community
- No chain stores
- No fast food/chain restaurants
- No jet skis (5)
- No junky downtown area
- No PWCs allowed on lake
- No shopping malls
- No Wal-Mart/Big box stores
- No x-way close by
- Non-commercialized (3)
- Non-gated
- Non-industrial
- Not a full fledged tourist location
- Not a large amount of noise on lake
- Not a pass thru location
- Not a typical resort
- Not commercialized
- Not far from larger cities
- Not many franchise businesses
- Not much room for expansion
- Not over commercialized (3)
- Not over-built
- Not over-crowded with people
- Not over-developed (3)
- Not over-grown
- Not over-grown/commercialized
- Not overpopulated
- Not too commercialized
- Not too congested, yet
- Not too crowded
- Not too large
- Not too large or congested
- Not too many boats on lake
- Off the beaten path
- Old buildings/stores
- Old time feeling
- Open for regulated growth
- Openness
- Openness/Uncrowded feel

- Operation/control of Lake Lure
- Opportunity to manage growth
- Ordinances
- Outside recreational opportunities
- Park/Town center
- Parks
- Peace and quiet (5)
- Peace/Serenity
- Peaceful (11)
- Peaceful at night
- Peaceful environment
- Peaceful lake
- Peacefulness (3)
- People (32)
- People are great
- People native to Lake Lure
- People of diverse backgrounds
- People who care
- Pharmacy in Ingles
- Pictorial landscape
- Picture setting
- Picturous
- Place of natural beauty
- Place of rest
- Place people are proud of
- Place to relax
- Pleasant living during off-season
- Pleasant people
- Pleasant place to live
- Police (2)
- Police Department (2)
- Police force
- Police protection
- Population
- Population diversity
- Potential for growth (2)
- Power
- Power plant
- Preservation of cohabitation of man/nature
- Pretty
- Pristine
- Pristine beauty on lake
- Pristine lake
- Privacy
- Property values (2)
- Protection
- Provides getaway feeling
- Proximity to Asheville (3)
- Proximity to Asheville/Charlotte
- Proximity to big cities
- Proximity to Charlotte/Asheville
- Proximity to Chimney Rock
- Proximity to large cities (5)
- Proximity to major highways/Asheville
- Proximity to other areas
- Public beach
- Quaint (2)
- Quaint mountain town
- Quaint old residences
- Quaint town
- Quaint, commercial area
- Quaintness (7)
- Quaintness and scenery
- Quaintness of town
- Quality lifestyle
- Quality mix of people/Low density
- Quality of life (2)
- Quality people
- Quality/Investment value
- Quantities
- Quiet (11)
- Quiet and peaceful
- Quiet and relaxing
- Quiet and secure
- Quiet area (3)
- Quiet charm
- Quiet elegance
- Quiet environment
- Quiet get-away place
- Quiet hometown
- Quiet lake (2)
- Quiet location
- Quiet mountain lake
- Quiet place to get away
- Quiet times
- Quiet town
- Quiet town atmosphere
- Quiet weekday activity on lake
- Quiet, beautiful
- Quiet, uncrowded lake
- Quiet/Peaceful (2)
- Quiet/Slow pace
- Quietness (2)
- Quietness at sunrise
- Quietness at times
- Quietness of area
- Quite serenity
- Ratio of users to size of lake
- Reasonable cost
- Reasonable costs of land
- Recreation (5)
- Recreation activities
- Recreation available
- Recreation for children
- Recreation opportunities
- Recreational activities
- Recreational and water sports
- Recreational facilities
- Recreational opportunities (2)
- Recreational opportunity
- Relative low population
- Relative rural
- Relatively low taxes
- Relatively small
- Relatively unspoiled lake
- Relaxed atmosphere (2)
- Relaxing living
- Relaxing/Peaceful
- Remote from bigger towns
- Remote location
- Remoteness (6)
- Reputation as a good vacation location
- Residential lake
- Residential/Non-commercial environment

- Residents (2)
- Resort atmosphere
- Resort communities
- Resourceful citizens
- Restaurants (2)
- Restaurants/Inns
- Restricted
- Restrictions
- Retired residents
- Retreat quality
- Robust tax base
- Room for expansion
- Room for growth
- Rural
- Rural atmosphere (2)
- Rural character
- Rural charm
- Rural/nature
- Rural/Untouched
- Ruralness
- Safe (3)
- Safe community
- Safe place overall
- Safe town
- Safe, relatively quiet lake
- Safety (3)
- Safety of community
- Safety/Security
- Scenery (16)
- Scenery and the lake
- Scenery/View/Beauty
- Scenic (5)
- Scenic area/lake
- Scenic beauty (17)
- Scenic quality of town/lake
- Scenic views (2)
- Scenic/Intensity
- Seasonal weather without extremes
- Seasons are beautiful
- Secluded
- Seclusion
- Seclusion from larger cities
- Senses need to have vision
- Serenity (5)
- Serenity and peace
- Setting
- Setting/Natural resources
- Shoreline with trees, not homes
- Short drive to several cities
- Simple life
- Single family homes
- Single lake front homes
- Size (7)
- Size of lake
- Size/Friendliness
- Slow development
- Slow pace (3)
- Slow pace of life
- Slower pace of life
- Slower pace of living
- Small (5)
- Small community (6)
- Small community atmosphere (2)
- Small community feel
- Small hometown atmosphere
- Small lake size
- Small mountain lake town
- Small mountain town (2)
- Small mountain town atmosphere
- Small mtn. town character
- Small population (2)
- Small quaint secluded community
- Small safe town
- Small size (2)
- Small town (20)
- Small town appeal (2)
- Small town atmosphere (26)
- Small town atmosphere/Friendly
- Small town attitude
- Small town attractiveness
- Small town character (3)
- Small town charm (6)
- Small town feel (17)
- Small town feeling (5)
- Small town flavor (3)
- Small town friendly (6)
- Small town friendly atmosphere (2)
- Small town friendly people
- Small town getaway
- Small town image feeling
- Small town living
- Small town look and feel (2)
- Small town population
- Small town quality of life
- Small town town environment
- Small town, quiet
- Small town, well located
- Small town/Beauty/Scenery
- Small town/Mountain town atmosphere
- Small town/Quiet
- Small, quaint
- Smallness
- Smallness and quietness
- Solitude
- Somewhat peaceful
- Southern hospitality
- Strong council
- Strong government
- Strong police force
- Support services
- Swimming and recreation
- Temperate climate
- The beach
- The clean lake
- The lake (7)
- The lake and fishing
- The Lake/Residents
- The people here
- The scenery (2)
- The small river walk area
- The view/surrounding mountains
- There are restrictions
- They try to communicate
- Things to do

- Too many people
- Too much commercialism
- Too much growth too fast
- Topography
- Tourism (7)
- Tourist amenities/attractions
- Tourist attractions
- Tourist enjoyment
- Town employees
- Town management
- Town personnel
- Town staff
- Tranquility (11)
- Tranquility at times
- Trees (6)
- Trees on ridge tops
- Uncongested
- Uncrowded
- Under-development
- Undeveloped areas
- Undeveloped areas of the lake
- Undeveloped look
- Undeveloped lots
- Undeveloped nature
- Unique area
- Unique character/history
- Unique mix of people
- Unique small town
- Unique town
- Unique/Non commercial
- Uniqueness (3)
- Unmatched beauty
- Un-pretentiousness
- Untouched by "major" developers
- Upgrade residential codes
- Vacation town
- Value of property
- Variety of available activities
- Variety of facilities
- Variety of properties
- Vegetation
- Very friendly
- Very little congestion
- View (4)
- View of the mountains
- Viewing sunsets/sunrises
- Views (26)
- Views from restaurants
- Views/Mountains
- Views/Water
- Village character
- Void of big-box national retail
- Volunteer willingness
- Volunteerism
- Warm and friendly
- Water (8)
- Water activities (2)
- Water of the lake
- Water purity
- Water quality (4)
- Water quality of lake (3)
- Water quality of lake streams

- Water recreation
- Water sports
- Water sports/Fishing
- Water supply
- Water/Recreation
- Water/Sewer
- Water/View
- Water-related recreation
- Way of life most of the year
- Wealth of owners
- Weather (20)
- Weather great
- Well located
- Well managed
- Well run municipality
- Willingness to grow
- Wonderful climate
- Wonderful lake
- Wonderful people
- Working class people/community
- Zoning (2)
- Zoning/Building restrictions

WEAKNESSES

- #9 coming into #64/74. Potholes are dangerous
- A few people want to control
- A few unsightly junk areas are located along roads
- Abundance of yankees
- Acceptance of inevitability of growth
- Access to lake boating (2)
- Access to major highways
- Access to more river walk areas
- Accessibility to major interstates
- Accommodations
- Addition necessary commercial business
- Additional dining options
- Adequate stuff/knowledgeable to be effective
- Aesthetic standards for commercial bldgs
- Affordable housing
- Aggressive police force on roads
- Airport too far
- All municipal buildings on one side of town
- All of the new clearing and construction
- Allowing aberrations in permits
- Allowing building/revocation projects to go on for years
- Allowing mobile homes
- Allowing new building to destroy natural woods
- Allowing over-development
- Allowing septic systems
- Allowing too much development
- Allowing too much growth
- Allowing unmaintained homes/boat houses
- Allowing Youngs Mtn, Bills Mtn
- Amount of rapid development
- Anti-growth
- Antiquated municipal government
- Any comm. Development along Rocky Broad River
- Anything that would diminish it's scenic beauty

- Anything that would diminish it's tranquility
- Anything that would remove it's charm
- Apparent desire to change it's image
- Appetite for growth
- Area development
- Assisted living facilities (2)
- Attitude of some citizens
- Attitude problem with workforce
- Attraction for motorcycles
- Availability of municipal services for weekenders
- Bad idea of flags for boats
- Bad roads
- Banking choices
- Barriers between "rich folk" and us "town people"
- Basic needs
- Beach fees too high for property owners
- Beach should have free access
- Beautification needed on roadways/beach area
- Becoming too commercialized
- Becoming tourist town
- Better code enforcement
- Better control of developers
- Better medical care
- Better police services
- Better roads around lake
- Better shops
- Better up-keep of morse park
- Better visitors bureau
- Big ridges/Hogging roads
- Bikes/Fast
- Biking path
- Binding to big money
- Blinding street lights seen when on lake
- Boards change rules/regulations often
- Boat congestion
- Boat docks (few)
- Boat patrol
- Boat patrol overuse
- Boat permits rejected on interests of town
- Boat traffic in summer weekends
- Boat wakes make it hard to fish
- Boat/Motor pollution/erosion
- Boredom
- Building code too strict and doesn't make sense
- Building codes
- Building destroying scenic beauty
- Bulldozing and gashing of nature
- Burden some regulations
- Bureaucracy
- Business
- Businesses change too often
- Cater to people who can afford it
- Caves and Nimbys
- Cell phone reception
- Cell phone/Internet service
- Chimney Rock
- Citizen friendly government
- Citizens who don't compromise
- City doesn't support small business
- City officials are closed minded to change
- City sewer all the way around lake
- City trying to control land use with rules and not money
- Cleanup fallen trees at shoreline
- Clear cutting (2)
- Clear cutting trees
- Cliques
- Closer shopping
- Code enforcement
- Codes are very weak
- Codes to preserve character of town
- Commercial abuse
- Commercial buildings
- Commercial development (4)
- Commercial development/regulations
- Commercial establishments too "touristy"
- Commercial expansion
- Commercial infrastructure
- Commercial needs waits are too long
- Commercial signs
- Commercial sprawl
- Commercial traffic
- Commercial use of lake (2)
- Commercial/Institutional facilities
- Commercialization
- Communication with citizens
- Community Public Works
- Condition of roads (2)
- Coney Island type beach
- Congested area
- Congested boat ramp
- Congested lake front housing
- Congestion (9)
- Congestion during peak seasons
- Congestion in summer
- Constant construction
- Continued development
- Control growth
- Control growth in orderly fashion
- Control of development (2)
- Control of lake
- Control of small group on development
- Convenient health care facilities
- Cops in woods
- Cops on lake
- Cops on roads
- Cost of boat permits
- Cost of water
- Could be kept up a little better around the area
- County police
- Create impact fees on development
- Creeping commercialism
- Crowd attracted to beach
- Crowded in season
- Crowded lake during summer
- Crowding lake on weekends
- Cudzu vines
- Cultural activities
- Culture
- Curb appeal
- Current development in the town/rate of development
- Current laws do not protect slopes from erosion/removing trees (2)

- Current mayor
- Current politics
- Current regulations not enforced
- Cutting of too many trees
- Cutting trees (3)
- Cutting up mountains into lots
- Dangerous roads
- Dangerous, narrow roads
- Destroying the natural beauty
- Destruction of west shore
- Deteriorated housing
- Developers (3)
- Developers are out of control
- Developers clear cutting
- Developers concerned about money not loss of resources
- Developers do not pay enough for infrastructure
- Developers stripping environment
- Developers unrestrained
- Developers/Uncontrolled growth
- Developing too quickly (4)
- Development (9)
- Development control
- Development destroying the natural beauty
- Development gone wild
- Development is hurting views
- Development not managed
- Development out of control
- Development pressure (3)
- Development without vision
- Development/Businesses
- Difficult roads
- Difficult to travel the road system around lake
- Difficult to work with
- Disproportionate tax base
- Distance to hospitals
- Distance to shopping/doctors
- Divided community
- Divisions between town communities
- Divisiveness of two ends of lake
- Do not make a Gatlinburg
- Does not attract higher income buyers
- Does not have "downtown" or town feeling
- Don't enforce building/zoning codes
- Don't over-commercialize
- Don't progress too fast
- Don't require erosion control on new building
- Double standard politics
- Drive too far for basic services
- Drug stores
- Easy access
- Ecology
- Economy
- Education
- Efficiencies of city staff
- Elected/appointed officials "shooting from hip"
- Enforcement
- Enforcement of laws
- Enforcement of ordinances
- Enforcement of zoning regulations
- Enforcing city rules
- Enforcing sign ordinance
- Entertainment (3)
- Environmental control
- Environmental destruction
- Environmental mistakes
- Erosion (2)
- Erosion control (5)
- Erosion control impacting lake
- Erosion into rivers flowing into lake
- Excessive noise from motorcycles
- Excessive road police services
- Excessive tree removal
- Existing businesses need to be updated/maintained
- Expanded water system
- Facilities to attract people year-round
- Failure of police to enforce laws
- Failure to enforce present ordinances
- Failure to progress
- Fairfield/Town division
- Fairfield community
- Fallen trees in water
- Family friendliness
- Family restaurants
- Far from a town
- Fast growth is unregulated
- Fast passed development with no long-term planning
- Fear of development
- Few community dences
- Few medical facilities
- Few restaurants
- Few sidewalks or none
- Fickle real estate market
- Fire protection
- Fishing license laws
- Fishing/Dinner Cruises
- Frequent environmental damage from new development
- Garbage along the roads
- Garbage pick-up other than household
- Garbage services too limited
- Gasoline too expensive on lake
- Gated developments
- Geography forbids more traffic through gorge
- Getting rid of Pat Hayatt
- Getting there
- Getting too many people
- Giving private companies decision "look" of property
- Good old boys network
- Good ole boy network among officials
- Good restaurants
- Gourmet grocery stores
- Government
- Government does not effectively manage change/development
- Greed (3)
- Greedy land developers
- Greedy realtors
- Grey Fox beach club
- Grocery stores (6)
- Growing
- Growing noise and light pollution
- Growing pains
- Growing too fast (3)

- Growing too fast for own good
- Growing traffic/noise
- Growing very fast
- Growth (4)
- Growth and infrastructure to support it.
- Growth of regulations
- Growth on mountains
- Growth/Development is too fast
- Growth/Tax increase
- Hardware/Building supplies in town
- Harassing police department
- Has not been business friendly
- Have to call for pick large item pick up by trash pick up
- Have to go elsewhere for entertainment
- Health care (2)
- Health facilities
- Health services facilities
- Heavy truck traffic
- High cost of construction (2)
- High density construction
- High property taxes
- High speed boats
- High speed, low unmuffled racing boats
- High taxes (4)
- High taxes for limited services
- High water disposal
- Highlands development
- Highway
- Highway noise
- Hodge-podge town development
- Homes/Building on hills
- Hospital
- Hospital/Medical
- Houses in despair
- Houses jammed in
- Houses with debris in yards
- Huge homes destroying too many trees
- Huge homes in gated communities
- Ignoring the thoughts of the residents/voters
- Improve sea walls
- Improved police protection
- In morse park
- In need of downtown redevelopment
- Inability to enforce present regulations/ordinances
- Inability to enforce/correct violations
- Inability to manage growth well
- Inability to protect are from developers
- Inaccessibility to main roads
- Inadequate "impact fees" for developers
- Inadequate access to lake
- Inadequate downtown service
- Inadequate enforcement of No Wake
- Inadequate financial plan to support a good plan
- Inadequate sewer/septic tanks by lake
- Inadequate tree and erosion control
- Inadequate vision/strategic plan in place
- Inadequate zoning
- Incompetent town manager
- Inconsistent regulations
- Inconvenient to basic needs
- Increase in developers
- Increase in tax revenue property over planning
- Increase in taxes for old-timers
- Increasing density
- Inefficient use of police
- Inferior housing
- Influence of realtors on town policy
- Influx of motorcycles
- Influx of people from other states and try to change it
- Info dissemination
- Infrastructure (7)
- Infrastructure for walking/biking
- Infrastructure not capable of handling over-crowding
- Insufficient diversity in population
- Insufficient employment opportunities
- Insufficient erosion protection for lake
- Intimidated by developers/greed in policy makers
- It's strictly a fall/summer place
- Junk car
- Junked property such as trailer park across from city hall
- Junky properties
- Junky town
- Keep mountain land for parks
- Keeping small town
- Known as "speed trap" area
- Lack of a foundation dedicated to community
- Lack of activities during the off-season
- Lack of activities through winter
- Lack of adequate EMS
- Lack of aggressive planning development
- Lack of an executable strategic plan
- Lack of appreciation for the present
- Lack of attractive hotels/spa
- Lack of banking facility
- Lack of bike/walking paths
- Lack of board of Arch. Review
- Lack of centralized village
- Lack of choices of medical facilities
- lack of city water for all town residents
- Lack of city/town planning
- Lack of code enforcement
- Lack of comm. Diversity
- Lack of commercial properties
- Lack of commercial services
- Lack of commercial services/restaurants
- Lack of commercial zoning
- lack of commitment to control/guide change
- Lack of common community vision
- Lack of communication with public
- Lack of communication with town council
- Lack of community center
- Lack of consensus vision plan
- Lack of control
- Lack of control of development
- Lack of control to excessive growth
- Lack of county leash laws
- Lack of cultural activities
- Lack of direction for the lake
- Lack of downtown parking
- Lack of educational facilities
- Lack of EMS on western side
- Lack of enforcement of our ordinances

- Lack of entertainment
- Lack of environment enforcement
- Lack of environmental protection
- Lack of equal enforcement of rules/regulations
- Lack of erosion control
- Lack of erosion control
- Lack of facilities
- Lack of focus
- Lack of good quality low-to-middle priced eating establishments
- Lack of good restaurants (3)
- Lack of goods/services
- Lack of growth plan
- Lack of guidelines for development boom
- Lack of health care facilities (5)
- Lack of hiking/biking trails
- Lack of industry
- Lack of interest to grow
- Lack of interesting shops
- Lack of jobs
- Lack of lake management/enforcement
- Lack of land planning
- Lack of local newspapers
- Lack of marina service, gas
- Lack of master plan
- Lack of medical facilities (19)
- Lack of medical help
- Lack of medical options
- Lack of medical services (2)
- Lack of MLS listing/entry system
- Lack of natural gas service
- Lack of nice hotels
- Lack of ordinances to protect environment
- Lack of parks, hiking trails
- Lack of parks/Recreation land
- Lack of planning on new projects/developments
- Lack of public transportation
- Lack of public schools/medical services
- Lack of qualified professionals to direct orderly growth
- Lack of quality goods/services
- Lack of quality shops/restaurants
- Lack of quality tourism
- Lack of regulation/housing planning
- Lack of regulations
- Lack of representation in County government
- Lack of restaurant facilities
- Lack of restaurants (3)
- Lack of restaurants and entertainment (2)
- Lack of restaurants/Sports pubs
- Lack of retail
- Lack of retail variety
- Lack of ridgeline control
- Lack of safe places to bike and walk
- Lack of school system
- Lack of services
- Lack of services for population
- Lack of shopping facilities (2)
- Lack of shopping options for basics
- Lack of shops/boutiques
- Lack of signage regulation
- Lack of skilled personnel at Town Hall
- Lack of slope and ridgeline protection
- Lack of small commercial ventures
- Lack of speed enforcement on narrow roads
- Lack of staff to provide enforcement of town codes/regulations
- Lack of standards for architectural/lot development
- Lack of strategy
- Lack of support stores, shops/services
- Lack of supportive rules
- Lack of town/area growth plan
- Lack of uniform building codes
- Lack of upscale shopping
- Lack of upscale shopping/dining
- Lack of walk/bike trails
- Lack of will to enforce and follow through
- Lack of willingness to accept regulations to manage change
- Lack of year-round dining
- Lack of year-round economy
- Lack of zoning
- Lack of zoning enforcement
- Lack of zoning enforcement of abandoned/run-down structures
- Lack of zoning ordinances to protect land use
- Lack of zoning plan
- lacks senior services and center
- Lake
- Lake access
- Lake cleanliness
- Lake control
- Lake dredging
- Lake gas station
- Lake is filling with mud
- Lake not open long enough
- Lake over-crowding
- Lake patrol (2)
- Lake patrol/Speed
- Lake pollution
- Lake processes (permit) have no process
- Lake regulation enforcement
- Lake restrictions
- Lake too crowded
- Lake up-keep
- Lake water quality
- Lakefront saturated with too many houses
- Land clearing
- Land values sky rocketing
- Landscape of public POW's
- Large amounts of boats from Fairfield
- Large development pressures
- Large wakes from big boats
- Law enforcement in drug use
- Leadership unable to deal with demographic
- Less trees and more concrete
- Letting businesses destroy the gateway to the city
- Letting in larger properties
- Level of training of city employees/staff
- Light ordinance
- Light pollution
- Light pollution/Flood lights aimed at windows
- Limit campers
- Limited boat slips
- Limited commercial

- Limited entertainment
- Limited environmental protection
- Limited government shopping
- Limited jobs available
- Limited public access to lake
- Limited roads
- Limited shopping
- Listening to shouts for change
- Little involvement by non-resident property owners
- Little small town charm
- Little to do at night
- Little/no control on development
- Local government appears to be power hungry
- Local schools
- Location within the county
- Lodging
- Losing beauty with development
- Losing distinctiveness
- Losing habitat for wildlife
- Losing the simplicity of mountain town
- Loss of beautiful ridgelines from development
- Loss of peace/quiet
- Loss of property owner rights
- Loss of ridgelines
- Loss of trees
- Loud boat motors (5)
- Loud noise from Fairfield Mountains
- Lousy restaurants
- Low income housing
- Maintenance of existing park facilities by police
- Maintenance of road sides needs improvement
- Make better use of volunteers
- Mall
- Mall outlets
- Management of conservation/developments
- Manager
- Managing growth
- Many home/property owners not full-time residents
- Margaritagrille
- Mayor
- McMansions (2)
- Medical (3)
- Medical care
- Medical facilities (4)
- Medical needs/Additional policing needed as area grows
- Medical services (4)
- Mobile homes (2)
- Money talks as far as progress goes
- More amenities for daily life
- More and more rules
- More better restaurants
- More city water availability
- More control on building codes/Better manager of town business
- More covered docks
- More cultural events
- More dining
- More dredging of lake
- More good places to eat
- More good restaurants
- More lights, benches, tables
- More marine patrols
- More public park areas needed
- More sand
- More shopping
- More stores
- More tourist attractions
- More waterfront restaurants/lounges
- Motorcycle congestion
- Motorcycle hangout
- Motorcycle loudness
- Motorcycle noise (7)
- Motorcycles (8)
- Mountain and Ridgeline Development
- Mountain top development
- Mountain travel
- Move too slow
- Muddy development
- Muddy water in lake
- Narrow roads (8)
- Native residents are under-served/represented
- Nature is being destroyed
- Need a very good restaurant
- Need clean industry diversification
- Need code restrictions
- Need daycare for working parents
- need doctor services
- Need for affordable housing for workers
- Need for fair/balanced decision making based on facts
- Need for hiking trails
- Need good restaurants at moderate prices
- Need grocery store/Drug store
- Need interest and cultural center
- Need library
- Need more activities for visitors
- Need more attractions in winter months
- Need more commercial and jobs
- Need more control over building
- Need more control over tree cutting
- Need more development
- Need more diversity in government officials
- Need more inexpensive property for housing
- Need more parks/recreation
- Need more restaurant choices
- Need more restaurants (2)
- Need more retail support
- Need more shopping places
- Need more sidewalks
- Need ordinances to protect landscapes from developers
- Need this plan for future growth
- Need to encourage year-round businesses
- Need tree ordinance
- Need volunteers for fire protection
- Needs better animal controls/fines
- Needs hospital closer
- Needs long range plan
- Needs more of a downtown
- Needs more restaurants/shopping
- Needs to look neater
- Negative attitude of residents
- Neon signage and buildings/stores going up
- New and old road signs

- New construction of mansion homes
- New construction on lake
- New development too fast
- New developments
- New developments cutting too many trees
- New homes on ridge tops
- New Ingles
- New lakefront mansions are too big
- New over-development
- Newcomers who want to change area
- Night activities
- Night light
- No access for poor people to water
- No affordable housing
- No architectural commercial bldg. façade requirements
- No architectural standard
- No bike/walk paths
- No boat control
- No boat slips to park boat and walk
- No boathouse guidelines
- No boathouses at all
- No building design for maintaining character of town
- No burning ordinance enforcement
- No cable tv
- No Catholic church
- No central planning
- No cohesive plan/enforcement
- No control of destroying forests
- No control on lights on lake
- No control outside town limits
- No county leadership representation
- No cultural stuff
- No developers impact fees
- No doctors
- No drug store (2)
- No dry cleaners
- No enforcement of boating regulations
- No enforcement on noise
- No extended health care facilities
- No fee-free beach for town residents
- No fish
- No formal plan for growth
- No good communication/radio/newspaper
- No good development plans
- No good medical facilities
- No good restaurants
- No good restaurants/Fund terrible
- No grocery shopping
- No growth minded residents
- No handle on zoning
- No hardware store
- No health care facilities
- No health facilities nearby
- No help from county government
- No hospital
- No hotels on lake
- No infrastructure planning
- No interstate access
- No interstate highway
- No large grocery store
- No leadership
- No medical center (6)
- No medical facility
- No nearby schools
- No night life (2)
- No noise control
- No paramedics on duty, only 2 EMT's
- No parking
- No power to protect the peaks and ridgelines
- No power to stop new lake front development
- No public conferences such as shopping
- No public consensus what the town should be as a community
- No public hiking trails
- No public hiking trails in mountains
- No put-in ramp or gas for boats on east end
- No real fulltime/Boat/fishing mariner
- No real town
- No recreational facilities
- No regulations on noise
- No rep. on county board
- No restaurant choices
- No restaurants
- No ridge laws
- No road connection on northern shore to west
- No road to bypass Chimney Rock
- No safe sidewalks/paths
- No schools (3)
- No sewer
- No shopping (3)
- No shoulders on roads
- No sidewalks/trails
- No sign control in county
- No town center
- No town houses lakefront
- No tree ordinance (2)
- No upscale commerce
- No use for the people on the lower end of the county
- No vision
- No vision for the future to develop community
- No way to regulate commercial building
- No year-round access to walk on beach
- No year-round activities
- No YMCA
- No zoning laws
- Noise (12)
- Noise in season
- Noise of motorcycles
- Noise ordinance/Motorcycles
- Noise pollution
- Noise, motorcycles (2)
- Noise/Motorcycles/Outside speakers/Dogs
- Noise/Pollution
- Noisy on weekends
- Noisy people
- Non full-time residents with too much to say
- Non-natives making this place like Gatlinburg
- Non-protection ridgelines
- Non-unity of residents
- Not a way to keep all the trees from being cut down
- Not as peaceful now
- Not enforcing ordinances
- Not enough access to creek

- Not enough activities close by
- Not enough affordable housing
- Not enough amenities/restaurants
- Not enough boat slips
- Not enough boat slips for property owners
- Not enough commercial growth
- Not enough commercial to support basic needs
- Not enough concern for preserving character of area
- Not enough control of developers
- Not enough cultural opportunities
- Not enough docks for tax payers
- Not enough enforcement on developers
- Not enough fine dining
- Not enough fire hydrants
- not enough good restaurants
- Not enough good restaurants/Retail stores
- Not enough lake access
- Not enough local healthcare
- Not enough local leaders/town manager
- Not enough maintenance on Burnt Ridge Dr.
- Not enough medical facilities
- Not enough public area
- Not enough public boat mooring facilities
- Not enough public hourly parking for boats on water
- Not enough public spaces, parks, bike paths
- Not enough quality restaurants/Shopping
- Not enough resident input
- Not enough restaurants (3)
- Not enough restaurants on lake
- Not enough restriction on development
- Not enough retail shops (1)
- Not enough sewers on lake
- Not enough shopping (3)
- Not enough support from county and state
- Not enough zoning controls
- Not getting city water faster to customers
- Not good neighbors/water tower
- Not keeping up what we have and growing too fast
- Not listening to home owners
- Not listing/paying/paying attention to locals
- Not many service facilities of any kind
- Not protecting the trees
- Not safe to walk along roadside
- Not very well managed
- Not year-round resort
- Nothing for family to do
- Officials perceived to be corrupt
- Old dam
- Old infrastructure
- Old land use development regulations
- Old promises need to be removed
- Old sewer lines in water
- Old sewer system in lake bed
- Old time politicians
- Old/run-down boathouses
- One or more restraints
- Only a few retail stores
- Only one road through town
- Ordinance enforcement/dogs/noise
- Out of control development
- Out of control growth
- Outside development
- Outside influences
- Outsiders trying to turn town into a big city
- Over development
- Over development being considered
- Over-bearing police/Town ordinance
- Over-bearing town manager
- Over-building (2)
- Over-building for size of town
- Over-building on land
- Overbuilt
- Overcrowded
- Overcrowded lake
- Overcrowded on the lake
- Over-crowding
- Over-crowding weekends
- Over-crowding/development
- Overdevelopment (10)
- Over-grounded commercial
- Overload of commercialism
- Overly large payroll
- Over-population/Lake congestion
- Overpriced real estate (2)
- Over-regulated
- over-regulated by not enforced
- Over-regulation
- Over-seeing commercial development
- Over-taxed evaluation by county
- owners self serving
- Pace of development (2)
- Park/Recreation
- Parking (3)
- Parking space downtown
- Parking, Hotels
- Parks/Hiking trails
- People from big cities want to change small town feel
- People trying to change Lake Lure
- People who do not obey no wake signs
- People who don't keep up with their property
- People who don't care
- People who don't want change
- Permitting "Holiday Inn" type building along shore
- Personal property appearance
- Phone service
- Physical beauty not up to par with surroundings
- Picnic area along river
- Planned/controlled growth
- Planning for future development
- Police (2)
- Police annex in section 2 needed
- Police attitude
- Police cars following after leaving bar
- Police department (2)
- Police department too wear and small
- Police force too large
- Police harassment
- Police need to patrol slowly instead of speeding around
- Police patrol of lake (2)
- Police tactics
- Policing of lake
- Political favoritism
- Political pottyness

- Politics (3)
- Pollution
- Pontoon boats too large
- Poor advertising
- Poor city government
- Poor civic management
- Poor control of development
- Poor enforcement of burning
- Poor erosion control
- Poor fishing
- Poor growth planning
- Poor infrastructure
- Poor management
- Poor road surface
- Poor roads
- Poor town planning department
- Poor traffic flow
- Poor zoning
- Poor zoning/Arch along lake/river
- Poor/unsightly condition of dam
- Poorly maintained properties
- Poorly promoted
- Population diversity
- Population explosion
- Possibility of natural beauty destroyed by developers
- Possible too fast development starting to happen
- Potential for over-development
- Potential growth if not controlled
- Potential over-crowding
- Power outage after storms
- Predatory developers/realtors (2)
- Problems impacting town just beyond borders
- Process of obtaining boat permits (want to do online)
- Processing length of time for development approval
- Profit driven growth
- Promote year-round activities
- Prone to comm. Development
- Property encroachment
- Property protection
- Protecting the lake from storm water runoff, nutrient loading
- Protection against threats to town's beauty
- Protectionist attitude
- Public access to lake (2)
- Public benches/Boat ramps
- Public parking
- Quality commercial
- Quality medical, broad based
- Rampart growth
- Rapid commercial growth
- Rapid destruction of natural beauty
- Rapid expansion
- Rapid growth
- Rapid growth, unregulated and unplanned
- Rapid increase in property tax to county
- Rate of growth
- Reacts without thoughtful approach
- Real estate agents
- Realtors
- Reasonably priced food service
- Recreational areas, other than golf
- Ridiculous boating regulations
- Relatively uncontrolled development
- Remote location
- Rental property (2)
- Renters/Weekend guests garbage
- Residential development
- Residential sprawl
- Restaurants (18)
- Restaurants and stores
- Restaurants needed
- Restaurants, flea market/Crafts
- Restaurants/Cultural activities
- Retail
- Retail stores
- Ridge development
- Ridgeline construction
- Ridgeline development
- Ridgeline regulations
- Rigid muni. Workers
- Rising cost to live there
- Rising taxes
- Risk of over-development
- Risk of overuse of lake
- Road access to town
- Road congestion (2)
- Road repair (3)
- Road sign pollution
- Road signs
- Road system around lake
- Road trash
- Roads (18)
- Roads and shopping
- Roads are in terrible condition
- Roads are too small
- Roads around lake
- Roads cannot handle traffic
- Roads have too many curves
- Roads in main part of town
- Roads too narrow (2)
- Roads/Access
- Roads/Young's Mtn.
- Roadside litter
- Roadside trash by locals
- Roadways
- Rude police
- Running area
- Ruining natural beauty
- Run down looking community properties
- Runaway development/Loss of forests/ridgelines
- Rush hour traffic
- Same families run the town
- Scenic beauty being impacted by development
- Scenic environment control
- Seasonal
- Seasonal rather than year round
- Seem to want to grow
- Seemingly sporadic enforcement of rules/regulations
- Seems like police antagonize tourists
- Seems like too much development
- Services
- Services not equal
- Services/Medical/Emergency
- Sewer (4)

- Sewer and water/Rats
- Sewer system (3)
- Sewer system in the lake
- Sewer/Water
- Sewer/Water/Margarittagrille
- Shopping (10)
- Shopping area needs
- Shops of quality
- Short sightedness of property owners in discouraging quality development.
- Should tax locals more
- Side walks/Bike paths
- Sidewalks
- Signs (2)
- Silt (2)
- Silt, erosion
- Simple life is getting busy
- Single road through town
- Size
- Ski boats
- Sloppiness of roadside business
- Slow traffic, pull over's, and enforcement
- Small lake becoming too busy
- Small town limited thinking of protection of resources
- Small town politics (2)
- Small town thinking
- Smallness
- Some trouble parking
- Some boats are too large
- Some old houses need removal
- Some ordinances are obtuse
- Some residential areas of lake look like slums
- Sometimes crowded facilities
- Somewhat disorganized
- Speed of traffic
- Speed trap (2)
- Speeding on mountain roads
- Speeding trucks
- Spend too much and much wasted
- Steep increase in property value
- Stock the lake much more
- Stop development
- Stores (2)
- Street lighting (2)
- Stress on infrastructure
- Stricter building restrictions especially on large projects
- Stripping/Cutting trees off mountain tops
- Strong handed govt. tactics
- Struggling with growth
- Subdivision without trees
- Summer congestion
- Summer motorcycle noise
- Summer noise
- Summer traffic (2)
- Super markets
- Support commercialism over residential needs
- Surrounding territory
- Swimming and fishing access for public
- Taking away our beach for playground
- Taking the beauty away
- Taxation
- Taxes already high enough
- Taxes (3)
- Taxes on using small water boats
- Taxes spent on questionable projects
- Taxes very high
- Taxes/Prices
- Temporary/new residents that want to change are they don't know
- Tend to favor builders/developers
- Tend to ignore individual inquirers
- Tendency to over-regulate
- Terrain should/does limit development of roads
- Terrible administrative communication at Town Hall
- The lack of sewers
- The loss of those views
- The same rules do not apply to all residents
- The towers
- Theft
- Threat of industrial involvement
- To spread out
- Tom McKay
- Too aggressive police force
- Too big a police force
- Too commercialized (2)
- Too far away
- Too few people with too much control
- Too few public restrooms
- Too few restaurants (4)
- Too high growth too fast and inability to provide services needed
- Too many "McMansions"
- Too many big houses on lake
- Too many boats (9)
- Too many cops (2)
- Too many employed police
- Too many estate homes/multi million dollar homes
- Too many factions, no clear vision
- Too many fast boats (2)
- Too many government workers
- Too many homes on lake (2)
- Too many houses on the lake front
- Too many land boats
- Too many logging/grading vehicles on road
- Too many motorcycles
- Too many motorcycles at beach area
- Too many motorcycles/Boat traffic on weekends
- Too many narrow roads
- Too many new buildings
- Too many new development (2)
- Too many non-owners allowed on the lake
- Too many outsiders dictating rules/regulations
- Too many over 100 hp boat motors on lake
- Too many people in a small city
- Too many pestering stops by police on lake
- Too many police (2)
- Too many power outages due to proximity of power lines to trees
- Too many private gated communities
- Too many regulations
- Too many rentals
- Too many restrictions
- Too many signs

- Too many signs
- Too many ski boats driving peak periods
- Too many tourist boats
- Too many town boats
- Too many trees cut
- Too many unsightly buildings on 64
- Too many yankees
- Too much bickering
- Too much bldg. and commercial business
- Too much boat regulations/fees for property owners
- Too much boat traffic in summer weekends
- Too much building destroying natural beauty
- Too much building on lake
- Too much building/New communities
- Too much clearing of land
- Too much commercial (3)
- Too much commercial boat activity
- Too much commercial development
- Too much construction
- Too much construction on lakefront
- Too much control via political agendas
- Too much development (6)
- Too much development/Mountains becoming treeless
- Too much emphasis on rental
- Too much government
- Too much growth (4)
- Too much growth/Commercial
- Too much influence from Fairfield in governing/planning
- Too much lake access allowed
- Too much lake front development
- Too much lake regulations
- Too much light pollution (2)
- Too much money is spent on police
- Too much money spent on police department
- Too much multi-family
- Too much new development
- Too much noise
- Too much noise from motorcycles
- Too much noise/motorcycles
- Too much police control
- Too much political insighting
- Too much politics in building code enforcement
- Too much residential development without counter actions
- Too much residential/commercial development
- Too much restriction on lake swimming
- Too much ridgeline development
- Too much road signage
- Too much tourism
- Too much traffic (2)
- Too much traffic during summer
- Too much traffic on the highway
- Too much tree cutting along roads
- Too much uncontrolled development
- Too much uncontrolled development
- Too much worry about golf course
- Too political favoritism
- Too private
- Too quiet
- Too rapid development (2)
- Too rapid growth (2)
- Too seasonal (2)
- Too small for number of people
- Too spread out for police patrolling
- Too status quo for development
- Tour boats
- Tourist control
- Tourists
- Town administration overwhelmed
- Town can't decide what's allowed/not allowed
- Town caters to Washburns and the wealthy
- Town center is tacky
- Town has too much control over people/land purchase
- Town is unable to handle growth need
- Town leaders inability to see the future
- Town leadership
- Town management (2)
- Town too much control
- Town traffic
- Townships work as a whole
- Traffic (18)
- Traffic at times 64/74
- Traffic congestion (15)
- Traffic control (3)
- Traffic flow (2)
- Traffic in Chimney Rock (2)
- Traffic in summer (4)
- Traffic jams (2)
- Traffic on lake on summer weekend months
- Traffic on town
- Traffic towards Asheville
- Traffic/Need new roads
- Trails/Parks
- Transportation
- Trash at Cove's Edge
- Trash pickup
- Trashy boat houses
- Trashy store fronts
- Travel time to get there
- Tree control
- Tree cutting and clearing by developers
- Tree cutting/Arson control
- Tree hugger government mortality
- Tree removal
- Trend toward anti-growth
- Trend toward POA type protectionism
- Trend toward POA type restrictions
- Trying to change to become something we don't want
- Trying to make it a big town
- Turnover of business in arcade area
- Twisty roads
- Two-lane roads 64/74A
- Ugly houses and trailers
- Ugly water tower
- Unbridled new development
- Unchecked development
- Unchecked growth
- Inconsistent subdivision regulations
- Uncontrolled development (6)
- Uncontrolled erosion
- Uncontrolled growth (2)
- Uncontrolled growth without mountain identity

- Uncontrolled residential developments
- Uncontrolled signage
- Uneven application of standards
- Unfriendliness of police
- Unfriendly police
- Unfriendly police/speed stops
- Unity
- Unkept vacant lots
- Unkept/non-maintained property
- Unplanned development (2)
- Unplanned growth (2)
- Unplanned/Uncontrolled development
- Unregulated development (4)
- Unregulated growth
- Unrestricted development (2)
- Unrestricted growth
- Unsightly areas outside town limits
- Unsightly ridgelines
- Unsightly yard debris
- Unwillingness to pay for needed town staff
- Unwise development ruining natural beauty
- Up grade rundown properties
- US 64/74
- Variability of commercial and infrastructure
- Variety of restaurants
- Vehicle traffic on weekends
- Very narrow/curvy roads
- Very poor road system
- Vision for the arts
- Visitors who don't respect environment
- Vulnerability to developers
- Waiver of residential building codes
- Walking trails/River access below dam
- Walking/Hiking Trails
- Want to exclude outsiders
- Wanting to arrest everyone
- Waste of lift area across from Chimney Rock entrance
- Wasting of tax money
- Water (2)
- Water pollution/Too many signs
- Water quality
- Water quality deteriorating
- Water supply
- Water tower (3)
- Water/Sewage (2)
- Water/Sewer access
- Water/Sewer needs improvement
- Water-side fuel access
- We aren't creating unique infrastructure
- Weak architectural guidelines
- Weak development code
- Weak enforcement on zoning
- Weak zoning
- Weekend traffic (2)
- West side road
- Wider variety of restaurants
- Width of lake
- Willingness to damage area for money
- Willingness to seek new ideas
- Winding roads/No sidewalks
- Yankees
- You allow questionable construction
- Zoning (3)
- Zoning enforcement (2)

83. What do you feel is the single biggest issue facing Lake Lure over the next several years?

- A clear master plan that results in a balanced community
- A good balance between commercial/residential development regarding infrastructure
- A small town with a beautiful lake
- A town that has not lost it's beauty due to over-development/More family friendly with a school
- Absorbing in the new developments
- Abusive development
- Access
- Adaptation to increased population
- Affordable construction
- Affordable housing
- Allowing and encouraging growth without turning into Gatlinburg
- Allowing growth but not so much to take away natural beauty
- Animal control in some areas
- Appropriately managed growth
- Attempts to turn Town Council into a POA, taking away property owners rights
- Attracting higher and residential building
- Avoid over-development and commercialism
- Balance growth while keeping areas beauty and amenities and remain quaint/progressive. Plan to attract people
- Balanced growth
- Balancing commercial growth for full-time resident's needs
- Balancing development and keeping the town's quaint mountain life style
- Balancing growth with serenity
- Balancing rate of growth and protection of the environment
- Becoming Myrtle Beach
- Better road system
- Big influx of retiring baby boomers with big demands
- Boat traffic/Housing and regulation
- Build up to speed with the growth
- Building boom is good
- Building homes in high places where trees have to be taken down and ground disturbed
- Clear cutting the mountains for development
- Closed minded people against growth
- Commercial and residential building
- Commercial and residential overdevelopment destroying natural beauty
- Commercial development
- Commercial development
- Commercial development intruding on beauty
- Commercial development, especially large hotels on the shoreline
- Commercial development/Low income housing
- Commercial growth and overuse of lake
- Commercial lakeside development
- Commercial, lakeside development spoiling the charm of the lake and views
- Commercial/Residential development
- Commercial/Residential growth
- Commercial/Residential land use planning and enforcement
- Commercialism and loss of natural beauty of the lake
- Commercial development, generate revenues for services architectural guidelines
- Commit to providing oversight to the growth/Enforce codes/regulations
- Compatible growth issues
- Comprehensive planned development
- Congested road
- Congestion (3)
- Congestion of people and environmental protection
- Conservation
- Construction of business and commercial buildings
- Constructive growth without undesirable input on long-term residents
- Continued infrastructure improvement with controlled expansion
- Control and limit growth to a reasonable level
- Control commercial development
- Control growth (3)
- Control growth/taxes
- Control of commercial growth
- Control of development (2)
- Control of development and growth (2)
- Control of development, especially ridgeline
- Control of growth (2)
- Control of run-off/Nutrients to lake
- Control of slope/ridgeline developments. Clear cutting and erosion of lake pollution
- Control over-growth of developers
- Control pace/activities of development
- Controlled building needed, residential and commercial
- Controlled commercial/Residential development
- Controlled development (2)
- Controlled development/Zoning
- Controlled growth (8)
- Controlled growth and attractive upscale business
- Controlled growth and congestion
- Controlled growth with increased services
- Controlled growth with theme focused
- Controlled growth/Keeping beauty/don't over-crowd the lake
- Controlled growth/Lake usage
- Controlled growth/Preserve beauty/Remove water tower
- Controlled/Directed growth
- Controlled/managed growth
- Controlling amount of building
- Controlling and managing growth while preserving small town uniqueness
- Controlling developers (2)
- Controlling development (2)
- Controlling development and improving road system
- Controlling development and vehicle traffic
- Controlling development on the lake and ridges along lake

- Controlling development/Not losing "character" of the area
- Controlling development/Preserving the "small town/mountain community"
- Controlling efforts of growth
- Controlling erosion from developments
- Controlling growth (4)
- Controlling growth without emotion/feelings
- Controlling growth/Altering landscapes
- Controlling growth/development
- Controlling non-native residents
- Controlling residential in and around town/Environment/view protection
- Controlling the building of "Big Box" type structures along lake shore
- Controlling the recent development
- Controlling/Regulating residential/commercial growth to preserve natural beauty
- Coping with growth/development
- Coping with residential growth, roads, utilities, lake/land enforcement
- Crowding
- Dam and lake usage
- Dangerous trucks that are overloaded
- Dealing with population growth
- Defacing on natural beauty through uncontrolled growth
- Destroying mountain scenic views by developers. Clear cutting/Building small log homes on lots not suited for it
- Destroying the natural beauty/Not retaining the natural tress/mountains.
- Destruction of the beauty of the lake and mountains
- Destruction of the views/regulating development/No tree ordinance
- Destruction on natural beauty by developers
- Determining it's mission and identity
- Developers
- Developers buying all the land
- Developers defile environment
- Developers wanting to ruin the beauty and peace to make lots of money
- Developers/Builders
- Developers/Realtors are seeking only to make lots of money, without regards for the future.
- Developers/Realtors are seeking only to make lots of money, without regards for the future.
- Developing a comprehension that the population supports and guide the town's growth toward that vision
- Developing the town in a way that it is self-sustaining
- Development (20)
- Development and congestion
- Development and increase in population/demand for services
- Development control/Master plan
- Development destroying scenic beauty and changing character of town
- Development happening too fast and losing the small town charm
- Development in general/Too much clearing of land/Water tower is ugly
- Development issues
- Development must be limited and controlled
- Development of number of boats on the lake
- Development of our ridges/mountains
- Development of ridge lines/Clearing mountain tops
- Development pressures (2)
- Development too fast
- Development without master plan
- Development/Dishonesty of real estate industry
- Development/Growing too fast
- Development/Preparedness for this possibility of lake being compromised by development
- Development/Signs
- Development/Tree removal
- Development/Zoning/Architecture
- Directing growth to enhance attractiveness to tourism, increasing property values while maintaining charm
- Drawing more people on a year-round basis that would result in more and better services
- Dredging/Boat traffic
- Effectively controlling residential development growth
- Encourage growth
- Endangering the Mountain views
- Environment
- Erosion control from development
- Erosion from construction
- Erosion into lake
- Erosion of natural beauty by poor development
- Erosion/Management of developments
- Excess growth
- Excessive growth in the town
- Expansion (2)
- Former community cottage/Property being developed by commercial purpose
- Getting administrators in place that have the skills to manage the department.
- Getting left behind as a popular vacation destination
- Giving the residents the services they are entitled to, especially road maintenance
- Government public officials
- Greed
- Greedy developers
- Greedy developers/new-comers changing the town.
- Greedy people and people who build houses to be "seen"
- Growing pains
- Growing the size of the community without harming the recreation use of the lake.
- Growing too fast (2)
- Growing too fast/Developers clear cutting mountains
- Growth (38)
- Growth (too crowded)
- Growth and future dam repairs
- Growth and lake traffic
- Growth and sewer/Water situation
- Growth and transportation
- Growth control (2)
- Growth is uncontrolled
- Growth of commercial clutter south of L.L on Hwy 9
- Growth of residents
- Growth Problems
- Growth that enhances the area rather than demeans it
- Growth too fast. Destruction of the mountain tops
- Growth with "class"

- Growth without control/Housing costs too high for average person
- Growth without destroying views/environment. Building/landscape requirements
- Growth without losing the scenic amenities of the lake and town
- Growth, population, roads, services
- Growth/Ability to support growth
- Growth/Commercial/High rise residential
- Growth/Long range plans to insure quality of living areas/Protection of natural beauty of mountains/lake
- Growth/rezoning requests
- Growth/Take away nature environment beauty
- Growth/Tourism
- Growth/Traffic/Parking
- Growth/Unrestrained growth
- Guiding commercial development with plan/Accommodating growth by overusing water, sewer, police, fire
- Having excellent visionary leadership
- High taxes
- Highway 64/74
- How much development/what kind
- How to control growth to protect natural beauty on lake
- How to develop economic/health/commercial resources and preserving natural beauty/sense of isolation
- How to handle growth and development while maintaining the charm and feel.
- How to manage the density and keep out lake at safe boating numbers/Commercial development
- Impact
- Improve the tax base and encourage the replacement of dilapidated structures
- Increasing commercial development handled properly
- Increasing number of loud ski boats making it dangerous to be in water and causes shoreline erosion
- In-fighting and lack of planning and cooperation in growth
- Influx of the wealthy building gated communities and homes on lake are too big
- Infrastructure
- Infrastructure planned to support inevitable growth
- Infrastructure/Management of new growth
- Infrastructure/Over-development
- Infrastructure/Taxes
- Infrastructure/The sewer needs to be out of lake
- Infrastructure/Too much lake traffic/Uncontrolled development
- Infrastructure/water/sewer
- Integration of diverse cultures from growth into community
- Intense building without the proper infrastructure to support it
- Interest structure
- It's identity/Don't become another Gatlinburg
- I've heard it's the sewer capacity
- Keeping developers and their money out
- Keeping growth under control
- Keeping it as it is
- Keeping Lake Lure as a relaxing/favorite spot and affordable
- Keeping over-development in check.
- Keeping public out
- Keeping public services up to date
- Keeping small town feeling with commercial growth
- Keeping taxes level
- Keeping the environment safe and clean
- Keeping the natural beauty of the lake
- Keeping the small town appeal without exploding the development
- Lack of arch. Regulation
- Lack of control over new commercial development/Too much emphasis on control of lake access for residents
- Lack of good growth planning to retain the natural beauty and still attract tourists without being a "tourist trap"
- Lack of medical facilities and staff
- Lack of waste water treatment/Sewer
- Lack of zoning/planned development/growth
- Lake beauty density, lake law enforcement growth
- Lake congestion
- Lake density and sedimentation
- Lake front construction
- Lake maintenance
- Lake pollution/Soil erosion/Messing up the ridgeline appearance from over-development
- Lake safety
- Lakefront development in affordable price range
- Land development/Rental property
- Large chain commercial development
- Large developers
- Letting people build on land that should not be disturbed.
- Limit over-building
- Limiting development and boating permits
- Local government prevents growth in the area. Need more restaurants
- Losing it's history and charm and too crowded
- Loss of natural beauty/trees due to over-development
- Loss of property owner rights
- Maintain a vacation atmosphere with a small town flavor with well-crafted houses/Boathouses should be upgraded
- Maintaining control over development
- Maintaining our nature and beauty
- Maintaining proper balance of growth/services
- Maintaining the beauty, watershed quality, view shed quality
- Maintaining the environment
- Maintaining the non-use status of such lake properties existing today
- Make sure the government does not take on authoritarian role.
- Making room for newcomers without disrupting views/beauty of area
- Manage growth by addressing infrastructure needs
- Manage the growth
- Managed development
- Managed growth (2)
- Management of growth while creating jobs
- Management of growth/Weekend visitors
- Managing growth (3)
- Managing growth better

- Managing growth so as to minimize impact on views and the lake
- Managing the growth in the area
- Massive development reducing beauty
- Massive development with no plan
- Medical facilities
- Medical services
- Meeting infrastructure demands
- More multi-family dwellings
- Motorcycle "gangs"
- Motorcycle noise/Increased traffic flow on weekends/Drunks leaving bars
- Mountain Developers
- Need for higher level lodging
- Need more tourists year-round
- Need to improve as we grow, but we need to keep it simple
- Needs to grow but in a way conducive to surroundings
- New construction
- New development on the west side of the lake
- New projects and no facilities
- No long-range plan
- Noise due to motorcycle riders and non-residence boat users
- Noise, pollution, lake congestion
- Noisy motorcycles/Make laws for signs on store fronts/Signs for slow drivers to use pull-off areas
- Non residential development
- Non-residential/Commercial boating
- Not listening to local minority and letting the majority rule
- Number of boats/size of boats
- Old way of life versus growth
- Ordinances to keep the town from being over-developed
- Out of control growth
- Out of control land developers
- Over development
- Over development and uncontrolled growth
- Over development changing character of the lake town.
- Over growth
- Over-building (4)
- Over-building and giving developers the ability to ruin the sky line
- Over-building and over-population
- Over-building and uncontrolled building
- Over-building/population
- Over-built and populated
- Over-commercialization
- Over-construction
- Over-Crowding (7)
- Over-crowding on lake
- Over-crowding people and boats
- Over-developing the area and losing the quaint charm/unbridled beauty that has been her for years
- Over-development (41)
- Over-development and cutting of trees
- Over-development and over-crowding
- Over-development and silt
- Over-development by big developers
- Over-development for present services and boating
- Over-development losing beauty
- Over-development maintaining rural appeal while adding desired services
- Over-development not being controlled
- Over-development of housing/vacation homes
- Over-development of lake front
- Over-development that destroys very beauty that attracts people to the area
- Over-development to increase over-building
- Over-development traffic problem
- Over-development with lack of control of natural resources
- Over-development, but keeping some growth
- Over-development, commercialization, potential to become one more blue collar tourist trap
- Over-development, loss of trees, noise, pollution
- Over-development, quality growth
- Over-development/Clear cutting of woods
- Over-development/Commercial and lake usage
- Over-development/Crowding/Congestion/Losing the "small town feeling"
- Over-development/Loss of natural beauty and "green space"
- Over-development/Regulation of charm of development
- Over-development/Re-scarring of mountains
- Over-development/Traffic problems and pollution
- Over-development of residential properties
- Over-growth (3)
- Over-growth and development
- Over-growth and population
- Over-growth for money and cramped
- Over-growth/Too many boats on lake
- Over-management and regulation
- Over-popularity of boats/houses losing natural beauty
- Overpopulation (6)
- Over-population by issuing building permits
- Over-population of buildings, not residential
- Over-regulation (2)
- Overrun by northerners
- Over-taxing residents. Increase in population should increase in tax base
- Overuse of lake during summer
- People moving here for "our" lifestyle and wanting to change it
- People trying to change Lake Lure
- People wanting to build huge homes in huge developments/Increased population for infrastructure
- People who don't appreciate it, they see only money
- Planned development that is not done with knee jerk reaction/Need quality sign ordinances
- Planned growth
- Planned growth
- Planning and zoning regulation
- POA's should not be so powerful
- Pollution
- Pollution, noise, traffic, low income housing
- Population
- Population growth (2)
- Population growth and traffic
- Population increase
- Posting community events to neighboring counties

- Preserving the natural beauty during growth and development
- Preserving the quality of the lake as the area grows
- Pressure on government to provide expensive regulations
- Pressure to grow/How to control it in the right way
- Prevent over-development and over-crowding
- Preventing developers from deforesting the land
- Preventing it from looking like every other tourist spot
- Profit seeking development/Roads/Traffic
- Project like Cloud proposed
- Projects like Cloud's major commercial venture
- Proper growth and development of the town
- Properly controlled development
- Proportionately spreading tax base vs. services
- Protecting lake
- Protecting lake from over-development
- Protecting the growth
- Protecting the town density from developers
- Protecting the water quality of the lake
- Protection of natural resources
- Providing for increased growth
- Providing public lake access.
- Public financing to deal with issues resulting from developments
- Public services
- Quality control of development
- Quality growth
- Quality police/fire protection due to growth of town and surrounding area
- Quick build-up/Low infrastructure
- Rapid development without appropriate restrictions to maintain beauty of the environment
- Rapid expansion
- Rapid growth (3)
- Rapid growth in and outside of town with infrastructure demands
- Rapid growth/development. The developers are destroying the nature
- Rapid growth/Traffic congestion
- Recreational over-crowding of lake in the summer
- Red tape
- Remaining a unique community
- Resident turn over
- Residential and commercial expansion with an appeal to only the affluent
- Residential growth
- Resort/Commercial buildings
- Restrictions on lake use
- Ridgeline problems
- Road improvement
- Road repairs outside main Lake Lure/Young's Mtn. Dr.
- Roads
- Roads and housing to keep up with/Need more entertainment and shopping
- Roads/Parking/health care center
- Roadways, infrastructures and zoning controls
- Ruining the ridgelines of mountains
- Runaway development threatens character of the area
- Safe roadway
- Sedimentation/Over-seeing commercial development
- Sewer
- Sewer/Water quality of lake
- Sewers/Lake pollution/Uncontrolled development/No restrictions on building
- Sewers/Roads
- Short sighted developers
- Single road access
- So many huge houses being built where they clear-cut the land, removing trees especially on water front
- Solid commercial/residential growth plan
- Speed of residential growth/Traffic on summer weekends
- Still a small town.
- Still too many junky houses/residences
- Stop the housing development
- Stopping development
- Strain on aging and existing facilities
- Strain on services by adjoining resorts
- Strain on the infrastructure due to over-development
- Stripping the trees
- Subdivisions clearing the hills/Going bankrupt or building
- Taxation beyond reasonable amounts
- Taxes
- That construction will come in too fast
- The building boom that is going on.
- The control of developers
- The move to excessive regulation that will destroy the resort atmosphere, limit reasonable development/property value
- The need for a master plan for development
- The need for strict building codes
- The need to change zoning regulations to allow more commercial development/growth
- The need to expand.
- The onslaught of development in the surrounding areas.
- The potential for over-development at the expense of the environment.
- The rape of the landscape by developers and individuals
- The sewer system is overloaded/power generating system/Dam maintenance power plant
- The temptation to grow
- To be able to control growth and infrastructure
- To control the growth
- Too fast growth
- Too many boats on lake (2)
- Too many boats on lake, Too many homes on shoreline
- Too many cops on lake. Too much development.
- Too many housing developments that cut too many trees
- Too many part-time residents trying to dictate the town.
- Too many People
- Too many people and boats on the lake
- Too many people in too small place
- Too many people moving into area
- Too many real estate developments
- Too many regulations. Chance of higher taxes/fees. Police too strict.
- Too many sub-division developments
- Too many yankees moving in wanting to change the town

- Too much commercial development, hotels
- Too much commercial development/too much commercialism of the lake
- Too much commercial growth
- Too much commercial influence and/or change
- Too much commercial lake activity
- Too much development (8)
- Too much development and land clearing/Motorcycles
- Too much development for no reason
- Too much development, too fast
- Too much growth (3)
- Too much growth too fast
- Too much growth, residential and business
- Too much growth/Tree loss
- Too much mountain stripping for development
- Too much new development requiring too much new infrastructure
- Too much northern influence moving in
- Too much pressure on the lake because of too many homes
- Too much unrestricted growth
- Tourism
- Town center roads to be more upscale
- Town reacting to development rather than controlling development
- Traffic (5)
- Traffic and pollution
- Traffic around lake
- Traffic congestion (3)
- Traffic congestion and enforcement
- Traffic congestion in summer
- Traffic control
- Traffic roadways
- Traffic, erosion
- Traffic/Fire protection
- Traffic/Roads/Congestion
- Transition from small mountain town to moderate, but essential quality growth
- Trying to control developers
- Trying to control growth to maintain the integrity of the natural mountainous setting
- Trying to make it a big resort.
- Unchecked development destroying the natural beauty of the town
- Unchecked, unplanned growth
- Uncontrolled development (5)
- Uncontrolled development and it's environmental impact
- Uncontrolled development by irresponsible developers
- Uncontrolled development with no plan in place
- Uncontrolled development/Noise
- Uncontrolled development/pollution
- Uncontrolled expansion without environmental control
- Uncontrolled growth (7)
- Uncontrolled growth and development
- Uncontrolled growth and inadequate infrastructure
- Uncontrolled growth around us
- Uncontrolled growth without restrictions to preserve the integrity of the town
- Uncontrolled growth/Enforcing environmental laws
- Uncontrolled growth/No infrastructure in place for present growth rate
- Unplanned development
- Unplanned growth without necessary roads to support it
- Unregulated growth (2)
- Unrestrained sedimentation/Pollution to the lake
- Unrestricted growth (2)
- Unrestricted, unplanned development ruining the beauty
- Unrestricted/unregulated rapid land development
- Unscrupulous land developers
- Unwise expansion
- Vision for the future
- Water and sewer/Street lights/Roads
- Water quality
- Water quality/Over-development
- Water, sewage, and building codes
- Way too many boats allowed/Lakefront owners should be allowed boat precedence over residents/visitors
- Well planned and controlled development
- Well planned growth as nothing stays the same
- What does the residents want it to be
- With growth comes more sewage, need for public services
- Zoning
- Zoning preventing clear cutting of trees/Excessive traffic/people
- Zoning/Drinking water

84. Please briefly describe your vision of what Lake Lure should be twenty years from now?

- 50% more high value single homes
- A beautiful "boutique-like" community with shopping, restaurants, movie theaters, culture
- A beautiful and peaceful lake retreat
- A beautiful area for vacationers/residents
- A beautiful mountain lake community with small town charm
- A beautiful mountain lake town. Minimal new development
- A beautiful mountain resort with an emphasis on outdoor/natural tourist attractions
- A beautiful mountain/lake community with balanced residential/commercial serving citizens/visitors
- A beautiful place to live and visit that offers a stress-free environment
- A beautiful place to live/visit that has grown to support population while maintaining beauty/health of lake/mountains
- A beautiful resort area but friendly
- A beautiful resort town with mountain charm
- A beautiful retreat from the common place where original beauty/history remains.
- A beautiful town with more sense of community/cultural events
- A beautiful vacation place

- A beautiful, affluent, well-managed residential retirement area
- A beautiful, quiet place for families to enjoy/A place to relax from the city and other tourist traps
- A beautiful, welcoming place in which to live or to visit
- A beautiful, well maintained, residential community
- A charming, safe place to live/work. A vacation place that is unique
- A city
- A clean lake retaining the mountain beauty
- A clean, environmentally protected and land use protected lake
- A community of people sharing common values
- A community that has grown gracefully
- A community that has grown with improved roads, limited development, clean highway
- A community with adequate professional/municipal/commercial development to coincide much residential growth
- A complete plan for a growth of the city. Pretty place to come/live/work.
- A continued place of beauty and relaxation
- A family oriented place with quiet parks/good restaurants/Good value
- A full fledged city self-contained
- A great escape
- A growing tourist friendly community
- A little artsy town/Should play music and have small art festivals
- A lovely quiet mountain lake getaway
- A luxury resort area/Restricted
- A more balanced community age wise
- A more balanced community with schools/Industry supporting a better distribution of age categories.
- A more commercialized resort area
- A more self-sustaining mountain town with medical retail, education, and recreation
- A nationally recognized tourist destination that is not overly commercialized
- A nice local community family
- A nice place to live
- A peaceful mountain lake residential/tourist community
- A place of natural beauty where leadership refused to bow to developmental pressure
- A place of natural beauty with clean air and clean water. A proud community that did not follow the masses.
- A place of natural beauty with somewhat limited commercial growth
- A place of natural beauty with strong development restrictions
- A place of pace, quiet and beauty as it was intended when first built
- A place that preserves the natural beauty and discourages urban clutter
- A place where people still have recreational opportunities
- A pontoon lake for retired people
- A private lake resort not available to the public for boating
- A prosperous, mountain resort community, with a mix of housing
- A quaint little village
- A quaint mountain village with reasonably clean water/Entertainment and restaurants
- A quaint, off the beaten path, mountain lakefront town known for scenic beauty and outdoor recreations
- A quiet and peaceful little mountain town
- A quiet lake with beautiful views remains/Mixed properties
- A quiet mid-sized town
- A quiet mountain community
- A quiet mountain town with more services available
- A quiet place where lake front home owners can relax and keep character of small town. Protect natural beauty
- A quiet place with lots of trees and nature/A place that was not developed into an oblivion
- A quiet rural community
- A quiet, scenic despite the hustle-bustle of modern America
- A recreational retreat and residential community
- A residential mountain community with numerous recreational opportunities/Not overly developed or overly commercialized
- A resort destination
- A resort/retirement community with more residents than present and a safe lake with scenic views
- A retirement community
- A safe getaway with decreased focus on residential/commercial expansion
- A scenic quiet town of past and present with great nature/quiet place to relax
- A scenic residential community
- A small but progressive friendly place to live
- A small mountain town with no mall or fast food restaurants
- A small resort area with great facilities/Arcade area has great potential for small park/shops/café
- A small town where a culturally diverse population can live, work, and retire and surrounded by natural beauty
- A small town with natural charm plus modern needs.
- A step back in time/Best kept secret/safe, peaceful, natural beauty
- A Swiss-like mountain village with gathering places to enjoy within walking/gathering distance.
- A thriving resort town with plenty of services/amenities
- A tourist attraction
- A town offering residents/visitors a place of beauty with year-round cultural/commercial/and other amenities
- A town that has expanded but kept it's mountain town character
- A town that is known for it's beauty, high quality of living, attracts visitors/permanent dwellers/Business for basic needs
- A town with a plan to meet needs of the citizens/Provide safe are for work and play
- A town with access to preserved natural areas
- A town with greater amenities, parked recreation while preserving natural beauty
- A town with many shops, movies, schools, beautiful lake and ridgeline with trees
- A town with nice commercial amenities and continued residential growth

- A unique mountain retreat
- A very high end resort/retirement
- A vibrant mountain retreat as it portrays today
- A well run, cost effective, small community with natural environmental advantages
- A well-planned resort maintaining it's natural beauty
- A well-planned resort/tourist community with a year-round infrastructure
- A zoned balanced community of commercial, retail and industrial development.
- About like now, with fewer road signs
- About the same
- About the same controlled residential growth as well as business growth
- About the same with better medical facilities
- Active family community
- Almost the same as it is now
- An "upscale" community in tune with the natural surroundings
- An ambient place to live/decent environment
- An artist's community/People keeping the traditions of NC handicrafts alive
- An attractive mountain community maintaining it's natural mountain atmosphere and tourist friendly
- An attractive, predominantly second home community with tasteful houses and restaurants
- An enlarged resort community that's well maintained
- An uncrowded community of upscale residences with enough affordable housing for local workers. Need retail/medical services
- An uncrowded, not overbuilt, recreational areas
- An upscale enclave for residents and second homes
- An upscale residential community
- Area with small shops and restaurants like Blowing Rock
- As beautiful and mountaneousque as today
- As beautiful as it is today
- As close to present as possible
- As close to the present town as possible/Limited growth
- As close to what it is now
- As close to what it is now, as possible
- As it is now (4)
- As little change as possible
- As little change as possible/Residential cottages
- As little development as possible
- As near as present
- As now, only more environmentally friendly
- As similar to what it is now as possible
- As unchanged as possible
- Attractive
- Basically the same
- Basically the same but better
- Basically the same but more nice places to stay
- Basically the way it is now, with development controlled so as not to spoil the natural beauty
- Beautiful homes on lake/Affordable housing where possible
- Beautiful area for residents/tourists
- Beautiful area that has amenities of great resort town but without congestion
- Beautiful city that offers residents to enjoy all services and not to have to travel but to get there
- Beautiful developed lake front community that residents/tourists love to come to
- Beautiful environment protected from over-development
- Beautiful Mountain resort
- Beautiful mountain town
- Beautiful mountain town with 1st class amenities, shopping, world class parks
- Beautiful mountain town with access to natural beauty
- Beautiful resort area with very attractive lakefront homes
- Beautiful vacation spot
- Beautiful, clean, not crowded
- Beautiful, quiet, Unpolluted mountain town and lake
- Beauty shall remain as is.
- Beauty should remain unchanged/Town needs a "common area" for commercial building along Hwy 9 near Ingles
- Beauty, clean, environmentally friendly
- Being able to see the beauty of the lake with a lot of goals and houses
- Better health and cultural services, but not much more developed than it is now
- Better roads/Streets
- Bigger "small town"
- Boat houses should compliment Lake Lure
- Branson, MO
- Broader based
- Carefully controlled development focused on beauty of the area
- Changes should be minimal and keep the current character of the town
- Charming mountain community with mixed second/retirement homes. Strong zoning and protection of natural beauty.
- Charming, relaxing place to visit or live
- Children can enjoy with the same beauty and solitude without overdevelopment.
- Chimney Rock bypass/State park/Better stricter zoning enforcement/Mayor/Council government
- Classy stores and restaurants/No cheap tourism upgrade existing trashy structures
- Clean lake water/Nice boat houses/beautiful homes
- Clean lake, beautiful homes, great restaurants and shops
- Clean, busy/Maintaining it's natural beauty
- Clean, clear, still beautiful, preservation of the mountains/ridges
- Clean, Friendly, Still relatively pollution free
- Clean/Pristine Lake water, good mix of residential/commercial properties
- Cleaner, quiet, quaint, beautiful, serene
- Cleaner, quieter, more beautiful
- Close to what it is now
- Coexistence of resort and full-time residents in a preserved mountain/lake community with local resources available
- Commercial/Multi-family building in town but preserve lakefront. Restrictions on trees being cut down
- Community of single family residences that enjoys beauty of the lake and mountains. Not a lot of boating regulations.
- Community that supports year-round upscale retail
- Comprehensive planned development

- Continue to be the small mountain town that people like to visit and live in
- Continue to keep the mountains/lake as they were 20 years ago. Control growth/mountain top development
- Continue with progress
- Continued private residential development. Limited high density lodging/commercial construction
- Continued slow/moderate pace residential development with protected ridges/Commercial development in town center
- Control growth of traffic/Small and upscale shops
- Control of boats on lake, leash laws, a pleasant place to live/residents/businesses upgraded
- Controlled growth
- Controlled growth. All of "downtown" should have construction on renovation to give it mountain town character
- Controlled planned community
- Controlled residential/commercial growth while maintaining our current image
- Controlled ridgeline development/More medical/care facilities/Public educational opportunities
- Correction of weaknesses
- Current status
- Demolished
- Destination for retirement. Strong job market, year-round population, mixed use housing
- Destination retirement/Vacation community in a natural setting
- Developed commercial centers/Grocery stores/Medical centers/
- Development out of city limits
- Dominate theme. Lakefront fishing with swimming area/Quaint shops
- Don't let it be another Gatlinburg
- Easy access for all kinds of health care/entertainment
- Eclectic mountain community attracting active families for water, biking, hiking, outdoor activities, and also shops, cafes
- Elite mountain community
- Environmentally sound/Clean/Congested lake
- Exactly what it is now
- Existing developments will be housed and better medical facilities will be present
- Expanded single family housing
- Family friendly residential mountain town
- Family outdoor recreation area
- Family residential community
- Fewer mansions, shacks/Predominantly modest, tasteful homes/More full-time residents, retails and restaurants
- Full service year-round area similar to Hendersonville
- Fully developed but uncontested
- Fun, enjoyable family getaway for vacation with a mix of housing/recreational opportunities geared towards natural setting
- Gem of a down due to environmental control/protection
- Good views/Vacation sites
- Great tourist area
- Grow more slowly/Have medical offices
- Growth of single family homes.
- Growth/commercial growth should be controlled to preserve scenery/atmosphere
- Hard to say
- Having a seasonal tourist business while maintaining the beauty and uniqueness
- Healthy year-round living community for all residents
- High end resort
- Hope it doesn't become too commercial
- Hope it would look the same, but am afraid there will be buildings, businesses and houses on available lots
- Hope it's not another Pigeon Forge
- Hope that development would not change the beauty of the community
- Hopefully not to populated/Much like it is now
- Hopefully still the "Gem of the Carolinas"
- Hopefully the same /Natural beauty/Slow down development
- Hopefully, a nice, happy, comfortable mountain town with lake
- I hope it will be only what we bought for originally and not too robust
- I hope the same
- I would like to see a more upscale, exclusive community
- I would like to see it remain small town with medical/dental facilities, schools, improved city planning
- I wouldn't change a thing and wouldn't compete with tourist areas
- I'd like to see controlled growth
- I'd like to see homes surrounded by trees/Small business, parks, entertainment beyond 9 pm/Public transportation
- If things continue as they are, drained so they can develop the bottom half
- In pristine condition to enjoy natural beauty
- It should be a quiet slow paced community
- It should be a retreat for all to enjoy the small town environment
- It should be resort-like
- It will continue to grow but we should limit the growth to single family residential growth and minimal tourist improvement
- Just as it is now (3)
- Just as it is today/Residential
- Just as it is/With a few more good restaurants
- Just like it is now, but better maintained
- Keep the silt out of the lake and protect the green space/No chain shops
- Keep as close to the way it is now
- Keep it similar to what it is in 2006
- Keep it's natural beauty
- Keep Lake Lure a jewel for vacationers
- Keep small town community appeal
- Keep the beautiful lake/mountains unpolluted and a picture of nature
- Lake Lure does not needs to become over-run with too much construction
- Lake Lure will always be a resort community
- Lake Tahoe, Lake Placid, Cashiers, Blowing Rock, Highlands
- Lake town resort
- Less "junk" stores, more access, free beach use, nicer water park

- Let's keep it quiet and peaceful. Discourage Atlanta type living
- Like it does now with more single family homes/stores/services
- Like it is now, with a few more homes
- Like it the way it is today
- Like it to be like it was
- Like it was 10 years ago (2)
- Like it was 20 years ago
- Like to continue to enjoy the small town, where many of us know each other and our family
- Like to see as little growth/expansion as possible.
- Like today, only with more trails, landscaping, public benches, boat ramps, public promenade
- Limited change
- Limited commercial growth/A town motif plan
- Limited water access by non-residents
- Little growth & expansion as possible.
- Little or no change.
- Look around and pick a place in the world similar to Lake Lure (Switzerland)
- Lovely mountain town that is peaceful and harmonious with nature
- Low density development, clean water, many trees
- Luxury resort town with charm/Improve facilities
- Mainly residential, primarily retirement, limited health facilities
- Maintain the beauty and quiet it now has
- Maintain beauty
- Maintain beauty of resort atmosphere
- Maintain charm and sense of community
- Maintain country ambience/Year-round facilities/Shopping
- Maintain current natural beauty with limited growth
- Maintain existing character of area
- Maintain it's beauty/Be more of a full time community
- Maintain it's current character, with as little land development and population expansion as possible
- Maintain natural beauty and upgrade essential services
- Maintain the mountain community towns feel while allowing reasonable levels of new development. Protect natural features
- Maintain the small town atmosphere in as natural a setting as possible without large commercial development
- Make it like Asheville
- Maybe private
- Measured and controlled growth to protect natural beauty of area
- Medical facilities expanded
- Model community
- Modest growth mountain town with a pristine lake
- More "quality" facilities as the population increases
- More beautiful than it is today/green, clean, and vibrant
- More classy, nicer restaurants, clean up trash homes
- More conveniences for the population
- More development like Lowe's and a major road North to I-40
- More full-time residents/Medical care/growth/adding fine restaurants, shops, recreation while keeping the beauty/peacefulness
- More growth but not out of hand
- More like Blowing Rock/Cashiers/Highland/Surrounded by state parks
- More local natives being able to enjoy the town
- More of a tourist town
- More parking for impaired
- More people/homes. Nicer beach area with small shops
- More year-round residents/More quiet recreation/More educational services, medical care, and service oriented businesses
- Most of us are attracted to the natural undeveloped beauty. It should remain that way
- Mostly unchanged (2)
- Mountain character and beauty of area
- Mountain community with superior views, clean water and a residential serenity
- Mountain current natural beauty
- Mountain physical beauty, increased access to waterfront, more parks
- Mountains/Views remain
- Much as it is today (6)
- Much improved
- Much larger
- Much like it is now but with more people year-round
- Much the same as it has been, a lakefront of single-family homes/Forested ridges with no clear-cutting/limited sight corridors
- Much the same as it is now with access to medical facilities, shopping
- Much the same as it is now/No tourism with commercialism
- Much the same as today
- Much the same but better health/retirement living facilities
- Much the same/Scenic beauty of mountains/lake protected while allowing controlled/slower paced economic growth
- Much the same as it is now with it's local quaint feel
- Natural beauty must be protected
- Natural beauty enhanced
- Natural beauty preserved
- Natural beauty should be retained/preserved regardless of development
- Natural beauty/Not too many people
- Natural preservation, parks, minimal commercial development
- Natural, beautiful, with a quaint town center
- Naturally beautiful, quiet, safe place to live with health support
- Need trees to cover homes on lake, visual mess/A quiet town with nice restaurants, beautiful area
- Needs to keep it's quaintness and limit boat traffic
- New homes/Lots of trees/Clean lake/Good fishing
- Nice place to live
- Nice retirement home
- Nicer areas in public locations and nicer commercialism and reduce small houses that can be eye sores
- No bigger than what it is now.
- No change
- No fast foods or commercial strips/Promote environment and outdoor beauty/recreation

- No more than what it is now. Slow down development
- No tall buildings, lake front home rentals, or ski schools on lake
- No tourist traps
- Normal upgrading/remodeling of existing homes with little developments
- Not a lot different from now
- Not a lot different/Beautiful, unpopulated natural setting is disappearing
- Not changing much/Still peaceful, quiet, clean community/Not a tourist trap
- Not enough shopping centers
- Not much change
- Not much change from presently
- Not much different from what it is now
- Not over-developed/Remain the small quaint community that it has been the last 20 years
- Not overly developed
- Not so different from today/More services/Commercial activities away from the lake/Family homes on lake
- Not surrounded by so many homes that there's no scenery left
- Not to grow to a place we can't enjoy
- Not too much change. Keep it small
- Not too much different from now with limited increase in residential developments and required services
- Oasis/A quiet community not over-populated. Like it to remain "heaven's gate"
- One with beauty and clear, beautiful, clean water
- Only 20% more congested
- Our lake is in the top 10 lakes in the world noted for its beauty. Must keep the lake beautiful
- Outdoor recreation mecca/State park, climbing, mountain biking, kayaking
- Over-development
- Over-populated and priced out of reach
- Parks, walking trails, a lakefront restaurant/No more large developments/Gated communities
- Peaceful
- Peaceful community/Unpolluted/Bright street/lake front home lights
- Peaceful small family community
- Peaceful with nature paths, restaurants
- Peaceful, family oriented
- Peaceful, serene, beautiful views but have necessities available
- Peek-a-boo rather than panoramic views
- People working from home with food, medical services
- Personally, no changes
- Place of great beauty
- Place of refuge and recreation for residents.
- Planned retirement, vacation, and recreation community
- Planned, orderly, moderate growth which hasn't damaged serenity and beauty
- Premier resort community that has beautified from controlled growth planning
- Preserve natural beauty
- Preserve the mountains, trees, and scenery
- Pretty and quiet
- Pretty much the same
- Pretty much the same as now/Small community
- Pretty much the same except bigger
- Pretty much what it is now/More homes, medical offices
- Primarily a residential community
- Primarily a retirement/residential/resort community
- Pristine
- Pristine natural, small town. Medical services
- Pristine town with a conformity and housing regulations
- Progressively upscale vacation destiny, with adequate support in infrastructure/Job growth too
- Protecting the natural appearance/New commercial development
- Provide new medical/recreational facilities/Well managed growth/Reduce crime
- Quaint atmosphere and attract more tourism and night life
- Quaint beautiful town with stores, medical facilities, school, and assisted living
- Quaint mountain lifestyle with a balance of modern services
- Quaint restaurants, shops and park, bicycle and walking paths
- Quaint sophisticated town similar to Highlands, NC
- Quaint, attractive mountain town with more services, infrastructure
- Quaint, cottage atmosphere.
- Quaint, mountain feel
- Quaint, quiet, less like an amusement park
- Quaint, upscale mountain town
- Quiet
- Quiet mountain town
- Quiet place to unwind
- Quiet place with natural beauty to retire
- Quiet, clean, friendly, not too crowded
- Quiet, Peaceful town with improved level of health and educational opportunities
- Quiet, well-planned attractive residential/commercial and beautiful mountains with limited development
- Quiet/Beautiful environment
- Reasonable growth and rural flavor
- Reasonably developed
- Recreation and retirement area
- Regressive/Slow down development
- Relatively the same as now
- Relatively unchanged
- Relaxed, quaint area with a few restaurants and shops
- Remain a quiet, relaxing place to visit and live
- Remain like it is today-small, friendly community with low population, crime rate, and quite atmosphere.
- Remain the same
- Remote, quaint, attractive
- Residential, safe/enjoyable lake privileges, improved medical
- residential area with strong entertainment outlets
- Residential community which offers cultural and tourist attractions
- Residential community with services for retired population and families balanced with commercial to service tourism
- Residential lake town with small local businesses

- Residential with commercial district that's got character
- Residential, serene
- Resort area for families/retirees
- Resort community but low-key/down-to-earth
- Resort community with adequate shopping
- Resort community with more jobs
- Resort type setting
- Resort with nice recreation areas, shops, hotels
- Resort/Retirement community
- Retain it's mountain charm
- Retain natural beauty through managed growth
- Retain quality of environment and natural resources, thriving town, friendly, charm, outdoor activities
- Retain the same small town atmosphere/beauty
- Retention of beauty/Small community atmosphere with restaurants and friendly people/Cleanliness
- Retirement and environmentally sensitive development
- Retirement comm.
- Retirement Resort/Keep as original as possible
- Retreat that has been environmentally saved
- Same (8)
- Same as 10 years ago
- Same as now but cleaner and neater
- Same as now/Quiet, great place
- Same great scenery
- Same little quiet mountain town
- Same mountain character
- Same mountain town
- Same quiet little town that people come to enjoy.
- Self-contained community that has year-round residents with attractions for long-term vacationers
- Self-sustaining year-round economy
- Serene thriving town with active community spirit where property owners are residents
- Should be a small town elite vacation place/Not over-populated, developed and keep natural beauty
- Should be develeped while preserving natural beauty/Restaurants and shops with mountain village feel
- Should be self-contained for residents/visitors such as cultural/entertainment things to do
- Should have superior medical services and keep natural beauty as a plus
- Should have the feel of a small town community
- Should learn to fit needed homes/businesses/services within the environment
- Should remain a mountain town despite all the growth/Town should have authority to make houses clean/neat
- Should remain a place of beauty and a town in which families enjoy living
- Should remain a retirement community with support facilities. Roads are terrible/No town benefits.
- Similar environment to now
- Similar to now with a few changes
- Similar to now with a few changes
- Similar to now with noise improvements
- Similar to what it is today (4)
- Similar to what it was 20 years ago
- Simple, cozy, charming mountain lake community with natural views and keeping residential character
- Single family home community keeping the ecological beauty
- Single family homes/Non-rental/Protection of environment better than now/No tall buildings/Ridgeline protection/No ski schools
- Single family with limited local services
- Sleepy mountain town with attractive plants and store fronts/Cleanup debris and stop clear-cutting.
- Slightly larger year-round residential population. Semi-luxurious tourism facilities
- Slightly more modern but remain the same community with beauty
- Slightly refined by basically the same
- Slow and controlled growth
- Slow development of commercial shopping
- Slow growth
- Small commercial business/An elementary school/Convenient access to architectural standards for downtown
- Small community without much change
- Small mountain fell, tastefully developed
- Small mountain town (2)
- Small mountain town with convenient access to grocery
- Small town (4)
- Small town atmosphere
- Small town environment, improved health facilities
- Small town feel/There are no big box stores/Vacation destination nationwide/Beautiful mountains/Access to I-40
- Small town friendly
- Small town friendly without "old folks" control/Very similar to today
- Small town, residential community, limited resort activity
- Small well-balanced town with better public facilities
- Small, mountain character town
- Small, quiet, lake community with upscale eating facilities
- Small, scenic, quaint beautiful mountain lake community
- Smaller
- Stay as is/Stop condo/gated
- Stay small and quaint as is now
- Stay the same
- Staying small and retaining natural beauty
- Still a beautiful, lake resort town
- Still a beautiful, quiet lake
- Still a place of natural beauty and tranquility
- Still a place where people want to retire/More quality small business and restaurants/Control tree cutting and erosion
- Still a quiet retreat reflecting a well throughout growth plan
- Still a small town with popularity for visitation
- Still drop-dead gorgeous, tranquil and serene/ an oasis away from the chaos of a big city/Get-away feel to it
- Still friendly but common sense progression
- Still quaint and wonderful
- The area should remain a true "vacation getaway" remaining natural and not over-developed
- The best place to live

- The development in/around Lake Lure makes the town less appealing
- The fabulous place to live and vacation is now without large gated developments/hotels
- The feel/character to be as it is now with more amenities/parks/recreation/infrastructure to handle them.
- The growth of commercial development. A great place to live for all walks of life
- The lake would be comprised of single family dwellings and no more boats on lake than now/Lose boathouses and docks
- The lovely, historical, quiet, natural piece of paradise it is today
- The natural beauty
- The natural beauty it has been
- The natural beauty it is today/Building codes for residential/commercial needs
- The same as it is now, beautiful and quiet
- The same as today (6)
- The same beautiful, small town it is today, but with even more control over growth and commercialism
- The same lovely lake and scenic mountains.
- The same quaint little town that people flock to enjoy
- The same that is has been
- The same with improved health care available
- The same with more parks, lake access, and better roads
- The waterfront retaining it's natural beauty, trees along the ridgelines, buildings, limited commercial development
- The way it is now. Don't want to see it turned into a small city
- There has been too much clear cutting
- This place will be ruined in 20 years at this pace
- Thriving mixed-use year-round community/vacation resort
- Thriving mountain town
- To be able to see the stars at night and still be in awe of the beauty
- To keep a small town mountain community feeling with all the amenities
- To look like Boone
- To remain a quaint and beautiful town
- To stay a quaint little town
- Too crowded
- Town should develop services
- Town should maintain it's serenity and beauty
- Town taken over by "outsiders" with uncontrolled growth/building
- Town with proper mix of residential/commercial and recreation parks
- Tranquil and natural escape from stress and commercialism of major metro areas
- Tranquil, peaceful same town surrounded by natural beauty
- Try to keep existing quiet, quaint, small town feel
- Try to maintain the quaintness and laid back nature of the city/area
- Unchanged (2)
- Unchanged beauty, low-key place to live and vacation
- Unchanged from today
- Unique, friendly community with undeveloped beauty
- Unique, peaceful, American town with low crime rate
- Updated version of what it is today
- Upgrade homes around lake/mountains. No more commercial business on lake front.
- Upscale mountain get-away spot with shopping and development that keeps the beauty of the area
- Upscale resort area preserving nature
- Upscale, quiet place to stay or live.
- Vacation spot for at least 9 months of the year/More attractive for year-round living
- Very limited growth from present
- Very little change
- Very little change in beauty
- Very much as it is today with controlled growth and building
- Very much like it is now (2)
- Very round residents, restaurants, shopping
- Very similar to present
- Very similar to today/A lake you can swim in with beautiful mountain views
- Very similar to today's look and feel
- Very similar to what it is now
- Very upscale but keep natural if possible
- Vigorous
- We know it is a tourist attraction and the need for healthy fun, but it should be controlled
- Well carefully developed naturalistic environment
- Well designed town with many amenities/consistent year-round business opportunities for all who work/live in town
- Well done mixed development
- Well kept homes/communities. Commercial properties to meet the needs of community only
- Well planned controlled growth community with better bike/walking trails and access to lake for all
- Well protected area/Not open to much home building
- What it is 10 years ago
- What it is now. Attention must be paid to the environment
- What it was 2 years ago, trees on ridge tops, no water tower visible, no roads going around lake bringing pollution
- What it was 5 years ago/Fun, Friendly, Copless
- What it was in 1986
- With nature providing limited ingress/egress. Should remain close to what it is now
- With only 10% commercial growth
- With trees, beautiful sunsets, peacefulness, swimming, canoeing, sailing, electric motors only on lake
- Wonderful as it is today
- Wonderful residential community, quality, goods/services/Managed growth/Quality lake management
- Wonderful vacation and local feel community
- Would hope it would stay the same if that is possible
- Would like to keep it as peaceful as possible
- Would like to see more of a "town" area with interesting shopping/More public green space,

Definitions:

Mean - A simple measure of the central tendency of the data is the mean (or average): $\text{mean} = \frac{\text{sum of all the data}}{\text{sample size (often called } n)}$

Median - The median of a sample is the value for which one-half (50%) of the observations (when ranked) will lie above that value and one-half will lie below that value.

Mode - The mode of a sample is the value which occurs most frequently in the sample.

Standard Deviation - The standard deviation of your data is the square root of the variance, and therefore it reflects both the deviation from the mean and the frequency of this deviation. Standard deviation is often used instead of the variance because the scale of the variance tends to be larger than the scale of the raw data, while the standard deviation is on the same scale as most of the data. The formula for standard deviation is: $\text{standard deviation} = \sqrt{\text{variance}}$

Standard Error - The standard error of the mean is another common way to describe the deviation from the mean and the frequency of this deviation but it also takes into account the size of your data set. The formula for standard error is: $\text{standard error} = \sqrt{\frac{\text{variance}}{n}}$ (n= sample size)

Town of Lake Lure, NC

2006 Comprehensive Plan Survey

The Town of Lake Lure is seeking public input for its 2006 Comprehensive Plan effort. We are asking for your assistance to help us plan for Lake Lure's future over the next 20 years. This is a *very important* task that requires input and ideas from our town residents and property owners. In general, a comprehensive plan is a written document that identifies the goals, objectives, principles, policies, and standards for the protection, enhancement, growth and development of a town. It requires public participation from residents and property owners in order to accurately reflect local opinions on a variety of planning and growth issues.

In addition to conducting this community survey, we will be holding a series of public meetings to seek additional input for the comprehensive plan. You are cordially invited to attend the first public meeting scheduled for **April 6, 2006 @ 6:00 pm** in the Lake Lure Municipal Center, 2948 Memorial Highway. Preliminary survey results from this comprehensive plan survey will be shared at the first public meeting and final survey results will be available at the second public meeting.

Community Information

The following section will help us gather general background information of our survey respondents. Please provide a check mark(s) for each answer.

1. Are you a full time resident of the Town of Lake Lure?

- Yes
- No

2. If you live in the Town of Lake Lure, which of the following applies to you? (check all that apply)

- I live on the lake
- I live in a private and/or gated community
- I live on property other than those described above.

3. How many years have you lived in Lake Lure?

- Less than one year
- 1-5 years
- 6-10 years
- 11-20 years
- More than 20 years
- I don't live in Lake Lure

4. How many years have you owned property in Lake Lure?

- Less than one year
- 1-5 years
- 6-10 years
- 11-20 years
- More than 20 years
- I don't own property in Lake Lure

5. How much time do you spend at your Lake Lure property each year?

- 1 -2 Months
- 3 - 5 Months
- 6 - 9 Months
- 10 - 12 Months
- Year Round

6. If you consider your property in the Town of Lake Lure your second residence, do you plan on making it your primary residence within 5 years?

- Yes
- No
- Undecided
- Not Applicable

The following statements are indicators of community feelings about current and future issues within the Town of Lake Lure. Please follow the directions provided for each set of questions.

Lake Lure Vision

Please indicate your level of agreement with each of the following statements. (Please circle your choice)

Statement	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
7. Lake Lure should remain as unchanged as possible over the next twenty years.	SD	D	N	A	SA
8. Lake Lure should be a place of growth and development.	SD	D	N	A	SA
9. Lake Lure should remain a place of natural beauty.	SD	D	N	A	SA
10. Lake Lure should be a place of many cultural opportunities and amenities.	SD	D	N	A	SA
11. Lake Lure should maintain its “mountain town” character.	SD	D	N	A	SA

Land Use and Community Character

Please indicate your level of agreement with each of the following statements. (Please circle your choice)

Statement	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
12. Lake Lure should remain mostly residential over the next 20 years.	SD	D	N	A	SA
13. Commercial recreation and tourism development should be encouraged within the Town limits.	SD	D	N	A	SA
14. A variety of health care facilities need to be developed within the Town limits (medical offices, dentists, clinics etc.).	SD	D	N	A	SA
15. The Town should limit commercial development on the lake shore.	SD	D	N	A	SA
16. The Town needs to better regulate signs and billboards along its roadways within the Town limits.	SD	D	N	A	SA
17. The Town should allow buildings taller than the current 45’ foot limit.	SD	D	N	A	SA
18. The traditional character of the town is being threatened by new development within the Town limits.	SD	D	N	A	SA
19. The traditional character of the town is being threatened by new development outside of the Town limits.	SD	D	N	A	SA
20. The Town should look to extend its jurisdiction beyond the current municipal boundary.	SD	D	N	A	SA
21. The Town should consider annexation opportunities.	SD	D	N	A	SA
22. Lake Lure should develop stronger architectural guidelines for new commercial construction/development.	SD	D	N	A	SA
23. Lake Lure should develop architectural guidelines for new residential construction/development.	SD	D	N	A	SA
24. The Town should develop ordinances for light and noise pollution.	SD	D	N	A	SA

Natural Resources

Please indicate your level of agreement with each of the following statements. (Please circle your choice)

Statement	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
25. Current federal, state, county, and town regulations are adequately protecting the natural resources of the town.	SD	D	N	A	SA
26. The Town should develop regulations to protect the natural appearance of the ridgelines.	SD	D	N	A	SA
27. The Town should develop regulations to protect trees, environmentally sensitive areas and steep slopes during development.	SD	D	N	A	SA
28. The Town should require tree planting for all new commercial development.	SD	D	N	A	SA
29. The Town needs to develop additional public parks.	SD	D	N	A	SA
30. The Town should provide more public access to the water for recreational uses.	SD	D	N	A	SA

31. Would you be willing to pay additional tax dollars for open space acquisition and protection?

Yes No No Opinion

Housing

Please indicate your level of agreement with each of the following statements. (Please circle your choice)

Statement	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
32. The Town should encourage a broad mix of housing types, (condos, apartments, single family homes etc.) particularly those that provide for affordable housing options.	SD	D	N	A	SA
33. The town should develop regulations for vacation rental homes within residential areas.	SD	D	N	A	SA
34. Guidelines should be crafted that encourage environmental sensitivity for residential subdivisions.	SD	D	N	A	SA
35. Guidelines should be crafted that encourage environmental sensitivity for individual residential lots.	SD	D	N	A	SA

36. Would you prefer to live in a gated community within Lake Lure?

Yes No No Opinion

37. As the Town of Lake Lure continues to grow, what kinds of housing types would you like to see permitted by the town? (Please check all that apply)

- | | |
|--|---|
| <input type="checkbox"/> Single Family Homes | <input type="checkbox"/> Condominiums |
| <input type="checkbox"/> Estate Homes | <input type="checkbox"/> Mobile Homes |
| <input type="checkbox"/> Duplexes | <input type="checkbox"/> Modular Homes |
| <input type="checkbox"/> Townhomes | <input type="checkbox"/> Time Share Units |
| <input type="checkbox"/> Apartments | |

Development and Growth

Please indicate your level of agreement with each of the following statements. *(Please circle your choice)*

Statement	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
38. Lake Lure should concentrate commercial development in designated commercial areas.	SD	D	N	A	SA
39. Lake Lure should investigate the need for education facilities.	SD	D	N	A	SA
40. Lake Lure should try to attract various medical providers.	SD	D	N	A	SA
41. New development should have limited impact on views.	SD	D	N	A	SA
42. The Town should encourage developers to help pay for needed public infrastructure. (roads, utilities etc.)	SD	D	N	A	SA

Please rate your support or opposition to various types of potential development within Lake Lure.
(Please check your choice for each development type)

Types of Development	Strongly Oppose	Somewhat Oppose	Somewhat Favor	Strongly Favor	No Opinion
43. Single Family Homes	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
44. Gated Communities	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
45. Retirement Homes	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
46. Tourist Lodging	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
47. Health Care Facilities	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
48. Multi Family Homes	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
49. Rental Housing	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
50. Campgrounds/RV	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
51. Industrial	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
52. Mobile Homes	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
53. Modular Homes	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
54. Assisted Living	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
55. Nursing Homes	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
56. Small Retail and Commercial	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
57. Non Lake Front Restaurants	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
58. Lake Front Restaurants	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
59. Shopping Centers	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
60. Park and Recreation Areas	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

61. What should the pace of RESIDENTIAL development within the Town be over the next 10 years?

- Current Pace
- Slower than Current Pace
- Faster than Current Pace
- No Opinion

62. What should the pace of COMMERCIAL development within the Town be over the next 10 years?

- Current Pace
- Slower than Current Pace
- Faster than Current Pace
- No Opinion

Transportation

Please indicate your level of agreement with each of the following statements. *(Please circle your choice)*

Statement	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
63. The Town should build a road on the west side of the lake that connects to roads on the east side of the lake for public use .	SD	D	N	A	SA
64. The Town should build a road on the west side of the lake that connects to roads on the east side of the lake for emergency use only .	SD	D	N	A	SA
65. Overall, Lake Lure is a safe place to walk and bicycle.	SD	D	N	A	SA
66. The Town should develop more sidewalks and bike paths.	SD	D	N	A	SA
67. Traffic congestion is a major problem during the summer.	SD	D	N	A	SA
68. Traffic congestion is a major problem year round.	SD	D	N	A	SA
69. Public transportation, such as small buses and seasonal/special event water taxis, is needed in Lake Lure.	SD	D	N	A	SA

Municipal Services

For each of the following items, please indicate whether you favor (1) reduced services, (2) no change in services, or (3) new and improved services? **IF YOU FAVOR NEW OR IMPROVED SERVICES**, please indicate whether you would be willing to support higher taxes for each new or improved service by providing a check mark in the shaded column on the far right. *(Please provide a check mark for your choice for each item)*

Municipal Service	Reduce Services	No Change	New or Improved Services	I Would Support Higher Taxes for New or Improved Services
70. Lake Dredging	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
71. Stocking the Lake	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
72. Sewer	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
73. Water	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
74. Street Maintenance	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
75. Fire Protection	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
76. EMS Services	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
77. Police	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
78. Parks and Recreation	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
79. Boat Patrol	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
80. Garbage Services	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
81. Erosion Control Enforcement	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

If you checked “New or Improved Services” above, Please indicate if you would support higher taxes for each service selected, If not please leave the far right column blank.



82. What are Lake Lure’s 3 greatest strengths and weaknesses?

Strengths

Weakness

1. _____

1. _____

2. _____

2. _____

3. _____

3. _____

***PLEASE JOIN US FOR OUR FIRST PUBLIC MEETING - APRIL 6th 2006, 6:00 pm @ Town Hall**

83. What do you feel is the single biggest issue facing Lake Lure over the next several years?

84. Please briefly describe your vision of what Lake Lure should be twenty years from now?

85. Gender

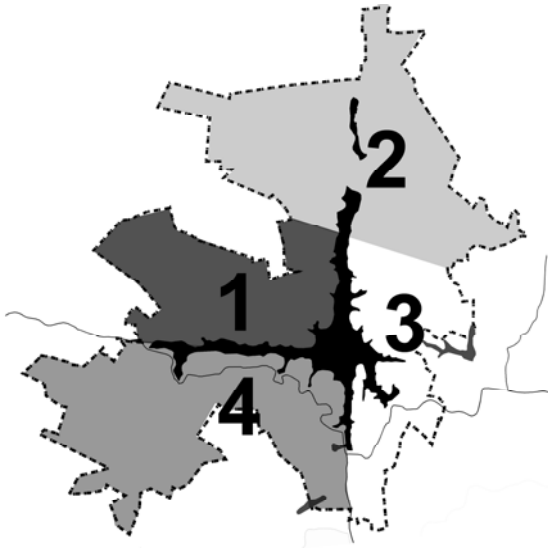
- Male
- Female

86. Age

- 18 & under
- 19-29
- 30-39
- 40-49
- 50-59
- 60-69
- 70+

87. In which of the following areas is your primary residence and/or property generally located?

- Area 1
- Area 2
- Area 3
- Area 4



88. If you live in Lake Lure full time, how many school age children do you have? _____ #

89. What is your employment status?

- Full Time
- Part Time
- Retired
- Homemaker
- Disabled
- Unemployed
- Student
- Self-Employed/Home Office Business
- Other _____

90. Please indicate which of the following applies to you. (Check all that apply)

- Registered voter in Lake Lure
- Taxpayer in Lake Lure
- Primary residence outside of Lake Lure
- Owner of residential land w/ structure
- Owner of vacant land
- Owner of commercial land w/ structure
- Business owner
- Renter

Please fold the completed survey and place it into the postage-paid return envelope and return by March 24, 2006. If you have any questions about this survey please call 828.625.9983.

THANK YOU FOR YOUR SUPPORT!

***PLEASE JOIN US FOR OUR FIRST PUBLIC MEETING - APRIL 6th 2006, 6:00 pm @ Town Hall**

APPENDIX D: STAKEHOLDER INTERVIEWS

Key stakeholders who represented a variety of interests and, more importantly, deal on a regular basis with one or more aspects of the issues addressed by the plan were interviewed early in the planning process. The input gathered from the individuals aided the process by providing an additional layer of information that cannot be gleaned from reports, observations in the field or data analysis. Furthermore, their input complements the input received from the public and CPSC. The stakeholders were interviewed in groups by topic and included the following:

Environment:

- Bruce Barrett
- Clint Calhoun
- Robin Proctor
- Marilyn Westphal
- Margie Ann Jones
- Tom Fonslow

Lake Use:

- Dr. G.W. Sherk (via telephone)
- Gary Hasenfus
- Bob Washburn
- Wiley Bourne
- Dick Conrad
- Russ Pitts (via telephone)

Development:

- David Odom
- Bennett Strahan
- John Bittle
- Ken Jordan

Business/Business Climate:

- Mary Jaeger-Gale
- Bret Martin
- Joan Cashion
- Edith Bond
- Richard Loftus

Recreation:

- Doug Long
- Genevieve Helms
- Ross Worden

- Bob Keith

Public Safety:

- Mike Bustle
- Ron Morgan
- Gary Wilson
- Buck Meliski
- Jim Howell

Infrastructure:

- William Grimes
- Chuck Watkins
- McGill & Associates
- Tony Hennesse
- Paul Wilson

Natural/Cultural Assets:

- Todd Morse
- Veryle Lynn Cox
- Jim Proctor
- Frankie McWhorter

Transportation/Circulation:

- Ivo Dernev (via telephone)
- Greg Christo
- Blaine Cox
- Barbara Meliski

Community Facilities:

- Bill Fryberg
- Phillip Byers
- John Condrey
- Melanie Greenway
- Pam Beason
- Jeanine Noble

APPENDIX E: COMMUNITY MEETINGS

Agenda Public Meeting #1

April 6, 2006
6:00 PM – 8:00 PM

- I. IntroductionsMayor Jim Proctor, Town of Lake Lure
- II. Project Overview..... LandDesign
 - a. Purpose of the Plan
 - b. Issues and Opportunities
 - c. Preliminary Survey Results
 - d. Vision Goals and Objectives
- BREAK**
- III. Q & A LandDesign
- IV. Next Steps LandDesign
- V. Closing RemarksMayor Pro Tem Dick McCallum, Town of Lake Lure

Draft Vision Statement:

“Lake Lure, the gem of the Carolinas, is a mountain lake community that has a harmonious balance of the interests of our citizens, businesses and visitors, achieved through open communication and managed growth that emphasizes fiscal responsibility and stewardship of our natural beauty and environment.”

-- created by Lake Lure Strategic Steering Planning Committee, modified by Comprehensive Plan Steering Committee

Contact Information

Shannon Baldwin, AICP/NCAZO
Email: CDD@TownofLakeLure.com
Town of Lake Lure
PO Box 255
Lake Lure, NC 28746
Phone: 828-625-8893 ext. 107
Fax: 828-625-8371

**Agenda
Public Meeting #2**

July 12, 2006
5:00 PM – 8:00 PM

Open House - 5:00 – 6:00 pm

I. Maps and Preliminary Concept Plans on Display

Community Meeting - 6:00 – 8:00 pm

II. Welcome.....Shannon Baldwin, Town of Lake Lure

III. Presentation..... LandDesign

- a. **Project Schedule**
- b. **Public Meeting #1 Review**
- c. **Final Survey Results (major findings)**
- d. **Plan Framework**
- e. **Draft Concept Plan Overview**

IV. Workshop..... All

BREAK

V. Workshop Summary..... All

VI. Discussion..... All

VII. Next Steps LandDesign

VIII. Closing RemarksShannon Baldwin, Town of Lake Lure



Figure 13 - Town Center

This is only a design study. It is one of 100 or more ways to interpret the policies in the plan, and shows how such policies might be manifested in future development / redevelopment.



Figure 14 - Mixed-Use Node

This is only a design study. It is one of 100 or more ways to interpret the policies in the plan, and shows how such policies might be manifested in future development / redevelopment.

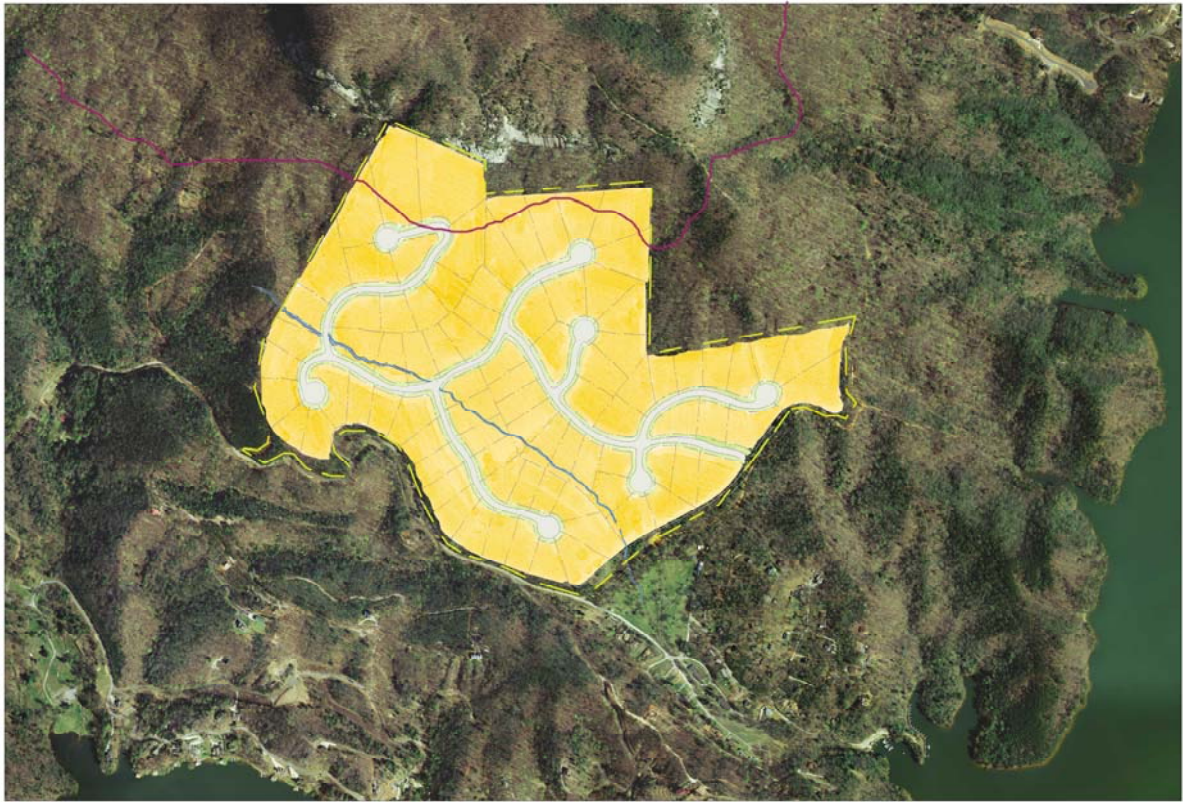


Figure 15 - Residential Development (Conservation and Conventional Neighborhoods)

Agenda
Public Meeting #3
October 10, 2006
4:00 PM – 6:00 PM

Community Meeting - 4:00 – 6:00 pm

- I. Welcome..... Representative of Lake Lure**
- II. Presentation..... LandDesign**
 - f. Public Meeting #2 Review**
 - g. Discussion and Presentations of Recommendations**
- III. Break Out Session..... All**
- IV. Group Reports..... All**
- V. Next Steps LandDesign**
- VI. Closing Remarks Representative of Town of Lake Lure**

APPENDIX F: RESOURCES

United States Department of Agriculture. *Dwellings and Small Commercial Buildings Rutherford County, North Carolina*. Natural Resources Conservation Service, 2006.

"Town of Lake Lure, North Carolina Land Use Plan." 20 Jan. 1998. <http://www.ci.lakelure.nc.us/LandUsePlan.htm>.

Town of Lake Lure. *Five Year Capital Improvements Program Consolidated List of Capital Projects*. Lake Lure, North Carolina, 2005.

Coppola, Stephen A. "Lake Lure Citizens Survey." University of North Carolina at Charlotte, Urban Institute, June 1996.

Williams, Robert L. "The Legends of Hickory Nut Gorge." *Carolina Country* Oct. 2003.

Merkel, Kimberly I. *The Historic Architecture of Rutherford County*. Rutherford County Arts Council, Inc. 1983.

"North Carolina – Rutherford County." National Register of Historic Places. 21 Feb. 2006. <http://www.nationalregisterofhistoricplaces.com/NC/Rutherford/state.html>.

Rutherford County Heritage Council. *Rutherford County Heritage Development Plan*. Nov. 2005.

United States Department of Agriculture. *Sewage Disposal, Rutherford County, North Carolina*. Natural Resources Conservation Service, 2006.

Lake Advisory Committee. *Town of Lake Lure, Lake Use Study 2001*. North Carolina, n.p.

United States Department of Agriculture. *Hydric Soils, Rutherford County, North Carolina*. Natural Resources Conservation Service, 2006.

Office of the Town Manager Town of Lake Lure. "Town Center Walkway Enhancement Fund Application." North Carolina, n.p.

Town of Lake Lure. "Land Development Plan." Lake Lure, North Carolina, 1989.

Wiggins Environmental Services, LLC. "Lake Lure Boating Management Plan: Initial Draft." North Carolina, n.p. Feb. 2006.

York, Glenn. "The Allure of the Mountains." *Living Southern Style* Vol. 7, No. 2, 2005.

Clemence, Sara. "Summer Rental Guide 2005." [Forbes.com](http://www.forbes.com). 23 Aug. 2005. http://www.forbes.com/2005/04/08/cx_sc_0408home.html.

"Broad River Water Quality Management Plan." July 1998. http://h2o.enr.state.nc.us/basinwide/Broad/broad_wq_management_plan.htm.

Ball, Julie. "'World's Edge' Property Protected: Land May Become Part of State Park." 19 Aug. 2005. <http://www.citizen-times.com>.

Sadowski, Maria. "1,568 Acres in North Carolina Mountains: \$16 Million View from the World's Edge: Priceless." 22 Aug. 2005 <http://nature.org>.

Calhoun, Clint. "UBRWPP History." Online posting. 25 Aug. 2005. <http://www.upperbroadriver.org>.

"North Carolina Wetlands Restoration Program Broad River Basin Watershed Restoration Plan." n.p. April 2003.

"History of Lake Lure." Online posting. 23 Aug. 2005. <http://www.lakesedgerealty.com/history.htm>.

Associated Press. "Park Extends Hand to Climbers: Veteran Leads Tours of Chimney Rock." The Daytona Beach News Journal. 22 Aug. 2005. 21 Aug. 2005 <http://www.news-journalonline.com>.

Town of Lake Lure Comprehensive Plan Steering Committee. "Development Outline for the Comprehensive Plan." Dec. 2005.

"The Strategic Planning Steering Committee Report and Recommendations." Online posting. 13 April 1999. 05 Nov. 2004. <http://www.ci.lake-lure.nc.us/StrategicPlanFinal%20Report.htm>.

Town of Lake Lure. "Land Development Plan." Lake Lure, North Carolina 1976.

"Town of Lake Lure, North Carolina Town Manager's Report." Online posting. Jan. 2005. 19 Aug. 2005. http://www.ci.lake-lure.nc.us/january_2005.htm.

Land Resource Companies. *Grey Rock at Lake Lure*. n.p.: n.d.

McGill Associates. *Wastewater Collection and Treatment Systems 201 Facilities Plan: Town of Lake Lure, North Carolina*. May 2005.

McGill Associates. *Water and Sewer Regionalization Assessment: Town of Lake Lure, Village of Chimney Rock*." Jan. 2003.

Environmental Quality Institute. *Long Term Evaluation of Sediment and Pollutant Sources to Lake Lure: Year Nine Report*." Jan. 2006.

Environmental Quality Institute. *Long Term Evaluation of Sediment and Pollutant Sources to Lake Lure: Year Eight Report*." Jan. 2005.

State of North Carolina Department of Environment & Natural Resources. "*Classifications and Water Quality Standards Assigned to the Waters of the Broad River Basin*." Sept. 1998.

National Association of Affordable Housing Lenders

Board of Governors of the Federal Reserve System

American Planning Association, 2006.

US Bureau of Census, 2000.

North Carolina State Data Center

Cowardin, L.M., V. Carter, F.C. Golet, E.T. LaRoe. 1979. Classification of wetlands and deepwater habitats of the United States. U.S. Department of the Interior, Fish and Wildlife Service, Washington, D.C.

Town of Lake Lure, Lake Advisory Committee. "Land Development Plan." Lake Lure, North Carolina 1999.

North Carolina Natural Heritage Program, "An Inventory of the Significant Natural Areas of Rutherford County, North Carolina," July 2006.

<http://soils.usda.gov/use/hydric/lists/state.html>

Lake Lure Boating Management Plan

Review and Recommendations



**Prepared for
The Town of Lake Lure:
Lake Lure Town Council
Lake Lure Marine Commission
Lake Lure Advisory Committee**

**Prepared by
Wiggins Environmental
Services, LLC
ENSR Corporation**

December 2006



Lake Lure Boating Management Plan

Table of Contents

Executive Summary	i
Introduction.....	1
Lake Lure Background	2
Use Patterns	9
Carrying Capacity	14
Potential Management Options.....	27
Permit Systems.....	27
Time Zoning.....	36
Space Zoning	36
Training and Behavior Modification	37
Enforcement.....	38
Selection of Viable Options.....	39
Recommendations for the Lake Lure Comprehensive Plan	48
Appendix A: Questionnaire Survey	50
Appendix B: Boat Observation Surveys.....	67
Appendix C: Decision Document.....	99

Tables

Table 1. Summary table of number of permits issued to motorboats >10 hp from 2003-2006 on Lake Lure	6
Table 2. General features of lake users and their boats from a questionnaire survey.....	11
Table 3. Frequency of activities pursued on Lake Lure	11
Table 4. Acres of lake area needed to operate types of boats on Lake Lure	14
Table 5. Allocation of acre-hours among commercial boat uses at Lake Lure	17
Table 6. Estimated allocation of acre-hours among non-commercial boaters on Lake Lure, with corresponding numbers of permits that could be issued	18
Table 7. Potential boating management options for Lake Lure	28

Figures

Figure 1. General features of Lake Lure.....	3
Figure 2. Boat use patterns during clear summer weekend days, based on three days ...	12
Figure 3. Pattern of use of motorboats >10 hp on three summer weekend days with nice weather	20
Figure 4. Breakdown of motorboats >10 hp by activity for the average of three summer weekend days with nice weather.....	20
Figure 5. Boating use pattern for the North and East Arms of Lake Lure on July 23, 2006, a nice weather weekend day	22
Figure 6. Boating use pattern for the South and West Arms of Lake Lure on July 23, 2006, a nice weather weekend day	23
Figure 7. Boating use pattern for the North and East Arms of Lake Lure on August 11, 2006, a nice weather weekday	24
Figure 8. Boating use pattern for the South and West Arms of Lake Lure on August 11, 2006, a nice weather weekday	25
Figure 9. Response to various boating controls.....	40
Figure 10. Response to possible permit system changes	40
Figure 11. Response to secondary permit (“flag”) options	41
Figure 12. Response to enforcement options	41

EXECUTIVE SUMMARY

The Town of Lake Lure is evaluating options for keeping boating density at a safe level, so that overall enjoyment of the lake will not be diminished by the ever increasing pressure of recreational pursuits on the lake. The intent of this process is to explore the range of possible management options, reduce that range to those approaches that are applicable and feasible in Lake Lure, and to seek a combination of controls that can be applied as equitably as possible to maximize lake use without compromising user safety. A very inclusive and public process has been conducted, with decisions made based on the best possible combination of science, economics, and social acceptability.

Lake Lure was formed in 1925 when the Rocky Broad River was dammed. The Town of Lake Lure was formed in 1927 and the associated community has been growing ever since, most notably in very recent years. Lake Lure covers 720 acres with several major arms and numerous smaller coves. Topography is steep, both around the lake and within the lake itself; water depth is substantial within 50 ft of shore except near inlets and in coves. The dam controls outflow and generates electricity. Full pool elevation is maintained in Lake Lure as much as possible. The vast majority of residences around the lake are tied into a sanitary sewer for wastewater management. The watershed of Lake Lure covers approximately 96 square miles of fairly hilly terrain. Erosion and sediment loading are issues, but many areas are outside of the control of the Town. Water quality in the Rocky Broad River, other tributaries, and in Lake Lure is not ideal, but supports the intended uses of the lake. Lake Lure undergoes thermal stratification during the growing season, and waters deeper than about 20 ft are devoid of oxygen during much of the summer. Lake Lure hosts minimal aquatic plant growths, owing to steep underwater sediment slopes and limited light penetration. Fish and other wildlife abound in and around Lake Lure.

Recreational facilities on the lake consist of a Town Beach complex, with swimming area, park and boat launch, as well as an accompanying marina. Most land around the lake is privately held. There are a number of additional beaches and several boat ramps, as well as private community marinas. The majority of boating activity comes from shorefront residences. Many lakefront homes have multiple boats and there are over 300 boat slips associated with private developments that abut the lake. Off-lake residents and even residents of other towns can purchase boat permits for Lake Lure.

The Town enacted a number of rules to moderate use of the lake and set boundaries on how some uses impact others. These rules have served the users fairly well, but have not decreased the desire to boat on the lake. A boat permit system has been in place for over 40 years, but has evolved to address issues of fairness and limited resource availability over time. Yet overall boat density on hot summer days is perceived as a rising threat and is not implicitly controlled by the permit system. Town liability for boating accidents is a very real concern. To approach management scientifically, we need to understand use patterns and carrying capacity at Lake Lure.

There are multiple ways to estimate carrying capacity, or the number of boats that can be on the lake without unacceptable impacts. The key factors in estimating carrying capacity for boats from a safety perspective include useable area for each type of boat, the use pattern for boats of different types, the feasible hours of operation for each boat type, and the available space. For commercial boats, where activities and schedules are more predictable, a reasonably complete estimate of carrying capacity can be developed. Members of the Lake Lure Marine Commission have done this using a proprietary model developed by those members, setting aside 30% of the total acre-hours for commercial uses. The commercial permits have accounted for 5% of the total permitted motorboats >10hp on Lake Lure over the past four years. Non-commercial uses have not been limited to the remaining 70% of acre-hours, but an exercise conducted as part of this effort indicates that motorboats with engines >10 hp should be subject to some control to maximize safety on the lake.

While variability can be high and the current permit system does not adequately control peak density, problems are infrequent when fewer than 1000 permits are issued for motorboats >10 hp. Allowing more permits while maintaining a safe lake is possible with secondary controls, a variety of which have been evaluated in this review, but all of which were generally unacceptable to the lake user population through a questionnaire and meetings.

Quantitative data were collected for boat use patterns, both through a questionnaire and by direct observation during the summer of 2006. Carrying capacity estimates were generated and are sometimes exceeded on summer weekends and holidays with nice weather between the hours of 11 AM and 5 PM, mainly as a function of operation of boats >10 hp for high speed activities. There is some evidence of self regulation of larger boats, but peak densities do achieve possible danger levels, especially for untrained or inexperienced powerboat operators. Risks are low during most weekdays and any day with rainy weather.

There is a very wide range of potential management options that could be applied at Lake Lure. The key is to select options that represent the least intrusive and most equitable means to ensure safety to the greatest feasible degree. The objective is to maximize safety and enjoyment of the lake. Those goals may seem antagonistic at times, as some of the enjoyment comes from inherently risky activities, but the overall enjoyment of the lake by the greatest number of people does depend on facilitating a safe experience. Management options are divided into four major categories (Access Control, Time Zoning, Space Zoning, and Training and Behavioral Modification) plus an enforcement category that applies to all of the others. The associated options are reviewed in this report in some detail.

A considerable amount of public discussion was conducted and input was considered in developing a proposed management plan. A number of adjustments are feasible and appear appropriate based on the work done in 2006. The following relatively simple, albeit possibly controversial, adjustments are recommended for implementation in preparation for the 2007 boating season:

- Maintain all existing rules with regard to permitting and safety controls for boats on Lake Lure, most notably the no wake zone restrictions (areas and time).
- Maintain the commercial boat permitting system as it is now administered, with minor adjustments as warranted. Allocating some portion of the commercial acre-hour allotment to a controlled rental operation and limiting rental property permits for boats >10 hp to weekday use only are options.
- Limit the number of permits issued for non-commercial motorboats >10 hp to be used during the peak season to 1000, including weekly peak-season permits (15 weekly permits = 1 annual permit). Grant permits on a priority system based on permit holders from 2006, followed by date of application by new permit holders, with an application deadline for past permit holders of May 15th, and only one permit for a boat >10 hp granted to all new applicants.
- When all permits for boats >10 hp have been assigned, provide up to 250 “weekday only” permits for this class of boats.
- Do not place a permit limit on boats <10 hp or fishing boats of any motor size during peak season for any boats during the non-peak season until such time as observation data indicate a need.
- Promote education of boaters through the permit system and require all permit holders to sign an acknowledgement form indicating that they understand the Lake Lure rules and will be responsible for the operation of their permitted boat(s).
- Require operators of motorboats >10 hp to complete a safety course, and require operators under the age of 16 to be supervised by an onboard person competent (by training) in boating safety.
- Provide a police boat patrol on the lake to enforce the rules, focusing on education and cooperation by boaters first, followed by penalties for violations as warranted.
- At a minimum, the patrol boat should be on the lake between 11 AM and 7 PM on all weekend days and holidays with suitable weather between Memorial Day weekend and Labor Day weekend, and on anticipated busy weekdays during summer. Wider coverage would be desirable, if affordable, but these represent the critical enforcement days and hours based on boat density.
- Hire a boating education and enforcement officer dedicated to Lake Lure. Ideally, a dedicated staff member would be provided all year long, and would handle permit applications, education, training sessions, and coordination of on-lake activities. This person might be the primary on-lake enforcement officer, or may just coordinate police assignments and fill in as needed.
- A call number should be established for reporting boating safety problems or related issues to a dispatcher who can reach the patrol boat for a rapid response.
- Enforce a safe operating distance of 75 ft among boats (and among boats and people) when either boat is moving faster than no wake speed. This provides a density dependent mechanism to minimize safety risks as boat density increases. It may eliminate high speed activities during some peak use periods in parts of the lake.

The primary benefits of this plan include:

- Promotes physical and temporal separation of some uses to maximize safety.
- Encourages the distribution of lake use in its current pattern, known to present limited and predictable safety risks.

- Protects the privilege of those now holding permits.
- Allows only educated and trained boat operators.
- Provides an appropriate level and focus of enforcement.
- Provides a density-dependent mechanism for controlling higher risk activities.

The negative aspects of this plan include:

- As the Town grows, not everyone can hold a permit for a boat >10 hp on Lake Lure.
- Requires capable boaters to take official training.
- Requires a different approach and more effort by the police force.
- May curtail high speed activities that many enjoy during busy periods.

More major adjustments may not be necessary, but would warrant considerably more public input if implementation was pursued. No secondary access limitations (e.g., boat flag system) are recommended at this time, although it could be revisited in the future if safety problems related to crowding are perceived to persist.

It should be remembered that getting more big boats on the lake represents a diminishment of utility and quality for other uses as well as a safety risk. However, given that the focus of recreational boat use on Lake Lure involves boats >10 hp, recommendations for permit system changes emphasize greater use of off-peak resource hours by larger boats. This may warrant further discussion going forward.

In order to gain appropriate information, the Town should conduct periodic assessments of boat use patterns, much as performed in this analysis. Both questionnaire surveys and observational data are needed.

Additional options and alternatives are discussed, but this plan is believed to provide the necessary tools to protect lake users into the indefinite future. We believe that the suggested plan elements are sufficient to manage boat density and safety indefinitely, if implemented properly and monitored for any needed adjustments periodically.

Introduction

The Town of Lake Lure takes its name from Lake Lure, its crown jewel. Boating is a major attraction on the lake. A number of safety issues have been raised, but there is general agreement that boating safety is only an occasional concern at this time. Some Lake Lure enthusiasts might well ask “Do we really need to institute boating controls beyond what we have now?” The answer appears to be “Yes” and the rationale lies in the consequences of waiting until the problem becomes more serious, even if we do not know just how long it will take to become a more common threat.

The potential for injury or death rises with high powered boating density, particularly in the absence of operator training, and the Town bears considerable liability for what happens on the lake. Actions have been taken in the past to reduce the number of high powered boats on the lake when risk was perceived as intolerable, including limiting towing activities by organized groups from outside the area and instituting the current permitting system. Having averted clear problems in the recent past, the Town is now evaluating options for keeping boating density at a safe level, so that overall enjoyment of the lake will not be diminished by the ever increasing pressure of recreational pursuits on the lake.

The intent of this process is to explore the range of possible management options, reduce that range to those approaches that are applicable and feasible in Lake Lure, and to seek a combination of controls that can be applied as equitably as possible to maximize lake use without compromising user safety. To this end, the Town retained the services of a small team of consultants from Wiggins Environmental Services LLC and ENSR Corporation to assist with the review of options and development of a boating management plan. An initial report represented a summary of available information, management options and considerations offered through a full day workshop involving the Town Council, Marine Commission and Lake Advisory Committee.

A very inclusive and public process was then followed to seek input from concerned lake users. While meetings were well attended, the total attendance still represented only a small portion of the affected user population. A questionnaire survey was performed to reach a larger segment of the community, which it did. Additionally, data were collected regarding boat use of the lake over the period from Memorial Day weekend to Labor Day weekend, to determine the level and mix of uses, potential periods of capacity exceedence, and specific behaviors that may increase the risk of accidents.

The accumulated data and public input were considered in reviewing possible management options in greater detail, with recommendations made based on the best possible combination of science, economics, and social acceptability.

Lake Lure Background

Lake Lure was formed in 1925 when the Rocky Broad River was dammed with the intent of creating the lake, mainly for real estate purposes. The Town of Lake Lure was formed in 1927 and the associated community has been growing ever since. The originally intended design of a lake-focused community can still be viewed on various maps of the area, but the depression of the 1930s altered the grand plan; land ownership became fragmented and development was not strongly controlled. Building pressure in the Town does not appear to have been especially intense until recently, however. The Town incorporated and established rules for property development, but not in time or with enough limitation to moderate intense development. Additionally, much development is occurring outside the boundary of the incorporated Town. These areas require certain services (e.g., police and fire protection) and are plausible targets for annexation at some future date. Just how to deal with these developing areas with regard to lake use is a significant issue.

Lake Lure itself occupies 720 acres with several major arms and numerous smaller coves (Figure 1). Topography is steep, both around most parts of the lake and within the lake itself; water depth is substantial within 50 ft of shore in most areas. Notable exceptions include major inlets, where accumulated sediment has reduced depth considerably, and a few major cove areas, such as the Lake Lure Golf and Beach Resort area in the northernmost part of the lake. In the arm receiving flow from the Rocky Broad River, sand deposition has been great enough to warrant a regular program of sediment removal through hydraulic dredging. Most of the lake is deep enough, however, to avoid motorboats stirring up significant amounts of sediment, a common problem in many shallower lakes.

The dam is designed to control outflow, minimizing flood damage both upstream and downstream and generating electricity. An interesting aspect of dam operation is that the first priority is to maintain full pool elevation in Lake Lure. Electricity generation and maintenance of downstream flows have not been accorded the priority encountered in many other impoundments; this is a function of the origin of Lake Lure as an aesthetic and recreational amenity, as opposed to having energy production as its top priority. Detailed flow records were not encountered during investigations relating to boating management, and are not essential to developing a boating management plan, but an analysis of the system hydrology and anticipated downstream flow needs would be helpful in possible future flow management.

The vast majority of residences around the lake are tied into a sanitary sewer for wastewater management. The treatment facility is slightly downstream of the dam. The actual sewer lines run from nearshore areas into the lake; concrete manholes are visible in many shoreline areas. The sewer mains run fairly deep into the lake, such that leakage into the sewerage system is more of a threat than leakage of sewage out of the system. Given the additional lake water entering the sewer system, the quality of the influent to the wastewater treatment facility tends to be much better than normal domestic wastewater, necessitating some adjustment in the treatment process. Joints have been sealed on several occasions, but Lake Lure wastewater tends to be very low strength sewage. Leaks in the upland portion are possible, as feeder lines are often not even buried and are subject to damage from a variety of actions, including downed trees.



Figure 1. General features of Lake Lure.

The watershed of Lake Lure covers approximately 96 square miles of fairly hilly terrain. Erosion and sediment loading are issues, but many areas are outside of the control of the Town. Steep slopes and erodible soils cause much of this problem naturally, but development with inadequate erosion controls and runoff detention exacerbates the problem. Other sources of contaminants from the watershed are not the subject of this boating evaluation, but protection of Lake Lure warrants careful evaluation of watershed activities that can affect the lake. The Environmental Quality Institute at the University of North Carolina at Asheville has been assisting with this effort for almost a decade, through the Volunteer Water Information Network (VWIN) program.

Water quality in the Rocky Broad River and several other tributaries to Lake Lure has been monitored for nearly a decade by VWIN. The program does not focus on wet weather events, when most loading would be expected to occur, but most median values for the tributaries of Lake Lure are above the average median value for forested watersheds and many values are higher than the regional average median for all monitored watersheds. Loading during storms may be quite high. Phosphorus levels in water entering Lake Lure and in Lake Lure near the dam are high enough to support excessive algae growth, and the visibility in Lake Lure (based on Secchi disk measurements) has ranged from 2 to 14 ft between April and October since 2001. Lake Lure undergoes thermal stratification during the growing season, and waters deeper than about 20 ft are devoid of oxygen during much of the summer. Water quality appears suitable for all designated uses, but swimming and fishing uses may be impaired to some degree. It does not appear that water quality is substantially affected by boating, the subject of this management plan.

Lake Lure hosts minimal aquatic plant growths, owing to steep underwater sediment slopes and limited light penetration. The potential for invasive nuisance species such as Hydrilla or various milfoils to cause shoreline use impairment exists but is limited in Lake Lure. Some level of control of boats being brought in from other potentially infested lakes is always desirable, to minimize the import of invasive species, but the level of threat at Lake Lure is lower than at many other North Carolina impoundments.

Fish and other wildlife abound in and around Lake Lure. The fertility of the lake, while a potential problem for visual aesthetics and some aspects of water quality, does promote higher fish production. A wide variety of species are present in the lake, including trout. Trout may be stressed by higher surface water temperatures and lower deep water oxygen during the summer, but appear to survive. Warmwater fish will be limited primarily by available cover, with the very low amount of aquatic vegetation representing the greatest habitat constraint on many species. The lake is a popular fishing location, but no fishery studies were reviewed in the course of this project. While the use of boats to fish is a major use in Lake Lure, there is no immediate concern about fish or fishing outside of the issue of more boats on the lake, so additional insights into the fish community are not essential to developing a boat management plan.

Recreational facilities on the lake consist of a Town Beach complex, with swimming area, park and boat launch, as well as an accompanying marina. Town boats, including dredges, are stored nearby. There is some Town land abutting the lake, but most is steep and not amenable to major recreational uses. Most land around the lake is privately held. There are a number of additional beaches and several boat ramps, as well as two larger private community marinas (Lake Lure

Golf and Beach Resort, Lake Lure Village) and one smaller one (Pier Point), all of which are under private control. There are camps that use the lake for recreational activities during the summer months. The Dam Marina is privately held but can support public launching and rents mooring slips; however, it is currently operating on a very limited basis. There is interest by some development groups in creating more community marinas to serve private developments.

The majority of boating activity comes from shorefront residences. There are approximately 723 individual lots abutting the lake, about 700 of which have homes. A few larger, undeveloped parcels still exist, but a development is currently planned for one parcel and others are for sale. There could be as many as 850 lakefront lots with dwellings on them eventually. Many lakefront homes have multiple boats; current rules allow mooring spaces for three boats if the lot has at least 100 ft of frontage. Most shorefront homes have seawalls, retaining walls with generally very vertical faces and no rip rap or other materials to dissipate energy from incoming waves. Many have substantial boat houses as well.

In addition to shorefront homes with boat slips, there are over 300 boat slips associated with private developments that abut the lake, but which have very few actual shorefront lots or dwellings. The community marinas represent a means for gaining easy access to the lake without owning shorefront property, and additional development in the area may seek similar arrangements.

Lake Lure and the surrounding area are very scenic, and despite the distance to major amenities or cities, the area has been “discovered”. Building activity is fairly intense, both on and off the lake, and especially on ridges within and beyond the Town of Lake Lure boundary. Pressure on a variety of Town services is increasing, including use of the lake. The Town enacted a number of rules to moderate use of the lake and set boundaries on how some uses impact others, such as no wake rules within 75 ft of shore, or in coves less than 200 ft across, or between the hours of 9 PM and 7 AM. These rules have served the users fairly well, but have not decreased the desire to boat on the lake.

There are approximately 2750 lots in the Town of Lake Lure. Subtracting lakefront homes, this means that over 2000 parcels of land could have owners requesting boat permits. With subdivision of existing parcels, that total could grow. Not all of those parcels have dwellings on them, but the current permit system does not require a dwelling to be eligible for a permit, and some lots near the lake are very tiny (so called “postage stamp” lots with a tax value of \$100, sold mainly to allow owners to get resident status). Additionally, unincorporated land outside the Town of Lake Lure is being developed to a point where annexation will be considered, potentially increasing the number of lots, dwellings and boat permit applications from within the Town. Residents of other towns can still purchase boat permits for Lake Lure, although a rate increase has slowed that trend. However, it is easy to envision increased demand for boat permits, while the area and time available for boating on Lake Lure remains constant.

The boat permit system has been in place for over 40 years, but has evolved to address issues of fairness and limited resource availability over time. Changes in the system over time make any summary of trends in total permits or even just motorized permits somewhat misleading, as engine size categories are not reported in summary tables, new categories have been created over

time, and permits have been issued for annual, seasonal, weekly and daily use (although not consistently over the years). However, given that most motorized watercraft on Lake Lure are large powered pontoon boats permitted for annual use, the overall increase in annual motorboat permits between 1997 and 2003 from 893 to 1290 permits does signal increased overall use of the lake. Several changes over the past few years have curbed this rise, at least temporarily.

Specific elements of the current permit system include:

- Personal watercraft (“jetskis”) are not allowed on the lake.
- Fishing Only permits are issued, with time of use restrictions (early morning and late evening).
- Residents of the Town pay less per year for a boat permit than non-residents.
- Powerboat permits cost more than non-motorized boat permits.
- Daily permits have been eliminated during the peak season, and weekly peak season permits cost more than weekly off-season permits.
- Commercial uses (e.g., real estate and recreational tours, waterski school, rental boats, fishing guides, property maintenance services) are charged more per permit and have limits on the numbers and types of boats used.

The regulation of commercial uses and elimination of daily peak season permits is perceived as having had a substantial impact on peak boat densities. Potential boaters cannot simply come to the lake for the day without purchasing at least a weekly permit. Camps or other groups from out of town cannot come to the lake at will and operate ski schools or other commercial ventures, as commercial entities are allocated a set amount of time and space on the lake by advance permit. Overall, the permit system governs average boat use more effectively than peak use, but these steps have been important peak-limiting measures.

A detailed spreadsheet program has been developed for allocating space and time (acre-hours) for commercial use of boats on the lake, and the total portion of the acre-hours available for use by commercial entities has been set at 30%. As commercial operations have specific goals, routines and hours, and are therefore more predictable than private recreational users, this system works fairly well for maintaining commercial boat densities at levels that ensure both user safety and general enjoyment of the activity. Commercial permits have accounted for 5% of the total number of motorboats >10 hp permitted on Lake Lure over the past four years (2003-2006, Table 1).

Year	2003		2004		2005		2006		4-Yr Avg	
	# Permits	%	# Permits	%	# Permits	%	# Permits	%	# Permits	%
Annual Motorized Resident	1,148	89	1,052	91	921	85	937	86	1015	88
Annual Motorized Non-Resident	81	6	45	4	53	5	53	5	58	5
Commercial	52	4	56	5	70	6	64	6	61	5
Non-Resident Commercial	9	1	0	0	0	0	0	0	2	0
Complimentary	0	0	0	0	32	3	26	2	15	1
Municipal		0		0	4	0	13	1	4	0
Resident Rate for Non-Resident		0		0	1	0	1	0	1	0
Total	1,290	100	1,153	100	1,081	100	1,094	100	1155	100

Table 1. Summary table of number of permits issued to motorboats >10 hp from 2003-2006 on Lake Lure.

Non-commercial uses by residents of the Town of Lake Lure have not been limited beyond the constraints of permit pricing. An exercise conducted as part of this effort indicates that motorboats with engines >10 hp should be subject to some control to maximize safety on the lake. This has caused some controversy over the amount of resource area and time potentially allocated to commercial and non-commercial uses during public discussions. Interested parties should bear in mind that commercial uses include boats involved in tours, shoreline facility repairs, guided fishing, and ski training, all of which provide important functions to the community, add to the local economy, and offer opportunity to people who might otherwise not be able to enjoy the lake or might increase recreational pressure through the use of more private boats.

But this allocation system does not apply to the other 70% of the acre-hours theoretically allocated to private users; that capacity can be exceeded in the permit process. Private use is more unpredictable than commercial, although private use is to some extent more self-regulating. Since most boats are moored along the shoreline, a shorefront resident can survey the lake visually and decide if it is worth venturing out under the prevailing conditions of boat density and boating activities. The self-regulating aspect of community marinas is less strong, as most boat owners must make a trip to the lakefront to see the conditions; a decision not to go boating then wastes their trip time. There is little self-regulation for boaters coming from off the lake and launching from trailers or car-tops; they have invested in a trip to the lake and are likely to go boating under all but the worst conditions, and possibly even then. How to manage these varied user groups is in large part the problem facing the Town as pressure to boat on Lake Lure increases.

Based on this background, the boat related problems of Lake Lure can be distilled into mainly safety and enjoyment issues. Shoreline erosion and general surface turbulence from wakes may be an issue as well, but can be better addressed by a change in how shoreline development is governed, not a change in boat density. Water quantity regulation (required outflows) that could affect access to and utility of the lake is not a current issue for Lake Lure, although it could become one. Water quality issues exist, but are not strongly tied to boating; neither seems to impact the other to a substantial degree at this time. Interaction of boats with sediment is limited in Lake Lure, although some resuspension of settled sediment occurs in shallow areas. Possible invasion by nuisance species brought in by boats is a threat, but the physical features of Lake Lure greatly limit that threat. Noise may be a problem for some shorefront residents, especially those not involved in motorized boating, but the no wake rules minimize the severity of noise nuisances.

It is mainly the ability to enjoy an activity on the lake, and in extreme cases the presence of significant safety risks, that is currently in question, and then only at fairly predictable times (good weather weekends and holidays) during the peak season (Memorial Day through Labor Day). There is a rational fear that boating safety problems will increase over time, and a sense that a system must be put in place very soon to protect lake users from themselves and preserve desirable lake characteristics.

Boating accidents at Lake Lure have thankfully been rare, with only a few deaths over almost 80 years related to collisions between boats or between boats and people in the water. There have been a lot of near misses, however, and people who have used the lake regularly for multiple decades have recognized certain high risk factors. These include:

- Overall high density of boats, as might be encountered on hot sunny days between July 4th and Labor Day, especially on weekends and holidays
- Boat operation by inexperienced operators
- Towed water activities, especially when boats are abundant and people wind up in the water off a tube or ski rope
- Varied direction of travel by boats, mainly when boats are abundant
- Limited police presence on the lake, especially during peak use periods when police presence is often most in demand off the lake as well

Recollections from the last five years indicate that towed water activities by groups from out of town using the lake on daily permits and operation of high powered boats by inexperienced operators renting properties for vacation have created hazardous conditions that warranted adjustments in the permit system. Overall boat density on hot summer days is perceived as a rising threat, however, and is not implicitly controlled by the permit system. Issuing fewer permits will reduce the total pool of possible boats on the lake, but will not prevent peak densities considered unsafe for the range of activities enjoyed at Lake Lure. Town liability for boating accidents is a very real concern.

Use Patterns

Managing boating on lakes requires estimation of the number of boats that can use the lake without unacceptable impacts, which for Lake Lure are defined in terms of safety. The acceptable maximum density of boats is commonly called the carrying capacity. To generate the most meaningful estimate of carrying capacity, it is necessary to gain an understanding of the use patterns for the mix of boats on the lake. There were no quantitative data available for use patterns prior to 2006, but in our initial effort to evaluate carrying capacity, collective experience provided insights that helped establish estimates for use patterns that were useful in understanding why there are boating problems and how we might begin to address them.

Fishing tends to be an early morning or late evening activity, minimizing the conflict between boat use for this activity and most other boat uses. Non-motorized boats, while they can go out into the main body of the lake, can also operate quite enjoyably within or near the 75 ft no wake limit. An exception is provided by sailboats, but sailboating is not a major use of Lake Lure. Smaller motorboats (<10 hp) are actually fairly rare on Lake Lure, and simply do not account for enough use to be a major factor, other than as obstacles for higher powered boats and therefore as safety concerns. Issues with smaller motorboats can be lumped with those of non-motorized boats for purposes of use pattern analysis. Commercial boats do not represent a large portion of total permits, but they use the lake for disproportionately more time per boat than most non-commercial boats, so they are a factor in use analysis.

The daytime use of motorboats >10 hp (commercial and non-commercial) is the primary factor creating safety risks and diminished enjoyment on Lake Lure. By virtue of the number of permits issued, there is the potential for crowding on any day, even if no towing was occurring; in 2005 there were 966 motorboats >10 hp, each estimated to need about 7 acres of area to operate safely, with permitted access to about 540 acres of boatable lake (excluding nearshore areas and coves where high speed operation is prohibited). The number of permits for boats >10 hp was similar in 2006, at about 978. Yet in reality, crowding occurs only during sunny weekends, holidays, and some particularly ideal (either hot or very scenic) days during the week between Memorial Day weekend and Labor Day. Most weekdays and any rainy days are not reported to exhibit crowded conditions. Non-peak season crowding is undocumented and not reported by anyone involved in boat management discussions to date. Even when crowding does occur, it could be much worse than the reported conditions indicate, suggesting that there are self-regulating mechanisms in place that should not be disregarded.

It should surprise no one that the distribution of boating on Lake Lure is not even; virtually no lake reports an even distribution of lake use, by boaters or any other user group. This signals the primary flaw in the carrying capacity analysis and any boating management system that divides the resource (as acre-hours or any other logical unit) without consideration of temporal variability; it is not the average boating density that is most in need of management, but rather the peak density.

Only with knowledge of that temporal variability can we most effectively and equitably allocate the resource (available lake space over time) for boating uses. As part of the questionnaire survey (Appendix A), seasonal and daily use was investigated. Boat use surveys were also conducted in

the peak season of 2006 to ascertain the use pattern over time within days and among days (Appendix B). Tables 2 and 3 summarize use information from the questionnaire survey, while Figure 2 summarizes the daily pattern of boat use on clear, summer, weekend days.

The assumption has been that it is only larger motorboats that are causing capacity to be exceeded and that the average use level is acceptable. The data provided thus far suggests that this is a reasonable assumption. Motorboats >10 hp represent the dominant type of boat on Lake Lure and the greatest safety risk. Peak use of motorboats >10 hp therefore becomes the primary target of management. Within that group of boats we must address commercial and non-commercial uses, towing and non-towing activities, and features of the users that make them more or less of a safety risk (e.g., training, experience, ability to make go-no go decisions on lake use at a particular time).

A few key aspects of the questionnaire and observation survey data warrant special mention:

1. With over half of large boats accounted for in responses, the average number of motorboats >10 hp per responding household is reliably about 1; many have 0 and only a few grandfathered cases involve more than 3 motorboats >10 hp. As residents can have up to 3 permits at the resident rate, many more permits could be issued under that rule.
2. Non-motorized boat owners may be under-represented in the survey, as only 60 such boats were accounted for. However, actual use data does not indicate extensive use of non-motorized boats on Lake Lure.
3. About a third of respondents live in town year round. About a third are registered voters. About a third have waterfront property. Yet two thirds of respondents bought their homes in town with the intent of using the lake for boating.
4. About 11% of homes are rented to others some of the time, but only 17% of these rentals include a boat as part of the deal; this suggests that 2% of residences are rented and provide a boat to renters.
5. No more than about half of residences in town are occupied at any one time, with the peak in the summer. This will limit the number of boats in use at any time.
6. Of respondents who revealed their level of training for boat operation, about half were trained and half were not.
7. Motorboats >10 hp were used more frequently and for a longer duration per use than motorboats <10 hp or non-motorized boats, resulting in an average of 39 hours per motorboat >10 hp per summer vs. about 5 hours per non-motorized boat and <1 hour per motorboat <10 hp. There are also many more large motorboats permitted for use on the lake, making them highly dominant on the lake.
8. About three quarters of all questionnaire respondents cruise in larger motorboats and create a wake on the lake. Almost half tow people at some time. No other use (fishing, paddling, sailing) is practiced regularly by even half the respondents, and at least a third (and as many as 60%) report that they never participate in those activities. Cruising at higher speeds and towing activities are the main uses of boats on the lake.
9. The pattern of use of motorboats >10 hp on summer days with favorable weather is uneven over the course of the day but is fairly consistent among days (Figures 2A-C, 2E). Use is low until about 11 AM, then climbs during the late morning and afternoon. Use declines after about 5 PM, but remains substantial during the evening until dark.

Table 2. General features of lake users and their boats from a questionnaire survey.

Feature	Total	Average	Median	Maximum	Minimum
Total number of Surveys returned	844				
Years at Lake Lure		12.2	8	65	<1
Motorized Boat Permits > 10 hp	585	0.8	1.0	4.0	0.0
Motorized Boat Permits < 10 hp	60	0.1	0.0	2.0	0.0
Non-motorized Boat Permits	60	0.4	0.0	6.0	0.0
	% Yes	% No	% No Answer		
Year Round Resident	33	65	2		
Registered Voter	30	66	4		
Own a House	77	20	3		
Live on Shorefront	36	61	2		
Live in Defined Community	37	60	3		
Boat Use a Factor in Home Purchase	67	26	7		
Home Rented to Others	11	80	9		
Boat Included in Rental	17	77	5		
Trained Boat Operator	44	43	14		
	Boats >10 hp	Boats < 10 hp	Non-motorized		
Total Weeks of Use (All Boats of Type)	3878	453	1510		
Weeks of Boating per Summer per Boat	6.6	1.2	3.3		
Days of Boating per Week per Boat	2.3	0.5	1.2		
Hours of Boating per Day per Boat	2.5	0.5	1.1		

Table 3. Frequency of activities pursued on Lake Lure.

Activity	% Much	% Little	% Never	% No answer
Motorized Towing	22%	26%	27%	26%
Motorized Pleasure	55%	19%	9%	18%
Motorized Fishing	14%	28%	34%	25%
Non-motorized Paddling	14%	24%	36%	26%
Non-motorized Sailing	2%	5%	60%	33%
Non-motorized Fishing	5%	19%	47%	29%

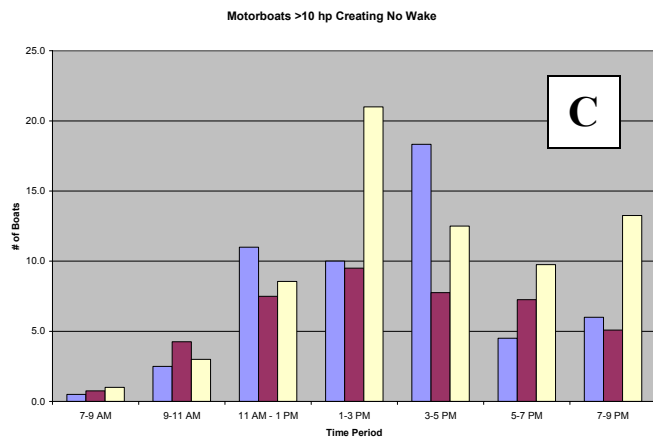
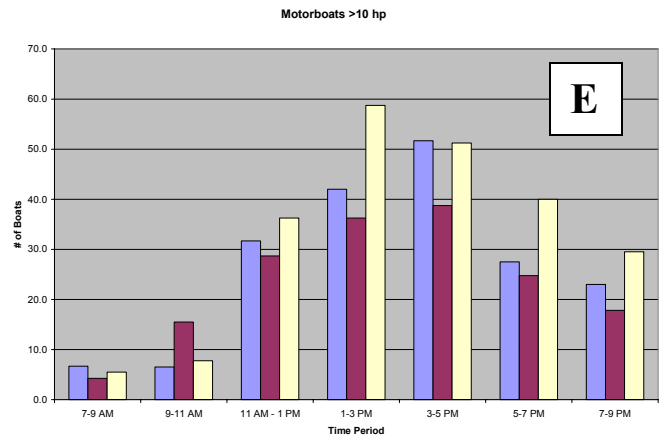
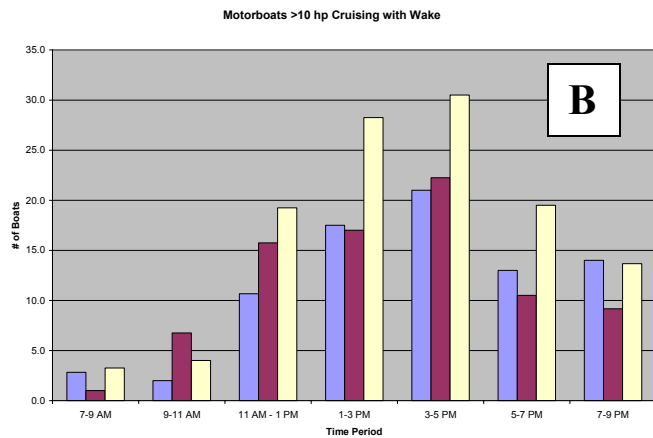
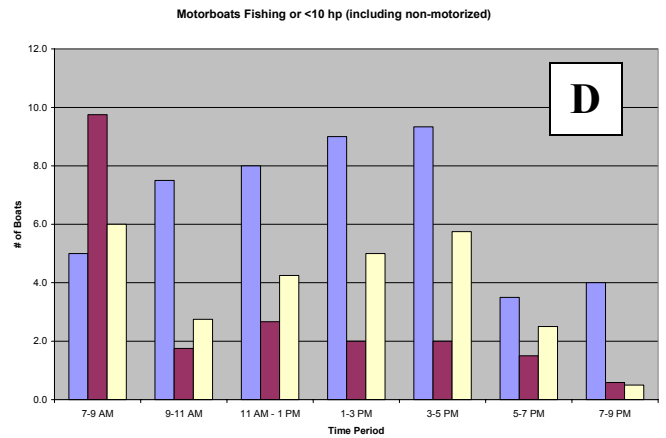
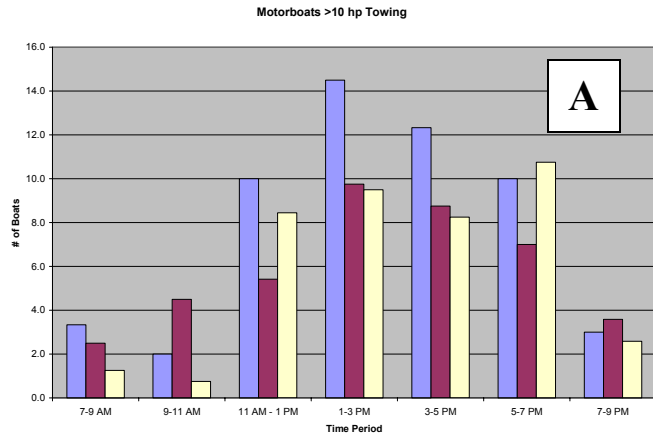


Figure 2. Boat use patterns during clear summer weekend days, for each of five boat types (A-E), based on three days.

10. There are some shifts in specific uses of larger boats, including the relative proportion involved in towing, cruising, and drifting over the course of the day, but the variation is not striking.
11. The temporal pattern of non-motorized boats, motorboats <10 hp or fishing boats >10 hp is more even over the course of nice days than for motorboats >10 hp involved in towing or cruising, but can vary considerably among days (Figure 2D).
12. There are fewer non-motorized boats, motorboats <10 hp or fishing boats >10 hp than there are motorboats >10 hp involved in towing or cruising at all times surveyed except early morning, when fishing uses can be the most common use of the lake. No crowding occurs at that time.
13. No clear pattern is observed on most weekdays or rainy days, and use levels are much lower than for summer weekend days with nice weather (Appendix B). However, fishing use may actually increase during rainy days, and fishing activity is observed over more of the lake's surface area. Fishermen tend to stay near shore when large powerboat activity is high, but fish offshore more commonly in the absence of those boats.

The conclusion that can be drawn from boat ownership and use data is that crowding occurs mainly on summer weekends and holidays with nice weather, and then only from late morning to early evening. This is consistent with opinions expressed by parties familiar with the lake and reflected in user perceptions from the questionnaire survey. Lake use is not even over time, and it is peak use that must be managed if safety is to be maximized.

Carrying Capacity

The concept of carrying capacity relates to the amount of a use that a lake or other resource can support without an unacceptable level of impact. Carrying capacity can be expressed instantaneously, as in the number of boats that can be on the lake at once and still maintain safety and provide an enjoyable experience. Carrying capacity can also be assessed over time, as in the boats using the lake at any one time projected throughout the boating season, factoring in any changes in instantaneous capacity that might occur over time. The impact may be to the resource or other users. In the case of boating carrying capacity, different types of boats have different levels of impact to the resource and require different amounts of space to avoid impact to other users. For Lake Lure, the impact of boats on the resource is not perceived as the major issue to be addressed, although a reduction of wake impacts is desired and could be attained by altering the nature of seawalls constructed as part of shorefront development. The key issue is impact on other users, particularly other boaters.

There are multiple ways to estimate carrying capacity. “How’s the Water” a book on recreational water use and related impacts, conflicts and management approaches, was edited by R. Korth and T. Dudiak in 2002 and published by the University of Wisconsin Press. This book is suggested to readers of this report for a lot of background on carrying capacity and boating issues that cannot be easily covered here. The key factors in estimating carrying capacity for boats include necessary area for safe operation of each type of boat, the use pattern for boats of different types, the feasible hours of operation for each boat type, and the available space.

Volunteers working on commercial boat permitting developed a list of desirable space allocations for use of each of the primary boat types on Lake Lure (Table 4), based on a variety of literature sources, and we concur that these values are reasonable (within the reported ranges from many other studies).

Table 4. Acres of lake area needed to operate types of boats on Lake Lure.

Boat Type	Acres Preferred During Use	Rationale
Towed Water Activities	11	Safety, esp. for downed towee
Motorized Over 10 hp	7	Safety, esp. at high speeds
Motorized Under 10 hp	3	Safety and aesthetics
Non-Motorized	2	Maximized enjoyment
Fishing	5	Maximized enjoyment
Tours (sightseeing, realty)	4	Safety and best enjoyment
Service Boats (prop. maint.)	3	Safety, esp. wake production

One could argue that some of these values could be increased for maximized safety or enjoyment of the experience, and one might also consider that operator experience and group enjoyment could allow these values to be lowered in some cases. Ultimately, these are average values that represent the space needs for conducting the corresponding activity on a regular basis without unacceptable risk of either accidents or a diminished enjoyment of the activity. The range of numbers in available studies comes from a combination of accident statistics, observed densities and behaviors, and exit interviews with boaters after spending time on a study lake.

Again, there is room for debate in all of these numbers. Some towing space estimates are as low as 7.5 acres per boat, while others are in excess of 20 acres per boat. Fishing and non-motorized boating can be “safe” at as little as an acre per boat, but the enjoyment of the experience is reduced for the participants. Many large horsepower (hp) boats are used in Lake Lure to cruise fairly slowly and enjoy the scenery; only an acre or two per boat would probably be acceptable during such use, but what is the safety risk after several hundred boats watch a sunset and then want to motor quickly back to their docks? The above “acre per boat factors” were derived for Lake Lure, mainly focusing on the commercial sector, but they are appropriate for consideration of lake use by everyone.

The second factor, pattern of use, is best based on actual observation. Estimates have been gained by questionnaires and the estimates match the general experience of lake users with years of experience. Key elements in the evaluation of use patterns include how often boats go out, how many of what type are out at a time, how long they stay out on the lake, and what types of activities the users engage in. Towing boats may be used to cruise, fish or just float for some of the time they are on the lake, but will spend the majority of their time towing people on skis, tubes or wake boards. Fishing boats spend most of their time drifting or using an electric motor, but some troll and all want to get to the desired fishing location fast. Because the intricacies of use pattern can get very complicated, it is often ignored in favor of an assumption of even use over the course of a day. This is not the case at Lake Lure for motorboats >10 hp, a situation that should be kept in mind when considering carrying capacities based on even use. Managing for an average carrying capacity estimate will be likely to result in periods of underuse and overuse, as occurs at Lake Lure.

The third factor, feasible hours of operation, is easy to estimate in general, although it can be difficult to estimate precisely without direct observation data. Except for fishing and some low speed cruising or paddling, use is minimal between 9 PM and 7 AM by rule at Lake Lure. Powerboating with wakes can occur from 7 AM to 9 PM, but there is a daily pattern to motorboat use on nice summer weekends, as evidenced in Figure 2. High speed boats are most likely to be on a lake between about 11 AM and 7 PM, while fishing boats are more likely in the exact opposite time pattern. Non-motorized boats will overlap with each, but tend to stay closer to shore when high speed boats are abundant. Estimating the number of people likely to be on the lake based on simple division of available hours by hours that an activity is typically pursued ignores factors such as work schedules, weather pattern, and human nature. This is a major problem in managing peak use. We can bracket the use pattern by assuming even use as one scenario and the peak use as a second scenario, using the values given in Table 2 from the questionnaire survey as interpreted by use pattern shown in Figure 2.

The final factor, but perhaps the most important, is the area available for boating activities. Not all boats can or should use the entire lake surface. Lake Lure is 720 acres in area, with several major arms and many coves. Based on map measurements and on-site observations, about 180 acres are not useable by larger powerboats, simply as a function of the no wake rule for areas within 75 ft of shore or in coves less than 200 ft across. This leaves about 540 acres on which boats with >10 hp motors can operate. The no wake rule is both a safety and shoreline impact protector, and while it is possible for some high powered boats to create minimal wake at high

speeds, the intent is to slow boats down when they are approaching shore. Boats with <10 hp motors (which includes electric boats in this case) and non-motorized boats can use the entire area of the lake, although there are certain logical restrictions (e.g., sailboats should not operate at full sail near docks or other obstructions, and boats should stay out of swimming areas).

Ignoring the amount of time each boat goes out onto the lake and the possible hours of operation, one can get an impression of just how many boats can be safely and enjoyably on the lake at a time under the above constraints. A total of 49 towing boats would fill the available 540 acres if each had the suggested 11 acres in which to operate (think of it as a flexible 11 acre buffer that moves with the boat). A total of 77 non-towing motorboats >10 hp could fill the same space, each with a 7 acre moving buffer zone. There are only a few larger tour boats on the lake, so the capacity for these alone is not a factor. The other four types of boats listed in Table 4 require 2 to 5 acres per boat, but could theoretically use the entire lake surface. This results in estimates of maximum boats of each of those four types on the lake at once that range from 144 to 360.

As use of the lake is not restricted to one type of boat at a time, the actual carrying capacity at any one time is a function of the mix of boat types. There could be 25 towing boats and 39 non-towing boats >10 hp on the 540 acres of lake outside the no wake zone at once, with 30 motorboats <10 hp and 45 non-motorized boats in the 180 acres within the no wake zone at the same time. Alternatively, there could be 15 towing boats, 54 non-towing motorboats >10 hp, 10 motorboats <10 hp and 75 non-motorized boats on the lake at once, each with adequate space. The possible combinations are almost limitless, which is why some sense for the pattern of use and feasible times of operation must be known if an accurate carrying capacity is to be derived for a given lake. Given the shape of the lake, it may also be prudent to consider carrying capacities for each arm of the lake.

But the situation is even more complicated, given that boats go on and off the lake over the course of a day, with a different number and mix of boat types possible every hour or so. Projecting the carrying capacity over time requires some estimate of the total amount of time available for boat use. While the feasible hours of operation are not identical for all boats (e.g., many fishing boats will go out at night, when no towing boats should be on the water), the amount of available time during the peak season has been estimated as 14 hours per day for 7 days each week for 15 weeks, or 1470 hours of time. Multiplying by 720 acres of lake area (even though not all boats can use all this area), 1,058,400 acre-hours exist to be allocated among lake uses.

As swimmers are supposed to stay within 50 ft of shore and motorized boats >10 hp are supposed to stay at least 75 ft from shore, there is only a small safety issue with other boats potentially in the same areas as swimmers. With boat docks and other manmade obstructions, the actual boatable acreage is actually somewhat less than 720 acres, but it is not a major source of error. Consequently, the Marine Commission has adopted the concept of 1,058,400 acre-hours of resource as the basis upon which to calculate commercial allocation of the resource.

For commercial boats, where activities and schedules are more predictable, a reasonably complete estimate of carrying capacity can be developed. Members of the Lake Lure Marine Commission have done this using a proprietary model developed by those members, setting aside

30% of the total acre-hours for commercial uses. The breakdown within commercial uses is set based on experience, and results in an allocation for each commercial use that totals to the 30% of all ac-hr allocated to commercial uses (Table 5). As permit applications come in at Town Hall, allocation is assigned (under a system of seniority and other factors) until no more ac-hr are available. As commercial operations function on a relatively predictable schedule, peaks in use are limited or at least predictable, and the resource allocation is viewed as representative of actual use.

Table 5. Allocation of acre-hours among commercial boat uses at Lake Lure.

Activity	% of All Use	Allocated Ac-hr
Towed Water Activities	20%	44,100
Motorized Rental Under 10hp	8%	25,402
Motorized Rental Over 10hp	56%	123,480
Tours	11%	24,255
Fishing Guide	2%	6,350
Service Boats	1%	3,175
Realty	2%	6,350
	100%	233,113
Non-Motorized (remainder of available commercial)		<u>84,407</u>
30% of the total 1,058,400 ac-hr available for use during peak season	TOTAL	317,520

Non-commercial uses are not restricted to the remaining 70% of the total ac-hr available, and the use pattern by non-commercial users is considerably less predictable. In attempting to evaluate how allocation of the remaining 70% of the available resource might be performed for non-commercial boats, it is evident that properly dividing up the available ac-hr among permit applicants requires knowledge of the relative percent of time that different uses are active and the turnover rate of users over the course of a day. Neither of these factors is precisely known, but data from the questionnaire survey (Table 2 and Appendix A) and observations of boat use on the lake in 2006 (Figure 2 and Appendix B) provide the best available estimates.

An estimate of the relative proportion of uses can be made based on permit sales or from the questionnaire survey results. Motorboats >10 hp represented 66% of the boats permitted for use on the lake in 2005, but are on the lake more often and for longer than other boats, with the questionnaire survey indicating that these larger boats represent at least 89% of the boating hours on the lake. Our initial analysis used the percentages based on permits issued, but with the addition of more specific data for time of use for each type of boat, adjustment to actual usage seems appropriate. Fishing boats, which tend to have engines >10 hp but are used differently than towing or cruising boats, had to be split from those other boats >10 hp, but the assumptions of frequency and duration of use were held constant for this analysis. An analysis similar to that conducted for the commercial sector was then conducted, and results in the allocation presented in Table 6.

Table 6. Estimated allocation of acre-hours among non-commercial boaters on Lake Lure, with corresponding numbers of permits that could be issued.

Types of Boating Activity	Allocation of Ac-hrs Based on Use Pattern	Uses wakeable area	Uses non-wakeable area	Acres/boat needed	Activity hrs/day	Activity Days per Week	Activity Weeks Per Peak Season
Motorized under 10 hp	1%		x	3	0.5	0.5	1.2
Motorized over 10 hp	79%	x		11	2.5	2.3	6.6
Non-motorized	10%		x	2	1.1	1.2	3.3
Fishing	10%		x	5	2.5	2.3	6.6

Types of Boating Activity	Ac-hrs/season/boat	Acre-Hours Available for Activity	Calc. Permits that can be Issued	Actual average permits issued for 2005	Actual average permits issued for 2006
Motorized under 10 hp	1	1,852	2058	50	60
Motorized over 10 hp	417	438,971	1052	966	978
Non-motorized	9	18,522	2126	408	490
Fishing	190	18,522	98	39	47

Note: Permit calculations assume available ac-hrs associated with area of primary operation (wakeable or non-wakeable).

The result is an estimate of permits that could be issued, depending on certain allocation assumptions, to use up the available acre-hours in accordance with the best available estimate of overall use pattern. Note that no distinction is made between towing and cruising in motorboats >10 hp, as many non-commercial boats are used for both activities. The higher ac/boat factor is applied to those boats, since they could be towing people. Allocated permits for motorboats >10 hp could be increased by 36% if there were no towing activities, but towing is assumed and provides a margin of safety in the analysis.

There appears to be no current permit limit issue with motorboats <10 hp, non-motorized boats, or fishing boats under the estimated allocation scenario in Table 6; there is more availability than permits issued. Only motorboats >10 hp represent a threat to overrun the carrying capacity of the lake when the actual permits issued is compared with the projected permits that would result in complete use of the estimated allocation. A previous estimate based on allocation by historic numbers of permits issued to each boat and an assumption of equal use in hours per season resulted in similar estimates, except for motorboats <10 hp (which apparently have lower use rates than other boats). In particular, the estimate of permits that could be issued for motorboats >10 hp ranged from 772 to 1112, bracketing the value of 1052 permits obtained in this refined analysis.

Aside from the margin of safety accorded by assuming a need for 11 acres by all boats >10 hp, an additional margin of safety is built in. Motorboats >10 hp are assumed to operate only in the 540 wakeable acres of Lake Lure, while all other boats are assumed to operate within the 180 non-wakeable acres, yet each use is accorded a percentage of total ac-hrs as though all the resource was available. There will be more space in each area than assumed in the analysis, but as smaller boats can go outside the 75 ft no wake zone, there is a risk of conflict and such a margin of safety is justified for the larger motorboats. Many more small motorboats or non-

motorized boats could be accommodated within the no wake zone, but the actual number of permits issued does not approach the capacity estimate, even with the conservative assumptions applied in this analysis. Fishing boats tend to have a temporal separation from other boats, such that more of these could also be accommodated, but the actual number of permits does not approach the minimum estimate of allowable permits under the constraints of this analysis.

If carrying capacity is expressed as the number of permits that can be given out, then only motorboats >10 hp are using Lake Lure at a level close to the estimated carrying capacity. The number of permits issued in recent years has been higher than in 2005 or 2006 based on Town records, but changes in the permit system make direct comparison difficult. For example, boats attached to rental properties have been moved to the commercial category and daily permits during the peak season have been discontinued. The apparent highest permit year was 2001, which when translated to match the approach used in assessing the 2005 permits, would have yielded about 1290 full time, peak season equivalents for motorboats >10 hp. Most people agree that safety on the lake was compromised in 2001 at a greater frequency than observed in more recent years.

Values for 2002-2004 were intermediate, with estimates of 1097 to 1233 full time, peak season equivalents for motorboats >10 hp. As peak season daily permits were eliminated in 2005, these values would be somewhat lower, but adjustments for rental home boats and combining weekly permits to make full season equivalents have been made in these estimates. The key point is that based on a carrying capacity analysis, the number of permits given out for non-commercial motorboats >10 hp has fluctuated around the perceived appropriate limit, if that limit is the only factor keeping the capacity from being overrun.

The perception that safety was compromised in 2001, when the highest number of permits was issued, is taken as an indication that the carrying capacity range for larger non-commercial motorboats (1052 from Table 6, but probably more appropriately represented as a value between 1000 and 1100) is a reasonable representation of reality for this system. It should be kept in mind, however, that carrying capacity is a bit of a moving target, given the changing mix of boat types and uses during any period on any given day and from year to year. If boats cease towing people when boat density gets high, the immediate carrying capacity increases, as it is assumed that a towing boat requires 11 acres to operate safely, while a non-towing, cruising boat requires only 7 acres. If inexperienced operators are involved, each of these acre per boat estimates might logically be increased (values as high as 20 acres per boat are applied in many boating analyses). Where safety must be accorded the highest priority, it makes sense to err on the low side of estimated carrying capacity.

The carrying capacity analysis and related permit allocations in Table 6 assume an even use of the lake resource over 14 hours per day and the 15 week peak season. We know from Figure 2, however, that boat use is not even. A more conservative estimate of carrying capacity can therefore be calculated by taking the daily use pattern into consideration. Working with just the motorboats >10 hp, the dominant and potentially most dangerous watercraft on the lake, the use pattern for 3 nice weather weekend days in summer of 2006 is shown in Figure 3. This is the same as Figure 2E, except that thresholds have been added to indicate safety levels of 27

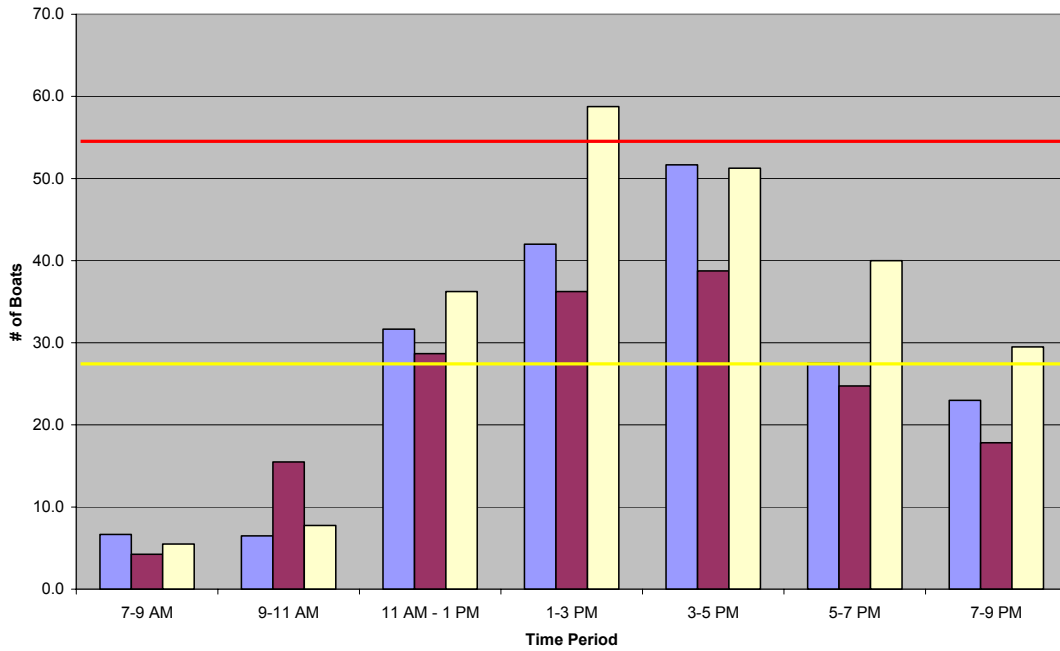


Figure 3. Pattern of use of motorboats >10 hp on three summer weekend days with nice weather. Safety and enjoyment thresholds of 20 acres per boat (yellow) and 10 acres per boat (red) are shown for comparison.

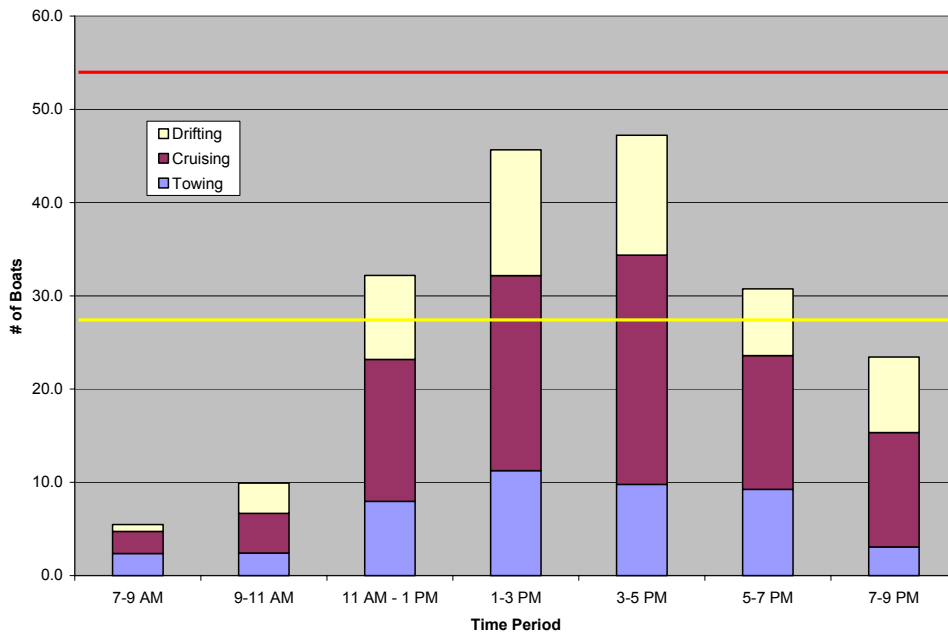


Figure 4. Breakdown of motorboats >10 hp by activity for the average of three summer weekend days with nice weather. Safety and enjoyment thresholds of 20 acres per boat (yellow) and 10 acres per boat (red) are shown for comparison.

(yellow) and 54 (red) motorboats >10 hp on the lake. These correspond to 20 acres per motorboat and 10 acres per motorboat, the generally accepted range over which safety and user enjoyment diminish. The permit system at Lake Lure assumes that 7 to 11 acres are needed per non-commercial motorboat >10 hp, bracketing the 10 acre/boat threshold.

As is evident in Figure 3, the density of motorboats >10 hp on Lake Lure is higher than the 20 acre/boat threshold between 11 AM and 5 PM on all three surveyed days. This does not indicate an imminent safety hazard, but the potential for safety to be compromised if operators are not skilled or disobey the rules. Density is near the 20 acre/boat threshold from 5 PM to 9 PM on average, but exceeded it on one of the three days. Density exceeded the 10 acre/boat threshold on only one day, and then only during one period (1-3 PM), but the potential to move into the zone of distinct safety hazard and diminished user enjoyment is apparent.

Other days not surveyed in 2006 or earlier may have been busier, and gas prices and flooding just before the fourth of July holiday weekend may have depressed boat use slightly in 2006. However, the three days depicted in Figure 3 are believed to be reasonably representative of typical busy periods on Lake Lure. As such, it can be seen that there is a potential for safety hazards from 11 AM to 5 PM, and sometimes from 5 PM to 9 PM, but that densities are rarely in the distinct danger zone (less than 10 acres/boat, above the red line threshold). However, the bars in Figure 3 represent the average density in each two hour period, and instantaneous densities can and do exceed the red line danger threshold at times. This is particularly true in the North Arm of Lake Lure, which is popular for towing activities. Yet providing <10 acres per motorboat >10 hp represents a distinct danger only if the boats are moving fast, and many of the observed boats were drifting, so observed density alone does not signal an imminently hazardous condition. The carrying capacity for boats capable of moving fast is approached or exceeded at times in Lake Lure, but self-regulating mechanisms appear to limit the use of those boats in fast moving activities, keeping effective densities well below the redline threshold (10 acre/boat) (Figure 4).

Examining the breakdown of boat use on a specific busy day (Sunday, July 23, 2006), the general pattern exhibited in Figure 4 is again observed in Figures 5 and 6. The yellowline threshold (at least 20 acres/boat) was exceeded in multiple arms during multiple 2-hour periods, but the redline threshold (10 acres/boat) is only occasionally exceeded by the combination of all boats, and only once by the combination of towing and cruising boats >10 hp. During non-peak days, however, boat use is well below any threshold for potential danger (Figures 7 and 8).

If the permit system was to be used to minimize peak densities, the only mechanism would be to limit permits to a level that would shrink the number of boats on the lake, leaving the distribution of boats over time as it is. If we set a limit of 10 acres per boat >10 hp, no reduction in the number of permits recently issued would be necessary, based on average summer, nice weather conditions as depicted in Figure 4 (all values are below the redline threshold equating to 10 acre/boat). The data for specific arms of the lake on one busy day (Figures 5 and 6) support this assessment. If a safer threshold of 20 acre/boat >10 hp (the yellowline threshold) is applied, or if the 10 acre/boat threshold is applied to all boats, the number of permits issued for motorboats >10 hp would have to be reduced by about 40% to reduce the peak densities adequately. This would result in a lot of unused resource time during non-peak periods and create considerable

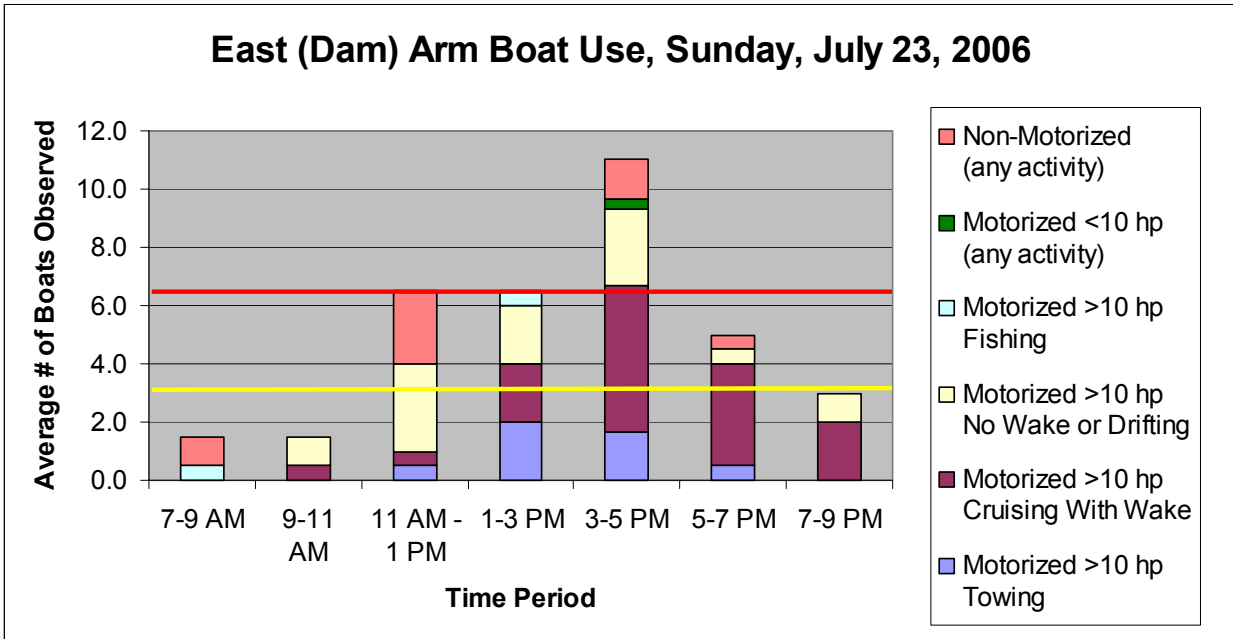
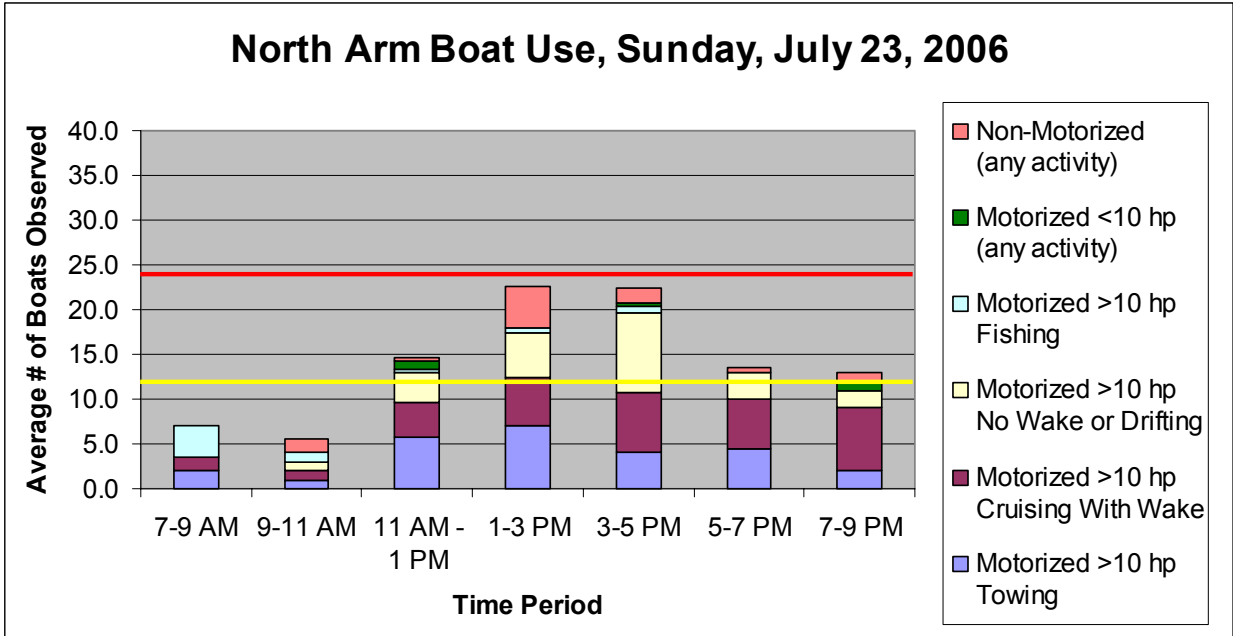


Figure 5. Boating use pattern for the North and East Arms of Lake Lure on July 23, 2006, a nice weather weekend day. The yellow line represents the 20 acre/boat threshold and the red line represents the 10 acre/boat threshold, each for the respective area of the associated arm of the lake.

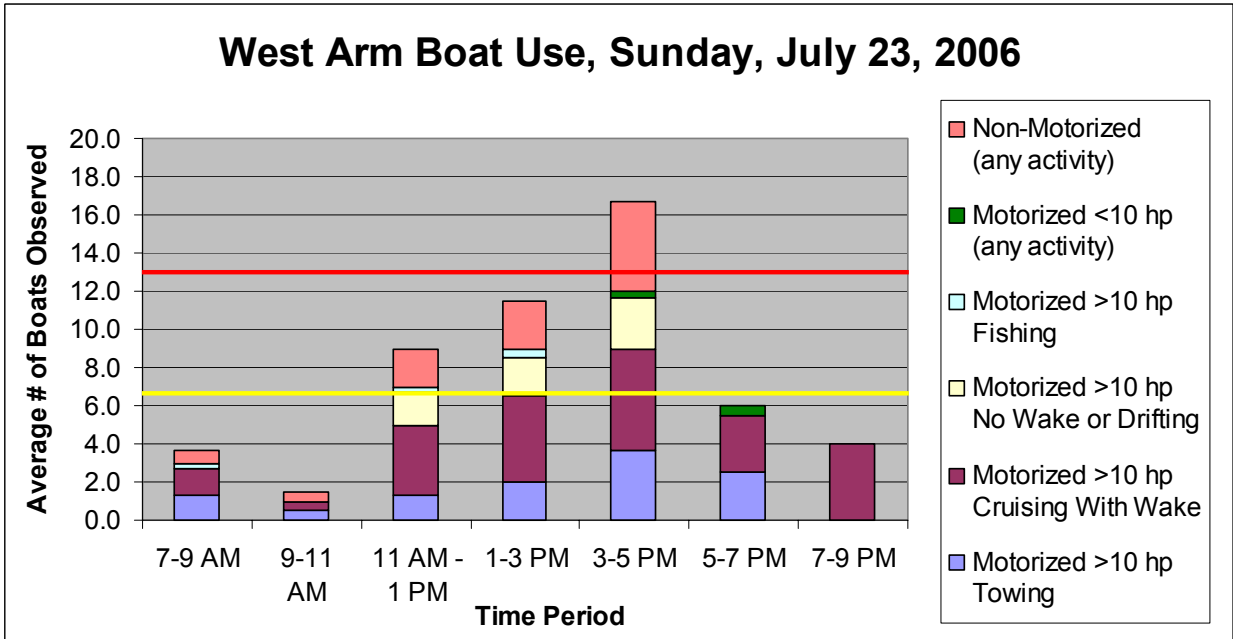
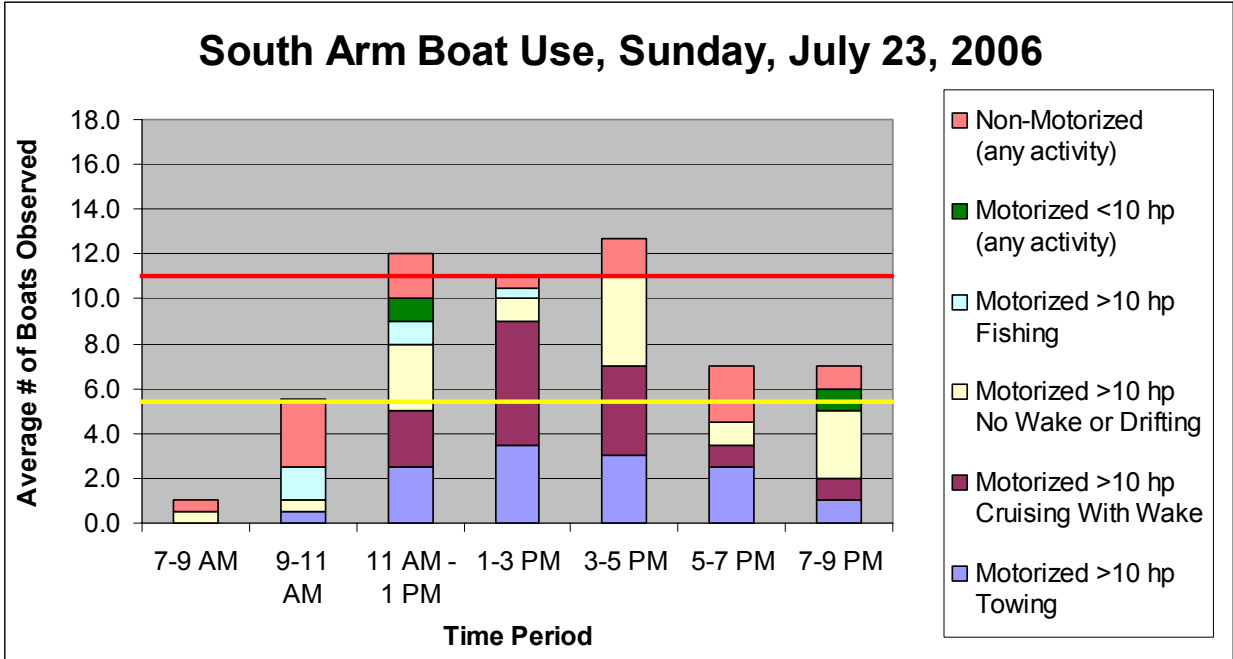


Figure 6. Boating use pattern for the South and West Arms of Lake Lure on July 23, 2006, a nice weather weekend day. The yellow line represents the 20 acre/boat threshold and the red line represents the 10 acre/boat threshold, each for the respective area of the associated arm of the lake.

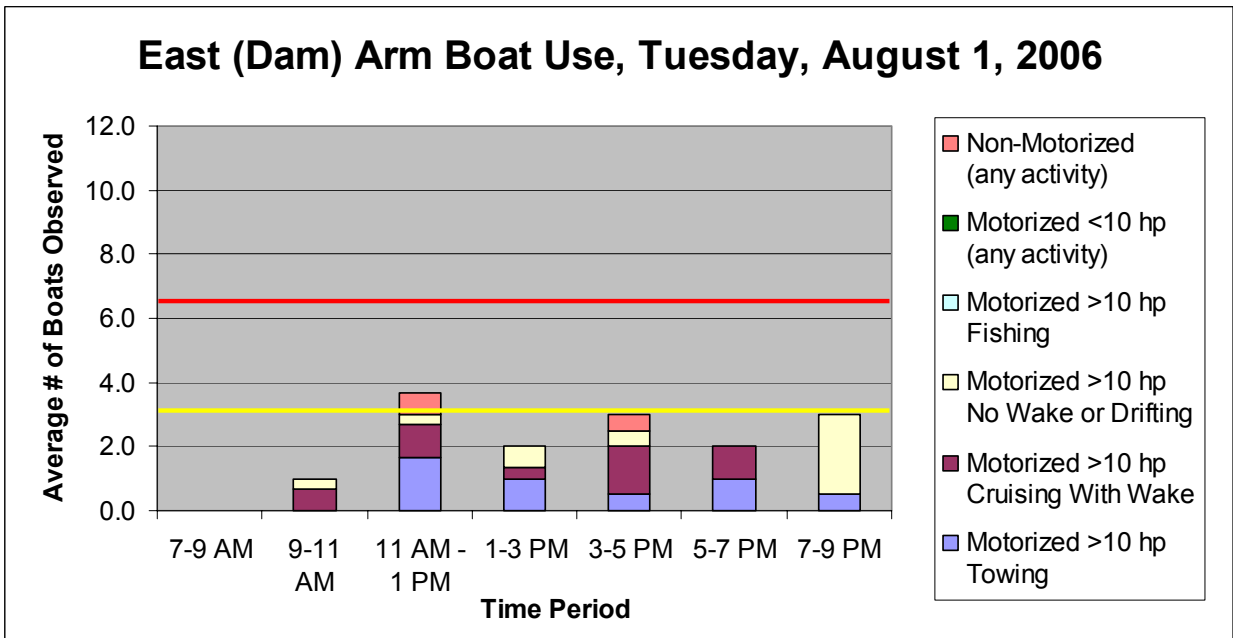
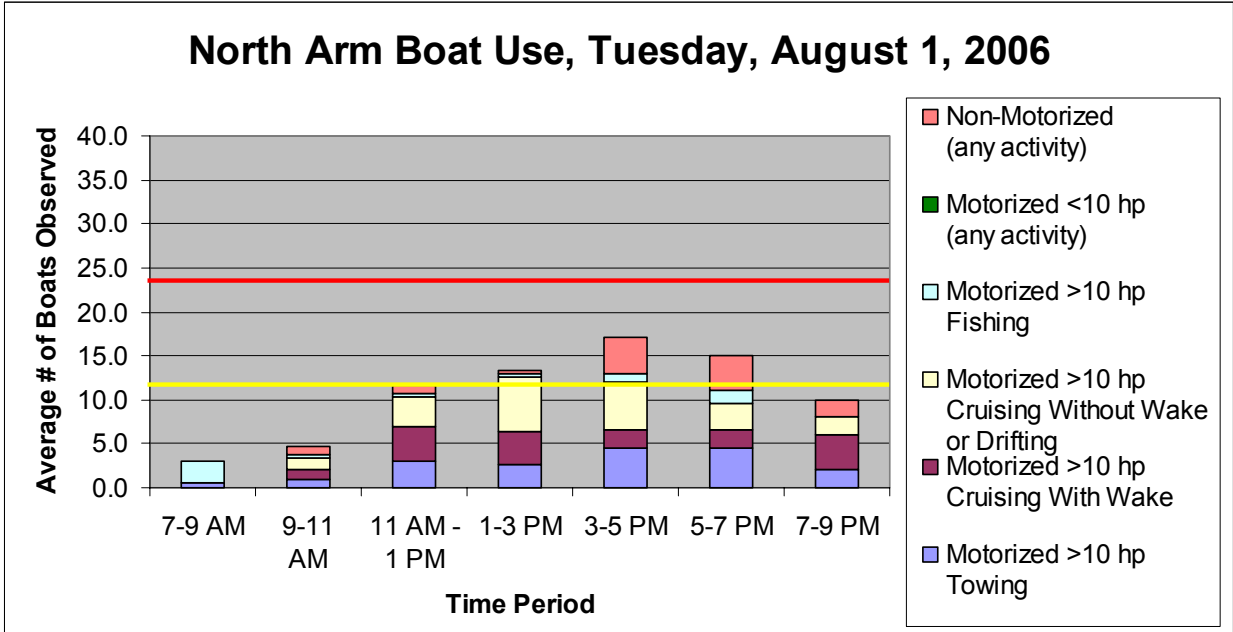


Figure 7. Boating use pattern for the North and East Arms of Lake Lure on August 11, 2006, a nice weather weekday. The yellow line represents the 20 acre/boat threshold and the red line represents the 10 acre/boat threshold, each for the respective area of the associated arm of the lake.

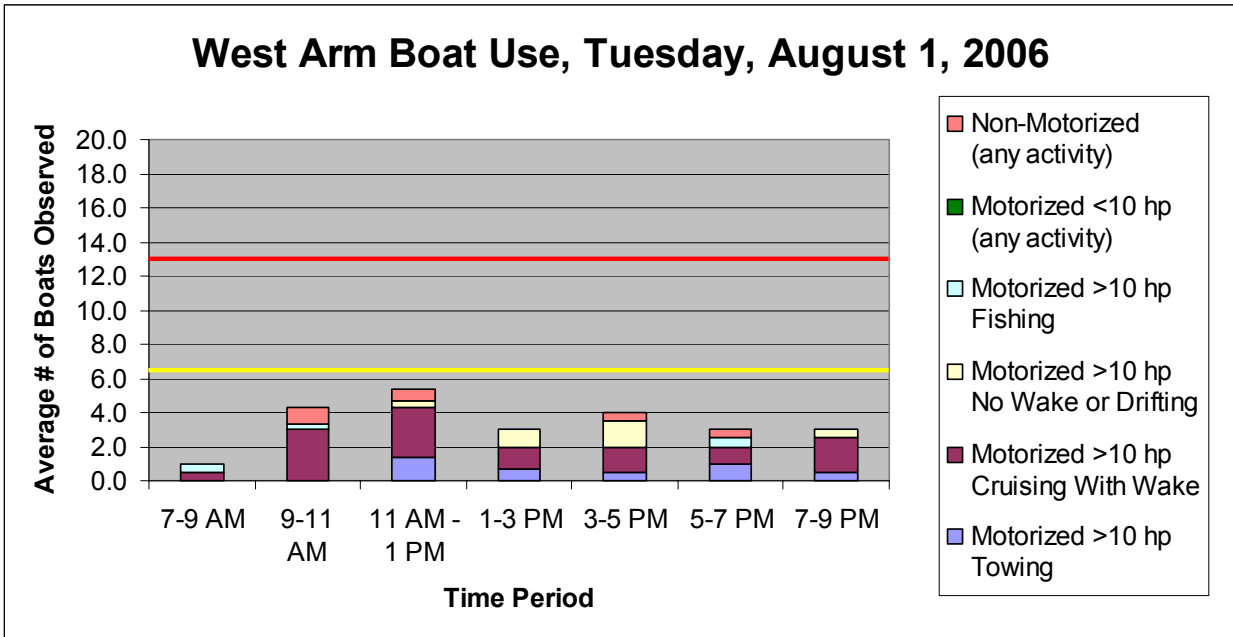
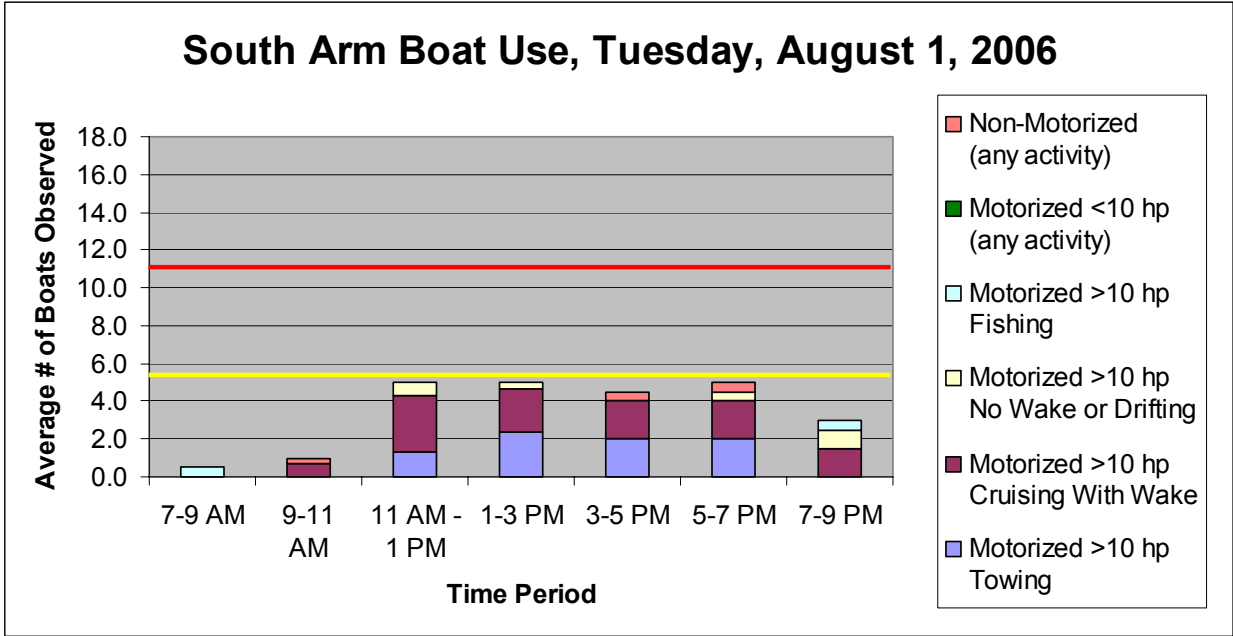


Figure 8. Boating use pattern for the South and West Arms of Lake Lure on August 11, 2006, a nice weather weekday. The yellow line represents the 20 acre/boat threshold and the red line represents the 10 acre/boat threshold, each for the respective area of the associated arm of the lake.

unrest among boating enthusiasts. It would seem more appropriate to look for ways to reduce peak densities without lowering use at all times.

Based on the preceding analysis, we conclude the following regarding boating carrying capacity in Lake Lure:

1. The key factors in estimating carrying capacity for boats include necessary area for safe operation of each type of boat, the use pattern for boats of different types, the feasible hours of operation for each boat type, and the available space.
2. Working from 1,058,400 acre-hours of peak season resource time to be allocated among lake uses is reasonable, and the application within the model used to control commercial uses of the lake seems appropriate. Application to non-commercial uses is less reliable, given a number of more variable factors, and the Marine Commission recognizes this.
3. Developing a carrying capacity estimate for non-commercial uses involves a number of assumptions, and the questionnaire and boating observation surveys were used to derive the most dependable values available. Based on areas of use, frequency of use, duration of use, and the ratio of use times for each boat type, approximate numbers of permits that could be issued to use up 70% of the allocated resource hours were derived.
4. Use by non-motorized boats, motorboats <10 hp, and any boats designated for fishing under the rules of Lake Lure does not approach the allocation provided in the analysis. Only use of motorboats >10 hp approaches the theoretically allocated resource time, such that permit limits might be needed with any expansion of boating pressure in the future. Under the current use assumptions, including an even pattern of use, between 1000 and 1100 permits can be issued for motorboats >10 hp.
5. The use pattern of boats is not even, however, and peak use of motorboats >10 hp does exceed the carrying capacity at times, based on a range of 10 to 20 acres per boat for maintenance of safety and user enjoyment. Having <10 acres/boat >10 hp is rare. Having <10 acres/boat for all boat types combined is more common, however. Having <20 acres per boat >10 hp is common on nice weather summer weekend days (and holidays) between the hours of 11 AM and 5 PM, and occurs sometimes between the hours of 5 PM and 9 PM.
6. Many motorboats >10 hp are used for drifting or low speed cruising, especially during peak use periods. Consequently, while carrying capacity is exceeded by the actual number of boats on the water, it is much less commonly exceeded by boats engaged in high speed activities upon which the carrying capacity estimate is based. There may be a self-regulating mechanism in place that provides a margin of safety during peak use periods, although not everyone subjects themselves to that mechanism, creating potential safety hazards.
7. In order to use the permit system to reduce peak densities below the generally regarded potential hazard limit (at least 20 acres/boat >10 hp or 10 acres/boat for all boat types), an approximate 40% reduction in permits for boats >10 hp would be needed. This would lower the peaks, but assuming a continuation of the current daily pattern of boating, much resource time would be unused on weekdays and in the morning of weekend days. This would be a very inefficient way to control peak boat density and is likely to be socially unacceptable. Alternatives that hold permits issued to 1000 to 1100 and provide additional controls for peak density control appear preferable.
8. Given available capacity during the week, it may be possible to offer peak season weekday only permits that would allow use of the resource during that timeframe without adding to weekend peaks. Permits for the non-peak season appear to require no restriction at this time.

Potential Management Options

There is a very wide range of potential management options that could be applied at Lake Lure. The key is to select options that represent the least intrusive and most equitable means to ensure safety to the greatest feasible degree. An exception to equitability may be the desire by many lake users to preserve lake conditions and user rights as they are today for the future; this may not be fair to all possible future users, but avoids ruining the resource for the temporary enjoyment of the maximum number of possible users (known commonly as the “tragedy of the commons”). The primary objective is to maximize safety and enjoyment of the lake. Those goals may seem antagonistic at times, as some of the enjoyment comes from inherently risky activities, but the overall enjoyment of the lake by a large number of people does depend on facilitating a safe experience.

Some management approaches are focused on specific problems, such as minimizing pollutant inputs, preventing invasions of exotic species, or reducing noise, many of which are not central issues at Lake Lure, although each is relevant. We focus here on methods specifically intended to maintain boating safety while maximizing boating use. A listing of potential management options is provided in Table 7. Most are fairly self evident, while a few may require some additional explanation to place them in the context of Lake Lure. Management options are divided into four major categories (Access Control, Time Zoning, Space Zoning, and Training and Behavioral Modification) plus an enforcement category that applies to all of the others.

Permit Systems

The current permit system allocates available space and time (in acre-hours) among commercial permit holders, with 30% of the total acre-hours available during peak season allocated for commercial uses. Non-commercial permits were initially unlimited, but have undergone some adjustments to address out of town users (greater cost, since no contribution to the tax base is provided), daily users (eliminated during peak season), and rental property boats (moved to commercial system). Consideration of the 70% of total acre-hours implicitly (although not by regulation) allocated to non-commercial uses (Table 6) indicates that permits for motorboats >10 hp approach the capacity that might be allocated to them based on the carrying capacity analysis. However, no such allocation has been formally made, as non-commercial use is much less predictable than commercial uses, and there appear to be density dependent self regulating mechanisms at work on Lake Lure. Consequently, no firm limit has been placed on the total number of residential peak season permits issued for non-commercial motorboats >10 hp in the past.

Density dependent mechanisms warrant some explanation. When responsible boaters observe that boats are becoming too abundant to enjoy their chosen activity safely, they tend to modify their behavior. Towing may cease, speeds may be reduced, new areas with fewer boats may be sought out, boaters may choose to drift along the shoreline, or boaters may simply leave the lake. For those who live at the edge of the lake, they can easily come and go as conditions warrant, and can often assess the situation without even leaving their homes. Those with less time at the lake, including vacationers and those who trailered a boat from elsewhere, are less likely to leave the lake, but if they are responsible boaters, they will maintain safe behavior. At 11 acres per towing boat, Lake Lure can only support about 49 such boats operating at once, while about 966

Table 7. Potential boating management options for Lake Lure.

Technique	Advantages	Drawbacks	Applicability Issues for Lake Lure
<i>Access Control</i>			
<i>Permit Systems</i>			
Unlimited	Simple	Lack of control	Limits exist; alternative methods of density control could allow more permits to be issued, albeit with time restrictions
Limited total	Sets maximum, allows prediction of average, can be used with experience to limit problems	Will not prevent peaks unless low number applied; will shut some out of lake use as demand increases	Maximum on >10 hp could minimize peak problems, but will not prevent them by itself; issues of equitable distribution of permits; could eliminate weekly peak season permits or permits for lots without dwellings; weekday only permits might facilitate more use without peak increase
Unlimited first motor permit, others by availability	Maximizes opportunity	Limits permits for some who have had more in past, ultimately will not provide long term control	By distributing the same number of permits among more people, peak use may rise; not adequate by itself
Transferable permit, but limited number per lot	Allows multiple boat options, but only one at a time on lake	Limits past freedom, restricts use of second boat by guests	Will limit peak use, but as demand for permits rises, may not be adequate by itself; shorefront owners tend to have implicit version of this system already
Limited by type of boat or motor	Controls problem sectors	Not everyone can get all they want	Current practice: PWCs prohibited. Extension to other boat types or motor sizes on lake may be socially unacceptable, and only a minority have more than one boat >10 hp
Limited by season of use	Addresses seasonal variation	Will limit summer users	Current practice: Off-season permits offered at lower rate. Might get more off-season demand if peak season permits limited, spreading out use over time
Limited by weeks of use	Allows breakdown within busy season	Will restrict users in peak weeks	Currently issue weekly permits, but without limit on number per week; could reduce peaks by such a limit, or by specifying weekday use only
Limited by days of use	Alternating days limits peaks on weekends/holidays; weekday only permits can provide increased use without higher weekend peaks	Limits freedom of use during potentially favorable periods, requires substantial enforcement	Partitioning of days (odd-even) likely to create social upheaval; may be too difficult to enforce; ignores current self-regulating mechanisms. However, offering weekday only permits could allow use of unused capacity without making weekend conditions worse

Technique	Advantages	Drawbacks	Applicability Issues for Lake Lure
<i>Access Limits</i>			
Parking spaces at boat ramps	Passively limits ability to launch boats	Does not control shoreline owners or marinas	May create on-lake/off-lake conflicts, but works with anti-drydock ordinance to limit launchings
Boats available commercially	Limits boats that are likely to be used the most	May increase demand for individual boats	Commercial boats represent least and greatest hazards (commercial operators vs. rental property boats); uses are varied and serve a variety of useful purposes (tours, seawall repair, learning to ski); detailed system of allocation already in place; may need more commercial operations to satisfy future demand safely, especially rental boats
Boats moored at docks or in lake	Limits maximum boating density by sector with greatest access to lake	Does not control peaks, effective limit may be lower than what users are used to	Have 3 slip/property (>100 ft frontage) limit now, but most owners use only one boat at a time; self-regulating mechanism appears to be in effect; group pays higher taxes and may resent greater limitation
Check in/check out system	Allows rational allocation of available space, especially from controlled access points, does not require a limit on the number of permits that can be issued	More difficult to control shoreline owners, requires allocation system and enforcement, does not guarantee access for all permit holders whenever desired	Could work in concert with commercial allocation to maximize overall use while controlling peak use; could involve flags that are issued, reserved or otherwise provided with limit that corresponds to capacity; mainly applicable to motorboats >10 hp, but strongly opposed by current users
<i>Time Zoning</i>			
<i>Quiet Times</i>			
Quiet days	Provides peaceful aspect on predictable basis, opens area for safe non-motorized use	Greatly limits available time for motor use, may get same effect with bad weather days	Noise is apparently not a big issue at Lake Lure; limits available acre-hours when demand is high
Quiet hours	Minimizes disturbance during key times, provides some opportunity for expanded non-motor activity	Can impact early morning or night fishermen (common time for quiet hours), may restrict motor use during best time for some users (after work)	Have 9 PM to 7 AM no wake period, which effectively creates quiet time overnight; appears to be adequate for now and does not affect use during peak periods

Technique	Advantages	Drawbacks	Applicability Issues for Lake Lure
<i>Time Slots for Uses</i>			
Banned uses	Removes primary safety risks, limits conflicts caused by competing uses	Infringes on perceived user rights, may have legal ramifications; puts Marine Commission in large regulatory role	Have ban on PWCs and boats >20 ft long, may consider other watercraft that represent problems (hovercraft?) or regulation of motor use by property renters, but generally contrary to spirit of openness for Lake Lure
Fishing hours	Maximizes experience for this activity, which tends to occur on the fringes of the daily use period	May limit other largely non-competing uses unnecessarily	Seems to occur on its own, but would overly limit other non-competing uses if formalized; current mix of fishing only permits with night no wake restriction appears to create desired situation
Skiing hours	Sets limit on one of the more area intensive uses, opens up time for competing uses (sailing, cruising)	May create severe congestion and safety risk in small time period, impacts commercial operations with fixed time schedules	Appears too limiting for demand on Lake Lure, compresses allocation such that demand will not be met or safety will be compromised
Sailing/windsurfing hours	Allows safer use of more area for this activity	May overly restrict other uses if demand for sailing is low	Sailing is not a primary use, can provide space by other means
Multi-use hours	Creates groupings of activities that can co-occur, maximizing safe use	Gets complicated and may still create conflicts	Too many uses and users to apply effectively at Lake Lure, will compress demand into less time, potentially compromising safety
No wake hours	Limits high speed uses, increases safety and reduces noise at key times	Removes time periods from available total for some high demand activities	Have 9 PM to 7 AM no wake period, could consider another period during day to provide safe opportunity to other low speed users, or system that allows declaration of "no wake allowed" when crowding occurs (requires notification and enforcement)
No towing hours	Limits activity perceived to create greatest risk	Removes time periods from available total for one high demand activity	Could be applied for peak weekends and holidays where known problems occur, or could be applied as warranted as with no wake declaration, with proper notification and enforcement

Technique	Advantages	Drawbacks	Applicability Issues for Lake Lure
<i>Space Zoning</i>			
<i>Area Restrictions</i>			
Complete exclusion zones	Keeps activity out of sensitive areas, maximizes safety	Eliminates area for activities in demand	Only applicable near dam, for safety reasons (a minor loss of area); other sensitive areas unknown for Lake Lure
Motor exclusion zones	Keeps motorized activity out of sensitive areas, maximizes safety	Eliminates area for motorized activities in demand	Would be applicable in the absence of no wake zones; would require boats to row or use electric motors to move motorized watercraft 75 ft out from shore or out of small coves
No wake zones	Protects sensitive areas (usually shoreline, but sometimes shoals)	Eliminates area for motorized activities in demand	Have no wake zones <75 ft from shore and coves of <200 ft width; appropriate in Lake Lure but expansion not warranted
Use limited areas	Excludes activities with highest risk of impact from areas where impact is intolerable	Removes area potentially useable for certain high demand activities based on risk, not actual impact	Primary area where applicable is near shore; need effectively met by no wake zones
Designated use areas	Divides lake into sections most appropriate for desired uses, limits inappropriate uses of some areas	Removes potential space for high demand activities, makes some users travel long distances for desired use, creates conflict over use zoning	Might encourage use of some areas over others, but local resistance to extreme space zoning; no wake zone effectively sets bounds for larger motorboat activity, other exclusionary approaches probably more applicable for protecting sensitive (swimming areas) or high risk (dam) areas
<i>Training and Behavior Modification</i>			
<i>Voluntary Measures</i>			
Education through mail	Informs people of responsibilities and expected procedures, provides warning, lays ground rules, solicits cooperation	May not reach all users, may not be read, does not require compliance	Materials can be provided with permit, informs permit holders of rights, rules and responsibilities; essential communication step moving forward where increased regulation is likely to be needed

Technique	Advantages	Drawbacks	Applicability Issues for Lake Lure
Posted signs at access points	Informs users of rules or issues at point of entry	Will not reach shoreline property owners	Important to remind off-lake residents of rules and issues not facing them every day
Live education at access points	Allows direct interaction, answers questions, puts a face on requirements, facilitates enforcement in advance of on-lake violations	May create conflict, may slow down launching, may unfairly focus anti-rule sentiment	Interactions at boat launches, with safety as focus, would limit on-lake problems; could be accomplished in association with boat surveys
Buoys with possible signage	Posts key areas with any special rules or warnings	May not be seen by all users, especially at high speeds	Appropriate as a back-up for other educational programs, but insufficient by itself
<i>Operator Education Requirements</i>			
Operator licensing	Ensures knowledge by operators, provides tracking of past offenders	Does not guarantee safe behavior, limited effect on boating density	May decrease acres per boat needed for safe operation or may increase operator awareness of unsafe conditions; may be able to get the same effect with mandatory education, but actual licensing by Lake Lure Marine Commission increases control
Operator education mandate	Ensures knowledge by operators	Does not guarantee safe behavior, limited effect on boating density	Consistent with many laws, justified when safety risks are apparent; requires proof of training to get permit, may include age restrictions
Safety acknowledgment forms	Assigns safety risk minimization to users	Does not guarantee safe behavior, limited effect on boating density	Easily handled with permit process, makes users aware of responsibility, may ease town risk to small extent; forms turned in with permit applications
<i>Behavioral Controls</i>			
Speed limit	Increases safety, eliminates some uses during periods of high risk	May eliminate desired uses at times, requires monitoring and notification system	Potentially useful as a peak use safety measure, implemented when needed, as long as a notification and enforcement system is in place
Direction of motorized traffic	Minimizes safety risk from other boats	Restricts use, may diminish enjoyment	Lake layout not conducive to uniform pattern of motor use, but common practice of keeping closest shoreline on the right seems to minimize problems

Technique	Advantages	Drawbacks	Applicability Issues for Lake Lure
Distance from shore use limits	Separates uses to some degree, minimizes safety risk	Measurement of distance can be difficult	In place already with no wake zone, marker buoys, swimming restriction; important to maintain this separation in Lake Lure
Distance from other watercraft limits	Maximizes safety, creates density dependent use limitation	Requires judgment of distance to nearest boat, possible enforcement complications, may not protect downed waterskiers or people overboard	Would limit some activities (especially towing and high speed cruising), with enforcement, if density got too high; potential peak limiting step instead of speed or access limits
Alcohol consumption statutes	Minimizes safety risks and liability	May limit enjoyment of the lake experience by some	Essential safety step - designated driver rule
Flotation device use requirements	Maximizes safety	Considered an infringement of rights by some, may not prevent boating accidents	For some uses (waterskiing, sailing) this is a standard requirement, for others it is likely to remain optional; very brightly colored vests may help make people in the water more visible
Enforcement			
<i>Off-lake Enforcement</i>			
Access point inspections	Prevents problems before they occur on the lake	May slow launching, does not control shoreline owners	Would allow permit checking and support other management applications above
Access point observation	Allows evaluation of density and use issues by inspectors	Can't see much of Lake Lure from any one access point	Not likely to be very effective at Lake Lure; need boat patrol
General shoreline observation	Allows inexpensive assessment from multiple points	Cannot react quickly to problems	Helpful if problems can be reported to boat patrol or central contact; need dedicated phone line and rapid response
<i>On-lake enforcement</i>			
Police boat patrols	Makes users aware of need to act responsibly, provides fast reaction to problems	Can be expensive on a regular basis, may force less responsible users into other areas of the lake with even greater risks	Essential to have some enforcement of any regulations, at least during peak use periods; police presence on the lake is the most effective enforcement method, but requires some training to shift focus toward education and facilitation of safety

Technique	Advantages	Drawbacks	Applicability Issues for Lake Lure
Designated citizen boat patrols	Can provide same benefits as police presence	May not be respected to the degree that a police detail will be, may also carry expense or stretch volunteer resources	Not as desirable as official police presence, but has advantage of being less threatening; may not have same compliance effect; trained person or small group authorized by Town could provide key coverage during peaks, when police presence elsewhere may be essential
Citizen reporting process	Facilitates notification of authorities if there is a problem	Police or other official group has to respond to potentially frequent calls	Needs clear guidelines on how to apply, but ability for on-lake boaters to report violations is important
Peer pressure	Works behind the scenes to bring unsafe users into compliance, carries no clear cost	May get out of hand, issues with lack of authority or uneven application	Better to have responsible users report unsafe conduct to designated authority

permits were issued in 2005 for boats that could engage in towing, without even considering the commercial permits for towing boats or any other use of the wakeable 540 acres of Lake Lure. Self regulation may be a key factor here.

In addition to density dependent self regulating mechanisms, many people cannot get to the lake on a daily or even weekly basis, so the number of permits that can be issued is obviously much greater than the instantaneous carrying capacity of the lake. Table 6 makes a number of assumptions about use frequency that seem to represent reality, based on the questionnaire and observation surveys. If conditions change in the future, as with vacation homes being converted to year round use, the analysis may no longer be valid.

One other large factor in the ability to issue many more permits than the lake can support at one time is the tendency of shorefront residents to have more than one boat. Up to three mooring slips are allowed, and a few grandfathered lots have four or even five slips. However, except where multiple people from a dwelling go out on the lake at once in separate boats, only one boat is used at a time. It seems likely that this cuts the actual portion of permits likely to be used at any one time about in half, a supposition generally supported by the questionnaire data.

Despite factors that limit actual use of permitted boats, the permit system does not control when permit holders can use the lake. Peaks in use can occur that exceed the carrying capacity of the lake for boats, especially larger motorboats. If there is no limit on non-commercial peak season permits, the capacity of the lake to safely host larger motorboats may eventually be exceeded on an average basis, but that has not happened so far. Safety was believed to have been compromised more often in 2001, the year of maximum permit issuance, extending beyond just nice weekends and holidays during the peak season. Therefore, the limit for permits as a control device for average boating density is just slightly higher than the current annual average, or somewhere between 1000 and 1100 permits.

Different approaches to permit limitations include limiting the number of permits per dwelling or lot, per type of boat (engine size), or per season, week or day of use. Any number of scenarios would be possible, but ultimately any limit on permits will create issues of equitability. One simple approach is to “grandfather” current permit holders, which under the current analysis would leave some small number (<100) of additional permits to be offered in the future. Receipt of a permit after the limit has been reached would depend on someone relinquishing a permit. Those wishing to obtain permits would be placed on a waiting list, and the system would run much like the commercial permit system operates now. Current equitability is upheld, but future issues with new town residents can be anticipated, and with only about a third of current permit holders being registered voters, the democratic process could get contentious.

As an interim measure, experience and 2006 data for Lake Lure suggest that permit limits will be effective for average conditions, but not for generally predictable days of peak use (like weekends, holidays, and perhaps hot, sunny mid-summer weekdays). And the number of permits issued in 2005 and 2006 are within acceptable limits from the carrying capacity analysis conducted as part of this program, so no cut back in permit issuance is needed at this point. In the long run, however, some additional method of controlling boat density is needed if peaks are

to be controlled, self regulating mechanisms are to be supported, and equitable opportunity is to be provided.

One such approach is included in the Permit Systems category. Check in/check out systems would modify the permit system to function more like a private golf club; purchasing a permit (analogous to membership) entitles one to access, but does not guarantee a tee time. Some form of reservation system would be needed to allocate the lake space during peak use periods, or permit holders could be issued a flag or other identifier that would be in shorter supply than permits. Such a system need only be invoked during peak use periods, and then only for motorboats >10 hp, to keep the density at a safe level. Equitable distribution and minimum infringement on historic freedoms at the lake are the key issues here, each of which presents serious challenges.

A secondary permit system, which is what a reservation or flag system would constitute, requires a lot of thought and general public buy-in before application. If a single flag was issued to each shorefront lot owner, that would limit use of multiple boats from a lot at once, but we are not sure that there is much use of second or third boats now. For those not living on the lake but mooring a boat in a communal marina, some limited number of flags could be available through the marina for expected peak days. For those who must trailer a boat to the lake, ramps could be managed with a limited number of flags, much like marinas. Alternatively, flags could be available from one or more sources in a limited supply, with reservations placed ahead of time.

The primary benefits of a secondary permit system are that it can be applied flexibly as conditions warrant and it opens up the possibility of issuing more permits while still maintaining control over the density of larger motorboats as needed. The primary drawbacks are creating equitable time on the lake for would-be users, the need to physically distribute flags or other identifying markers, finding a way to notify potential users in advance that the secondary permit system is in effect, and the need for enforcement. As the demand for permits increases over time, as it is expected to do as the area becomes more developed, the adoption of a private golf course model is viable, but represents a major departure from past management and will be perceived as an infringement on the rights of property owners and long-time boaters.

Time Zoning

Time zoning options in Table 7 are fairly straightforward, and many are already in place to some degree at Lake Lure. The no wake rule applied between 9 PM and 7 AM is particularly important in achieving multi-use goals. Banning certain uses altogether is an extreme act only applied to personal watercraft to date at Lake Lure. What has not been applied are specific times for skiing (or other forms of towing), sailing sports, or combinations of uses that require more space than others. These approaches generally limit acre-hours for those activities, and at Lake Lure it makes more sense to maximize those acre-hours, sharing the resource with other uses to the extent possible.

Space Zoning

Space zoning options in Table 7 are also readily comprehensible, and the use of a no wake zone within 75 ft of shore and in coves <200 ft across, plus swimming being restricted to within 50 ft of shore, are key aspects of the current management plan that maximize safety. Aside from these

limits and exclusion of activities from the immediate area of the dam, other space limitations do not appear warranted at this time. There may be some consideration of removing certain erosion prone or narrow areas from the wakeable area, even though these areas are more than 75 ft from shore, but any such changes represent a minor adjustment to wakeable area.

Training and Behavior Modification

The set of options lumped under this category of management actions include educational efforts intended to increase boater safety awareness, sense of responsibility, and general competency, and rules that would improve safety. Educational efforts range from simply providing information to permittees to requiring training for boat operators. Required training could range from simple acknowledgement of having read the Lake Lure rules through boater safety courses to actual licensing by the Marine Commission after successfully completing an on-line or other approved course. One possible overlay on the training requirements could be an age limit for unsupervised operation of a motorboat >10 hp. An age limit of 16 has been suggested, with operation at younger ages possible only under the onboard supervision of an older operator with approved training.

Lake Lure already applies distance from shore rules, alcohol consumption statutes, and flotation device requirements. Additional rules that might be established for operation of motorboats >10 hp on Lake Lure include a number of practices that could be invoked only as needed, if a system of notification and enforcement can be developed. Speed limits, direction of boat traffic, and distance from other watercraft are controls that could be applied as needed, especially when boating density is perceived as high. In order to apply many of these rules only as needed to preserve safety on the lake, a system would be needed to notify boaters of the need to modify behavior. Posting flags of a set color (e.g., green for normal operations, red for reduced speed) around the lake at key sites visible to boaters would be one feasible approach. Instead of speed limits, it may be possible to eliminate towing sports when boating density gets too high, as people in the water in the wakeable zone appear to be most at risk. Requiring that a safe distance be maintained between boats moving at more than headway speed may be the simplest approach, requires not advance warning, and would be density dependent (more likely to have an effect as boat density increases); it does require active education and enforcement, however.

From the observation of boats in summer of 2006, it is apparent that in busy areas there is already a de facto boat direction rule in effect. The vast majority of boaters keep closer to the shoreline on their right than to their left, such that a generally counterclockwise pattern of use is maintained. Boats need not follow each other exactly; this might even be considered dangerous when towing people. Rather it works more like a multi-lane highway, with multiple lanes in each direction, but everyone staying out of the oncoming lanes and no one randomly cutting across lanes at right angles. Exceptions will occur when a towed person is lost and the boat must circle around to retrieve that person, and there may be issues when multiple people are being towed or operators put a higher priority on their enjoyment than on safety. A few buoys in the center of the channel might help with defining those lanes, but most users appear to recognize the proper zone for high speed operation. Perhaps if this informal arrangement is noted in the literature provided to permit holders and gentle reminders are issued by enforcement officers, no more formal action will be needed; directional controls are not necessary much of the time on the lake.

Maintenance of a safe distance between boats when traveling at more than headway (no wake) speed is an especially attractive approach at Lake Lure. It is a density dependent mechanism that any competent boater should accept and can apply under average lake conditions, and will limit activities as boating density increases. Towing or high speed cruising, activities that require more space to be safe and represent the greatest risk for injury, may actually be curtailed at the highest possible densities; there simply may not be enough space to allow high speed operation at the proper distance from other boats. Boats wishing to go faster must seek out areas of lower density or wait for boats to leave the lake. This may reduce enjoyment for some boaters during busy days at the lake, but will not affect most users most of the time, promotes a more even use of resource hours, and maximizes safety. The safe distance between boats could be anywhere from 50 to 100 ft, with 75 ft (the length of most tow ropes) suggested as a logical limit. Enforcement will be a key aspect of any such strategy, but can be eased into place over time as part of an education program and extended period of adjustment.

Enforcement

Any increased regulation of boating on Lake Lure will require some measure of enforcement. This does not have to mean an overbearing regulation of the lake to the point where enjoyment is suppressed. Rather, a focus on education and promotion of safe boating techniques should be maintained, especially early in the process. There will be some need for penalties for non-compliance, but exercise of such penalties should be reserved for extreme cases and repeat offenses. It is best to work with the boating community to promote safety, rather than attempt stringent control too quickly. Additional controls are not intended for blanket application, but rather just to keep safety foremost when boat density increases to a potentially dangerous level.

Enforcement can occur off the lake to the extent that permits can be checked at launch sites and observation of boating safety violations from shore should be reportable to the police or other central contact that will take prompt action. Yet effective enforcement will necessitate on-lake action, and a police boat patrol would be the most desirable form of on-lake enforcement presence. A trained, authorized, citizen patrol may also be possible, and might be very helpful during peak days where police resources will be taxed by on-shore needs. Enforcement on more than peak days would be advisable, just to further the educational component of such enforcement, but the most critical times will be those hot summer days, especially on weekends and holidays, when boat density is expected to be high.

Selection of Viable Options

The current permitting system, with adjustment over time, has served the Town well, but does not control peak boating activity at a safe level. Reducing the number of permits is not a rational solution, as average boat density is acceptable and the demand for boating on the lake is expected to increase. It would be desirable to find a way to increase the number of permits issued, as the average level of boating could be safely increased and more boaters are likely to want the opportunity to use Lake Lure as development of the area proceeds. However, the number of permits issued for motorboats >10 hp is approaching the estimated limit above which crowding and safety risks may become intolerable, unless the currently uneven distribution of lake use over the course of a day can be altered. Peak density of boats engaged in high speed activities must be controlled if safety is to be maximized and Town liability is to be minimized. This will require at least one additional level of control.

A considerable amount of public discussion has occurred, and a questionnaire survey has been conducted to gauge the response of lake users to possible management actions. More input and deliberation is needed before any major adjustment of boating control can be implemented, but the results of input to date can be summarized as follows:

1. Lake users show a distinct increase in feeling unsafe on the lake as boat density rises (Appendix A). Only 1% feel threatened in the off season, 7% are uneasy during summer weekdays, and 22% feel unsafe on summer weekends and holidays. A majority agree that improved safety on the lake warrants a high priority.
2. No specified category of peak density management was favored by a majority of respondents (Figures 9, 10 and 11), except for reducing the number of new boat slips for new development, which received a slim majority and is only an aid to controlling future increases in boating pressure. Reducing or eliminating permits for non-residents and commercial renters received considerable support at meetings. These options were the most favored of various controls in the more widely circulated questionnaire, but did not receive a majority of favorable responses.
3. Reducing the allocation of resource time for commercial uses overall was raised at several meetings, but was not favored in the more widely circulated questionnaire. There is a lack of understanding about the variety of commercial operations, how they work, what they mean to the community, and how they may operate to relieve boating pressure from other sources (most notably tourists). When expressed as collective “commercial” enterprises, many people are willing to limit them further, under the pretense that money is being made from a public resource. Split into individual entities with specific known values (like tour boats, real estate boats, work boats, ski schools, etc.), the value of each was recognized and no majority was attained for any reduction in permit allocation (Figure 10).
4. Reducing the number of permits for motorboats >10 hp overall was strongly disfavored in the questionnaire (Figure 10), but in meetings there was favorable response to not increasing permits much beyond current levels. How to allocate a limited number of permits for boats >10 hp was somewhat controversial, but there was strong sentiment that current permit holders could be grandfathered at their current levels, with permits given out to new permittees as they became available, drawing applicants from a waiting list. The political

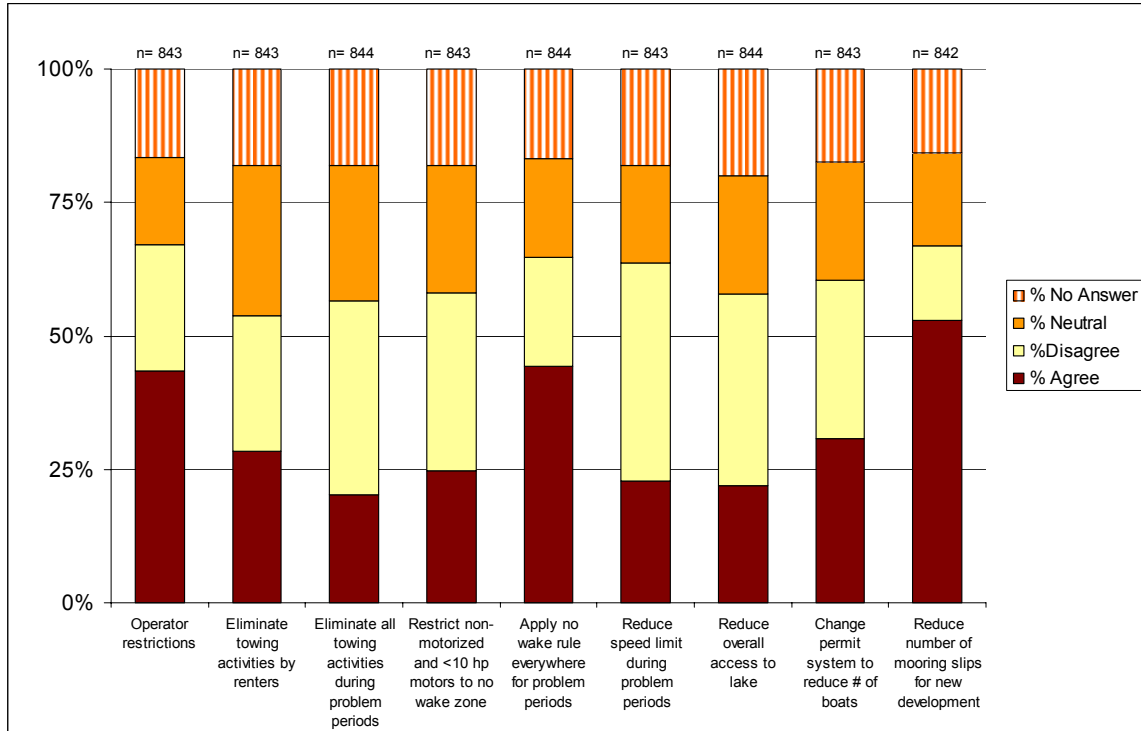


Figure 9. Response to various boating controls

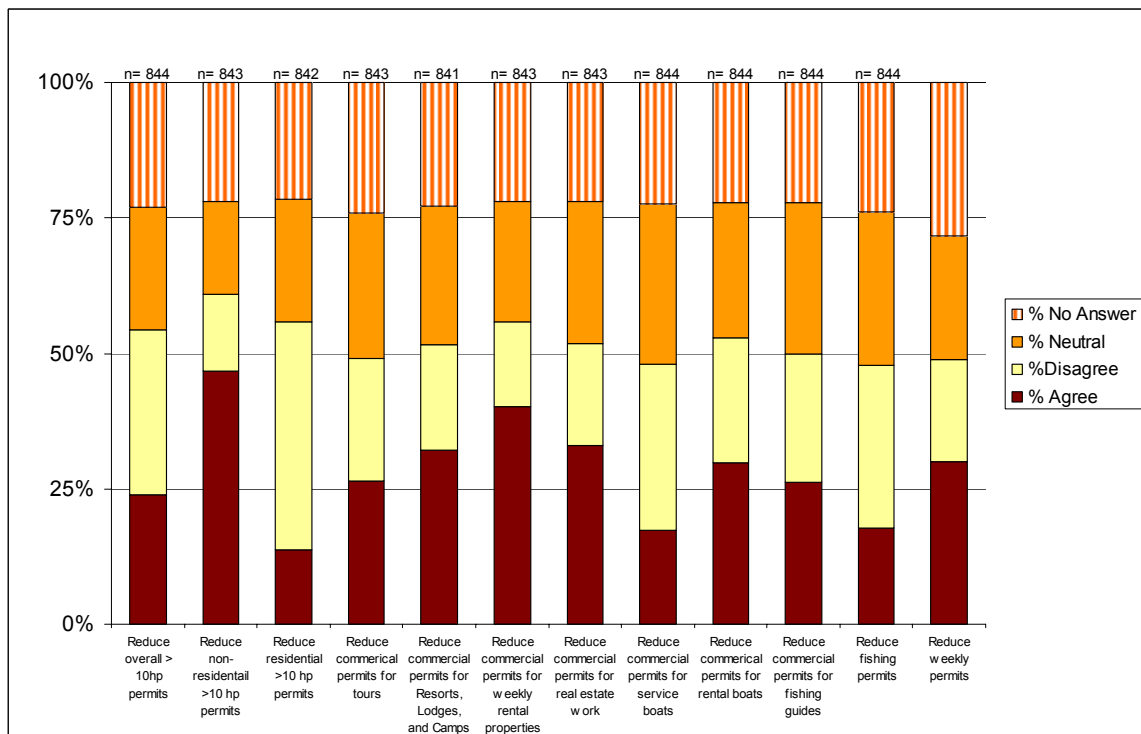


Figure 10. Response to possible permit system changes.

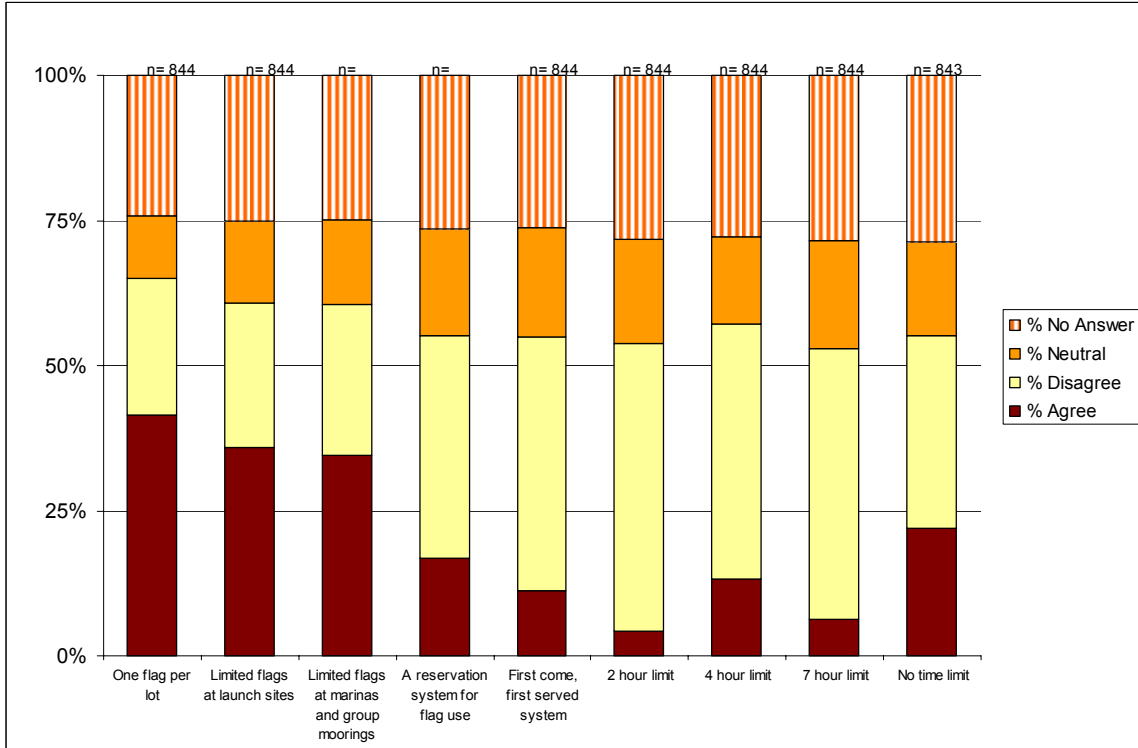


Figure 11. Response to secondary permit ("flag") options

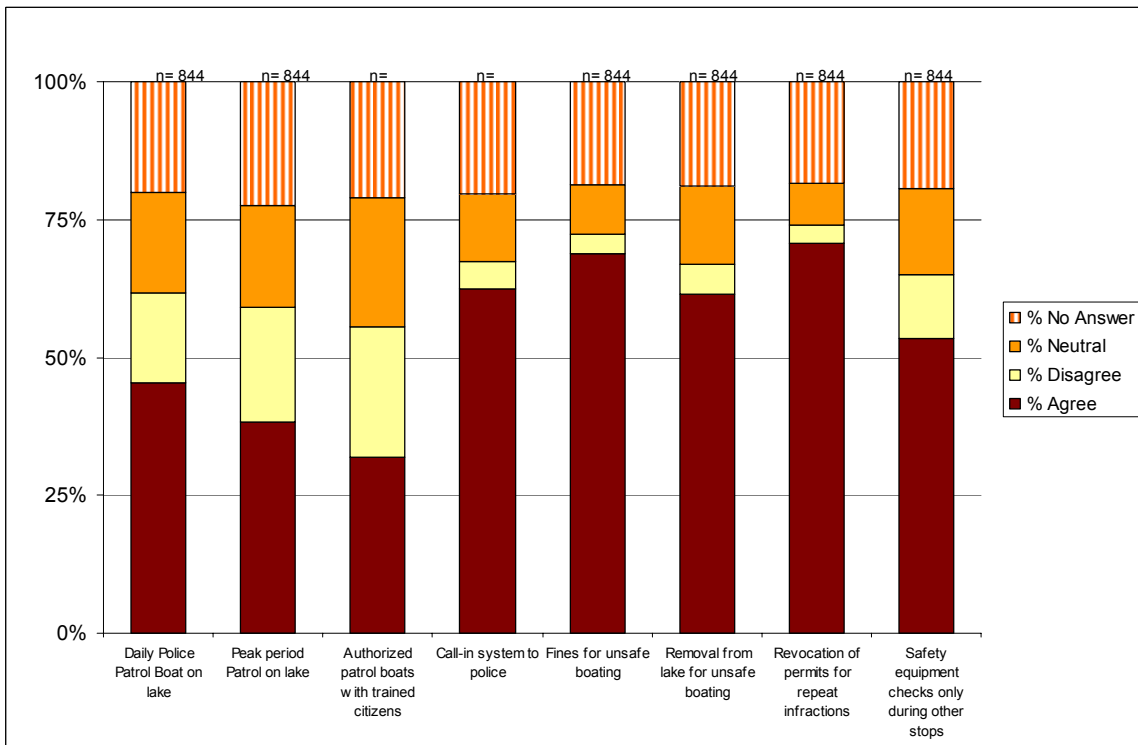


Figure 12. Response to enforcement options.

ramifications of new homeowners not being able to get a motorboat permit need to be explored, but this approach does preserve the privilege of those now using the lake. Linking the permit to the dwelling seems to be the most favored approach to grandfathering existing permits.

5. An alternative that frees up more permits would be to give only one permit per household or lot, but have it be transferable among boats. In general, this was favorably received at meetings, but it is not clear that acceptable average conditions would be maintained under such a system, or that peak densities would be reduced in any way. In 2006, 175 individuals held permits for at least two boats, and most could only use one at a time. Freeing up “extra” permits could increase congestion.
6. The idea of a secondary permit system, one in which access may be denied on busy days unless the user has one of a limited supply of “flags” (or other agreed identifier) that work like a tee time at a golf country club, was generally not supported (Figure 11). Giving all property owners one flag per lot received the most support, as this provides all property owners with the means to use the lake in some manner at all times. Yet the complications of limiting the supply of flags and enforcing associated regulations were viewed as problematic, and long-time lake users viewed this approach as a major infringement of privilege, especially for lakefront property owners.
7. Operator restrictions (age or training limits) and imposing a no wake rule during times of high boat density did not receive majority approval as a general category of controls, but were more favored than most other options (Figure 9). In separate questions (Appendix A), a majority believed that mandatory boat operator training is an appropriate requirement, and that restricting boat operation to people at least 16 years of age, unless a qualified operator is supervising onboard, is a reasonable restriction.
8. Invoking a safe distance between boats was not specifically presented for a reaction in the questionnaire, and received relatively little attention at meetings despite being described as a density-dependent option, and should be discussed further within the community.
9. In the questionnaire, it is apparent that a strong majority believes that enforcement is necessary, but there is not majority approval of any of the enforcement approaches suggested (Figure 12). In the meetings, it became clear that the issue revolves around the history of police enforcement on the lake. Patrol officers assigned to boat duty have tended to take a confrontational approach with an emphasis on safety equipment and boat features, not an educational approach to boat operation and consideration for safety in that operation. Lake users do not feel that police on the lake have the right focus in their enforcement approach.
10. While on the lake, consultants to the Town observed the police boat traveling at high speed between locations, but never engaged in any conversation with boaters. Despite numerous observed issues with boat operation (e.g., improper towing, high speed in coves or near shore, people in the water hundreds of feet from shore and nowhere near a boat), the police boat was never observed addressing such issues. The observations of people at meetings and the comments received with the questionnaires appear justified.

It cannot be stated that there is consensus among the user population about how to manage boat density on Lake Lure, but there is general agreement that the threat is real and that actions must be taken. A protracted process of discussion and iterative steps is possible, and may be desirable, but some interim actions are essential to protecting the Town and lake users in the immediate

future. Meeting attendees voiced a strong opinion that a plan should be developed that includes adaptive elements, to be invoked as needed going forward to provide the desired level of protection. However, this is a difficult task in the absence of clear direction on which controls are acceptable.

The Town Council, the Marine Commission and the Lake Advisory Committee are all urged to continue the dialogue on boat management options and to seek consensus on density control approaches. Any of the options discussed in this report and perhaps some that are not known to us could be revisited and considered further. Management of Lake Lure, for boating safety and other goals, should be a continuing and adaptive process.

However, as consultants to the Town, we have been charged with recommending plan elements that can be applied both immediately and into the indefinite future, and we will not shrink from this task. You are under no obligation to accept these recommendations, and should adopt them only if you are in agreement with their substance and intent. We stand ready to provide any additional support needed to develop a final plan, but in the long run, the people of Lake Lure will hold Town officials accountable for the decisions made.

A number of adjustments are feasible and appear appropriate based on the work done in 2006. The following relatively simple, albeit possibly controversial, adjustments are recommended for implementation in preparation for the 2007 boating season:

- Maintain all existing rules with regard to permitting and safety controls for boats on Lake Lure, most notably the no wake zone restrictions (areas and time).
- Maintain the commercial boat permitting system as it is now administered, with minor adjustments as warranted. If future pressure for boating increases as expected, consider allocating some portion of the commercial acre-hour allotment to a yacht club or public marina, where trained operators could rent or sign out “community” boats for use. Limiting the number of boats will restrict the impact on the lake and potentially spread use over a wider daily timeframe. Also, if problems persist or training requirements are not upheld, consider limiting rental property permits for boats >10 hp to weekday use only, limiting impact on weekends (when peak densities occur).
- Limit the number of permits issued for non-commercial motorboats >10 hp to be used during the peak season to a number not less than 1000 and not more than 1100. We suggest starting at 1000 and increasing the number only as it becomes evident that safety risks have been minimized. Recognize that it will be hard to reduce the number of permits once a higher number has been issued. Consider granting permits on a priority system based on permit holders from 2006, followed by date of application by new permit holders. This will require setting a deadline by which previous permit holders must apply in 2007, suggested as May 15th, to allow new permittees to get their permits by Memorial Day weekend. Grant only one permit for a boat >10 hp to all new applicants.
- The peak season permit allocation for boats >10 hp should include weekly permits, such that 15 weekly permits equals one complete peak season permit for purposes of total permit count. If problems persist, consider setting a limit on the number of weekly permits that can be issued for a given week of the peak season, with 10 per week suggested as the maximum. If density issues still continue, consider offering weekly peak season permits only for weekday use, as high densities are mainly associated with weekends.

- When all permits for boats >10 hp have been assigned, consider providing “weekday only” permits for this class of boats. There is enough unused capacity during weekdays during the peak season to allow at least 25% more boats >10 hp without exceeding the lower threshold for possible safety issues and as much as 100% more boats (a doubling) without exceeding the upper threshold (above which safety problems are very likely). Based on 1000 permits yielding the current pattern, between 250 and 1000 additional permits for weekday use only could be allocated. It is suggested that 250 permits be offered initially, with annual program evaluation.
- There does not appear to be a need for any limitation of boats <10 hp or fishing boats of any motor size during peak season for any boats during the non-peak season. If limitations are needed in the future due to capacity exceedances, apply the principles used above in setting permit limits. This would involve collecting data on use pattern and adjusting permit totals to alter peak densities as described earlier in this report.
- Promote education of boaters. Include information on the lake, its uses, and generally accepted procedures for maximizing safety (such as having the righthand shoreline closer than the lefthand shoreline when traveling at wake speeds). Require all permit holders to sign an acknowledgement form indicating that they understand the Lake Lure rules and will be responsible for the operation of their permitted boat(s).
- Require operators of motorboats >10 hp to complete a safety course, and require operators under the age of 16 to be supervised by an onboard person competent (by training) in boating safety. A grace period could be offered in 2007, as this would be a new requirement, but by 2008 all operators could be trained. This is the most equitable way to eliminate unsafe operators. It may eliminate many rental arrangements, which are considered among the more hazardous operators on the lake, but would do so without prejudice toward rental status.
- Provide a police boat patrol on the lake to enforce the rules, focusing on education and cooperation by boaters first, followed by penalties for violations as warranted. It is essential that the police assigned to this duty be trained for boating safety education and enforcement, and that they develop both a knowledge of lake users and the trust of the lake community.
- At a minimum, the patrol boat should be on the lake between 11 AM and 7 PM on all weekend days and holidays with suitable weather between Memorial Day weekend and Labor Day weekend, and on anticipated busy weekdays during summer. Wider coverage would be desirable, if affordable, but these represent the critical enforcement days and hours based on boat density. Operating from a starting location in the central basin of the lake and using binoculars, the patrol boat should be able to determine where its presence is most needed and move from arm to arm as warranted. On especially busy days, it may be necessary to have two patrol boats on the lake, but one should be adequate on most days.
- The Town should consider hiring a boating education and enforcement officer dedicated to Lake Lure during the peak season, as there will be time conflicts with use of the regular police force during this period. Ideally, a full-time lake operations director would be hired to oversee all areas of lake management including permit applications, education, training sessions, and coordination of on-lake activities. This person might be the primary on-lake enforcement officer, or may just coordinate police assignments and fill in as needed.

- A call number should be established for reporting boating safety problems or related issues to a dispatcher who can reach the patrol boat or send a patrol boat out, if it is not already on the lake. Callers must provide their own contact information and records of calls should be kept and assessed for valid call history over time. Responses should be made within 30 minutes if at all possible.
- Enforce a safe operating distance of 75 ft among boats (and among boats and people) when either boat is moving faster than no wake speed. This provides a density dependent mechanism to minimize safety risks as boat density increases. It may eliminate high speed activities during some peak use periods, at least in parts of the lake. Activity should focus on education in 2007, with violators cited only upon repeat offense when it is apparent that they are not cooperating. The exact distance between boats is less important than the apparent disregard for safety when boating density is high, and the police must strike a balance between education and enforcement. This should serve to spread out high speed uses over space and time to the maximum extent possible, and will curtail high risk activities when there are too many boats on the lake to safely pursue those activities.

More major adjustments may not be necessary, but would warrant considerably more public input if implementation was pursued. The primary option left out of any recommendation to this point is a secondary access control system, possibly involving flags on permitted boats, with the number of flags available being considerably less than the number of permits. The requirement for displaying flags or other highly visible markers on motorboats >10 hp would be invoked on specified days during the peak season, with advance notice, based on experience with peak boating periods. Key factors to be discussed include the number of flags that could be made available and equitable distribution of flags, recognizing that during peak periods not everyone can use a motorboat >10 hp on Lake Lure safely.

To implement a secondary access control system with user acceptance, the public has to understand the safety issues and be involved in the development of the system. This will be a somewhat protracted process, involving extensive two-way communication. The lake-using public does not support such a system now, and it is not clear that an acceptable version of this system would actually provide the desired peak density control. Additionally, the institution of a permit limit for boats >10 hp will tend to freeze the use pattern as it is now, leaving relatively few days during the peak season where additional density controls would be needed. Education and enforcement relating to maintenance of a 75 ft distance between boats when either is going faster than headway (no wake) speed is expected to minimize safety issues on such days without restricting access (although high speed uses may be effectively restricted). A system of secondary access control would therefore be unnecessary and is not recommended at this time, although it could be revisited in the future if safety problems related to crowding are perceived to persist.

An alternative system to the 75 ft distance between fast moving boats would be a speed limit to be invoked during busy periods. This may involve less judgment on the part of enforcement agents, but still involves judgment or considerable technology and rapid response. Additionally, to implement a rapid, on-demand rule to control boating behavior when capacity limits are exceeded, a system to inform boaters that the rule has gone into effect would be needed. While advance notice may be possible in some cases, the intent of such a control system is to invoke

restrictions only when absolutely necessary. Announcing that there will be a speed limit for the 4th of July weekend ahead of time when there is uncertainty over the need for such limits is unnecessarily disruptive. A more immediate system of notification is needed, with advance notification that such rules might be implemented as warranted by boat density at any time. The simplest system would appear to be a set of flags at key points around the lake, with green indicating normal, less restricted operation and red indicating that additional restrictions (e.g., a speed limit) are in effect. Operation of such a system is more complex and requires greater preparation and expense. It is not justified at this time, but may be revisited in the future if warranted.

The recommendation to cap non-commercial permits for motorboats >10 hp represents a departure from the initial thinking that more opportunity should be provided for boating on Lake Lure, and that secondary access methods would be adequate to control peak density. While there is unused capacity even during the peak period (mainly during mornings), it is not an especially large amount of available resource, and the lower use by high speed boats at times represents an opportunity for other uses to increase, including non-motorized boating and fishing. It was not particularly surprising that fishing increased on rainy days when high speed boats were less abundant, but the change in distribution to greater offshore fishing was striking. Likewise, kayaks, canoes, and other non-motorized boats are observed further from shore when larger powerboats are less abundant. Getting more big boats on the lake represents a diminishment of utility and quality for other uses as well as a safety risk. However, given that the focus of recreational boat use on Lake Lure involves boats >10 hp, recommendations for permit system changes emphasize greater use of off-peak resource hours by larger boats. This may warrant further discussion going forward.

While a cap on boats >10 hp will create some controversy, and may aggravate a currently low level battle over how much commercial allocation is appropriate, it does limit the need for secondary access controls. Peak density controls are still needed, but the 75 ft minimum distance between boats (or between boats and people) when one is moving faster than headway speed is sufficient protection if properly obeyed and enforced. High speed uses may be limited during busy periods, but these will be infrequent and there will be room for high speed boat users to relocate to other areas or times to satisfy their needs. This requires alteration of some use patterns, but does not prohibit reasonable use of the resource.

We believe that the suggested plan elements are sufficient to manage boat density and safety indefinitely, if implemented properly and monitored for any needed adjustments periodically. Those elements are:

1. Maintaining existing rules of operation.
2. Maintaining the commercial permitting system with possible adjustments.
3. Capping the non-commercial permits for boats >10 hp at 1000 with a system for issuing permits to new applicants when available.
4. Including weekly peak season permits in the total permit allocation for boats >10 hp.
5. Offering 250 weekday only permits for peak season use.
6. Avoiding any permit limits for the non-peak season now, but preparing to adopt the peak season permitting approach as needed to maintain safety.
7. Fostering education and requiring training of boat operators.

8. Providing a trained and responsive police patrol.
9. Adding dedicated education and enforcement officer to the town staff.
10. Providing a call in number for reporting unsafe activities on the lake and ensuring rapid response to valid complaints.
11. Enforcement of a 75 ft distance between boats when one is moving fast.

The primary benefits of these rules include:

- Promotes physical and temporal separation of some uses to maximize safety.
- Encourages the distribution of lake use in its current pattern, known to present limited and predictable safety risks.
- Protects the privilege of those now holding permits.
- Allows only educated and trained boat operators.
- Provides an appropriate level and focus of enforcement.
- Provides a density-dependent mechanism for controlling higher risk activities.

The negative aspects of these rules include:

- As the Town grows, not everyone can hold a permit for a boat >10 hp on Lake Lure.
- Requires capable boaters to take official training.
- Requires a different approach and more effort by the police force.
- May curtail high speed activities that many enjoy during busy periods.

Projecting out many years and assuming continued growth of the Town and interest in the lake, the primary problem with this plan will be the mounting pressure to get more boats on the lake. There is room for more boats in the off season, and permits can be issued accordingly under the current system. There is also available resource time during certain days and times in the peak period, and methods have been suggested to facilitate such use to some degree (weekday only permits, controlled rental marina). Ultimately, however, not everyone who wants to have a permit for a boat >10 hp will be able to get one, if use pressure continues to increase.

In order to gain appropriate information, the Town should conduct periodic assessments of boat use patterns, much as performed in this analysis. Response to selected survey questions from the questionnaire, dealing with use frequency, duration and related demographic data, should be solicited every 3-5 years to determine if use assumptions remain valid. Boat use observation surveys like those conducted in this study should be performed at roughly the same frequency, or perhaps slightly more often (3 nice weather days every 2-3 years) to detect any changes in use pattern. The questionnaire and observation surveys proved critical in getting the data necessary to evaluate carrying capacity and possible management options in this study, and any changes in use pattern may be equally important to adaptive boat management.

Recommendations for the Lake Lure 2006 Comprehensive Plan

The Town of Lake Lure began the planning process during 2006 for a long-term Comprehensive Plan. As part of the Comprehensive Plan, the Boating Use Management Plan (this report) was included in the overall planning document for the town. As part of the full document, WES and ENSR were asked to create a list of objectives, goals and timetables for the town in order to incorporate the results of the study into the comprehensive planning document.

A decision document was created for consideration and incorporation of recommendations into the Comprehensive Plan and is included in this report (Appendix C). Based on the proposed five objectives, the following goals and timetables were proposed for consideration by Lake Lure.

Goals and objectives for 2007

Recommendation A: Maintain 1000 permit limit in 2007 for residential boats >10 hp.

Recommendation B: Enhance education package that goes out with permits (let folks know what is planned, the issues, and how they can help).

Recommendation C: Have patrol boat at least during hours of 11 AM to 7 PM on weekends and holidays in peak season; other times as budget and manpower allow - focus on educating boaters, not fining or other sanctions.

Recommendation D: Implement 75 ft rule for distance between a boat going more than headway speed and any other boat or person.

Recommendation E: Hire a lake operations director to oversee all lake management issues and coordination.

Goals and objectives for 2008

Recommendation A: Keep the recommendations B through D for 2007.

Recommendation B: Operator licensing/mandatory training. If Lake Lure can have its own boat license course by then, great. Otherwise Coast Guard courses will do.

Recommendation C: Have dedicated boating compliance officer in place and increase patrol time beyond peak season weekends and holidays if not done already.

Recommendation C: Repeat boating observation survey if 1000 permit limit has been reached, and determine if there has been any noticeable change in density or peaks.

Recommendation D: Be ready to offer weekday only permits if that helps with boating pressures.

Recommendation E: Determine permit limit for 2009 from boat observation survey. Increase at 25 to 50 permit increments if density is not an issue.

Goals and objectives for years beyond 2008

Recommendation A: Keep all of the past recommendations as appropriate.

Recommendation B: Repeat boating observation survey and determine if there are noticeable changes in density or peaks.

Recommendation C: Determine permit limit for following year from boat observation survey. Increase at 25 – 50 permit increments if appropriate. Set limit when density becomes an issue.

Recommendation D: If density is an issue, consider the following options: Offer Weekday permits, give multiple permit holders a transferable permit, limit certain applicant categories to weekday only.

Recommendation E: If density is an issue, enforce strictly the 75 ft safety buffer rule for boats moving at more than headway speed.

Recommendation F: Determine if additional use management techniques will be required (permit system, time management, space zoning, training and behavior modification, or enforcement). These options and associated issues have been laid out in the 2006 Lake Lure Boating Management Plan.

APPENDIX A

**QUESTIONNAIRE FOR EVALUATION OF USER FEATURES
AND PREFERENCES AT LAKE LURE**

RESULTS

Lake Lure 2006 Boating Use Survey

This Survey was developed by the town's lake management consultants after several days of information review, an on-site assessment, and an all-day workshop with the Town Council / Marine Commission, and the Lake Advisory Committee. This survey was refined by subsequent review and input from those groups, and represents the second opportunity for public input into this process (an earlier survey was done in 2001). We seek your honest reaction to a range of questions, dealing with your use of the lake, perception of boating conditions and issues, and assessment of possible management methods that might be employed to minimize safety risks while maximizing lake use and enjoyment. While the questionnaire is not a "vote" on the possible options, it may help us narrow down the possible approaches. More comments will be welcomed at public forums to be held later this year. The time and thought you put into your answers will be greatly appreciated.

Are you a year round resident of Lake Lure?	Y	N
Are you a Registered Voter in the Town of Lake Lure?	Y	N
How many months per year do you live in Lake Lure? (Check one) <ul style="list-style-type: none"> <input type="checkbox"/> None <input type="checkbox"/> 1 to 2 months <input type="checkbox"/> 3 to 5 months <input type="checkbox"/> 6 to 9 months <input type="checkbox"/> 10 to 12 months Which months? Circle months on the right.	Jan Feb March April May June July August Sept Oct Nov Dec	
Do you own a house in the Town of Lake Lure?	Y	N
Do you live on shorefront property on Lake Lure? If yes, answer next three questions.	Y	N
Is noise from boating activities a problem?	Y	N
Have you noticed an increase (I), decrease (D) or no change (NC) in noise levels coming from boating activities on the lake over the past 5 years?	I	D NC Uncertain
What is the source of the problem noise? (check all that apply) <ul style="list-style-type: none"> <input type="checkbox"/> Boat motors <input type="checkbox"/> Music <input type="checkbox"/> Voices (yelling, talking) <input type="checkbox"/> Other _____ 		
Do you live in one of the communities (e.g., Lake Lure Village, Lake Lure Golf and Beach Resort, Pierpoint) with communal boat moorings on Lake Lure?	Y	N
How many years have you lived in the Town of Lake Lure?	_____ years	

Was part of your decision to purchase a home in Lake Lure based on your desire to enjoy boating activities on the lake aboard your own boat?	Y	N							
If you rent out your Lake Lure house, is the use of your boat included?	Y	N							
How many motorized boats (greater than) > 10 hp do you hold permits for?	____ boats								
How many motorized boats (less than) < 10 hp do you hold permits for?	____ boats								
How many non-motorized boats do you hold permits for?	____ boats								
Have you had boat operator training?	Y	N							
Which boat-related activities do you enjoy at the lake? Motorized towing (ski, tube, wakeboard, etc.)? Motorized pleasure cruising? Motorized fishing? Non-motorized paddling? Non-motorized sailing? Non-motorized fishing?	Much Much Much Much Much Much	Little Little Little Little Little Little Never Never Never Never Never Never							
For motorboats (greater than) > 10 hp (circle answer): Average # of weeks of the summer you use a motorboat >10 hp? Average # of days/week you use a motorboat >10 hp? Average # of hours/day you use a motorboat > 10 hp?	0	1-2	3-6	4-8	8-12	>12			
	0	1	2	3	4	5	6	7	
	0	1	2	3	4	5	6	7	8 >8

<p>For motorboats (less than) < 10 hp (circle answer):</p> <p>Average # of weeks of the summer you use a motorboat <10 hp?</p> <p>Average # of days/week you use a motorboat <10 hp?</p> <p>Average # of hours/day you use a motorboat <10 hp?</p>	<p>0 1-2 3-6 4-8 8-12 >12</p> <p>0 1 2 3 4 5 6 7</p> <p>0 1 2 3 4 5 6 7 8 >8</p>
<p>For non-motorized boats (circle answer):</p> <p>Average # of weeks of the summer you use a non-motorized boat?</p> <p>Average # of days/week you use a non-motorized boat?</p> <p>Average # of hours/day you use a non-motorized boat?</p>	<p>0 1-2 3-6 4-8 8-12 >12</p> <p>0 1 2 3 4 5 6 7</p> <p>0 1 2 3 4 5 6 7 8 >8</p>
<p>Have you noticed an increase (I), decrease (D) or no change (NC) in boat traffic over the last 5 years?</p> <p>In general?</p> <p>On summer weekdays?</p> <p>On summer weekends and holidays?</p> <p>In the spring season?</p> <p>In the fall season?</p>	<p>I D NC Uncertain</p> <p>I D NC Uncertain</p> <p>I D NC Uncertain</p> <p>I D NC Uncertain</p> <p>I D NC Uncertain</p>
<p>Do you feel there are times when there are too many boats on the lake?</p> <p>If Yes, when are these times in general? _____ (fill in)</p>	<p>Y N</p>
<p>Do you feel safe on the lake:</p> <p>During spring and fall (off-peak season)?</p> <p>During peak season weekdays (late May to early September)?</p> <p>During summer weekends and holidays?</p>	<p>Y N</p> <p>Y N</p> <p>Y N</p>
<p>What makes you feel unsafe on Lake Lure?</p> <p>Non-towing boats going fast?</p> <p>Boats towing people?</p> <p>Overall high boat density?</p> <p>Other? _____ (fill in)</p>	<p>Y N</p> <p>Y N</p> <p>Y N</p> <p>Y N</p>
<p>Should improved safety on the lake be a high priority for the town?</p>	<p>Y N</p>

<p>To address safety concerns on the Lake, the following options are being considered or proposed to the Town. Please give your opinion on the boating management options:</p>			
<p>Should the town require operator training to use a motorboat on Lake Lure? (Training would be available both locally in town and through the internet)</p>	Y	N	
<p>Should the town restrict independent motorboat operation to those over age 16, with adult supervision of anyone younger?</p>	Y	N	
<p>If it is determined that controls on boat density are needed to improve safety on the lake, how do you feel about the following controls (Approve - A, Neutral - N, Disapprove - D):</p> <ul style="list-style-type: none"> Restrict use to operators with licenses/approved training Eliminate towing activities by lakefront home weekly renters Eliminate all towing activities (for problem periods) Restrict non-motorized and <10 hp motors to no wake area Reduce speed limit (for problem periods) Apply no wake rule everywhere (for problem periods) Reduce overall access to the lake (limit on # of boats that can be on the lake at one time – possible flag system option covered below) Change the permit system to reduce maximum number of boats allowed on the lake Reduced number of mooring slips permitted for new development from 3 to 2 or 1 slips 	A	N	D

<p>If a change in the permit system for motorboats > 10 hp is used to address safety, what do you think would be the best options? Indicate your opinion for each of the options.</p> <p>Background information: In 2005, >10 hp permits included 921 annual residential, 53 annual non-residential, 59 commercial (28 of which were rental boats – 16 associated with house rentals, 5 for ski schools, 8 for tours, 3 for fishing guides and 15 for realty and service boats), and 39 non-residential fishing permits, plus 115 non-residential weekly permits for the summer months.</p> <p>How do you feel about the following controls for motorized watercraft >10 hp: (Approve - A, Neutral - N, Disapprove - D):</p> <p>Reduced overall >10 hp permit availability? Reduced non-residential >10 hp permits? Reduced residential >10 hp permits? Reduced commercial permits for tours? Reduced commercial permits for Resorts, Lodges, and Camps? Reduced commercial permits for weekly rental properties? Reduced commercial permits for real estate work? Reduced commercial permits for service boats (e.g., repairs)? Reduced commercial permits for rental boats/towing/fishing? Reduced commercial permits for fishing guides? Reduced fishing permits? Reduced weekly permits?</p>	<p>A N D</p> <p>A N D</p> <p>A N D</p> <p>A N D</p> <p>A N D</p> <p>A N D</p> <p>A N D</p> <p>A N D</p> <p>A N D</p> <p>A N D</p> <p>A N D</p> <p>A N D</p>
<p>How would you feel about reduced motorboat permits if a > 10 hp permit can be transferred to additional boats (one boat on the lake at a time) (Approve - A, Neutral - N, Disapprove - D)</p>	<p>A N D</p>
<p>In order to allow future new residents of the Town of Lake Lure (new development and annexation) boating use of the lake, would you want:</p> <p>Commercial access to be expanded to provide for this use Continued permitting of all residential boats Restrictions on current permit owners to open up more permits The elimination of all boats over 10 HP to allow a higher boating density Other (Please specify)_____</p>	<p>Y N</p> <p>Y N</p> <p>Y N</p> <p>Y N</p> <p>Y N</p>

<p>It may be possible to devise a system of flag use, whereby on days where a safe density of boats is expected to be exceeded, only boats with flags could go on the lake. This would be a special measure beyond the normal permit, only for motorboats >10 hp and only for peak days like the 4th of July. With a flag system, how would you feel about (Approve - A, Neutral - N, Disapprove - D):</p> <p>One flag per lot on the lake</p> <p>Limited flags at launch sites</p> <p>Limited flags at marinas and group moorings</p> <p>A reservation system for flag use</p> <p>A first come, first served system for flag use</p> <p>A 2 hour limit for flag use</p> <p>A 4 hour limit for flag use</p> <p>A 7 hour limit for flag use</p> <p>No time limit for flag use</p>	<p>A N D</p> <p>A N D</p> <p>A N D</p> <p>A N D</p> <p>A N D</p> <p>A N D</p> <p>A N D</p> <p>A N D</p> <p>A N D</p>
<p>How do you feel about the following enforcement options (Approve - A, Neutral - N, Disapprove - D):</p> <p>Daily police patrol boat on the lake</p> <p>Police patrol boat on the lake only during expected peak days</p> <p>Authorized patrol boats with trained residents for boating assistance, information and referral of problems to town police (no law enforcement)</p> <p>Call-in system for rapid response to observed problems</p> <p>Fines for unsafe boating</p> <p>Removal from the lake for unsafe boating</p> <p>Revocation of permits for repeated infractions</p> <p>Safety equipment checks only performed when a stop is made for unsafe boating or violation of an ordinance</p>	<p>A N D</p> <p>A N D</p> <p>A N D</p> <p>A N D</p> <p>A N D</p> <p>A N D</p> <p>A N D</p> <p>A N D</p>

Please fold the completed survey and put it and the Comprehensive Plan Survey into the postage-paid envelope and return by March 24th, 2006.

THANK YOU FOR YOUR SUPPORT!

ENSR

11 Phelps Way, P.O. Box 506, Willington, CT 06279
T 860-429-5323 F 860-429-5378 www.ensr.aecom.com

Memorandum

Date: May 8, 2006
To: Lake Lure Community
From: Ken Wagner, ENSR
Subject: Lake Questionnaire Results

Distribution: Barbara Wiggins Bob Washburn

Barbara has arranged for the 844 questionnaires received in response to the Town request to be tallied and for a variety of calculations to be performed. I have furthered those calculations and would like to provide a review of the results for consideration in relation to our upcoming meetings.

General Information:

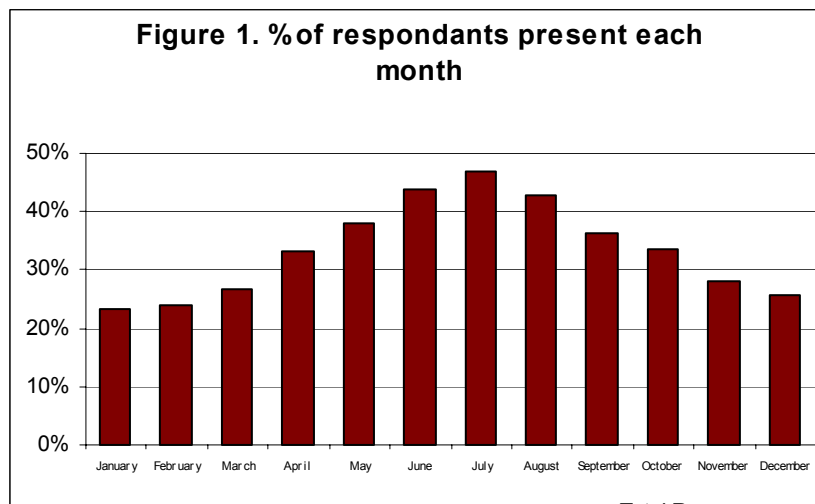
A total of 844 questionnaires were received prior to our completion of the tally addressed in this memo. Over 2100 questionnaires were sent out, but the responses represent a relatively high rate of return (40%). The breakdown among user groups appears inclusive and representative, as evidenced by the information in Table 1 and summarized by the following:

- About a third of respondents were year-round residents, while two thirds are not.
- About a third are registered voters, while two thirds are not.
- About three quarters own a house, less than one quarter do not.
- Slightly more than a third live on the water, slightly less than two thirds do not.
- Over a third live in one of the defined communities around the lake, 60% do not.
- Respondents have lived in Lake Lure (full or part time) for 12 yr on average with a median of 8 yr.
- Just over 10% of residents rent their homes, 80% do not, and just under 10% did not say.
- Two thirds claim boating on the lake as a factor in home purchase, a quarter say it was not a factor.
- Slightly less than half of respondents have boat operator training, slightly less than half do not, with the remainder not saying.
- The complete range of boat types and activities are represented; although engines >10 hp are the dominant type of boat used by respondents, it is also the dominant type of permit issued.

The distribution of respondents present in Lake Lure over the course of the year is shown in Figure 1, and is generally what was expected. The distribution of boats among households are also about what was expected, although questionnaire values were slightly lower than expected for non-motorized boats and boats >10 hp, and higher than expected for motorboats <10 hp, based on permits issued. Total summer hours of use of boats >10 hp, applied in the boating assessment in the Lake Lure report from February 2006, are a very close match for the projection from the questionnaire. Estimates for total summer hours of use for boats <10 hp and non-motorized boats used in the boating assessment are higher than suggested by the questionnaire, but since no major crowding issue was identified for smaller boats, this is not a problem. Among the 11% of respondents who said they rented their homes, slightly more than half rent for as little as a day, slightly less rent for no less than a week, and very few rent for a month or more.

ENSR
 11 Phelps Way, P.O. Box 506, Willington, CT 06279
 T 860-429-5323 F 860-429-5378 www.ensr.aecom.com

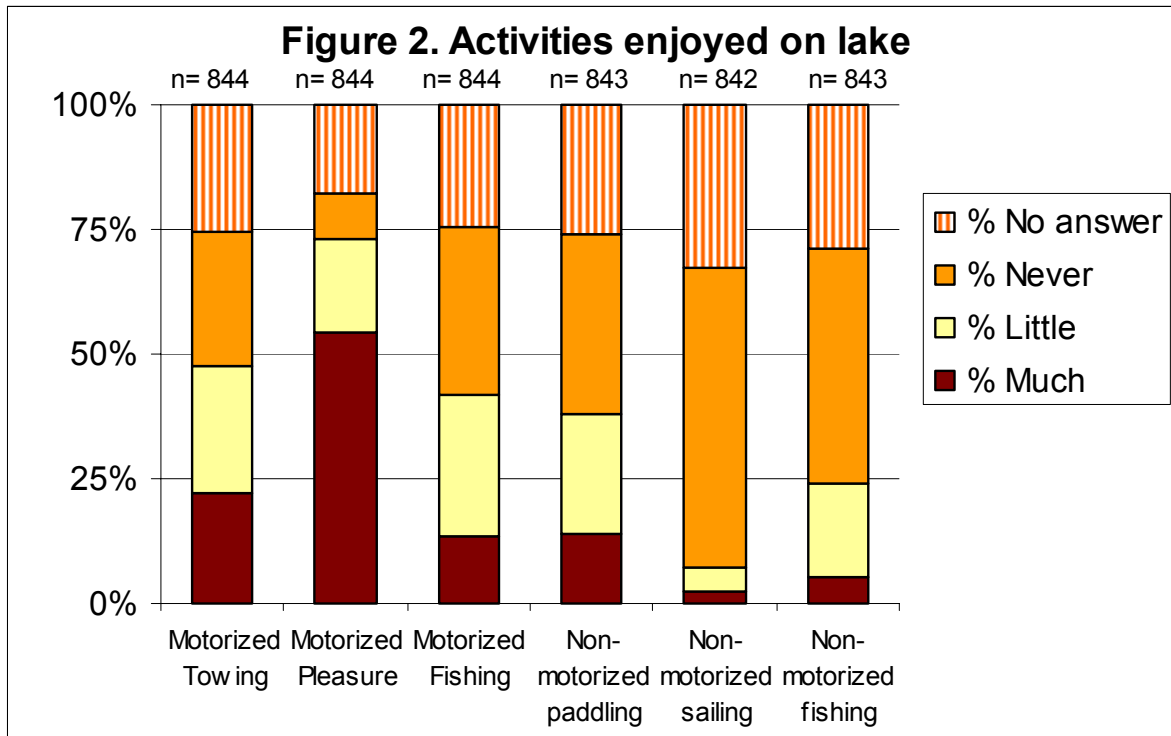
Table 1. General Features of Questionnaire Respondents					
Feature	Total	Average	Median	Maximum	Minimum
Total number of Surveys returned	844				
Years at Lake Lure		12.2	8	65	<1
Motorized Boat Permits > 10 hp	585	0.8	1.0	4.0	0.0
Motorized Boat Permits < 10 hp	60	0.1	0.0	2.0	0.0
Non-motorized Boat Permits	60	0.4	0.0	6.0	0.0
	% Yes	% No	% No Answer		
Year Round Resident	33	65	2		
Registered Voter	30	66	4		
Own a House	77	20	3		
Live on Shorefront	36	61	2		
Live in Defined Community	37	60	3		
Boat Use a Factor in Home Purchase	67	26	7		
Home Rented to Others	11	80	9		
Boat Included in Rental	17	77	5		
Trained Boat Operator	44	43	14		
	Boats >10 hp	Boats < 10 hp	Non-motorized		
Total Weeks of Use (All Boats of Type)	3878	453	1510		
Weeks of Boating per Summer per Boat	6.6	1.2	3.3		
Days of Boating per Week per Boat	2.3	0.5	1.2		
Hours of Boating per Day per Boat	2.5	0.5	1.1		



ENSR

11 Phelps Way, P.O. Box 506, Willington, CT 06279
 T 860-429-5323 F 860-429-5378 www.ensr.aecom.com

A breakdown of activities is provided in Figure 2. Almost three quarters of respondents enjoy pleasure cruising in their motorboats, and almost half enjoy towing people. More than a third use their motorboats to fish, and another third enjoy paddling non-motorized boats. Sailing and non-motorized fishing are of interest to a limited number of lake users. The ratio of these activities matches the impressions provided by the January workshop, although about a quarter of respondents did not provide any indication of which activities they enjoyed.



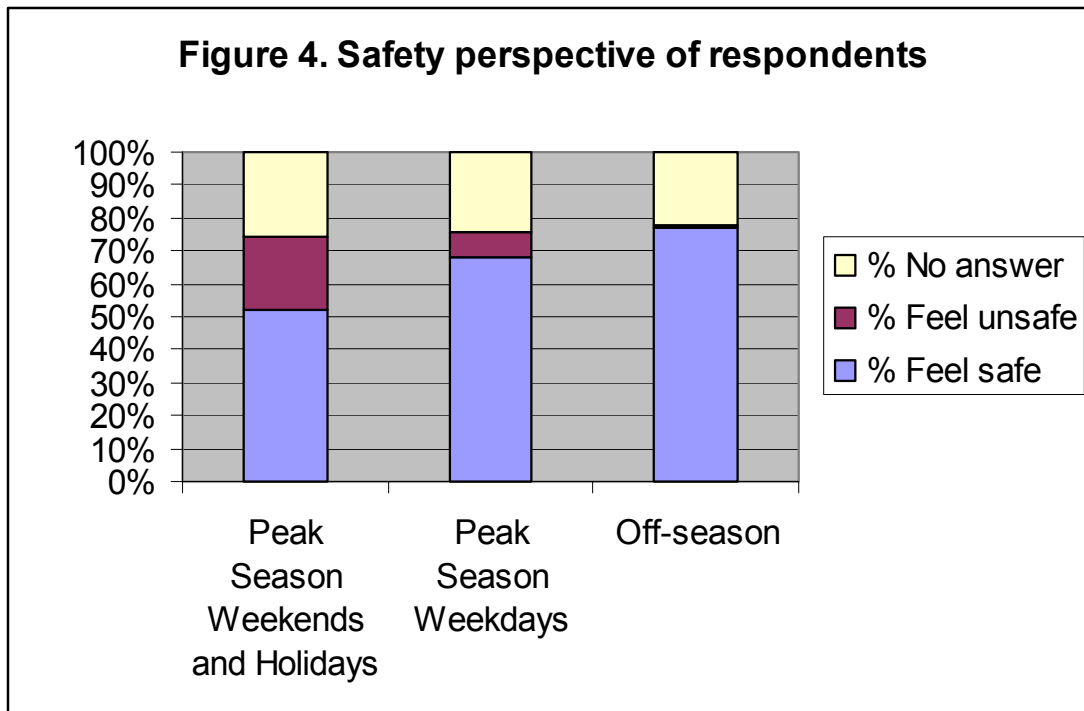
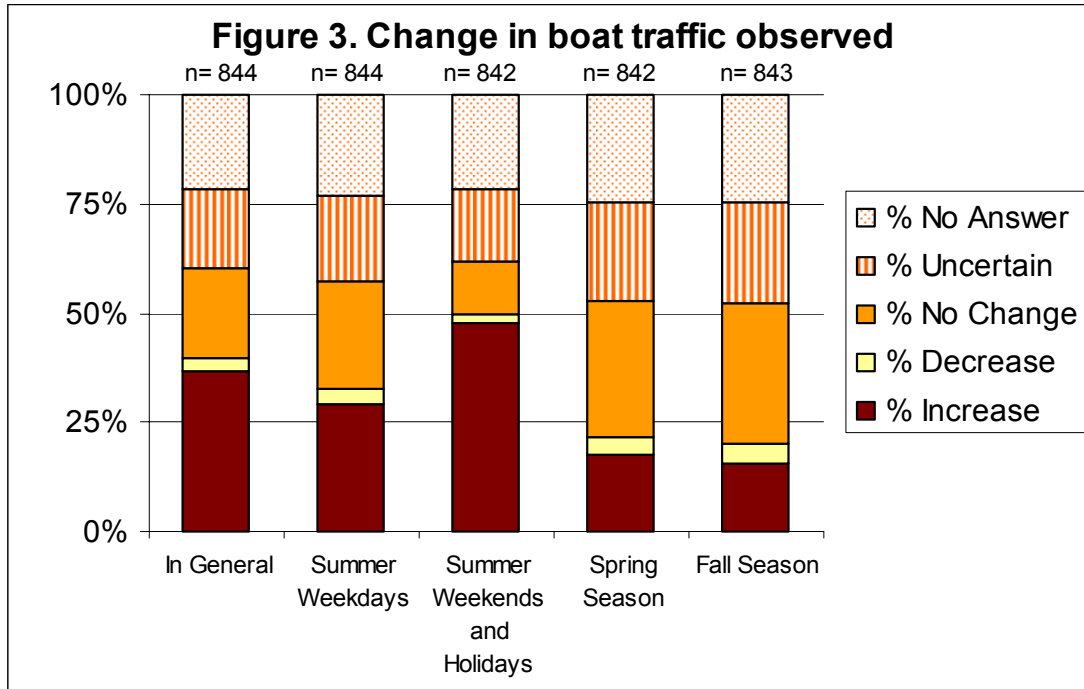
Perception of the Problem:

The public perception of the problem appears to match the general indications provided during the January workshop, as suggested by the following:

- Only 18% of respondents reported noticing any increase in noise in recent years, and less than 10% of the respondents felt that noise was a problem, and while boats topped the list of itemized sources of noise for those that thought noise was a problem, sources varied substantially.
- There is no true consensus about increasing boat traffic, but more people perceive an increase for summer weekends and holidays than for summer weekdays, and least for spring and fall periods. However, a majority does not perceive any traffic increase (Figure 3).
- There is no clear consensus that conditions are unsafe as a consequence of boating; a majority of people feel safe on the lake at all times. However, people feel less safe on summer weekends and holidays than during summer weekdays than spring or fall, in that order (Figure 4). Feeling safe is not clearly linked to boat ownership or type of boat.
- About half of respondents did not answer questions about what made them feel unsafe, but those that did were split fairly evenly over boat speed, towing and overall boat density as factors.
- Of those who feel there are too many boats on the lake, there is no strong link to types of boats owned by respondents; many households own both large motorboats and non-motorized boats.

ENSR

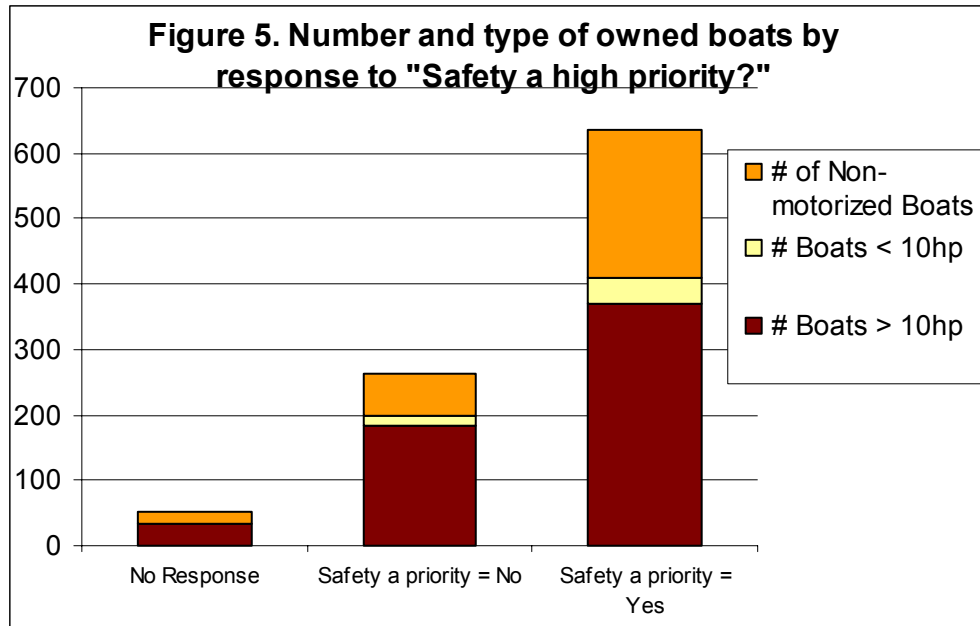
11 Phelps Way, P.O. Box 506, Willington, CT 06279
 T 860-429-5323 F 860-429-5378 www.ensr.aecom.com



ENSR

11 Phelps Way, P.O. Box 506, Willington, CT 06279
 T 860-429-5323 F 860-429-5378 www.ensr.aecom.com

- A small majority of respondents did feel that improved safety on the lake should have a high priority; this perception was positively linked to ownership of boats, but is most strongly related to the ownership of a non-motorized boat (Figure 5).

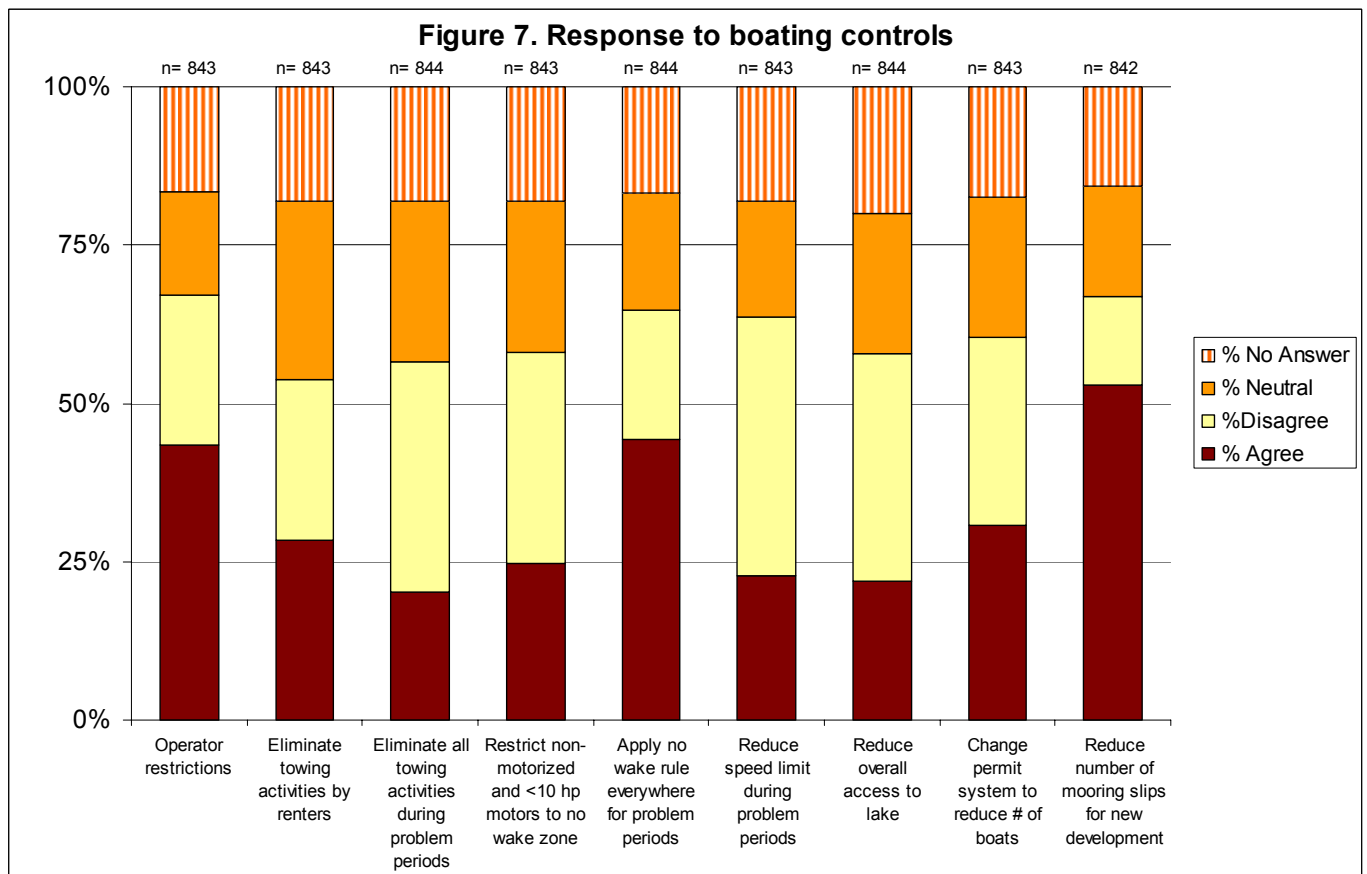
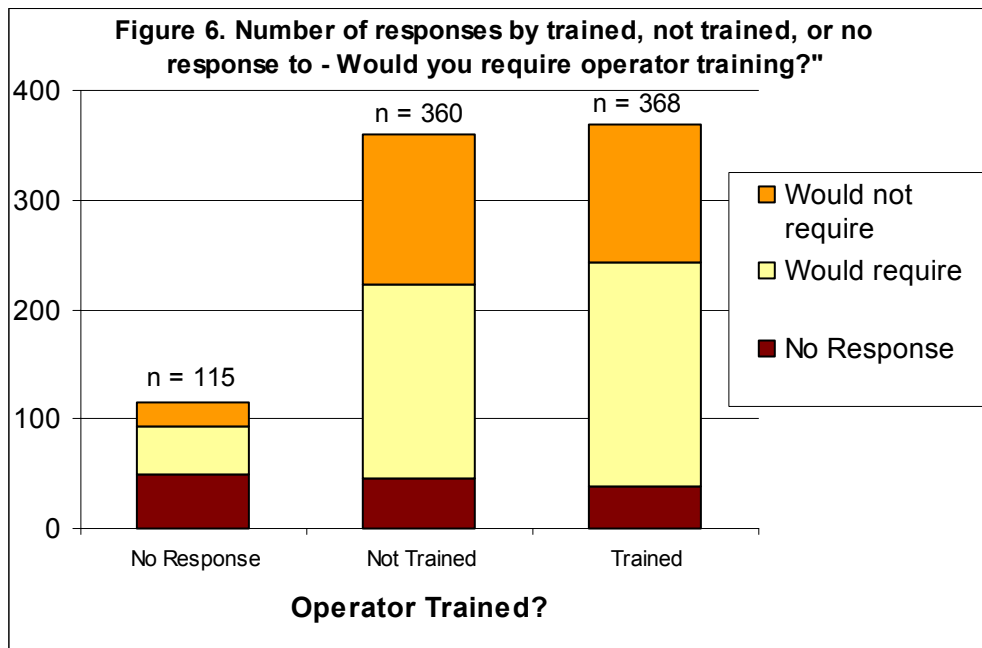


Perception of Problem Resolution Options:

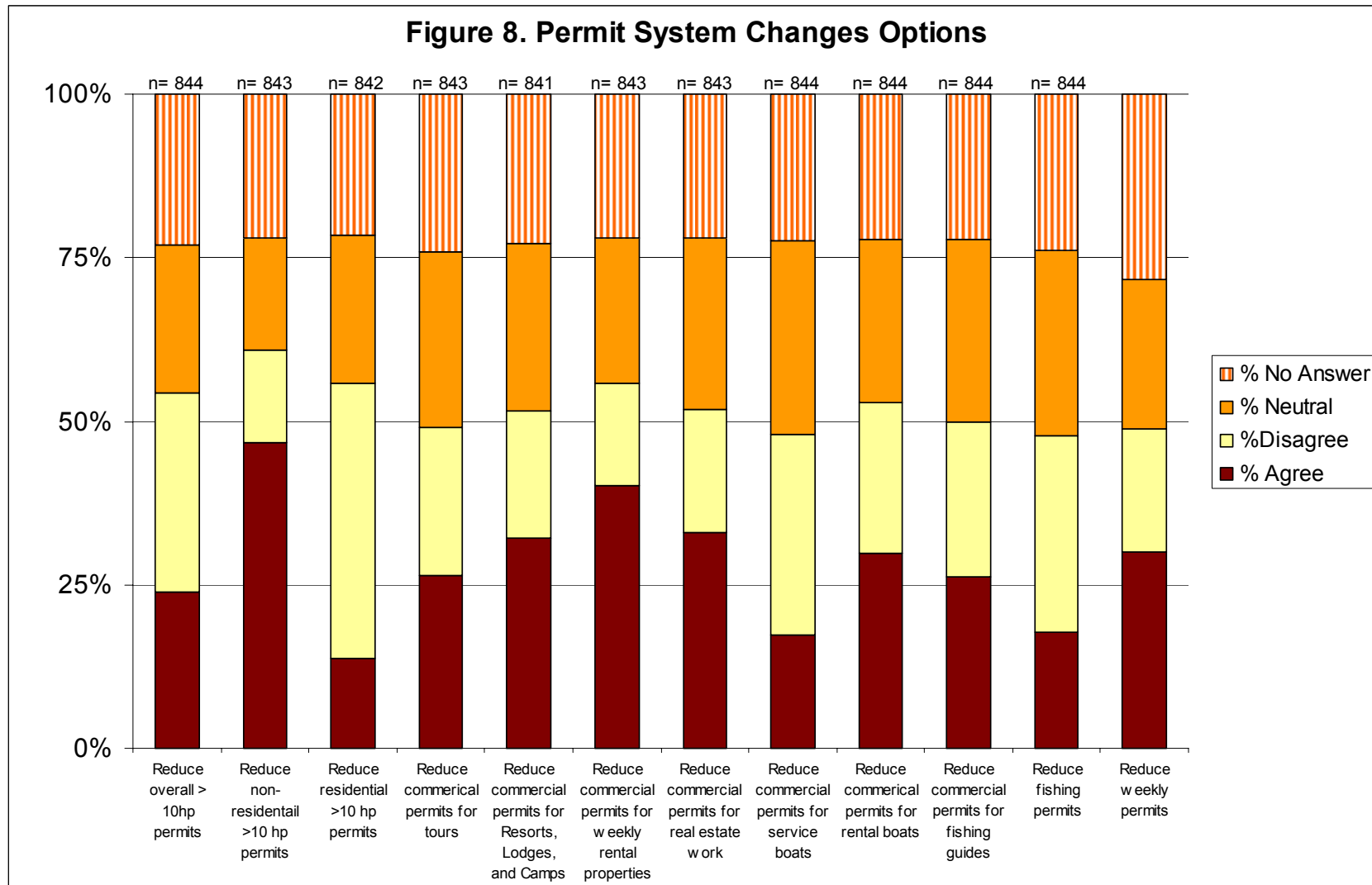
- Half of respondents agreed that motorboat operator training should be required, with a third not agreeing and the rest not responding. While about half of respondents are trained, those believing that operator training should be required were not necessarily those who were trained already (Figure 6).
- Over three quarters of respondents believe that unsupervised motorboat operation should be restricted to those 16 years of age or older; 10% do not agree and 13% did not respond.
- There is no clear consensus on preferred boating controls (Figure 7); only limiting the number of boat slips for new development garnered agreement by a majority with limited opposition. Even though a majority favored training and operator age restrictions in specific questions, the overall topic of operator controls did not get majority support.
- Oddly, institution of a no wake rule during problem periods was supported by 44% of respondents, while the nearly identical question about lowering the speed limit for problem periods received only 23% support (Figure 7).
- The sum of favorable support and neutral responses achieves a majority for several more possible management options, but there is still strong disagreement for many of these. Only the relatively easy choice of restricting boat slips for new development garnered clear support, although the no wake approach was generally received favorably as well. Further discussion is needed to understand the responses and get the respondents to think about options more proactively.
- Reducing access to the lake and changing the permit system to lower eligible boats received less than one third favorable response, and response to a variety of specific permit modification options tends to bear out that indication (Figure 8); exceptions include reducing non-residential and rental property permits for boats >10 hp, but even these did not get a majority of favorable responses.
- Use of a flag system or other density control device to limit access to the lake during expected periods of crowding was generally not favored, and options within a flag system received well under 50% support, most <25% support (Figure 9). Further discussion is warranted with lake users.

ENSR

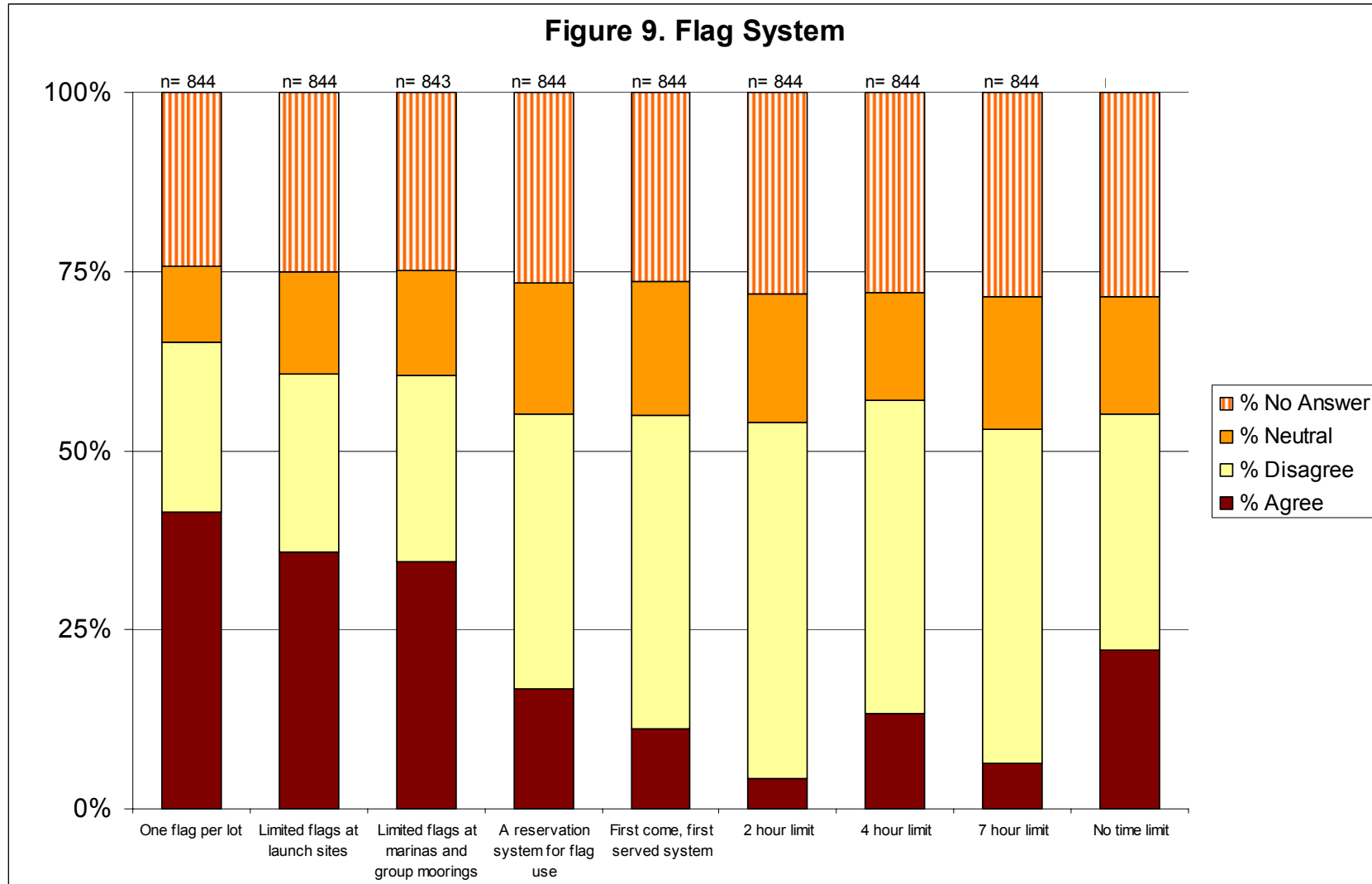
11 Phelps Way, P.O. Box 506, Willington, CT 06279
 T 860-429-5323 F 860-429-5378 www.ensr.aecom.com



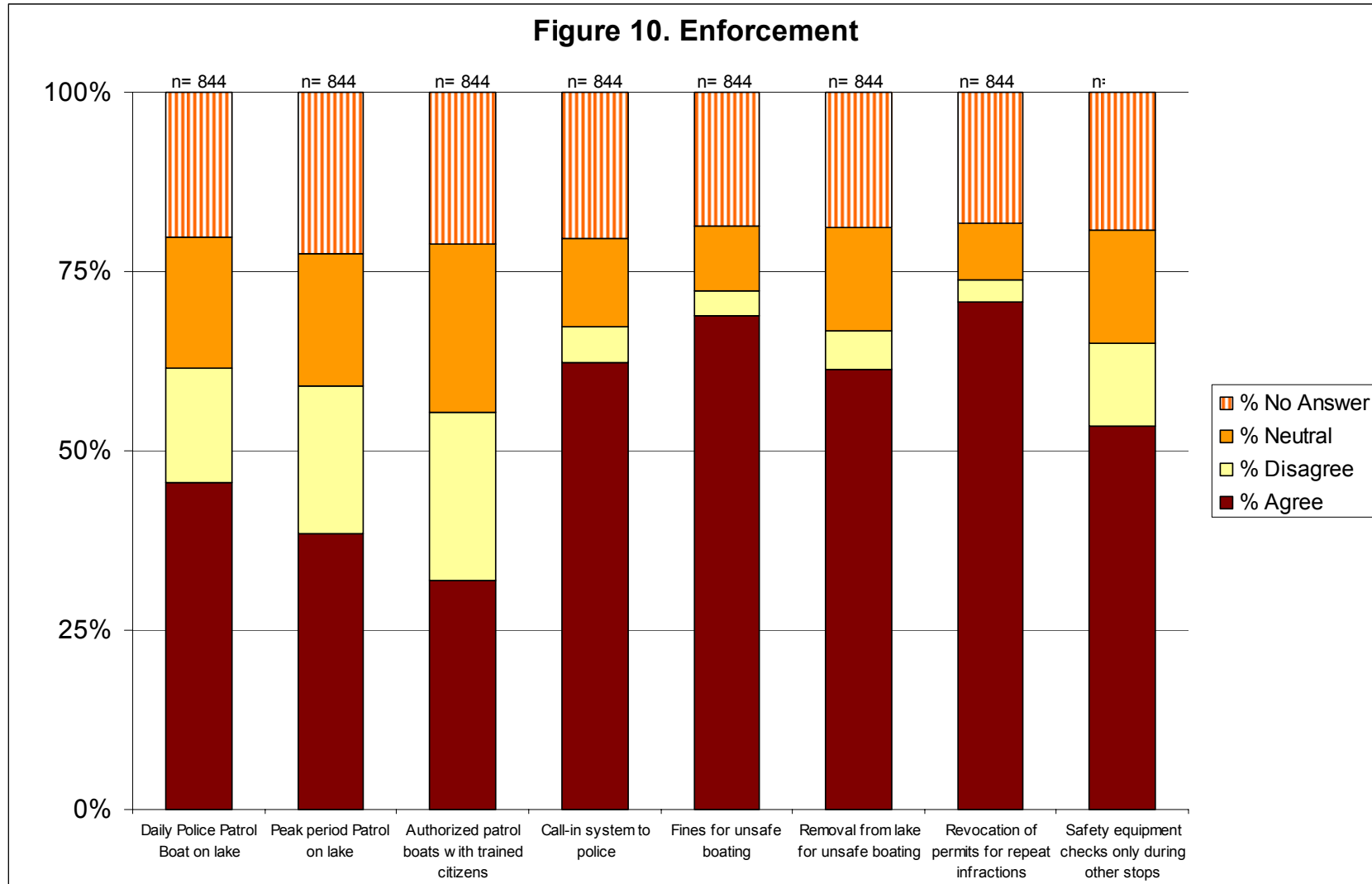
ENSR
 11 Phelps Way, P.O. Box 506, Willington, CT 06279
 T 860-429-5323 F 860-429-5378 www.ensr.aecom.com



ENSR
 11 Phelps Way, P.O. Box 506, Willington, CT 06279
 T 860-429-5323 F 860-429-5378 www.ensr.aecom.com



ENSR
 11 Phelps Way, P.O. Box 506, Willington, CT 06279
 T 860-429-5323 F 860-429-5378 www.ensr.aecom.com



- Enforcement options were much more favorably received, but the least acceptable approaches involved boat patrols; this is confusing, as patrols are the most effective means to get compliance (Figure 10). Further discussion is warranted with lake users.

Summary and Action Items:

- 844 questionnaire responses were received, a 40% return. Responses appear to sufficiently represent the range of lake users and general demographics of the Lake Lure community.
- Values used in estimating current boating use and carrying capacity of the lake appear appropriate; we may have overestimated the use of non-motorized and small hp motorboats, but these were not considered a problem. Large motorboat use appears to have been very accurately estimated.
- Motorized pleasure cruising is the favorite activity of the community overall. Towing people is a distant second, and none of the other boat uses are practiced by even half the respondents, although interest in fishing and paddling are substantial. Protecting all uses is worthwhile, but priorities are apparent.
- Noise does not appear to be a major issue for users of Lake Lure. Those citing noise as a concern note a range of noise sources including boats, but also including land-based sources. There may be specific cases that warrant attention, but there is no impetus for any major noise initiative at this time.
- There is not a consensus that motorized traffic is increasing or that conditions are unsafe on the lake, but users do perceive that there is more traffic and less safety on peak season weekends and holidays than on peak season weekdays, which in turn has more traffic than off-season periods. Some education of users about trends in boating and the need for control is warranted.
- Those feeling unsafe cite boat speed, towing, and overall boat density as issues, but this is a small fraction of the lake users.
- Increased safety is a priority for just over half the respondents, seemingly contrary to the lack of perception of unsafe conditions, but possibly showing that lake users are thinking of the future. The desire for increased safety is shared by owners of all boat types on the lake; this is not a simple case of paddlers wanting more control on motorboats.
- Half of respondents agreed that motorboat operator training should be required, but this is not the same half that is already trained; apparently many untrained operators recognize the need for training.
- There is strong support for restricting unsupervised operation of motorboats by those <16 years of age.
- There is no clear consensus on preferred boating controls; controls that affect non-residents, rental units, and future development have the most support, but still not a majority, and there is strong sentiment against restrictions of existing freedoms. Respondents were not asked to rank the options to get a most preferred approach, and many did not like any of the choices. Discussion is warranted.
- There are a number of seemingly contradictory answers to similar questions that need exploration in upcoming meetings. For example, there was a much more favorable response to expanding the no wake zone during peak use periods than for a speed limit during those periods, while these are functionally equivalent. User perceptions of effectiveness and level of restriction may be involved.
- Reducing access to the lake and changing the permit system to lower eligible boats is generally not favored. More feedback is desired.
- Use of a flag system or other density control device to limit access to the lake during expected periods of crowding was generally not favored. More feedback is desired.
- Enforcement of existing regulations is strongly favored, but there is hesitancy to provide the boat patrols necessary to facilitate effective enforcement. Some discussion of the appropriate level and mode of enforcement is needed.
- Many interesting, sometimes conflicting, sometimes uninformed, and sometimes very insightful comments were provided; it would be helpful to hear them voiced and explained in many cases.
- No comparison with past surveys has yet been conducted.

APPENDIX B
BOAT OBSERVATION SURVEYS
SUMMER 2006

Lake Lure Boat Survey

Area of Survey: _____ Date of Survey (mm/dd/yy): _____
 Day of Week: (circle day of week) Monday Tuesday Wednesday Thursday Friday Saturday Sunday

Time Period: (enter data below time slot)	7-9 AM	9-11 AM	11 AM - 1 PM	1-3 PM	3-5 PM	5-7 PM	7-9 PM
Weather: (circle conditions)	Sunny Overcast Drizzle Rain	Sunny Overcast Drizzle Rain	Sunny Overcast Drizzle Rain	Sunny Overcast Drizzle Rain	Sunny Overcast Drizzle Rain	Sunny Overcast Drizzle Rain	Sunny Overcast Drizzle Rain
Boats Observed							
Motorized >10 hp Towing							
Motorized >10 hp Cruising With Wake							
Motorized >10 hp Cruising Without Wake or Drifting							
Motorized >10 hp Fishing							
Motorized <10 hp (any activity)							
Non-Motorized (any activity)							
Notes:							

Lake Lure Boat Survey

Area of Survey: _____ North Arm Date of Survey (mm/dd/yy): 5/27/2006 Observer: Braund
 Day of Week: (circle day of week) Monday Tuesday Wednesday Thursday Friday **Saturday** Sunday

Time Period: (enter data below time slot)	7-9 AM	9-11 AM	11 AM - 1 PM	1-3 PM	3-5 PM	5-7 PM	7-9 PM
Weather: (circle conditions)	Sunny	Sunny	Sunny	Sunny	Sunny	Sunny	Sunny
Boats Observed							
Motorized >10 hp Towing	1	0	2	4	4	5	3
Motorized >10 hp Cruising With Wake	1	0	0	2	5	1	3
Motorized >10 hp Cruising Without Wake or Drifting	0	0	2	1	2	4	0
Motorized >10 hp Fishing	5	0	0	0	0	0	0
Motorized <10 hp (any activity)	0	0	0	0	0	0	0
Non-Motorized (any activity)	1	0	0	0	0	0	0
Notes:							

Lake Lure Boat Survey

Area of Survey: North Arm Date of Survey (mm/dd/yy): 5/28/2006 OBSERVER: Braund
 Day of Week: (circle day of week) Monday Tuesday Wednesday Thursday Friday Saturday **Sunday**

Time Period: (enter data below time slot)	7-9 AM	9-11 AM	11 AM - 1 PM	1-3 PM	3-5 PM	5-7 PM	7-9 PM
Weather: (circle conditions)	Sunny	Sunny	Sunny	Sunny	Sunny	Sunny	Sunny
Boats Observed							
Motorized >10 hp Towing	1			1	3	5	
Motorized >10 hp Cruising With Wake	1			2	4	2	
Motorized >10 hp Cruising Without Wake or Drifting	0			6	5	1	
Motorized >10 hp Fishing	2			0	0	0	
Motorized <10 hp (any activity)	0			0	0	0	
Non-Motorized (any activity)	0			0	0	0	
Notes:							

Lake Lure Boat Survey

Area of Survey: Dam Cove Date of Survey (mm/dd/yy): 5/27/2006 OBSERVER: Hasenfus
 Day of Week: (circle day of week) Monday Tuesday Wednesday Thursday Friday **Saturday** Sunday

Time Period: (enter data below time slot)	7-9 AM	9-11 AM	11 AM - 1 PM	1-3 PM	3-5 PM	5-7 PM	7-9 PM
Weather: (circle conditions)	Sunny	Sunny	Sunny				
Boats Observed							
Motorized >10 hp Towing	1	2	0				
Motorized >10 hp Cruising With Wake	0	2	5				
Motorized >10 hp Cruising Without Wake or Drifting	0	2	2				
Motorized >10 hp Fishing	2	0	0				
Motorized <10 hp (any activity)	0	0	0				
Non-Motorized (any activity)	0	0	0				
Notes:							

Lake Lure Boat Survey

Area of Survey: Tryon Bay Date of Survey (mm/dd/yy): 5/25/2006 OBSERVER: Keith

Day of Week: (circle day of week) Monday Tuesday Wednesday **Thursday** Friday Saturday Sunday

Time Period: (enter data below time slot)	7-9 AM	9-11 AM	11 AM - 1 PM	1-3 PM	3-5 PM	5-7 PM	7-9 PM
Weather: (circle conditions)				Drizzle	Overcast	Overcast	Overcast
Boats Observed							
Motorized >10 hp Towing				0	0	0	0
Motorized >10 hp Cruising With Wake				0	0	0	0
Motorized >10 hp Cruising Without Wake or Drifting				0	1	0	0
Motorized >10 hp Fishing				0	0	1	0
Motorized <10 hp (any activity)				0	0	0	0
Non-Motorized (any activity)				0	0	0	0
Notes:							

Lake Lure Boat Survey

Area of Survey: Tryon Bay Date of Survey (mm/dd/yy): 5/26/2006 OBSERVER: Keith

Day of Week: (circle day of week) Monday Tuesday Wednesday Thursday **Friday** Saturday Sunday

Time Period: (enter data below time slot)	7-9 AM	9-11 AM	11 AM - 1 PM	1-3 PM	3-5 PM	5-7 PM	7-9 PM
Weather: (circle conditions)	Sunny	Sunny		Sunny	Sunny	Sunny	
Boats Observed							
Motorized >10 hp Towing	0	0		0	0	0	
Motorized >10 hp Cruising With Wake	0	0		0	0	1	
Motorized >10 hp Cruising Without Wake or Drifting	0	0		1	0	0	
Motorized >10 hp Fishing	0	0		0	0	0	
Motorized <10 hp (any activity)	0	0		0	0	0	
Non-Motorized (any activity)	0	0		0	0	0	
Notes:							

Lake Lure Boat Survey

Area of Survey: Tryon Bay Date of Survey (mm/dd/yy): 5/27/2006 OBSERVER: Dittmer

Day of Week: (circle day of week) Monday Tuesday Wednesday Thursday Friday **Saturday** Sunday

Time Period: (enter data below time slot)	7-9 AM	9-11 AM	11 AM - 1 PM	1-3 PM	3-5 PM	5-7 PM	7-9 PM
Weather: (circle conditions)	Sunny	Sunny	Sunny	Sunny	Sunny	Sunny	Sunny
Boats Observed							
Motorized >10 hp Towing		1.3	1.3	1.8	1.8	0.8	0.3
Motorized >10 hp Cruising With Wake		2.3	3.8	4.0	5.3	2.3	1.7
Motorized >10 hp Cruising Without Wake or Drifting		0.3	1.0	1.3	1.0	1.0	2.3
Motorized >10 hp Fishing		0.8	0.0	0.0	0.0	0.5	0.0
Motorized <10 hp (any activity)		0.3	0.0	0.0	0.0	0.0	0.0
Non-Motorized (any activity)	1.0	0.3	0.5	0.5	0.3	0.3	0.3
Notes:							

Lake Lure Boat Survey

Area of Survey: Tryon Bay Date of Survey (mm/dd/yy): 5/28/2006 OBSERVER: Dittmer

Day of Week: (circle day of week) Monday Tuesday Wednesday Thursday Friday Saturday **Sunday**

Time Period: (enter data below time slot)	7-9 AM	9-11 AM	11 AM - 1 PM	1-3 PM	3-5 PM	5-7 PM	7-9 PM
Weather: (circle conditions)	Sunny	Sunny	Sunny	Sunny	Sunny	Sunny	Sunny
Boats Observed							
Motorized >10 hp Towing	0.0	0.8	2.3	1.0	0.8	1.3	0.8
Motorized >10 hp Cruising With Wake	0.8	1.3	3.0	4.0	3.3	3.0	2.5
Motorized >10 hp Cruising Without Wake or Drifting	0.0	0.8	1.3	1.5	1.5	3.3	3.3
Motorized >10 hp Fishing	0.3	0.8	0.3	0.0	0.0	0.5	0.0
Motorized <10 hp (any activity)	0.0	0.0	0.0	0.0	0.3	0.0	0.0
Non-Motorized (any activity)	0.0	1.3	1.0	1.0	0.5	0.0	0.5
Notes:							

Lake Lure Boat Survey

Area of Survey: Tryon Bay Date of Survey (mm/dd/yy): 5/29/2006 OBSERVER: Dittmer

Day of Week: (circle day of week) **Monday** Tuesday Wednesday Thursday Friday Saturday Sunday

Time Period: (enter data below time slot)	7-9 AM	9-11 AM	11 AM - 1 PM	1-3 PM	3-5 PM	5-7 PM	7-9 PM
Weather: (circle conditions)	Sunny	Sunny	Sunny	Sunny	Sunny	Sunny	Sunny
Boats Observed							
Motorized >10 hp Towing	0.3	1.8	1.3	1.3	0.5	1.0	0.5
Motorized >10 hp Cruising With Wake	0.0	1.0	1.8	2.3	3.0	2.3	1.8
Motorized >10 hp Cruising Without Wake or Drifting	0.0	1.0	1.5	2.3	2.0	2.8	4.3
Motorized >10 hp Fishing	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Motorized <10 hp (any activity)	0.0	0.0	0.0	0.0	0.0	0.0	0.3
Non-Motorized (any activity)	0.0	0.5	0.8	0.3	1.0	1.3	0.0
Notes:							

Lake Lure Boat Survey

Area of Survey: Main Body Date of Survey (mm/dd/yy): 5/25/2006 OBSERVER: Keith

Day of Week: (circle day of week) Monday Tuesday Wednesday **Thursday** Friday Saturday Sunday

Time Period: (enter data below time slot)	7-9 AM	9-11 AM	11 AM - 1 PM	1-3 PM	3-5 PM	5-7 PM	7-9 PM
Weather: (circle conditions)				Drizzle	Overcast	Sunny Overcast	Overcast
Boats Observed							
Motorized >10 hp Towing				0	0	0	0
Motorized >10 hp Cruising With Wake				0	0	2	1
Motorized >10 hp Cruising Without Wake or Drifting				1	2	0	2
Motorized >10 hp Fishing				0	0	0	0
Motorized <10 hp (any activity)				0	0	0	0
Non-Motorized (any activity)				0	0	0	0
Notes:							

Lake Lure Boat Survey

Area of Survey: Main Body Date of Survey (mm/dd/yy): 5/26/2006 OBSERVER: Keith
 Day of Week: (circle day of week) Monday Tuesday Wednesday Thursday **Friday** Saturday Sunday

Time Period: (enter data below time slot)	7-9 AM	9-11 AM	11 AM - 1 PM	1-3 PM	3-5 PM	5-7 PM	7-9 PM
Weather: (circle conditions)	Sunny	Sunny		Sunny	Sunny	Sunny	Sunny
Boats Observed							
Motorized >10 hp Towing	1	0		0	1	0	
Motorized >10 hp Cruising With Wake	0	0		0	3	0	
Motorized >10 hp Cruising Without Wake or Drifting	0	0		1	1	2	8
Motorized >10 hp Fishing	1	0		0	0	0	
Motorized <10 hp (any activity)	0	0		0	0	0	
Non-Motorized (any activity)	0	0		0	1	0	
Notes:	The 8 boats at dusk were observed by a neighbor; all pontoons						

Lake Lure Boat Survey

Area of Survey: Main Body Date of Survey (mm/dd/yy): 5/27/2006 OBSERVER: Keith
 Day of Week: (circle day of week) Monday Tuesday Wednesday Thursday Friday **Saturday** Sunday

Time Period: (enter data below time slot)	7-9 AM	9-11 AM	11 AM - 1 PM	1-3 PM	3-5 PM	5-7 PM	7-9 PM
Weather: (circle conditions)	Sunny	Sunny	Sunny	Sunny	Sunny	Sunny	Sunny
Boats Observed							
Motorized >10 hp Towing	0.5	0.5	1.7	3.3	2.5	1.3	0.3
Motorized >10 hp Cruising With Wake	0.0	1.3	4.0	7.5	7.8	4.0	2.5
Motorized >10 hp Cruising Without Wake or Drifting	0.8	2.0	2.5	6.8	4.8	2.3	2.8
Motorized >10 hp Fishing	0.3	0.5	0.2	0.0	0.0	0.0	0.0
Motorized <10 hp (any activity)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Non-Motorized (any activity)	0.5	0.0	0.5	1.3	1.0	0.8	0.0
Notes:	Several counts were taken by a neighbor in his absence.						

Lake Lure Boat Survey

Area of Survey: Main Body Date of Survey (mm/dd/yy): 5/28/2006 OBSERVER: Keith

Day of Week: (circle day of week) Monday Tuesday Wednesday Thursday Friday Saturday **Sunday**

Time Period: (enter data below time slot)	7-9 AM	9-11 AM	11 AM - 1 PM	1-3 PM	3-5 PM	5-7 PM	7-9 PM
Weather: (circle conditions)	Sunny	Sunny	Sunny	Sunny	Sunny	Sunny	Sunny
Boats Observed							
Motorized >10 hp Towing	0.3	0.0	3.2	1.8	3.0	1.8	0.0
Motorized >10 hp Cruising With Wake	0.5	0.0	6.0	3.5	11.0	6.5	1.0
Motorized >10 hp Cruising Without Wake or Drifting	0.0	2.0	5.8	9.0	3.0	2.5	7.0
Motorized >10 hp Fishing	0.5	0.0	0.0	0.0	0.3	0.0	0.0
Motorized <10 hp (any activity)	0.0	0.0	0.0	0.0	0.3	0.3	0.0
Non-Motorized (any activity)	0.3	0.0	0.0	1.5	0.8	0.0	0.0
Notes:							

Lake Lure Boat Survey

Area of Survey: Main Channel Date of Survey (mm/dd/yy): 5/28/2006 OBSERVER: Hasenfus

Day of Week: (circle day of week) Monday Tuesday Wednesday Thursday Friday Saturday **Sunday**

Time Period: (enter data below time slot)	7-9 AM	9-11 AM	11 AM - 1 PM	1-3 PM	3-5 PM	5-7 PM	7-9 PM
Weather: (circle conditions)			Sunny	Sunny	Sunny	Sunny	Sunny
Boats Observed							
Motorized >10 hp Towing			2.5	3.0	0.8	1.3	1.5
Motorized >10 hp Cruising With Wake			4.5	7.0	7.8	4.0	6.5
Motorized >10 hp Cruising Without Wake or Drifting			1.5	1.5	3.0	3.0	3.0
Motorized >10 hp Fishing			0.0	0.3	0.3	0.3	0.0
Motorized <10 hp (any activity)			0.0	0.3	0.3	0.0	0.0
Non-Motorized (any activity)			1.5	2.0	2.0	1.0	0.0
Notes:							

Lake Lure Boat Survey

Area of Survey: Main Channel Date of Survey (mm/dd/yy): 5/29/2006 OBSERVER: Hasenfus

Day of Week: (circle day of week) **Monday** Tuesday Wednesday Thursday Friday Saturday Sunday

Time Period: (enter data below time slot)	7-9 AM	9-11 AM	11 AM - 1 PM	1-3 PM	3-5 PM	5-7 PM	7-9 PM
Weather: (circle conditions)		Sunny	Sunny	Sunny	Sunny	Sunny	Sunny
Boats Observed							
Motorized >10 hp Towing		0.0	0.5	1.5	1.5	0.7	1.0
Motorized >10 hp Cruising With Wake		3.0	2.5	3.8	3.5	2.7	1.5
Motorized >10 hp Cruising Without Wake or Drifting		1.0	0.8	0.8	0.5	1.0	0.5
Motorized >10 hp Fishing		0.0	0.0	0.0	0.3	0.0	0.0
Motorized <10 hp (any activity)		0.0	0.0	0.0	0.0	0.0	0.0
Non-Motorized (any activity)		0.0	0.5	2.3	2.8	0.3	0.5
Notes:							

Lake Lure Boat Survey

Area of Survey: West Arm Date of Survey (mm/dd/yy): 5/27/2006 Observer: Video/Pitts

Day of Week: (circle day of week) Monday Tuesday Wednesday Thursday Friday **Saturday** Sunday

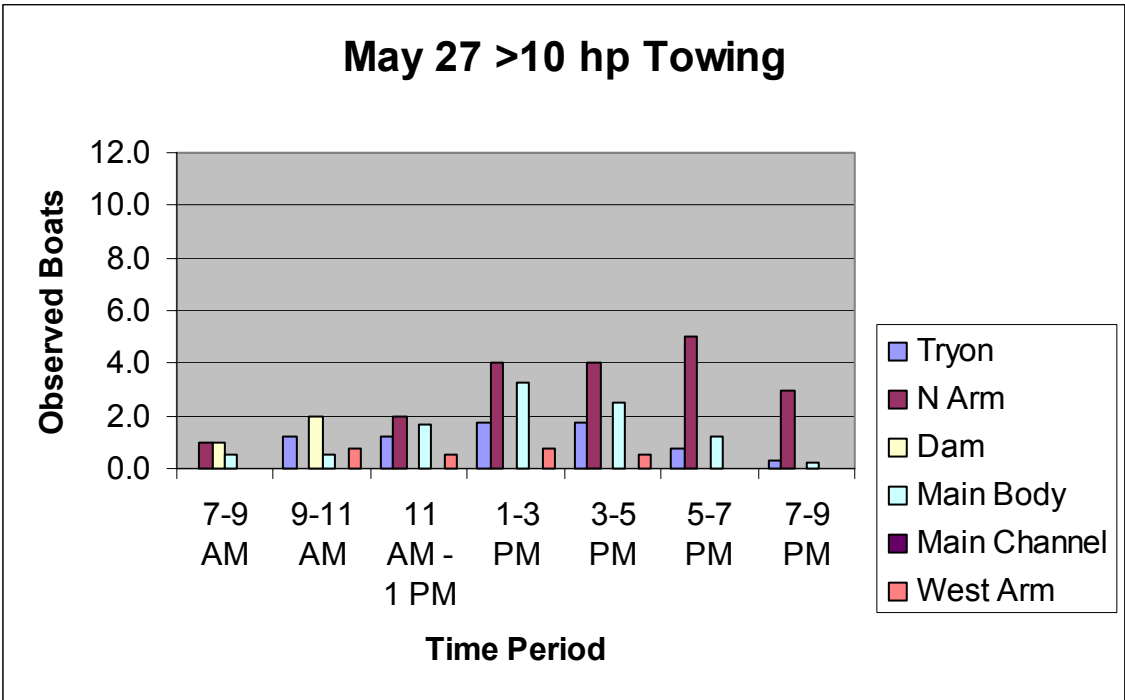
Time Period: (enter data below time slot)	7-9 AM	9-11 AM	11 AM - 1 PM	1-3 PM	3-5 PM	5-7 PM	7-9 PM
Weather: (circle conditions)	Sunny	Sunny	Sunny	Sunny	Sunny	Sunny	Sunny
Boats Observed							
Motorized >10 hp Towing		0.8	0.5	0.8	0.5	0.0	0.0
Motorized >10 hp Cruising With Wake		1.3	3.0	3.5	4.3	3.3	2.0
Motorized >10 hp Cruising Without Wake or Drifting		0.0	0.0	0.5	0.0	0.0	0.0
Motorized >10 hp Fishing		0.0	0.0	0.0	0.3	0.0	0.0
Motorized <10 hp (any activity)		0.0	0.0	0.0	0.0	0.0	0.0
Non-Motorized (any activity)		0.0	1.5	0.3	0.5	0.0	0.3
Notes:							

Lake Lure Boat Survey

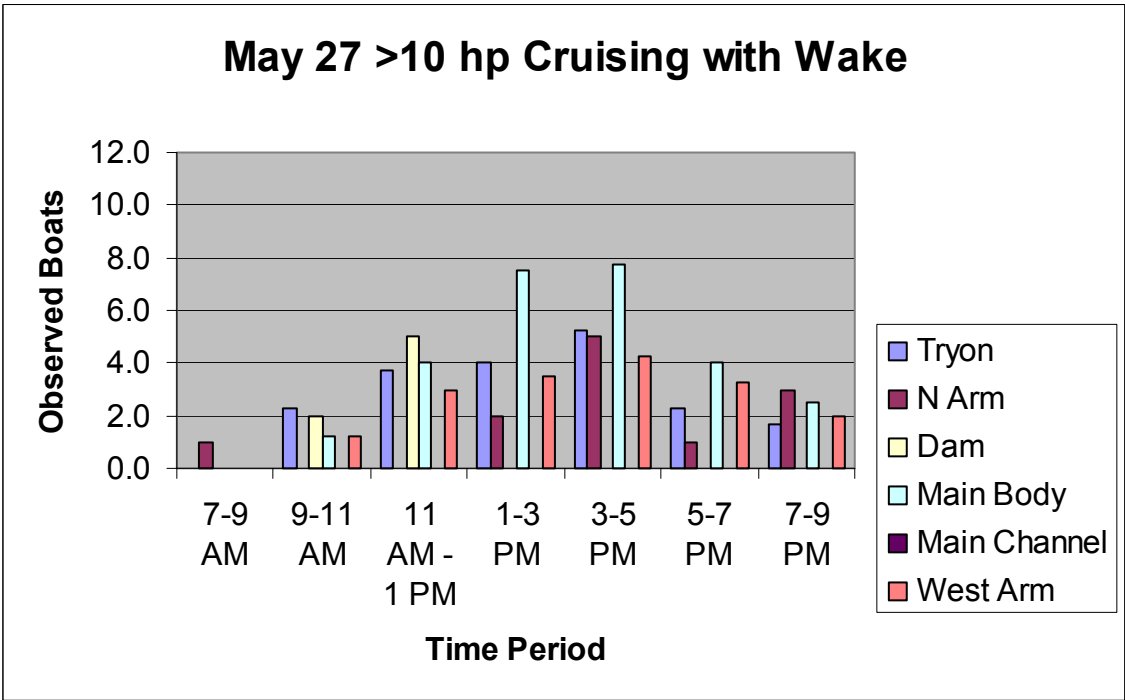
Area of Survey: _____ West Arm Date of Survey (mm/dd/yy): 5/28/2006 Observer: Video/Pitts
 Day of Week: (circle day of week) Monday Tuesday Wednesday Thursday Friday Saturday **Sunday**

Time Period: (enter data below time slot)	7-9 AM	9-11 AM	11 AM - 1 PM	1-3 PM	3-5 PM	5-7 PM	7-9 PM
Weather: (circle conditions)	Sunny	Sunny	Sunny	Sunny	Sunny	Sunny	Sunny
Boats Observed							
Motorized >10 hp Towing	0.0	0.0	0.5	0.8	0.8	1.5	0.3
Motorized >10 hp Cruising With Wake	1.0	2.8	5.8	4.8	4.5	4.0	3.7
Motorized >10 hp Cruising Without Wake or Drifting	0.0	0.3	0.0	0.0	0.0	0.0	0.0
Motorized >10 hp Fishing	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Motorized <10 hp (any activity)	0.0	0.0	0.0	0.0	0.3	0.0	0.0
Non-Motorized (any activity)	0.0	0.8	1.5	0.0	1.0	0.5	0.0
Notes:							

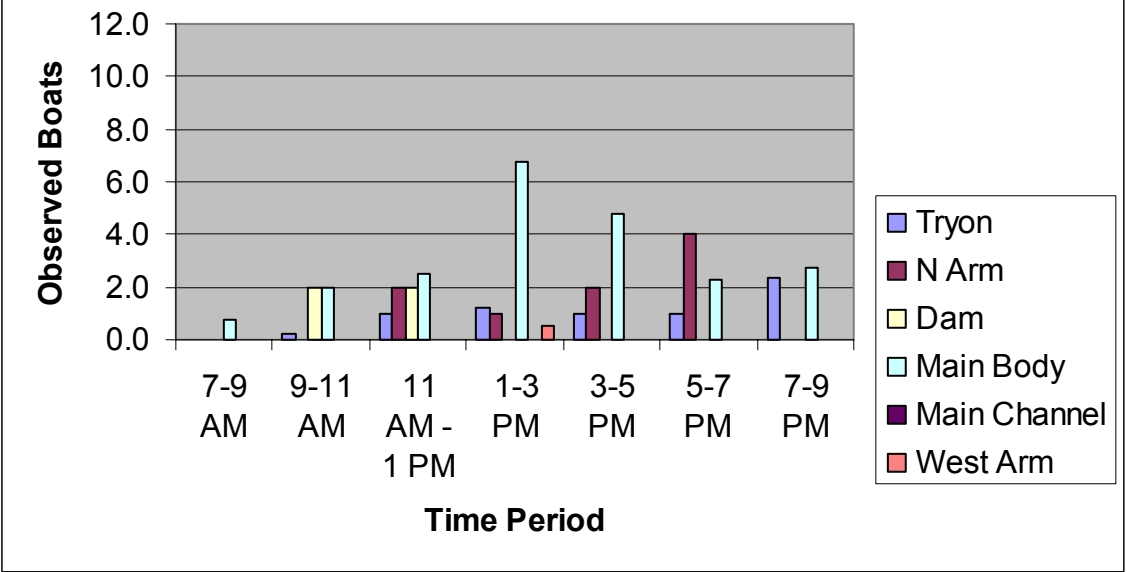
May 27 >10 hp Towing



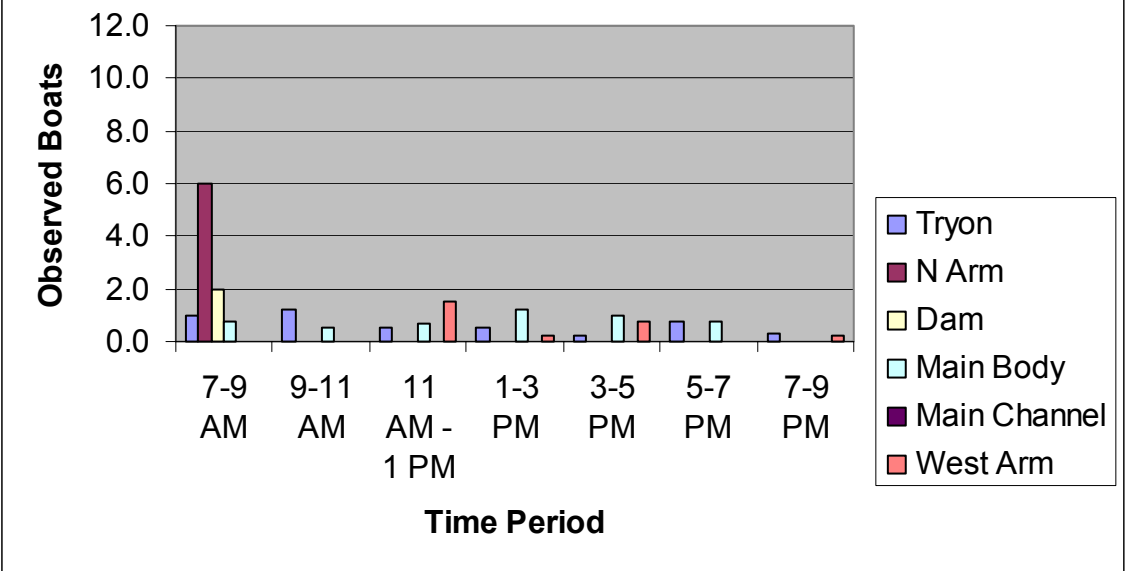
May 27 >10 hp Cruising with Wake



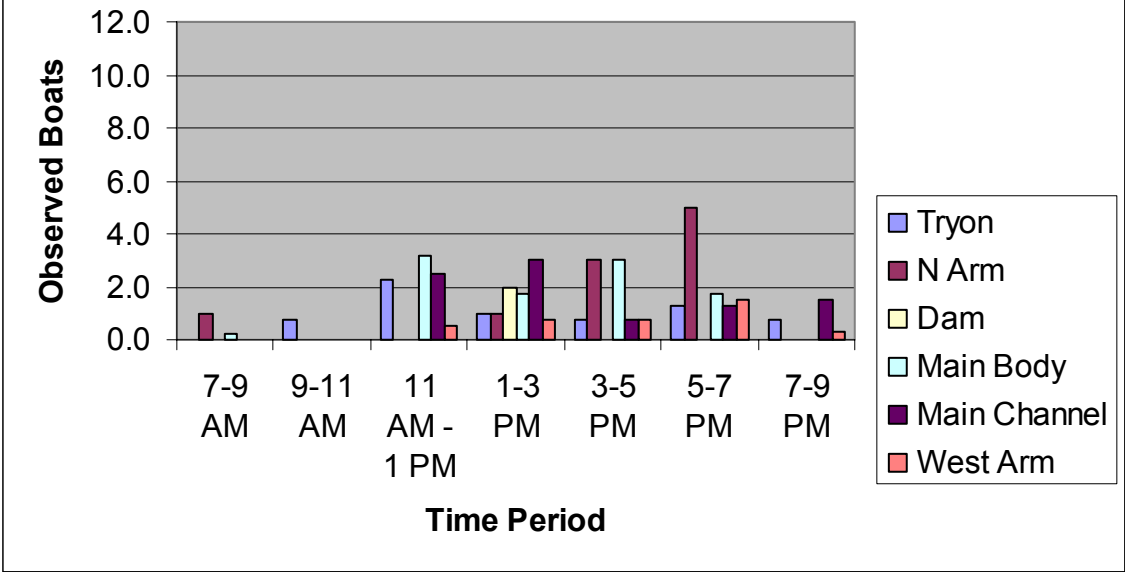
May 27 >10 hp No Wake



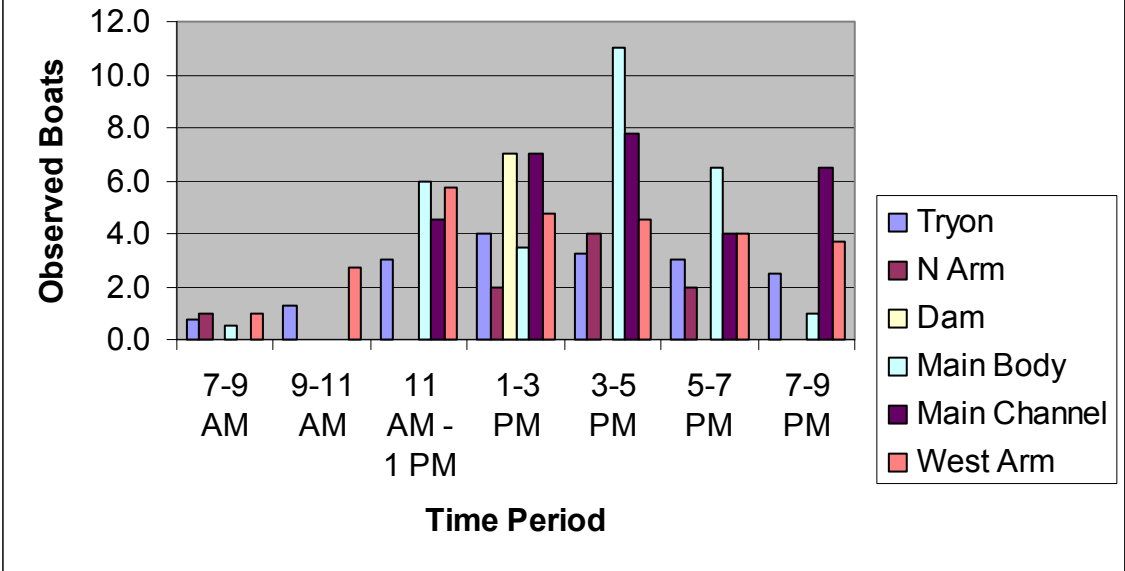
May 27 Other Boating Uses



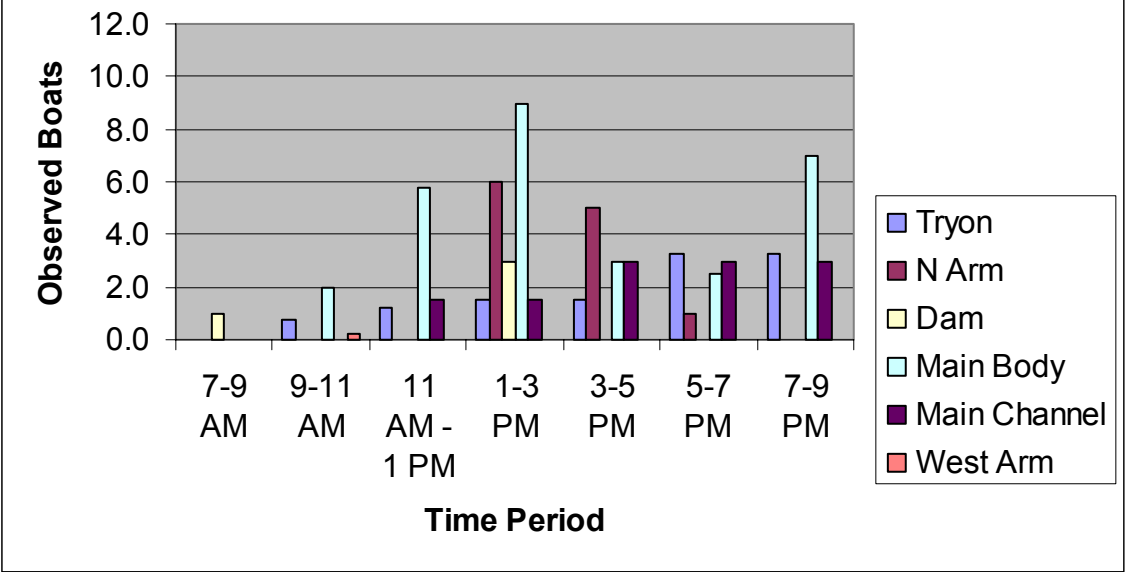
May 28 >10 hp Towing



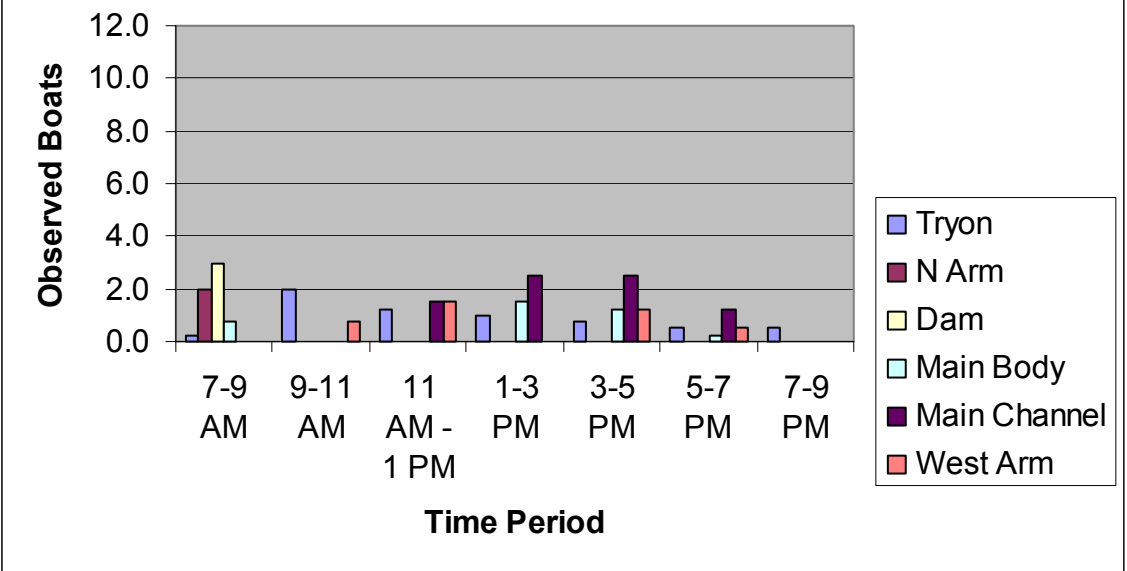
May 28 >10 hp Cruising with Wake



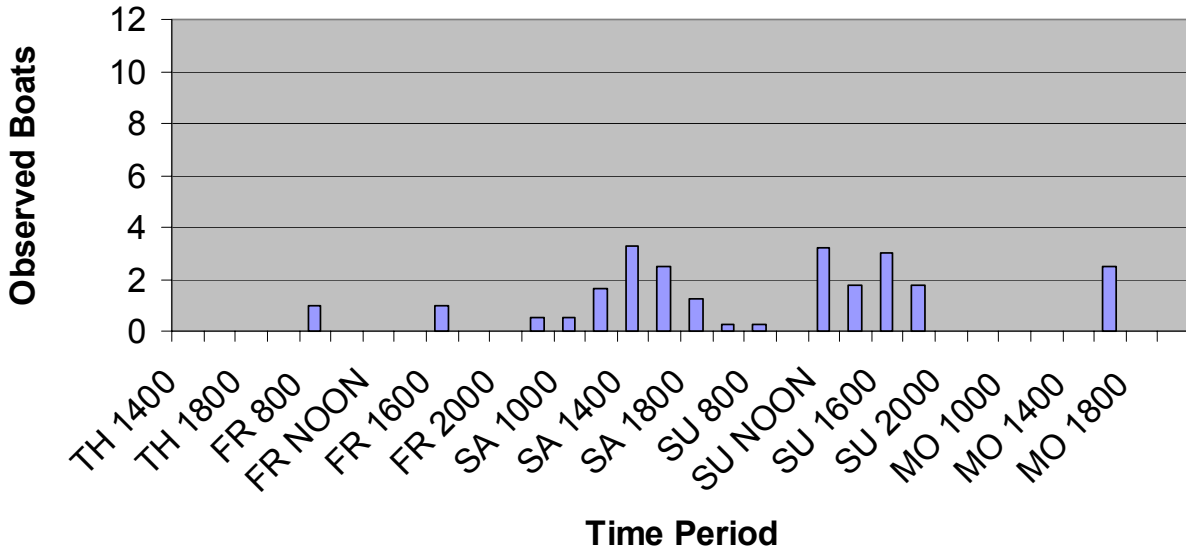
May 28 >10 hp No Wake



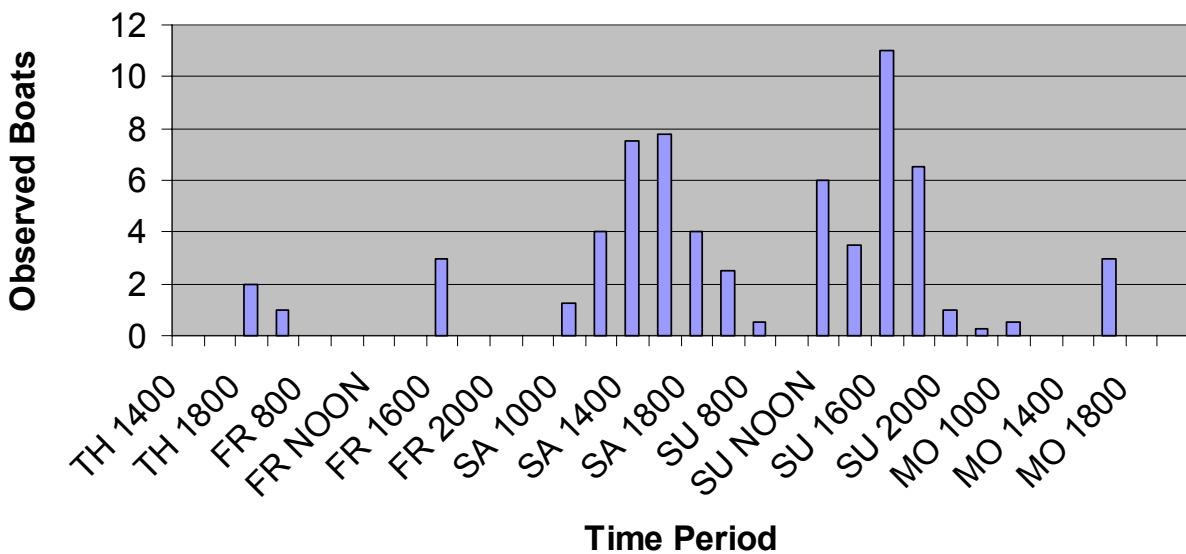
May 28 Other Boating Uses



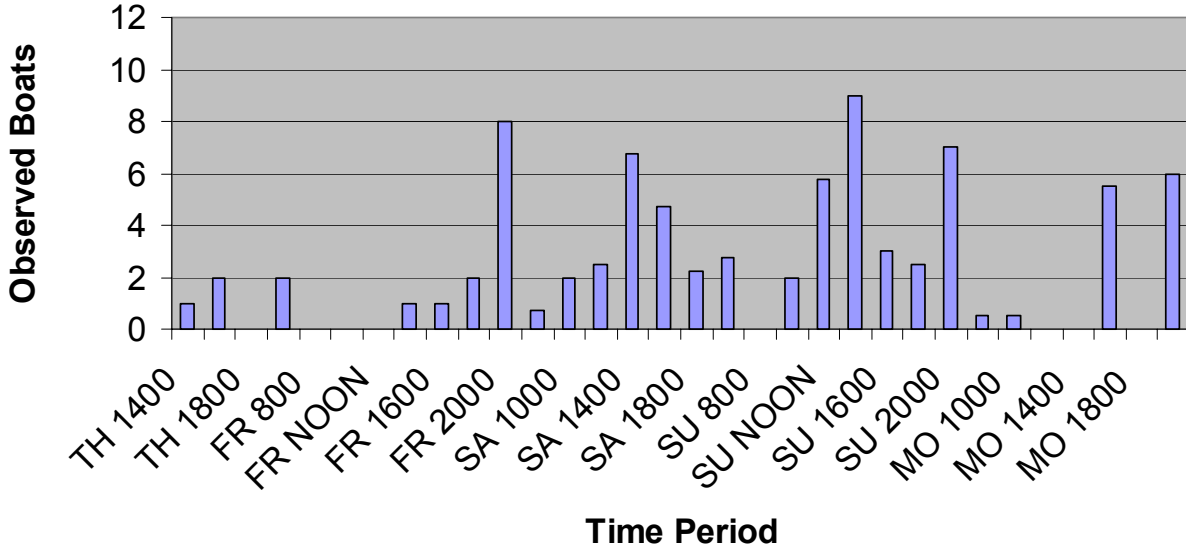
Memorial Weekend 2006, Main Body, Motorized >10 hp Towing



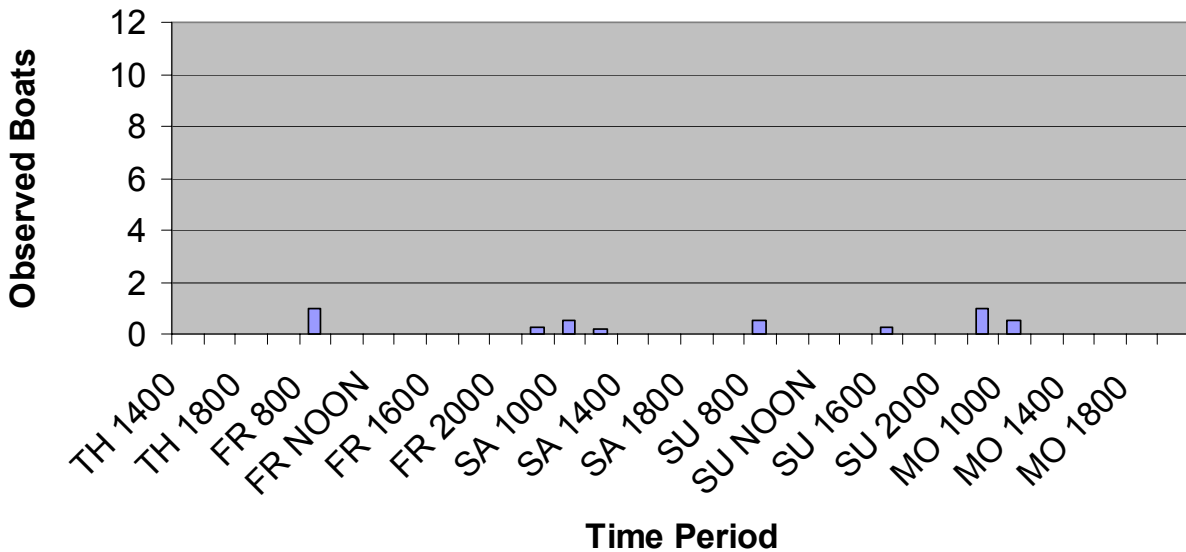
Memorial Weekend 2006, Main Body, Motorized >10 hp Cruising With Wake



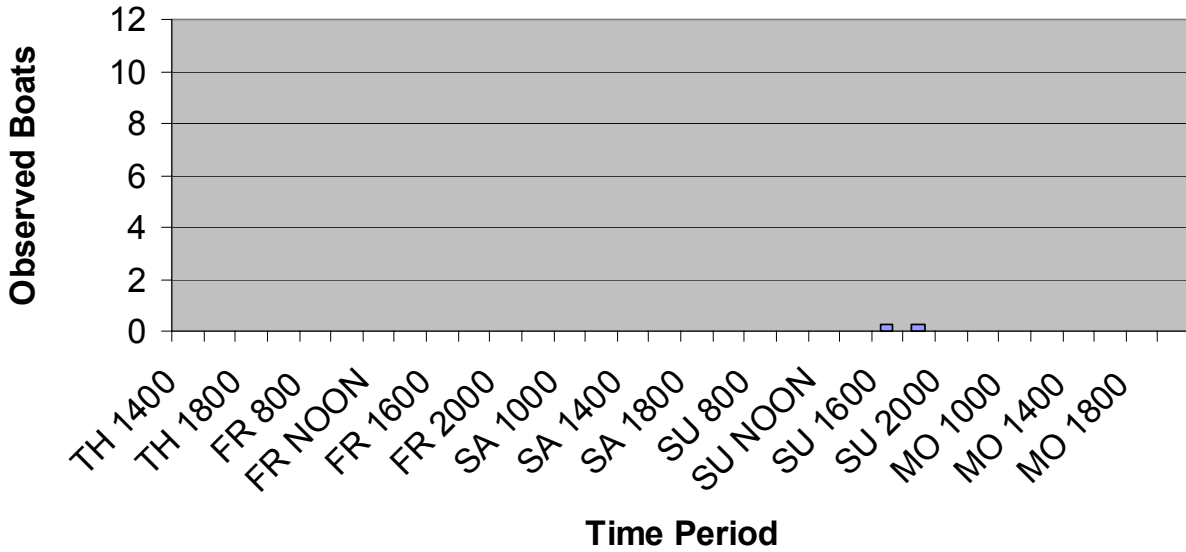
**Memorial Weekend 2006, Main Body,
Motorized >10 hp Without Wake**



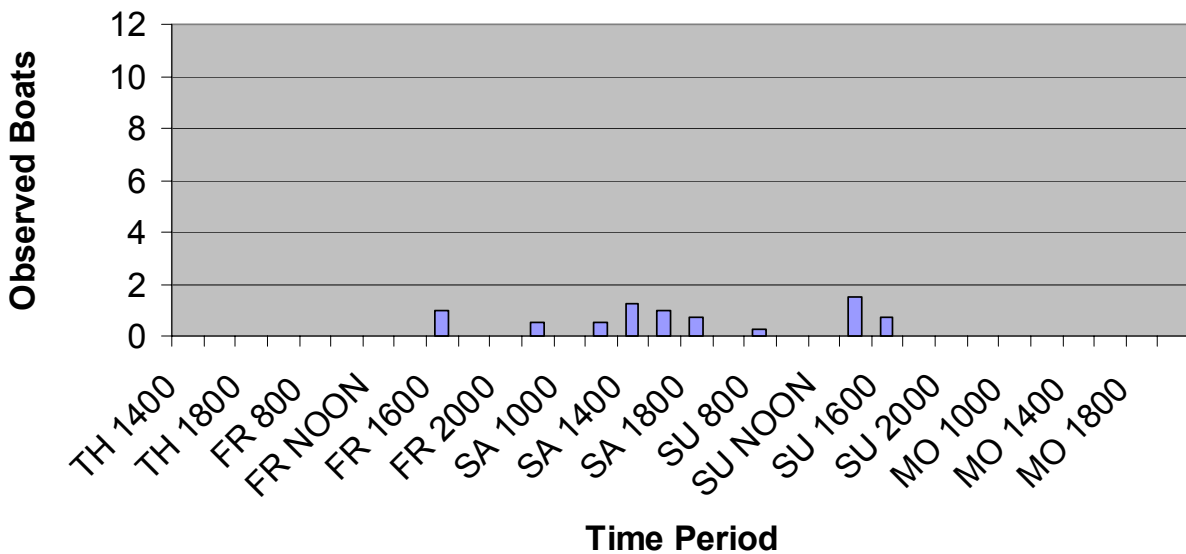
**Memorial Weekend 2006, Main Body,
Motorized >10 hp Fishing**



Memorial Weekend 2006, Main Body, Motorized <10 hp



Memorial Weekend 2006, Main Body, Non-Motorized

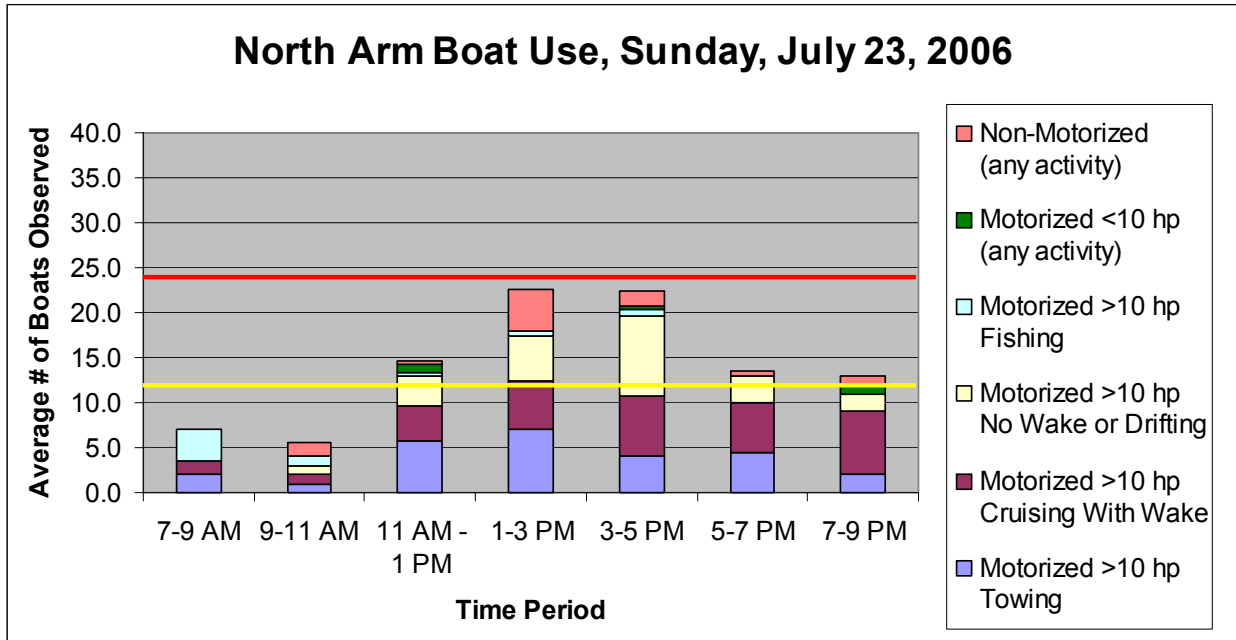


Lake Lure Boat Survey

Area of Survey: North Arm Date of Survey (mm/dd/yy): 7/23/2006 Observers: Wiggins & Wa

Day of Week: (circle day of week) Monday Tuesday Wednesday Thursday Friday Saturday **Sunday**

Time Period: (enter data below time slot)	7-9 AM	9-11 AM	11 AM - 1 PM	1-3 PM	3-5 PM	5-7 PM	7-9 PM
Weather: (circle conditions)	Overcast	Drizzle Rain	Sunny	Sunny	Sunny	Sunny Overcast	Sunny
Boats Observed							
Motorized >10 hp Towing	2.0	1.0	5.7	7.0	4.0	4.5	2.0
Motorized >10 hp Cruising With Wake	1.5	1.0	4.0	5.5	6.7	5.5	7.0
Motorized >10 hp Cruising Without Wake or Drifting	0.0	1.0	3.3	5.0	9.0	3.0	2.0
Motorized >10 hp Fishing	3.5	1.0	0.3	0.5	0.7	0.0	0.0
Motorized <10 hp (any activity)	0.0	0.0	1.0	0.0	0.3	0.0	1.0
Non-Motorized (any activity)	0.0	1.5	0.3	4.5	1.7	0.5	1.0
Notes:							

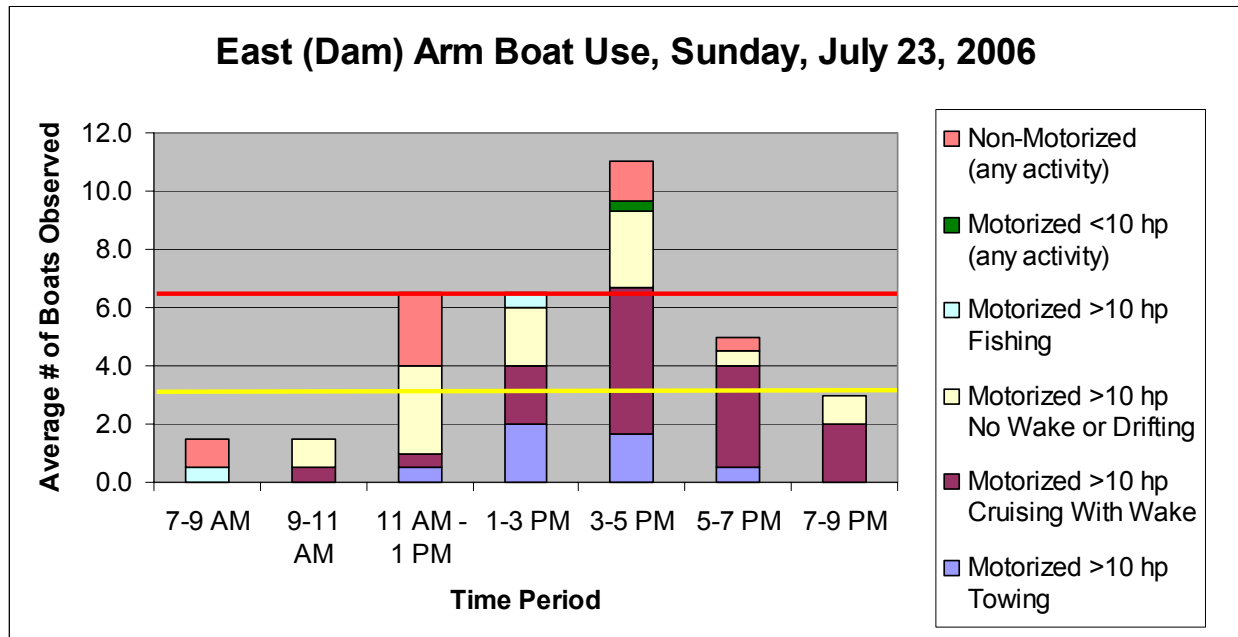


Lake Lure Boat Survey

Area of Survey: Dam Cove Date of Survey (mm/dd/yy): 7/23/2006 Observers: Wiggins & W

Day of Week: (circle day of week) Monday Tuesday Wednesday Thursday Friday Saturday **Sunday**

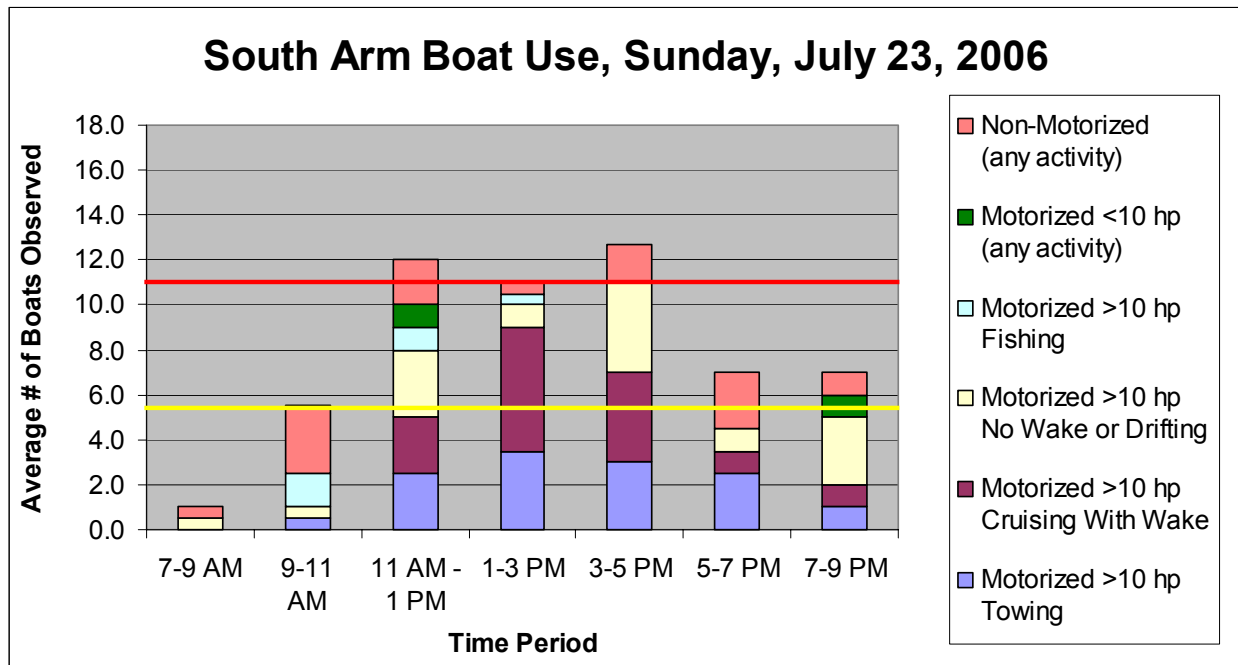
Time Period: (enter data below time slot)	7-9 AM	9-11 AM	11 AM - 1 PM	1-3 PM	3-5 PM	5-7 PM	7-9 PM
Weather: (circle conditions)	Overcast	Drizzle	Sunny	Sunny	Sunny	Sunny Overcast	Sunny
Boats Observed							
Motorized >10 hp Towing	0.0	0.0	0.5	2.0	1.7	0.5	0.0
Motorized >10 hp Cruising With Wake	0.0	0.5	0.5	2.0	5.0	3.5	2.0
Motorized >10 hp Cruising Without Wake or Drifting	0.0	1.0	3.0	2.0	2.7	0.5	1.0
Motorized >10 hp Fishing	0.5	0.0	0.0	0.5	0.0	0.0	0.0
Motorized <10 hp (any activity)	0.0	0.0	0.0	0.0	0.3	0.0	0.0
Non-Motorized (any activity)	1.0	0.0	2.5	0.0	1.3	0.5	0.0
Notes:							



Lake Lure Boat Survey

Area of Survey: South Arm Date of Survey (mm/dd/yy): 7/23/2006 Observer: Wiggins & W
 Day of Week: (circle day of week) Monday Tuesday Wednesday Thursday Friday Saturday **Sunday**

Time Period: (enter data below time slot)	7-9 AM	9-11 AM	11 AM - 1 PM	1-3 PM	3-5 PM	5-7 PM	7-9 PM
Weather: (circle conditions)	Overcast	Drizzle	Sunny	Sunny	Sunny	Sunny Overcast	Sunny
Boats Observed							
Motorized >10 hp Towing	0.0	0.5	2.5	3.5	3.0	2.5	1.0
Motorized >10 hp Cruising With Wake	0.0	0.0	2.5	5.5	4.0	1.0	1.0
Motorized >10 hp Cruising Without Wake or Drifting	0.5	0.5	3.0	1.0	4.0	1.0	3.0
Motorized >10 hp Fishing	0.0	1.5	1.0	0.5	0.0	0.0	0.0
Motorized <10 hp (any activity)	0.0	0.0	1.0	0.0	0.0	0.0	1.0
Non-Motorized (any activity)	0.5	3.0	2.0	0.5	1.7	2.5	1.0

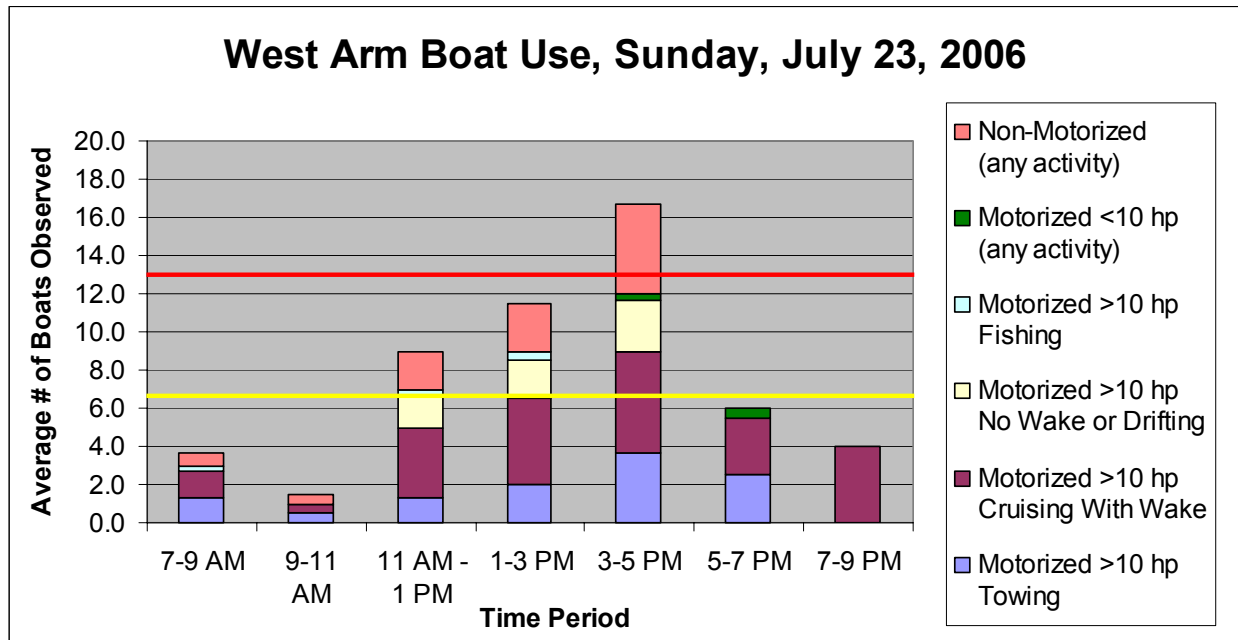


Lake Lure Boat Survey

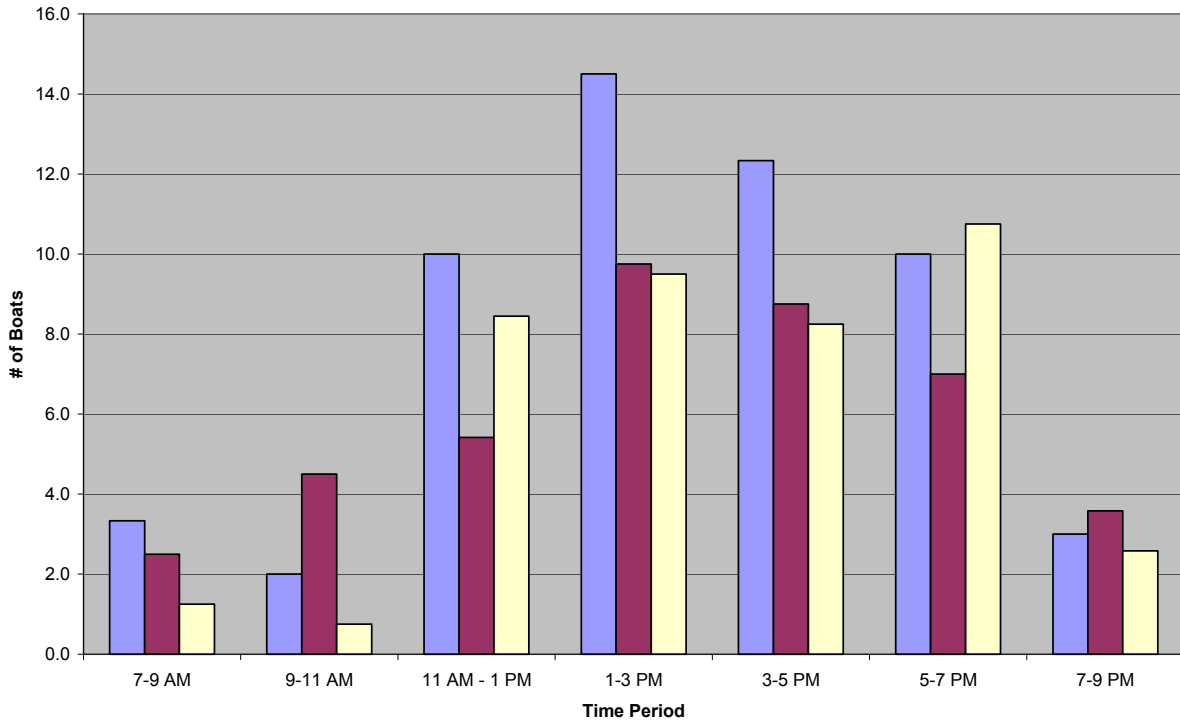
Area of Survey: West Arm Date of Survey (mm/dd/yy): 7/23/2006 Observers: Wiggins & W

Day of Week: (circle day of week) Monday Tuesday Wednesday Thursday Friday Saturday Sunday

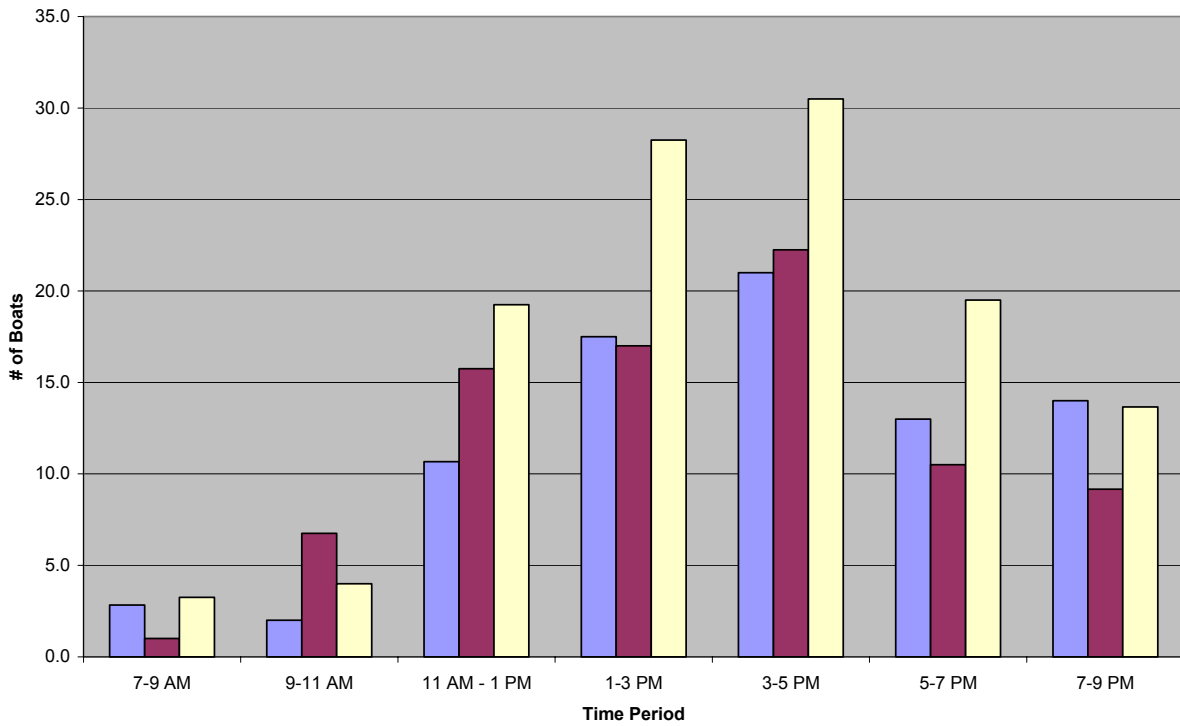
Time Period: (enter data below time slot)	7-9 AM	9-11 AM	11 AM - 1 PM	1-3 PM	3-5 PM	5-7 PM	7-9 PM
Weather: (circle conditions)	Overcast	Drizzle Rain	Sunny	Sunny	Sunny	Sunny	Sunny
Boats Observed							
Motorized >10 hp Towing	1.3	0.5	1.3	2.0	3.7	2.5	0.0
Motorized >10 hp Cruising With Wake	1.3	0.5	3.7	4.5	5.3	3.0	4.0
Motorized >10 hp Cruising Without Wake or Drifting	0.0	0.0	1.7	2.0	2.7	0.0	0.0
Motorized >10 hp Fishing	0.3	0.0	0.3	0.5	0.0	0.0	0.0
Motorized <10 hp (any activity)	0.0	0.0	0.0	0.0	0.3	0.5	0.0
Non-Motorized (any activity)	0.7	0.5	2.0	2.5	4.7	0.0	0.0
Notes:							



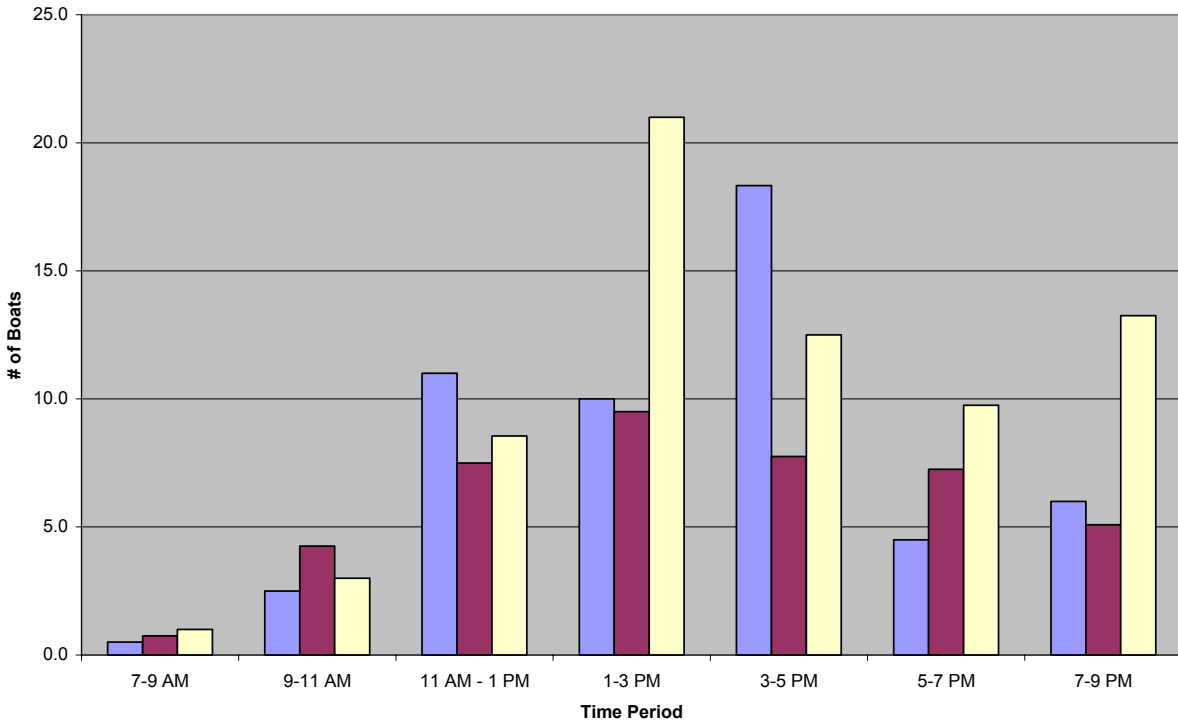
Motorboats >10 hp Towing, Clear Weekend Days



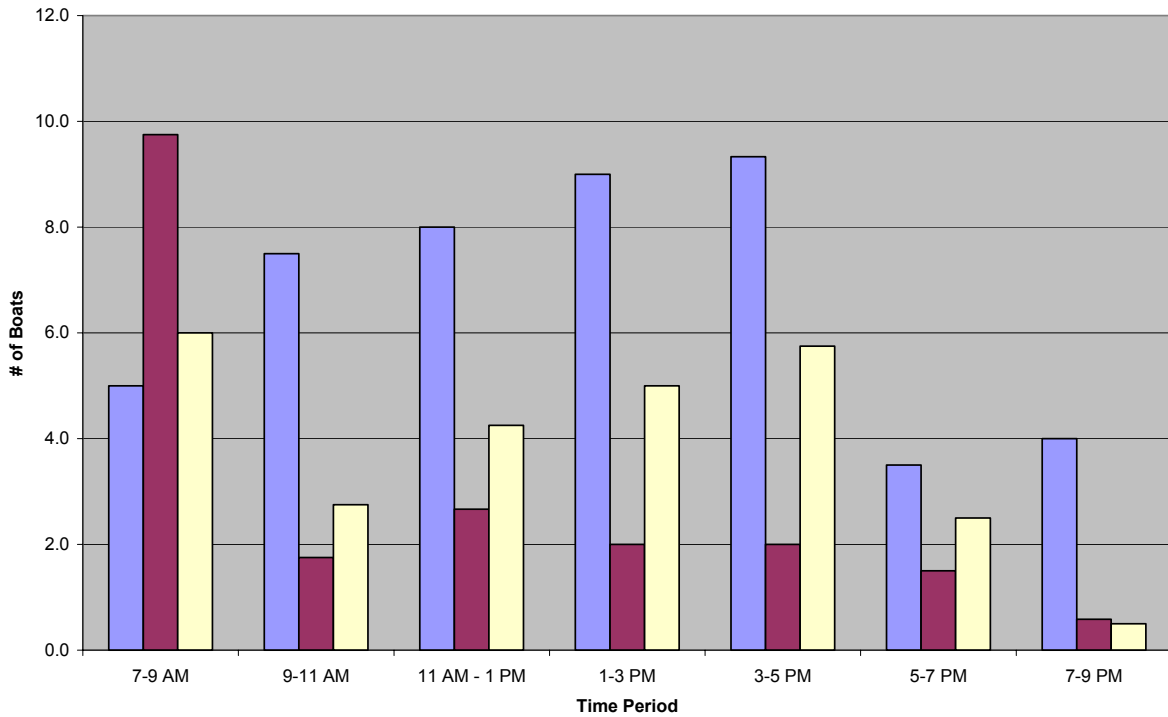
Motorboats >10 hp Cruising with Wake, Clear Weekend Days



Motorboats >10 hp Creating No Wake, Clear Weekend Days



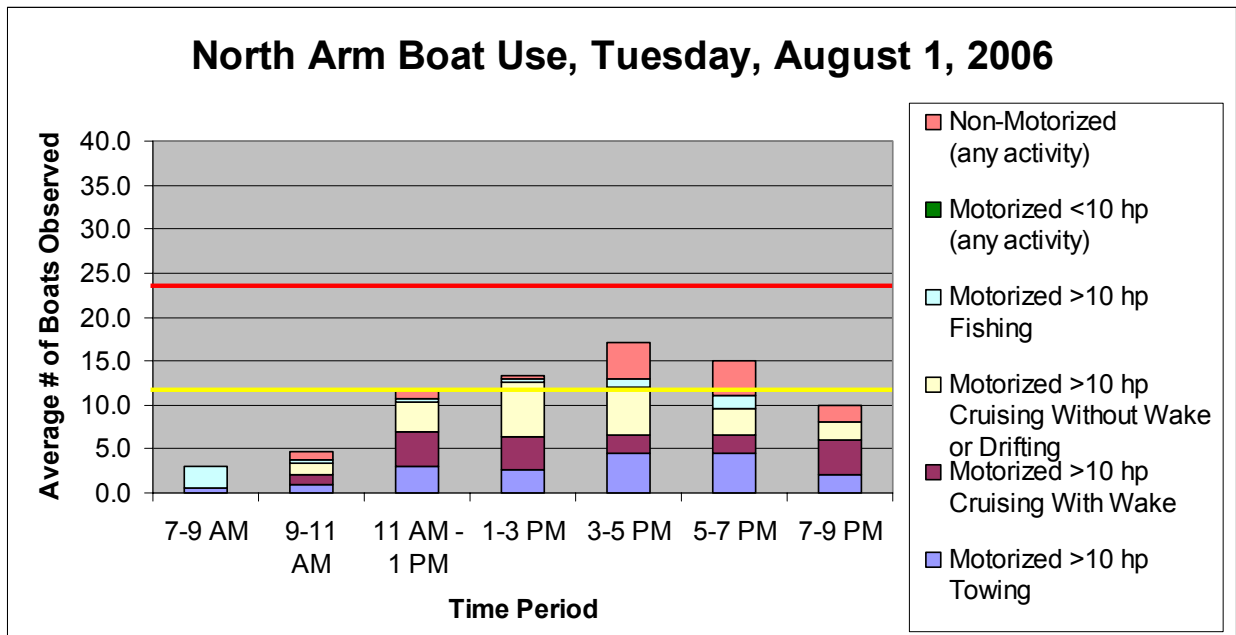
Motorboats Fishing or <10 hp (including non-motorized), Clear Weekend Days



Lake Lure Boat Survey

Area of Survey: North Arm Date of Survey (mm/dd/yy): 8/1/2006 Observer: Wiggins
 Day of Week: (circle day of week) Monday **Tuesday** Wednesday Thursday Friday Saturday Sunday

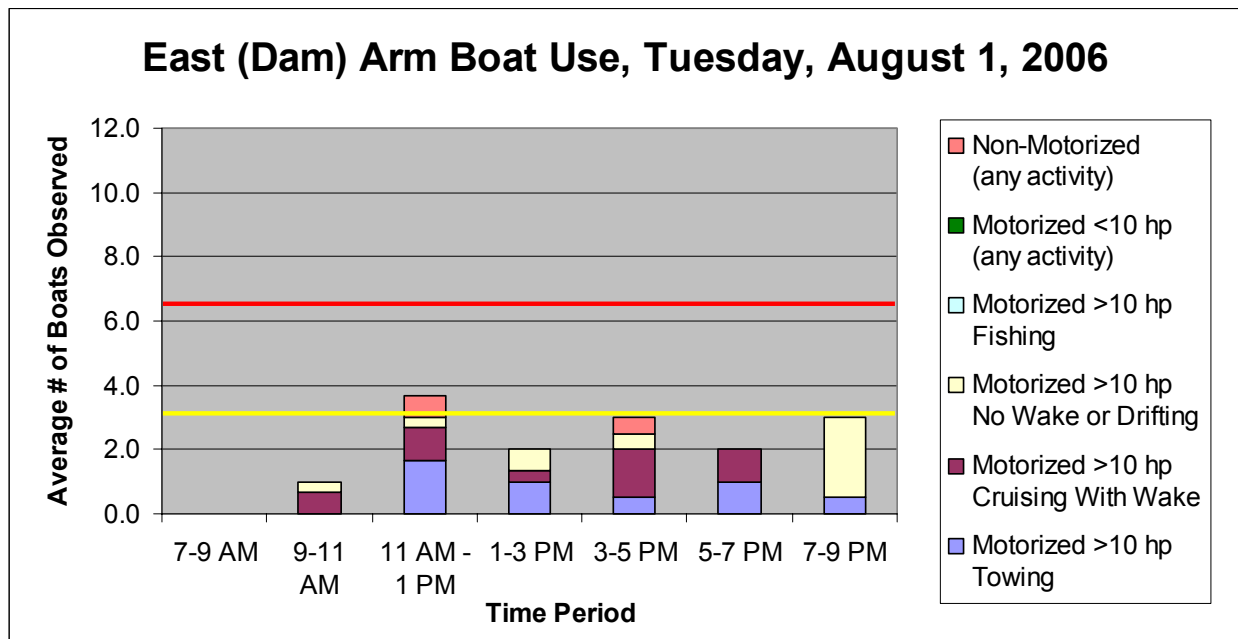
Time Period: (enter data below time slot)	7-9 AM	9-11 AM	11 AM - 1 PM	1-3 PM	3-5 PM	5-7 PM	7-9 PM
Weather: (circle conditions)	Sunny	Sunny	Sunny	Sunny	Sunny	Sunny	Sunny
Boats Observed							
Motorized >10 hp Towing	0.5	1.0	3.0	2.7	4.5	4.5	2.0
Motorized >10 hp Cruising With Wake	0.0	1.0	4.0	3.7	2.0	2.0	4.0
Motorized >10 hp Cruising Without Wake or Drifting	0.0	1.3	3.3	6.3	5.5	3.0	2.0
Motorized >10 hp Fishing	2.5	0.3	0.3	0.3	1.0	1.5	0.0
Motorized <10 hp (any activity)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Non-Motorized (any activity)	0.0	1.0	1.0	0.3	4.0	4.0	2.0
Notes:							



Lake Lure Boat Survey

Area of Survey: Dam Arm Date of Survey (mm/dd/yy): 8/1/2006 Observer: Wiggins
 Day of Week: (circle day of week) Monday **Tuesday** Wednesday Thursday Friday Saturday Sunday

Time Period: (enter data below time slot)	7-9 AM	9-11 AM	11 AM - 1 PM	1-3 PM	3-5 PM	5-7 PM	7-9 PM
Weather: (circle conditions)	Sunny	Sunny	Sunny	Sunny	Sunny	Sunny	Sunny
Boats Observed							
Motorized >10 hp Towing	0.0	0.0	1.7	1.0	0.5	1.0	0.5
Motorized >10 hp Cruising With Wake	0.0	0.7	1.0	0.3	1.5	1.0	0.0
Motorized >10 hp Cruising Without Wake or Drifting	0.0	0.3	0.3	0.7	0.5	0.0	2.5
Motorized >10 hp Fishing	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Motorized <10 hp (any activity)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Non-Motorized (any activity)	0.0	0.0	0.7	0.0	0.5	0.0	0.0
Notes:							

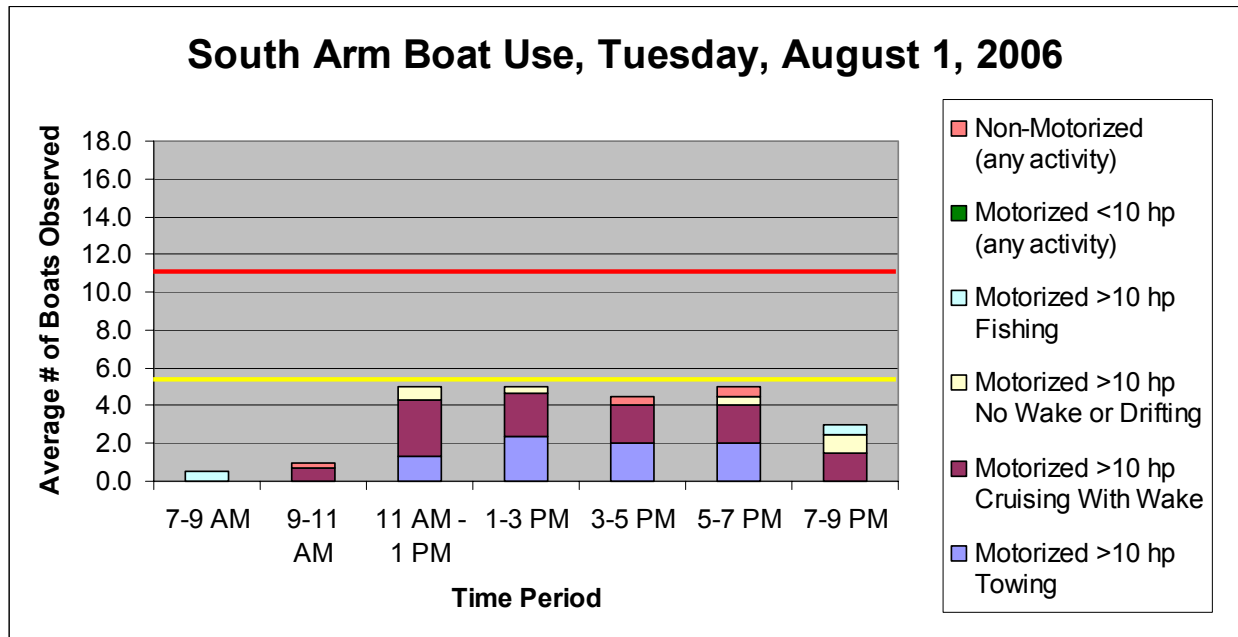


Lake Lure Boat Survey

Area of Survey: South Arm Date of Survey (mm/dd/yy): 8/1/2006 Observer: Wiggins

Day of Week: (circle day of week) Monday **Tuesday** Wednesday Thursday Friday Saturday Sunday

Time Period: (enter data below time slot)	7-9 AM	9-11 AM	11 AM - 1 PM	1-3 PM	3-5 PM	5-7 PM	7-9 PM
Weather: (circle conditions)	Sunny	Sunny	Sunny	Sunny	Sunny	Sunny	Sunny
Boats Observed							
Motorized >10 hp Towing	0.0	0.0	1.3	2.3	2.0	2.0	0.0
Motorized >10 hp Cruising With Wake	0.0	0.7	3.0	2.3	2.0	2.0	1.5
Motorized >10 hp Cruising Without Wake or Drifting	0.0	0.0	0.7	0.3	0.0	0.5	1.0
Motorized >10 hp Fishing	0.5	0.0	0.0	0.0	0.0	0.0	0.5
Motorized <10 hp (any activity)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Non-Motorized (any activity)	0.0	0.3	0.0	0.0	0.5	0.5	0.0
Notes:							

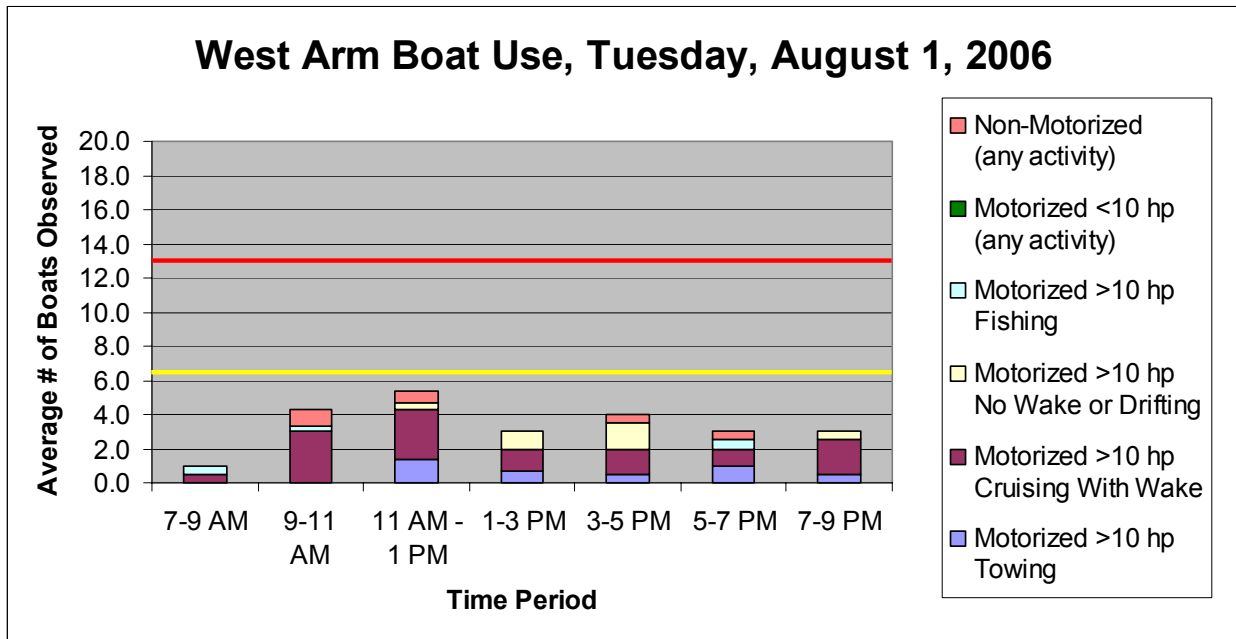


Lake Lure Boat Survey

Area of Survey: West Arm Date of Survey (mm/dd/yy): 8/1/2006 Observer: Wiggins

Day of Week: (circle day of week) Monday **Tuesday** Wednesday Thursday Friday Saturday Sunday

Time Period: (enter data below time slot)	7-9 AM	9-11 AM	11 AM - 1 PM	1-3 PM	3-5 PM	5-7 PM	7-9 PM
Weather: (circle conditions)	Sunny	Sunny	Sunny	Sunny	Sunny	Sunny	Sunny
Boats Observed							
Motorized >10 hp Towing	0.0	0.0	1.3	0.7	0.5	1.0	0.5
Motorized >10 hp Cruising With Wake	0.5	3.0	3.0	1.3	1.5	1.0	2.0
Motorized >10 hp Cruising Without Wake or Drifting	0.0	0.0	0.3	1.0	1.5	0.0	0.5
Motorized >10 hp Fishing	0.5	0.3	0.0	0.0	0.0	0.5	0.0
Motorized <10 hp (any activity)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Non-Motorized (any activity)	0.0	1.0	0.7	0.0	0.5	0.5	0.0
Notes:	Very hot and humid; high heat index						



Lake Lure Boat Survey

Area of Survey: North Arm Date of Survey (mm/dd/yy): 8/11/2006 Observer: Wiggins
 Day of Week: (circle day of week) Monday Tuesday Wednesday Thursday **Friday** Saturday Sunday

Time Period: (enter data below time slot)	7-9 AM	9-11 AM	11 AM - 1 PM	1-3 PM	3-5 PM	5-7 PM	7-9 PM
Weather: (circle conditions)					Overcast	Overcast	Overcast
Boats Observed							
Motorized >10 hp Towing					4.0	2.0	1.0
Motorized >10 hp Cruising With Wake					7.0	6.0	1.0
Motorized >10 hp Cruising Without Wake or Drifting					7.0	2.0	0.0
Motorized >10 hp Fishing					0.0	0.0	0.0
Motorized <10 hp (any activity)					1.0	0.0	0.0
Non-Motorized (any activity)					1.0	0.0	0.0
Notes:	Scattered drizzles PM						

Lake Lure Boat Survey

Area of Survey: Dam Arm Date of Survey (mm/dd/yy): 8/11/2006 Observer: Wiggins
 Day of Week: (circle day of week) Monday Tuesday Wednesday Thursday **Friday** Saturday Sunday

Time Period: (enter data below time slot)	7-9 AM	9-11 AM	11 AM - 1 PM	1-3 PM	3-5 PM	5-7 PM	7-9 PM
Weather: (circle conditions)					Overcast	Overcast	Overcast
Boats Observed							
Motorized >10 hp Towing					4.0	0.0	0.0
Motorized >10 hp Cruising With Wake					0.0	0.0	0.5
Motorized >10 hp Cruising Without Wake or Drifting					0.0	1.0	0.5
Motorized >10 hp Fishing					0.0	0.0	0.0
Motorized <10 hp (any activity)					0.0	0.0	0.0
Non-Motorized (any activity)					0.0	0.0	0.0
Notes:	Scattered drizzles PM						

Lake Lure Boat Survey

Area of Survey: South Arm Date of Survey (mm/dd/yy): 8/11/2006 Observer: Wiggins
 Day of Week: (circle day of week) Monday Tuesday Wednesday Thursday **Friday** Saturday Sunday

Time Period: (enter data below time slot)	7-9 AM	9-11 AM	11 AM - 1 PM	1-3 PM	3-5 PM	5-7 PM	7-9 PM
Weather: (circle conditions)					Overcast	Overcast	Overcast
Boats Observed							
Motorized >10 hp Towing					2.0	1.0	0.0
Motorized >10 hp Cruising With Wake					2.0	2.0	0.0
Motorized >10 hp Cruising Without Wake or Drifting					1.0	0.0	1.5
Motorized >10 hp Fishing					0.0	0.0	0.0
Motorized <10 hp (any activity)					0.0	0.0	0.0
Non-Motorized (any activity)					0.0	0.0	0.0

Lake Lure Boat Survey

Area of Survey: West Arm Date of Survey (mm/dd/yy): 8/11/2006 Observer: Wiggins
 Day of Week: (circle day of week) Monday Tuesday Wednesday Thursday **Friday** Saturday Sunday

Time Period: (enter data below time slot)	7-9 AM	9-11 AM	11 AM - 1 PM	1-3 PM	3-5 PM	5-7 PM	7-9 PM
Weather: (circle conditions)					Overcast	Overcast	Overcast
Boats Observed							
Motorized >10 hp Towing					2.0	2.0	0.5
Motorized >10 hp Cruising With Wake					3.0	3.0	1.0
Motorized >10 hp Cruising Without Wake or Drifting					0.0	1.0	1.0
Motorized >10 hp Fishing					0.0	0.0	0.0
Motorized <10 hp (any activity)					0.0	0.0	0.0
Non-Motorized (any activity)					0.0	0.0	0.0
Notes:	Scattered drizzles PM						

Lake Lure Boat Survey

Area of Survey: North Arm Date of Survey (mm/dd/yy): 8/12/2006 Observer: Wiggins
 Day of Week: (circle day of week) Monday Tuesday Wednesday Thursday Friday **Saturday** Sunday

Time Period: (enter data below time slot)	7-9 AM	9-11 AM	11 AM - 1 PM	1-3 PM	3-5 PM	5-7 PM	7-9 PM
Weather: (circle conditions)	Rain	Rain	Rain	Drizzle Rain	Overcast Drizzle	Overcast	
Boats Observed							
Motorized >10 hp Towing			0.0	1.0	1.0	1.0	
Motorized >10 hp Cruising With Wake			0.0	0.5	1.0	1.0	
Motorized >10 hp Cruising Without Wake or Drifting			0.0	0.0	0.5	1.0	
Motorized >10 hp Fishing			0.0	1.5	1.5	2.0	
Motorized <10 hp (any activity)			0.0	0.0	0.5	0.0	
Non-Motorized (any activity)			0.0	1.0	0.5	0.0	
Notes:	Heavy rains night before; off and on rain showers through most of the day;						

Lake Lure Boat Survey

Area of Survey: Dam Arm Date of Survey (mm/dd/yy): 8/12/2006 Observer: Wiggins
 Day of Week: (circle day of week) Monday Tuesday Wednesday Thursday Friday **Saturday** Sunday

Time Period: (enter data below time slot)	7-9 AM	9-11 AM	11 AM - 1 PM	1-3 PM	3-5 PM	5-7 PM	7-9 PM
Weather: (circle conditions)	Rain	Rain	Rain	Drizzle Rain	Overcast Drizzle	Overcast	
Boats Observed							
Motorized >10 hp Towing			0.0	0.0	0.5	0.0	
Motorized >10 hp Cruising With Wake			0.0	0.0	0.5	0.0	
Motorized >10 hp Cruising Without Wake or Drifting			0.0	0.0	0.0	0.0	
Motorized >10 hp Fishing			0.0	0.0	0.0	0.0	
Motorized <10 hp (any activity)			0.0	0.0	0.0	0.0	
Non-Motorized (any activity)			0.0	0.0	0.0	0.0	
Notes:	Heavy rains night before; off and on rain showers through most of the day;						

Lake Lure Boat Survey

Area of Survey: South Arm Date of Survey (mm/dd/yy): 8/12/2006 Observer: Wiggins
 Day of Week: (circle day of week) Monday Tuesday Wednesday Thursday Friday **Saturday** Sunday

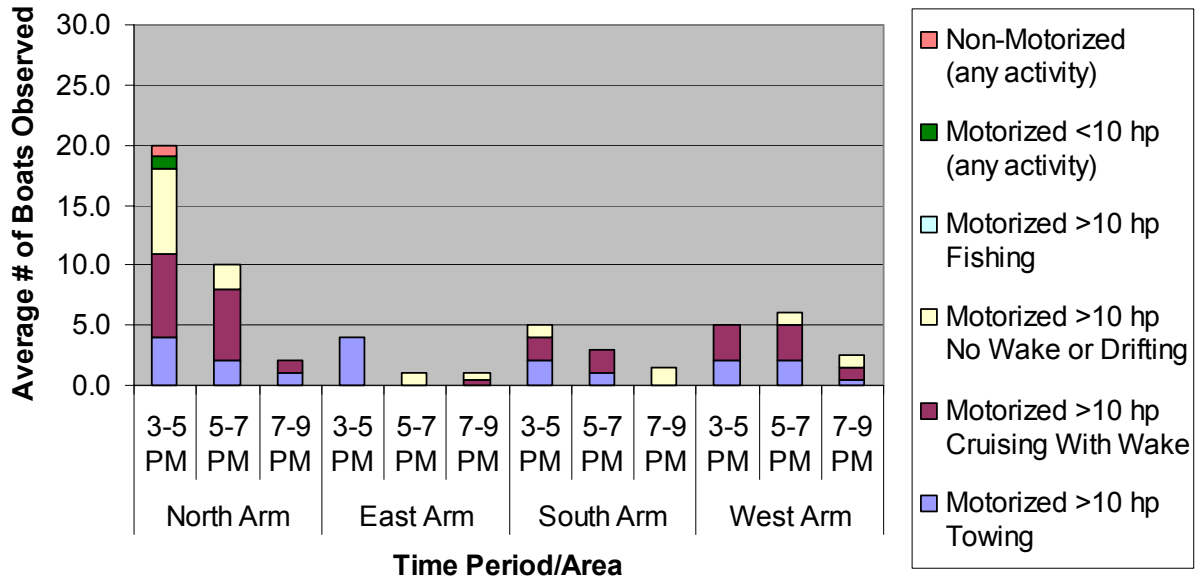
Time Period: (enter data below time slot)	7-9 AM	9-11 AM	11 AM - 1 PM	1-3 PM	3-5 PM	5-7 PM	7-9 PM
Weather: (circle conditions)	Rain	Rain	Rain	Drizzle Rain	Overcast Drizzle	Overcast	
Boats Observed							
Motorized >10 hp Towing			0.0	1.0	2.0	0.0	
Motorized >10 hp Cruising With Wake			0.0	0.0	1.0	1.0	
Motorized >10 hp Cruising Without Wake or Drifting			0.0	0.0	1.0	0.0	
Motorized >10 hp Fishing			0.0	0.5	0.0	0.0	
Motorized <10 hp (any activity)			0.0	0.0	0.0	0.0	
Non-Motorized (any activity)			0.0	0.0	0.0	0.0	
Notes:	Heavy rains night before; off and on rain showers through most of the day;						

Lake Lure Boat Survey

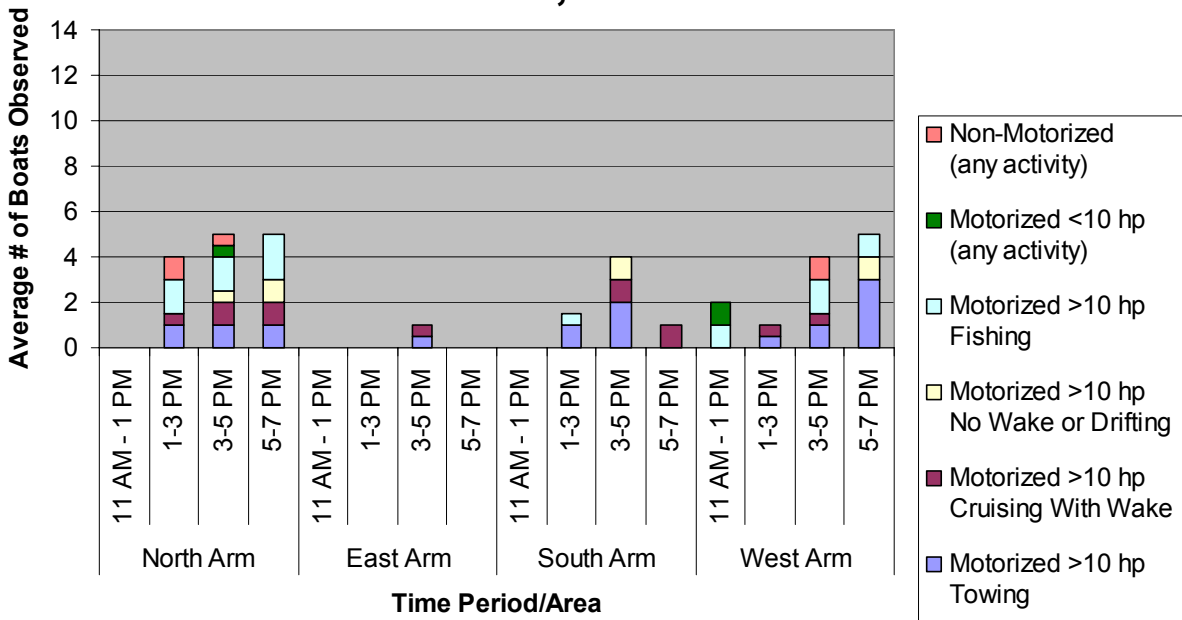
Area of Survey: West Arm Date of Survey (mm/dd/yy): 8/12/2006 Observer: Wiggins
 Day of Week: (circle day of week) Monday Tuesday Wednesday Thursday Friday **Saturday** Sunday

Time Period: (enter data below time slot)	7-9 AM	9-11 AM	11 AM - 1 PM	1-3 PM	3-5 PM	5-7 PM	7-9 PM
Weather: (circle conditions)	Rain	Rain	Rain	Drizzle Rain	Overcast Drizzle	Overcast	
Boats Observed							
Motorized >10 hp Towing	0.0		0.0	0.5	1.0	3.0	
Motorized >10 hp Cruising With Wake	0.0		0.0	0.5	0.5	0.0	
Motorized >10 hp Cruising Without Wake or Drifting	0.0		0.0	0.0	0.0	1.0	
Motorized >10 hp Fishing	0.0		1.0	0.0	1.5	1.0	
Motorized <10 hp (any activity)	0.0		1.0	0.0	0.0	0.0	
Non-Motorized (any activity)	0.0		0.0	0.0	1.0	0.0	
Notes:	Heavy rains night before; off and on rain showers through most of the day; 7-9 am observation from L. Pitts						

Boat Use in All Areas, Friday, August 11, 2006



Boat Use in All Areas, Saturday, August 12, 2006



APPENDIX C
DECISION DOCUMENT
NOVEMBER 2006

Decision Framework for Lake Lure Boat Management

Objective #1: Prevent crowding beyond safe density.

Primary Option: Limit number of permits for boats >10 hp. Based on experience and data for Lake Lure, 1000 peak season permits can be issued. It is unlikely that more than 1100 permits can be issued. 15 weekly permits count as 1 peak season permit. Permits issued in 2005 and 2006 <1000, so not restricting anyone yet. Start with 1000 permits, perform boat surveys when limit is reached, determine if average boat density on nice weather, summer weekends and holidays has noticeably increased. If not, may be able to add 25-50 permits. Repeat study until 10 ac/boat threshold is crossed at unacceptable level (happened in one 2-hr period over 3 days of observation in 2006; suggest threshold at one 2-hr period on all 3 days of observation going forward).

Auxiliary Options: Boating operator training/licensing may limit the number of boats on the lake by virtue of need for trained operator at all times. Although there is no limit on how many operators become trained, this may limit access by transient potential boaters, allowing more permits to be offered with no increase in actual boat density, on average. Additionally, a transferable permit could be issued to all holders of multiple permits for boats >10 hp, ensuring that only one boat could be used on the lake during peak season weekends and holidays.

Benefits: Maintains overall boat use pattern at something approximating the current level, which is only unacceptable on a few days of the year. The targeted limit of 1000 non-commercial permits for boats >10 hp has not been reached in recent years, so no one currently holding a permit has to be denied one. Ability to offer more permits is tied to measurement of boat density, which is linked to safety. Use of transferable permit provides some equity among boaters.

Drawbacks: With as many as 800 more lots to be built upon near the lake, there could be more potential users than the maximum number of conceivable permits. At some point, someone will be denied a permit under this system while neighbors can renew theirs (some of which may hold multiple permits). Additionally, a shift to linking permits to dwellings may prevent current landowners without dwellings from getting a permit, unless grandfathered. It is not clear that multiple permit holders currently use more than one boat at once, so the transferable permit may not actually limit peak boat density.

Objective #2: Maximize boating safety on the lake at all times, independent of boat density.

Primary Option: Education and training of boat operators. Require all operators to complete a boat operation and safety course, either a standard course like that offered by the Coast Guard or a specific course developed for Lake Lure. Provide information on local rules and courtesy policies, and require a signature on a form acknowledging that the operator understands these rules and policies. Provide trained operators with a Lake Lure Boating License.

Auxiliary Options: Require a trained operator to be on any boat >10 hp whenever it is operated. Require anyone under the age of 16 (trained or not) to be accompanied by a trained operator 16 years of age or older.

Benefits: Knowledge of safe operating procedures and the local rules governing operation on Lake Lure should minimize risk of accidents. Making operators responsible for the activities on the boats they operate will increase safe behavior, and may transfer some liability to those operators.

Drawbacks: Not everyone who completes a boating safety course is a competent operator. Physical skills and judgment will vary. Risk will be minimized but not eliminated.

Objective #3: Maximize safety when crowding does occur, as some periods of elevated boat densities appear unavoidable.

Primary Option: Establish a rule that boats moving at more than “headway” speed (can be defined as no wake or a specified speed limit, typically 6 mph) must remain >75 ft from any other boat or person (swimmer, downed skier, etc.). Where boat density increases to a potentially unsafe level, this will restrict high speed activities, eliminating towing and faster cruising.

Auxiliary Options: None recommended; a ban on towing or establishment of a speed limit on summer weekends and holidays appears to be an unacceptable option, as it would restrict privileges unnecessarily much of the time.

Benefits: Allows access and many activities, but limits the highest risk uses when boat densities are too high to support that risk.

Drawbacks: Requires enforcement, limits freedom.

Objective #4: Maximize adherence to boating rules on Lake Lure.

Primary Option: Provide appropriate enforcement. Based on documented use pattern, a patrol boat should be on the lake at all times from 11 AM to 7 PM on nice weather, summer weekends or holidays. The patrol boat can be on the lake less continuously at other times and on other days. Enforcement should focus on education of boaters and record keeping for infractions, with fines or other actions directed against repeat offenders.

Auxiliary Options: Provide a call in number for citizens to contact the enforcement agency or lake operations director to report observed violations. Respond to notification within 30 minutes. Keep records of calls to track both offense frequency and possible abuse of the system. Additionally, consider a “license plate” system (to replace stickers) that would provide more information to enforcement officers.

Benefits: Done properly, patrol presence will both increase safety and give the boating community a sense of security. Over time, boaters will learn to adhere to the rules or be subject to fines or removal from the lake. Allowing reporting of infractions and being able to identify specific boats and owners by their license plates will increase effectiveness and accountability.

Drawbacks: Enforcement requires a complicated blend of authority, teaching, and relationship building in a situation like this. Exact measurements (as with distance from shore or between boats, or for speed or wake generation) will not be made on any regular basis, so judgment is involved and disputes are likely. A gradual phase in period is needed. Some shoreline residents may use the call in system to discourage use of the lake near their properties.

Objective #5: Maximize opportunity for boaters on Lake Lure while recognizing necessary safety limits.

Primary Option: Offer weekday only permits during the peak season. There is unused capacity during the week (except on holidays); at least a 25% increase in traffic by boats >10 hp could be sustained with minimal increase in risk. An initial limit of 250 weekday only permits is suggested.

Auxiliary Options: Make “Weekly Permits” a weekday only permit. Also, if pressure to get more boats >10 hp on the lake increases beyond what the permit system can accommodate, it would be advantageous to establish a “yacht club” with community owned boats that could be signed out by members. This would come out of the commercial allocation of acre-hours (with possible expansion of that allocation), and would provide opportunity for those who can’t get or

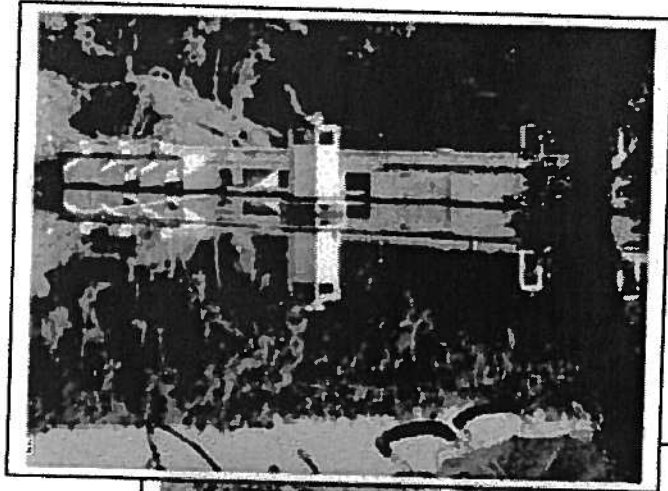
don't want boat permits but would like to use the lake for higher speed activities. The community ownership concept allows much greater predictability and control with regard to boat density and operator safety.

Benefits: Prevents increases in weekend and holiday boat densities while providing access and opportunity to would-be users.

Drawbacks: Prevents use during days when people are most likely to want to use the lake. Also may diminish the weekday experience for those who enjoy less crowded conditions at that time.

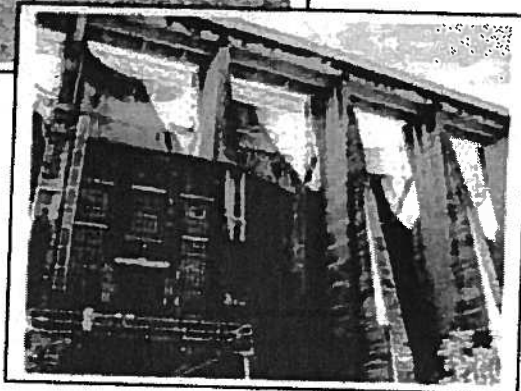
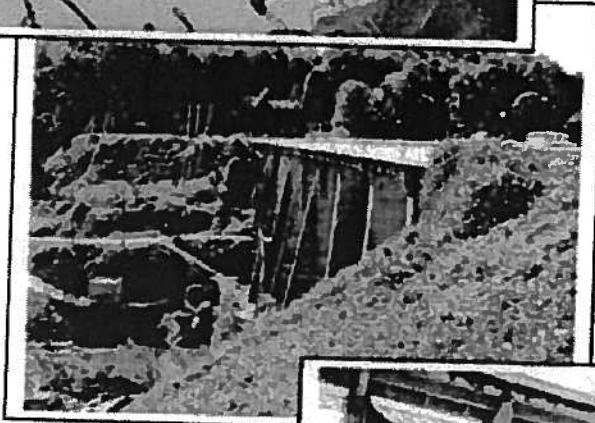


Devine Tarbell & Associates, Inc.
Consulting Engineers, Scientists, & Regulator Specialists



Lake Lure Dam

Independent Consultant
Dam Safety Inspection
November 2006



Prepared For:

Town of Lake Lure
North Carolina

Section 1 - INTRODUCTION

The Town of Lake Lure owns and operates the dam that impounds the Broad River to form Lake Lure. The dam includes an intake and penstock that supply water to a hydroelectric station located immediately downstream of the dam. Lake Lure Dam is a multiple-arch concrete configuration with nine arch bays and three ogee shaped gated (radial steel Taintor gates) spillway bays. The dam was constructed in 1925-1926 with no significant structural changes since that time. A bridge deck and local traffic highway cross the bridge.

The dam was reportedly designed by the engineering firm of Mees and Mees of Charlotte. Dam construction was completed in September 1926 with the Lake being completely filled in 1927. At full pond, Lake Lure has a surface area of 720 acres with approximately 27 miles of shoreline. The hydroelectric facility began commercial operation in 1928, and is currently supplying power under contract to Duke Energy. The powerhouse contains two vertical shaft generating units (1200 and 2200 kilowatts) with Francis type turbines. The power station and dam are not regulated by the Federal Energy Regulatory Commission.

It is understood that the dam has performed well during its service life. Maintenance activities have been confined primarily to the powerhouse equipment, intake gate and spillway gates. No significant concrete structural modifications or repairs have reportedly been performed during the life of the structure.

The Lake Lure Dam falls under the dam safety regulatory oversight of the North Carolina Department of Environment and Natural Resources: Division of Land Resources – Land Quality Section. Representatives of the Land Quality Section conduct periodic inspections of the dam. Personnel from that office inspected the dam on March 30 and June 29, 2006. Their June 30, 2006 letter to the Town of Lake Lure directed that “The Town shall take action to address necessary maintenance and renovations for the dam”. Additionally, the letter required that the Town secure the services of “A qualified Dam safety engineer familiar with large concrete structures shall provide plans and supervise all activities”. Maintenance problems noted in the letter included:

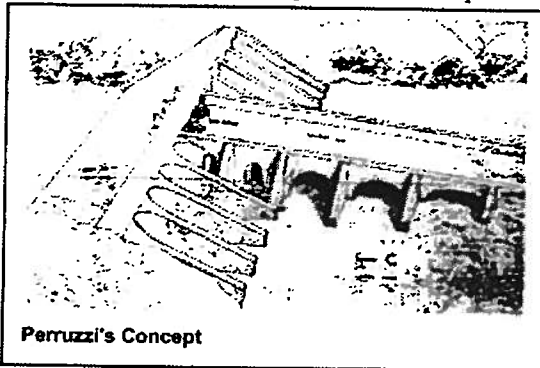
- Seepage on many areas of the dam
- Spalling of concrete surfaces
- Exposed reinforcing bars in several areas

This report presents the observations, conclusions and recommendations made for the inspection which was conducted by Edwin C. Luttrell, P.E. of Devine Tarbell and Associates Inc. Conclusions are subject to the inevitable practical limitations on the scope of information that was available and the limitations of a visual examination.

Section 2 – MULTIPLE-ARCH DAMS

Lake Lure Dam is a multiple-arch type dam, one of the family of buttress dams. Buttress dams (flat slab-Ambursen, massive head and multiple-arch) use cantilevers, slabs, domes or arches to transfer the force of the water to vertical buttress elements which in turn transfer load to their foundation. The elements between the buttresses are typically inclined. These differ from gravity dams where the dam's own weight is required to resist the thrust of the water. The principal advantage of buttress dams including multiple-arch configurations is the reduced amount of material needed and the ability to safely utilize a more diverse range of foundation conditions.

The earliest examples of the use of buttresses can be seen in Roman dams built in what is now Spain. The Romans were the first civilization to incorporate concrete and mortar into the construction of dams. An 18 ft high masonry dam built by the Romans in the Iberian peninsula near the village of Esparragelejo included buttresses 28 feet apart with the wall sections between the buttresses curved making it a forerunner to the modern multiple-arch dam. Around 1530, the architect Baldassare Peruzzi proposed a multiple-arch design to dam

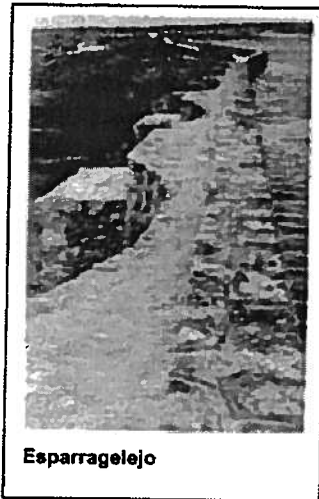


Peruzzi's Concept

the River
Bruna near
Siena, Italy.

Later
examples of
multiple-arch

buttress type structures were built in the
1700's near Bilbao, Spain.



Esparragelejo

of dams in 1736. In this book the theory of using buttresses to support a series of arch sections was proposed. He proposed vertical faces which fail to take advantage of water loading on a sloping face to enhance stability.

The development and application of the reinforced concrete multiple-arch dam design similar to Lake Lure Dam in the United States was pioneered by John S. Eastwood in California in the early 1900's. Eastwood's first design to be built was the Hume Lake Dam. In addition to using the relatively new technology of reinforced concrete, additional features included the inclined upstream face transitioning to what Eastwood termed the "vertical head" at the top of the arches where water loads were smaller. The basic premise was that all



Hume Dam (1806)

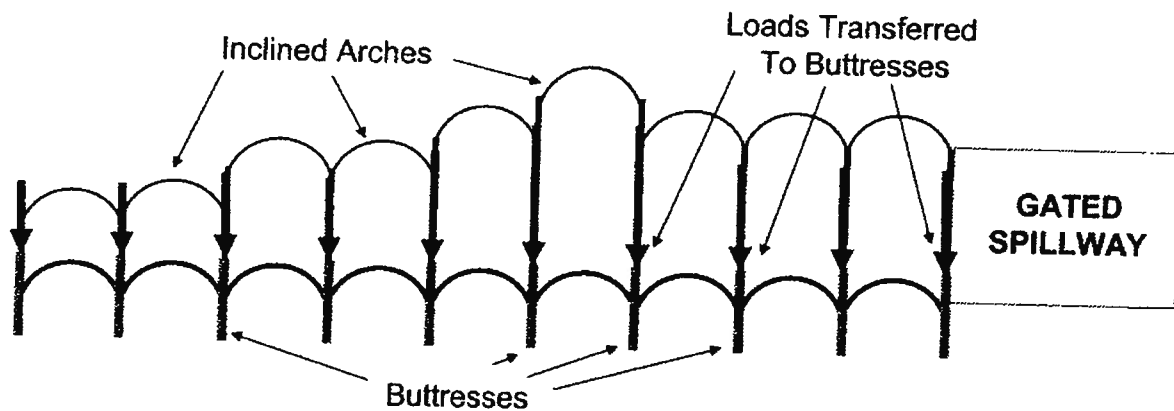
Section 2 – MULTIPLE-ARCH DAMS

elements of the structure would be in compression and that the water load was in part acting downward, reducing the need for structure weight to create stability as found in a gravity section. It was estimated that this configuration reduced construction costs by 30 percent – 40 percent. Eastwood went on to construct over fifteen multiple-arch dams prior to 1925, all of which are still in service, none having failed. Over 60 multiple-arch dams have been constructed in the United States, the last in 1965. With the exception of an early structure in California constructed on poor foundation with inferior masonry materials, none have failed in service.

While there is not a known direct link to Eastwood, it seems clear that the Lake Lure Dam (and Turner Shoals downstream) followed the design concepts advanced by Eastwood.

One limitation of all buttress dams, including the multiple-arch variant, is that a lack of lateral stability is inherent in the design. This is would only be significant in areas with significant seismic hazard. No multiple-arch dam has failed in the west due to earthquake shaking; however a number of structures have been strengthened to enhance seismic stability.

The sketches below demonstrate the basic concept behind the multiple-arch structure. Water loads are transferred to the vertical buttresses at each arch bay. This thrust load produces compressive stresses in the buttresses that are resisted by vertical and horizontal reactions at the foundation contact. Inclining the arch sections produces a component of the water load acting vertically, reducing the forces trying to cause the dam to slide downstream.

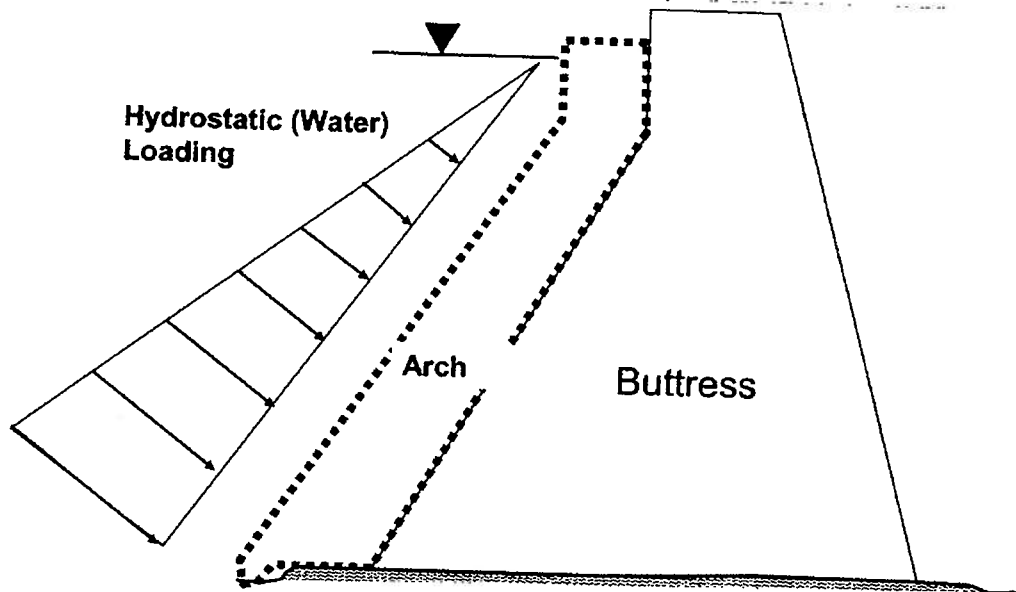


Plan View Schematic

Section 2 – MULTIPLE-ARCH DAMS

Analyses of structures similar to Lake Lure Dam have verified that tensile stresses are negligible for static loading cases. The amount of reinforcing is not known (no drawings found) but the lack of cracking typical in unreinforced concrete suggest that at least temperature reinforcing was utilized. Cracks at the arch/buttruss interface suggest that a structural connection exist at that location.

No stability or stress analysis is known to have been performed for Lake Lure Dam. Global stability computations for multiple-arch dams are performed similar to those for gravity sections. In addition the stresses within the arch elements and buttruss are



Cross-Section of Arch Buttress

evaluated. The Independent Consultant has reviewed calculations for very similar structures which demonstrated adequate stability including relatively low compressive stresses in the arch and buttress sections. This would indicate that limited surficial damage to concrete would not have serious consequences relative to stability and safety.

The multiple-arch design results in safe and reliable structures assuming the structure is maintained, that adequate foundation conditions are present and competent construction materials were utilized. The foundation of the Lake Lure Dam appears to be a competent rock foundation based on observation of the surrounding terrain.

Section 3 – FIELD INSPECTION

An inspection of the Lake Lure Dam was completed on October 18, 2006 by the Independent Consultant, Ed Luttrell, P.E. accompanied by Chuck Place, Lake Lure Town Manager, William Grimes, Dam Superintendent and Ron Morgan, Lake Lure Fire and Emergency Management Coordinator. The weather at the time of the inspection was excellent with sunny and warm conditions. At the time of the inspection Lake Lure was at approximately normal full pond elevation. The lake is typically maintained in the top six to nine inches below full pond to support the strong recreation and homeowner aspects of the lake.

The inspection included a review of available documentation consisting of a limited number of original construction drawings as well as letters summarizing inspections by the State of North Carolina. No detail drawings showing reinforcement were available. The Dam Superintendent provided additional information in an interview and during the field walkdown. A copy of the Emergency Operations Plan (Ordinance Number 99-10-21) and the Lake Lure Dam Emergency Action Plan (EAP) dated November 1999 was reviewed.

A visual inspection of the dam was performed by walking the bridge deck, from the left (downstream) abutment and by accessing the downstream arch bays from the powerhouse to the right abutment. The arch bays located to the left of the tailrace and powerhouse could not be safely accessed for close-up review and could only be observed at distance.

Bridge Deck

The bridge deck is in relatively good condition with some cracking of the concrete and weathering damage apparent. The bridge only sees moderate to light volumes of traffic and appears to be structurally sound. A comprehensive structural inspection was beyond the scope of the dam inspection and was not performed.

Radial Gates

The three steel frame radial gates (Photographs 2,6 and7) are in good condition and reported to operate well. Maintenance, including new seals was performed in the mid 1980's. The gates are operated to prevent the elevation of Lake Lure from rising significantly above full pond and to route significant storm events. Each gate has a dedicated hoist with a single lift chain which connects/wye's to cables attached to each side of the base of the gate. The coating of the gates is in good condition. Leakage was occurring, but was not excessive and seemed concentrated at the gate corner where the bottom and side seals intersect. This is a common location for some leakage to occur in this type gate. Some vegetation is growing on steel cross members and should be removed to protect the coating system and facilitate observation.

Section 3 – FIELD INSPECTION

Intake Structure

The intake to the hydroelectric station (Photograph 3) is a vertical concrete tower with a steel cylinder gate. The intake was observed from the bridge deck. No evidence of structural distress was observed. The cylinder gate is not normally operated and there was reportedly difficulty opening it the last time it was closed. The gate reportedly could be closed in an emergency.

Arch Bays

Arch bays located to the right of the powerhouse were inspected by entering each bay from the downstream side. Minor leakage and efflorescence was observed at the lift lines (horizontal boundaries between successive concrete pours) and at the base of the arch. Reportedly, leakage does not vary significantly with seasonal changes in air and water temperature. Portions of the arch concrete was obscured by vegetation (Photograph 15) and the arch bays located to the left of the powerhouse could only be observed from the bridge deck, left abutment slope and from a significant distance downstream. There were no observed instances of structural distress such as severe cracking, deformation or misalignment. Cracking is present at the top of the arch/buttness interface (Photograph 5). At a number of locations, spalled concrete is exposing steel that may be reinforcing steel as well as additional steel associated with supporting original formwork.

Buttnesses

The buttnesses were examined from accessible vantage points. The concrete was in very good condition for its age. Given the exposure to moisture and freeze-thaw cycles, the amount of surficial deterioration is surprisingly low, given it is likely that the concrete did not have air entrainment. At several locations, steel is protruding from the surface of the concrete; most of it appears to be carrier steel used to support the formwork for the arch sections. At several locations, spalled concrete is exposing steel that may be reinforcing steel or additional steel associated with supporting original formwork.

Powerhouse

The powerhouse (Photograph 14) is a concrete and brick masonry structure. It is in good condition for its age and both generating units are operable. The powerhouse is structurally independent from the dam.

Abutments

The abutments were covered in very dense vegetation, mostly kudzu (Photographs 11, 12 and 13). There was no evidence of serious erosion or significant seepage at either abutment. The retaining wall along the left (facing downstream) abutment appears in good condition with no evidence of misalignment or other structural defects.

Section 4 – CONCLUSIONS & RECOMENDATIONS

The Lake Lure Dam was determined to be generally in good condition based on visual inspection and evaluation as discussed in this report. The dam is generally well maintained by the Town staff. No items were noted that would suggest the safety of the structure has been compromised, or that immediate actions to assure project safety are required. Some leakage, near surface concrete deterioration and cracking was observed but these conditions do not appear to be substantially worse than conditions described in previous inspection reports (DE&S 1999).

The emergency action plan (EAP) is appropriate given the consequences of a dam failure. The commitment to emergency preparedness by Town staff is commendable. The EAP should be kept updated with current communication information. It would be prudent to revise the inundation maps if development downstream has changed significantly since the maps were developed.

RECOMMENDATIONS

1. Clear the vegetation (ivy, kudzu etc.) that is obscuring the arch concrete and buttresses in several bays. Herbicides may not be fully successful, necessitating mechanical removal.
2. Develop a means for personnel to safely access the arch bays and spillway sections located to the left (looking downstream) of the powerhouse and tailrace. Possible options include stairs or ladder from the left abutment or a walkway on the pipe crossing.
3. Formalize the visual inspection by the operations staff. These formal inspections should be conducted at least quarterly. Inspections should be documented on inspection checklists/logs similar to what is provided in the Emergency Action Plan. These inspections should take careful note of any concrete deterioration and changes in concrete condition over time. Observation notes can be supplemented with digital photographs.
4. Retain a qualified dam safety engineering consultant to conduct a comprehensive visual inspection in two years (by 31DEC08). This inspection should include close examination of all arch bays including those to the left (looking downstream) side of the powerhouse and areas currently obscured by vegetation. If concrete deterioration has advance in extent and depth or if significant areas are present where reinforcing steel is exposed, concrete repairs should be considered at that time. If no progression in concrete condition is noted, similar independent consultant inspections from that point should be conducted at five year intervals.

Section 5 – REFERENCES

Philips, Richard A. NCDENR, Land Quality Section. Letter to John Strutner. April 26, 1999.

Philips, Richard A. NCDENR, Land Quality Section. Letter to Mr. Chuck Place III. October 12, 1999.

Boyer, Janet S. NCDENR, Land Quality Section. Letter to Mr. Chuck Place III. June 30, 2006.

Yang, Heloisa, Matt Haynes, Stephen Winzenread and Kevin Okada. "The History of Dams." UC Davis. 1999.

Simsience. "Key Developments in the History of Buttress Dams."
<http://simsience.org/cracks/advanced/butt_hist1.html>.

Town of Lake Lure. Emergency Operations Plan. October 21, 1999.

Town of Lake Lure. Web Site. <<http://townoflakelure.com/>>.

Grady, David R. Dam Inspection Report. Duke Engineering & Services. November 2, 1999.

Wong, Noel C., Micheal Forrest and Sze-Hang Lo. "Improving the Seismic Stability of a Multiple-Arch Dam." First USCOL Technical Conference. 1998.

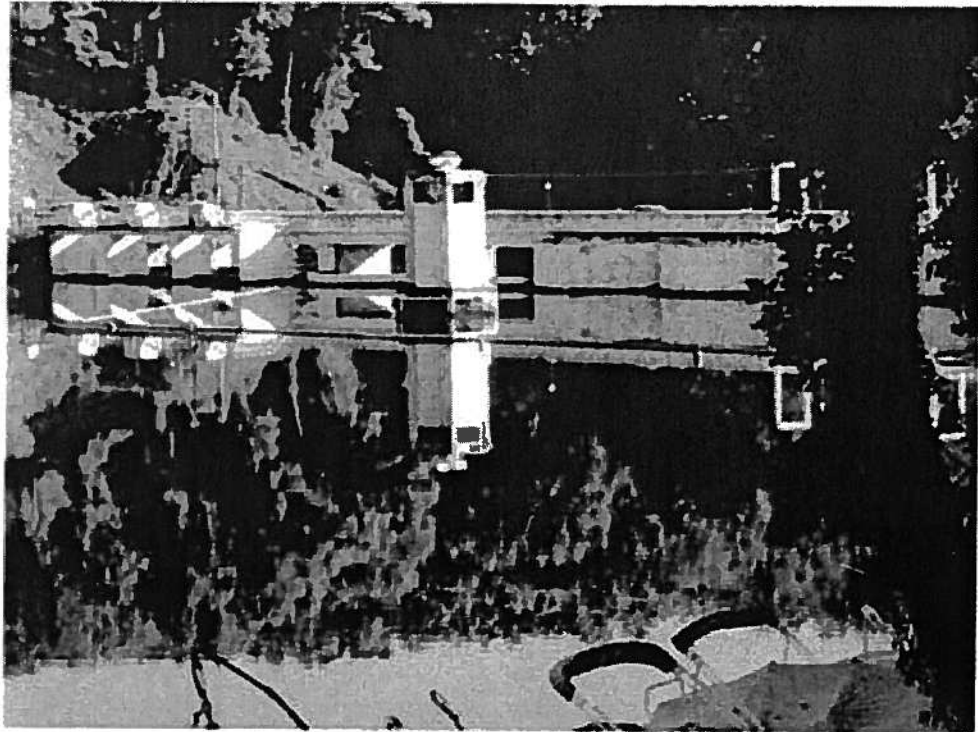
Jackson, Donald C. Building the Ultimate Dam: John S. Eastwood and the Control of Water in the West. Norman, OK. University of Oklahoma Press. 2005.

Heath, William E. et al. Phase I Inspection Report: Lake Lure Dam. Chas T. Main Inc. August, 1981.

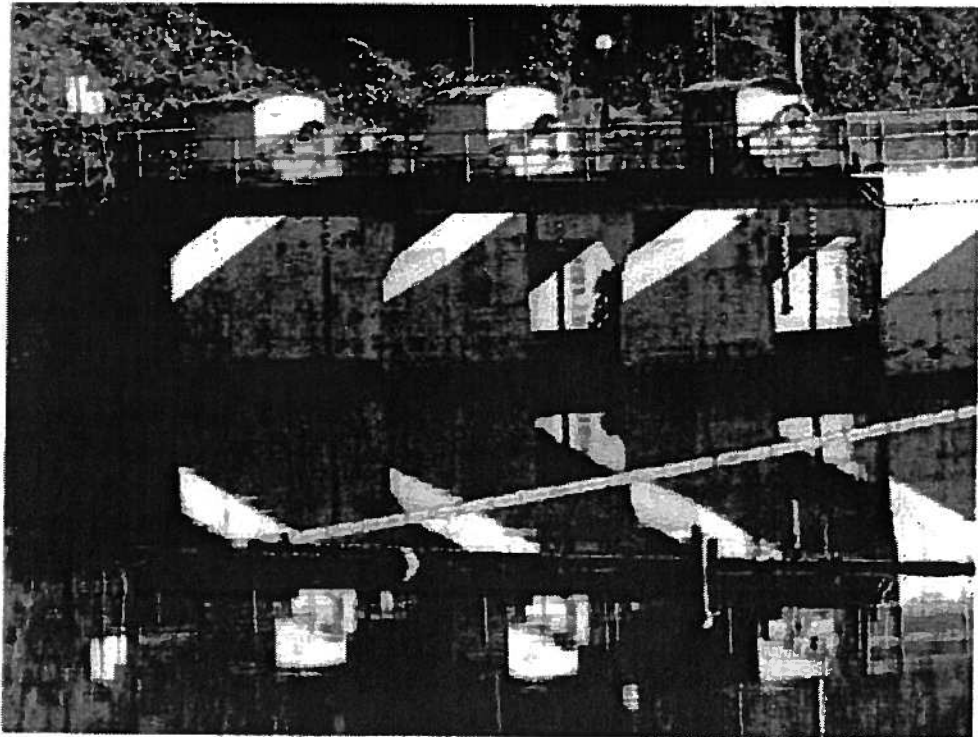
GEI Consultants Inc. "Emergency Action Plan: Lake Lure Dam." November, 1999.

APPENDICES

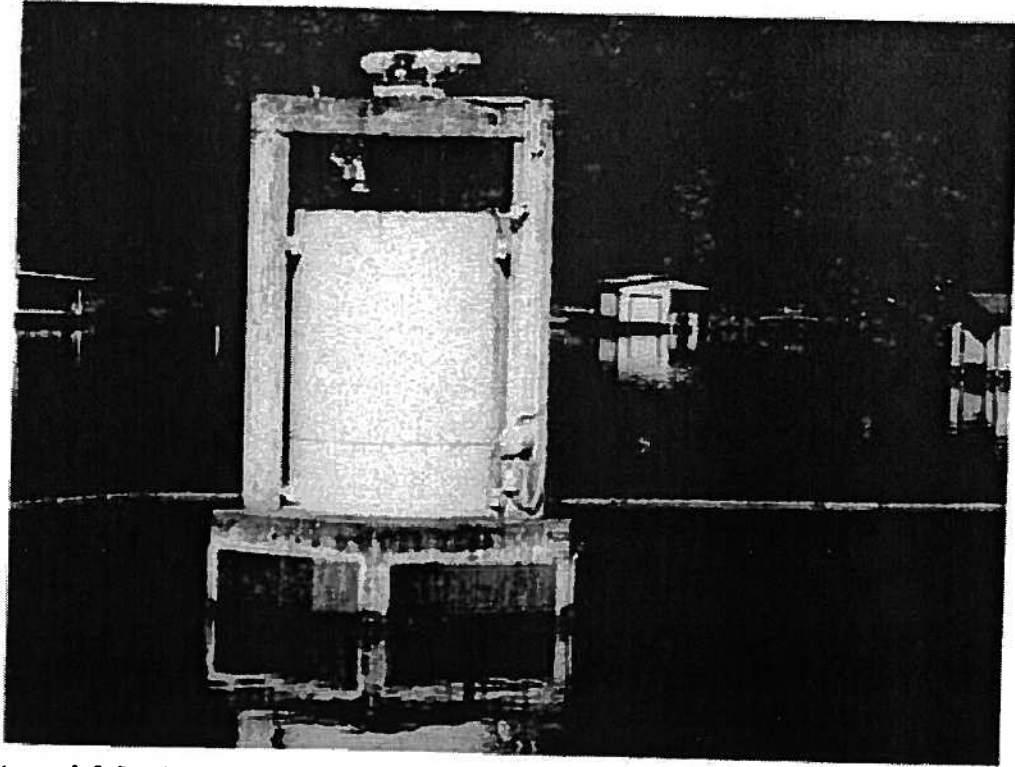
- Photographs
- Independent Consultant's Resume
- Letters



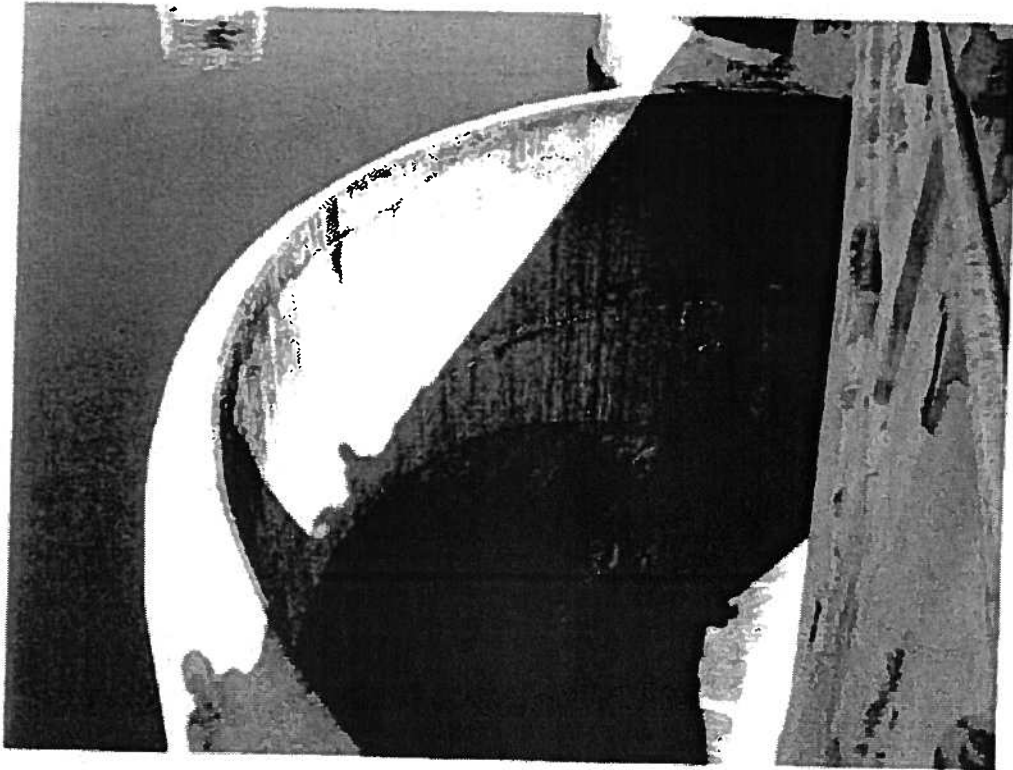
Photograph 1 Upstream View



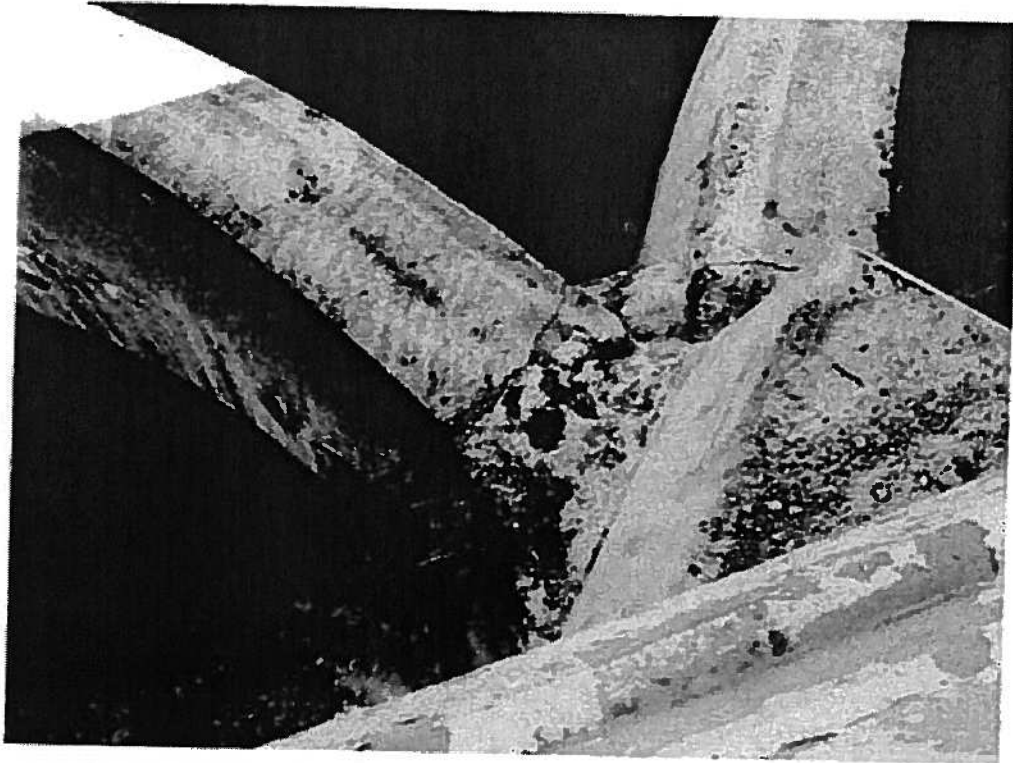
Photograph 2 Spillway Gates



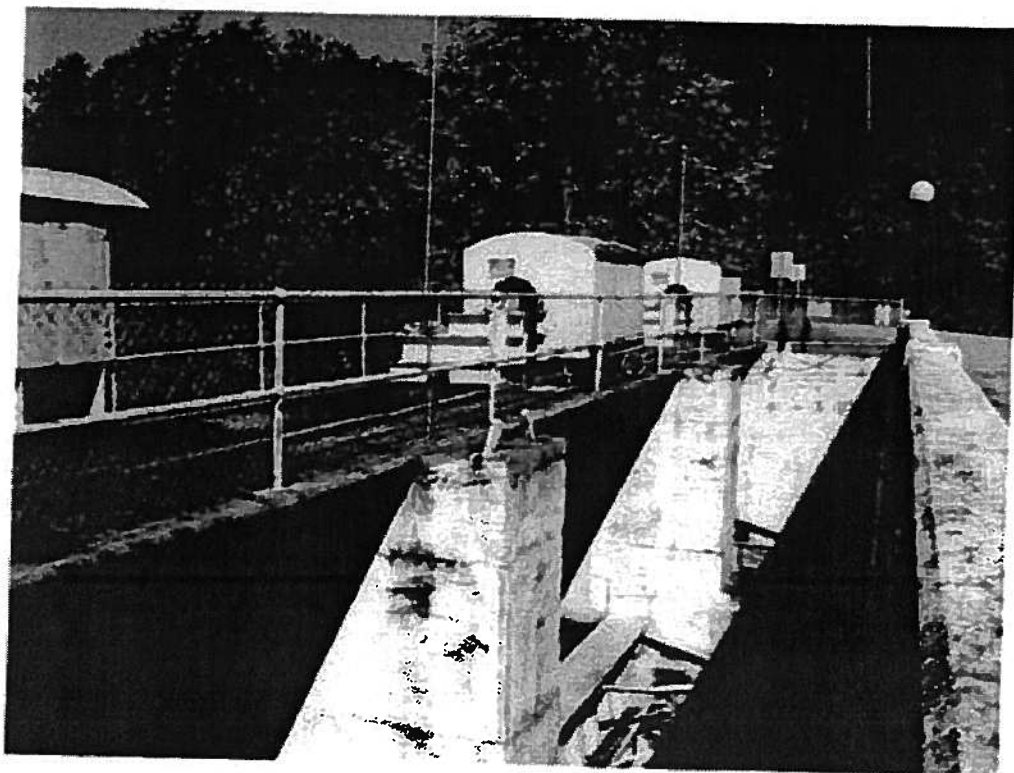
Photograph 3 Intake and Cylinder Gate



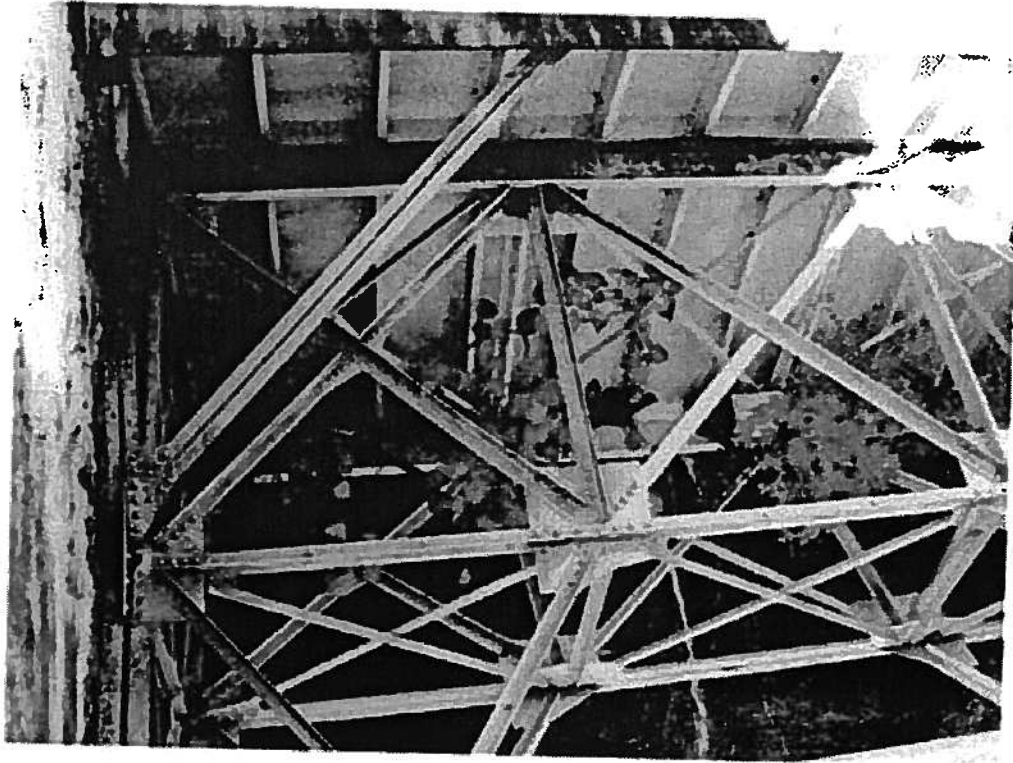
Photograph 4 Vertical Arch Section



Photograph 5 Arch/Buttress Interface



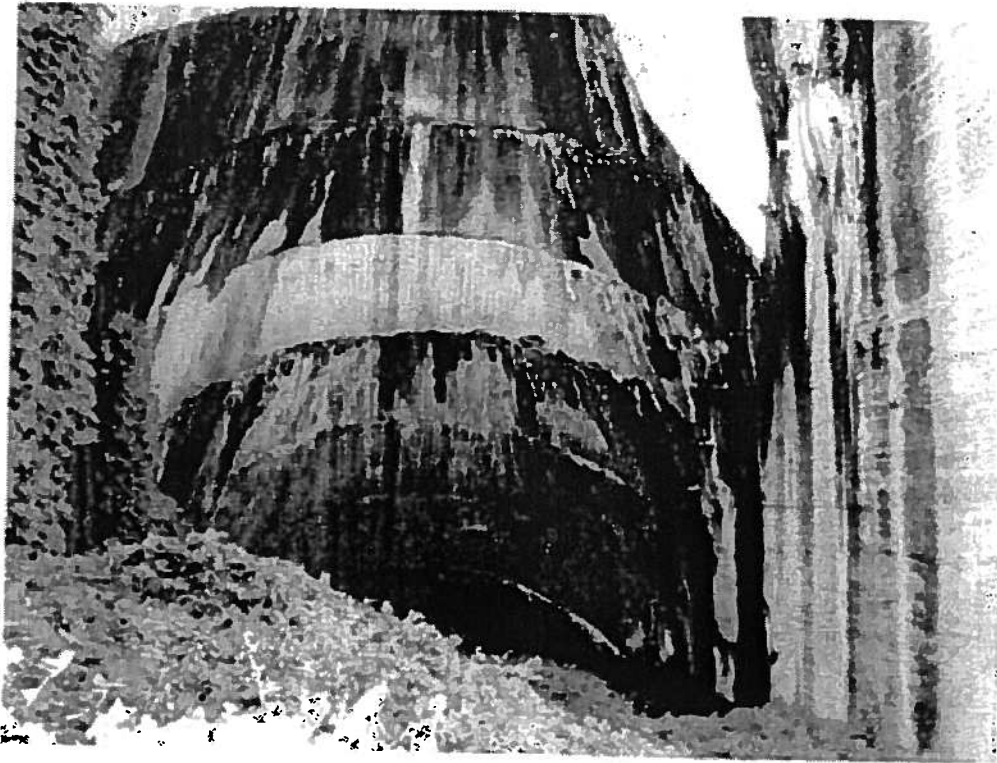
Photograph 6 Gate Hoist



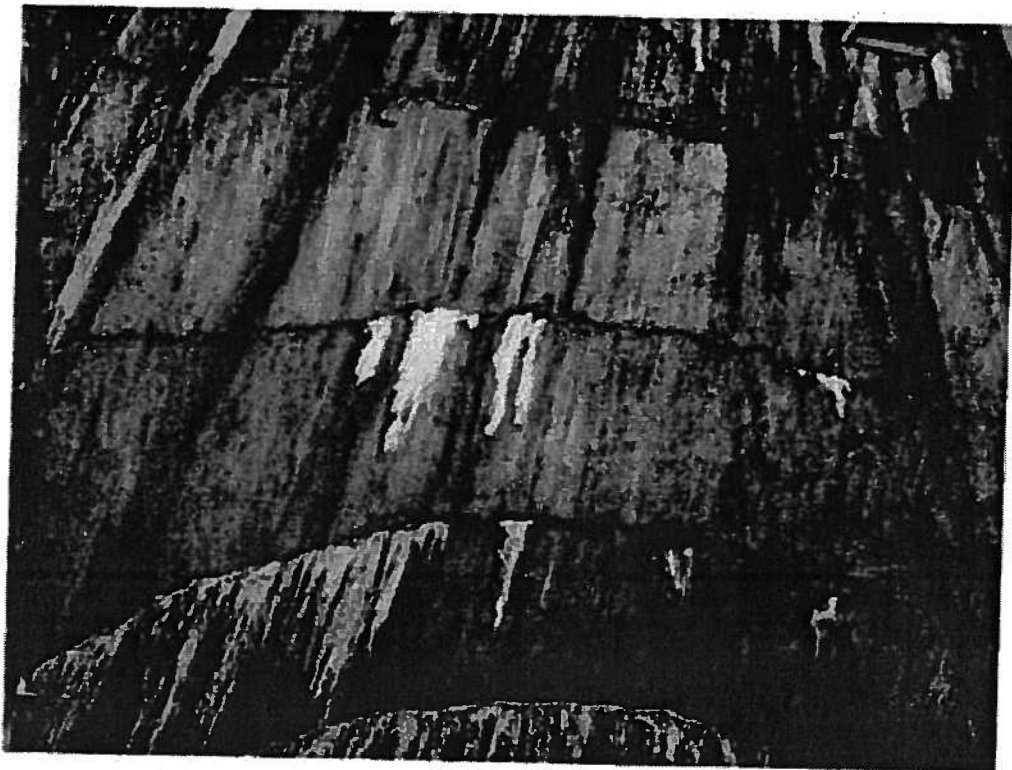
Photograph 7 Spillway Gate



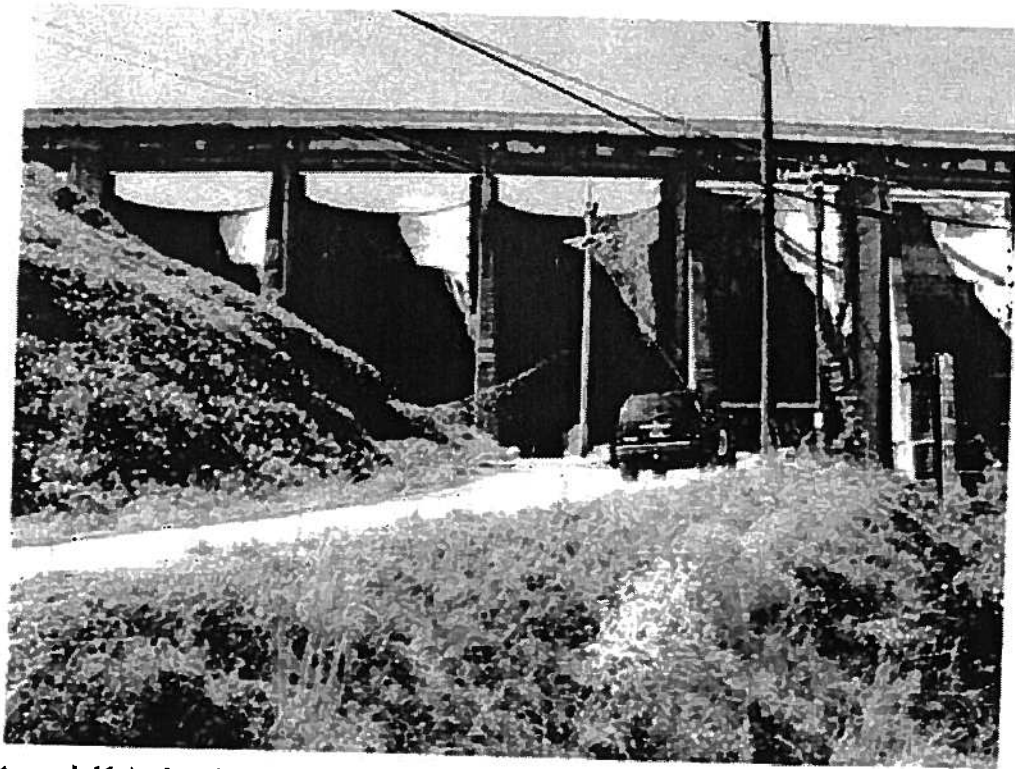
Photograph 8 Downstream



Photograph 9 Typical Arch Barrel (Bay)



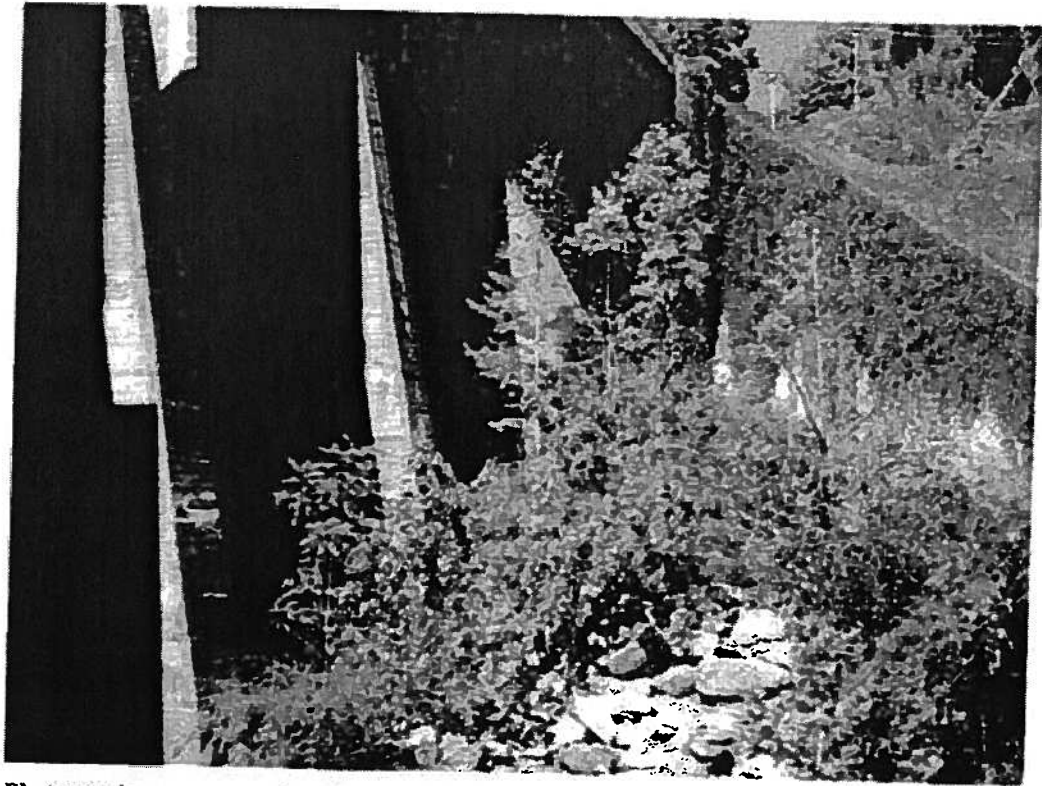
Photograph 10 Efflorescence at Lift Joints



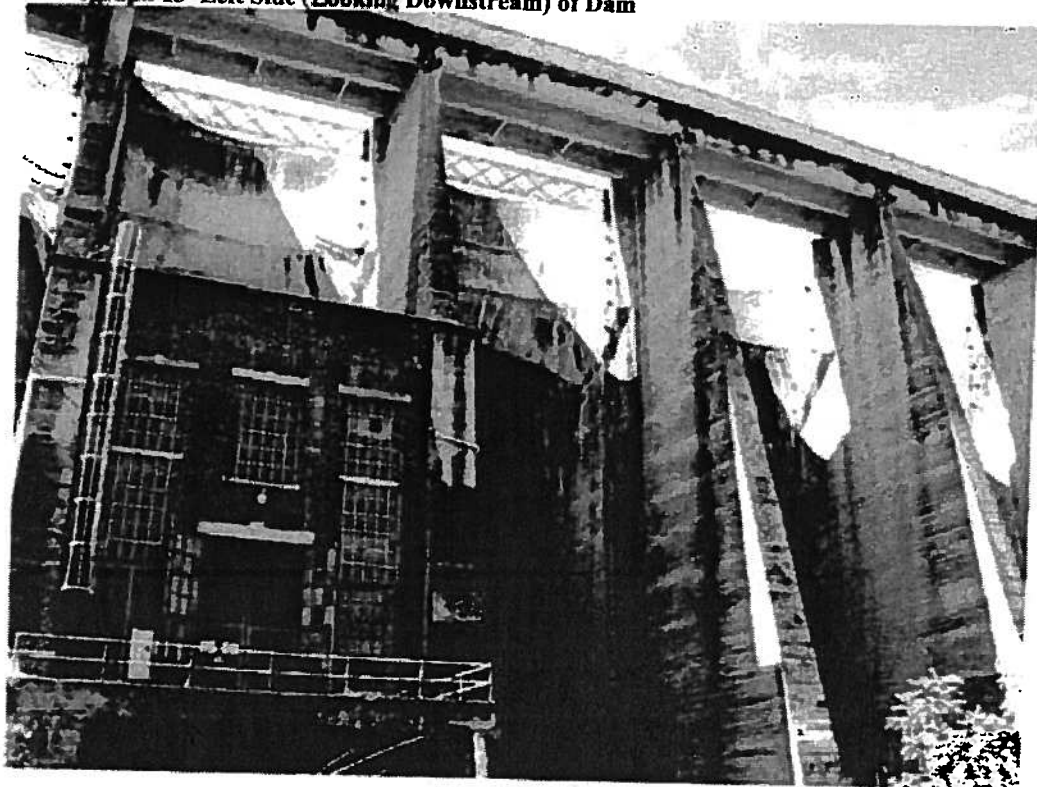
Photograph 11 Arch and Buttress Sections



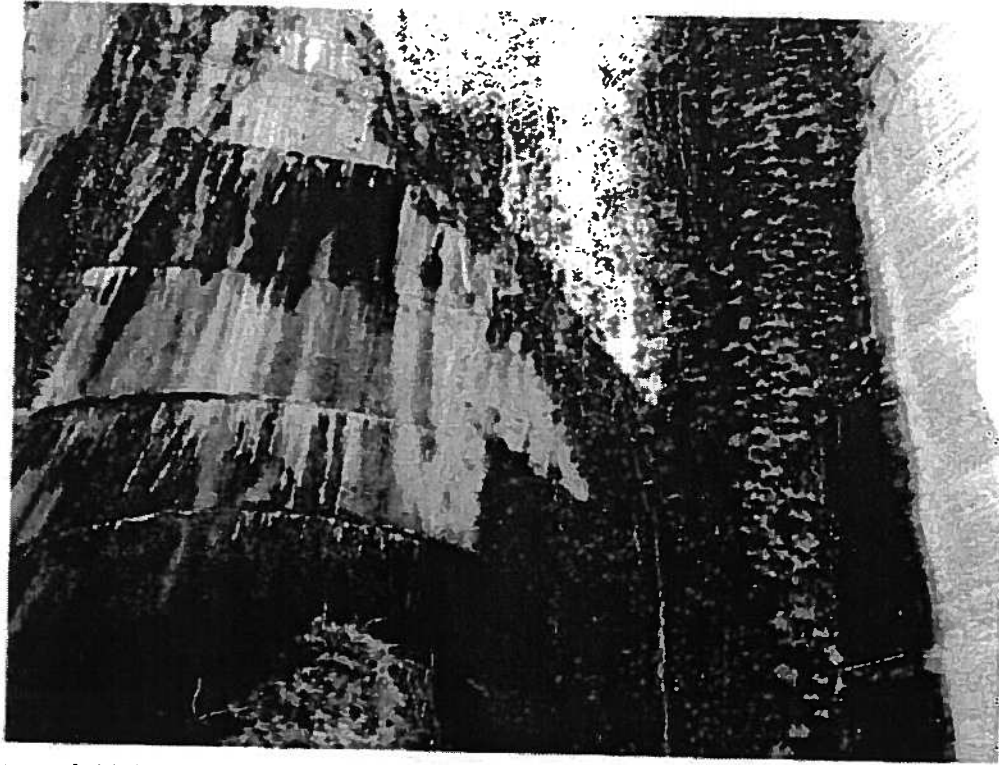
Photograph 12 Buttress Piers



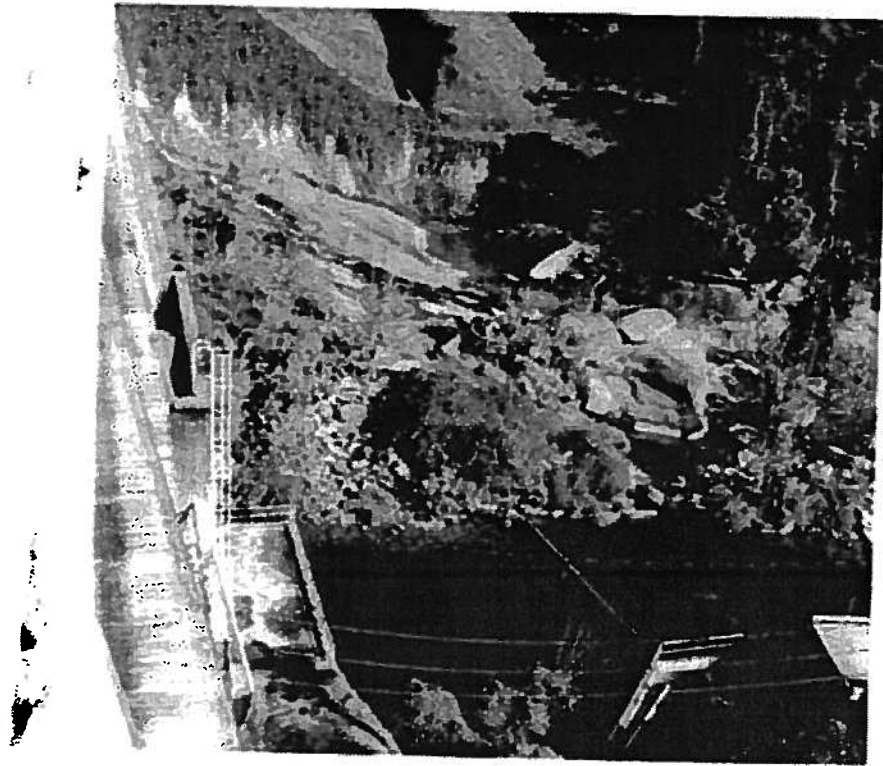
Photograph 13 Left Side (Looking Downstream) of Dam



Photograph 14 Powerhouse



Photograph 15 Vegetation Obscuring Concrete



Photograph 16 Area Without Safe Access

**Consultant Resume and
Experience Matrix**



Devine Tarbell & Associates, Inc.
Consulting Engineers, Scientists, & Regulatory Specialists

Edwin C. Luttrell P. E.
Principal – Southeast Region

Education

BSCE, University of Kentucky
Post Graduate - Univ. of S. Carolina

Registrations and Professional Affiliations

Professional Engineer
United States Society on Dams
Association of State Dam Safety Officials
National Hydropower Association
RAM-D Licensee
FERC DSPMP & PFMA Training Program

Key Qualifications

Mr. Luttrell has 25 years experience in project management, licensing, engineering design, inspection, operational support, and analysis of dams and energy facilities. He has led and/or participated in the technical condition inspection/evaluation of over 150 hydroelectric facilities including assessment of dams and other principle features. Mr. Luttrell has conducted FERC Part 12 inspections and participated as a facilitator and licensee representative core team member for the new PFMA process. His diverse experience includes the inspection, analysis and design of gravity dams, arch dams, embankment dams, spillways (gated and overflow), powerhouses, canals and water conveyance system (tunnel, steel penstock, wood penstock). Mr. Luttrell's experience includes planning, design and operations aspects of pumped storage hydroelectric projects. His experience includes project management, group facilitation, study execution and document development for FERC hydro licensing. Mr. Luttrell has been involved in design studies and evaluations for hydroelectric facilities in the United States, Argentina, Belize, Bolivia, Brazil, China, Costa Rica, Mozambique, Nicaragua, Peru, Indonesia, Thailand, Turkey, and Zambia.

RELEVANT PROJECT EXPERIENCE

FERC Part 12, East Fork Hydroelectric Project
– Core team member for the Part 12 and PFMA process for this three development project. Prepared the complete supporting technical information document (STI) as required in Chapter 14 of the FERC Engineering Guidelines. Coordinated completion of filed inspections and responsible for final review of PFMA and Part Independent Inspection report.

FERC Part 12, Pinnacles Project – Approved as the Independent Consultant for the 2004 Part 12. Approved independent consultant in the completion of the Part 12 inspection. Prepared drafts of IC reports, participated in field inspection, reviewed project documentation and

reviewed project design documents for arch dams and wood-stave penstock.

FERC Part 12 / PFMA, Claytor Dam – Facilitator for the Potential Failure Mode Analysis for AEP's Claytor Dam. Role as defined by the new FERC Part 12 process (Chapter 14 of FEG).

Catawba-Wateree Hydroelectric Project – Project Manager for FERC relicensing support for this 11 development project (825 MW). Support includes document preparation, strategic issue review, operational modeling and study planning. Serves as the only external member of the owners licensing core team.

Devine Tarbell and Associates

consultant in the completion of the Part 12 inspection. Prepared drafts of IC reports, participated in field inspection, reviewed project documentation and reviewed project design documents.

FERC Part 12 / PFMA, Niagara Project – Independent Consultant for the Part 12 and Potential Failure Mode Analysis for AEP's Niagara Dam near Roanoke VA. Role as defined by the new FERC Part 12 process (Chapter 14 of FEG). Services included preparation of the Supporting Technical Information Document.

Lake Tahoma, North Carolina - Project manager for sedimentation evaluation study which includes sediment load measurements and calculations, evaluation of remediation options, and specifications for a sediment removal / disposal plan. Reviewed arch dam evaluation and developed revisions to low level outlet.

FERC Part 12 / PFMA, Gaston Shoals Project – Facilitator for the Part 12 Potential Failure Mode Analysis. Role is as defined by the new FERC Part 12 process (Chapter 14 of FEG). Also responsible for the preparation of the Supporting Technical Information document for this development. Project features includes three concrete gravity dams.

FERC Part 12 / PFMA, Wylie and Oxford Developments – Facilitator for the Part 12 Potential Failure Mode Analysis. Role is as defined by the new FERC Part 12 process (Chapter 14 of FEG). Also responsible for the preparation of the Supporting Technical Information document for this development. Project features includes concrete gravity dams, gated spillways and a rolled fill earth dam

Lakeview Hydro (PFMA) – Facilitator for the Potential Failure Mode Analysis for Ridgewood Energy's Lakeview Hydro in Colonial Heights, Virginia. Role as defined by the new FERC Part 12 process (Chapter 14 of FEG).

Saluda Hydroelectric Station, Greenville, South Carolina - Project Engineer for the stability and safety evaluation of the homogeneous earthfill West Embankment. Specified geotechnical investigation and completed static and liquefaction stability calculations.

FERC Part 12 Inspections - Owners representative for the performance of Part 12 Independent Consultant Inspections for eight FERC licensed projects in North and South Carolina. Developed technical information packages, participated in inspections, reviewed reports, and responded to Independent Consultant technical questions. Developed compliance plans following submittal of Part 12 reports.

Bad Creek Pumped Storage Station, Salem, South Carolina - Member of project design team for six years spanning initial design, construction, start-up, and operation. Activities and roles included:

- Developed environmental monitoring plan and conducted site audits. FERC license compliance.
- Structural design and architectural layout of construction infrastructure and site shop facilities.
- Miscellaneous civil siting tasks.
- Design of stream diversion system.
- Structural steel design of diversion pump structure.
- Geotechnical and hydraulic design of upper reservoir intake. Slope stability evaluation of existing slopes.
- Geotechnical final design responsibilities for three large earth dams.
- Responsible geotechnical engineer during the construction of the project zoned earth dams of over 13 million cubic yards.
- Test engineer for initial filling of upper reservoir. Developed controlled filling plan and led seventy person team monitoring dams and tunnels during start-up.

Catawba-Wateree Hydroelectric Project – Project Manager for FERC relicensing support for this 11 development project (825 MW). Support includes document preparation, strategic issue review, operational modeling and study planning. Serves as the only external member of the owners licensing core team.

Nantahala Hydroelectric Project – Project Manager for FERC relicensing support for seven projects. Support includes license application preparation, strategic issue review, operational modeling and resource studies. Serves as the

only external member of the owners licensing core team.

Completed inspections of the projects that include gravity, rockfill and arch dams.

Dillsboro Hydro, North Carolina – Completed a dam removal study defining the options, costs and FERC regulatory requirements associated with the decommissioning and dam removal of the Dillsboro project near Franklin, North Carolina.

Tillery and Blewett Falls, North Carolina – Project lead for the completion of a condition assessment study for these two 1920 vintage facilities with concrete gravity dams. Study scope included options for equipment modernization and an evaluation of the ability of the facilities to meet expected FERC license compliance provisions.

Nantahala Power, NC – Lead responsibility for the preparation and QC of seven FERC license applications currently in progress. Part of the strategic planning and program execution teams for these re-licensing efforts. Served as the group facilitator in a diverse stakeholder setting.

Progress Energy, NC - DTA lead for the Southeast region role in the relicensing of CP&L's Yadkin River hydroelectric facilities. DTA is the lead consultant for this ongoing licensing activity.

Duke Power Dam Safety Program - As lead civil engineer, conducted and/or managed the annual civil safety inspections at Duke Power Company's twenty-seven hydroelectric facilities. Completed inspection reports addressing structural and dam safety aspects including performance monitoring and recommendations for action. Projects include a diverse group of features including earth, gravity and arch dams.

Qinghai and Guangxi Province, China - Responsible for the technical evaluation of the 1,320MW Longyangxia and the 2,000MW Lijiaxia hydroelectric facilities in China including condition assessment of all project features including turbine-generators, concrete faced and zoned earthfill dams and powerhouse. Evaluated operational performance history and future operating regimes. Inspected and reviewed design and construction aspects of the

178 meter high Tianshengqiao concrete-faced rock shell dam.

Brazil Hydroelectric Development Minias Gerias, Espirito Santo, & Paraguaná States Brazil - Responsible for the technical evaluation of two operating hydroelectric stations in Brazil including condition assessment of all project features including dams and penstocks and development of life cycle costs. Reviewed and provided recommendations on greenfield feasibility studies.

Catawba River Projects, North Carolina – Program director for the evaluation, analysis and remediation of concrete water retaining structures at 13 hydroelectric developments on the Catawba River. Structures require evaluation to determine compliance with current FERC regulations. Extensive remediation was required and is being provided on a turn-key EPC basis. Nine projects including dam strengthening and PMF remediation have been completed to date.

River Mountain Pumped Storage Project, Arkansas - Evaluated the civil conceptual design of this planned 800 Mw pumped storage facility. Components include intakes, dams, and site/infrastructure layout. Completed conceptual design modifications and developed cost and schedule information. Prepared Appendix A in anticipation of FERC license submittal.

Orange & Rockland Condition Assessment - Project Manager for a technical inspection and evaluation of the conventional hydroelectric assets Orange and Rockland Company. Led a multi-discipline team performing comprehensive technical evaluations, developing life cycle costs, and the determination of potential operations improvements.

West Coast Facility Assessment - Project Manager for a confidential technical evaluation for the pumped storage and conventional hydroelectric assets of a western US municipal utility. Led a multi-discipline team performing comprehensive technical evaluations, developing life cycle costs, and the determination of operations improvements.

Boulder Valley Pumped Storage Project, San Diego, County, California - Evaluated the civil conceptual design of this planned 800 Mw

pumped storage facility. Completed conceptual design modifications and developed cost and schedule information.

Chulaborn PS, Thailand - Part of an engineering team performing conceptual design studies for a 1200 Mw underground pumped storage facility in Thailand. Includes conceptual design of major civil features, layout of project infrastructure and layout of underground complex.

Alto Malema, Mozambique - Member of team which is performing feasibility study for the Alto Malema Hydroelectric Facility in northern Mozambique. Duties include the project site inspection/evaluation, assessment of dam siting, hydrology calculations, infrastructure planning, environmental and layout of major civil features. Specific technical studies include determination of the project design flood, evaluation of rainfall and streamflow data, and conceptual design of water control structures.

Lake Julia, Brevard, North Carolina - Developed Lake drawdown plan in support of the construction of a water intake. Completed erosion control plan and Lake level schedule. Performed condition assessment of the dam. Developed maintenance and safety evaluation plan.

ENEL Hydroelectric Stations, Nicaragua - Responsible for the technical evaluation of two operating hydroelectric stations in central Nicaragua including condition assessment of all project features including dams, powerhouses, spillways and water conveyance. Developed life cycle costs for the operations and maintenance of the facilities. Established needs and schedule for future maintenance activities.

Mollejon Hydroelectric Station, Belize - Responsible for the technical evaluation of the 25MW Mollejon hydroelectric station in Belize including condition assessment of all project features including dams, spillways, roads and water conveyance along with development of life cycle costs. Performed comprehensive review of the project feasibility study for the Chalillo Hydroelectric Project proposed to be located on the Macal River upstream of Mollejon.

Niagara Mohawk Due Diligence - Project Manager and Technical Lead for a technical evaluation of the 72 conventional hydroelectric station owned by NMPC. Led a multi-discipline team performing comprehensive technical evaluations, developed life cycle costs, and determined potential operational improvements.

Camp Summit Dam, Brevard, North Carolina - Completed dam safety inspection of rolled fill earth embankment and provided remedial recommendations for repairs and future monitoring.

Oconee Intake Dike, Seneca, South Carolina - Directed study of wet areas on the downstream slope of this homogeneous rolled-fill embankment. Directed geotechnical and laboratory investigations. Evaluated performance of internal drainage system and filters. Performed two-dimensional finite element seepage analyses and limit equilibrium stability computations.

New England Electric System - Completed initial assessment of NEES hydroelectric facilities being divested. Reviewed data room information and conducted site visits. Developed report in support of Phase I bidding defining condition, cost structure and proposal for revenue enhancements.

CESP São Paulo, Brazil - Leader of the technical due diligence team evaluating 21 hydroelectric projects with a total capacity of 11,000 Mw. Responsible for the civil and environmental condition assessments including the development of twenty year O&M and capital expenditure profiles. Completed dam safety evaluations including design reviews of multiple dam types and reviewed geotechnical monitoring data and programs.

Rhodhiss Hydroelectric Station, North Carolina - Geotechnical Engineer for a slope stability investigation of phreatic conditions in a homogeneous earth dam. Directed geotechnical field and laboratory investigations. Completed limit equilibrium computer model demonstrating adequate existing stability.

Keowee Hydroelectric Station, Seneca, South Carolina - Geotechnical Engineer for a slope stability investigation of phreatic and internal drainage conditions in a 100 feet high

Nantahala Hydroelectric Project – Project Manager for FERC relicensing support for seven projects. Support includes license application preparation, strategic issue review, operational modeling and resource studies. Serves as the only external member of the owners licensing core team.

Completed inspections of the projects that include gravity, rockfill and arch dams.

FERC Part 12, Parr & Fairfield Projects – Approved as the Independent Consultant for the 2006 Part 12. Approved independent consultant in the completion of the Part 12 inspection. Preparing drafts of IC reports, participated in field inspection, reviewed project documentation and reviewed project design documents for embankment and concrete gravity dams. Addressed extensive instrumentation monitoring program. Prepared Project STI's.

Five Year NCUC Inspection, Tuxedo Project – Completed five year independent consultant inspection for the Tuxedo Hydro Project. Five year North Carolina Utilities Commission inspections are completed following a process and outline comparable to the FERC Part 12 process. The Tuxedo project includes a powerhouse, wood-stave penstock and concrete arch dam.

ElectroLima(EDEGEL), Lima, Peru - Part of the technical due diligence team evaluating five high-head hydroelectric projects with a total capacity of 600 Mw. Responsible for the civil and environmental condition assessments including the development of twenty year O&M and capital expenditure profiles. Completed dam safety evaluations including design review of the 50 m high Yuracmayo Dam during the construction phase. Inspected extensive tunnel, canal and steel penstock water conveyance systems.

FERC Part 12 / PFMA, SCE&G Saluda Dam – Approved Part 12 Independent Consultant for the Saluda Project in South Carolina. This project is undergoing a major seismic remediation. Mr. Luttrell is the approved Part 12 Independent Consultant for this project.

FERC Part 12 / PFMA, West Fork Project – Facilitator for the Part 12 Potential Failure Mode

Analysis. Role is as defined by the new FERC Part 12 process (Chapter 14 of FEG). Also responsible for the preparation of the Supporting Technical Information document for this two development project. Project features include a large earth dam, concrete arch dam, tunnels and penstocks.

FERC Part 12 / PFMA, Bear Swamp Pumped Storage Project – Independent Consultant for the Part 12 and Potential Failure Mode Analysis for Brascan Power's Claytor Dam. Role as defined by the new FERC Part 12 process (Chapter 14 of FEG). Services included preparation of the Supporting Technical Information Document.

FERC Part 12 / PFMA, Walters Project – Facilitator for the Potential Failure Mode Analysis for Progress Energy's Walters Project. Role as defined by the new FERC Part 12 process (Chapter 14 of FEG).

Vice President - Technical manager for a group of thirty engineers, scientists, technicians, and geologist. Responsible for the work flow, engineering project management, and resource planning of the group. Group has completed a broad range of projects related to the FERC licensing and engineering support of hydroelectric facilities. Projects range include greenfield hydroelectric studies, modernization / upgrade studies, station condition assessment / due diligence, structural design, geotechnical evaluations, FERC hydro licensing, pumped storage siting and design, and hydraulics / hydrology. Managing an extensive dam safety program reviewing concrete and embankment dams.

PFMA Facilitator – Facilitator for the Potential Failure Mode Analysis for four conventional and one pumped storage hydroelectric project in North and South Carolina owned by Duke Power.

RAM_D – Completed RAM-D training session with a national group from the FERC. This included a workshop discussing and defining the FERC's Hydro Security Program. Completed a Risk/Security Assessment for the Cowan's Ford Hydroelectric Facility.

FERC Part 12, Georgia Power, North Georgia Projects – Assisted approved independent

homogeneous earth dam. Directed geotechnical / geophysical field and laboratory investigations. Completed limit equilibrium computer model demonstrating adequate existing stability.

Mulungushi & Lunsemfwa, Zambia - Project Manager and technical lead for a multi-discipline detailed due diligence of two 18 MW hydroelectric facilities being privatized in central Zambia. Developed condition assessment reports and complete cost planning for needed O&M activities. Evaluated hydrologic conditions and computed expected energy generation. Prepared O&M plan for takeover and future operation.

Seismic Evaluation - Hydraulic Fill Dams, North and South Carolina - Lead geotechnical engineer for the evaluation of six semi-hydraulic fill dams. Program includes seismic risk assessment for far-field and near-field (floating) earthquakes, field & laboratory investigations, and analysis for static and dynamic loading conditions.

Mills River Slope Stability, North Carolina - Performed limit equilibrium slope stability calculations for planned earth fill to support power substation. Evaluated laboratory soil parameter data and completed computer stability models.

Catawba Nuclear Station, South Carolina - Geotechnical Engineer for the evaluation of an expansion of the Stand-by Nuclear Service Water Pond Dam. Executed QA condition I calculations to determine the acceptability of a pool level increase.

Grandmother Lake Dam, Linville, North Carolina - Performed inspection of 50 foot high earth dam and adjacent spillway. Wrote inspection report and developed instrumentation and inspection program for performance monitoring approved by NC state dam safety department.

Laurel Valley Pumped Storage Project, Dunlap County, Tennessee - Project manager and lead engineer for the siting and initial layout of a 1500 Mw pumped storage station. Performed value-engineering studies to reduce project costs. Developed civil portions of the FERC preliminary permit application. Completing Exhibit A,B,C, and F of the FERC license

including engineering layout, cost estimates, operations profile, and scheduling..

Mid-Columbia Hydro', Eastern Washington - Responsible for the technical evaluation six large hydroelectric facilities. Reviewed Part 12 dam safety reports, performed surveillance and reviewed project records. Completed due diligence report.

Irian Java, Indonesia - Performed a desktop review of the Ottomana Hydroelectric Feasibility Study assessing the civil conceptual design for a 100 Mw high head project. Responsible for final report covering multi-discipline review.

Santa Rita Hydroelectric Project, Peru - Evaluated energy production capability for a series of turbine sizing scenarios for this planned high head Pelton facility. Reviewed conceptual civil design for all structures including din dams and provided cost inputs for budgetary estimates. Developed energy models to evaluate capacity selection and hydrology.

Laleli, Turkey - Member of team which is performing a feasibility study for the Laleli hydroelectric facility in northeastern Turkey. Duties include the complete project site inspection/evaluation, assessment of dam siting, hydrology calculations, operational and energy modeling, O&M planning, infrastructure planning, environmental and layout of major civil features. Specific technical studies include determination of the project design flood, evaluation of energy production, evaluation of rainfall and streamflow data, and conceptual design of water control structures and dams.

Reynolds Creek Pumped Storage Project, Dunlap County, Tennessee - Civil engineer for the siting and initial layout of a 1000 Mw pumped storage station with an underground power complex. Developed civil portions of the FERC preliminary permit application. Completing Exhibit A,B,C, and F of the FERC license.

Murray Hydroelectric Station, Little Rock, Arkansas - Civil Engineer responsible for the evaluation and recommendations of underwater concrete repair of the spillway training wall. Developed procedure and made product recommendations.

Buzzard Roost Hydroelectric Station, Greenwood, South Carolina - Geotechnical Project Engineer for the investigation of an alluvial sand zone in the foundation of the project earth dam. Specified requirements for field and laboratory testing. Evaluated liquefaction potential of material in question using Seed/Berkeley criteria.

Jocassee Hydroelectric Station, Seneca, South Carolina - Geotechnical Engineer for a slope stability investigation of phreatic conditions in a 350 feet high zoned rockfill earth dam. Directed geotechnical field and laboratory investigations. Completed limit equilibrium computer model demonstrating adequate existing stability. Project Engineer for civil aspects of the modernization program at this pumped storage facility.

Wylie Hydroelectric Station, South Carolina - Geotechnical Engineer for a slope stability investigation of phreatic conditions in a 100 feet high homogeneous earth dam. Directed geotechnical field and laboratory investigations. Completed limit equilibrium computer model demonstrating adequate existing stability.

Holidays Bridge Hydroelectric Station, Anderson, South Carolina - Geotechnical Project Engineer for the elevation of the stability of a earth canal dike. Completed stability calculations, supervised field and laboratory testing , and specified follow-up monitoring program.

Technical Papers / Presentations

"The Bad Creek Dam Design", Luttrell, E.C., United States Committee on Large Dams Conference, Charlotte, N.C., 1987.

"Hydroelectric Generation at Duke Power Company", Luttrell, E.C., presentation to the North Carolina Professional Engineers, October, 1992.

"Remedial Grouting Using Responsive Integration at Jocassee Dam", Luttrell, E.C., Bruce, D.A., and Starnes, L.J., Association of State Dam Safety Officials National Conference, Kansas City, Mo., 1993.

"The Automated Instrumentation Monitoring System at the Bad Creek Project", Luttrell, E.C., American Society of Civil Engineers, WaterPower '93, Nashville, 1993.

"Duke Power Company's In-House Dam Safety Program", ASDSO Southeastern Regional Meeting, UNCC, 1994.

"Remedial Grouting at Jocassee Dam", Luttrell, E.C., Bruce, D.A., and Starnes, L.J., *Ground Engineering*, 1994.

"Technical Evaluation of Hydroelectric Facilities in Peru", Luttrell, E.C., Grady, D.R., and Diaz-Molina, I., American Society of Civil Engineers WaterPower '95, San Francisco, 1995.

"Seismic Investigation Of Wateree Dam", Luttrell, E.C., Sams, C.E., and Starnes, L.J., Association of State Dam Safety Officials Annual Conference, Atlanta, 1995.

"Mozambique: A Feasibility Study for Hydroelectric Development", Luttrell, E.C., Grady, D.R., and Diaz-Molina, I., American Society of Civil Engineers WaterPower '97, Atlanta.

"Buying and Selling Hydro Assets: Project Due Diligence", Luttrell, E.C, HydroVision '98, Reno, Nevada
"The Road Well Traveled: Technical Due Diligence and Asset Integration", Luttrell, E.C. and Grady, D.R.,
Hydrovision 2000.

Representative Project Inspection Experience
Ed Luttrell, PE

PROJECT / DEVELOPMENT	CLIENT	Inspection Role						Dam Type / Additional Features											
		Part 12D IC / Report Preparation	PMA Facilitator	Owners Part 12D Engineer	State Inspection	Condition Assessment	Annual Safety Inspection	Prepared STI	Concrete Gravity	Concrete Arch	Slab and Buttress	Homogeneous Embankment	Zoned Embankment	Hydraulic Fill	Penstock	Tunnels	Pumped Storage	Radial Gates	Vertical Spill Gates
Saluda	South Carolina Electric & Gas	X					X												
Jocassee	Duke Power		X								X								
Watersee	Duke Power		X								X								
Ninety-Nine Islands	Duke Power		X								X								
Cedar Cliff	Nantahala Power										X								
Pinnacles	City of Danville	X									X								
Yellow River	Alcoa						X												
Castaic	Louis Dreyfus																		
Bryson	Nantahala Power			X															
Grandmother Lake	GLD Corp				X														
Bad Creek	Duke Power						X												
ElectroLima	DEI							X											
Mission	Nantahala Power			X															
Niagara	AEP	X									X								
Lookout Shoals	Duke Power		X																
Rocky Creek / Cedar Creek	Duke Power		X																
Bear Swamp Pumped Storage	Brascan	X									X								
Tillery / Blewett Falls	Progress Energy						X												

Representative Project Inspection Experience
Ed Luttrell, PE

PROJECT / DEVELOPMENT	CLIENT	Inspection Role						Dam Type / Additional Features												
		Part 12D IC / Report Preparation	PMA Facilitator	Owners Part 12D Engineer	State Inspection	Condition Assessment	Annual Safety Inspection	Prepared STI	Concrete Gravity	Concrete Arch	Stab and Buttress	Homogeneous Embankment	Zoned Embankment	Hydraulic Fill	Penstock	Tunnels	Pumped Storage	Radial Gates	Vertical Spill Gates	
Tahoma	LTHA				X															
Bath County Pumped Storage	Dominion Energy		X																	
Claytor	AEP		X																	X
Tuxedo	Duke Power				X															
Lakeview	Ridgewood Energy		X																	
North Georgia (5 developments)	Georgia Power	X																		
Bear Creek	Nantahala Power		X																	X
Thorpe	Nantahala Power		X																	X
Nantahala	Nantahala Power		X																	X
Mollejon	DEI							X												
Wylie	Duke Power				X															X
Walters	Progress Energy		X																	X
Fishing Creek	Duke Power		X																	X
Bridgewater	Duke Power		X																	
Buzzard Roost	Duke Power		X																	
Keowee	Duke Power		X																	
Parapanama	DEI																			
Camp Summit	DuPont Chemical						X													X

Representative Project Inspection Experience
Ed Luttrell, PE

PROJECT / DEVELOPMENT	CLIENT	Inspection Role						Dam Type / Additional Features												
		Part 12D IC / Report Preparation	PFMA Facilitator	Owners Part 12D Engineer	State Inspection	Condition Assessment	Annual Safety Inspection	Prepared STI	Concrete Gravity	Concrete Arch	Stab and Buttress	Homogeneous Embankment	Zoned Embankment	Hydraulic Fill	Penstock	Tunnels	Pumped Storage	Radial Gates	Vertical Spill Gates	
Gaston Shoals	Duke Power		X				X	X											X	
Oxford	Duke Power		X				X													
Wylie	Duke Power		X				X													
Thorpe	Nantahala Power		X				X									X				
Tuckaseegee	Nantahala Power		X				X												X	
Great Falls/Dearborn	Duke Power		X				X													
Part	Scana-SCE&G	X					X												X	
Fairfield	Scana-SCE&G	X					X													

NCDENR Letters



RECEIVED

JUL - 5 2006

North Carolina Department of Environment and Natural Resources
Division of Land Resources
Land Quality Section

Michael F. Easley, Governor
James D. Simons, PG, PE

William G. Ross, Jr., Secretary
Janet S. Boyer, Regional Engineer

June 30, 2006

Town of Lake Lure
Post Office Box 255
Lake Lure, NC 28746

RE: Lake Lure Dam - Rutherford County

The Dam Safety Law of 1967 provides for the certification and inspection of dams in the interest of public safety. Our records indicate you are the owner of the referenced dam, which was inspected by personnel of this office on June 29, 2006. The inspection revealed the following maintenance problems, which must be addressed:

1. There was seepage noted on many areas of the dam. Excessive seepage promotes deterioration of the concrete, which can lead to failure of the dam.
2. There is extensive spalling of concrete surfaces and reinforcement bars are showing in several areas.
3. The Town shall take action to address necessary maintenance and renovations for the Dam. A qualified Dam safety engineer familiar with large concrete structures shall provide plans and supervise all activities. Plans shall be submitted and approved by the Raleigh Central Office prior to commencement of any construction activity. A study by the engineer of the conditions noted in the inspection shall be submitted by January 1, 2007.

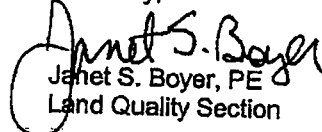
The potential for property damage and loss of life downstream in the event that your dam fails was also investigated. It was determined that sudden failure of your dam could result in serious property damage and possible loss of life. Please be advised that though we make every reasonable effort to determine the safety of your dam, our resources limit us to surficial inspection. There is no certainty regarding the internal stability of the dam. Dams, and especially their spillways and conduits, deteriorate with age. Therefore, you are advised to keep a close watch on your dam and to notify this office if you detect any changes, especially cracks, ground movements, or changes in seepage rate or color.

Although the inspections by our staff are relatively infrequent and offer no absolute safety guarantees, we hope that you will use the information provided in this letter as you fulfill your obligation to safely maintain and operate your dam. In order to keep records up-to-date and serve you better, please notify this office concerning any changes in address or ownership. Your cooperation is appreciated.

If you have an emergency situation during non-office hours, you should notify the Division of Emergency Management's State Warning Point at 1-800-662-7956. They will notify the appropriate personnel in this office of the situation.

Should you have any questions concerning this inspection, please contact me at (828) 296-4500 during normal office hours.

Sincerely,


Janet S. Boyer, PE
Land Quality Section

2090 US Highway 70, Swannanoa, North Carolina, 28778-8211
Telephone 828-296-4500 Fax 828-299-7034
www.enr.state.nc.us

An Equal Opportunity / Affirmative Action Employer

One
North Carolina
Naturally



North Carolina Department of Environment and Natural Resources
Division of Land Resources
Land Quality Section

Michael F. Easley, Governor
James D. Simons, PG, PE

William G. Ross, Jr., Secretary
Janet S. Boyer, Regional Engineer

March 31, 2006

Town of Lake Lure
Post Office Box 255
Lake Lure, NC 28746

TO WILLIAM FOR COMMENTS
4-3-06

RE: Lake Lure Dam - Rutherford County

The Dam Safety Law of 1967 provides for the certification and inspection of dams in the interest of public safety. Our records indicate you are the owner of the referenced dam, which was inspected by personnel of this office on March 30, 2006. The inspection revealed the following maintenance problems, which must be addressed:

1. There was seepage noted on many areas of the dam. Excessive seepage can cause failure of the dam.
2. There is extensive spalling of concrete surfaces and reinforcement bars are showing in several areas.
3. The Town should take action to address necessary maintenance and renovations for the Dam. A qualified Dam safety engineer familiar with large concrete structures should provide plans and supervise all activities. Plans shall be submitted and approved by the Raleigh Central Office prior to commencement of any construction activity.

The potential for property damage and loss of life downstream in the event that your dam fails was also investigated. It was determined that sudden failure of your dam could result in serious property damage and possible loss of life. Please be advised that though we make every reasonable effort to determine the safety of your dam, our resources limit us to surficial inspection. There is no certainty regarding the internal stability of the dam. Dams, and especially their spillways and conduits, deteriorate with age. Therefore, you are advised to keep a close watch on your dam and to notify this office if you detect any changes, especially cracks, ground movements, or changes in seepage rate or color.

Although the inspections by our staff are relatively infrequent and offer no absolute safety guarantees, we hope that you will use the information provided in this letter as you fulfill your obligation to safely maintain and operate your dam. In order to keep records up-to-date and serve you better, please notify this office concerning any changes in address or ownership. Your cooperation is appreciated.

If you have an emergency situation during non-office hours, you should notify the Division of Emergency Management's State Warning Point at 1-800-662-7956. They will notify the appropriate personnel in this office of the situation.

Should you have any questions concerning this inspection, please contact me at (828) 296-4500 during normal office hours.

Sincerely,

Janet Boyer for
Janet Boyer
Land Quality Section

2090 US Highway 70, Swannanoa, North Carolina, 28778-8211
Telephone 828-296-4500 Fax 828-299-7034
www.enr.state.nc.us

An Equal Opportunity / Affirmative Action Employer

One
North Carolina
Naturally

RECEIVED
APR - 3 2006

NORTH CAROLINA DEPARTMENT OF
ENVIRONMENT AND NATURAL RESOURCES
ASHEVILLE REGIONAL OFFICE

RECEIVED
OCT 13 1999

October 12, 1999

Mr. Chuck Place, III, Town Manager
Town of Lake Lure
P. O. Box 255
Lake Lure, NC 28746

RE: LUKE LURE DAM - RUTHERFORD COUNTY (003)

Dear Mr. Place:

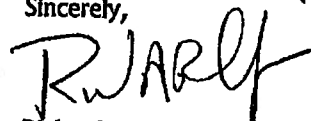
On Wednesday, October 6, the Land Quality Section received a call from Mr. William Grimes, manager of the Hydroelectric Plant, reporting a large flow under the dam that had not previously been observed. He and Max Fowler of this office made an inspection of the dam that evening.

We are relieved the problem does not appear to be as serious as first thought. The flow is emerging from a joint between the base of the arch behind the power house and the concrete block containing the penstock. It is then making its way to the point at which it was first observed and giving the appearance of a boil under the buttress. Flow has been observed behind the power house before. However, the flow observed Wednesday is several times the amount ever observed. A change this drastic in the dam is a concern which should be investigated.

We were pleased to hear from Mr. Grimes on October 8 that you have obtained the services of Duke Engineering and Services to investigate the problem. Mr. Grimes indicated they would be able to make their inspection during the month of October, which will be acceptable. We also ask that you have them do a comprehensive study of the condition of the dam and make recommendations for any repairs that are needed. They should submit the report, along with plans and specifications, to Mr. James K. Leumas, P.E., State Dam Safety Engineer, DIVISION OF LAND RESOURCES, DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES, 1612 MAIL SERVICE CENTER, RALEIGH, NC, 27699-1612.

We thank you for your timely response in this matter and look forward to working with you to ensure the safe operation of your dam. You may contact either Max Fowler or me at (828) 251-6208.

Sincerely,



Richard A. Phillips, P.E.
Regional Engineer

/a
cc: James K. Leumas, P.E.

NORTH CAROLINA DEPARTMENT OF
ENVIRONMENT AND NATURAL RESOURCES
ASHEVILLE REGIONAL OFFICE

April 26, 1999

RECEIVED

APR 27 1999

Mr. John Strutner
P. O. Box 255
Lake Lure, NC 28746

RE: LAKE LURE DAM - RUTHERFORD COUNTY

The Dam Safety Law of 1967 provides for the certification and inspection of dams in the interest of public health, safety, and welfare, in order to reduce the risk of failure of such dams; to prevent injuries to persons, damage to property; and to ensure the maintenance of stream flows. Our records indicate you are the owner of the referenced dam which was inspected by personnel of this office March 16, 1999. The inspection revealed the following maintenance problems which must be addressed:

1. Remove small trees and vegetation growing in the bays on the back slope of the dam.
2. The seepage occurring at bay #7 behind the turbines appears to have decreased since the 3/17/98 inspection. Seepage is also occurring at bays #3, #4, #5, #7, #8, and #9. You should inspect the seepage periodically and notify this office if it increases.
3. Plans should be made to resurface the dam in the next couple of years. Spalling and deteriorating concrete is occurring over most of the dam exposing reinforced metal at several locations.

The potential for property damage and loss of life downstream in the event that your dam fails was also investigated. It was determined that sudden failure of your dam could result in significant property damage and possible loss of life downstream. Please be advised that though we make every reasonable effort to determine the safety of your dam, our resources limit us to surficial inspection. There is no certainty regarding the internal stability of the dam. Dams, and especially their spillways and conduits, deteriorate with age. Therefore, you are advised to keep a close watch on your dam and to notify this office if you detect any changes, especially cracks, ground movements, or changes in seepage rate or color. You are referred to the Dam Operation Maintenance and Inspection Manual (available upon request).

Although the inspections by our staff are relatively infrequent and offer no absolute safety guarantees, we hope that you will use the information provided in this letter as you fulfill your obligation to safely maintain and operate your dam. In order to keep records up-to-date and serve you better, please notify this office concerning any changes in address or ownership. Your cooperation is appreciated. If you have an emergency situation during non-office hours, you should notify the Division of Emergency Management's State Warning Point at 1-800-662-7956. They will notify the appropriate personnel in this office of the situation. Should you have any questions concerning this inspection, please contact me at 828/251-6208 during normal office hours.

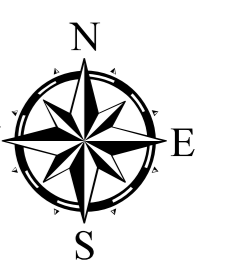
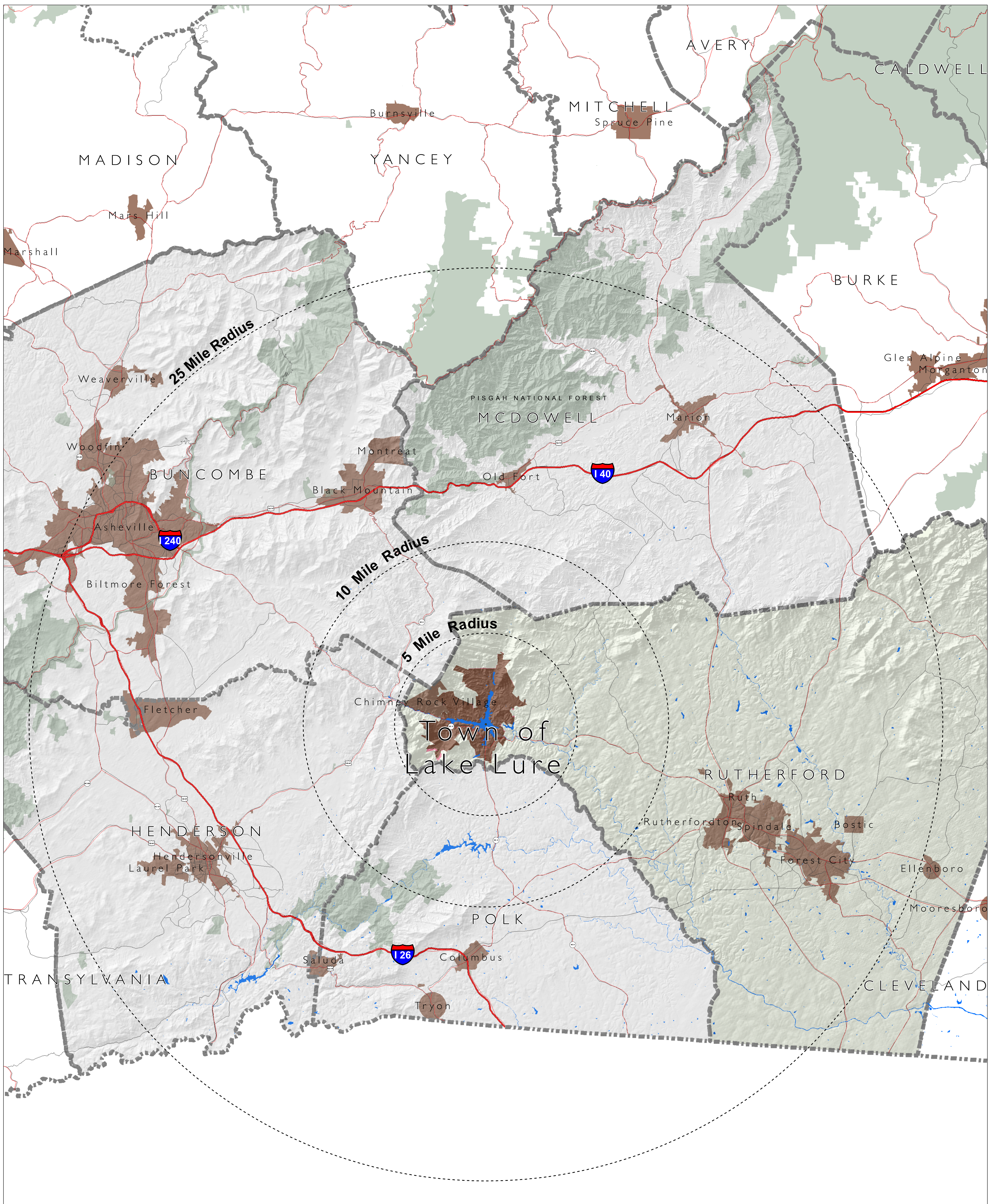
Sincerely,

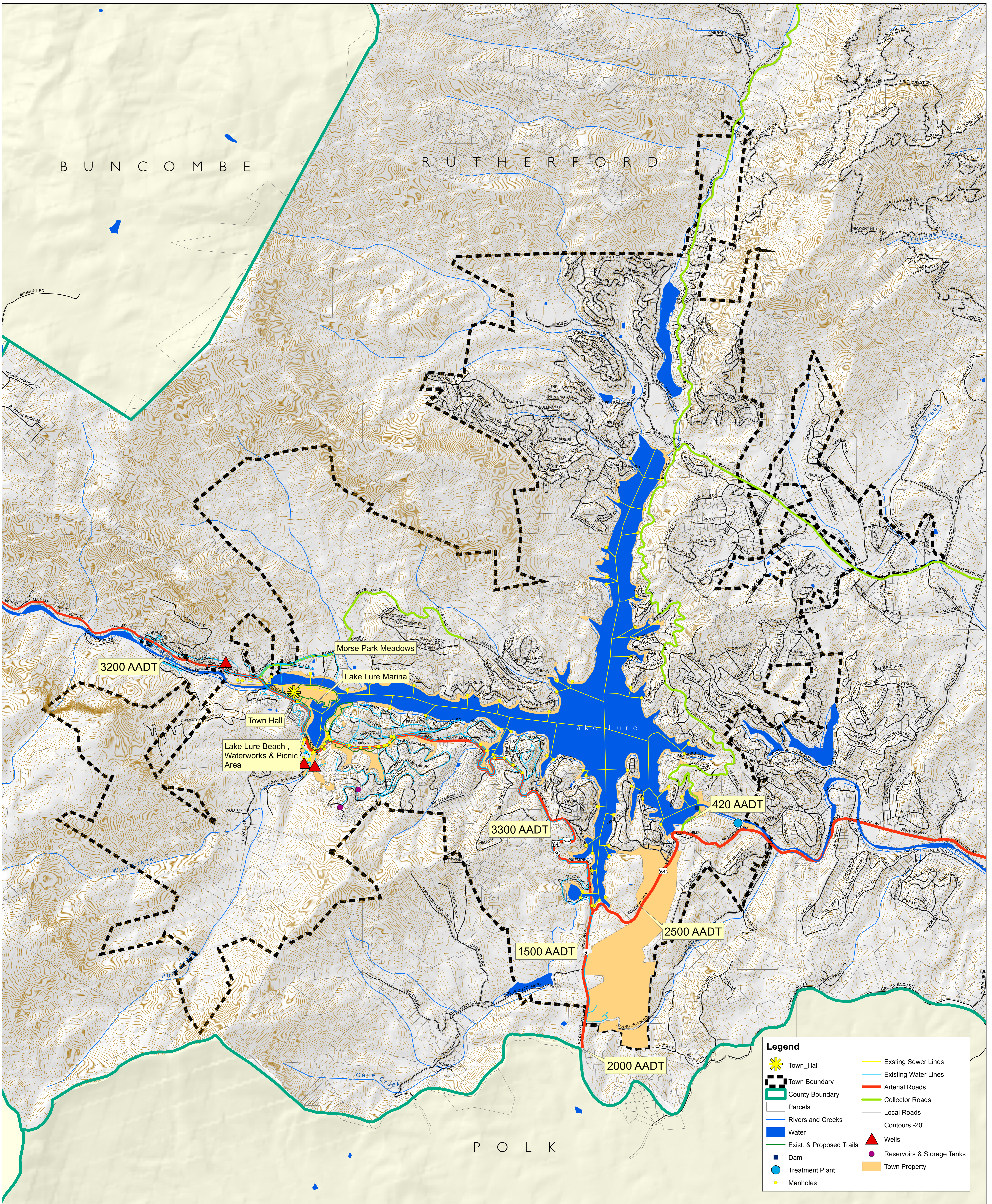
RJARP

Richard A. Phillips, P.E.
Regional Engineer

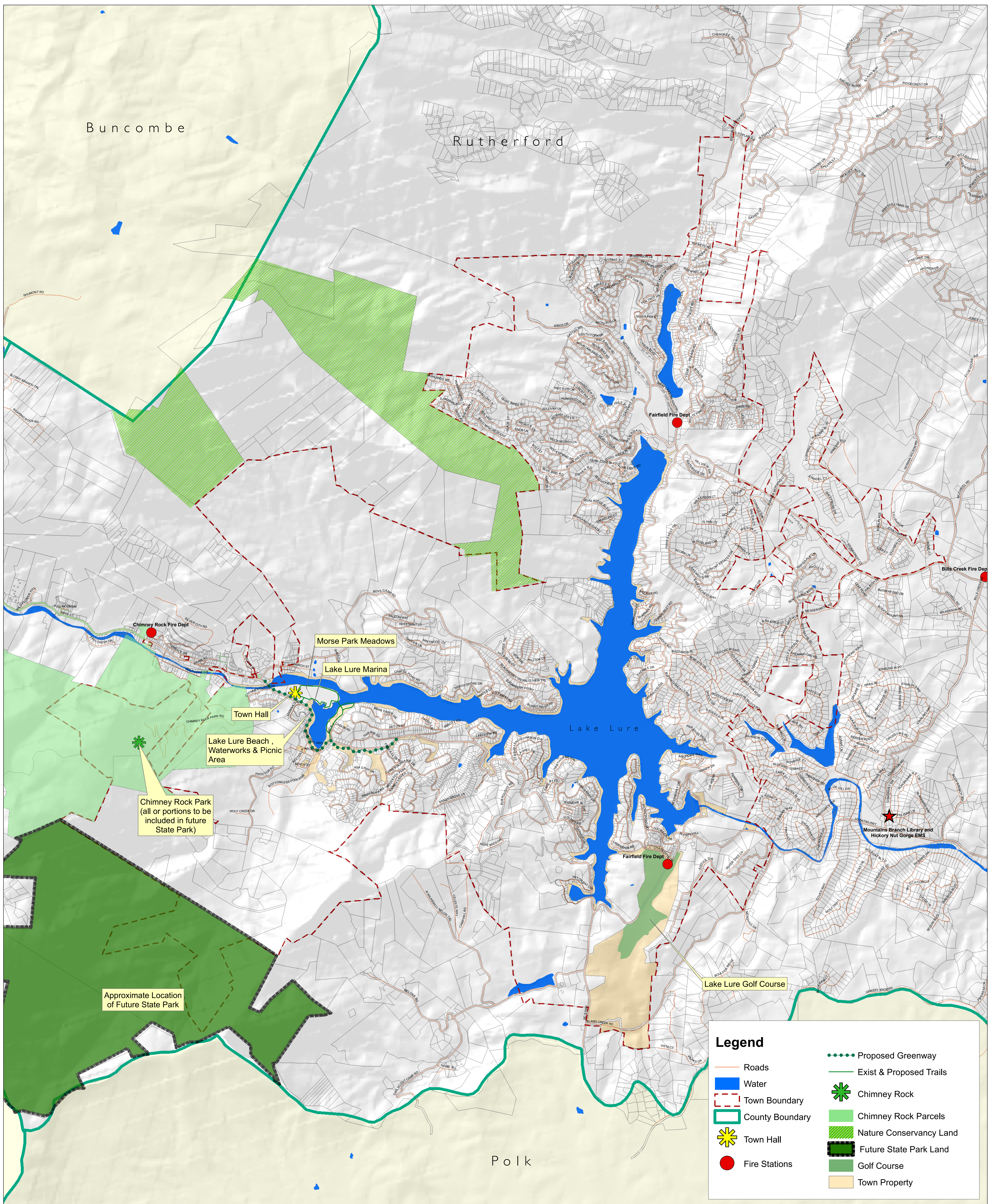
TO WILLIAM FAR
RESPONSE
4-27-99

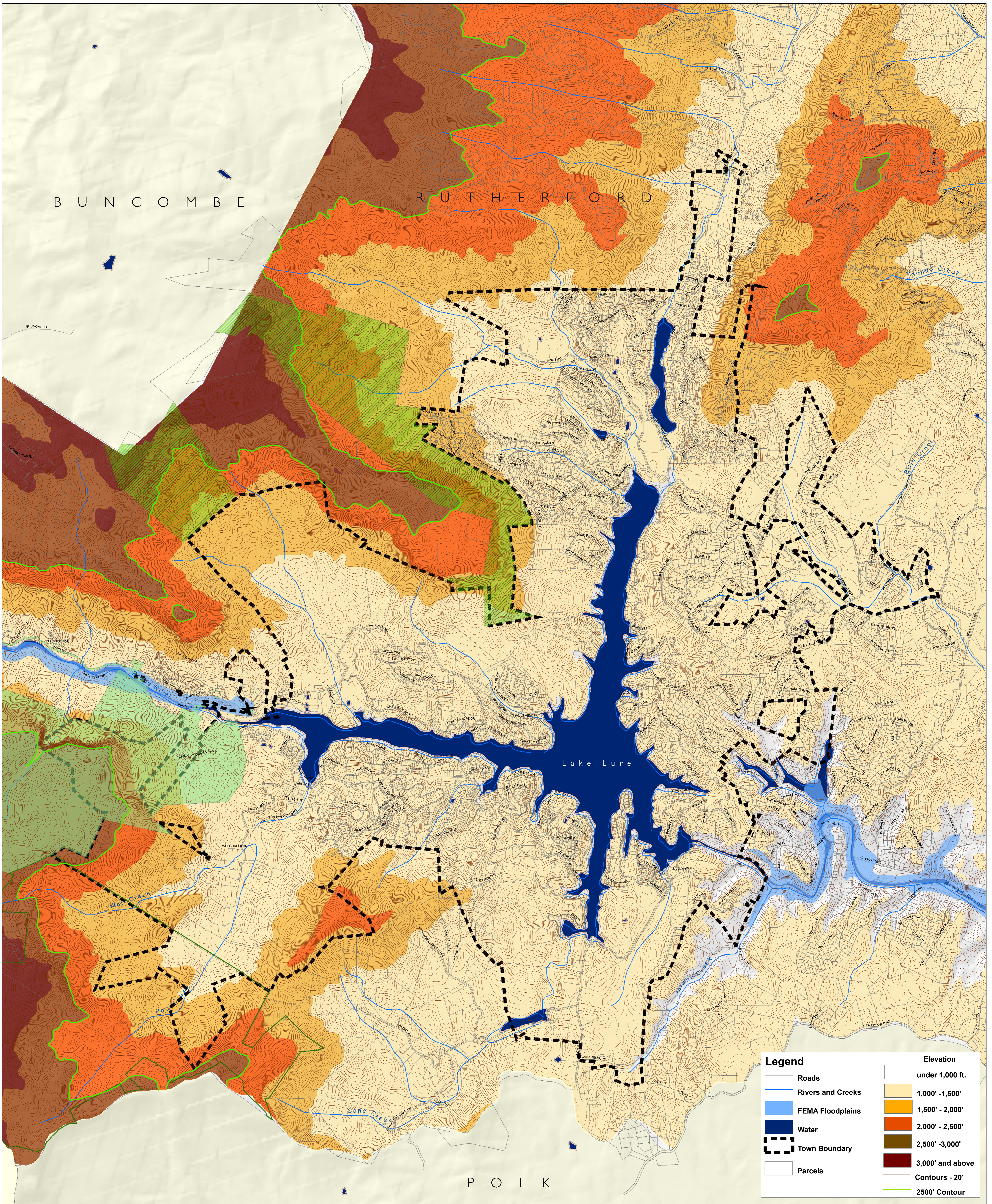
RAP:a

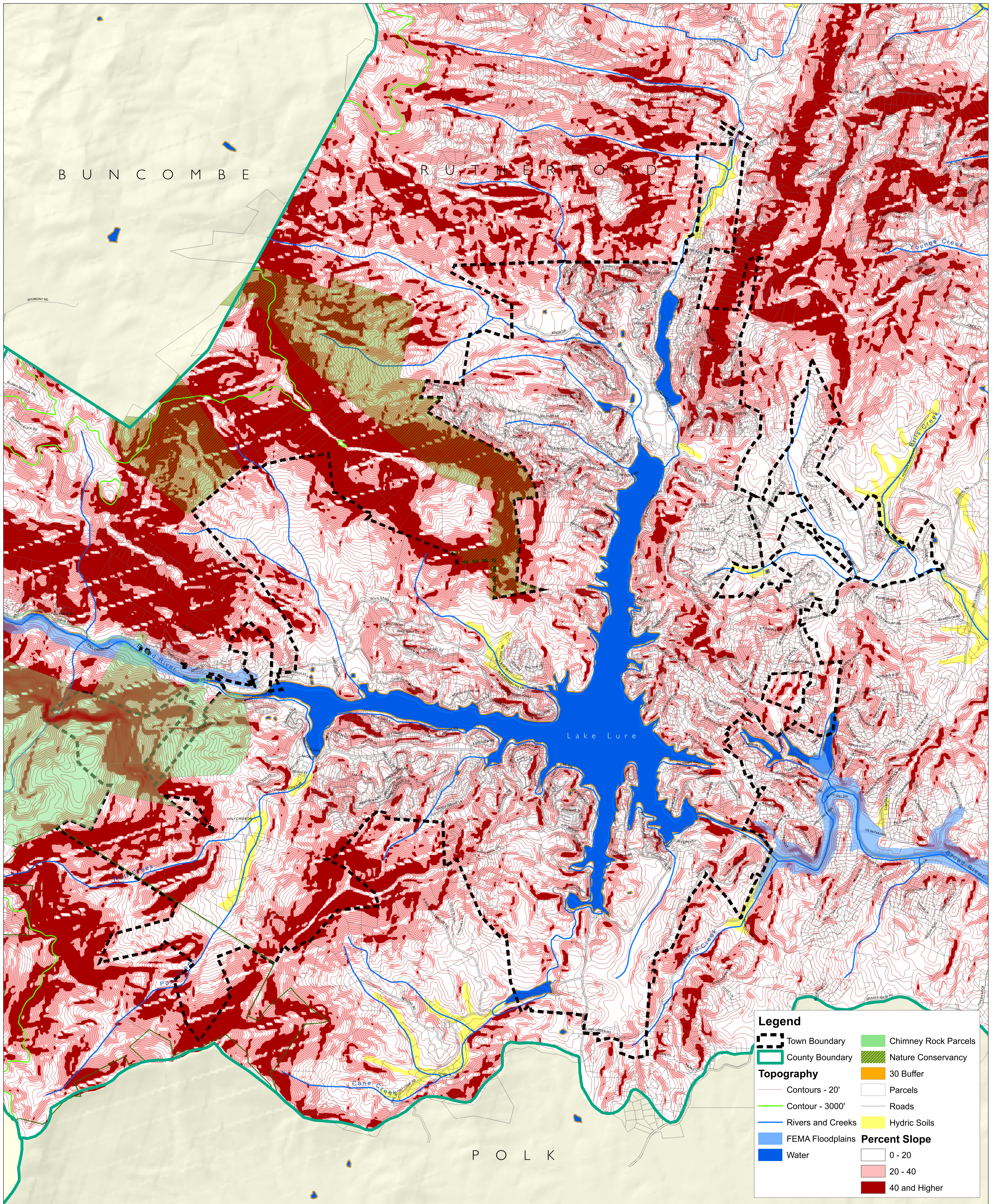


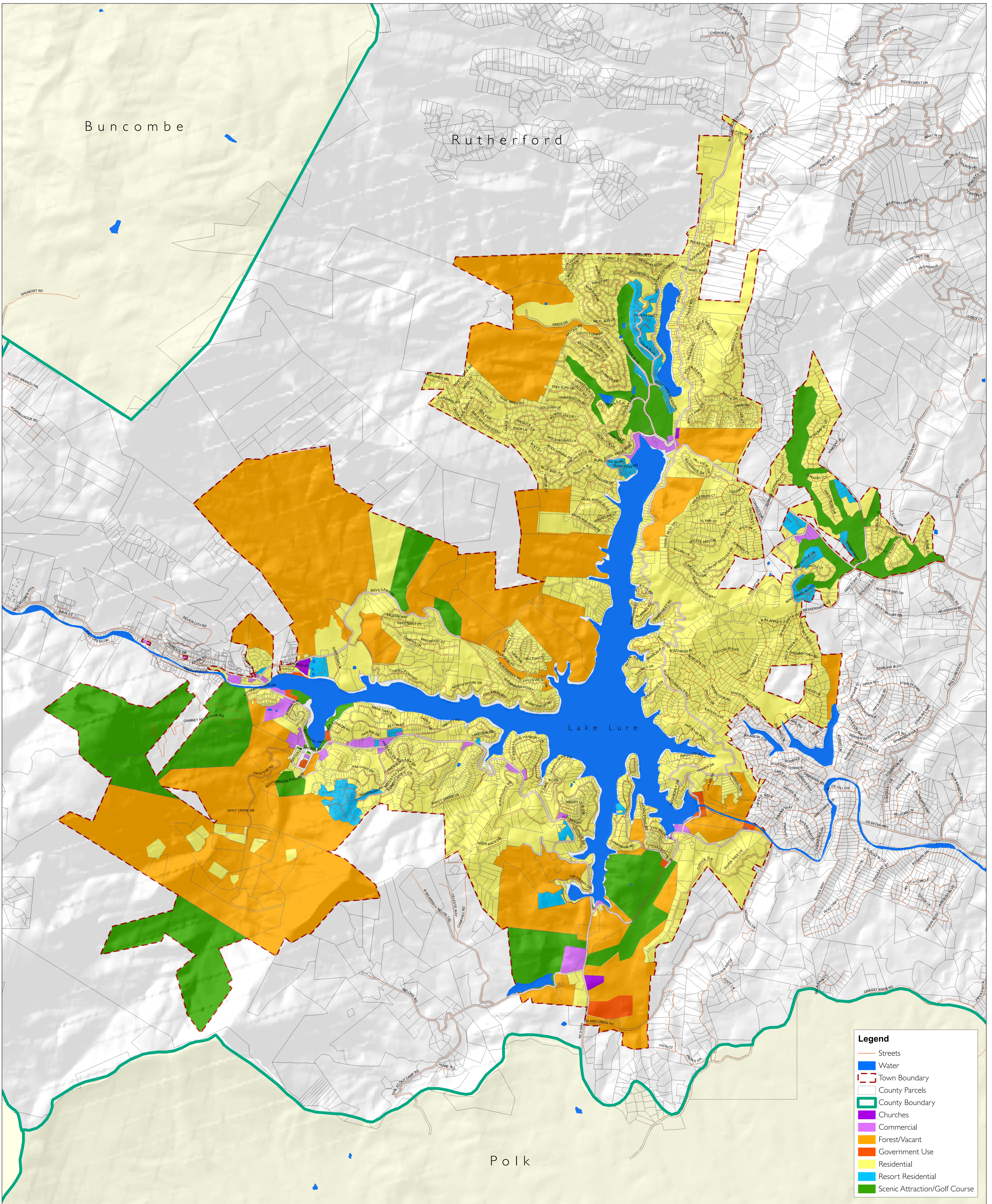


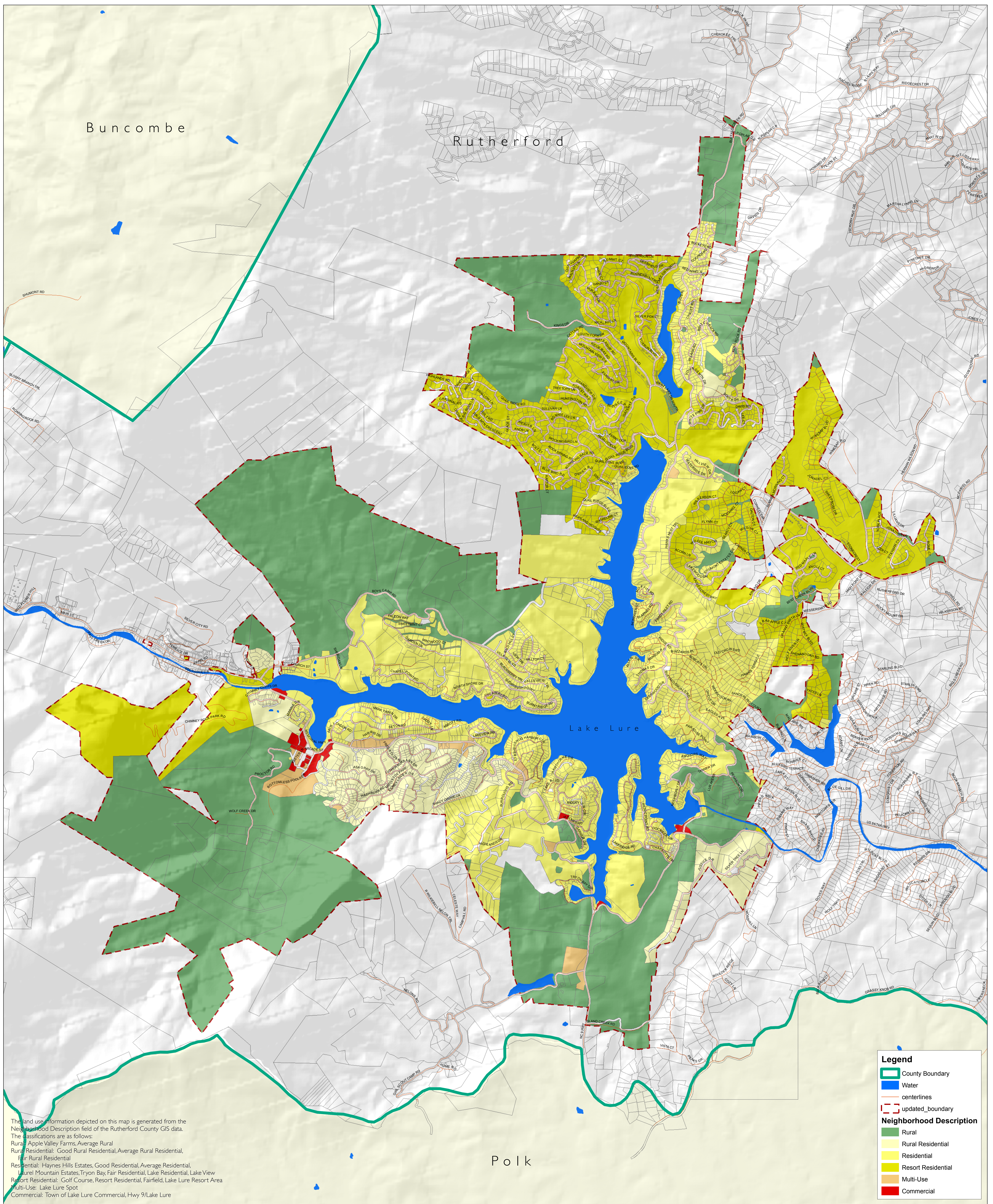
Disclaimer:
 This GIS Data is deemed reliable but provided "as is" without warranty of any representation of accuracy, timeliness, reliability or completeness. This map document does not represent a legal survey of the land and is for graphical purposes only. Use of this Data for any purpose should be with acknowledgment of the limitations of the Data, including the fact that the Data is dynamic and is in a constant state of maintenance, correction, and update.











The land use information depicted on this map is generated from the Neighborhood Description field of the Rutherford County GIS data. The classifications are as follows:
 Rural: Apple Valley Farms, Average Rural
 Rural Residential: Good Rural Residential, Average Rural Residential, Fair Rural Residential
 Residential: Haynes Hills Estates, Good Residential, Average Residential, Laurel Mountain Estates, Tryon Bay, Fair Residential, Lake Residential, Lake View
 Resort Residential: Golf Course, Resort Residential, Fairfield, Lake Lure Resort Area
 Multi-Use: Lake Lure Spot
 Commercial: Town of Lake Lure Commercial, Hwy 9/Lake Lure



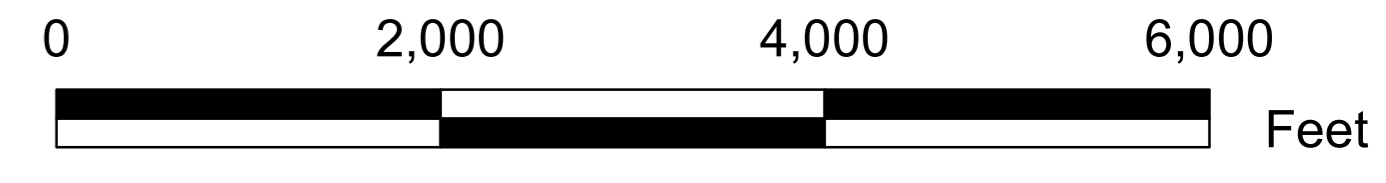
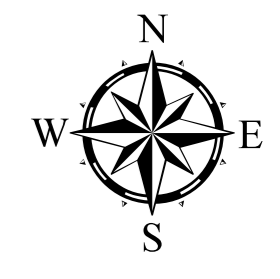
Generalized Land Use Characteristics

Comprehensive Plan

Town of Lake Lure, North Carolina

Figure # 6B

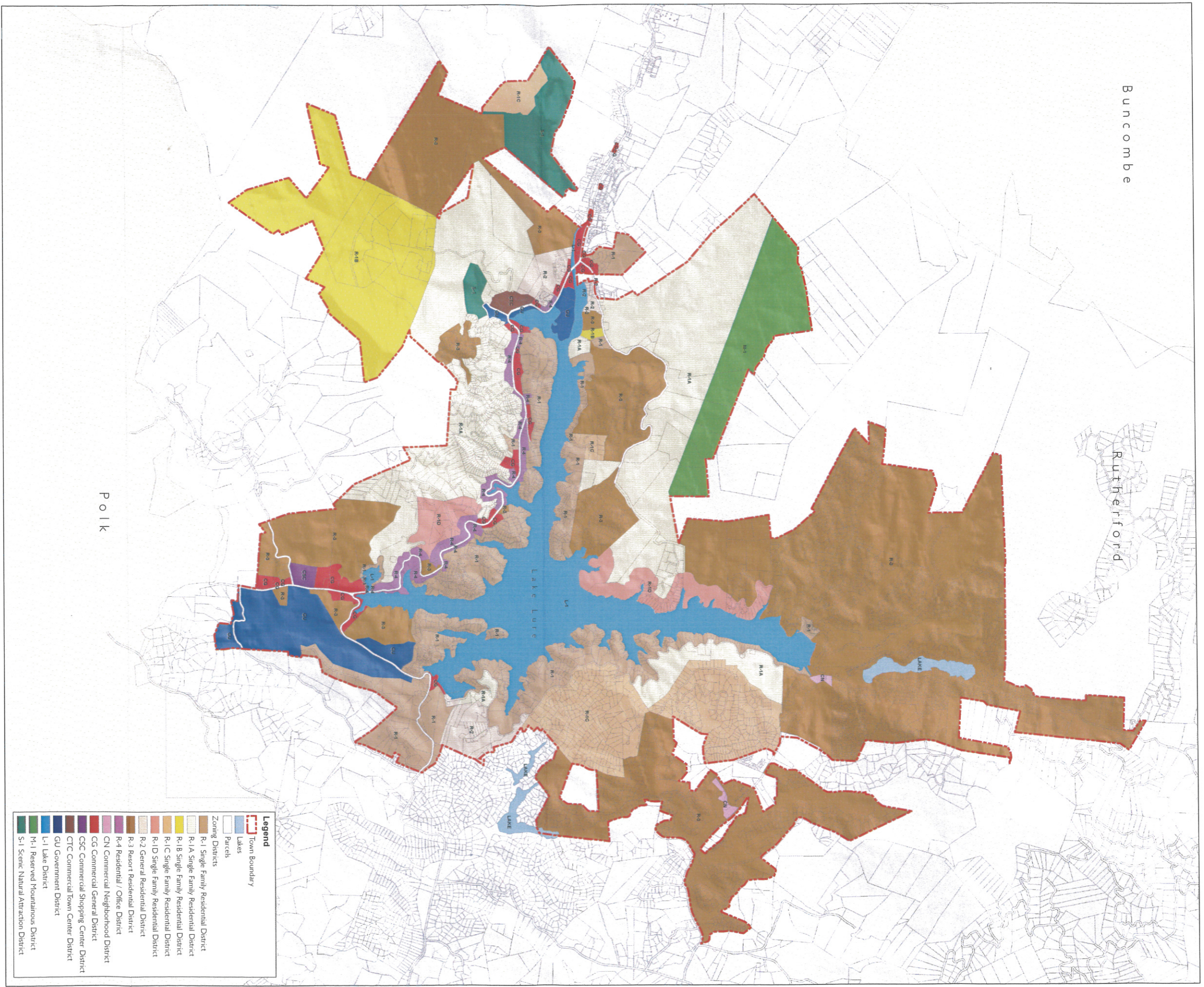
Nov. 02, 2006 | LDI # 1005097



223, North Graham St | Phone: 704.333.0325
 Charlotte, NC - 28202 | Fax: 704.376.8235

Disclaimer:
 This GIS Data is deemed reliable but provided "as is" without warranty of any representation of accuracy, timeliness, reliability or completeness. This map document does not represent a legal survey of the land and is for graphical purposes only. Use of this Data for any purpose should be with acknowledgment of the limitations of the Data, including the fact that the Data is dynamic and is in a constant state of maintenance, correction, and update.

Source (base data only): Rutherford County, NC, (Tax Department)

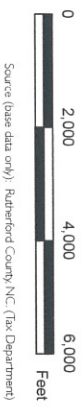


Legend	
	Town Boundary
	Lakes
	Parcels
	Zoning Districts
	R-1 Single Family Residential District
	R-1A Single Family Residential District
	R-1B Single Family Residential District
	R-1C Single Family Residential District
	R-1D Single Family Residential District
	R-2 General Residential District
	R-3 Resort Residential District
	R-4 Residential / Office District
	CN Commercial Neighborhood District
	CG Commercial General District
	CSC Commercial Shopping Center District
	CTC Commercial Town Center District
	GU Government District
	L-1 Lake District
	M-1 Reserved Mountainous District
	S-1 Scenic Natural Attraction District

E x i s t i n g Z o n i n g M a p
C o m p r e h e n s i v e P l a n

T o w n o f L a k e L u r e , N o r t h C a r o l i n a

F i g u r e # 7



Source (base data only): Rutherford County, NC (Tax Department)



Disclaimer:
This GIS Data is deemed reliable but provided "as is" without warranty of any representation of accuracy, timeliness, reliability or completeness. This map document does not represent a final plan or any other official action of the Town of Lake Lure. The Town of Lake Lure should be held harmless for any use of this data, including the fact that the Data is dynamic and is in a constant state of maintenance, correction, and update.

