



Acknowledgments

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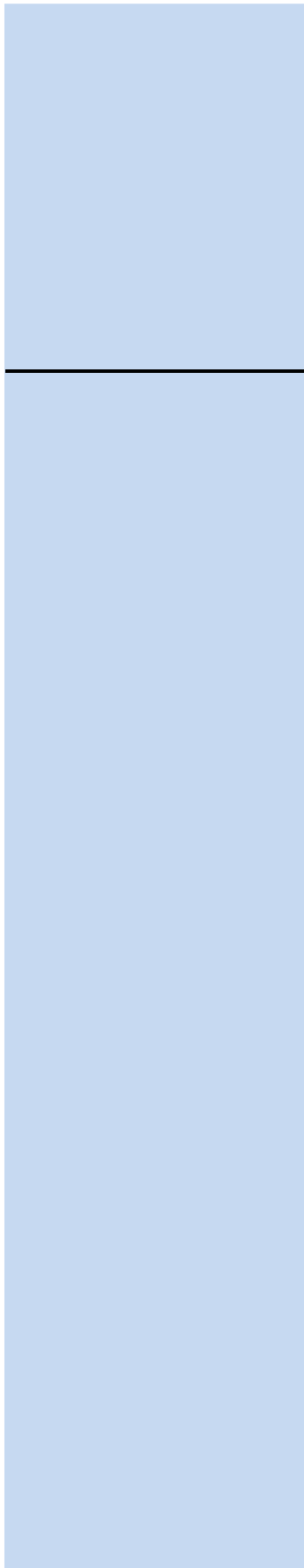




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COMPREHENSIVE PLAN

I. INTRODUCTION

In April of 1999, the Town of Knightdale began an update of the Town's Comprehensive Plan. The original Comprehensive Plan, adopted in 1993, was already considered by many to be outdated; and furthermore, the 1993-adopted Comprehensive Plan itself called for an update every five (5) years. For all who were involved in realizing the completion of this initial task, it became much more than just an update. The creation of the new 2027 Comprehensive Plan was a public, citizen-driven process, and the Town was diligent in its efforts to include the broadest spectrum of stakeholders in the process. The resulting product was a direct response to the growth concerns and issues facing the Town of Knightdale in the early 2000's, and offered building blocks for Knightdale's future.

Although the 2027 Comprehensive Plan is a multi-faceted document encompassing elements such as parks, transportation, utilities and public safety, it is a continuing opportunity to review in a comprehensive way how these elements work together. When these elements are understood holistically, they lead to the kind of future that will benefit the greatest number of people and in turn leave a rich legacy for future generations. The original participants who were the architects of this plan envisioned more housing choices, a broader economic base, improved accessibility and mobility for all citizens, enhancement of the town's rural edges and improved fiscal efficiency.

The process began as an evaluation of the place from which the Town came to develop an understanding of its resources and potential, then organized these lessons and finally set a course for the future. While much of what was known about Knightdale was pleasing to those involved, the process underscored the realization that the Town had much to lose without a vision for the future, and even more to gain if it approached the future in a proactive manner.

At the core of this process was the concern that the future was quickly getting ahead of the Town. This was born in fact by a 216% increase in population of the Town between 1990 and 2000. Such rapid growth could have compromised the community's ability to respond to the needs of residents and businesses. In reaction to rapid growth, the public expressed two (2) primary concerns:

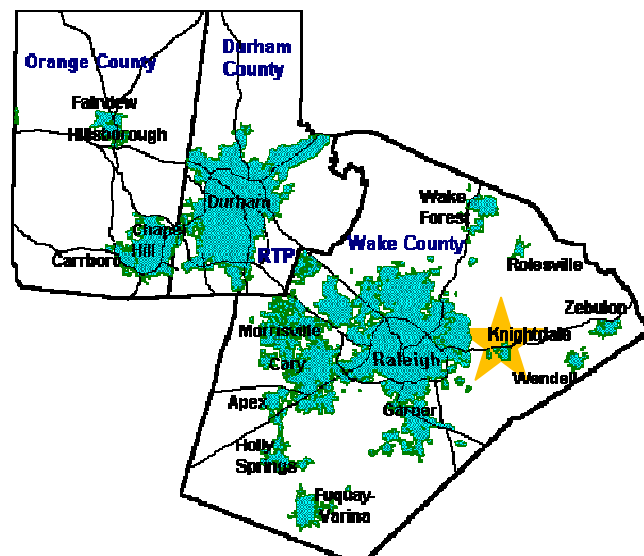
- overcrowded roads; and
- the disappearance of community character and open space.

This document addresses these concerns and other growth issues by examining the way in which a town is built, why it grows and how it develops. By understanding, appreciating and accepting the fundamentals of town building, a community may face growth concerns more effectively and be able to harness its own potential and resources.

Town building, and specifically, urban design, is not a trend. The essence of town building is its timelessness. The Roman Coliseum is more than just a stadium, and the Empire State Building is more than just a commercial office building in the form of a skyscraper. Similarly, it is the hope of town leaders that when the future of Knightdale is envisioned, the town is more than a collection of random buildings and left over bits of “open space”. Rather, it is a town of rich architectural diversity, vibrant public spaces and charming neighborhoods.

Throughout the sordid course of human history, great cities have grown, prospered, decayed and been reborn. Certain features survive because they reflect the community’s spirit, values, culture and aspirations. What sets great towns apart from the mass of mediocre places is that the urban form and arrangement of buildings, along with the residual public and private spaces, encapsulate the spirit, values, culture and aspirations of the community. The creation of great towns is often the work of a few who possess a unique vision and who through their leadership have garnered the trust of the people in order to make that vision a reality.

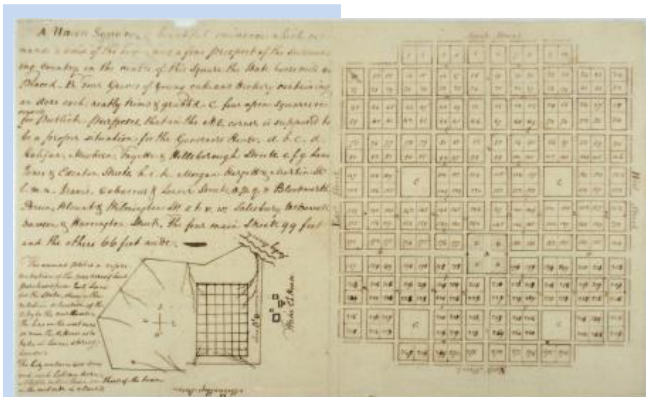
In Knightdale, location is the town’s greatest asset and the key to its growth, which can be directly attributed to its proximity to the economic engines of Raleigh, Research Triangle Park and other Triangle assets like North Carolina State University, Duke University and the University of North Carolina at Chapel Hill. The participants involved in the Comprehensive





Plan process have expressed that the town's location in the region is important to achieving its vision.

The most memorable and impressionable places in the world have grown from a framework that responded to the needs and reflected the aspirations of its citizens. These places were not developed in a vacuum; they did not ignore the historic context or attempt to mimic a past period of human history. Visionary leaders recognize that certain truths about town building exist and apply those lessons to their recommendations and policies. They merge these truths with technological improvements and create timeless places that evolve, avoid decay and are loved by residents and visitors alike. It is the aspiration of Knightdale's leaders that Knightdale be one of these places that exhibits quality growth and continues to be admired by people near and far.



William Christmas' plan for
Raleigh, 1792

II. ORGANIZATION AND ADOPTION OF THE 2027 COMPREHENSIVE PLAN

The 2027 Comprehensive Plan is divided into eight (8) chapters covering statistics and history; community services; transportation; parks, recreation and open space; utilities and design districts. The plan also includes an appendix for focus area plans which to date include: *Old Town Knightdale Small Area Plan*, and *US 64 Bypass Highway Interchange Study*.

The first four (4) chapters establish the framework upon which the comprehensive plan is built:

- Chapter 1 includes the Organization of the Comprehensive Plan, reflections on the purpose and process of creating comprehensive plans, a timeline of the activities and milestones associated with the development of this document, and a brief description of Knightdale which acquaints the reader with the Town's history.
- Chapter 2, Vision 2027, articulates and illustrates the Town's future aspirations.
- Chapter 3, Town Resource Analysis, provides an inventory and analysis of Knightdale's existing population, demographics and zoning assessment.
- Chapter 4, Community Services, provides information regarding health care, public safety and education; and includes a series of objectives and tasks to be undertaken to attain those objectives.

The next four (4) chapters are the building blocks Knightdale uses to realize its future, and are referred to as the Town's "Master Plans":

- Chapter 5, Design District Master Plan, provides a new land use plan and a series of design guidelines for various areas of the planning jurisdiction.
- Chapter 6, Parks, Recreation and Open Space Master Plan; provides for the development of an exceptional town system that has long relied on others for programs and facilities.
- Chapter 7, Transportation Master Plan, provides for a safe and efficient transportation network that increases mobility while preserving the town's local character and enhancing community design.
- Chapter 8, Public Utilities Master Plan, provides a brief synopsis of the merger into the City of Raleigh Public Utilities Department and how these services continue to be coordinated with the town's growth.



Throughout each of the previous chapters, a section is devoted to action items, which will help to identify the mechanisms the Town can use to implement the overall scope of the plan.

The original 2027 Comprehensive Plan became effective upon adoption by the Knightdale Town Council on July 7, 2003. In carrying out the Plan, land use regulations have been amended, including the adoption of an entirely new Unified Development Ordinance (UDO) on November 16, 2005. Similarly, this 2010 update to the 2027 Plan will become effective following the completion of the public involvement process, review by advisory boards, and ultimate adoption by the Knightdale Town Council.

*"We shape our cities,
thereafter they shape us."*

- Anonymous

III. PURPOSE OF THE COMPREHENSIVE PLAN

Various forms of comprehensive planning have been around for centuries. Often these visions were the dictates of leaders who imaged grandiose capital cities like Paris, St. Petersburg, Berlin and ancient Rome. In the United States, early settlements adopted comprehensive plans to guide development decisions including those concerning the placement of civic buildings, utilities and transportation facilities. Among these plans were General Oglethorpe's 1733 "Plan of Savannah (Georgia)", Pierre Charles L'Enfant's 1791 "Plan for the City of Washington" and William Christmas' 1792 "Plan of the City of Raleigh".

The general goals of any comprehensive plan are to:

1. Coordinate public and private investment;
2. Minimize conflict between land uses;
3. Influence and manage the development of the community;
4. Increase both the benefits and cost effectiveness of public investment;
5. Predict infrastructure and service needs in advance of demand; and
6. Ensure that community facilities are located to best serve the community.

The Knightdale Comprehensive Plan provides the basis for rational decision making, **but does not** replace the decision making process. The enactment of the *Knightdale Comprehensive Master Plan* does not constitute a substantive change in existing ordinances of the Town of Knightdale, nor does it supersede or replace the *Unified Development Ordinance* or any other regulatory ordinances.

In applying such ordinances, consideration should be given to the "Objectives" and "Action Items" of the Plan in an attempt to harmonize the two provisions. The Plan is intended to provide guidance in the evaluation of future decisions on land use, infrastructure improvements, transportation and other plans.

Comprehensive planning is a continuous and dynamic process that helps the community achieve goals that are important to its citizens and to the community at large. As a result, these goals tend to change over time. When they do, the community must again review where they have been, examine how they arrived at that point, identify what has changed since their last planning effort, and determine where they want to go next.



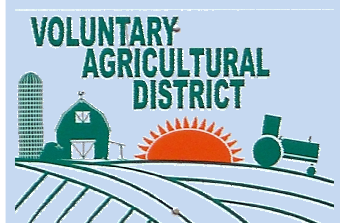
IV. COMPREHENSIVE PLAN DEVELOPMENT PROCESS

The Town of Knightdale has grown tremendously over the past 20 years. This growth is expected to continue for a number of reasons both within and outside of the Town's control. Foremost among these reasons, Knightdale has been and continues to be an appealing place to live and work. The community possesses rich human resources, including a responsive town staff, and an astute and visionary political culture. It is geographically well positioned and is closely associated with state government headquarters in adjacent Raleigh, and with businesses in the Research Triangle Park, which is less than 30 miles away. Major medical facilities and universities in Raleigh, Durham and Chapel Hill are also integral parts of Knightdale's world; and a countryside dotted with family farms, pastures and forests is never far away. For now, much of Knightdale's natural systems remain intact. All of these qualities remain within Knightdale's ability to enhance, manage and sustain.

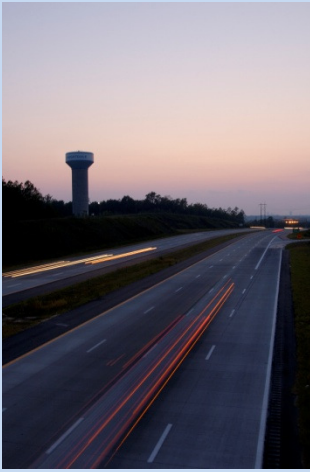
There are other forces outside of the community's control which may seem detrimental to some, but actually bode well for the Town. For example, more stringent air and stormwater quality regulations have affected funding for infrastructure. Diminishing state and federal funding resources for an automobile-only transportation network have impacted the Town's ability to approve development that affords no other way for people to access a site except by automobile. Economic changes affected by globalization, new technology and other forces, including heightened competition for jobs and skilled residents, could include the rejuvenation of at least some of the local agricultural economy. If these are viewed as opportunities rather than impediments, Knightdale can be a leader among area towns.

In order to retain appealing qualities and enhance the success of the community, the Town must plan for the future while being forever mindful of its past. The Town must make decisions today about what kind of community it wants to be tomorrow. The alternative is grim and there are growth forces at work that can irreparably damage the community's physical qualities, constrain personal choice, contribute to fiscal inefficiency, and negate a generation's ability to leave behind a community with strengths what are not only bigger, but better.

Knightdale's Comprehensive Plan is a statement of the Town's goals, objectives and policies regarding future physical growth; it is an official public document adopted by the Town Council. The Plan reflects what the community is feeling about how and where the Town should grow while keeping the context of eastern Wake County and the Triangle Region in mind.



Agriculture has been an integral part of Knightdale's history.



The opening of the US 64 Bypass through southern Knightdale ushered in a new era for the development of the town.

At a minimum, the Comprehensive Plan communicates the Town's intentions regarding land use, urban form, policy formulations, and capital improvement programming; thus enabling coordination of public and private development activities. Yet, the primary purpose is to guide the Council's decisions concerning the future and serve as a consistent reminder to learn from the best and worst of the Town's past.

A. History of Knightdale's Comprehensive Plan

The Town of Knightdale adopted its first Comprehensive Plan on November 1, 1993; and at that time, the document fulfilled the Town's immediate need to coordinate growth. However, Knightdale has seen dramatic changes since the adoption of the 1993 Plan. The construction of the Knightdale Bypass (US Highway 64/264) and the Eastern Wake Expressway (Interstate 540) have proved to be the most significant projects impacting the physical development of Knightdale in the Town's history. While it became evident that a major update to the comprehensive plan was necessary prior to the construction of these road projects in 2003, it was equally evident that the plan needed fine tuning once the real impacts became known.

Discussion of the update to the 1993 Plan began in 1999. On April 3, 2000 a joint meeting of the Town Council, Planning Board, Appearance and Architectural Review Board, Board of Adjustment and Parks and Recreation Advisory Board was held to discuss the update process. It was also at that meeting that the Town Council formally appointed an Ad Hoc Comprehensive Plan Update Committee ("CPUC1"). The Committee was made up of two (2) members of the Town Council; a representative each from the Planning Board, Appearance and Architectural Review Board, Parks and Recreation Advisory Board, Board of Adjustment and the Knightdale Chamber of Commerce; and five (5) at-large members from the community. This group represented the many and varied interests in the Town and acted as a filter and sounding board for Knightdale's planning staff and consultants as data was collected and analyzed. During the development of the Plan, the Committee was engaged in learning about the intricacies of planning and urban design and the relationship of these to the function of the Town. The Committee was introduced to professionals from other communities and attended a tour of several peer communities in the vicinity of Charlotte. This first update process undertook various forms and lasted longer than anticipated, primarily due to turnover of planning staff managers. The process also suffered due to the ever increasing responsibilities of the Planning Department, which made it difficult to update the plan in-house. In February of 2002, the Town ended up hiring consultants to complete the update, and the plan was adopted in 2003.



With a full complement of planning staff employed in 2009, the Town Council decided to proceed with an in-house “mini-update” of the 2027 Comprehensive Plan. Again, an Ad Hoc Committee (“CPUC2”) was appointed by the Council, this time consisting of two (2) Land Use Review Board members, (2) Old Town Oversight Committee members, one (1) Town Council representative and five (5) citizen appointees. One (1) staff member was appointed to act as the consultant while other staff participated in debates and discussions. The focus this time would be to refine the concept of design districts, add detail to the parks and recreation master plan, analyze the transportation plan and update the goals, objectives and action items found throughout the plan.

B. The Public Participation Process, Meetings and Timeline

Knightdale has a tradition of participatory government. When larger issues arise, the response of the Town has been in many cases to appoint citizens to a committee charged with studying the issues and recommending solutions. Often, the decision making process is more effective and stronger when the Town’s residents, business people and development community participate. The appointment of CPUC1 to update the Town’s existing Comprehensive Plan in April 2000 was an extension of this philosophy which has continued through to the appointment of CPUC2 nine (9) years later in April 2009.

The public participation process for CPUC 1 involved a series of meetings, public hearings and citizen surveys. In the initial stages, the Town sought to perform a simple update; however, as CPUC1 continued to meet, a series of recommendations emerged which required dramatic changes in the concepts of the plan, which essentially transformed the update into a new plan. This required complex involvement from the consultants, CPUC1, Town staff and the public. CPUC2, meanwhile, established goals that were more closely aligned with a true update of CPUC1’s new plan and worked with in-house staff to address important issues that had arisen in the intervening six (6) years. The following provides highlights and general timeline of the update processes:

CPUC1

| | |
|----------------|--|
| 1999 | Discussion of a Comprehensive Plan update |
| April 3, 2000 | Joint meeting of Town Boards and appointment of the Ad Hoc Comprehensive Plan Update Committee |
| April 27, 2000 | Public Hearing to initiate update process |



CPUC2 engaged in monthly meetings and workshops.

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| May 25, 2000 | Comprehensive Plan Update Committee meetings began to review elements (These meetings continued on a semi-regular basis until Plan completion.) |
| April 4, 2002 | Farm owners meeting (Sponsored by Wake County) |
| April 23, 2002 | Stakeholders meeting (citizens and business, civic, religious and other community leaders) |
| June 12, 2002 | Landowners meeting (landowners of parcels >10 acres) |
| August 7, 2002 | First public workshop on Design Districts |
| September 4, 2002 | Second public workshop on Design Districts |
| October 15, 2002 | Third public workshop on Design Districts |
| October 23, 2002 | Fourth public workshop on Design Districts |
| December 4, 2002 | First comprehensive plan open house forum |
| December 18, 2002 | Second comprehensive plan open house forum |
| January 6, 2003 | Town Council initial Public Hearing on final draft |
| January 15, 2003 | Third comprehensive plan open house forum |
| January 27, 2003 | Planning Board review and approval of draft document |
| April 3, 2003 | Public Meeting to review draft plan |
| July 2003 | Approval of final document |
| CPUC2 | |
| April 6, 2009 | Town Council adopts Resolution #09-04-06-002 establishing CPUC2 |
| June 4, 2009 | CPUC2 holds first of a year-long series of monthly meetings |
| August 18, 2009 | First general open house for the public |
| February 8, 2010 | Second general open house for the public |
| May 6, 2010 | Town staff holds open house for representatives of neighboring jurisdictions |
| May 19, 2010 | Town Council progress report |
| July 21, 2010 | Town Council progress report |



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|-------------------|---|
| August 9, 2010 | Land Use Review Board progress report |
| August 18, 2010 | Town Council update |
| October 7, 2010 | CPUC2 makes final recommendations and endorses updated plan |
| December 6, 2010 | Town Council Public Hearing on final draft |
| December 13, 2010 | Land Use Review Board Board review and approval of draft document |
| January 19, 2011 | Town Council approval of final document |

C. Visual Preference Survey

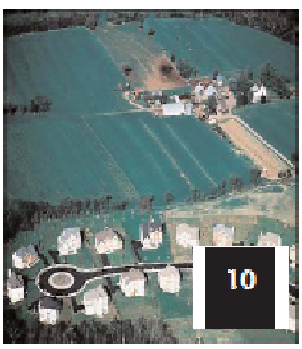
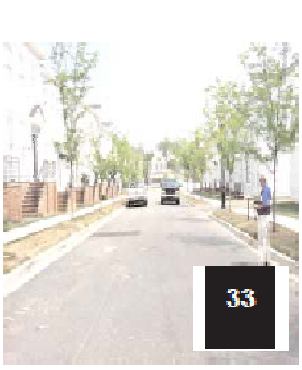
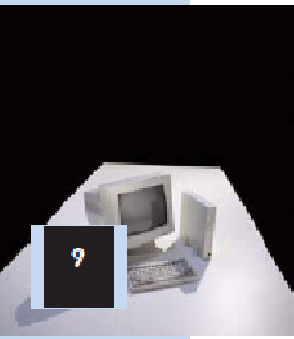
In early 2002, a visual preference survey was distributed to citizens via public meetings, inclusion in Town and Chamber of Commerce mailings and through the Planning Department. The survey was used to generate discussion and interest in the Comprehensive Plan and to have citizens think about the future of Knightdale.

The Town received a number of responses. The responses varied, but overall the public was in favor of a mixture of housing types and densities; alternate transportation options such as mass transit, sidewalks and greenways, instead of just automobile usage; a mixture of shopping opportunities that included quaint small scale shopping areas; and a variety of industry types, including biotechnology and farming industries. The preference survey along with the many comments received from the public revealed that citizens had a strong interest in preserving Knightdale's small town charm, open space and farmland.

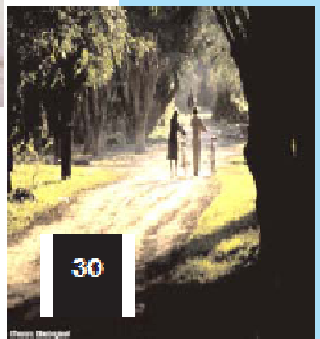
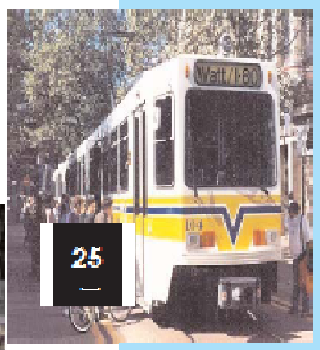
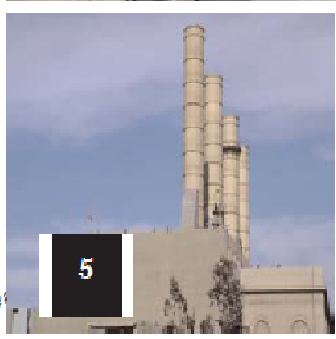
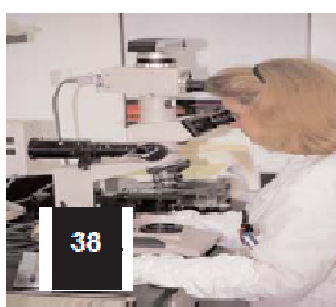
The four (4) columns on the 2002 survey (Figure 1.1) asked questions of the public to understand their viewpoint on what choices they would make regarding 1) shopping, 2) housing, 3) working and 4) mobility. The numbers in the black box reflect the number of responses received for the top three (3) answers to each of the four (4) questions. The discussion raised from the survey continued to indicate that Knightdale's citizens wanted to maintain small town character and have varied housing, shopping and transportation choices.

AND RESULTS

Where Would You Most
enjoy shopping?



What Type(s) of Industry
Should We Have in
Town?



How Would You Prefer
to Get Around?



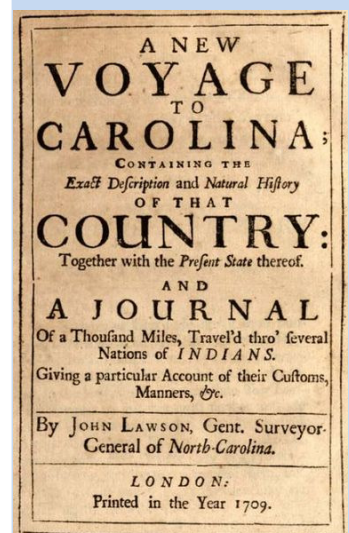
V. KNIGHTDALE LOCATION AND HISTORY

The story of Knightdale begins with exploration and discovery. As an incorporated town, Knightdale is a relative newcomer to Wake County and North Carolina history. The Knightdale community, which is an area that extends beyond the present day extraterritorial jurisdiction or ETJ, has a recorded heritage that dates back to the colonial era in American history. In the year 1700, the Lords Proprietor of the Colony, wishing to know what lay in the interior of the land that was called Carolina, hired a young man named John Lawson to explore this vast unknown land. Starting in an area near present day Charleston, South Carolina, Lawson began a trek that covered roughly 1,000 miles through the heart of the Carolina Colony. According to his diary, which was published in England in 1709, Lawson passed through this area sometime in February of 1701. His diary records a meeting with fierce Tuscarora Indians on the banks of the Neuse River. However, with the help of an Indian interpreter, Lawson was able to make peace with the Tuscarora. Whether or not this event occurred, Lawson is thought to be the first European to explore this part of North Carolina.

During the eighteenth century, people began to be interested in acquiring land along this new frontier. After receiving the report from Lawson, the King of England decided that the time had come to apportion these lands to willing settlers. Around 1730, John Hinton left his family home in present-day Gates County, North Carolina and headed west, finally settling in what would one day be called Knightdale. This hardy woodsman erected the first dwelling built by a settler of European descent in the Knightdale area. Although the land that was granted to Hinton extended to what is now Clayton, North Carolina, and beyond; Hinton settled in an area near the Neuse River, not far from where Hodge and Old Faison roads now intersect.

In time, more settlers became attracted to the area. As more people moved here, the need for some sort of local government arose. The colonial government appointed Hinton to be the Justice of the Peace for Craven County, a county that at the time stretched from New Bern to present day Research Triangle Park. After forming Johnston County out of Craven County in 1746, the colonial government looked to Hinton to organize a local militia. Given the rank of colonel, Hinton formed a small band of militiamen to serve at the wishes of the royal governor who resided in New Bern. Aside from service as the local police, the Johnston County militia would see no action until after the County had been divided again in 1771 to form Wake County.

At the beginning of the American Revolution, Hinton abandoned his allegiance to the Crown and was called once again to serve as a military leader. Hinton played a key role



Cover of John Lawson's 1709 book on his pioneering adventures in "Carolina".



The old Knightdale Depot was removed and is now in private use.



The Midway house on its re-located site.

in the first battle of the American Revolution fought on North Carolina soil - the February 1776 Battle of Moore's Creek Bridge. Not long after the battle, Hinton was chosen as a delegate to the Fourth Provincial Congress, which passed a resolution known as the Halifax Resolves, later used by Thomas Jefferson as a model for the Declaration of Independence. In this way, the area that we plan for today played a role in the formation of our nation. Three (3) of the seven (7) Hinton plantation homes in the Knightdale area are still intact: "The Oaks", "Midway" (although it has been moved from its original location), and "Beaver Dam".

Following Independence, the people of this area went about making a living from the land. Local farmers successfully grew tobacco and cotton. Although not as prominent in this area as the Deep South, slavery nonetheless was a component of the community's economy. Although many slaves were buried in long-lost unmarked gravesites throughout the Knightdale area, documentation of some gravesites is helping the Town identify and protect these as an important part of our cultural and historic heritage.

It was not until after the Civil War, that Raleigh and Wake County saw a tremendous population boom, resulting in the need to divide the County into smaller administrative units, "townships", that could respond more effectively to the needs of residents. The area that became Knightdale was located in St. Matthew's Township. For deed purposes, the township name may still be referenced; however, it no longer functions as an independent administrative unit.

For many years the area that is now Old Town Knightdale was a crossroads served only by a post office. Most of the people in the area were farmers growing a variety of crops, although tobacco was the main cash crop. Near the end of the nineteenth century, many local citizens saw the need to establish a town. Four (4) of those citizens—Mr. Henry Haywood Knight, his wife, Bettie; and Mr. Needham P. Jones, and his wife, E. Meto—deeded right-of-way to the Raleigh & Pamlico Sound Railroad Company on February 25, 1904 and February 9, 1904, respectively; for a railroad line to be run through the area. It was hoped that the railroad would provide freight and passenger service, and facilitate the incorporation of the community. Unfortunately, Mr. Knight died later that year and did not live to see the railroad come to Knightdale – the community that would bear his name.

The construction of the railroad and station caused the life and commerce of the area to move at a faster pace. The railroad moved timber and farm products to the market and moved people to Raleigh. In November 1906, the Norfolk and Southern Railroad consolidated with the Raleigh & Pamlico Sound Railroad Company to form the Norfolk





and Southern Railway Company. As the need for more railroad workers increased, Norfolk and Southern moved many families into the community to take care of the railroad. Many of the older homes in Knightdale were built specifically for the use of railroad workers and their families. Along the tracks, just south of the Robertson Street crossing, stands the original railroad stationmaster's house.

The railroad generating commerce and traffic grew the demand for services. To fill this need, a bank, shops, and other businesses were established along First Avenue. The increased economic activity and growing local identity that stemmed from the railroad led to Knightdale receiving its articles of official incorporation from the North Carolina Legislature on March 9, 1927. After incorporation, many more businesses moved into town, including a farmer's cooperative, a barbershop and several small grills.

Despite the growth and prosperity, Knightdale's future was uncertain due to the absence of municipal services, particularly a municipal water system. Relying only on well water to serve its needs, the Town was subject to the unpredictable nature of the weather and the threat of fire. This shortfall came to a head in 1940 when, in the early morning hours of February 7, a fire began in the storehouse of Robertson's Hardware Store and rapidly threatened to engulf the entire business district and adjacent homes. In a virtuous act of community spirit, town residents turned out to fight the flames. Desperate to bring the fire under control, neighbors joined together to draw water from the wells, forming bucket brigades to try and halt the fire. The heroic effort was futile. The fire was not brought under control until trained firefighters arrived from Raleigh with an adequate water supply, but by then, most of the original commercial and residential core had burned to the ground.

After the fire, the people of Knightdale went about rebuilding their once proud downtown business district. Helped along by the baby boom following World War II, the population of Knightdale grew at a steady pace, but Knightdale retained its small town atmosphere. The corner drugstore, the bank and the barbershop on First Avenue not only served as places of business, but places for social gatherings. Movies were often shown on the wall of the old bank building, which is located at the intersection of First Avenue and Main Street. It was not until 1952 that a municipal water system was finally completed, and that led to the subsequent formation of the Knightdale Volunteer Fire Department in 1953.

As competition from the automobile increased, the railroad's role as a determining factor in the urban form of the town disappeared. In the 1960's, with acres of land needed to accommodate the automobile, new businesses in Knightdale began to locate along



The Knightdale stationmaster's house.



*Downtown Knightdale today
– First Avenue.*

US64, the former “Tarboro Road”, and onto land once covered by farms and forests. The widening of US64 to four (4) lanes in the 1970’s, coupled with the construction of the Mingo Creek sewer outfall in the 1980’s and the broader growth of the Research Triangle region of central North Carolina, accelerated Knightdale’s population growth, while farms and forests continued to evaporate.

During the past 10 years, Knightdale has continued to experience tremendous change. According to the official 2009 estimates from the US Census Bureau, Knightdale has been the 15th fastest growing municipality in North Carolina since 2000. The Town’s growth rate has only accelerated with the completion, in 2005, of the US 64 Bypass and, in 2007, the completion of I-540. Through this updated Comprehensive Plan, the Town is seeking to attract quality growth and promote economic development opportunities.

Despite this growth, Knightdale leaders have assisted in maintaining the small-town charm and cozy atmosphere that has made it a great place to live, work and raise a family. The downtown business district, once fought for so valiantly, is a quiet shadow of its former glory. However, Knightdale residents are now able to enjoy the cultural, athletic, recreational and shopping benefits of a large metropolitan area, while at the same time maintaining the sense of community that can only be experienced in a small town.



VISION 2027: TOWN & COUNTRY

I. INTRODUCTION

The Official Seal of the Town of Knightdale (as seen at right) embodies a train, cotton, a tobacco leaf, and a pine tree. These symbols of Knightdale's historic beginnings and economic origins say much about her citizens' desire for Knightdale's future. Early citizens knew that the keys to a vital community rested on the new town's ability to embrace new technology and infrastructure and capitalize on its native and developed resources.

The physical, built form of a town reflects the decision making processes employed by local leaders, and the decision making processes are guided by the community's vision or lack of vision. Most towns hope that development is accompanied by economic vitality and community enhancements, but those enhancements may end up compromising a community's aspirations for a prosperous future without a clearly stated and defended vision. Without such a vision, the community is left to the dictates of others unfamiliar with the community.

Knightdale has been and continues to be in an enviable position that few communities share, and the question becomes not "will" Knightdale grow, but "how"? The Town of Knightdale is confident that it will grow because of the following reasons:

- Proximity to Downtown Raleigh, Research Triangle Park, North Carolina State University and Wake Tech Community College;
- Ease of access via the US Highway 64/264 and Interstate 540 freeways;
- Potential to utilize the existing rail corridor for enhanced freight and/or passenger service;
- Availability of large parcels of undeveloped land adjacent to transportation corridors;
- Availability of ample public utility capacity; and
- A rapid residential growth rate (Knightdale's resident population grew an astounding 216% between 1990 and 2000, one of the fastest rates in the state; followed by an estimated 98% between 2000 and 2010.)



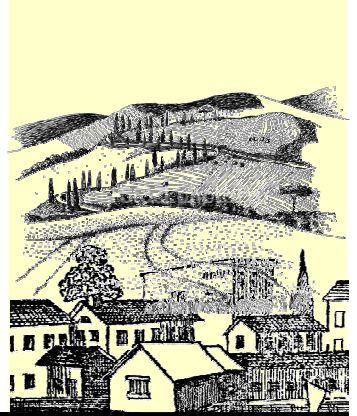
II. OVERALL GOALS OF THE COMPREHENSIVE PLAN

Keeping the preceding reasons for growth in mind, the Comprehensive Plan of the Town of Knightdale provides a functional framework to guide the development and implementation of a community vision that promotes the following specific goals:

1. To maintain a respect for the existing relationship between rural and urban Knightdale; the old English concept of town building based upon “town and country” is the foundation of this Plan; and
2. To provide equal opportunity to all Knightdale citizens, including equal access to facilities and opportunities of the Town and region; and
3. To provide safe, dynamic and sustainable neighborhoods, which offer employment opportunities, high quality education, adequate and affordable shelter, health care, and recreational amenities; and
4. To provide a vibrant and varied local economy, which will attract and support a wide diversity of business opportunities and community services; and
5. To provide balance and responsible urban design, planning and development, and protection of the Town’s historical, cultural and natural resources; and
6. To provide an open, accessible, responsive and fiscally responsible government whose structure creates the functional framework to meet the goals of the Plan.

The goals as outlined are the result of several years of learning, listening and communicating with citizens, town officials, the development community and planning consultants. Both of Knightdale’s Comprehensive Plan Update committees and the Town’s Planning Staff agree that Knightdale can afford to imagine a proactive future, guided by the expressed desires of her citizens because the Town possesses a unique, and enviable, geographic position within a nationally-recognized economic center, and because of improving accessibility and regional growth.

While demonstrating a desire for growth and development, the Town should seek to minimize the negative impacts of said growth and always employ the expectation that new development will contribute positively to the overall health and function of the Town. In the final analysis, the Comprehensive Plan Update Committees hope that the decisions made by the Town in the coming years will contribute to the building of a legacy that benefits future generations.



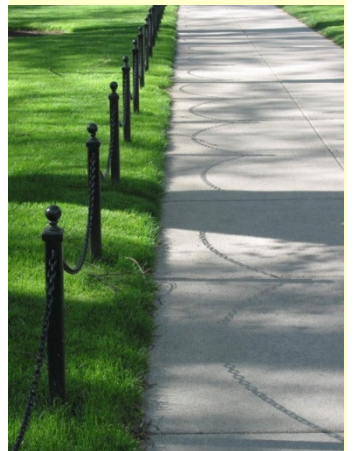
III. 2027 VISION PROCESS

Realizing the overall vision for Knightdale requires clear, attainable objectives that address the preceding goals. Tasks for achieving these objectives are then provided to guide the Town's planning and implementation strategies. The objectives and tasks throughout the document are formed by local desires, current conditions, future trends and opportunities; they are items by which the Town can measure its progress in fulfilling the vision for Knightdale's future.

In crafting a vision for Knightdale, public participation played a key role in understanding what the public envisioned for the future of the Town. Feedback in the form of phone calls and email, discussion at meetings and written comments from a visual preference survey, resulted in several common themes. The following statements summarize the most common concerns and issues as stated by citizens at the June 2002 Landowners Workshop (**See Figure 2.1 for the detailed comments from the June 12, 2002 Public Planning Workshop**):

- Preserve some of the rural character...farms and natural areas.
- Retain the small-town atmosphere.
- Expand economic opportunities, broaden our local economy.
- Expand housing choices.
- Improve transportation choices. Make it easier to walk, get to Raleigh.
- Preserve and enhance our unique character.
- Preserve our history.
- Continue to make Knightdale more attractive.
- Knightdale has so much potential it does not have to settle for less.

Creating the vision of what Knightdale can be in 2027 meant finding the consensus between what the public said and what the staff, committee and consultants learned about the Town's resources, constraints and future trends. A number of questions were posed throughout the visioning process by CPUC1 and included the following:



Any town that doesn't have sidewalks doesn't love its children. - Margaret Mead

*A street is a spatial entity
and not the residue
between buildings. -
Anonymous*

Q: What planning precedents from other towns should be followed?

A: The project team studied Raleigh's Cameron Park neighborhood; the Towns of Cornelius, Davidson and Huntersville, NC, and English town building concepts as citizens expressed a strong desire to maintain a small town atmosphere and preserve rural areas.

Q: What lessons may be learned from these?

A: After studying a number of development scenarios from existing towns, it was noted that transportation corridors determine where and how development occurs, that existing infrastructure can be maximized, and that the Town can require a high standard of development.

Q: Is the Town able to imitate successes from these places?

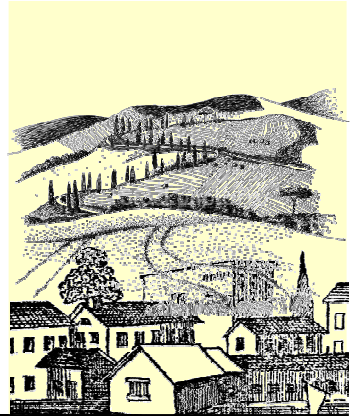
A: The project team understands that many "new places" have components which may be duplicated from "old places". Regional examples of these "old places" include Charleston, South Carolina and Savannah, Georgia. These towns have become major tourist attractions in large part because of their historical patterns of development. The question is, does Knightdale want to become "Everywhere, USA" or does Knightdale want to have a unique small town character which is memorable to its citizens and visitors?

Q: What tools does the Town need to meet its goals and objectives?

A: Having strong leadership is one of the most important tools since the Town's leaders make important decisions about land use and town creation. Having a clear vision is also an important tool. The vision outlined in this Plan is the result of active public participation which dictates how the Town will grow through 2027. Sound planning principles are critical and are reflected in a well written zoning and subdivision ordinance. Finally, appropriately crafted policies on issues, such as annexation and extension of water and sewer services, will help the Town successfully implement its growth priorities.



The public squares of old Savannah, Georgia contribute to the local character and tourism.



Q: What kind of future can the Town achieve?

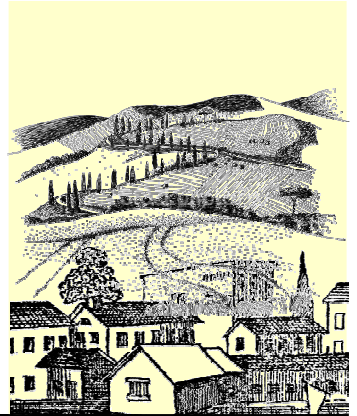
- A: It is not unrealistic to imagine that Knightdale can be a regional leader in town building and grow in a quality fashion. As noted previously, growth pressures are ever increasing but, with the right tools in place, Knightdale may have a prosperous future.

The people's vision for Knightdale in 2027 is summarized by the phrase "Town and Country", and the details of this vision are found throughout this document, from the Design District Master Plan to the Small Area Plans. CPUC2 acknowledged and affirmed the existing vision as they set out to refine the plan details in 2009. By continuing to keep this vision at the forefront of its mind, the Town may better create a community of which future generations will be appreciative.

FIGURE 2.1

| What elements would make Knightdale a distinct and memorable town? | | |
|---|---|---|
| <p>Group 1:</p> <ul style="list-style-type: none"> • "Small town atmosphere" • "Country life with city perks" • "Safety" • "Distinctive / upscale shopping (quaint downtown)" | <p>Group 2:</p> <ul style="list-style-type: none"> • "Small town atmosphere" • "Different street standards – small scale" • "No more cul-de-sac(s)" | <p>Group 3:</p> <ul style="list-style-type: none"> • "A strong comprehensive plan implemented (sic) by zoning, ordinances, etc. – community vision" • "Uniform design standards" • "Differentiate ourselves from our surrounding communities – East Raleigh, etc." |
| Land Use and Growth | | |
| <p>Group 1:</p> <ul style="list-style-type: none"> • "Why do comprehensive plan if someone can randomly change it – need to change zoning to implement the Comp. Plan." | <p>Group 2:</p> <ul style="list-style-type: none"> • "Create a plan to put high density where we want it" • "New zoning districts" • "Neighborhood streets" • "No landfill" • "Place a section away from (existing) residential for high density & commercial" | <p>Group 3:</p> <ul style="list-style-type: none"> • "Need future land use map" • "Implement new zoning and ordinances to encourage growth in accordance with the new plan" |

| Historic Preservation | | |
|--|---|--|
| Group 1: <ul style="list-style-type: none"> “Revitalize downtown – commuter rail” | Group 2: <ul style="list-style-type: none"> “Protect our downtown “Protect existing quality of life” “More open space” “Connectivity” “Link from past to future of Knightdale” “Diversity” | Group 3: <ul style="list-style-type: none"> “Old downtown, plantations” |
| Transportation | | |
| Group 1: <ul style="list-style-type: none"> “Link North Knightdale with South K-Dale (sic)” “Rail” | Group 2: <ul style="list-style-type: none"> “Zone existing s/d (sic) property to protect from haphazard dev.” “Noads (sic) of development to connect back from edges of highways” “Expand our roads and ease congestion” “Train stop in K'dale properly zoned” “Plan corridor along rail system” | Group 3: <ul style="list-style-type: none"> “Develop regional political strength to influence transportation issues on a regional basis” “As a municipality become local road builders. (Bonds paid for by impact fees)” |
| Bypass 64 | | |
| Group 1: <ul style="list-style-type: none"> “Speed up link/connection from 540 to 64 bypass” | Group 2: <ul style="list-style-type: none"> “Need to take control of interchanges in our ETJ and expand ETJ. Run water sewer.” | - |
| Business 64 | | |
| Group 1: <ul style="list-style-type: none"> “Less stoplights” “Synchronized lights” | Group 2: <ul style="list-style-type: none"> “Prevent Bus. 64 from looking like hwy 70 in Clayton or Capital Blvd” “Buffers and streetscapes” | Group 3: <ul style="list-style-type: none"> “How do we retain existing large businesses? How do we promote quality long-term businesses? We need to be user friendly” |



| Smithfield Road | | |
|---|---|--|
| Group 1: <ul style="list-style-type: none"> • “Pedestrian friendly aesthetically pleasing (landscaping)” • “Streetscaping – old fashioned lights. Meandering/winding, walkways, benches” • “Greenway connectivity” | Group 2: <ul style="list-style-type: none"> • “Important future connector from 64 bypass to Knightdale need to look at future land use on this corridor – future 4 lane with median” | Group 3: <ul style="list-style-type: none"> • “Park and ride for train to RTP and downtown” |
| Open Space, Parks and Recreation | | |
| Group 1: <ul style="list-style-type: none"> • “Usable open space – a variety not specific to team sports” • Connectivity localize parks – amphitheater – pool” | Group 2: <ul style="list-style-type: none"> • “More green space in each new s/d” • Greenway system to connect K’dale” | Group 3: <ul style="list-style-type: none"> • “Preserve what little older growth that we have” • “Force developers to do lower impact development” • “Require natural areas” • “Need tax base growth for Parks and Recreation” |
| Housing | | |
| Group 1: <ul style="list-style-type: none"> • “Better quality” • “Larger lots” • “Higher density” • “More varieties of builders” • “No more cookie-cutter garage doors on the street” | Group 2: <ul style="list-style-type: none"> • “Don’t want to see manufactured housing as infill in existing s/d” • “Larger homes” • “A place for all homes” | Group 3: <ul style="list-style-type: none"> • “More upscale single-family homes” • “Balance with commercial, industrial” |
| Retail | | |
| Group 1: <ul style="list-style-type: none"> • “More upscale / distinctive shops” • “Revitalize downtown buildings for shops, restaurants, cafes, etc.” • “More variety” • “Less fast food, car wash, Quick Lubes” | Group 2: <ul style="list-style-type: none"> • “Keep in noads (sic) from the edges of main highways” • “New ways to encourage employment based growth” | Group 3: <ul style="list-style-type: none"> • “More mixed-use – community integrated small store shopping” |

| Catalyst Projects | | |
|--|---|--|
| Group 1: <ul style="list-style-type: none"> • “Industrial park” • “Wake Tech (Community College) extensions” • “Medical center” | Group 2: <ul style="list-style-type: none"> • “Good planning” • “Medicine” • “Have a large corporation / industry come to K’dale area like Bayer plant, Glaxo...” • “Hi-light / promote amphitheater at Park” • “Encourage the arts – music, drama, dance” | Group 3: <ul style="list-style-type: none"> • “Important to attract now before large land tracts are gone. Incentives? Promotion? Chamber?” |



2007 – Knightdale Town Council Members: (L-R) James Roberson, Tim Poirier, Russell Killen (Mayor), Terrence Gleason, Jeff Eddins & Mike Chalk (Mayor Pro Tem).

IV. TOWN COUNCIL VISION STATEMENT

In 2007, the Town Council set out on its own visioning process for the Town and established the following:

Vision: *Promoting wellness through healthy and active neighborhoods and businesses*

Mission: *Serve citizens of Knightdale by providing leadership to promote quality living, balanced growth, and economic opportunity*

Focus Areas: *Safe; Transparent; Active; Green; Engaged (STAGE)*

CPUC2 considered the original vision of “Town and Country” as well as the Council’s vision as embodied by STAGE throughout the course of its update work. The result is a renewed focus on engaging the community in building an active, safe and self-sufficient town while employing an open and transparent regulatory process that encourages green development practices in order to preserve the town’s rural and historic heritage.



TOWN RESOURCE ANALYSIS

I. INTRODUCTION

This chapter of the 2027 Comprehensive Plan is intended to present background information and statistics on the Town of Knightdale and how the Town has changed over the last several years. This data is provided to give some context to the community goals, objectives, and policies that follow in subsequent chapters. The Town Resource Analysis chapter contains data and analysis regarding seven primary areas:

- Geography
- Land Use and Land Values
- Population and Demographics
- Housing and Commercial Real Estate Data
- Historic Resources
- Economic Character
- Environment and Natural Resources

II. GEOGRAPHY

Knightdale is one of twelve municipalities located within Wake County, North Carolina. The town is situated approximately six miles east of the City of Raleigh across the Neuse River. Knightdale is predominately an agrarian town with over 44% of the overall planning area used for agricultural production. 18.9% of the planning area is currently developed for residential usage with an emphasis on detached single-family home development. Less than 0.1 % of the total residential development is used for apartments and high-density development. Currently, 15.9% of the area is vacant and in transition awaiting a new classification. The remaining 21.1% is classified as commercial, industrial or exempt land uses that include utility company property, churches, and schools.

The planning area for the Town of Knightdale is composed of four geographic units or subareas:

- The Corporate Limits
- The Extra-territorial Jurisdiction
- The Short Range Urban Service Area
- The Long Range Urban Service Area.

These boundaries have been established through enabling legislation from the State of North Carolina, as well as by mutual cooperation with Wake County and surrounding municipalities.

The Corporate Limits is the area that is incorporated, or within the defined city limits of Knightdale. Knightdale collects taxes from citizens and properties within this area, while providing the full range of municipal services, like police and fire protection.

The Extra-territorial Jurisdiction (or ETJ) is an area surrounding the city limits which projects outward for approximately one mile from the city limits. The Town of Knightdale has the authority to complete land use planning for this area, though taxes in this area are not collected by the Town. As new development occurs within the ETJ, the Town requires that new development submit a voluntary annexation petition. This allows Knightdale's city limits to grow.

The Short Range Urban Service Area (or SRUSA) is a band around the Town's ETJ on the northern, eastern and southern sides. This is an area which will eventually come under the land use planning jurisdiction of, and ultimately be, annexed by the Town of Knightdale. Typically, land use planning control is extended as Knightdale pushes its ETJ boundary outwards from the corporate limits as new development locates proximate to the city limits. When the SRUSA was originally developed in 1997, it was envisioned by Knightdale and Wake County that Knightdale would extend urban infrastructure (such as roads and sewer lines) throughout the Short Range Urban Service Area within ten years, or by 2007.

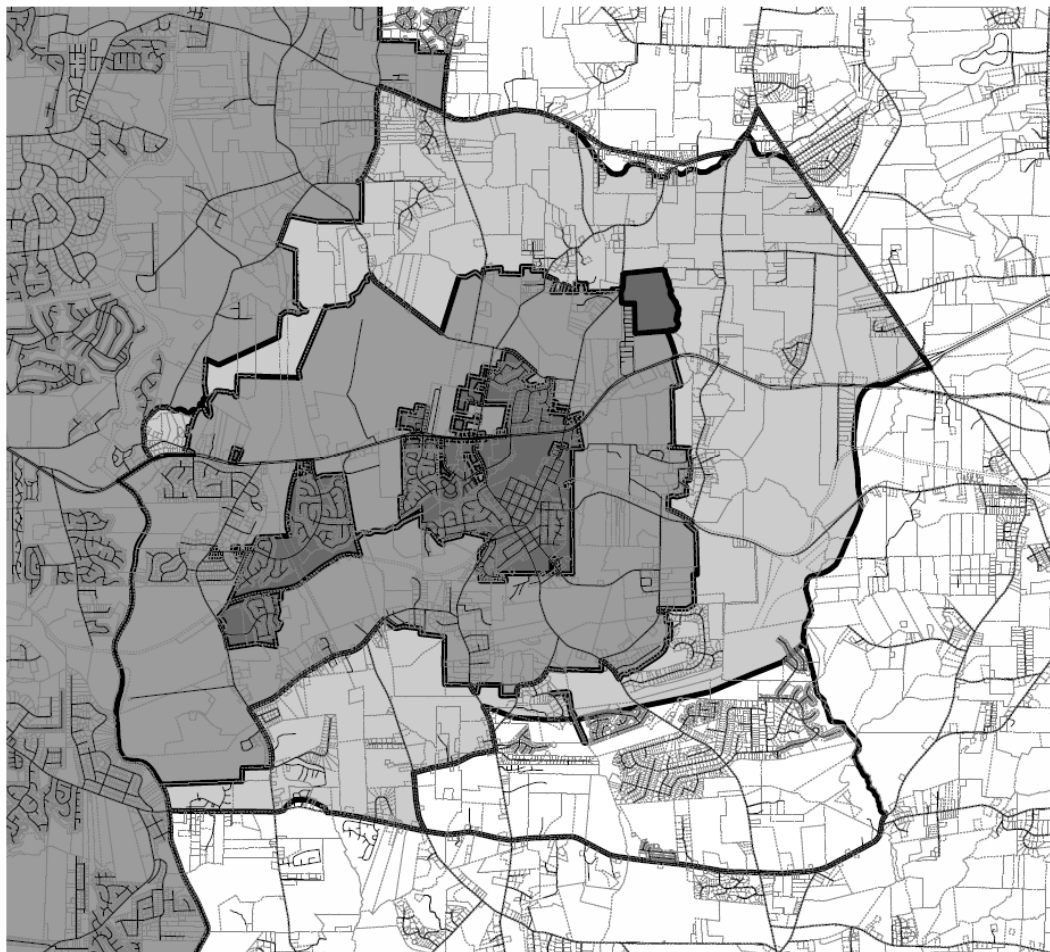
The Long Range Urban Service Area (or LRUSA) represents the ultimate extent of Knightdale's City Limits and planning jurisdiction at some point in the future. The LRUSA is bounded on the north and south by the City of Raleigh's LRUSA, and on the east by the Town of Wendell's LRUSA. Knightdale currently has no control over land use planning within its LRUSA. Figure 3.1 shows each of the four geographic subareas which compose Knightdale planning area.

Figure 3.1 Knightdale Planning Area Boundaries

Previous land use planning efforts in Knightdale have not included the area beyond the ETJ boundaries, but changing conditions now warrant that the 2027 Comprehensive Plan consider all of the ultimate planning area.



KNIGHTDALE PLANNING AREA BOUNDARIES



LEGEND

- STREETS
- PARCELS
- CORPORATE LIMITS
- EXTRA-TERRITORIAL JURISDICTION
- SHORT RANGE URBAN SERVICE AREA
- LONG RANGE URBAN SERVICE AREA

Table 3.1 shows the number of individual parcels and the various boundary sizes of the parts composing the Knightdale planning area. The Knightdale planning area is composed of over 6,000 parcels, occupying over 31 square miles. Approximately 40% (12.7 square miles) of this area is composed of the Corporate Limits and the ETJ. Knightdale has a somewhat small planning area, and will have to grow in a compact fashion to make the best possible use of the available land.

TABLE 3.1:
Number of Parcels and Physical Size for Knightdale Boundaries, June 2001

| | <i>Corporate Limits</i> | <i>Extra-Territorial Jurisdiction</i> | <i>Short Range Urban Service Area</i> | <i>Long Range Urban Service Area</i> | <i>TOTALS</i> |
|-------------------------------|-------------------------|---------------------------------------|---------------------------------------|--------------------------------------|---------------|
| Number of Parcels | 2,437 | 1,268 | 1,165 | 1,446 | 6,316 |
| Gross Acres | 1,757.0 | 6,369.5 | 8,986.5 | 3,043.1 | 20,156 |
| Square Miles | 2.75 | 9.95 | 14.04 | 4.75 | 31.49 |
| Percent of Total Square Miles | 8.7% | 31.6% | 44.6% | 15.1% | 100.0% |

Source: Wake County GIS (Property Appraiser's Office Data) as of 6/1/01

FIGURE 3.2:
Planning Area Sizes (percent of total)

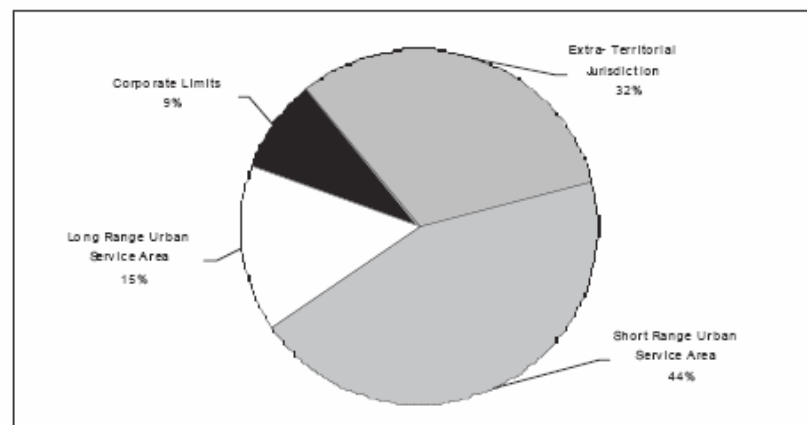




Table 3.2 charts the population growth and annexation statistics for the Town of Knightdale during the 1990s. According to the North Carolina Office of State Planning, the population within the Knightdale Corporate Limits increased by over 3,000 people from 1990 to 1999. The vast majority of this population growth is a result of annexations.

The Corporate Limits almost doubled in size from 1.38 square miles to 2.65 square miles over the 1990s, picking up over 812 acres. One of the reasons for this increase is that Knightdale requires new development occurring outside the Corporate Limits to submit a petition for annexation as a part of the development approval process. If past development trends can be used to predict the future, it is likely that the rate of Knightdale's geographic expansion will increase in the coming years.

TABLE 3.2:
Population Growth and Annexation in the Town of Knightdale, 1990-1999

| | |
|--|--------|
| 4/1/90 Population * | 1,884 |
| 7/1/99 Population | 5,242 |
| Population Increase from 1990-1999 | 3,358 |
| Amount of 7/1/99 Population within Area Annexed from 1990-1999** | 2,841 |
| "Core" Population Growth *** | 517 |
| Corporate Limits Land Area on 4/1/90 (in sq. mi.) | 1.38 |
| Corporate Limits Land Area on 7/1/99 (in sq. mi.) | 2.65 |
| Amount of Land Annexed Between 4/1/90 and 7/1/99 (in sq. mi.) | 1.27 |
| Amount of Land Annexed Between 4/1/90 and 7/1/99 (in acres) | 812.80 |

Source: NC Office of Statewide Planning

* Source: US Census of Population & Housing

** This is the population (as of 7/1/99) contained within all the areas annexed from 4/1/90 to 7/1/99

*** This is the amount of population increase which occurred within the Corporate Limits Land Area (as it existed on 4/1/90) from 4/1/90 to 7/1/99

III. POPULATION

Table 3.3, Figures 3.3 and Figure 3.4 show the changes in the population within Knightdale's Corporate Limits for the last 40 years according to the Census. The Town's population has grown from approximately 600 people in 1960 to almost 6,000 people by 2000, an increase of 857% over this period. Growth rates have picked up over time as well. Knightdale's population almost doubled between 1980 and 1990, and quadrupled between 1990 and 2000. If population growth in other comparable Triangle cities can be used as a model, it is likely that these trends in population growth will continue well into Knightdale's future.

TABLE 3.3:
Changes in Town of Knightdale Population, 1960-2000

| Year | Population | Numeric Increase From Previous Count | Percent Increase From Previous Count |
|------|------------|--|--|
| 1960 | 622 | - | - |
| 1970 | 815 | 193 | 31.0% |
| 1980 | 985 | 170 | 20.9% |
| 1990 | 1,884 | 899 | 91.3% |
| 2000 | 5,958 | 4,074 | 216.2% |

Source: US Census of Population and Housing

FIGURE 3.3:
**Changes in Knightdale
Population, 1960-2000**

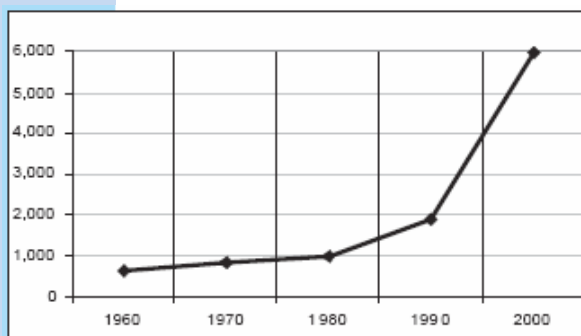


FIGURE 3.4:
**Percent Increase in Knightdale
Population, 1970-2000**

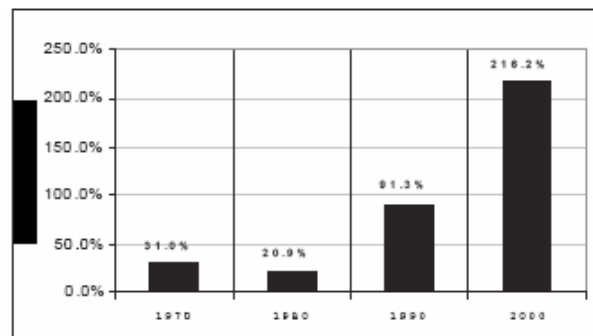




Table 3.4 and Figure 3.5 chart the 2000 population for the Knightdale Corporate Limits as well as the three other sub-areas of the Knightdale Planning Area. The population within the overall planning area is over 15,000 people.

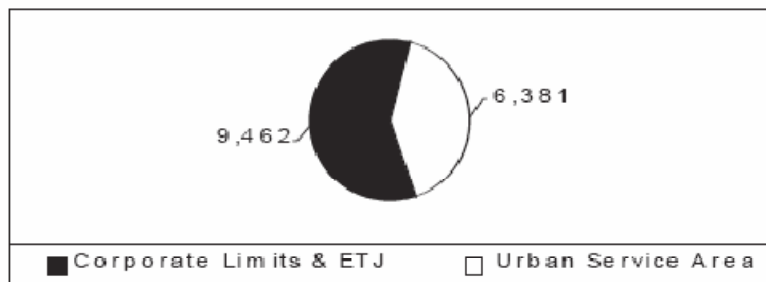
TABLE 3.4:
Population by Knightdale Planning Area, 2000

| Area | 2000 Population | Percent of Total |
|--------------------------------|-----------------|------------------|
| Corporate Limits | 5,958 | 37.6% |
| Extra-territorial Jurisdiction | 3,504 | 22.1% |
| Short Range Urban Service Area | 3,104 | 19.6% |
| Long Range Urban Service Area | 3,277 | 20.7% |
| Totals | 15,843 | 100.0% |

Source: US Census of Population & Housing Block-level Data

Note: Some area boundaries were adjusted to follow census block boundaries for deriving population

FIGURE 3.5:
2000 Population by Planning Area



The population within the Corporate Limits accounts for less than 40% of the Planning Area's population. It is interesting to note that the Short Range Urban Service Area contains less than 20% of the Planning Area's population, but almost 45% of the total land area. This means that population densities within the Short Range Urban Service Area may be somewhat low. Population within the Long Range Urban Service Area is almost entirely concentrated within four large subdivisions located adjacent to South Smithfield Road.

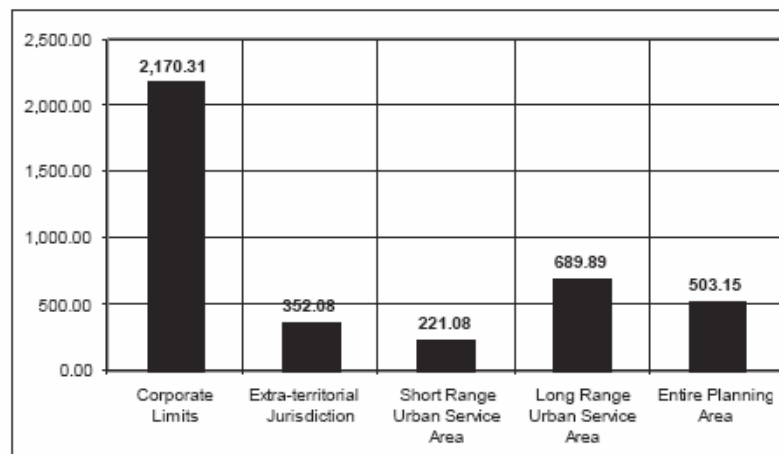
Table 3.5 and Figure 3.6 combine the information contained within the previous charts to illustrate the population density. Population density is the number of people per unit of space, such as square miles or acres. Population densities are higher (over 2,000 people per square mile) within the Corporate Limits due to the large amount of urbanized land within the urban area.

TABLE 3.5:
Population Density for the Knightdale Planning Area, 2001

| | 2000 Population | Size in Square Miles | Size in Acres | Population Density per Square Mile | Persons per Acre |
|-----------------------------------|--------------------|-------------------------|---------------|--|---------------------|
| Corporate Limits | 5,958 | 2.75 | 1,756.95 | 2,170.31 | 3.39 |
| Extra-territorial Jurisdiction | 3,504 | 9.95 | 6,369.46 | 352.08 | 0.55 |
| Short Range Urban Service Area | 3,104 | 14.04 | 8,986.54 | 221.08 | 0.35 |
| Long Range Urban Service Area | 3,277 | 4.75 | 3,043.09 | 689.89 | 1.08 |
| Entire Planning Area | 15,843 | 31.49 | 20,156.04 | 503.15 | 0.79 |

Sources: US Census of Population & Housing; Wake County GIS (Property Appraiser's Data as of 6/1/01)

FIGURE 3.6:
Population per Square Mile



Population densities drop off very rapidly within the ETJ and SRUSA due to these areas' larger land masses, and smaller populations. The trend reverses within the Long Range Urban Service Area, in part as a result of the boundary's smaller size. However, the population density is four times higher in the LRUSA than in the SRUSA. This indicates that the land within the LRUSA is much more developed than the land in the SRUSA; a fact which could make future annexations in these areas more difficult.



IV. DEMOGRAPHICS

The following tables and figures provide more information on the attributes of the population within the Town of Knightdale. The table showing gender characteristics indicates that over 50% of the population in Knightdale is female, and is increasing over time.

TABLE 3.6:
Gender Characteristics for the Town of Knightdale, 1990 & 2000

| | 1990 | 2000 |
|-----------------------|-------|-------|
| Number of Males | 906 | 2,783 |
| Percentage of Males | 48.1% | 46.7% |
| Number of Females | 978 | 3,175 |
| Percentage of Females | 51.9% | 53.3% |
| Total Population | 1,884 | 5,958 |

Source: US Census of Population & Housing

The age structure is also a very important characteristic as it relates to the various needs of the population, such as provision of schools, employment, and service needs. Age groups have been broken down into logical divisions: young children (ages 0-4), school age children (ages 5-19), the working age population (ages 19-64), and the retirement age population (65+).

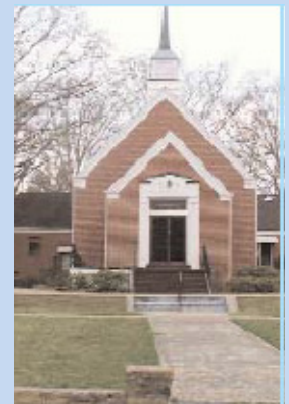
TABLE 3.7:
Town of Knightdale Population By Age Group, 1990 & 2000

| Age Group | 1990 | 1990 Percent of Total | 2000 | 2000 Percent of Total |
|---------------------------------|-------|--------------------------|-------|--------------------------|
| 0-4 (Young Children) | 174 | 9.2% | 561 | 9.4% |
| 5-19 (School-age Children) | 215 | 11.4% | 858 | 14.4% |
| 20-64 (Working-age Population) | 1,212 | 64.3% | 3,688 | 61.5% |
| 65+ (Retirement-age population) | 111 | 5.9% | 303 | 5.1% |
| Total Population | 1,884 | 100.0% | 5,958 | 100.0% |
| Median Age | 31.0 | - | 30.5 | - |

Source: US Census of Population & Housing

Table 3.7 shows that there have been numeric increases across all age groups from 1990 to 2000, but the fastest growing age group is the school-age population, which increased by 300% between 1990 and 2000.

The number of young children and retirement age populations comprised the same proportion of the population between 1990 and 2000 (10% and 6% respectively); but



the working age population declined as a portion of the overall population from 71% to 68%. These figures indicate a greater need for schools and other school-related services, and a smaller working-age population to support these expenditures.

Table 3.8 shows the racial composition of Knightdale, and indicates that Knightdale is becoming more racially diverse. Caucasians declined from almost 90% of the population in 1990 to just under 70% African-Americans increased over 800% over the decade. The large percentage increase in the "Other Races" category is a function of a different report style utilized by the Census in 2000 which allowed participants to enter one or more races. The Hispanic ethnic group also experienced substantial increases over the period.

TABLE 3.8:
Racial Characteristics for the Town of Knightdale, 1990 & 2000

| Race | 1990 | | 2000 | | Percent Change from 1990-2000 |
|------------------------|--------|------------|--------|------------|----------------------------------|
| | Number | % of Total | Number | % of Total | |
| Caucasian | 1,692 | 89.8% | 4,043 | 67.9% | 138.9% |
| African American | 170 | 9.0% | 1,500 | 26.8% | 840.6% |
| American Indian | 0 | 0.0% | 21 | 0.4% | - |
| Asian/Pacific Islander | 12 | 0.6% | 89 | 1.5% | 641.7% |
| Other Race * | 10 | 0.5% | 206 | 3.5% | 1960.0% |
| Total Population | 1,884 | 100.0% | 5,958 | 100.0% | 216.2% |
| Hispanic ** | 28 | 1.5% | 220 | 3.7% | 685.7% |

Source: US Census of Population & Housing

* The large increase in the "Other Race" category is attributable to the Census creation of a Two or More Races Category for the 2000 Census

** Hispanic origin is considered to be an ethnic group, not a race by the US Census



Table 3.9 shows the educational attainment of persons in Knightdale in 1990. Approximately 41% of the population within the Corporate Limits had an Associates Degree or higher. Only 11 % of the population lacks a high school degree.

TABLE 3.9:
Educational Attainment in the Town of Knightdale, 1990

| <i>Amount of Education</i> | <i>Number of People</i> | <i>Percent of Total</i> |
|--|-------------------------|-------------------------|
| Less than 9th Grade | 50 | 4.1% |
| 9th to 12th Grade, No Diploma | 91 | 7.4% |
| High School Graduate | 332 | 26.9% |
| Some College, No Degree | 251 | 20.4% |
| Associates Degree | 121 | 9.8% |
| Bachelor's Degree | 303 | 24.6% |
| Graduate or Professional Degree | 84 | 6.8% |
| Percent High School Graduate or Higher | | 88.6% |
| Percent Bachelor's Degree or Higher | | 31.4% |

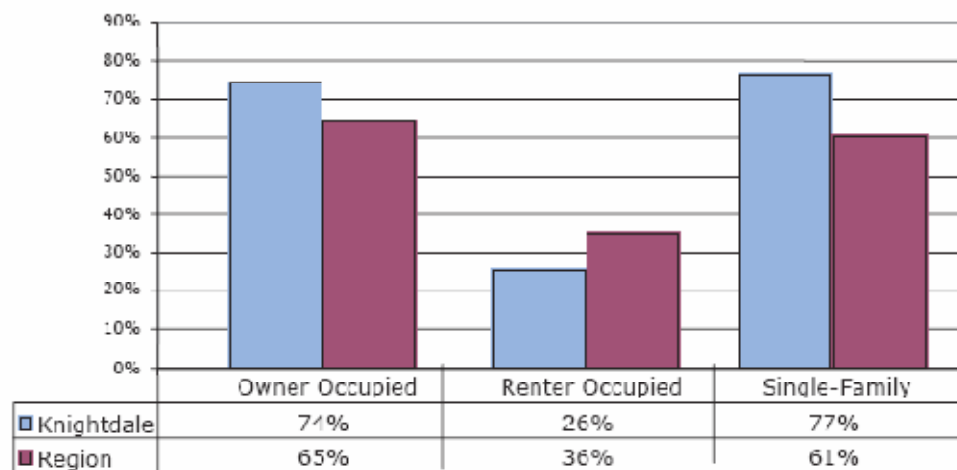
Source: US Census of Population

V. HOUSING AND COMMERCIAL REAL ESTATE MARKET

A. Introduction

Knightdale's housing market is dominated by affordable owner-occupied housing. Much of the housing in Knightdale has been developed and marketed to consumers seeking more value than they could get in many of the region's larger and faster growing housing markets (i.e. Cary, North Raleigh, Apex). Knightdale's housing market is also dominated by single-family housing, a common occurrence in outlying suburban communities with relatively affordable land pricing.

FIGURE 3.7: Knightdale & Raleigh-Durham Region Housing Statistics



Source: Karnes Research, 2002.

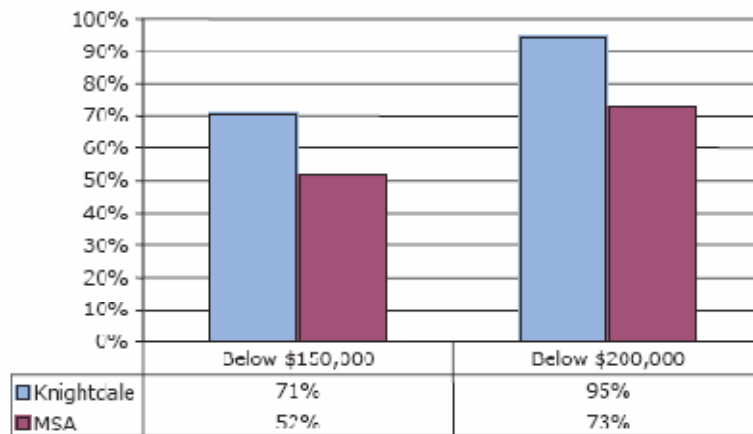
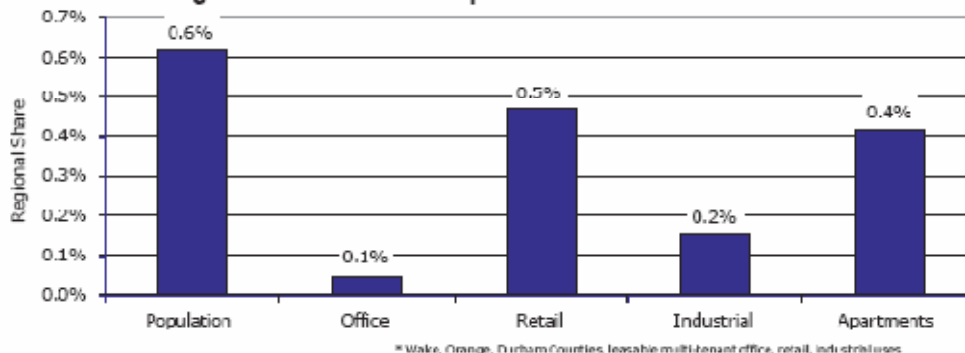


FIGURE 3.8: Affordable Homes Shares: Knightdale vs. Region

Source: Kames Research, 2002

Apartment development in the Raleigh-Durham region has been more concentrated along the I-40 corridor as it stretches between Raleigh and Durham. This corridor has the highest concentration of employment uses and has attracted the bulk of the region's multi-family rental housing. Some limited apartment development has, however, occurred along US-64 over the past ten years. Much of this product has, however, been marketed as mid-market or affordable and was built to serve persons employed in eastern Raleigh and Wake County. The development and leasing of new apartment units should accelerate in Knightdale with the completion of US-64 Bypass, I-640, and the potential introduction of commuter rail service.

FIGURE 3.9: Knightdale's Share of Population and Commercial Uses



Source: Kames Research

Very little leasable office and industrial space is found in Knightdale. Less direct access and an abundance of business parks with available land more centrally located in the region is responsible for Knightdale's limited regional share of leasable office and industrial space. Like many smaller suburban communities nationally, small companies that serve the growing population base of the community occupy most of the office space in Knightdale. One is more likely, for example, to find branch banks, real estate firms, small medical offices and clinics in a community like Knightdale than large employers that export products and services outside the region.

Most of the industrial space in Knightdale is owner occupied space, which is tenanted by local manufacturers and distributors. Some of Knightdale's largest employers -- Square D, DT Magnetics, and Wake Stone Corporation - are in such space. The development of the I-540, US-64 Bypass, and commuter rail will improve Knightdale's marketability for attracting office, industrial, and distribution uses. Improved regional access, a faster pace of housing and retail growth that will boost the community's labor market, and more services should make Knightdale more attractive to office users.

Most of the retailers in Knightdale serve the needs of local residents as well as some limited retail and service needs of travelers and commuters that use US 64. Grocery stores, restaurants, gas stations, branch banks, and few larger stand-alone discounters are the primary retailers in Knightdale.

No regional or sub-regional centers (i.e. malls or large multi-tenant power centers) are located in Knightdale. A regionally peripheral location and inferior interstate access are responsible for the lack of a regional, or even sub-regional, shopping destination. Population growth from new household formation and increased access that will result from the development of I-540, US-64 Bypass, and the proposed commuter rail line should dramatically improve the feasibility of a large retail center in Knightdale over the next five to ten years.

The development of the proposed commuter rail line, which will connect Knightdale to Downtown Raleigh to the west as well as points in eastern North Carolina, would have a substantial economic impact on Knightdale. Based upon the experience of other metropolitan areas, transit is powerful magnet for new development and redevelopment. A thoughtfully designed rail station and careful attention to surrounding land uses and site design could attract a mix of retailers, new residences, and office occupying businesses that would not consider Knightdale before the introduction of commuter rail service.

Households seeking a small town atmosphere, as well as easy transit access to many



of the region's largest employment centers would find housing near a Knightdale rail station attractive. Retailers and office users that service a residential base could also take advantage of the increased customer traffic. Some employers would also find a locational advantage in the increased commuting options for employees that a transit station in Knightdale would allow.

B. Housing

A household is defined by the Census as one or more people living together in a housing unit. A "family" household is more than one person living together in a housing unit who are related through marriage, birth, or adoption. A non-family household is one or more unrelated people living in a housing unit. An owner-occupied household is a person or group of people living in a housing unit which is owned by the people living within it. A renter-occupied household is a person or group of people living in a housing unit which is rented, not owned.

TABLE 3.10:
Household Characteristics for the Town of Knightdale, 1990 & 2000

| | 1990 | 2000 | Percent Change 1990-2000 |
|---|------|-------|-----------------------------|
| Total Number of Households | 733 | 2,172 | 196.3% |
| Persons Per Household (Average Household Size) | 2.57 | 2.70 | 5.1% |
| Number of Owner-Occupied Households | 574 | 1,613 | 181.0% |
| Number of Renter-occupied Households | 159 | 559 | 251.6% |
| Average Household size of Owner-occupied Housing Units | 2.61 | 2.83 | 8.4% |
| Average Household size of Renter occupied Housing Units | 2.43 | 2.33 | 4.1% |
| Number of Family Households | 556 | 1,627 | 192.6% |
| Number of Non-family Households | 177 | 545 | 207.9% |
| Average Family Size | 2.93 | 3.13 | 5.0% |
| Persons in Group Quarters | 0 | 96 | - |

Source: US Census of Population & Housing

The number of households increased almost 200% from 1990 to 2000, the majority of which (75%) are owner occupied. However, the percent increase in the number of renter-occupied households was much higher. This indicates that more of the available housing stock is being converted to rentals, or is being built as rentals.

The number of persons per household (or average household size) increased to 2.70 persons per household by 2000, despite declines in the average household size of renter-occupied households. There are more family households than non-family households, and average family size also increased between 1990 to 2000. Knightdale also established its first population in group quarters (a nursing home) between 1990 and 2000.

B. Housing Characteristics

The following tables and figures provide information on the housing unit characteristics for Knightdale, its ETJ and Short and Long Range Urban Service Areas.

Table 3.11 shows the total number of dwelling units in the Knightdale Planning Area for 2000. In some cases, the boundaries between Census Blocks and the existing Planning Area subunits did not match up. For ease in data collection, the Census Block lines were followed.

Census data indicate that there were a total of 6,171 housing units in 2000, the majority of which (3,738 units, or 60%) were located within the Corporate Limits and the ETJ. It is interesting to note that the Short and Long Range Urban Service Areas have about the same number of housing units, despite the fact that the Short Range Urban Service Area is almost ten square miles larger.

TABLE 3.11:
Number of Dwelling Units by Knightdale Planning Area, 2000

| <i>Area</i> | <i>Number of Dwelling Units</i> | <i>Percent of Total</i> |
|--------------------------------|---------------------------------|-------------------------|
| Corporate Limits | 2,352 | 38.1% |
| Extra territorial Jurisdiction | 1,336 | 22.5% |
| Short Range Urban Service Area | 1,220 | 19.9% |
| Long Range Urban Service Area | 1,205 | 19.5% |
| Totals | 6,171 | 100.0% |

Source: US Census of Population & Housing Block-level Data

Note: Some area boundaries were adjusted to follow census block boundaries for deriving dwelling unit counts

Table 3.12 presents information on the housing unit occupancy figures for the Corporate Limits during 1990 and 2000. Note that the total number of housing units increased almost 200% from 1990 to 2000, but the vacant number of housing units increased 246% for the same period. Homeowner vacancy rates are declining slightly, while rental vacancy rates have tripled. This may indicate a glut in the supply of rental housing; but it is important to remember that annual changes in vacancy rates are highly variable.



TABLE 3.12:
Housing Occupancy Characteristics for Corporate Limits, 1990 & 2000

| | 1990 | 2000 | Percent Change from 1990-2000 |
|---------------------------------|------|-------|----------------------------------|
| Total Housing Units | 785 | 2,352 | 199.6% |
| Occupied Housing Units | 733 | 2,172 | 196.3% |
| Number of Owner-occupied Units | 574 | 1,613 | 181.0% |
| Number of Renter-occupied Units | 159 | 559 | 251.6% |
| Vacant Housing Units | 52 | 180 | 246.2% |
| Homeowner Vacancy Rate | 5.9% | 5.8% | - |
| Renter Vacancy Rate | 3.0% | 10.3% | - |

Source: US Census of Population & Housing

Table 3.13 provides additional information on the overall vacancy rate (the combination of owner and renter-occupied units) for all four subunits of the Knightdale Planning Area for 2000. The overall vacancy rates are higher within the Corporate Limits and the ETJ are due in part to the larger overall number of units.

TABLE 3.13:
Vacancy Rates for the Knightdale Planning Area, 2000

| Area | Number of Dwelling Units | Number of Vacant Units | Vacancy Rate |
|--------------------------------|-----------------------------|---------------------------|--------------|
| Corporate Limits | 2,352 | 180 | 7.65% |
| Extra-territorial Jurisdiction | 1,386 | 109 | 7.86% |
| Short Range Urban Service Area | 1,228 | 66 | 5.37% |
| Long Range Urban Service Area | 1,205 | 51 | 4.23% |
| Totals | 6,171 | 406 | 6.58% |

Sources: US Census of Population & Housing Block-level data

Table 3.14 and Figure 3.10 represent a much more in-depth analysis of single family housing unit sizes across the Knightdale Planning Area. This data was derived from the Wake County Property Appraiser's information on June 1, 2001. The data deals only with single family units, and is organized by square footage ranges across each of the Planning Area subunits.

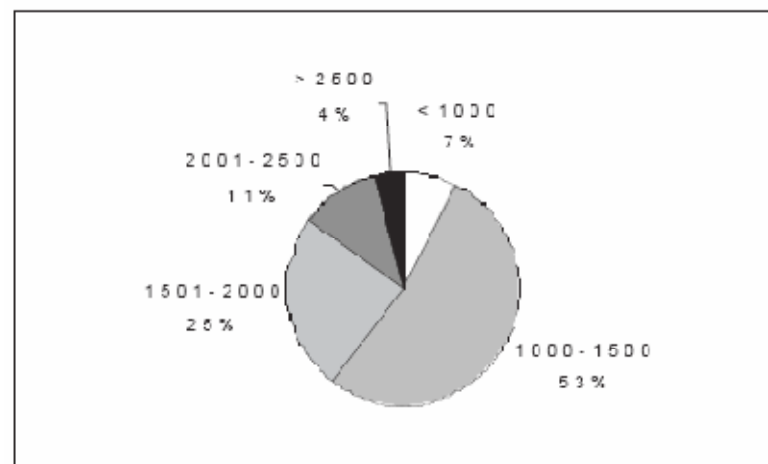
TABLE 3.14: Single Family Residential Dwelling Unit Sizes in the Knightdale Planning Area, 2001

| | <1,000 | | 1,000-1,500 | | 1,501-2,000 | | 2,001-2,500 | | >2,500 | | Total | |
|--------------------------------|-------------|------|-------------|-------|-------------|-------|-------------|-------|-------------|------|-------|--------|
| | Square Feet | % | Square Feet | % | Square Feet | % | Square Feet | % | Square Feet | % | # | % |
| # | | | # | | # | | # | | # | | | |
| Corporate Limits | 124 | 6.5% | 785 | 41.1% | 599 | 31.4% | 328 | 17.2% | 73 | 3.8% | 1,909 | 100.0% |
| Extra Territorial Jurisdiction | 36 | 4.4% | 346 | 42.1% | 302 | 36.7% | 95 | 11.6% | 43 | 5.2% | 822 | 100.0% |
| Short Range Urban Service Area | 54 | 9.1% | 288 | 45.2% | 162 | 27.3% | 59 | 9.9% | 50 | 8.4% | 593 | 100.0% |
| Long Range Urban Service Area | 118 | 9.2% | 1,052 | 82.0% | 75 | 5.8% | 22 | 1.7% | 15 | 1.2% | 1,283 | 100.0% |
| Total | 332 | 7.2% | 2,451 | 53.2% | 1,138 | 24.7% | 504 | 10.9% | 182 | 4.0% | 4,607 | 100.0% |

Source: Wake County GIS (Property Appraiser's Data as of 6/1/01)

Note: This table only includes single family dwellings

**FIGURE 3.10:
Dwelling Unit Sizes (In Square Feet) for the Entire Knightdale Planning Area**





Homes between 1,000 and 1,500 feet of heated square footage comprised the largest portion of housing sizes. It is interesting to note that the Short and Long Range Urban Service Areas had higher percentages of homes smaller than 1,000 square feet than did the Corporate Limits or the ETJ. Another interesting result of the study is that at least 70% of the single family homes within the Corporate Limits and the ETJ are between 1,000 and 2,000 square feet in size. Overall, almost 78% of the housing stock within the Knightdale Planning Area is between 1,000 and 2,000 square feet in size.

VI. ZONING

The next section in this chapter expands on the current zoning designations within the Knightdale planning area. Typically, zoning is not thought of as an extension of long range planning; rather, it is a means to implement the goals and objectives embodied within the Comprehensive Plan under current planning processes.

Zoning is defined as the designation of a range of appropriate land uses and development standards for a particular piece of property or properties in advance of or following development of that property. Zoning represents the range and variety of development options, as well as the investment-backed expectations associated with a piece of property. Municipalities are given the authority to zone land by the State of North Carolina in the interest of protecting the health, safety, and welfare of the public.

Previously, there has been little study on zoning patterns and their effects on assessed values, rate and timing of development, municipal service delivery, and quality of life within the Town. However, it is often the zoning of land which exerts the greatest effects on these attributes. As a result, this section will present some very basic information associated with the current zoning designations across each of the Knightdale Planning Area sub-areas. The purpose for providing this information is to present a snapshot of current development trends, and identify ways to improve upon these trends in pursuit of consistency with the Town's development goals.

A. Corporate Limits

Table 3.15 shows the breakdown of zoning by number of parcels and acres for parcels located within the Corporate Limits. The data shows that 78% of the land inside the Corporate Limits is zoned for residential uses, 18% is zoned for commercial uses, and 4% is zoned for industrial uses.

TABLE 3.15:
Town of Knightdale Zoning Inside Corporate Limits, as of 6/1/01

| <i>Zoning District</i> | <i>Number of Parcels</i> | <i>Number of Acres</i> | <i>Percent of Total Acres</i> |
|------------------------------------|--------------------------|------------------------|-------------------------------|
| Residential-Agricultural (RA) | 71 | 330.15 | 19.2% |
| Residential 20 (R-20) | 67 | 99.953 | 5.7% |
| Residential 15 (R-15) | 92 | 80.598 | 4.6% |
| Residential 12 (R-12) | 19 | 13.043 | 0.7% |
| Residential 10 (R-10) | 339 | 225.308 | 12.8% |
| Residential 7 (R-7) | 1,167 | 400.997 | 22.8% |
| Multifamily & Townhouse Res. (RMT) | 478 | 214.276 | 12.2% |
| Residential Subtotal | 2,233 | 1,372.33 | 78.1% |
| Office Professional (OP) | 23 | 63.794 | 3.6% |
| Neighborhood Commercial (NC) | 42 | 79.069 | 4.5% |
| Retail Commercial (RC) | 60 | 80.621 | 4.6% |
| Highway Commercial (HC) | 26 | 89.282 | 5.1% |
| Commercial Subtotal | 151 | 312.77 | 17.8% |
| Light Industrial (LI & IM) | 10 | 13.303 | 0.8% |
| Manufacturing (M1) | 23 | 54.886 | 3.1% |
| Industrial Subtotal | 33 | 68.19 | 3.9% |
| No Zoning Indicated | 20 | 3.67 | 0.2% |
| TOTALS | 2,437 | 1,756.95 | 100.0% |

Source: Wake County GIS (Property Appraiser Data as of 6/1/01)

Note: 20 parcels were lacking zoning designations in the GIS database. These parcels may be streets or other land uses that are not zoned.



B. Extra-Territorial Jurisdiction

Table 3.16 shows the zoning for parcels in the Extra-territorial Jurisdiction. This is the area outside the Corporate Limits where Knightdale retains planning control. These figures show that about 70% of the land is zoned for residential purposes, 20% for industrial, and 10% for commercial land uses.

TABLE 3.16: Knightdale Zoning Inside the Extra-territorial Jurisdiction, as of 6/1/01

| <i>Zoning District</i> | <i>Number of Parcels</i> | <i>Number of Acres</i> | <i>Percent of Total Acres</i> |
|------------------------------------|--------------------------|------------------------|-------------------------------|
| Residential-Agricultural (RA) | 1,063 | 3763.419 | 59.1% |
| Residential 15 (R-15) | 3 | 184.345 | 2.9% |
| Residential 10 (R-10) | 6 | 155.917 | 2.4% |
| Residential 7 (R-7) | 5 | 276.298 | 4.3% |
| Multifamily & Townhouse Res. (RMT) | 5 | 56.574 | 0.9% |
| Residential Subtotal | 1,082 | 4,436.55 | 69.7% |
| Office Professional (OP) | 10 | 21.116 | 0.3% |
| Neighborhood Commercial (NC) | 3 | 3.176 | 0.0% |
| Retail Commercial (RC) | 7 | 119.963 | 2.1% |
| Highway Commercial (HC) | 121 | 476.205 | 7.5% |
| Commercial Subtotal | 141 | 650.79 | 10.2% |
| Light Industrial (LI & IM) | 1 | 13.593 | 0.2% |
| Manufacturing (M1) | 32 | 648.489 | 10.2% |
| Manufacturing (M2) | 6 | 620.032 | 9.7% |
| Industrial Subtotal | 39 | 1,282.11 | 20.1% |
| No Zoning Indicated | 6 | - | - |
| TOTALS | 1,268.00 | 6,389.46 | 100.0% |

Source: Wake County GIS (Property Appraiser Data as of 6/1/01)

Note: 6 parcels were lacking zoning designations in the GIS database. These parcels may be streets or other land uses that are not zoned.

C. Short Range Urban Service Area

Table 3.17 shows the zoning designations for parcels in the Short Range Urban Service Area. Note that these zoning designations are different than those utilized within the Knightdale Corporate Limits and the ETJ. Wake County retains planning control of these areas until Knightdale extends its ETJ outwards to encompass these areas. The figures show that almost 90% of the land is zoned for residential uses (the vast majority of which is for 30,000 square foot lots, or about 1.4 units per acre), and the remaining 10% is zoned for commercial.

TABLE 3.17: Wake County Zoning Inside the Knightdale Short Range Urban Service Area, as of 6/1/01

| <i>Zoning District</i> | <i>Number of Parcels</i> | <i>Number of Acres</i> | <i>Percent of Total Acres</i> |
|------------------------------|--------------------------|------------------------|-------------------------------|
| Residential 80 (R80) | 1 | 0.069 | 0.0% |
| Residential 40 (R40) | 38 | 691.964 | 7.7% |
| Residential 30 (R30) | 1,039 | 7,106.288 | 79.1% |
| Residential 20 (R20) | 26 | 106.202 | 1.2% |
| Residential 10 (R10) | 3 | 5.417 | 0.1% |
| Mobile Home (MH) | 5 | 163.679 | 1.8% |
| Residential Subtotal | 1,082 | 8,073.62 | 89.8% |
| Office & Institutional (O&I) | 1 | 10.819 | 0.1% |
| Highway District (HD) | 44 | 792.123 | 8.9% |
| General Business (GB) | 6 | 6.537 | 0.1% |
| Airport District (AD1) | 1 | 65.255 | 0.7% |
| Commercial Subtotal | 52 | 875.73 | 9.7% |
| Industrial (I-1) | 1 | 1.073 | 0.0% |
| Industrial (I-2) | 11 | 39.113 | 0.4% |
| Industrial Subtotal | 12 | 37.19 | 0.4% |
| No Zoning Indicated | 19 | - | - |
| TOTALS | 1,155.00 | 8,986.54 | 100.0% |

Source: Wake County GIS (Property Appraiser Data as of 6/1/01)

Note: 19 parcels were lacking zoning designations in the GIS database. These parcels may be streets or other land uses that are not zoned.



D. Long Range Urban Service Area

Table 3.18 shows the zoning designations for parcels inside the Long Range Urban Service Area. Again, the zoning designations are those utilized by Wake County. No pie chart has been included since virtually all the parcels are designated for residential uses at around two dwelling units per acre or less.

TABLE 3.18: Wake County Zoning Inside the Knightdale Long Range Urban Service Area, as of 6/1/01

| <i>Zoning District</i> | <i>Number of Parcels</i> | <i>Number of Acres</i> | <i>Percent of Total Acres</i> |
|-----------------------------|--------------------------|------------------------|-------------------------------|
| Residential 40 (R40) | 278 | 895.148 | 29.4% |
| Residential 30 (R30) | 547 | 1,708.694 | 56.1% |
| Residential 20 (R20) | 599 | 320.864 | 10.5% |
| Residential 10 (R10) | 2 | 78.927 | 2.6% |
| Mobile Home (MH) | 3 | 38.985 | 1.3% |
| Residential Subtotal | 1,429 | 3,042.62 | 100.0% |
| General Business (GB) | 1 | 0.475 | 0.0% |
| No Zoning Indicated | 16 | - | - |
| TOTALS | 1,446 | 3,043.09 | 100.0% |

Source: Wake County GIS (Property Appraiser Data as of 6/1/01)

Note: 16 parcels were lacking zoning designations in the GIS database. These parcels may be streets or other land uses that are not zoned.

Table 3.19 shows the summary zoning characteristics by general land use type for each of the subunits of the Knightdale Planning Area. Overall, 84% of the Knightdale Planning Area is designated for residential uses, 9% is targeted for commercial uses, and 7% for industrial uses.

TABLE 3.19: Zoning Summary by Acre for Knightdale Boundaries, June 2001

| <i>Land Use Type</i> | <i>Corporate Limits</i> | <i>Extra-Territorial Jurisdiction</i> | <i>Short Range Urban Service Area</i> | <i>Long Range Urban Service Area</i> | <i>Total Acres</i> | <i>Percent of Total</i> |
|----------------------|-------------------------|---------------------------------------|---------------------------------------|--------------------------------------|--------------------|-------------------------|
| Residential Acres | 1,372.33 | 4,436.55 | 8,073.62 | 3,042.62 | 16,925.12 | 84.0% |
| Commercial Acres | 312.77 | 650.79 | 875.73 | 0.48 | 1,839.77 | 9.1% |
| Industrial Acres | 68.19 | 1,282.11 | 37.19 | - | 1,387.49 | 6.9% |
| Un-designated Acres | 3.67 | - | - | - | 3.67 | 0.0% |
| Total Acres | 1,756.96 | 6,369.45 | 8,986.54 | 3,043.10 | 20,156.05 | 100.0% |

Source: Wake County GIS (Property Appraiser's Office Data) as of 6/1/01

VII. LAND USES

This section provides information on the land uses in existence as of June 1, 2001. This data is taken from the Wake County Property Appraiser's files as contained within the Wake County GIS system. It is important to note that there are some substantial limitations to this data, but it has been provided in the interest of presenting a more complete picture of the land use and development trends taking place inside the Knightdale planning area.

The land use type categories are those utilized by the Wake County Property Appraiser. Summary tables located at the end of this section summarize the following information by more general land use types.

Table 3.20 shows the number of parcels, total acreage, land value and building value for 16 different land use types in within the Corporate Limits. In addition to the 16 listed categories, there were 2 parcels in the database which did not contain land use type designations, and as such, have been listed as "undesignated". The 16 types of land uses include every parcel within the Corporate Limits as of June 1, 2001.

TABLE 3.20: Land Use Types in the Knightdale Corporate Limits, 2001

| Use Type | Number of Parcels | Total Acreage | Value | | Non-residential Square Footage |
|----------------------|-------------------------|------------------|---------------------|----------------------|-----------------------------------|
| | | | Land | Building | |
| Vacant Land | 418 | 889.11 | \$22,953,357 | \$381,654 - | |
| Single Family Homes | 1,909 | 586.51 | \$50,116,781 | \$194,232,919 | - |
| Multifamily Homes | 20 | 66.40 | \$3,724,129 | \$28,597,902 | - |
| Day Care | 2 | 1.90 | \$182,952 | \$1,150,196 | 16,975 |
| Banks | 3 | 4.19 | \$894,722 | \$1,393,020 | 9,319 |
| Auto Service | 6 | 7.67 | \$623,219 | \$599,585 | 18,098 |
| Office | 16 | 16.71 | \$2,286,879 | \$7,409,489 | 102,310 |
| Eating/Drinking Est. | 11 | 11.29 | \$2,943,126 | \$3,383,134 | 39,115 |
| Retail | 28 | 68.76 | \$9,910,298 | \$20,472,316 | 436,947 |
| Clubs | 3 | 9.79 | \$24,500 | \$536,039 | 5,815 |
| Churches | 1 | 1.22 | \$159,429 | \$888,092 | 21,688 |
| Nursing Home | 1 | 4.88 | \$533,610 | \$2,362,942 | 31,119 |
| Schools | 3 | 52.22 | \$1,337,085 | \$19,042,682 | 164,806 |
| Institutional | 4 | 14.21 | \$829,772 | \$4,202,315 | 28,710 |
| Light Manufacturing | 2 | 3.24 | \$281,398 | \$1,032,167 | 39,577 |
| Warehousing | 8 | 18.61 | \$1,813,296 | \$2,698,710 | 99,892 |
| Undesignated | 2 | 0.24 | - | \$24,000 - | |
| Totals | 2,437 | 1,757 | \$98,614,553 | \$288,407,162 | 1,014,371 |

Source: Wake County GIS (Property Appraiser's Data as of 6/1/01)

Note: Vacant parcels could contain water/sewer systems or other accessory buildings which have building values



Table 3.20 indicates a total of 889 vacant acres within the Corporate Limits with 652 acres of residential land, and about 216 acres of non-residential uses. The total value for all 1,757 acres of land is over \$98.6 million dollars. In terms of building values, single family homes are responsible for 67% (\$194.2 million) of the \$288.4 million dollar total in the Corporate Limits.

The table also indicates that as of June 1, 2001, there was over 1 million square feet of non-residential square footage inside the City Limits. Retail land uses (including grocery and discount stores) accounted for 43% of the total.

It is interesting to note that over half the land within the Corporate Limits is classified as vacant. Note that vacant land could include parks or other recreational uses. Residential uses account for 37% of the acreage inside the City Limits, while all other uses account for less than 10%.

A comparison between the land uses and zoning indicate that 78% of the land inside the City Limits is zoned for residential uses, while residential uses occupy only 37% of the land area. There is a much closer balance between the acreage associated with existing non-residential land uses and non-residential zoning. Non-residential zoning covers 22% of the land area, while non residential uses account for about 13% of the land area.

Table 3.21 contains the land use information for the parcels located within the Extra-territorial Jurisdiction. Over half of the land area in the ETJ (3,550 acres) is vacant, 40% of the land is occupied by residential uses, and the remaining 4% (253 acres) is occupied by non-residential uses.

TABLE 3.21: Land Use Types in the Extra-territorial Jurisdiction, 2001

| <i>Use Type</i> | <i>Number of Parcels</i> | <i>Total Acreage</i> | <i>Value</i> | | <i>Non-residential Square Footage</i> |
|----------------------|--------------------------|----------------------|---------------------|----------------------|---------------------------------------|
| | | | <i>Land</i> | <i>Building</i> | |
| Vacant Land | 368 | 3,550.66 | \$41,115,710 | \$685,953 | - |
| Single Family Homes | 849 | 1,961.53 | \$37,660,424 | \$77,422,590 | - |
| Multifamily Homes | 5 | 605.19 | \$1,020,052 | \$2,685,285 | - |
| Day Care | 1 | 2.24 | \$30,470 | \$200,715 | 4,000 |
| Auto Service | 3 | 7.40 | \$464,710 | \$490,788 | 17,696 |
| Office | 3 | 1.67 | \$192,972 | \$279,551 | 6,406 |
| Eating/Drinking Est. | 1 | 3.62 | \$78,408 | \$78,604 | 1,652 |
| Retail | 9 | 94.61 | \$2,269,530 | \$1,442,077 | 22,464 |
| Clubs | 2 | 18.20 | \$221,350 | \$158,992 | 3,376 |
| Churches | 3 | 10.22 | \$436,240 | \$2,070,757 | 10,983 |
| Funeral Home | 1 | 3.01 | \$130,680 | \$835,876 | 11,064 |
| Light Manufacturing | 1 | 2.73 | \$301,052 | \$600,076 | 30,000 |
| Manufacturing | 1 | 59.62 | \$1,352,350 | \$10,491,695 | 269,260 |
| Warehousing | 13 | 33.11 | \$1,787,046 | \$3,306,391 | 105,243 |
| Undesignated | 8 | 15.67 | \$152,930 | \$23,372 | - |
| Totals | 1,268 | 6,369 | \$88,122,574 | \$100,866,822 | 483,029 |

Source: Wake County GIS (Property Appraiser's Data as of 6/1/01)

Note: Vacant parcels could contain water/sewer systems or other accessory buildings which have building values

Vacant land dominates the land values within the ETJ, representing 46% (\$41.1 million) of the total \$88.1 million dollars in land value. Single family homes account for over 76% (\$77.4. million) of the total building values in the ETJ. It is interesting to note that industrial uses (containing light manufacturing, manufacturing, and warehousing) represent \$14.4 million dollars of building value within the ETJ while the Corporate Limits contain only \$3.7 million dollars of industrial building value. In terms of zoning, 70% of the ETJ is zoned for residential uses, and 30% of the land is zoned for nonresidential uses. Of the 30% zoned for non-residential uses, 20% is designated for industrial uses. However, these uses account for less than 3% of the acreage in the ETJ. There is a total of 483,029 square feet of non-residential square footage within the ETJ, with industrial uses accounting for over 83% (404,058 sq. ft.).

There is less variety in land use type for the Short and Long Range Urban Service Areas as a result of Wake County zoning patterns. Table 3.22 shows the land use types for the Short Range Urban Service Area. There are 472 vacant parcels which



account for almost 60% (5,256 acres) of the SRUSA. Single Family Homes are the most prevalent land use by far, occupying 3,438 acres, or 39% of the total land area.

One interesting aspect is that total land and building values are remarkably similar in the SRUSA. This would seem to indicate relatively low building values as compared to the associated land values across the SRUSA. Land values are dominated by the vacant and single family residential land use types, which occupy 95% of the total land value. Single family residential uses account for 73% of the total building values. Wake County has zoned about 80% of the land inside the SRUSA for residential land uses, and the remaining 11 %for non-residential uses.

TABLE 3.22: Land Use Types in the Short Range Urban Service Area, 2001

| Use Type | Number of Parcels | Total Acreage | Value | | Non-residential Square footage |
|----------------------|-------------------------|------------------|---------------------|---------------------|-----------------------------------|
| | | | Land | Building | |
| Vacant Land | 472 | 5,256.87 | \$40,800,543 | \$3,784,002 | - |
| Single Family Homes | 649 | 3,438.98 | \$37,421,257 | \$59,414,467 | - |
| Multifamily Homes | 2 | 4.73 | \$58,200 | \$170,638 | - |
| Day Care | 1 | 1.50 | \$30,000 | \$242,159 | 5,040 |
| Auto Service | 2 | 68.24 | \$468,565 | \$801,355 | 6,240 |
| Office | 4 | 0.65 | \$293,643 | \$767,579 | 6,990 |
| Eating/Drinking Est. | 1 | 81.44 | \$603,610 | \$58,916 | 1,500 |
| Retail | 6 | 7.44 | \$288,375 | \$513,007 | 15,219 |
| Churches | 2 | 32.37 | \$279,780 | \$3,867,757 | 48,289 |
| Fire Station | 1 | 3.01 | \$33,930 | \$720,696 | 11,932 |
| Gymnasiums | 2 | 67.29 | \$929,915 | \$9,975,832 | 26,310 |
| Warehousing | 4 | 16.04 | \$336,034 | \$760,972 | 36,700 |
| Undesignated | 19 | - | - | - | - |
| Totals | 1,165 | 8,987 | \$81,523,858 | \$81,077,680 | 158,220 |

Source: Wake County GIS (Property Appraiser's Data as of 6/1/01)

Note: Vacant parcels could contain water/sewer systems or other accessory buildings which have building values

The final subarea of the Planning Area to consider is the Long Range Urban Service Area. Land use types in this area are identified by Table 3.23. The Property Appraiser's data indicates six different types of land uses in the LRUSA, composed primarily of single family homes, which account for almost 60% of the land area, 84% of the land value, and 98% of the building value. Vacant lands account for only 37% of the land area, in the LRUSA, about the same percentage of the Corporate Limits. There is a total of 23,032 square feet of non residential land uses in the LRUSA, composed largely (77%) of industrial uses.

TABLE 3.23: Land Use Types in the Long Range Urban Service Area, 2001

| Use Type | Number of Parcels | Total Acreage | Value | | Non-residential Square Footage |
|---------------------|-------------------------|------------------|---------------------|----------------------|-----------------------------------|
| | | | Land | Building | |
| Vacant Land | 138 | 1,130.52 | \$6,370,209 | \$685,678 | - |
| Single Family Homes | 1,286 | 1,798.05 | \$37,447,743 | \$101,207,308 | - |
| Retail | 2 | 90.15 | \$329,662 | \$36,200 | 2,864 |
| Churches | 1 | 5.66 | \$49,850 | \$125,097 | 2,344 |
| Light Manufacturing | 1 | 0.60 | \$18,000 | \$53,974 | 3,024 |
| Warehousing | 2 | 18.12 | \$183,139 | \$570,938 | 14,800 |
| Undesignated | 16 | - | - | - | - |
| Totals | 1,446 | 3,043 | \$44,398,603 | \$102,679,195 | 23,032 |

Source: Wake County GIS (Property Appraiser's Data as of 6/1/01)

Note: Vacant parcels could contain water/sewer systems or other accessory buildings which have building values

Table 3.24 summarizes the data for non-residential land uses across the Knightdale Planning Area. The amount of non-residential square footage within a subunit of the Planning Area declines with distance from the Corporate Limits. In fact, the Corporate Limits contain over 1 million (60%) of the total 1.6 million square feet of non-residential building area within the Knightdale Planning Area. The Knightdale Planning Area contains 115,706 square feet of office uses, with 88% of this being located within the Corporate Limits. It is interesting to note that there is more office space in the Short Range Urban Service Area than in the ETJ.

Retail and service square footage is also concentrated within the Corporate Limits. 82% of the 675,693 square feet of retail and service uses is located within the City Limits, though the ETJ and SRUSA contain over 50,000 square feet each.

TABLE 3.24: Summary of Non-residential Square Footage by Knightdale Planning Area, 2001

| | Number of Dwelling Units in 2000 | Office (sq. ft.) | Retail/ Service (sq. ft.) | Industrial (sq. ft.) * | Institutional (sq. ft.) ** | Total Non-residential Square Footage | Vacant Acres |
|-----------------------------------|--|---------------------|---------------------------------|---------------------------|-------------------------------|--|-----------------|
| | | | | | | | |
| Corporate Limits | 2,352 | 102,310 | 557,388 | 139,469 | 215,204 | 1,016,723 | 889 |
| Extra-territorial Jurisdiction | 1,386 | 6,406 | 61,132 | 404,508 | 10,983 | 484,415 | 3,551 |
| Short Range Urban Service Area | 1,228 | 6,990 | 54,309 | 36,700 | 60,221 | 159,448 | 5,256 |
| Long Range Urban Service Area | 1,205 | 0 | 2,864 | 17,824 | 2,344 | 24,237 | 1,130 |
| Total | 6,171 | 115,706 | 675,693 | 598,501 | 288,752 | 1,684,823 | 10,826 |

Source: Wake County GIS (Property Appraiser's Data as of 6/1/01)

* Includes warehousing uses

** Includes churches, schools, and other government buildings



Industrial square footage is concentrated within the EIJ, not the Corporate Limits. The ETJ contains 67% of the industrial square feet, while the Corporate Limits contains only 23%. The remaining 10% is located within the Short and Long Range Urban Service Areas. Institutional land uses (including schools, churches, government building, etc.) are concentrated within the Corporate Limits, which contain 74%. The SRUSA contains more institutional square footage than the ETJ.

Retail and Service uses occupy about 40% (675,693 sq. ft.) of the total, followed closely by the industrial land uses, which occupy 30% of the total square footage. Office uses represent the smallest overall portion of non-residential square footage, accounting for only 7% (115,706 sq. ft.) of the total.

VIII. LAND VALUES

The next series of tables summarize the land uses and total values by three generic land use types: vacant, residential, and non-residential for each of the four subareas of the Knightdale Planning Area. Table 3.25 shows the number of parcels devoted to each of the three land use types, the total acreage devoted to a land use type, and the combined land and building value associated with the particular land use type.

TABLE 3.25: Summary of Land Use Types in the Knightdale Planning Area, 2001

| | <i>Vacant Land</i> | | | <i>Residential Uses</i> | | | <i>Non-residential Uses</i> | | |
|--------------------------------|------------------------------|--------------------------|------------------------|------------------------------|--------------------------|------------------------|------------------------------|--------------------------|------------------------|
| | <i>Number of Parcels</i> | <i>Total Acreage</i> | <i>Total Value</i> | <i>Number of Parcels</i> | <i>Total Acreage</i> | <i>Total Value</i> | <i>Number of Parcels</i> | <i>Total Acreage</i> | <i>Total Value</i> |
| Corporate Limits | 418 | 889 | \$23,335,011 | 1,929 | 653 | \$278,671,731 | 88 | 215 | \$86,990,673 |
| Extra-territorial Jurisdiction | 366 | 3,551 | \$41,601,663 | 654 | 2,567 | \$119,666,351 | 38 | 238 | \$27,323,060 |
| Short Range Urban Service Area | 472 | 5,256 | \$44,584,545 | 651 | 3,443 | \$97,064,562 | 23 | 285 | \$20,952,431 |
| Long Range Urban Service Area | 138 | 1,130 | \$7,055,887 | 1,286 | 1,798 | \$138,655,051 | 6 | 114 | \$1,366,860 |
| Total | 1,396 | 10,826 | \$116,777,106 | 4,720 | 8,461 | \$632,079,695 | 155 | 850 | \$136,633,344 |

Sources: Wake County GIS (Property Appraiser's Data as of 6/1/01)

Note: These totals do not include parcels with no land use designations shown in the Property Appraiser's Data

Vacant land occupies the largest share of the acreage within the Knightdale Planning Area, and the lowest total value. Vacant lands are concentrated in the Short and Long Range Urban Service Areas. The average value per acre can be derived by dividing the total value by the total number of acres. Vacant land in the Knightdale Planning Area has an average value of \$10,706 dollars an acre.

Non-residential land uses occupy the lowest percentage of total acreage in the Planning Area. It is interesting to note that there are 10,000 fewer acres of nonresidential land use than vacant land, but non-residential land use has a higher total value than vacant land despite the vast difference in size. The average value per acre for non-residential land uses in the Knightdale Planning Area is \$160,745. It is interesting to note that the SRUSA has the largest amount of non-residential acreage, but a somewhat low value associated with that acreage.

Residential land uses occupy around 8,400 acres in the Knightdale Planning Area, with a total value of over \$632 million dollars. This equates to an average value per acre figure of \$74,705. It is interesting to note that total values for residential uses in the Long Range Urban Service Area are higher than those in the ETJ, despite the fact that the LRUSA has fewer acres.

Table 3.26 depicts the land and building values by Planning Area subunit, and shows the associated percentage of the total assessed value for the entire Knightdale Planning Area.

The table shows that the Knightdale Planning Area had a total assessed value of over \$885 million dollars as of June 1, 2001. Almost 44% of the total assessed value is concentrated within the Corporate Limits. The Corporate Limits also have the highest assessed values per acre. Average assessed value per acre across the entire Knightdale Planning Area is \$43,942 dollars per acre.

TABLE 3.26: Land and Building Values in the Knightdale Planning Area, 2001

| | <i>Number of Parcels</i> | <i>Total Acreage</i> | <i>Total Land Value</i> | <i>Total Building Value</i> | <i>Assessed Value (Land + Building)</i> | <i>Percent of Total Assessed Value</i> |
|--------------------------------|------------------------------|--------------------------|-----------------------------|---------------------------------|---|--|
| Corporate Limits | 2,437 | 1,757 | \$98,614,553 | \$288,407,162 | \$387,021,715 | 43.7% |
| Extra-territorial Jurisdiction | 1,268 | 6,369 | \$88,122,574 | \$100,866,822 | \$188,989,396 | 21.3% |
| Short Range Urban Service Area | 1,165 | 8,987 | \$81,523,858 | \$81,077,680 | \$162,601,538 | 18.4% |
| Long Range Urban Service Area | 1,446 | 3,043 | \$44,398,603 | \$102,679,195 | \$147,077,798 | 16.6% |
| Total | 6,316 | 20,156 | \$312,659,588 | \$573,030,859 | \$885,690,447 | 100.0% |

Source: Wake County GIS (Property Appraiser's Data as of 6/1/01)



IX. ECONOMIC CHARACTER

The regional economy of North Carolina and the greater Raleigh area will always be the major influence for the local economic future of Knightdale. Growth of the Knightdale economic character will drive the timing and need for expanded public facilities and services. Knightdale is poised on the brink of a series of significant opportunities to positively affect the changing dynamics and well being of Knightdale's long-term future. Census 2000 occupation, employment, income and housing value comparisons are presented below to support Knightdale's well being.

Tables 3.27, 3.28, 3.29 and 3.30 reveal a Knightdale that is an economic mirror of the greater metropolitan area in terms of occupation and employment, with a median household income 15 % above the MSA. With occupations and employment in agriculture and related farming at one percent or less, Knightdale is no longer a farming community and pressures on remaining farmland and open space will grow as landowners are impacted by growth and economic development trends in the region. Housing value data points to the favorable location and role of Knightdale in the supply of middle income housing. Management and direction of future population growth and economic development pressures generated with the opening the 540 and 54 bypass transportation corridor improvements will have permanent and dramatic impact on the entire eastern tier of the Wake County area.

Table 3.27: Census 2000 Occupation Information

| | <u>RALEIGH MSA</u> | | <u>KNIGHTDALE</u> | |
|---------------------------------------|--------------------|------|-------------------|------|
| OCCUPATION (16 & Above) | 627,772 | % | 3,301 | % |
| Mgt, Prof., Related | 277,821 | 44.3 | 1,435 | 43.5 |
| Services Occupations | 74,100 | 11.8 | 331 | 10.0 |
| Sales & Office | 155,765 | 24.8 | 1,008 | 30.5 |
| Farming, Fishing, Forestry | 2,071 | 00.3 | 3 | 0.1 |
| Construct, Extraction, Maintenance | 56,678 | 09.0 | 256 | 07.8 |
| Production, Transportation | 61,337 | 09.0 | 260 | 08.1 |

Source: Kames Research, 2002

Table 3.28: Census 2000 Employment Information

| | <u>RALEIGH MSA</u> | | <u>KNIGHTDALE</u> | |
|--|--------------------|------|-------------------|------|
| SELECTED EMPLOYMENT | # | % | # | % |
| Agri, Forestry, Fishing, Mining | 4,673 | 00.7 | 16 | 00.5 |
| Construction | 49,910 | 08.0 | 251 | 07.6 |
| Manufacturing | 78,739 | 12.5 | 398 | 12.1 |
| Wholesale Trade | 18,063 | 02.9 | 112 | 03.4 |
| Retail Trade | 64,844 | 10.3 | 398 | 12.1 |
| Trans., Warehousing, Utilities | 23,594 | 09.8 | 136 | 04.1 |
| Information | 26,171 | 04.2 | 128 | 03.9 |
| Finance, Ins, RE | 37,708 | 06.8 | 259 | 07.8 |
| Prof., Scientific, Mgt., Admin. | 82,453 | 13.1 | 365 | 11.1 |
| Education, Health, Social Svcs | 130,394 | 22.0 | 610 | 10.5 |
| Arts, Entertainment, Accommodations | 42,797 | 06.8 | 188 | 05.7 |
| Other Services | 27,491 | 04.4 | 191 | 05.8 |
| Public Administration | 32,935 | 05.2 | 249 | 07.5 |

Source: Kames Research, 2002

Table 3.29: Census 2000 Income Information Based on 1999 Income for Households

| | <u>RALEIGH MSA</u> | | <u>KNIGHTDALE</u> | |
|--------------------------|--------------------|------|-------------------|-------|
| 1999 INCOME (Households) | # | % | # | % |
| Less than \$10,000 | 36,925 | 08.0 | 65 | 03.0 |
| \$10,000 to \$14,000 | 21,162 | 04.6 | 58 | 02.6 |
| \$15,000 to \$24,999 | 49,337 | 10.7 | 173 | 07.9 |
| \$25,000 to \$34,999 | 54,977 | 11.9 | 252 | 11.5 |
| \$35,000 to \$49,900 | 72,934 | 15.8 | 366 | 16.7 |
| \$50,000 to \$74,999 | 96,589 | 20.9 | 661 | 30.1 |
| \$75,000 to \$99,000 | 55,962 | 12.1 | 320 | 14.6 |
| \$100,000 to \$149,999 | 47,780 | 10.4 | 242 | 11.0 |
| \$150,000 to \$199,000 | 13,778 | 03.0 | 33 | 01.5 |
| \$200,000 or more | 11,891 | 02.6 | 25 | 01.1 |
| Median Household Income | 48,845 | - | 56,021 | 115.0 |

Source: Kames Research, 2002



Table: 3.30: Census 2000 Value Owner-Occupied Units Information

| | <u>RALEIGH</u> | <u>MSA</u> | <u>KNIGHTDALE</u> | |
|-----------------------------------|----------------|-------------|-------------------|----------------|
| VALUE OWNER-OCCUPIED UNITS | 243,897 | 100% | 2195 | 0.0064% |
| Less than \$50,000 | 6,669 | 02.7 | 26 | 01.7 |
| \$50,000 to \$100,000 | 45,332 | 18.6 | 162 | 10.4 |
| \$100,000 to \$149,999 | 74,709 | 30.6 | 918 | 58.8 |
| \$150,000 to \$199,999 | 51,050 | 20.9 | 370 | 23.7 |
| \$200,000 to \$299,900 | 42,171 | 17.3 | 75 | 04.8 |
| \$300,000 to \$499,999 | 18,584 | 07.6 | 8 | 00.5 |
| \$500,000 to \$999,000 | 4,749 | 01.9 | 3 | 00.2 |
| \$1,000,000 or more | 633 | 00.3 | -- | -- |
| Median Value | 146,800 | -- | 132,600 | 90.3 |

Source: Kames Research, 2002

Major employers in Knightdale consist of the following:

- Square D Corporation
 - Approximately 1000 Employees
 - Manufacturing relays, motor starters and controllers and other industrial controls and control accessories
- DT Magnetics
 - Approximately 275 Employees
 - Builds transformers for telecommunications
- Wal-Mart
 - Approximately 200 Employees
- Wake Stone Corporation
 - Approximately 150 Employees
 - Quarry, Gravel & Stone
- Wellington Nursing Center
 - Approximately 85 Employees
 - Nursing Home
- Winn Dixie
 - Approximately 85 Employees
- Accu-Fab, Inc.
 - Approximately 80 Employees
 - Metal Fabrications
- Food Lion
 - Approximately 39 Employees

The future character, quality and composition of expanding Knightdale residential and non-residential development will significantly impact local revenues and the Knightdale job base and the quality of life experienced by Knightdale residents. The rate, timing and location of future residential and non-residential development will drive or respond,

as the case may be, to the success of Knightdale comprehensive planning efforts and the resultant nature of public utility and service provision. Knightdale's local housing development and supply will be directly responsive to market conditions while job and economic tax base growth will be more a function of land use planning and economic recruitment/retention efforts and attitudes within Knightdale. Both quality and growth of the Knightdale economic character will drive the timing and need for the following public facilities and services.

X. HISTORIC RESOURCES

As more farm and forest land is converted to home, shopping, and manufacturing sites, it is critical that historic resources are adequately documented. A primary objective of the Town is to ensure the identification, conservation, and protection of the archeological, cultural, and historical resources of Knightdale. One of the action items of the historic resources section is to create a database that will identify the location and the significance of the historic resource, the database will be consulted in development projects to determine impacts.

Four subject areas should be included in the database:

1. Churches
2. Cemeteries
3. Individual Structures
4. Downtown District

A. Churches

Church life has always played an important role in the history of Knightdale. Churches not only provide places for worship, but also serve as community centers. Churches will be included in this database because of the importance of these buildings and congregations to the built and cultural landscape of Knightdale.

B. Cemeteries

Knightdale has numerous family, church, and community cemeteries. While most of the cemeteries have been mapped and surveyed in the North Carolina Cemetery Survey, North Carolina Department of Cultural Resources, many have not. Cemeteries will be included in the database to ensure their protection. Cemeteries are special places. Chapter 6 of the North Carolina General Statutes contains the legal procedures regarding the removal and vandalism of cemeteries. North Carolina law allows relocation of cemeteries in some cases. This issue must be addressed on a case-by-case basis.



C. Individual Structures

Historically significant structures in Knightdale that are not located in the downtown area will be included in the database. These will include structures identified as part of the Wake County Historic Architectural Survey. To be included on the Wake County list, one of the following criteria must be met: the structure must be at least 50 years old, must have significant architectural value, or must have played an important role in the history of Wake County or North Carolina.

D. Downtown

Historic structures located in downtown Knightdale will be included in the database. Downtown Knightdale is on the State's National Register Study List. Placement on the study list is a prerequisite to nomination to the National Register. The town should work with the Wake County Historic Preservation Commission to designate downtown Knightdale as a historic district. This designation would put the town in a better position to qualify for various grant and loan programs. It would also provide a measure of dignity to an area that has played the central role in the development of Knightdale.

E. Objectives

The Objectives and Action Items are provided to direct the planning and implementation strategies related to historic preservation in Knightdale and are in accordance with the overall goals of the 2027 Comprehensive Plan.

The primary historic resources objectives for Knightdale are to:

1. Preserve and enhance its' historic buildings and landscapes, by building upon the strengths of its origin as a railroad and agricultural center even as these elements of its past are allowed to change and evolve;
2. Promote the use of incentives to ensure historic preservation
3. Ensure that historic resources are considered during the development process
4. Promote education and provide access to historic resources
5. Promote the establishment of a historic district in downtown Knightdale.

F. Action Items

The following are the tasks which provide a course of action to implement the objectives for historic preservation.

3.1 The Town shall establish an official historic resources database, which will be mapped, and shall be used in the development review process.

3.2 The Town shall connect significant historical, cultural, and natural areas with greenways, open space and recreational areas.

3.3 The Town will complete Phase II of the Caboose Project so that the Heritage Museum can be opened to the public.

3.4 The Town will seek designation of the downtown area so that it will be placed on the National Register of Historic Places.

3.5 The Town shall sponsor educational programs and work with the local public schools to ensure that historic preservation is communicated and made public.

3.6 The Town shall prepare Small Area Plans for geographic areas of the Town that contain significant historic structures and / or landscapes including: downtown, and sites within the Countryside District.

3.7 The Town shall establish a Town Center District Commission that includes property owners and merchants from the downtown area to promote reinvestment and revitalization in downtown Knightdale.

3.8 The Town shall establish a Historic Preservation Commission that is charged with:

- (1) encouraging historic preservation,
- (2) reviewing development plans of historical significance
- (3) promoting public education of historic preservation within the planning area.

3.9 The Town shall actively pursue grants and other funds to further historic preservation programs.

3.10The Town shall coordinate its historic preservation program with the Wake County Historic Preservation Commission.

XI. ENVIRONMENT AND NATURAL RESOURCES

The following is a brief snapshot of the topography, soils and vegetation found in the Knightdale Planning Area.

A. Topography

Knightdale is located east of the Neuse River and west of Wendell. Buffalo Creek separates Knightdale from Wendell. The historic town center was located along the ridge that separates the Neuse River and Buffalo Creek. Mark's Creek flows south from the center of the corporate boundaries and serves as the primary drainage basin



for the older portions of Knightdale. Within the last 50 years, the town has seen a new development pattern of residential and commercial activities reaching along the Highway 64 corridor towards Raleigh. Development has also spread along the waterways of Mingo Creek, the Neuse River, and Mark's Creek. North of Highway 64, the land is still mostly agrarian thus preserving the gently rolling topographic character of Knightdale.

B. Soils

The soils within the Knightdale planning area are primarily of the Cecil and Wedowee classifications. The Cecil class is found mainly within the western area of Knightdale while the Wedowee class is predominant in the central and eastern parts of town.

C. Vegetation

The Knightdale ecosystem is in an altered state. Current land cover figures can be estimated by using 1996 Land Sat imagery and newly updated orthographic photography. The study boundary covers approximately 39,500 acres of land. Within the study area approximately 2% of the land is developed, 18.5% is used for cultivated agriculture, 5.5% is managed herbaceous cover, and 1.5% is occupied by water bodies. That leaves 72.5% of the landscape as being in an undisturbed state. It is estimated that there is 10% more impervious surface area since the 1996 Land Sat imagery was taken.

The 72.5% of undisturbed land is split primarily between yellow pine forest, evergreen shrub land, bottomland and hardwood swamp forests, and upland hardwood forests; yellow pine forest being the most common and upland hardwood forests being the least common, respectively. The remaining portion of the undisturbed land is split between several smaller classifications that occur only in isolated areas. The bottomland and hardwood swamp forests are of the highest importance due to their location along stream and river corridors. These areas serve as the migration corridors for numerous species of wildlife as well as vital habitat because of their relatively intact linear coverage. Within this class exists the cypress swamp ecosystem, this ecosystem is very rare in the piedmont area due to the relatively arid climate and any known sites should be prioritized as a preservation goal. Robertson Mill pond and areas along Mark's Creek and Buffalo Creek contain such swamps. The cultivated areas of Knightdale are primarily reserved for the production of soybeans and livestock pastureland. These areas are concentrated in the north with the exception of a prominent band of equestrian facilities in the south. The cultivated areas are vital to the preservation of Knightdale's scenic quality and should be considered important when redefining development guidelines for the 64 corridor, the future 540 corridor and 64 By-Pass.

D. Environment and Natural Resource Primary Objective

The Objectives and Action Items are provided to direct the planning and implementation strategies related to Knightdale's environment and natural resources and are in accordance with the overall goals of the 2027 Comprehensive Plan.

The primary objective of the environment and natural resource section is to promote, protect, preserve, and enhance existing natural systems to ensure the environmental health of the air, land, and water that is within the ultimate physical limits of the Town.

E. Environment and Natural Resources Action Items

3.1 The Town shall study design standards that encourage the maintenance of natural conditions during and after development, including natural drainage ways, mature trees, and topography.

3.2 The Town shall adopt a tree ordinance, which mandates tree preservation and regulates clear cutting.

3.3 The Town shall inventory critical and sensitive features in the natural environment, including their location and significance, and then adopt regulations to protect the identified natural features.

3.4 The Town shall evaluate the existing erosion control regulations to determine if amendments to the regulations are warranted.

3.5 The Town shall develop and implement standards for stormwater management, including development and implementation of National Pollutant Discharge Elimination System Phase Two Stormwater Rules in order to help mitigate against flooding and water quality deterioration.

3.6 The Town shall regulate areas served by wells in order to protect the quantity and quality of ground water.

3.7 The Town shall educate residents and visitors about the natural environment, ecological systems, physical fitness, wellness and lifelong recreational activities.

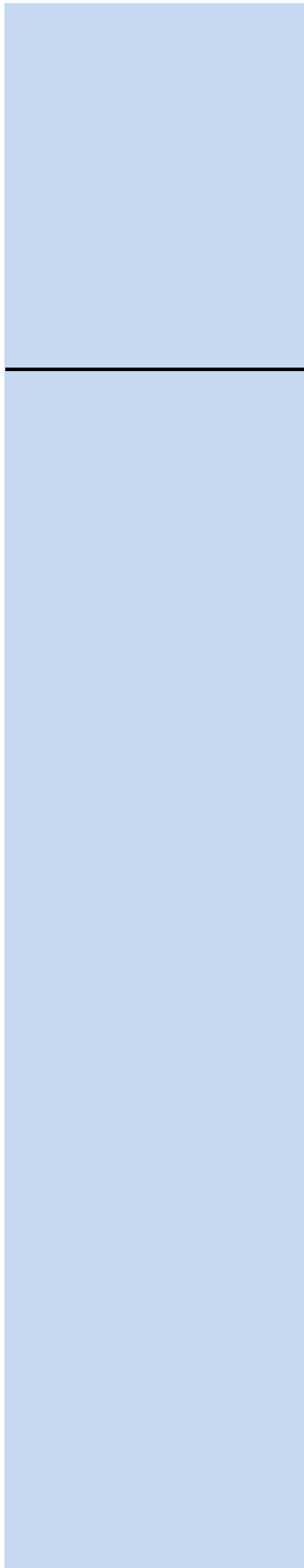
3.8 The Town shall provide recreation facilities and programs that promote awareness and stewardship of the natural resources that exist at the site.

3.9 The Town shall design, construct and maintain parks and greenways that are sensitive to the surrounding environment.



3.10 The Town shall adopt minimum standards for undeveloped space at future park facilities.

3.11 The Town shall be sensitive to the need to preserve large trees and natural areas.





COMMUNITY SERVICES

I. INTRODUCTION AND GENERAL OBJECTIVES

Although not every community service is under the direct control of the Town of Knightdale, it is certainly in the Town's interest to ensure adequate services for its residents by participating in the decision-making processes to the extent feasible. Of particular interest to the Town are the following community services:

- Education;
- Health Care;
- Public Safety;
- Solid Waste Collection;
- Parks and Recreation (*Chapter 6*);
- Transportation (*Chapter 7*); and
- Public Utilities (*Chapter 8*).

Of the seven (7) community services; education, public utilities, transportation, and health care are examples of services now vested by law or shared through pending agreements beyond the direct operating control of Town officials. Only parks and recreation and public safety services are the direct operating responsibility of the Town of Knightdale, while solid waste is handled by a third party collection company under a contract directly administered by the Town.

The process of planning for community facilities and public services consists of determining and applying level of service standards for the various physical components and requirements necessary to serve a community's existing and future population growth and development. One of the roles of the Comprehensive Plan is to guide public policy concerning the quality, quantity and optimum location criteria for each facility and service. Provision of such facilities and services are designed in a manner that reinforces and supports the vision, goals and objectives of a community relative to growth, development and accommodation of future population. Some of the general criteria evaluated as part of this planning process include:

- Local topography;
- Geography and size of the area to be served;
- Population to be served;
- Housing density and intensity of non-residential uses;
- Anticipated future land use;
- Service provider's institutional structure and relationship with the Town.

Overall, in providing the community services discussed in this chapter, the Town should aim to achieve the following objectives:

1. To direct and guide development so as to achieve optimum utilization of public infrastructure;
2. To achieve a high level of public health, safety and welfare;
3. To maximize fiscal efficiency; and
4. To contribute positively to the overall economic, social and physical health of the community.

II. EDUCATION

Public educational services for the Town of Knightdale for students in Kindergarten through twelfth (12th) grade are provided by the Wake County Public School System (WCPSS). Since 1976, WCPSS has been responsible for the provision of educational services on a county-wide basis. With an expected enrollment for the 2010-2011 school year of 143,432 students, WCPSS is the largest system in the State of North Carolina and the 18th largest system in the nation. These students will be divided among 61 elementary schools, 21 middle schools, 22 high schools and four (4) special/optional schools. By 2019, it is expected that the system will grow to between 183,441 (operational projection) and 204,576 (capital improvement projection) students.

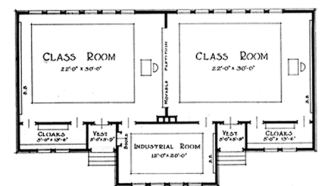
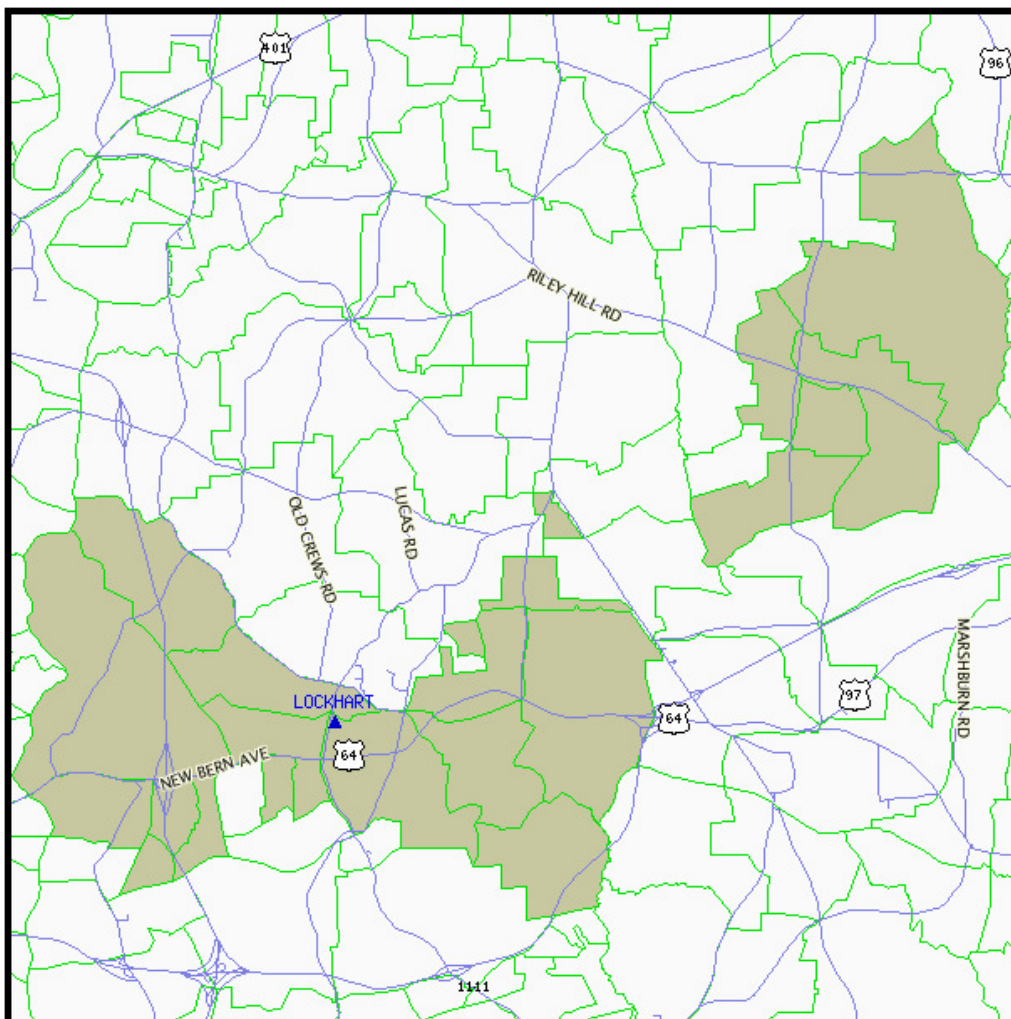
WCPSS is currently reviewing its attendance zones and policies. Individual town and municipal jurisdictional boundaries of various local communities have not played a part in School District efforts to provide educational services to all students. For example, although Lockhart Elementary School is geographically centered within the Town of Knightdale, its base attendance zone, as shown below in Figure 4.1, is fragmented and includes portions of the rural countryside between the towns of Wendell and Rolesville as well as small portions of the eastern reaches of the City of Raleigh.



Lockhart Elementary School today.



Figure 4.1



FLOOR PLAN No 20
TWO TEACHER COMMUNITY SCHOOL
TO FACE EAST OR WEST ONLY

The original Lockhart School (a "Type 2" similar to the above) was built as part of the Rosenwald school program circa 1919. It once stood near the present day gymnasium.

Since the system is a county-wide school district, and since school assignment is not based purely on a community basis, it is impossible to assess the quality of service from a local perspective. However, in looking at system wide SAT scores, WCPSS continues to have a higher participation rate that also outperform the state and national averages as well as the scores of other nearby large school systems (see Figure 4.2)

Knightdale High School



Figure 4.2: 2009-2010 SAT Scores

| <u>Jurisdiction</u> | <u>Reading</u> | <u>Math</u> | <u>Writing</u> | <u>Total</u> |
|---------------------|----------------|-------------|----------------|--------------|
| WCPSS | 524 | 543 | 504 | 1571 |
| NC Average | 497 | 511 | 477 | 1485 |
| US Average | 501 | 516 | 492 | 1509 |
| Mecklenburg PSS | 501 | 515 | 483 | 1499 |
| Forsyth PSS | 495 | 505 | 475 | 1475 |
| Guilford PSS | 489 | 499 | 473 | 1461 |
| Cumberland PSS | 470 | 477 | 446 | 1393 |

Acknowledging the tremendous growth in Knightdale over the past two (2) decades, WCPSS opened Knightdale High School and Forestville Road Elementary School within the Town's corporate limits in 2004, while nearby East Wake Middle School was annexed in 2006. Prior to these schools, the Town was the home of three (3) elementary schools: Knightdale Elementary, Lockhart Elementary and Hodge Road Elementary which opened in 1995.

The Town of Knightdale continues to look for ways to work with WCPSS to keep up with the necessary quantity of seats and the desirable quality of the area schools, with quality and student achievement being the primary areas of most recent concern. According to the state's "Education First Report Cards" for the 2008-2009 school year, there were no outstanding schools within Knightdale. However, the majority are meeting their goals for adequate yearly progress and growth in test scores under the federal No Child Left Behind Act (see Figure 4.3).

Figure 4.3

| | |
|-----------------------------|---|
| Forestville Road Elementary | "School of Progress" with Expected Growth |
| Hodge Road Elementary | "Priority School" with Expected Growth |
| Knightdale Elementary | "School of Progress" with High Growth |
| Lockhart Elementary | "School of Progress" with Expected Growth |
| East Wake Middle | "School of Progress" with Expected Growth |
| Knightdale High | "School of Progress" with Expected Growth |



III. HEALTH CARE

Strong population growth in the most recent decade has led most of the region's primary healthcare providers to expand services within Knightdale. While the closest 24-hour emergency room remains at WakeMed Health and Hospitals' Raleigh campus, just five (5) miles west on US Business 64, both Rex Healthcare (affiliated with UNC Hospitals) and Duke University Health Systems have opened medical office buildings in Knightdale featuring urgent care and specialty care services. WakeMed Specialty Physicians has also brought Knightdale Medical (a formerly independent practice) into its fold, thereby also increasing their local presence.

Within Knightdale, citizens will find the following healthcare services:

WakeMed (6905 Knightdale Boulevard):

- Ear, Nose & Throat; Head & Neck Surgery
- Urology
- Family Medicine



Duke Medicine (162 Legacy Oaks Drive):

- Cariology
- Gastroenterology
- Orthopaedics
- Physical Therapy
- Primary Care
- Urgent Care



Rex Healthcare (6602 Knightdale Boulevard):

- Family Practice
- Urgent Care
- Lab Services
- Radiology
- Wound Healing Center
- Sleep Disorders Center





*WakeMed – Raleigh,
Main Campus*

Independent Services:

- Pediatrics
- Express Care
- Family Medicine
- Primary Care
- Vein Care
- Orthopaedics
- Optometry
- Physical Therapy

In the event that medical services cannot be found within Knightdale, the WakeMed Raleigh campus is just a short drive away at 3000 New Bern Avenue, Raleigh, NC 27610. WakeMed Raleigh is the home of Wake County's designated trauma center as well as Wake County's only certified Primary Stroke Center, Neuro Intensive Care Unit, Pediatric Inpatient Unit, Pediatric Intensive Care Unit and Level IV Intensive Care Unit.

The WakeMed Raleigh campus has grown substantially over the last two (2) decades, bringing state of the art care to Knightdale's back door. WakeMed's Heart Center features a congestive heart failure program, cardiac rehabilitation, emergency care, chest pain observation units, cardiac surgery and cardiovascular testing. Family members of heart patients are also offered the added service of onsite hotel rooms. The Neurosciences division provides primary and interventional stroke programs such as the TIA Center, neurodiagnostics, neuroradiology, neurosurgery, neuro-vascular surgery, rehabilitation, advanced neuroscience nursing care, spinal surgery, diagnosis of neurological disorders and a dedicated concussion clinic. Orthopaedics covers back, neck and spine issues; shoulder and elbow problems; hand and wrist; hip and knee; sports medicine; rehabilitation and children's bone and joint ailments. Meanwhile, the Women's Pavilion and Birthplace offers a neonatal intensive care unit, mother's milk bank, and birth and parent education. 84 beds are devoted to most comprehensive rehabilitation hospital in the area, covering comprehensive inpatient rehab for patients of all ages, including those who have been subjected to strokes, brain injuries and spinal cord problems. Other services at the WakeMed Raleigh campus include a day surgical center, imaging services, laboratory services, endoscopy, corporate wellness services, diabetes management and home health.

Perhaps the most significant recent development at WakeMed's Raleigh campus has been the opening of the Children's Hospital. Completed in 2010, the Children's Hospital will allow WakeMed to more effectively serve the over 143,000 North Carolina children



that come to it each year. In addition to previously mentioned services, the Children's Hospital also offers a children's emergency department, children's diabetes and endocrinology program, asthma program, cardiology, radiology, and numerous education programs for all family members.

Just a short distance further (7.5 miles from Knightdale) is the Duke Raleigh Hospital campus. The programs offered here complement and sometimes overlap services available at WakeMed. In addition to their emergency department and general surgical services, Duke Raleigh offers a certified Community Hospital Comprehensive Cancer Center, a Cardiovascular Center, a Diabetes Center, a Wound Healing Center, an Orthopaedic Center, a Pain Clinic, a Sleep Lab, a neurosciences program, a rehabilitation program featuring the "Homeward Bound Gym", imaging services and weight loss surgical procedures; all backed by one of the country's best health systems.



*Duke Raleigh Hospital
Main Tower*

Finally, Rex Hospital is 12 miles from Knightdale and is affiliated with UNC Health Care. Rex has been providing health care to citizens of Wake County for over 110 years. In addition to being the home of the area's largest Birth/Women's centers, Rex Hospital offers emergency care, a certified Community Hospital Comprehensive Cancer Center, a Diabetes Education Center, a Pain Management Center, a Wellness Center, a Heartburn Center, a Sleep Disorders Center, radiology and mammography services, laboratory and blood services, heart and vascular programs, pediatrics, orthopaedics, wound healing services, rehabilitation services and surgical weight loss services.



Rex Family Birth Center

In 2006, the Cecil G. Sheps Center for Health Services Research at UNC-Chapel Hill reported that Wake County is ahead of state averages on many healthcare indicators, but often lags its peer counties (Guilford, Forsyth & Mecklenburg):

Figure 4.4

| | WAKE | PEERS | NC |
|--|------|-------|-----|
| Total Physicians per 1,000 population | 2.3 | 2.9 | 2.1 |
| Primary Care Physicians per 1,000 population | 1.0 | 1.1 | 0.9 |
| Registered Nurses per 1,000 population | 10.5 | 12.6 | 9.4 |
| Dentists per 1,000 population | 0.7 | 0.6 | 0.4 |
| Psychologists per 1,000 population | 0.4 | 0.3 | 0.2 |

Looking at the most recent hospital data available from the NC Department of Health and Human Services, Wake County has 1.5 general hospital beds per 1,000 residents, whereas the state average is 2.3 general hospital beds per 1,000 residents. This lag in



The Knightdale Public Safety Department moved into its new facility – a renovated flex space/office building – in 2006.

hospital beds is indicative of the much higher rate of beds in adjacent Triangle cities and the use of county lines as the geographic divider. For example, Durham County has a rate of 4.8 beds per 1,000 residents, while Orange County has a rate of 5.1 beds per 1,000 residents; however, the hospitals in those counties often serve Raleigh area and statewide residents as well. Given the Town of Knightdale is included as part of the Raleigh/Durham/Cary Consolidated Metropolitan Statistical Area (CMSA), it may be more meaningful to use the CMSA bed rate of 2.2 as a benchmark.

In reviewing all benchmarks, Knightdale appears to have adequate and ready access to a wide variety of healthcare services. However, when keeping a regional service area in mind, it is important for the Town Council to add a footnote regarding the fact that the Town of Knightdale is one of the furthest points within the CMSA from the regional facilities in Durham and Orange counties. Therefore, it is likely that the Town Council will wish to continue advocacy for expanded healthcare options in close proximity to Knightdale's corporate limits.

IV. PUBLIC SAFETY AND SERVICES

A. INTRODUCTION

In July of 2002, the Town of Knightdale began operation of a Public Safety Department. A "Public Safety" department is one in which there is some degree of integration of police and fire services. Across the country, this integration may range from separate departments that share a single administrator or department head to a fully integrated department composed of cross-trained officers who seamlessly function in both police and fire roles in a single shift. The definition encompasses many agencies in a range of governmental entities.

The Knightdale Public Safety Department is led by a Public Safety Director. Separate Police and Fire divisions are organized under the leadership of this single Director. The Fire Chief serves as an Assistant Director for the Fire Division, while the Assistant Police Chief manages most of the daily functions of the Police Division. Knightdale's Public Safety Department has police officers who are trained as volunteer firefighters in order to supplement a skeleton crew of firefighters from the Fire Division. The cross training in this example only goes one way. The police officers can function as firefighters, but the firefighters cannot function as police officers.



An example of another level of integration would be a department that is fully cross trained, but not cross functional. Its members are trained as police officers, firefighters and paramedics. Although trained in all job functions, each department member is assigned to one (1) job function. While they report to fixed assignments as a police officer or firefighter/paramedic, training is maintained in all aspects of both job functions and transfers can be made from one job function to another. This is just one (1) of the various levels of integration that Knightdale may explore in the future as the holistic concept of “public safety” matures.

B. PUBLIC SAFETY DEPARTMENT BENEFITS

In establishing a public safety department, the Town of Knightdale recognized that there are three (3) main benefits to the various public safety organization models over traditionally separate police and fire department models. First, is the potential to save money in personnel costs. The use of personnel in both the police and firefighter roles can allow, in certain cases, for equal coverage with fewer personnel. Depending upon the organizational model chosen for the public safety department, employee idle time can be greatly reduced. However, these potential benefits must be weighed against the call load, size, geography and demographics of the area being protected. If the police or fire services are already being taxed to the limit by the number of calls for service, then there is little hope that integrating the services will allow for any reduction of personnel.

The second benefit to be derived from a public safety department is that there is a unified organization and command structure. This benefit has two (2) major points. One, if all personnel are within a single department under a single management team, it eliminates much of the inter-departmental rivalry that is common between traditional police and fire departments. Since all personnel are members of the same department, what benefits one side, benefits all. Two, in emergency situations a unified command structure is present. There is a single chain of command to direct both police and fire operations, thereby reducing the opportunity for conflicts in directives that may result in accidents and unnecessary harm.

The third benefit to the public safety department is the improved first responder speed of delivery for fire and EMS services. In traditional fire and EMS systems, personnel respond from a station or fixed staging point. This necessitates longer response times to locations furthest from that fixed point. If cross-trained police officers are available to respond, it is highly likely that these officers will be closer to that otherwise remote location and be able to respond more quickly to an emergency since they are already in the field as opposed to being back at the station. It is well known that the first minutes of



any emergency are crucial in determining the outcome and resources required to mitigate the emergency. If CPR can be started in the critical first four (4) minutes, or a fire can be extinguished before it gains headway, then the likelihood of saving lives and property increases. For these reasons, Knightdale chose to pursue its current public safety model.

C. FIRE PROTECTION

The Knightdale Fire Division protects life and property from harm caused by fire. Municipalities are required by state statute to provide fire protection services to all of its residents. Prior to establishing its own fire protection service in 2002, this service was provided by the Eastern Wake Volunteer Fire Department (formerly the Knightdale Volunteer Fire Department).

1. FIRE DIVISION OPERATIONS



Fire protection services are typically composed of engine and ladder companies. An engine company usually includes a truck with hoses, nozzles and on-board tank and is the first to respond to a fire call. Ladder companies ordinarily play a supporting role in fighting fires and provide rescue services from roof tops and multi-story buildings. The need for ladder companies is based upon the amount and type of urban development.

In a highly urbanized area, there is usually one (1) ladder company for every two (2) to three (3) engine companies. In more rural areas, the ladder company function is typically assigned to an engine company carrying additional equipment. Other special apparatus vehicles that complement engine and ladder companies include off-road, hazardous materials, and command.

Adequate water distribution and well trained fire fighters are the most important components of fire protection services. The strength of a water distribution system is measured by using three (3) criteria: capacity, coverage, and reliability. Capacity for fighting fires is determined by the amount (volume) of water available in the distribution system for fighting fires; coverage is determined by the size and location of fire hydrants and water mains; and reliability is determined by how much confidence there is that the distribution system will have adequate water supply and water pressure when the demands on the system are greatest.



In general, fire protection services are judged by the following standards of service:

- a. Fire fighting, rescue and extrication response within five (5) minutes, 90% of the time. *(NFPA 1710/1720 Standard for the Organization and Deployment of Fire Suppression Operations for Fire Departments)*
- b. Emergency medical aid within a five (5) minute response time after dispatch, 90% of the time. *(NFPA 1710/1720 Standard for the Organization and Deployment of Emergency Medical Operations for Fire Departments)*
- c. Initial engine company response to all fire calls within five (5) minutes of dispatch and a fire attack with charged lines, 1-1/2" inch diameter within seven (7) minutes from time of dispatch (two [2] minutes after arrival). *(NFPA 1710/1720 Standard for the Organization and Deployment of Fire Suppression Operations for Fire Departments)*
- d. Ladder company response to all fire calls within six (6) minutes from time of dispatch.
- e. Sufficient manpower on fire apparatus to provide safety of fire fighters and ability to perform basic fire and rescue operations – minimum 12 personnel on scene nine (9) minute after dispatch, 90% of the time. *(Wake County Standard)*
- f. Comprehensive in-service pre-plan fire inspections and systems training.
- g. Company drills and training.

2. NORTH CAROLINA INSURANCE SERVICE OFFICE (ISO)

The ISO establishes ratings for fire departments and municipalities across North Carolina. Each department or municipality is rated on a scale from 1 to 10, with 1 signifying the highest level of protection and 10 signifying no protection. A property owner's fire insurance premiums are directly related to the ISO rating of the municipality or department providing fire protection to the property. The cost of the premium is determined by the building's materials and design along with the ISO grade for the area in which the building is located. Consequently, an



improvement from a rating of 9 to a rating of 6 could result in a 50% reduction of fire insurance premiums. The Town of Knightdale currently has an ISO rating of 5.

3. MASTER PLANNING AND INTERGOVERNMENTAL COOPERATION

A successful fire protection program stems from dedicated and well trained firefighters, proper management and adequate financing. Proper management ensures that fire services are provided in an efficient and equitable manner. Efficiency ensures that the Town receives the desired level of fire protection at the least cost, while equity ensures that all areas and all people receive a similar level of service. To assist in this success during times of greatest need, the Knightdale Public Safety Department participates in a county-wide Mutual Aid Agreement in which each individual department may rely on additional equipment and personnel from other departments should such an emergency arise.

D. POLICE SERVICES

Police Division responsibilities involve the prevention and suppression of crime, the investigation and apprehension of offenders and the protection of residents and visitors. Activities among the criminal justice system are interrelated, and therefore should remain in close proximity to each other in order to achieve effective coordination of services. Automation and cooperation can reduce the needed number of officers and support personnel without reducing the effectiveness of various federal, state, county and local police functions.

E. FACILITY NEEDS AND STANDARDS

The Public Safety Department model utilized in Knightdale can serve to support and advance the effectiveness of each division through planned co-location of facilities and the cross training and support of police as first responders to fire calls. The initial co-location of these divisions was achieved with the construction of the Town of Knightdale Public Safety Center, located on Steeple Square Court. Wake County has a lease on part of the Public Safety Center until 2030 for use as an EMS Station with Eastern Wake EMS currently running an ambulance out of the center. The Fire Division also co-locates a Class "A" engine with the Public Works Department at 306 Robertson Street that is primarily operated by the town's volunteer firefighters.



Since the response time to a fire from a fire station is an important factor in fighting a fire, fire departments are organized on a system of decentralized fire stations. Fire station organization should allow for a concentration of stations for response into high risk areas, such as central business districts, industrial parks, schools, and multi-family developments. Areas at equal risk should have equal response times. Natural or artificial barriers that divide a town, such as the Mingo Creek and U.S. Business 64 in Knightdale, can limit response time and may make additional fire stations necessary. In the short term, the Town has researched the need for additional stations due to the expansion of the Town's corporate limits and has identified the growing western reaches in the Hodge Road/Mingo Bluff Boulevard area as a future site for a station. In the distant future, when the Town has developed all of its geographic planning area, there should be six (6) fire stations strategically located in order to meet the ISO guidelines as nearly as possible as exemplified in Figure 4.5.

The following general location criteria should be used when planning new fire stations. Fire stations should be:

1. Located adjacent to areas where development is most intense;
2. Buffered from residential areas and low intensity development;
3. Located near the center of its primary response area;
4. Located near, but not on major roadways, because of the hazards on entering heavy traffic;
5. Located so as to minimize U turning movements;
6. Located so as to ensure proper sight distance for entering and exiting the station, not on a curve or at the bottom of a hill; and
7. Located away from signalized intersections and railroad crossings so that traffic does not block egress from the station.

Generally the ISO recommends that all structures or fire hydrants within the corporate limits be located within 1.5 miles of a fire station. The 1.5 mile radius should result in a maximum response time of four to five minutes. New fire stations should be built if the following criteria are met: the total number of fire hydrants outside, yet contiguous to the 1.5 mile radius, is equal to or greater than one-half the total number of hydrants within the 1.5 mile radius. For example, if there were 100 hydrants within the 1.5 mile service

radius, there would need to be 51 more hydrants located outside, yet contiguous to the 1.5 mile radius to require the construction of a new fire station. Knightdale should work with the Department of Insurance and the ISO when locating new fire stations.






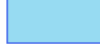

For a suburban community like Knightdale, a three (3) mile typical service radius with good road access permitting three (3) to five (5) minute fire apparatus response is a desirable distance separation criterion. Enhanced communication facilities incorporating technical advances and an established level of staffing dedicated to the co-delivery of police and fire services will strengthen the effectiveness of both divisions. Insuring connectivity among existing and future subdivisions and major land uses will serve to increase the public's safety and decrease fire response times.

1.5-MILE FIRE STATION ANALYSIS



Town of Knightdale
Planning Department
2010

Legend

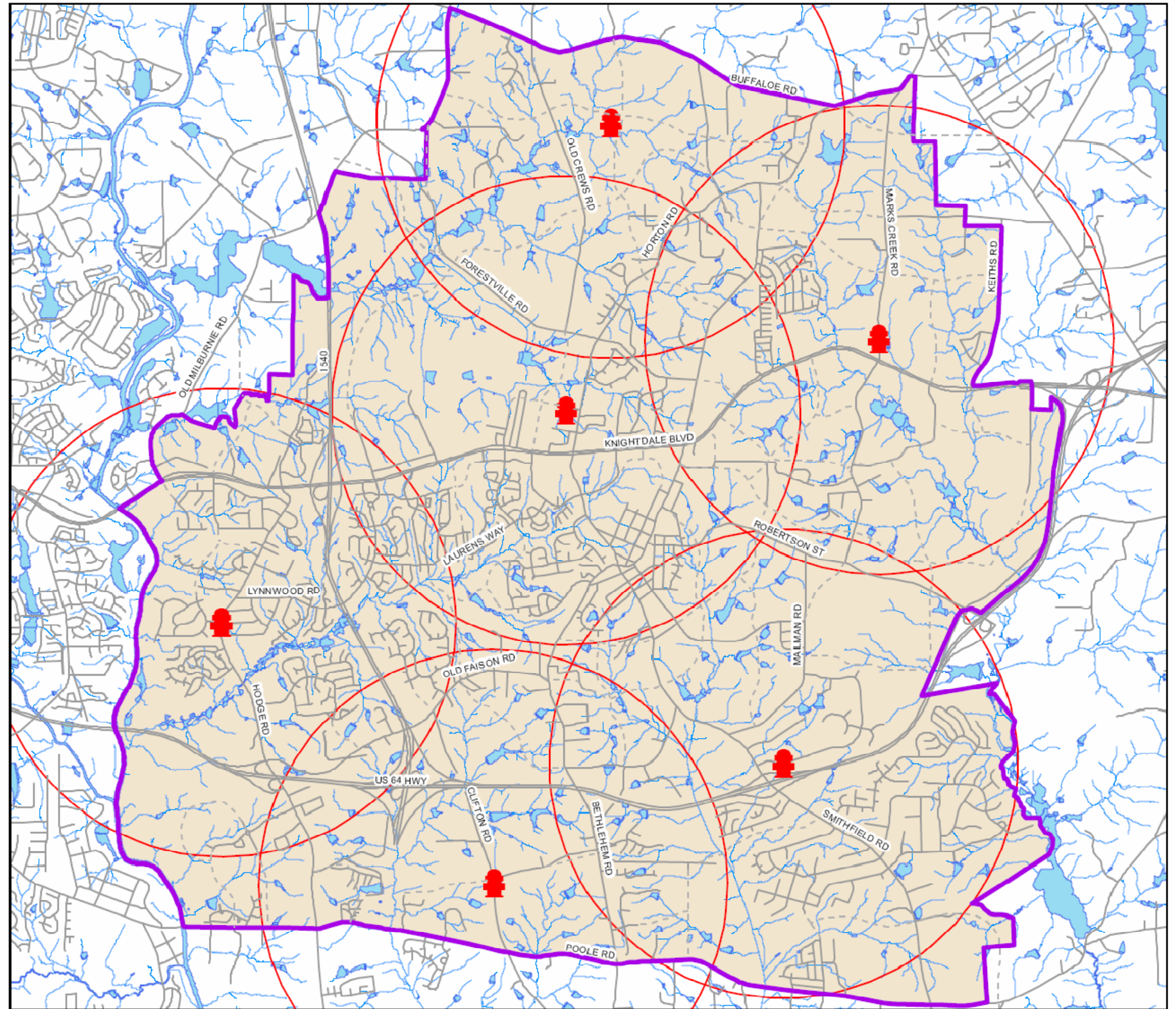
-  General Fire Station Locations
-  1.5-Mile Station Radius
-  Streets
-  Proposed Streets
-  Urban Service Area Boundary
-  Surface Waters
-  Surface Streams



1 inch = 3,400 feet

0 1,700 3,400 6,800 10,200 Feet

FIGURE 4.5





V. SOLID WASTE

The Town of Knightdale provides curbside solid waste and recycling services for single-family homes within the Town's corporate limits. Knightdale contracts privately with an outside waste disposal company for these services. Commercial and industrial users must contract independently with private waste disposal companies. A solid waste program includes collection, recycling, handling and disposal of solid waste and recyclables.

A. RECYCLING

The Town provides for curb-side pick-up of the following recyclable materials: glass, plastic, aluminum, and newspaper. The Town's recycling program accepts materials in keeping with the City of Raleigh recycled materials list. Recycling facilities are also provided at Lockhart Elementary School and Knightdale Elementary School through a program established by Wake County. These facilities accept glass, plastic, aluminum, and office paper as identified by Wake County. The Town should encourage recycling by sponsoring educational recycling programs.

B. COMPOSTING

The Town has an established yard waste program. Yard waste collection is performed by a private disposal company and the Town of Knightdale Public Works Department. The Town encourages private composting by sponsoring educational programs, and should investigate the potential for a municipal composting facility on Town owned property, thereby removing the need for outside collaboration with the private disposal firm. Regardless, the Town should become a model for using composted or recycled yard waste on Town owned lands.

C. HAZARDOUS WASTE

Hazardous waste is defined as a solid waste, or a combination of solid waste that because of its quantity, concentration, or physical, chemical, or infectious attributes, may: (a) cause, or significantly contribute to an increase in mortality or an increase in serious irreversible, or incapacitating reversible illness; or (b) pose a substantial present or potential hazard to health or the environment when improperly treated, stored, transported, or disposed of, or otherwise managed. The Town follows the identified hazardous waste materials list identified by Wake County.

To help reduce the amount of hazardous waste in Knightdale, the Town should coordinate with Wake County to sponsor a Household Hazardous Waste Collection Day. A Household Hazardous Waste Collection Day program allows people to bring hazardous waste to a set location, somewhere in the corporate limits of Knightdale, for disposal without a charge. The City of Raleigh and Wake County currently co-sponsor this program, and all residents can participate in this program. The existing pick-up locations are in the City of Raleigh and select Wake County convenience centers.

D. PROJECTED DEMAND

Since there are huge economies of scale (this means that the unit price to dispose of a unit of garbage decrease as the size of the facility increases), Knightdale should work with Wake County and other municipalities in Wake County to ensure adequate landfill capacity. As Knightdale's population increases and the demand for solid waste services increases, the Town should monitor its contract with the private waste disposal company to ensure that this service is provided in an efficient and cost effective manner. Presently, the Town has a 20-year agreement with the County and all other municipalities (except the Town of Holly Springs) for use of the South Wake Landfill, and the County is making efforts to extend the landfill's life through the use of recently developed best management practices.

VI. COMMUNITY SERVICES ACTION ITEMS

The Action Items are provided to direct the implementation strategies related to land use and community design in Knightdale and are in accordance with the overall goals of the 2027 Comprehensive Plan and the objectives of the Community Services Chapter.

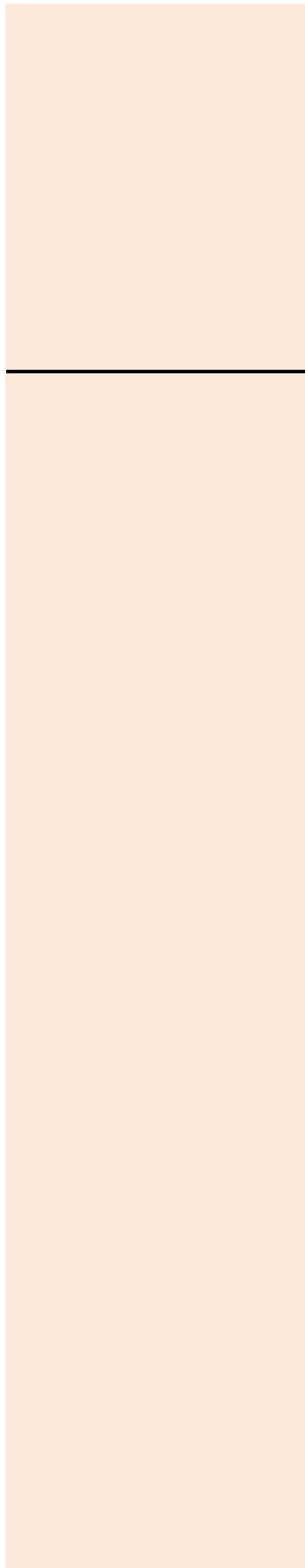
ACTION ITEMS:

The following are the tasks which provide a course of action to implement the objectives for community services.

- CS-1 The Town shall work with the City of Raleigh Public Utilities Department to maintain elevated water storage so as to provide operational pressure, equalize demand, supplement supply capabilities for fire protection and provide emergency reserves in case of an accident or natural disaster.

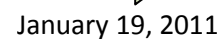


-
- CS-2 The Town shall, on an annual basis, review its contract with the private waste disposal company to ensure that contracted services are provided in an efficient and cost effective manner.
 - CS-3 The Town shall provide training for operational and field personnel on recycling, composting, and hazardous waste.
 - CS-4 The Town shall sponsor educational programs on the benefits of recycling and composting.
 - CS-5 The Town shall investigate the feasibility of opening a municipal composting facility on Town property.
 - CS-6 Wherever appropriate, the Town shall make use of compost and recycled yard waste materials on Town owned lands.
 - CS-7 Whenever appropriate, the Town shall purchase and use products with recycled materials.
 - CS-8 The Town shall coordinate with Wake County to sponsor an annual or semi-annual Household Hazardous Waste Collection Day.
 - CS-9 The Town shall work with Wake County and other municipalities in Wake County to ensure adequate landfill capacity.
 - CS-10 When selecting sites for new fire stations, the Town shall consult the location criteria outlined in this Chapter, and follow the guidelines of the ISO.
 - CS-11 The Town shall prepare and implement an Emergency Response Plan that defines current and future fire protection services, establishes fire protection service levels, identifies the necessary resources to meet the fire protection service levels and provides a process to implement and maintain service levels.
 - CS-12 The Town shall collaborate with school system planners to keep population projection data current and identify potential sites for future school locations.
 - CS-13 The Town shall investigate the feasibility of working with local healthcare agencies to conduct an annual health fair during which residents may learn about the many available health services.



I. INTRODUCTION

Figure 5.1:



| | |
|--------------------------|--------------------------|
| FENCES | STREET WALLS |
| LOCAL GATHERING PLACES | REGIONAL INSTITUTIONS |
| ROAD & LANE SECTIONS | STREET & ALLEY SECTIONS |
| PATHS & TRAILS | CROSS-BLOCK PASSAGES |
| NARROW MOVING LANES | WIDE MOVING LANES |
| CURVILINEAR TRAJECTORIES | RECTILINEAR TRAJECTORIES |
| THREE-WAY INTERSECTIONS | FOUR-WAY INTERSECTIONS |
| OPPORTUNISTIC PARKING | DEDICATED PARKING |
| LARGER CURB RADIUS | SMALLER CURB RADIUS |
| NARROW SIDEWALKS | WIDE SIDEWALKS |
| OPEN SWALES | RAISED CURB |
| SPORADIC TASK LIGHTING | EVEN STREET LIGHTING |
| PICTURESQUE LANDSCAPING | ALLEE PLANTING |
| MIXED TREE CLUSTERS | SINGLE TREE SPECIES |
| PARKS & MEADOWS | PLAZAS & SQUARES |

What Design Districts do:

Ensure fundamental site design and age-tested town design principles.

Include the fundamental principles of sound infrastructure and multi-modal transportation planning.

Promote natural and historic resource preservation.

Respond to citizen preferences and public demands for more choice.

Acknowledge fiscal limitations and the need for enhanced efficiency.

What Design Districts do NOT

Throughout the public participation process associated with the work of CPUC1, Knightdale residents expressed concern about the general quality and design of the built environment. These citizens asked for a comprehensive plan that promotes best practices in urban design, enhances the local quality of life in terms of both aesthetics and functional utility, maintains the historic and rural character of Knightdale, and raises the level of community expectations for the built environment. Similar sentiments had been expressed before; however, the ideas had yet to be integrated into the comprehensive planning process the way that these citizens had hoped.

The 1993 Comprehensive Plan relied on references to two (2) separate land use plans: “The Land Use Development Plan” and “The Land Use Design Plan”. While the *Land Use Development Plan* identified the projected location and timing of development in five (5) year increments, the *Land Use Design Plan* attempted to manage the content and design of development by listing land uses allowed in each area of town. Since “development” was discussed in both plans, and “design” was not expressly discussed in either; the titles themselves often led town staff, elected officials and the public to confuse these plans. Other identified problems included:



- Developments often conflicted with the timing increments for development as provided on the *Land Use Development Plan*; and
- The *Land Use Design Plan* was being used to show which uses were allowed in each area of town; and
- The *Land Use Design Plan* often duplicated the Town's official zoning map.

CPUC1, Town Staff and the consultants suggested that a different type of map that was more useful and user friendly would be helpful. Their discussions led to the concept of “design districts” in which land uses are determined by the zoning map while the design, layout and form of those uses are influenced by the 2027 Comprehensive Plan's new Design District Master Plan and its associated guidelines. Therefore, the Design District Master Plan does not prescribe specific land uses for each area of town as the previous *Land Use Design Plan* did. CPUC2 built upon the initial Design District Master Plan by adjusting the design objectives based on the progress and lessons learned in the intervening years, refining and enhancing the overall concepts associated with each design district and introducing the concept of design overlays that bring about additional guidelines for specific areas of interest.

II. DESIGN GUIDELINES

Through public participation and professional input, a series of design guidelines have been developed for both the general area and each specific district. The intent of the guidelines is to provide the framework in which development proposals mold themselves to reflect the Town's character and community aspirations, and to encourage a developer's creativity in providing solutions. Furthermore, these guidelines assist the Town in developing and revising the desired standards and rules found within the Unified Development Ordinance. Altogether, the influence of these design guidelines will extend throughout Knightdale whether the desire is to retain the rural setting, modify the emerging and existing urban patterns or significantly change the character of a particular area.

The purposes of the design guidelines may also be expressed as follows:

- To educate property owners about the design characteristics of the town;
- To preserve the integrity of the community's rural historic resources and promote compatible new construction;
- To frame an approach to design that will help sustain the character of the community that appeals to residents and visitors;
- To provide information that property owners may use in making decisions about their buildings by addressing basic principles of design;
- To maintain cohesive neighborhood identities that respect the unique natural setting of Knightdale; and
- To be implemented throughout the Town of Knightdale and its ultimate planning area.

Once carried through to the Unified Development Ordinance, the design guidelines will have helped to form the backbone of a re-vamped development plan review system involving Town Staff, Town Boards, the development community and the public. The review system will focus on items such as:

- building orientation;
- scale and mass;
- materials;
- architectural features;
- landscaping;
- lighting;
- open space and recreation;



-
- parking;
 - streets and public infrastructure; and
 - overall treatment of the site, such as preservation of existing vegetation and grading.

Consequently, these guidelines will have a further indirect influence on developers, engineers, architects, and other design professionals involved in the planning and design of development plans; as well as elected officials and board members involved in the recommendations and decisions concerning those plans.

III. OVERALL DESIGN DISTRICT OBJECTIVES

A set of objectives are developed to guide development in Knightdale:

1. Promote a built environment that blends vernacular form with efficient function;
2. Preserve the natural environment and encourage conscientious development in regards to it;
3. Create a supportive community image and identity that local businesses may tap into and partner in;
4. Enhance the 'sense of place' and preserve the local character of Knightdale;
5. Promote the development of a vibrant, sustainable and safe community design in which people desire to live, work and visit;
6. Promote the development of a cohesive community network of readily-identifiable social, cultural and recreational gathering spaces;
7. Promote a compact mix of uses in areas around Knightdale, including Old Town, that reflect and build upon the Town's character;
8. Promote a variety of land uses which are compatible to one another and provide a vibrant and varied local economy, which will attract and support a wide diversity of business opportunities and community services; and
9. Promote site design which clearly provides a system of coordinated land uses and that encourages decision makers, the development community and town staff to view each new development proposal in a larger and regional context.




IV. OVERALL DESIGN GUIDELINES

The overall design guidelines respond to a number of guiding principles that were identified through the plan creation process. This series of guidelines seek to embrace development and expand upon opportunities that exist due to the location, natural environment and character of Knightdale. It is crucial to remember that while these guidelines generally apply to all areas of Knightdale, there is also a series of district-specific guidelines that requires a more specific approach that further enhances the qualities of each Design District.

The overall community design of Knightdale should adhere to the following guidelines:

- OA-1. Historic buildings, features and landscapes should be preserved wherever possible.
- OA-2. Architecture and landscape design should be derived from local vernacular, climate, culture and history.
- OA-3. Individual architectural projects should be linked to their surroundings through common elements and features.
- OA-4. Significant open and rural spaces should be protected and preserved wherever possible.
- OA-5. Civic buildings and public gathering places should be located in prominent locations.
- OA-6. Concentrations of civic, institutional, and commercial activity should be embedded as integral components of neighborhoods and design districts.
- OA-7. Automobile accommodation areas and travel ways should respect pedestrian travel ways and the form of public spaces.
- OA-8. Commercial development should exhibit a strong and vibrant architectural treatment of their building facades and provide signature public amenities.
- OA-9. Residential development should provide a variety of significant passive and active recreational amenities.
- OA-10. Development proposals should incorporate best practices for creating public spaces that are safe.



OA-11. Pedestrian travel should be comprehensively planned to accommodate substantial on-site pedestrian activities as well as movement within and through the site.

OA-12. Development proposals should minimize energy and water use, waste and pollution.



V. DESIGN DISTRICT DEFINITIONS

The Town of Knightdale set a goal to be a community where both town (urban) and country (rural) areas coexist in the midst of the rapidly growing Triangle region. To achieve this goal, the 2027 Comprehensive Plan outlines a series of design districts located on the Design District Plan (Figure 5.2). The design districts indicate the functional form of growth within the different areas of town, and they are a direct response to input from both Comprehensive Plan Update committees and the public at large. The five (5) design districts are listed as follows:

1. Countryside District
2. Neighborhood District
3. Urban Village District
4. Highway District
5. Special Use District

In addition to the five (5) primary design districts, there is a single design district overlay known as the Gateway Design District Overlay. As part of the 2010 mini-update process, the Gateway Design District Overlay was created by the Comprehensive Plan Update Committee to indicate areas where the Town should seek to enhance its “sense of place” and local character by working with property owners and developers to incorporate gateway design elements into the landscape.

Each of these districts are more specifically discussed in the following pages.

DESIGN DISTRICT PLAN



Town of Knightdale
Planning Department
2010

Legend

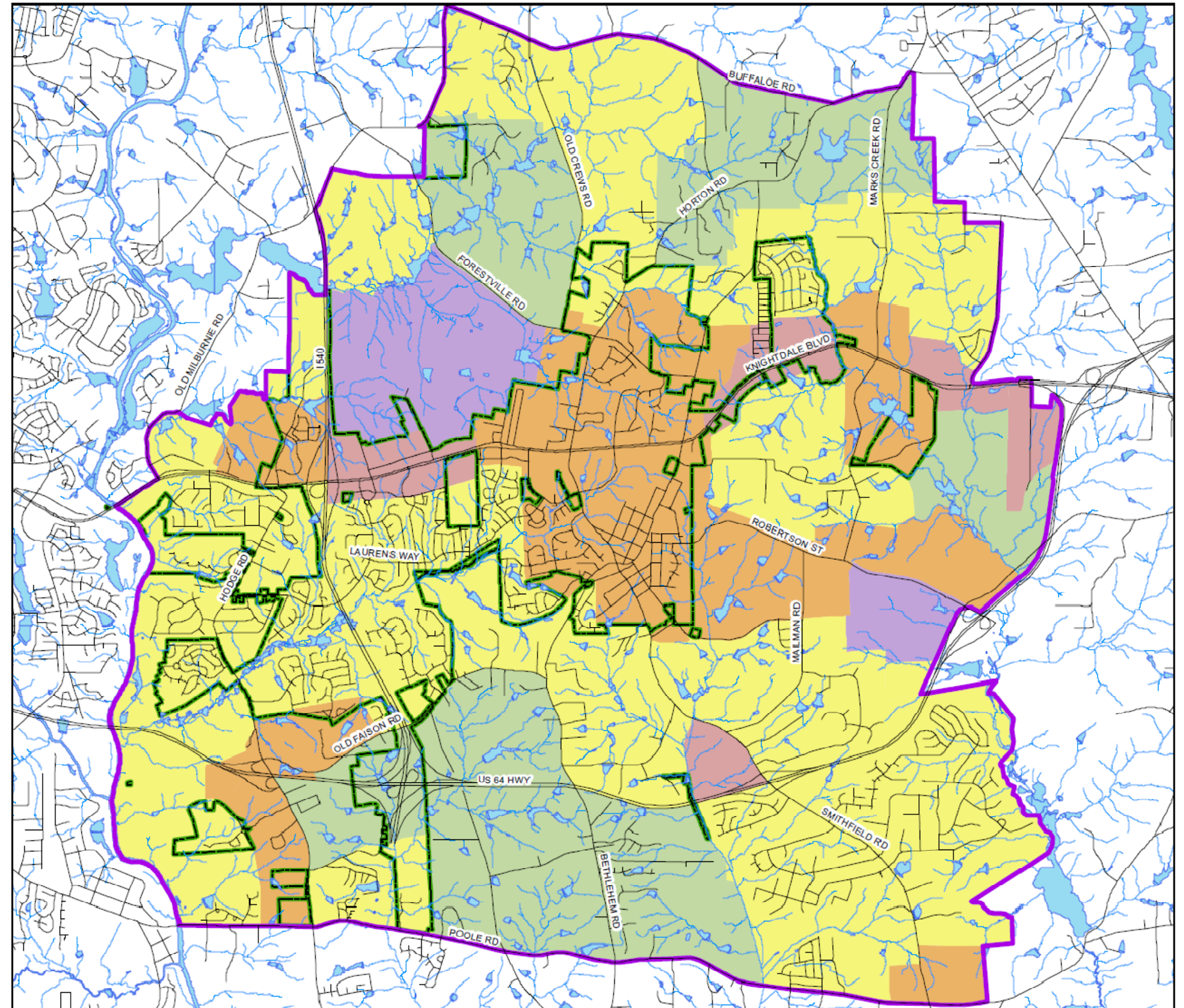
- Streets
- Urban Service Area Boundary
- Surface Waters
- Surface Streams
- Knightdale Corporate Limits (2009)
- Design Districts**
 - Countryside Design
 - Neighborhood Design
 - Urban Village Design
 - Highway Design
 - Special Use Design



1 inch = 3,400 feet

0 1,700 3,400 6,800 10,200 Feet

FIGURE 5.2



ACTIVITY CENTER PLAN



Town of Knightdale
Planning Department
2010

Legend

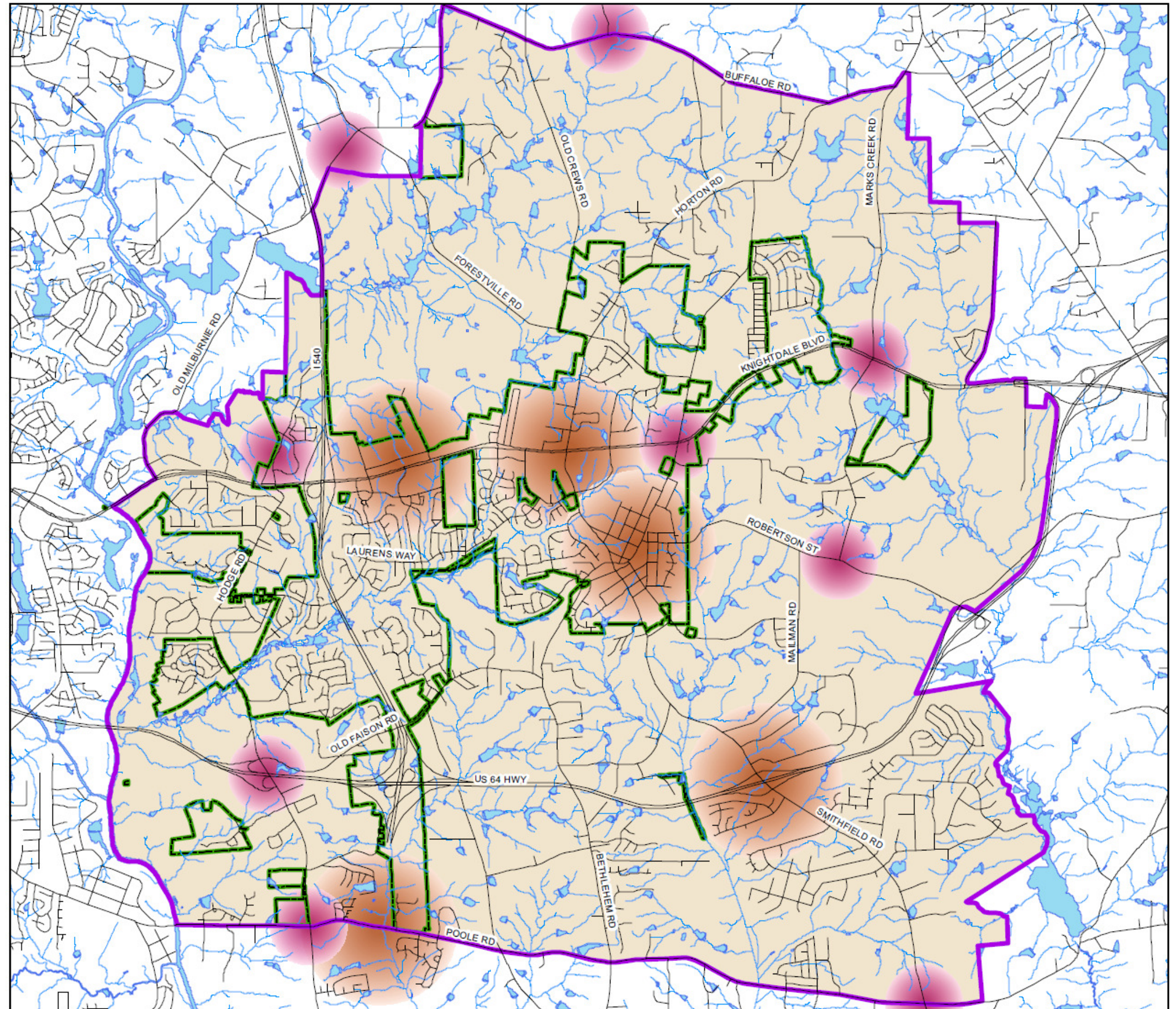
- Streets
- Urban Service Area Boundary
- Surface Waters
- Surface Streams
- Knightdale Corporate Limits (2009)
- Secondary Activity Center (1/4 Mile Radius)
- Primary Activity Center (1/2 Mile Radius)



1 inch = 3,400 feet

0 1,700 3,400 6,800 10,200 Feet

FIGURE 5.3



A. COUNTRYSIDE DESIGN DISTRICT

1. DEFINITION

The Countryside Design District encourages the development of compact neighborhoods and rural compounds that set aside significant natural vistas and landscape features, such as family farms, for permanent conservation. Types of development associated with the Countryside Design District include traditional farms, the single house, the farmhouse cluster, the residential neighborhood, and traditional neighborhood developments which are also known as “TNDs”. In addition to private farmlands which contribute to the conservation of open space; the Parks, Recreation and Open Space Master Plan also shows the general areas in which the Town is looking to conserve significant tracts of land as open space and parks for the enjoyment and education of future generations.

A “Countryside Village” is a cluster of buildings within the Countryside Design District that provides for the location of shops, services, small workplaces, civic and residential buildings central to a neighborhood (or grouping of neighborhoods), and within walking distance of dwellings. A Countryside Village should exhibit an interconnected pattern of streets, safe and convenient pedestrian access and an overall size that is limited to approximately ¼ mile in radius. Building forms in the Countryside Village should be compatible with those of surrounding neighborhoods and should respect the rural landscape, and the uses within them should have a primary market area that consists of the surrounding Countryside Design District. While the Design District Master Plan does not show the general location of these “villages” within the larger Countryside Design District, the accompanying Activity Center Map (Figure 5.3) provides direction as to where these villages are encouraged.



2. GUIDELINES

- CS-1. Significant natural vistas and landscape features shall be preserved and/or conserved.
- CS-2. Rural road design that features ribbon pavement, open swales and walking paths is encouraged outside of Countryside Villages.
- CS-3. The design of streets, pedestrian paths, greenways and bicycle facilities should minimize conflicts and promote connectivity.
- CS-4. Riparian corridors (stream buffers) are to be preserved and utilized as community open space features.
- CS-5. In countryside neighborhoods, subdivisions and streets should run parallel to riparian corridors wherever possible, so that individual lots face the corridor across the street, creating a “parkway” style public space.
- CS-6. Design should primarily encourage and support residential and agricultural uses.
- CS-7. Where appropriate, design that accommodates commercial and industrial uses should more strongly emphasize enhancement of the environment and open space conservation.
- CS-8. Adjacent buildings should be architecturally compatible through similar silhouettes, spacing between facades, setbacks, proportions, treatments, exterior materials, scale, massing, and/or architectural style.

B. NEIGHBORHOOD DESIGN DISTRICT

1. DEFINITION

The Neighborhood Design District primarily provides for suburban residential development surrounding the original town center and higher-density urban villages. Streets and housing will be arranged to highlight significant natural features as envisioned, for example, by Frederick Law Olmsted's Master Plan for Riverside, IL; the original plans for Myer's Park in Charlotte, NC; or the original plans for Cameron Park in neighboring Raleigh. Furthermore, streets in the Neighborhood Design District should be interconnected, unless prevented by environmental constraints. A wide array of housing types is encouraged, and low-intensity business activity is permitted in mixed-use buildings constructed at a residential scale in accordance with location criteria. Specific building types within this design district should correspond to the intensity of the uses permitted.

The "Neighborhood Village" is a cluster of buildings within the Neighborhood Design District that provides for the location of shops, services, small workplaces, civic and residential buildings central to a neighborhood (or grouping of neighborhoods) all within walking distance of residential dwellings. A Neighborhood Village shall be developed with an interconnected pattern of streets, safe and convenient pedestrian access, and an overall size that is limited to approximately ¼ mile in radius. Building forms in the Neighborhood Village should be compatible with those of surrounding neighborhoods, and the uses within them should have a primary market area of one (1) or two (2) miles. The integration of adjoining natural features is secondary within Neighborhood Villages and should not interfere with the development of a compact center. If a Neighborhood Village is the focus of a planned transit stop, it should be designed to serve the neighborhood's residential base plus transit riders.

While the Design District Master Plan does not show the general location of these "villages" within the larger Neighborhood Design District, the accompanying Activity Center Map (Figure 5.3) provides direction as to where these villages are encouraged.



2. GUIDELINES

- NH-1. Pedestrian scale of design should be utilized throughout any development with sidewalks generally on both sides of the street, particularly within walking distance of greenways, activity centers and other pedestrian destinations.
- NH-2. Streets should be safe, comfortable and interesting to pedestrians through the use of approved landscaping, street tree buffers, street furniture and traffic calming devices.
- NH-3. In areas of low street connectivity, separate multi-use paths should be used to promote convenient bike and pedestrian access between neighborhoods.
- NH-4. Riparian corridors (stream buffers) are to be preserved and utilized as community open space features.
- NH-5. In neighborhoods, subdivisions and streets should run parallel to riparian corridors wherever possible, so that individual lots face the corridor across the street, creating a “parkway” style public space.
- NH-6. Where permitted, civic, professional, and retail uses should be constructed at a pedestrian scale and designed to accommodate all modes of transportation.
- NH-7. Residential garage doors should not dominate the front plane of a residence, but should be set back from the front plane of the house or be detached and located at the rear of the main residential structure.
- NH-8. On-street parking should be an integral component of parking plans within any Neighborhood Village.
- NH-9. The front elevations of non-residential buildings should line the street and their overall massing should be pedestrian in scale.
- NH-10. Adjacent buildings should exhibit general architectural compatibility through the use of similar silhouettes, spacing between facades, setbacks, proportions, treatments, exterior materials, scale, massing, and/or architectural style.

-
- NH-11. Within Neighborhood Design Districts, a broad range of housing types and price points should be promoted as a method to increase the likelihood of bringing people of diverse backgrounds into daily interaction, and thereby strengthening the personal and civic bonds essential to building an authentic community.
 - NH-12. Streets should be designed as interconnected networks that have the effect of promoting alternate means of transportation such as walking and cycling, as well as reducing the length of automobile trips; except when significant natural features or historic resources preclude interconnectivity.
 - NH-13. Civic, institutional, and commercial activity should be concentrated in Neighborhood Villages that are within walking distance of most residences within the Neighborhood Design District.
 - NH-14. Schools should be constructed as multi-story architectural centerpieces of the community and located to promote the option of families and children walking or cycling to school.
 - NH-15. All Neighborhood Villages should contain mixed uses (horizontally or vertically) including, but not limited to, single family and multi-family dwellings, office buildings, retail storefronts, live-work units, and multi-story housing with ground level retail/office uses.
 - NH-16. A central component of any Neighborhood Village is the provision of a square, plaza or other open space that promotes community interaction and enhances the aesthetic value of the surrounding neighborhoods.
 - NH-17. Neighborhoods should include pocket parks and community playgrounds as communal outdoor living spaces where neighbors may meet and interact as small groups.



C. URBAN VILLAGE DESIGN DISTRICT

1. DEFINITION

The Urban Village Design District provides for revitalization, reuse, and infill development in Knightdale's original town center, as well as development within other areas identified for higher-density living alongside higher-intensity uses. Consequently, a broad array of uses are expected in a mixed-use pattern which integrates shops, restaurants, services, work places; civic, educational and religious facilities, and higher density housing in a compact, pedestrian-oriented environment. An Urban Village's market area includes both the surrounding residential neighborhoods and the broader community. The district is also intended to accommodate the higher overall intensity of development required to support a proposed regional multi-modal transit hub. Activity Centers within the Urban Village Design District should be sized approximately with a ½ mile radius to ensure enough space to meet the District's expected local and community-wide demand for facilities and services.

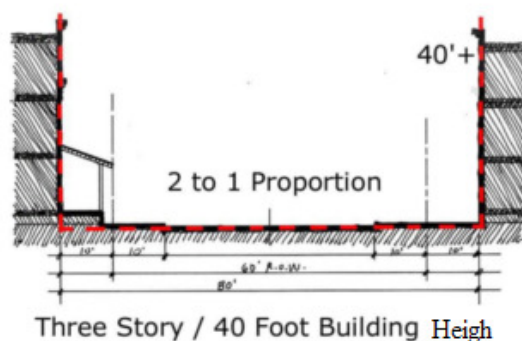
2. GUIDELINES

- UV-1. Pedestrian-friendly streets should be utilized throughout any development within the district with sidewalks on both sides of the street.
- UV-2. Urban Village Design Districts should contain mixed-uses (horizontally or vertically) that includes, but is not limited to, single family and multi-family dwellings, office buildings, retail storefronts, live-work units, and multi-story housing with ground level retail/office uses.
- UV-3. A central component of any development within the Urban Village Design District is the provision of squares, plazas or other open spaces that promote community interaction and enhance the aesthetic value of the town.
- UV-4. Urban Village block lengths generally should not exceed 660 feet.
- UV-5. Mid block drives and rear alleys should be utilized for access to parking, utilities, service and loading areas to minimize the number of driveway cuts along streets; thereby minimizing pedestrian conflicts.

-
- UV-6. Uses associated with daily living (civic, professional and retail) should be constructed within walking distance of residential uses and transit stops, allowing for the option of independence from the automobile.
 - UV-7. Streets should be designed as interconnected networks that have the effect of promoting alternate means of transportation such as walking and cycling, as well as reducing the length of automobile trips; except when significant natural features or historic resources preclude interconnectivity.
 - UV-8. On-street parking should be an integral component of parking plans within the Urban Village Design District.
 - UV-9. Transit corridors should be planned to service and help maintain the viability of the Urban Village Design Districts.
 - UV-10. Residential garage doors should not dominate the front plane of a residence, but should be set back from the front plane of the house or be detached and located at the rear of the main residential structure.
 - UV-11. Streets should be safe, comfortable and interesting to pedestrians through the use of approved landscaping, street tree buffers, street furniture and traffic calming devices.
 - UV-12. Buildings should be located in close proximity to the pedestrian portion of the street, with off-street parking located behind and/or beside the buildings.
 - UV-13. The front elevations of commercial buildings should line the street and their overall massing should be pedestrian in scale.
 - UV-14. Adjacent buildings should exhibit general architectural compatibility through the use of similar silhouettes, spacing between facades, setbacks, proportions, treatments, exterior materials, scale, massing, and/or architectural style.
 - UV-15. Canopies and awnings should be canvas or similar material and should be permitted to encroach over a sidewalk to within two (2) feet of the face of a street curb with any illumination provided by external lighting only.



- UV-16. Ground mounted mechanical equipment should be located in the rear or side yard and screened from off-site view, while roof-mounted mechanical equipment should be screened from off-site view by a parapet wall or similar architectural feature.
- UV-17. Loading and service delivery areas should be located in the rear or side yard away from the street frontage.
- UV-18. Street edges should be framed by building facades and other architectural elements including street trees and formal landscaping.
- UV-19. Building articulation such as porches, balconies, and bay windows should be used along street edges to promote the visual transition from public to private space.
- UV-20. Streets lined with retail uses should be designed with as tight a height-to-width ratio (as shown below) as permitted to achieve a spatial definition and sense of place necessary to compete with other retail shopping areas.



D. HIGHWAY DESIGN DISTRICT

1. DEFINITION

The Highway Design District is established to provide primarily for auto-dependent uses in areas not amenable to easy pedestrian access nor a comfortable pedestrian environment. It is the intent of the Highway Design District to serve not only the Knightdale community, but interstate travelers using Interstate 540 and US Highway 64/264 as well. Because of the scale and access requirements of uses in this category, they often cannot be compatibly integrated within the Urban Village or Neighborhood design districts. Development at the edges of the Highway Design District must provide a compatible transition to uses in adjacent districts, while arterials and collectors should be lined with formal street tree plantings.

2. GUIDELINES

- HW-1. All retail structures should be constructed with materials reflective of the local architectural vernacular—particularly stone, for which the area is known.
- HW-2. All facades of a building that are visible from streets and public parking areas should contribute to the aesthetics of the district and reflect a human scale and characteristics similar to the façade containing the primary customer entrance.
- HW-3. Facades that are visible from streets and public parking areas should incorporate recesses and projections and other articulations such as windows, awnings and arcades in order to avoid having an uninterrupted length along the façade in excess of 20 horizontal feet.
- HW-4. A well-marked network of pedestrian ways including paths, sidewalks and crosswalks should be designed to provide pedestrian connections between buildings and from parking areas to building entrances.
- HW-5. Smaller retail stores that are part of a larger principal building should have their own display windows and separate outside entrances.
- HW-6. Off-street parking areas within the district should be located in the side or rear yard.



-
- HW-7. Where feasible, on-street parking should be incorporated as an element into overall parking plans, particularly where smaller retail stores exist.
 - HW-8. Adjacent buildings should exhibit general architectural compatibility through the use of similar silhouettes, spacing between facades, setbacks, proportions, treatments, exterior materials, scale, massing, and/or architectural style.
 - HW-9. Ground mounted mechanical equipment should be located in the rear or side yard and screened from off-site view, while roof-mounted mechanical equipment should be screened from off-site view (particularly from adjacent streets and other public areas) by a parapet wall or similar architectural feature.
 - HW-10. Loading and service delivery areas should be located in the rear or side yard away from the street frontage.

E. SPECIAL USE DESIGN DISTRICT

1. DEFINITION

The Special Use District is established to accommodate uses that may constitute health or safety hazards, have greater than average impacts on the environment or diminish the use and enjoyment of nearby property by generating noise, smoke, fumes, odors, glare, commercial vehicle traffic or similar nuisances. Because uses permitted in the Special Use Design District vary as to their impacts on the community, they may likewise vary as to effective mitigating conditions.

2. GUIDELINES

- SU-1. A natural or vegetated buffer commensurate in size (width) with the intensity of the specific nuisance should be imposed along the perimeter of sites within the Special Use Design District.
- SU-2. Structures and uses within the Special Use Design District should be screened from off-site view along any public street.



F. GATEWAY DESIGN DISTRICT OVERLAY

1. DEFINITION

The Gateway Design District Overlays are defined, limited areas along the perimeter of the town that incorporate monuments, other structures, and views—where possible—to mark the boundaries (Figure 5.4). Furthermore they give the first impression of the town; something built through which they may learn more than just the name of the place, but also something about its character. They also welcome people to an area through unique, attractive methods that draw people in and encourage them to stay and explore.

2. GUIDELINES

- GW-1. All land within the Gateway Target Area shall be considered by land owners, developers and the Town for installation of possible gateway elements.
- GW-2. Land within the Gateway Target Area closest to the Gateway Target Point shall be the most highly considered by land owners, developers and the Town for the installation of gateway elements.
- GW-3. Developments identified for incorporating gateway elements should make use of the following:
- A graphic symbol of the Town;
 - A short message;
 - Banners;
 - Monument Signs; and
 - Landscaping.
- GW-4. Elements that are part of the gateway must exhibit the following characteristics:
- Uniqueness;
 - Natural materials such as stone or wood;
 - Simplicity;
 - Color;
 - Scalable to various locations; and
 - Replicable.

GATEWAY DESIGN DISTRICT OVERLAY



Town of Knightdale
Planning Department
2010

Legend

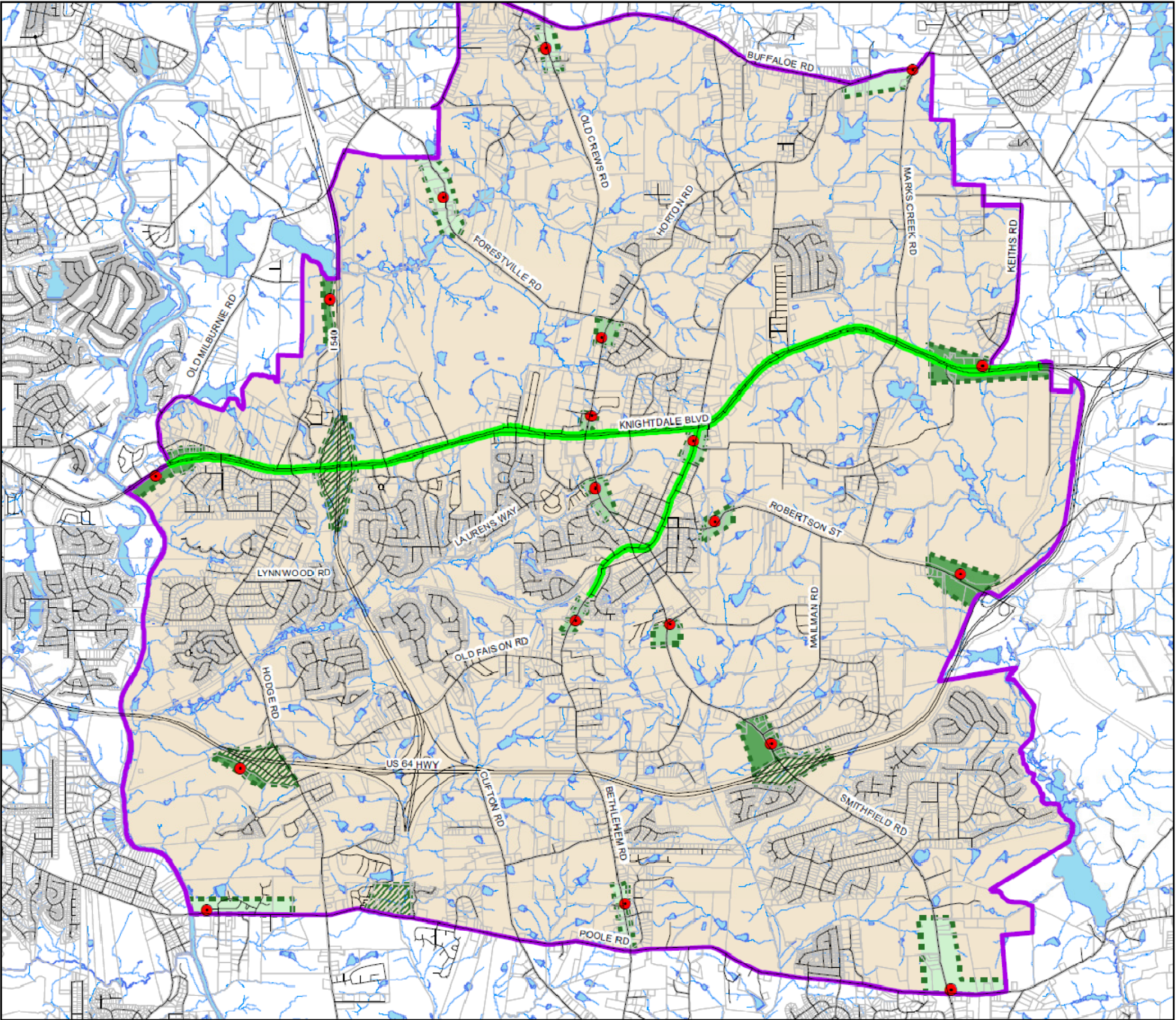
- Gateway Target Areas**
- Public Landscaping Improvements
 - Priority 1 Gateway Target Area
 - Priority 2 Gateway Target Area
 - Priority 3 Gateway Target Area
 - Primary Target Point
 - Public Streetscape Enhancements
 - Streets
 - Urban Service Area Boundary
 - Knightdale Corporate Limits (2009)
 - Parcels
 - Surface Waters
 - Surface Streams



1 inch = 3,400 feet

0 1,700 3,400 6,800 10,200 Feet

FIGURE 5.4



VI. POTENTIAL IMPACT OF THE 2027 COMPREHENSIVE PLAN ON GROWTH AND DEVELOPMENT

With thoughtful implementation, the design districts will help the community meet many of the stated goals of a "functional framework". These districts may also help Knightdale develop a strong economy based on a highly aesthetic and functional infrastructure that provides high-paying jobs, a strong tax base and a variety of housing options (i.e. affordable vs. up-scale locations, amenities and design; high- vs. low-density construction; rural, suburban, or urban environments).

The design districts are not meant to be restrictive, by disallowing specific uses. Rather, they are meant to allow for a variety of uses that must conform to design standards established by the community. Design Districts will not hinder Knightdale's competitiveness for attracting new developments as single-family housing, apartments, retail centers, office parks, and industrial uses are all allowed in Knightdale. However, these uses will be asked to forego some of their corporate architecture and design in order to meet community-based design standards developed in conjunction with local residents, businesses, landowners, professional planners, urban designers and developers. The fact that most uses will be allowed in any design district, as long as they adhere to the design standards of that district, may allow for a broader range of businesses and housing types than were allowed under the previous UDO.

Specifically, the Countryside and Neighborhood design districts will have the highest potential for attracting residential development. Retail, office, and industrial uses will only be permitted as long as they do not violate the basic tenets of the district (i.e. land conservation, preservation of natural views, and development of traditional neighborhoods). Meanwhile, the Urban Village Design District is ideal for attracting a variety of higher density housing, retail, and office developments. These uses, however, will need to be located and designed to maximize synergy and minimize negative impacts that the individual uses might otherwise have on each other. From a market perspective, the Highway Design Districts are ideal locations for big box and large retail development. The locations of these districts in the plan also adhere to the basic market principles of superior highway access and visibility, and they should prove to be strong contributors to local employment and the Town's tax base. Finally, the Special Use Design Districts are set aside for existing uses that would generate undesirable impacts on their surroundings, and they generally incorporate enough area to effectively buffer them from neighboring development.



Non-prototypical commercial and mixed-use developments (those that do not rely on corporate architecture) can have a higher rate of success as long as they focus on important market fundamentals. The placement and design of these centers must be mindful of market fundamentals regarding access, visibility, parking availability, competitive location and tenant mix. The most successful non-prototypical developments create an inviting sense of place that transforms the center into an attractive destination that draws people from a wider market area; thereby leading to increased spending at the local business establishments. This is especially true in metropolitan areas like the Triangle that have limited numbers of unique, or differentiated retail destinations.

Increased convenience and pedestrian connectivity also encourage consumers to browse multiple stores and increase the amount of time shoppers spend on shopping, dining and being entertained. Almost all of the national retailers have developed prototypes that fit the types of non-prototypical development designs adopted in this plan.

Some residents may be discouraged by the externalities often associated with development - primarily congestion. Without thoughtful planning and implementation, the market conditions that will initially make Knightdale attractive to retailers, businesses and new residents will, over time, lead to negative externalities that will ultimately discourage additional business formation, employment growth and household formation. Congestion will erode the community's standard of living by lengthening travel times, increasing air, water, soil pollution, and creating visual blight that will be more costly to address in a reactive versus proactive manner. Many of the action items included in this plan will assist the Town in proactively combating congestion and other negative externalities.

VII. LAND USE AND COMMUNITY DESIGN ACTION ITEMS

The Action Items are provided to direct the implementation strategies related to land use and community design in Knightdale and are in accordance with the overall goals of the 2027 Comprehensive Plan, the objectives of the Design District Master Plan and the previously listed design guidelines.


ACTION ITEMS:

The following are the tasks which provide a course of action to implement the objectives for land use and community design:

- DS-1 The Town shall amend the UDO to permit both horizontal and vertical mixed-use developments and master planned developments.
- DS-2 The Town shall amend the UDO to allow for varying densities and density credits within mixed-use, planned unit and master planned communities and to provide design standards for residential development.
- DS-3 The Town shall work with adjacent municipalities (Raleigh and Wendell) and Wake County to coordinate land use planning efforts to ensure compatible community design along Knightdale's periphery.
- DS-4 The Town shall review and amend its design standards within the UDO to ensure that they:
 - protect and enhance the quality of the Town's built and natural environments; and
 - promote the small town and rural character of Knightdale.
- DS-5 The Town shall continue to work with private developers in creating community spaces by encouraging pedestrian scale developments that include gathering areas. Gathering areas may include benches, fountains, shade trees, or picnic tables. Residential sites shall be integrated with, and strongly linked to, abutting residential areas allowing residents to safely access the site by car, bicycle or foot. To the extent possible, public spaces such as churches, schools, libraries and parks shall be physically linked to community spaces.



- DS-6 The Town shall comprehensively review its streetscape design, which includes a planting area and sidewalk program that will result in tree lined streets that provide a shady area for drivers and a buffer from auto traffic for pedestrians.
- DS-7 The Town shall adopt and review a connectivity index requirement that results in links between neighborhoods that do not necessitate travel along arterials.
- DS-8 The Town shall amend the UDO to streamline the major residential subdivision approval process by codifying Council expectations and setting standards that may be administratively reviewed.
- DS-9 The Town shall adopt residential street design standards that accommodate the needs of pedestrians.
- DS-10 The Town shall pursue and dedicate funding for the provision of public plazas, parks and greenways.
- DS-11 The Town shall review and amend the UDO to ensure that developers are contributing to the construction of public recreation and gathering spaces through open space dedication and improvement requirements.
- DS-12 The Town shall research crime prevention through environmental design and incorporate appropriate design guidelines into the UDO that ensure a safer community.
- DS-13 The Town shall prepare and implement a Small Area Plan that addresses the issues of appearance, economic development, neighborhood conservation and revitalization in the original town center ("Old Town").
- DS-14 The Town shall prepare and implement a Small Area Plan that addresses the development of a multi-modal transit hub along the eastern reaches of Knightdale's rail corridor.
- DS-15 The Town shall adopt a minimum housing ordinance that requires decent, safe and sanitary housing for all Knightdale citizens.
- DS-16 The Town shall request that the Wake County Housing and Community Revitalization Committee allocate state and federal housing funds to



programs that will address the development needs of Knightdale, including home rehabilitation programs.

DS-17 The Town shall examine and revise, as necessary, the standards required for land use and design issues along US Highway 64/264 and I-540.



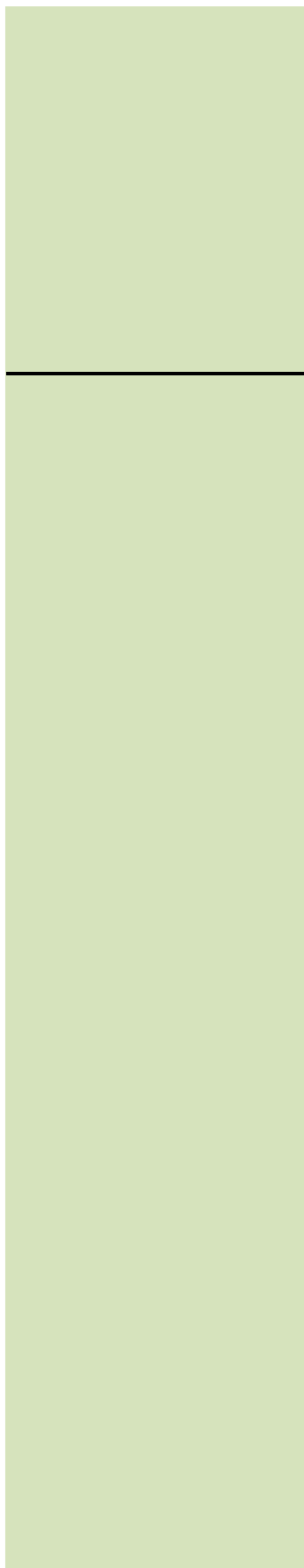
Knightdale

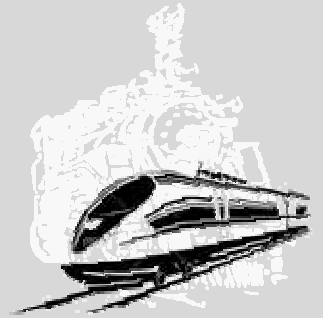


Parks &
Recreation

PARKS, RECREATION & OPEN SPACE

*(Insert Parks, Recreation and Open Space Master Plan as approved on
December 15, 2010.)*





TRANSPORTATION

I. INTRODUCTION

The Knightdale Transportation Master Plan addresses mobility needs throughout the Town of Knightdale's planning jurisdiction and urban service area. The Plan seeks to encourage the development of a network of interconnected streets that works to disperse traffic and reduce congestion on arterials while connecting and integrating neighborhoods within the Town. Equally as important, the Plan encourages the development of a network of sidewalks, bicycle lanes and mass transit options to provide an attractive and safe mode of travel for cyclists and pedestrians.

In addition to dispersing traffic, interconnected street networks encourage alternate modes of transportation to the automobile, enhance transit service opportunities, and potentially reduce vehicle miles traveled within the street network. The overall network function, and the comfort and safety of multi-modal or shared streets to disperse traffic are primary to the system's efficiency.

One of the biggest challenges facing Knightdale during the next twenty years is planning for a safe and efficient transportation system. As the population of Knightdale and the region continues to increase so will traffic demand. The result without proper planning is congestion and unsafe conditions.

The goal of the Plan is to address regional as well as local issues. While the plan focuses on mobility, it is also designed to preserve the local character and heighten community design. In achieving this goal, the plan recommends street design guidelines that serve the traffic needs, while encouraging type and density of development suitable to the area.

Finally, the plan is intended to function cooperatively with the long-range plans of agencies such as the Triangle Transit Authority (TTA), Capital Area Metropolitan Planning Organization (CAMPO), the North Carolina Department of Transportation (NCDOT), other neighboring municipalities (Raleigh, Wendell and Zebulon) and Wake County government.

The intent of the Transportation Master Plan is to plan a transportation network that enhances quality community design. The purpose of evaluating the transportation system is the understanding of which improvements are needed now and which improvements are needed in the future.

THE SIX MAJOR PARTS OF THE TRANSPORTATION PLAN:

1. BACKGROUND AND DATA

The entire transportation plan serves as a basis for the coordinated implementation of roadway improvements to protect the integrity and safety of the street network and provide an acceptable level of mobility to the citizens of Knightdale. This introductory part includes:

- History of Transportation Planning in Knightdale
- Existing Conditions

2. STREET CLASSIFICATION SYSTEM

This system provides the development community with a certain level of expectation regarding required transportation improvements. However, the administrator of the Unified Development Ordinance may always reserve the right to adjust the individual classification based on more detailed traffic studies and local conditions at the time of consideration.

3. TRANSPORTATION MAPS

These maps include the general recommendations and classifications for arterials, collectors, bicycle facilities and pedestrian facilities.

4. MASS TRANSIT

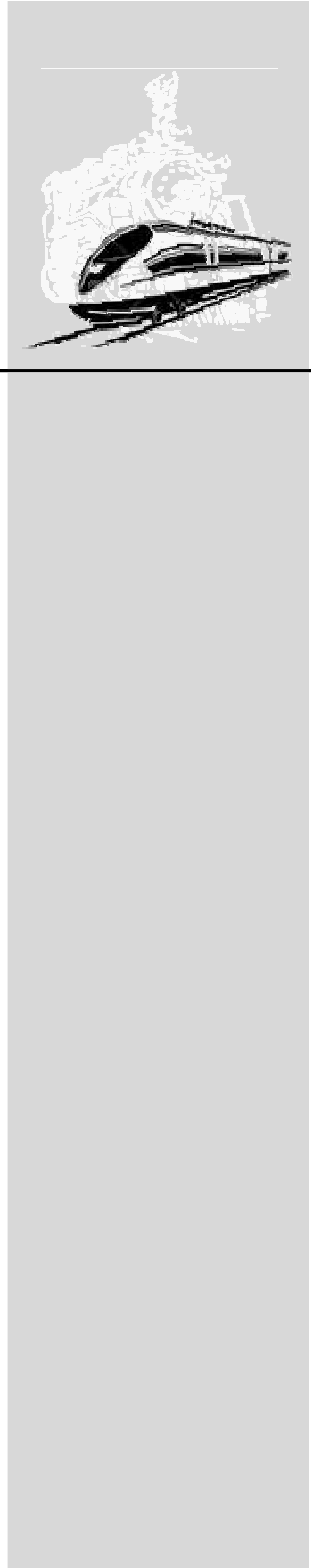
This part includes a discussion of recent transit developments and current initiatives as well as laying out short and long-term plans for the Town.

5. STREET DESIGN GUIDELINES

Part 5 lists guidelines regarding the design of Town rights-of-way (1) to promote a safe and pedestrian friendly street system and (2) to promote an interconnected pattern of multi-user streets throughout Town.

6. TRANSPORTATION OBJECTIVES AND ACTION ITEMS

As with other chapters of this Plan, the last part outlines the Town's main transportation objectives and their associated action items or "tasks".



II. BACKGROUND AND DATA

The Knightdale Transportation Plan contains recommendations for maintaining and improving the Town's street network. Road design details are only generalized in this plan; specific cross-section construction details and dimensions can be found in the Town of Knightdale Standard Specifications and Construction Details and the Unified Development Ordinance.

A. HISTORY OF TRANSPORTATION PLANNING IN KNIGHTDALE

1. CREATION OF THE 1993 KNIGHTDALE THOROUGHFARE PLAN

On May 19, 1993, the Town of Knightdale adopted its first Thoroughfare Plan. The original Plan was a cooperative effort between the Town of Knightdale and the NCDOT. The Thoroughfare Plan was created to meet the following objectives:

- Guide the development of the urban street system to meet changing traffic demands;
- Develop an adequate major street system as land development occurs;
- Reduce travel and transportation costs;
- Reduce the cost of major street improvements to the public by coordinating the street system with community development;
- Enable citizens to make plans and improvements with full knowledge of public intent;
- Minimize disruption and displacement of people and businesses through long-range planning for major street improvements;
- Reduce air and noise pollution that may be created by traffic;
- Increase travel safety;
- Mitigate urban sprawl on U.S. 64 Business (a.k.a. Knightdale Boulevard); and
- Reduce Knightdale's dependency on Knightdale Boulevard for vehicular trips internal to Knightdale.

2. COMPREHENSIVE TRANSPORTATION PLAN

Although the basic Thoroughfare Plan objectives are still in place, the NCDOT initiated a new program for comprehensive transportation planning in 2002 as required by the North Carolina General Assembly. The Thoroughfare Plan, as approved in 1993, has been replaced by a new NCDOT Comprehensive Transportation Plan (CTP). The 1993 Thoroughfare Plan was replaced by the CTP to:

- Provide opportunities for multi-modal transportation options, which are not addressed on the current (1993) plan;
- Provide a series of maps outlining multi-modal options rather than the provision of one thoroughfare plan map;
- Provide a larger hierarchy of streets rather than limiting the map to thoroughfares only; and
- Break down each category of street type into three levels: “existing, proposed and needs improvement”.

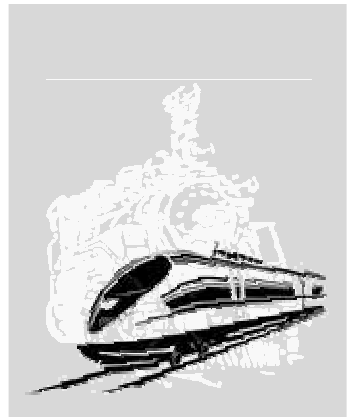
Presently, the CTP plans for road infrastructure improvements through the year 2040. In conjunction with the CTP, the Capital Area Metropolitan Planning Organization and Federal Highway Administration (FHWA) also approved a 2035 Long Range Transportation Plan in 2009 that focuses on implementation and meeting the air quality mandates from the federal government.

3. KNIGHTDALE TRANSPORTATION PLAN (2002-2010)

Consequently, in 2002, the Knightdale Transportation Plan was reorganized to align with the basic guidelines of NCDOT’s new Transportation Plan by:

- a. Encouraging similar street terminology;
- b. Providing multi-modal transportation options; and
- c. Providing a series of maps and guidelines to show the various options of the transportation system.

During the drafting of the UDO, this most recent version of the local transportation plan was fine tuned and adopted into the UDO as three (3)



separate appendices: the Arterial Plan, the Collector Plan and the Greenway and Bike Route Plan. These three (3) plans have again been reviewed by CPUC2, and the adopted recommendations are included in Section IV as the 2010 Knightdale Transportation Master Plan (Figure 7.4).

4. CREATION OF THE FUNCTIONAL CLASSIFICATION MAP

On August 7, 1995, the Town of Knightdale adopted its first UDO. The UDO merged the zoning and subdivision regulations into one comprehensive document. A Functional Classification Map was adopted as part of the 1995 UDO, indicating the expected street cross-section of each road throughout Knightdale's planning jurisdiction and urban service area. This Functional Classification Map was not updated during the UDO revision process in 2005; however, it has been updated here and is included as Figure 7.5 along with a corresponding Functional Classification Table (Figure 7.7). Chapter 17 of the current UDO, *Infrastructure Improvement Requirements*, outlines standards for the street hierarchy system and provides street cross-section requirements. More detailed information regarding the classification system can be found in Section III of this chapter.

B. EXISTING CONDITIONS

1. U.S. HIGHWAY 64 BUSINESS / KNIGHTDALE BOULEVARD

U.S. Highway 64 Business (aka Knightdale Boulevard) is not only the primary gateway into Knightdale, but also one of the Town's most important transportation and economic corridors. Because of the importance of Knightdale Boulevard, the Town has dedicated much attention to its appearance and function over the years-, having at one time or another adopted a Special Thoroughfare Overlay District, endorsed a U.S. 64 Corridor Plan and established a Planning and Appearance Board. Knightdale continues to request and receive enhancement funding for median landscaping on Knightdale Boulevard at several locations. Most recently, the Town worked with NCDOT to enhance the landscaping and appearance of the newly opened Interstate 540/Knightdale Boulevard interchange.

Due to the boulevard's importance, the Town should continue to plan for traffic improvements that address efficiency and safety and aesthetic enhancements that boost the overall appearance of the corridor. Planning includes the construction of Village Park Drive as a parallel collector street. The parallel collector street allows traffic to access the commercial property adjacent to

Traffic Count Data:
Along Knightdale Blvd.
Between Smithfield and
Old Knight roads.

| Year | Count |
|--------|--------|
| 1998 | 48,000 |
| 2001 | 45,000 |
| 2003 | 49,000 |
| 2005* | 18,000 |
| 2007** | 21,000 |
| 2009 | 21,000 |

*US 64/264 Bypass First Open

**I-540 First Open

Knightdale Boulevard without having to travel on the arterial. The commercial areas created by Village Park Drive are, and should continue to be, pedestrian friendly. As a collector, the drive is designed to promote slower travel speeds and accommodate pedestrians on both sides of the street.

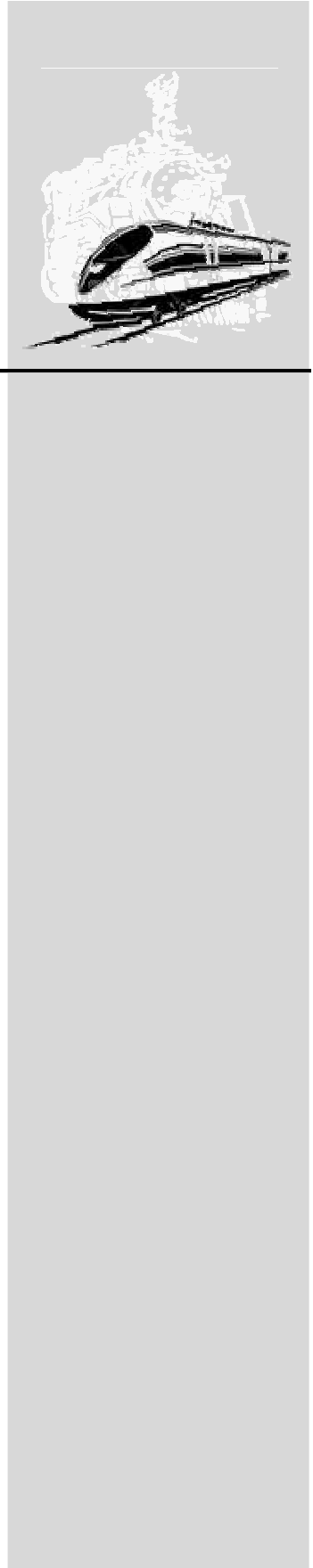
The Town has programs and projects in place to improve the appearance of Knightdale Boulevard and to help ensure quality development. The corridor width and high volume of traffic presents a barrier to cyclists and pedestrians. The Town should continue to coordinate efforts with NCDOT to explore techniques that allow for the safe crossing of Knightdale Boulevard for non-motorized transportation. Now that the US 64/264 Bypass has removed a large volume of traffic from Knightdale Boulevard, a greater emphasis should be placed on designing the Boulevard as one of Knightdale's main arterials rather than as a regional highway.

2. US HIGHWAY 64/264 AND INTERSTATE-540

As part of the NCDOT highway system, two major limited access freeways have been constructed through the Town of Knightdale's urban service area: The US 64/264 Bypass (now US Highway 64/264) and the Eastern Wake Expressway (now Interstate 540). These two freeways prompted a tremendous amount of inquiries from citizens and the development community and have directly influenced the construction of a significant number of both residential and commercial projects. Such projects include The Shoppes at Midway Plantation, Midtown Commons, Legacy Oaks, Riverview Commons, Langston Ridge Subdivision, Princeton Manor Subdivision, Churchill Subdivision, Cheswick Subdivision and Poplar Creek Village Subdivision. Additional land continues to be speculated on, but has been somewhat more dependent on the public provision of utility trunk lines. Consequently, the influence of these freeways is likely to continue for years, if not decades.

a. US HIGHWAY 64/264

The US 64 Bypass project consisted of a 10.2-mile, 6-lane freeway with seven (7) interchanges serving Raleigh, Knightdale and Wendell. It connected the terminus of the existing US 64 freeway in the vicinity of Rolesville Road with the Interstate 440 Raleigh Beltline. With this section now complete, there are 125 miles of limited access freeway along US 64 from the Town of Williamston in eastern North Carolina to the Town of Cary.



Prior to construction, the US 64 Bypass was the number one priority on the CAMPO Transportation Improvement Program (TIP) priority list. Due to incredible traffic volumes at peak hours along what is now Knightdale Boulevard, the Bypass was determined to be the best solution to ease congestion.

The US 64 Knightdale Bypass Interchange Study (*Appendix A*), a small area plan produced by the Town with the assistance of the consulting firm Stantec, sought to ensure that local municipalities and future highway users would get the maximum benefit from the Bypass project by preserving mobility, addressing citizen concerns, increasing public safety, ensuring economic viability, and facilitating regional cooperation in planning efforts. To fulfill these goals, the study provides land use and transportation recommendations in the areas along the Bypass corridor and near the proposed interchanges. To a degree, the initial recommendations of this study have been superseded by the proactive re-zoning of these areas during the process of adopting the revised 2005 UDO; however, the plan still provides important background information and insight into the thoughts at the time the bypass was in its initial planning stages.

b. INTERSTATE 540

Interstate 540 runs perpendicular to the Bypass with two (2) existing interchanges in Knightdale's urban service area. A future interchange is planned at Poole Road as part of the future extension southwest towards Garner. The interstate highway provides access to areas west of Knightdale, including the City of Durham, Raleigh-Durham International Airport (RDU) Research Triangle Park (RTP). This direct regional access has made Knightdale even more attractive to developers and has resulted in making the Knightdale Boulevard interchange area both a local and a regional shopping destination.

3. LOCAL ROADS

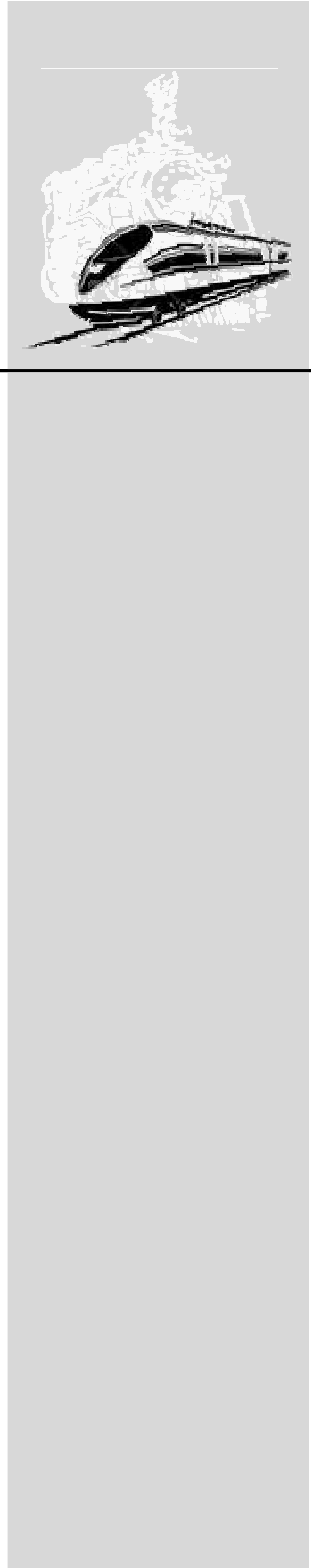
In Knightdale, Smithfield Road, Bethlehem Road, Robertson Street and First Avenue/Old Knight Road function as streets that radiate from Old Town Knightdale. When all radial streets meet in a central area, congestion problems result. To avoid this problem, it is important to have a system of cross-town streets that create alternative connections around the central area. This cross-town street system allows traffic moving from one side of Old Town to the other by skirting Old Town's perimeter and then entering the core near a given

destination. A good cross-town system frees the central area of cross-town traffic, thereby permitting Old Town to function as a mixed-use or mix of use area with pockets of higher density destination points. Examples of cross-town streets include Forestville Road and its associated extension and Old Faison Road and its associated extension.

The function of the local street system is to provide direct access to property. To provide for a safe local street system, facilities should be designed in such a way as to reduce travel speeds. Traffic calming techniques such as entryway landscaping, traffic throttles, speed humps, bulb outs, textured treatments, and pavement markings should be utilized. Careful selection of traffic calming techniques is recommended so as not to interfere with emergency services. Furthermore, local street planning should favor a modified grid system, rather than long dead-end or long cul-de-sac streets. The use of the grid allows traffic to disperse over several routes, rather than relying on a single street. It also allows for better access by emergency vehicles.

4. TOWN CENTER STREET PLAN

As development and/or redevelopment of the downtown area continues, a modified version of the current grid system of streets should be maintained. New streets connecting Old Town to new developments should be designed to protect community character, walkability and safety. While preserving this historic street grid, new vehicular connections may be extended into greenfield development areas through the use of indirect routing, "T"-intersections, roundabouts and narrowed pavement in an effort to prevent excessive cut-through traffic. Information and guidelines for specific streets within Old Town can be found in Appendix B – "Old Town Knightdale Plan".



III. STREET CLASSIFICATION SYSTEM

An adequate road system must be maintained to allow motorists to travel in an efficient and safe manner. In planning a road network, it is important to have an understanding of the different classifications of roads that are proposed by the Transportation Master Plan. The goal of this classification system are to:

1. Update terminology and cross-section details to meet new demands for increased multi-modal planning in the region; and
2. Follow similar transportation planning objectives of the NCDOT Comprehensive Transportation Plan.

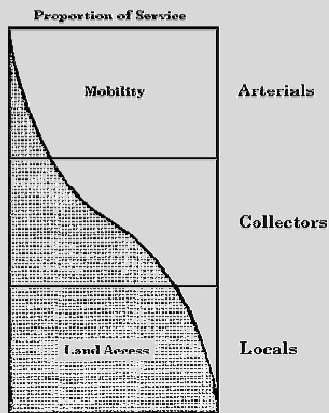
A. THE STREET CLASSIFICATIONS

Streets are classified according to their function. Higher order classifications focus on mobility, while lower order classifications accommodate access. As a result, separate design standards are applicable to each class. The intent of the 2027 Comprehensive Plan is to assure the classification in each system is compatible, and the cross-section and right-of-way recommended agrees with adopted plans from adjacent towns and Wake County.

Historically, transportation plans throughout the state included two types of maps: a thoroughfare map and a collector street map. Under current NCDOT terminology, one comprehensive map is proposed which shows both. The purpose of the collector street plan was to facilitate connections between residential and commercial properties and the minor thoroughfares. These connections help reduce traffic on major facilities by providing a means for inter-neighborhood travel without the need to access higher class streets.

In the Knightdale Transportation Plan, the collector street component was developed based on the design district types and expected densities associated with each design district as presented in Chapter 5. In turn, the corresponding cross-sections are planned in such a way as to accommodate neighboring density. For example, roads in the less dense rural areas are predominantly two lanes, while roads through higher density development zones are proposed as three to five lanes since traffic is expected to surpass the capacity of a two-lane roadway. Figures 7.1 through 7.3 show general cross-sections that may be used as guides for the various street classifications. The street classifications are:

Relationship of functionally Classified Systems in Serving Traffic Mobility and Land Access



“Freeway” (old terminology – Freeway) A multi-lane median divided facility with full control of access. US 64 Bypass and the Eastern Wake Expressway are identified as *Freeways*.

“Arterial” (old terminology – Boulevard; Principal Arterial; Major and Minor Thoroughfare) An arterial is a street used to promote moderate mobility with limited access, moderate volume and moderate speed. Travel speeds are projected at 30 to 45 miles per hour with a cross-section of four (4) lanes plus medians with turning pockets or turning lanes. Driveways are encouraged to be primarily right-in/right-out with occasional median crossovers permitted. The street should also focus on pedestrian safety, and design standards should be used that enhance pedestrian safety and aesthetics.

“Collector” (old terminology – Avenue; Major and Minor Collector) Collectors focus on access, typically at the expense of speed and mobility. Their intended purpose is to distribute traffic from the boulevards and parkways to the local system and vice versa. Traffic calming measures, pedestrian and bicycle accommodations, reduced turning radii and landscaping highlight this type of facility.

“Local” (old terminology – Local) A minor street which is intended to carry local traffic from collectors to individual lots within residential neighborhoods. Local streets include cul-de-sacs and feature design standards that enhance aesthetics, safety and mobility for pedestrians.

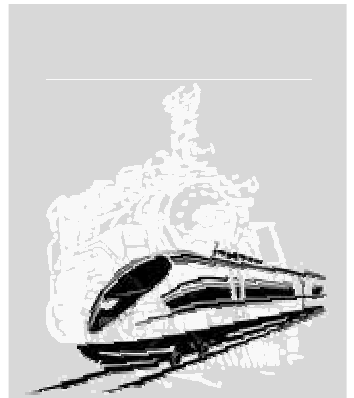


FIGURE 7.1 - EXAMPLE OF URBAN VILLAGE STREET DESIGN

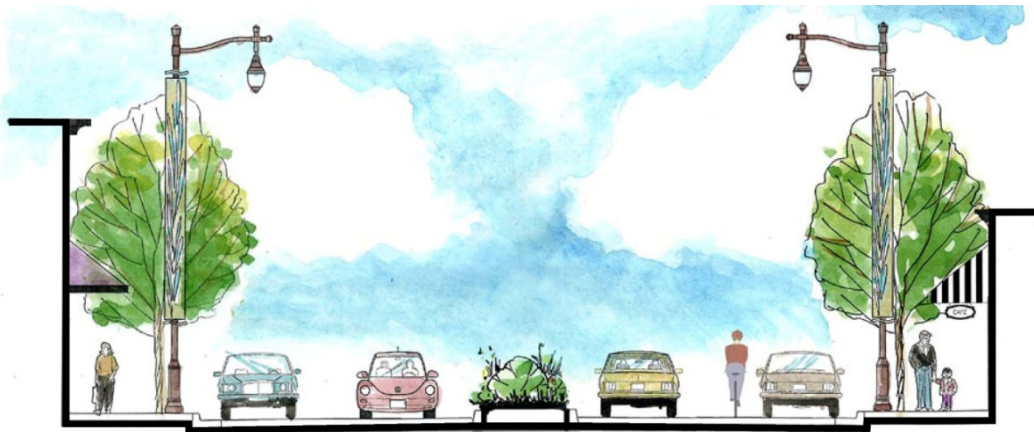


FIGURE 7.2 - EXAMPLE OF NEIGHBORHOOD STREET DESIGN

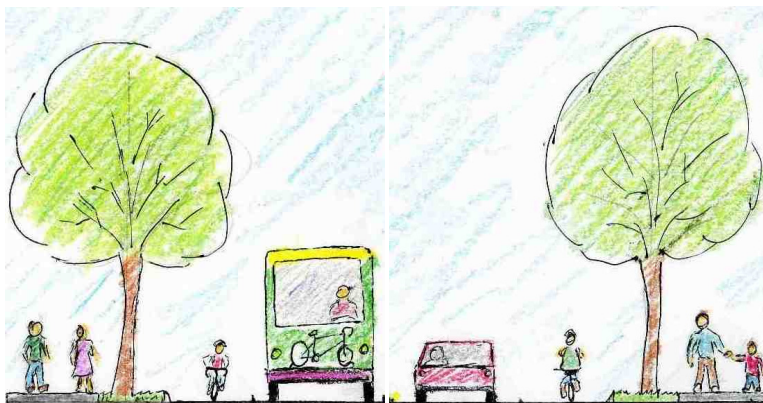


FIGURE 7.3 - EXAMPLE OF COUNTRYSIDE STREET DESIGN



B. LEVEL OF SERVICE

In addition to an understanding of street classifications, it is important to have an understanding of how a road is evaluated before planning a road network.

The level of service (LOS) is one criteria used to evaluate streets. Traffic volumes and roadway capacity are the primary factors in determining the level of service. Levels of service help identify areas of needed roadway improvements and represent a range of conditions as opposed to a precise volume or condition. Standardized descriptions of road segment LOS are:

LOS A – “Free Flow”: Highest level of service, described primarily free flowing traffic at average travel speeds. Vehicles are completely unimpeded in their ability to maneuver within the traffic stream.

LOS B – “Reasonably Free Flow”: Represents reasonably unimpeded traffic flow operations at near free flow speeds. The ability to maneuver within the traffic stream is only slightly restricted.

LOS C – “Stable Flow”: Represents stable traffic flow operations. Ability to maneuver and change lanes is more restricted than in LOS B, although traffic continues to move.

LOS D – “Approaching Unstable Flow”: Ability to maneuver in traffic is restricted. Small increases in traffic flow may cause substantial increases in queues. Events in the traffic stream can take longer to dissipate.

LOS E – “Unstable Flow”: Traffic flow is characterized by significant delays and lower operating speeds. Small disruptions in the traffic stream can lead to long queues. Queues are not easily dissipated, and can often cause stop and go conditions on roadways.

LOS F – “Forced or Breakdown of Flow”: Traffic flow is characterized by very low speeds. Traffic operations become stop-and-go. Comfort and convenience are extremely low and frustration is high.

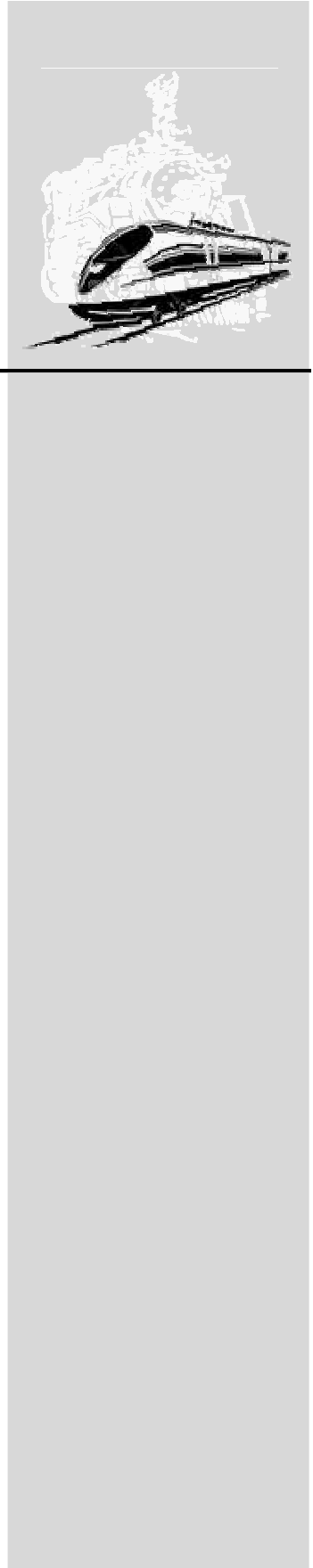
In addition to segmental LOS, there is also an intersection LOS. Intersection LOS is based on average delay, and may be seen at left.

Signalized Intersections

| LOS | Delay |
|-----|-------------------|
| A | ≤ 10 seconds |
| B | 11-20 seconds |
| C | 21-35 seconds |
| D | 36-55 seconds |
| E | 56-80 seconds |
| F | > 80 seconds |

Unsignalized Intersections

| LOS | Delay |
|-----|-------------------|
| A | ≤ 10 seconds |
| B | 11-15 seconds |
| C | 16-25 seconds |
| D | 26-35 seconds |
| E | 36-50 seconds |
| F | > 50 seconds |

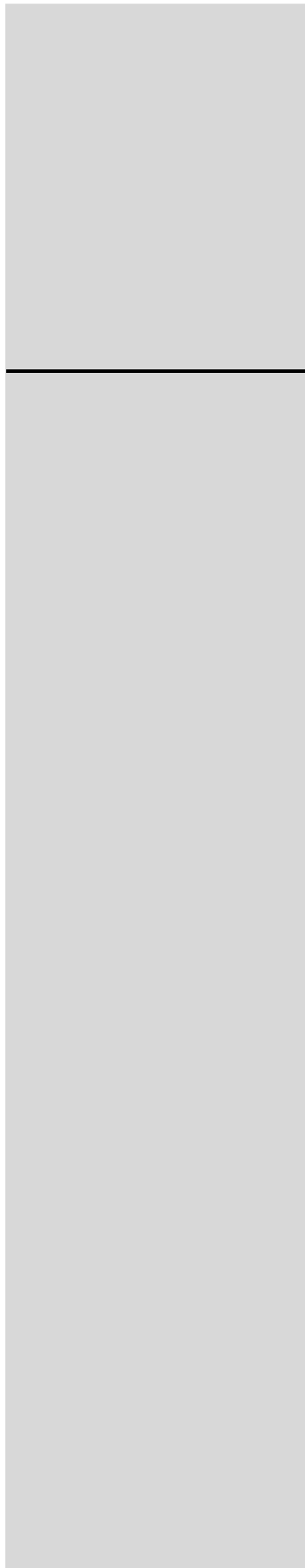


IV. TRANSPORTATION MAPS

The primary transportation planning concept that evolved from the CPUC1's analysis of the planned road network is that one (1) street may not have the same street classification throughout the length of the street. The Knightdale Transportation Plan intends to recognize that street classifications be allowed to change character as they pass from one design district to another. Therefore, one will notice a degree of correlation between these maps and the Design District Master Plan.

Also, the same concept might be said of bicycle and pedestrian travel that also occurs within these rights-of-way. As the traveler passes from one design district to another, the type of bicycle and pedestrian accommodation may change depending upon the degree of safety and mobility required. Therefore, bicycle routes may vary between wide shoulders and striped lanes while pedestrian facilities may vary between standard sidewalks and wider asphalt paths.

The purpose of Figures 7.4 through 7.7 is to provide guidance to Town staff when engaging discussions with developers and the NCDOT regarding required road improvements. The recommendations contained within these figures are not meant to be the exact or final determination, but serve as a starting point that may be modified depending on the exact conditions encountered at the time. CPUC2 took time to consider the plans of neighboring jurisdictions, including Wendell, Raleigh, Wake County and CAMPO; so care should be taken when modifying the recommendations for facilities that cross jurisdictional boundaries.



ARTERIAL & COLLECTOR STREET PLAN



Town of Knightdale
Planning Department
2010

Legend

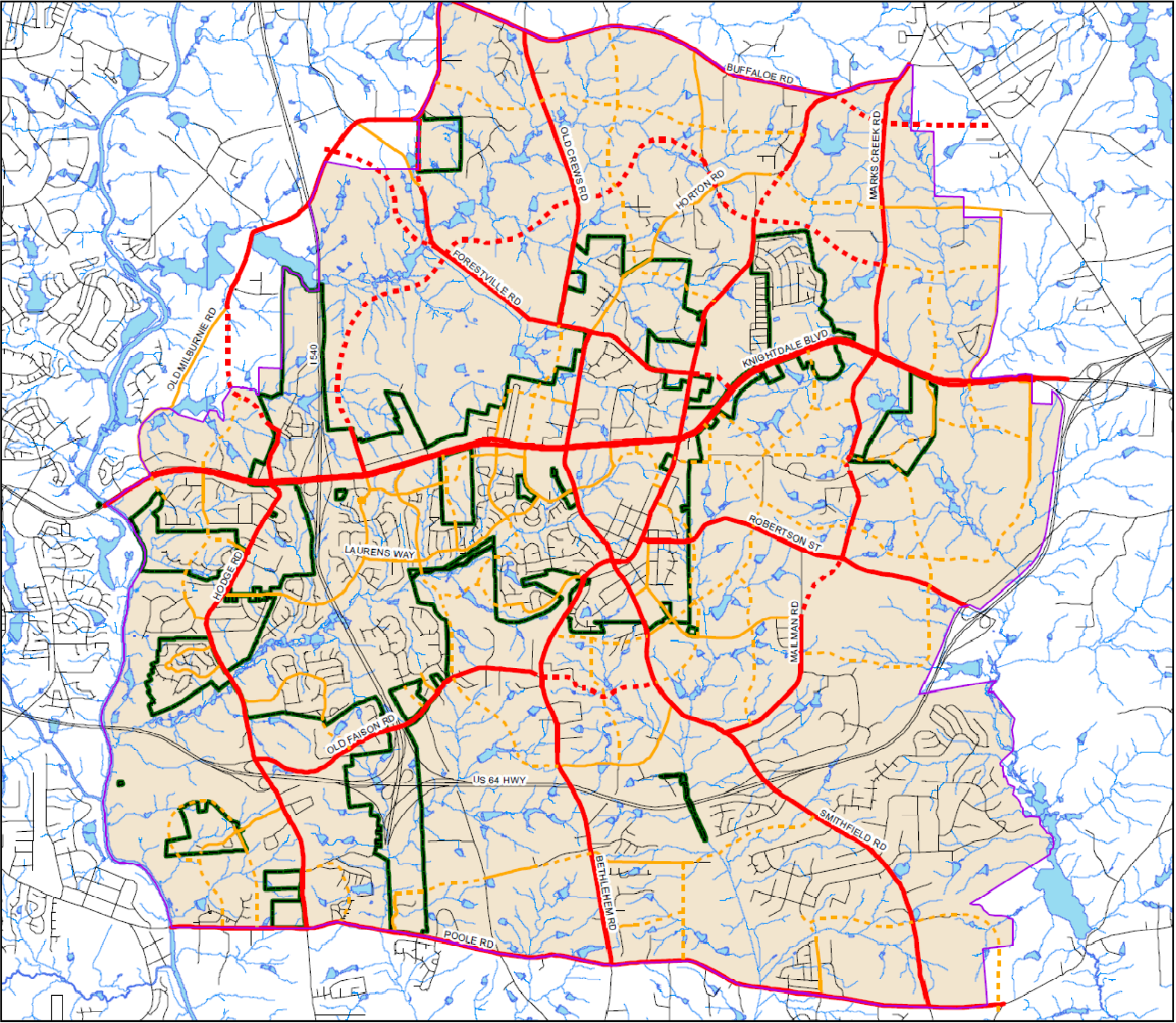
- Urban Service Area Boundary
- - - Proposed Arterial Connections
- - - Proposed Collector Connections
- Existing Arterial Streets (Needs Improvements)
- Existing Collector Streets (Needs Improvements)
- Streets
- Knightdale Corporate Limits (2009)
- Surface Waters
- Surface Streams



1 inch = 3,400 feet

0 1,700 3,400 6,800 10,200 Feet

FIGURE 7.4



FUNCTIONAL CLASS PLAN



Town of Knightdale
Planning Department
2010

Legend

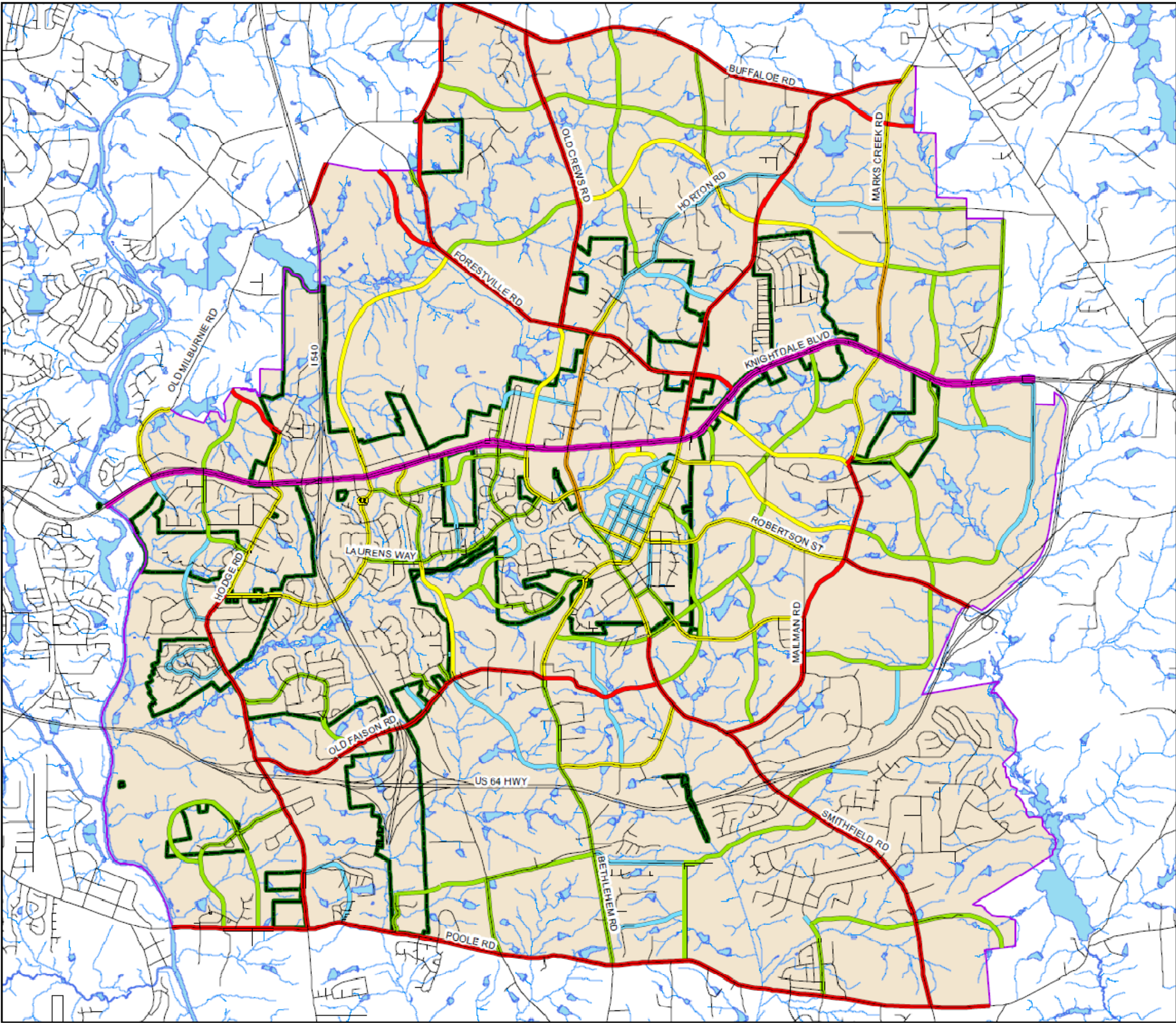
- Six Lane Boulevard - Variable Width
- Boulevard - 100 Foot ROW
- Urban Avenue - 90 Foot ROW
- Avenue - 74 Foot ROW
- Main Street - 64 Foot ROW
- Local Street - 54 Foot ROW
- Knightdale Corporate Limits (2009)
- Urban Service Area Boundary
- Streets
- Surface Waters
- Surface Streams



1 inch = 3,400 feet

0 1,700 3,400 6,800 10,200 Feet

FIGURE 7.5



BICYCLE & PEDESTRIAN PLAN



Town of Knightdale
Planning Department
2010

Legend

- Streets
- 10' Multi-Use Paths
- ▤ Wide Sidewalks
- - - Cross-Town Bicycle Routes
- Urban Service Area Boundary
- ▭ Knightdale Corporate Limits (2009)
- Surface Waters
- Surface Streams
- Pedestrian Destination Areas
- High Pedestrian Connectivity Area



1 inch = 3,400 feet

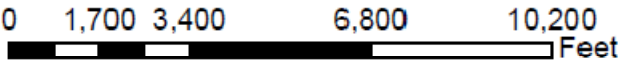
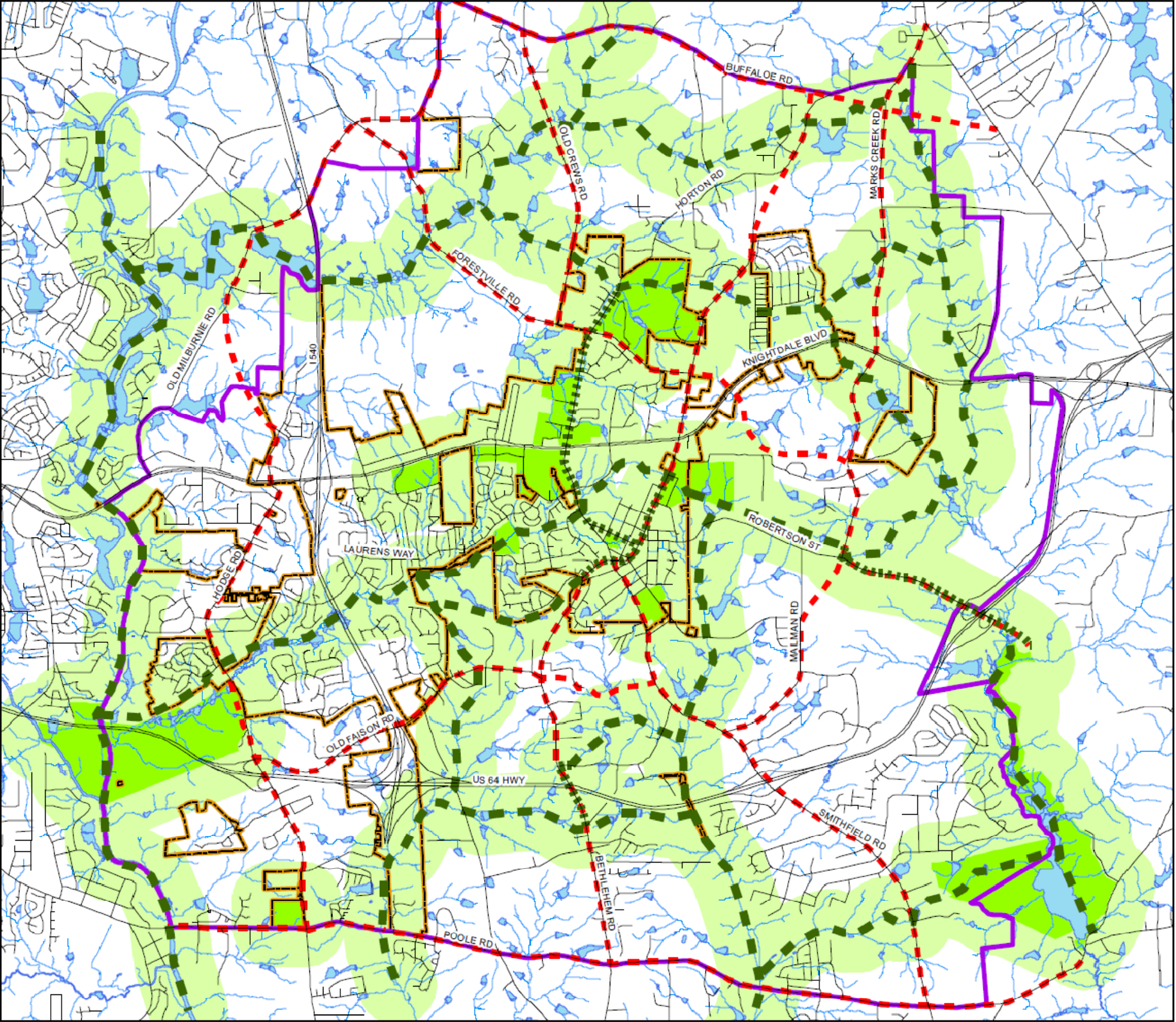
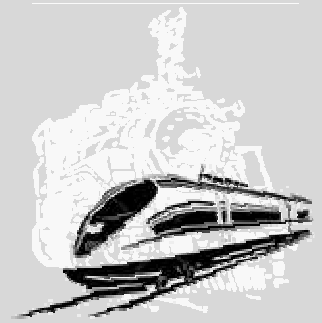


FIGURE 7.6





CLASS TABLE

| Route | Classification | Sidewalk | Curb/Gutter | On-Street | Bike Markings |
|---|----------------|----------|-------------|-----------|---------------|
| Ballast Drive Extension | Main | 2S | S | N | N |
| Bethlehem Road | | | | | |
| <i>Poole Rd to Old Faison Rd</i> | Main | 1M | N | N | Y |
| <i>Old Faison Rd to Railroad St</i> | Avenue | 2S | S | N | Y |
| Broadway Street & Extensions | Main | 2S | S | N | N |
| Broadway Ext to Mailman Collector | Main | 2S | S | N | N |
| Broadway Ext to Old Ferrell Collector | Local | 2S | S | N | N |
| Buffaloe Road & Extension | Boulevard | 2S | S | N | Y |
| Buffaloe to Old Knight Collector | | | | | |
| <i>Buffaloe Rd to Horton Rd</i> | Main | 2S | S | N | N |
| <i>Horton Rd to Old Knight Rd</i> | Local | 1M | N | N | N |
| Caspian Drive | Main | 2S | S | N | N |
| Codi Lane | Main | 2S | S | N | N |
| Colchester Drive & Extension | Local | 2S | S | N | N |
| Crosscut Place Extension | Local | 1M | N | N | N |
| Crosstie Street | Main | 2S | S | N | N |
| EBC Village Way & Extension | Main | 2S | S | Y | N |
| EBC Village to Mailman Collector | | | | | |
| <i>EBC Village Way to Kdale-Eagle Rock</i> | Main | 2S | S | Y | N |
| <i>Kdale-Eagle Rock Rd to Mailman Rd</i> | Main | 2S | S | N | N |
| EBC Village Way/Three Sisters Rd Coll. | Local | 1M | N | N | N |
| Fayetteville Street | | | | | |
| <i>Railroad St to Broadway St</i> | Main | 1S | S | N | N |
| <i>Broadway St to Mailman Rd</i> | Avenue | 2S | S | N | N |
| First Avenue | | | | | |
| <i>Railroad St to Smithfield Rd</i> | Avenue | 2W | S | Y | Y |
| <i>Smithfield Rd to Sixth St</i> | Avenue | 1W | S | Y | Y |
| <i>Sixth St to Knightdale Blvd</i> | Avenue | 1S | S | N | Y |
| Forestville Road | Boulevard | 2S | S | N | Y |

SIDEWALKS

2S = Two sidewalks
 1S = One sidewalk
 1M = One multi-use path
 2W = Two wide sidewalks
 1W = One wide sidewalk

CURB/GUTTER

S = Standard Curb/Gutter
 N = None

ON-STREET

Y = Marked On-Street
 Parking
 N = No marking

BIKE MARKINGS

Y = Appropriate markings
 and signage required
 N = No marking or signage
 required

SIDEWALKS

2S = Two sidewalks

1S = One sidewalk

1M = One multi-use path

2W = Two wide sidewalks

1W = One wide sidewalk

CURB/GUTTER

S = Standard Curb/Gutter

N = None

ON-STREET

Y = Marked On-Street

Parking

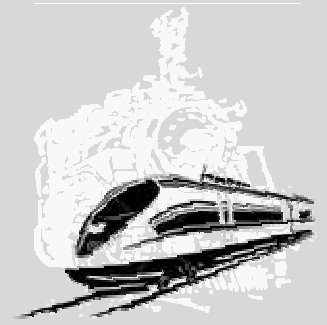
N = No marking

BIKE MARKINGS

Y = Appropriate markings and signage required

N = No marking or signage required

| Route | Classification | Sidewalk | Curb/Gutter | On-Street | Bike Markings |
|---|------------------------|----------|-------------|-----------|---------------|
| Forestville Road Extension | | | | | |
| <i>Old Knight Rd to Knightdale Blvd</i> | Boulevard | 2S | S | N | Y |
| <i>Knightdale Blvd to Mark's Creek Rd</i> | Avenue | 2S | S | N | Y |
| Greythorne Place | Local | 1M | N | N | N |
| Hardin Hill Lane | Main | 2S | S | N | N |
| Hidden Hollow Lane | Local | 1M | N | N | N |
| Hinton Oaks Boulevard | | | | | |
| <i>Lynnwood Rd to Forestville Rd</i> | Avenue | 2S | S | N | N |
| <i>Forestville Rd to Old Crews Rd</i> | Main | 1M | N | N | N |
| <i>Old Crews Rd to Marks Creek Rd</i> | Avenue | 2S | S | N | N |
| <i>Marks Creek Rd to Keiths Rd</i> | Main | 2S | S | N | N |
| Hodge Road | | | | | |
| <i>Poole Rd to Lynnwood Rd</i> | Boulevard | 2S | S | N | Y |
| <i>Lynnwood Rd to Legacy Oaks Dr</i> | Avenue | 2S | S | N | Y |
| <i>Legacy Oaks Dr to ETJ Line</i> | Boulevard | 2S | S | N | Y |
| Horton Road | | | | | |
| <i>Forestville Rd to Hinton View Dr</i> | Avenue | 1W | S | N | N |
| <i>Hinton View Dr to Old Knight Rd</i> | Local | 1M | N | N | N |
| K-Held Road & Extension | Main | 1M | N | N | N |
| Keith Rd & Extension | Main | 2S | S | N | N |
| Kemp Drive | Local | 2S | S | N | N |
| King Farm Lane & Extension | Main | 2S | S | N | N |
| Kingman Drive | Local | 2S | S | N | N |
| Knightdale Boulevard | 6-Lane Divided (NCDOT) | 2S | S | N | N |
| Laurens Way | Main | 2S | Y | Y | N |
| Lucas Road | Main | 2S | S | N | N |
| Lynnwood Road | Avenue | 2S | S | N | N |
| Mailman Road | Boulevard | 2S | S | N | Y |



| Route | Classification | Sidewalk | Curb/Gutter | On-Street | Bike Markings |
|--|----------------|----------|-------------|-----------|---------------|
| Mark's Creek Road | | | | | |
| <i>Robertson St to Knightdale Blvd</i> | Avenue | 2S | S | N | Y |
| <i>Knightdale Blvd to Hinton Oaks Blvd</i> | Urban Avenue | 2S | S | N | Y |
| <i>Hinton Oaks Blvd to Todd Rd</i> | Avenue | 2S | S | N | Y |
| McKnight Drive | Avenue | 2S | Y | N | N |
| Mingo Creek Boulevard & Extension | Main | 2S | S | N | N |
| New Massey Farm Road | | | | | |
| <i>First Ave to Mark's Creek Rd</i> | Avenue | 2S | S | Y | N |
| <i>Mark's Creek Rd to Mark's Creek</i> | Main | 2S | S | N | N |
| Northern East-West Collector | | | | | |
| <i>Old Milburnie Rd to Lucas Rd</i> | Main | 2S | S | N | N |
| <i>Lucas Rd to Horton Rd</i> | Main | 1M | N | N | N |
| Old Crews Road & Extension | | | | | |
| <i>Knightdale Blvd to Forestville Rd</i> | Avenue | 2S | S | N | N |
| <i>Forestville Rd to Buffaloe Rd</i> | Boulevard | 2S | S | N | N |
| Old Faison Road | Boulevard | 2S | S | N | Y |
| Old Faison Road Extension | Boulevard | 2S | S | N | Y |
| Old Ferrell Road / Crosscut Place | Main | 2S | S | N | N |
| Old Knight Road | Boulevard | 2S | S | N | Y |
| Old Milburnie Road | | | | | |
| <i>Alison Dr to Knightdale Blvd</i> | Local | 2S | S | N | N |
| <i>Knightdale Blvd to ETJ Line</i> | Avenue | 2S | S | N | N |
| <i>I-540 to ETJ Line</i> | Boulevard | 2S | S | N | Y |
| <i>East Wake Middle Sch to Buffaloe Rd</i> | Boulevard | 2S | S | N | Y |
| Panther Rock Boulevard | Main | 2S | S | N | N |
| Parkside Commons Drive | | | | | |
| <i>Knightdale Blvd to Laurens Way</i> | Main | 2S | S | N | N |
| <i>Laurens Way to Southampton Dr</i> | Local | 1M | N | N | N |
| Poole Road | Boulevard | 2S | S | N | Y |
| Poplar Street Extension | Main | 2S | S | N | N |
| Princeton Park Avenue | Local | 2S | S | N | N |

SIDEWALKS

2S = Two sidewalks

1S = One sidewalk

1M = One multi-use path

2W = Two wide sidewalks

1W = One wide sidewalk

CURB/GUTTER

S = Standard Curb/Gutter

N = None

ON-STREET

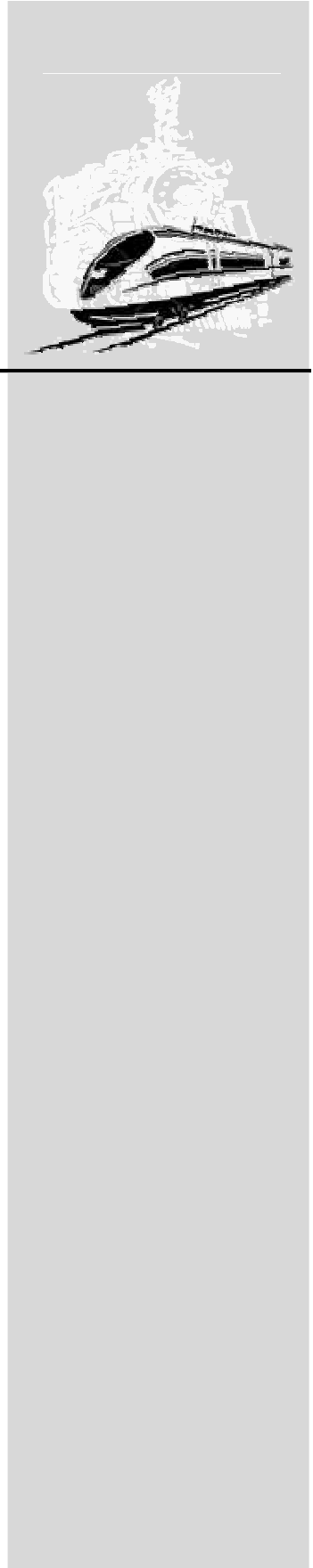
Y = Marked On-Street

Parking

N = No marking

BIKE MARKINGSY = Appropriate markings
and signage requiredN = No marking or signage
required

| Route | Classification | Sidewalk | Curb/Gutter | On-Street | Bike Markings |
|---|---------------------|----------|-------------|-----------|---------------|
| Princeton Town Street | Local | 2S | S | N | N |
| Puryear Road | | | | | |
| <i>Horton Road to Mark's Creek Road</i> | Local | 1M | N | N | N |
| <i>Mark's Creek Road to ETJ Line</i> | Main | 1M | N | N | N |
| Ranchester Road | Main | 2S | S | N | N |
| Robertson Street | | | | | |
| <i>First Ave to Mark's Creek Rd</i> | Avenue | 2S | S | N | N |
| <i>Mark's Creek Rd to US 64/264</i> | Boulevard | 2S | S | N | Y |
| Rutledge Landing Drive & Extension | Main | 2S | S | N | N |
| Second Avenue Extension | (See Old Town Plan) | | | | |
| Smithfield Road | | | | | |
| <i>Poole Rd to Broadway St</i> | Boulevard | 2S | S | N | Y |
| <i>Broadway St to Ridge St</i> | Avenue | 1S | S | N | Y |
| <i>Ridge St to First Ave</i> | Main | 1S | S | N | Y |
| <i>First Ave to Main St</i> | Main | - | S | N | N |
| <i>Main St to Carrington Dr</i> | Main | 1W | S | N | N |
| <i>Carrington Dr to Forestville Rd</i> | Urban Avenue | 1W | S | N | N |
| Southampton Drive Extension | Main | 2S | S | N | N |
| Steeple Square Court | Local | 2S | Y | N | N |
| Sternwheel Way | | | | | |
| <i>Knightdale Blvd to Village Park Dr</i> | Main | 2S | S | N | N |
| <i>Village Park Dr to Laurens Way</i> | Local | 2S | S | N | N |
| Stony Falls Way | Main | 2S | S | N | N |
| Three Sisters Road & Extension | Local | 1M | N | N | N |
| Village Park Drive | Main | 2S | Y | Y | N |
| Westover Drive & Extension | Main | 2S | S | N | N |
| Widewaters Parkway & Extension | | | | | |
| <i>Knightdale Blvd to Village Park Dr</i> | Avenue | 2S | S | N | N |
| <i>Village Park Dr to Laurens Way</i> | Main | 2S | S | N | N |
| <i>Laurens Way to Old Faison Rd</i> | Avenue | 2S | S | N | N |
| <i>Old Faison Rd to Bethlehem Rd</i> | Local | 1M | N | N | N |



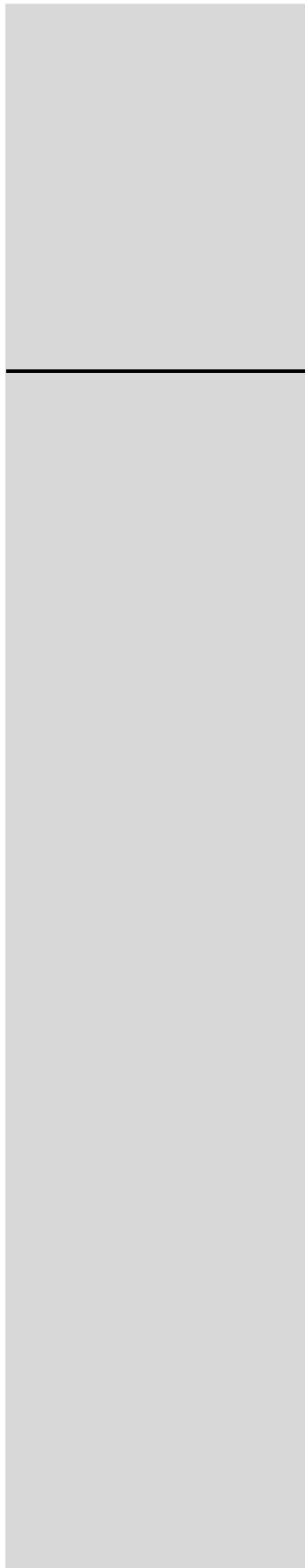
V. MASS TRANSIT

The Mass Transit Plan (Figure 7.8) indicates a corridor to be studied for a future multi-modal transit hub that includes a commuter rail station, along with bus service priorities of both a regional and local scope.

The Town of Knightdale has been exploring commuter rail since 1990 when a study was conducted by Barton-Aschman Associates and Hammer, Siler, George Associates (to) evaluate the potential for transit in the Triangle Region. The findings of the study indicated a transit system would be viable if land use development patterns changed dramatically over the next 20 years. The long-term possibility of transit in the Knightdale area is good given that there is an adequate supply of undeveloped land along the railroad corridor to support commuter rail and pockets of planned density and transit-worthy destinations to support expanded bus service. According to the most recent plans spearheaded by *Triangle Transit*, the railroad line through Knightdale has been designated as a long-range commuter rail route.

In 1992, the Triangle Region Planning Directors Exchange (PDX) authored a report titled "Land Use and Development Standards to Support Transit in the Research Triangle Region of North Carolina". The PDX was charged by the Greater Raleigh Metropolitan Planning Organization (which is now the Capital Area MPO) and the Durham-Chapel Hill-Carrboro Metropolitan Planning Organization to develop land use and development standards to support transit. Numerous other reports have been prepared on commuter rail potential in the Triangle Region.

Other modes of transportation are also being explored. In early 2010, express bus service began between Knightdale and Raleigh with boarding locations at Widewaters Village, Legacy Oaks, WakeMed and downtown Raleigh. The Town has also been actively pursuing funding opportunities in the hopes of beginning an in-town circulator bus service that would penetrate more neighborhoods and provide connection opportunities to the express bus as well as service to in-town destinations. The Town of Knightdale continues to work with Triangle Transit, CAMPO, Capital Area Transit (CAT) and other organizations to plan for additional mass transit services such as regular CAT route service into Knightdale, cross-town express service from Knightdale to nearby regional centers, park-and-ride lots and light rail.



MASS TRANSIT PLAN



Town of Knightdale
Planning Department
2010

Legend

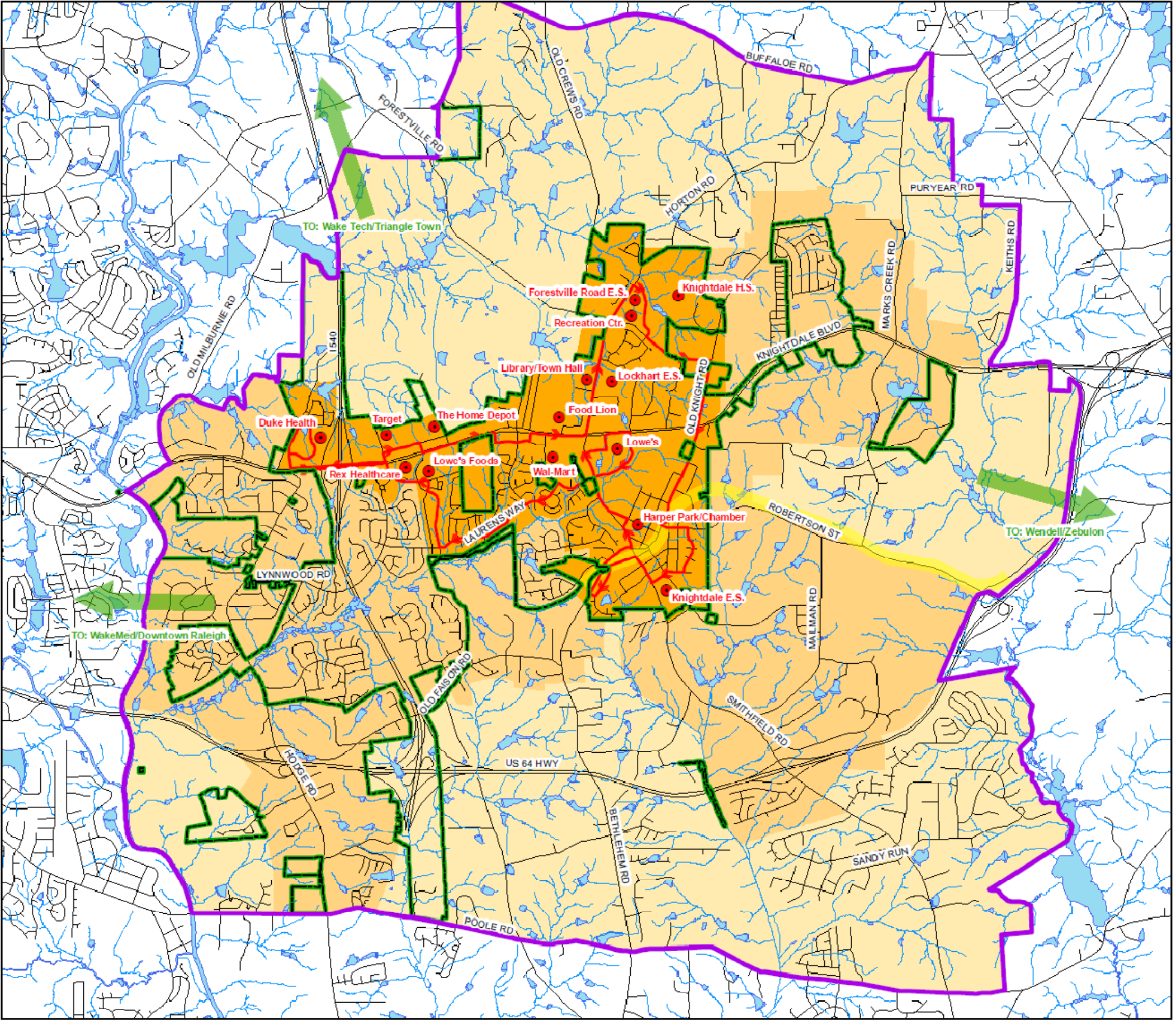
- Points of Interest in Short-Term Area
- ➔ Sample Short-Term Area Route
- Short-Term Transit Service Area (1-5 Yrs)
- Mid-Term Transit Service Area (5-15 Yrs)
- Future Transit Service Study Area (15+ Yrs)
- Desired Regional Transit Connectivity
- Future Transit Hub Study Area
- Streets
- ▭ Knightdale Corporate Limits (2009)
- Urban Service Area Boundary
- Surface Streams
- Surface Waters

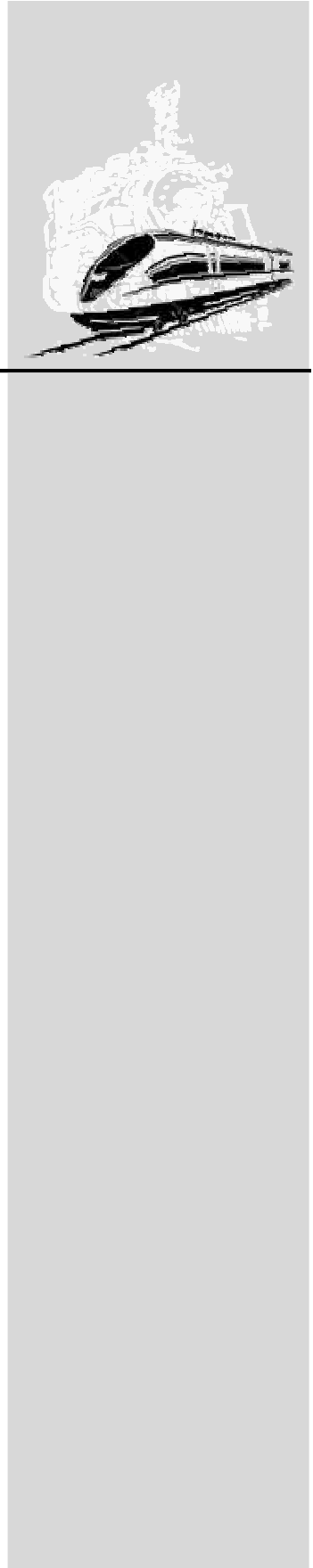


1 inch = 3,400 feet

0 1,700 3,400 6,800 10,200 Feet

FIGURE 7.8





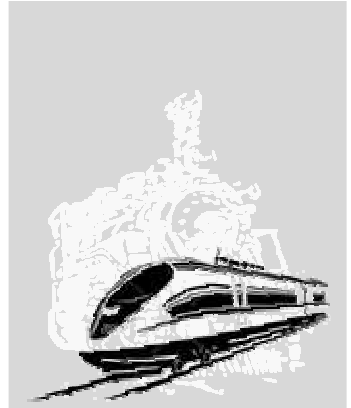
VI. DESIGN GUIDELINES

A. STREET DESIGN GUIDELINES

It is the intent of the Street Design Guidelines to promote the construction of streets that are integral components of community design. The guidelines encourage the development of a network of interconnecting streets that disperse traffic while connecting and integrating the rural and urban areas of town. Equally important, the guidelines encourage the development of a network of sidewalks and bicycle lanes that provide an attractive and safe mode of travel for cyclists and pedestrians. The Street Design Guidelines provide a tool to retain, recognize or modify significantly the urban and rural character of streets throughout Knightdale.

- ST-1. Streets in the Urban Village Design District and within Countryside Village and Neighborhood centers should provide on-street parking where practical.
- ST-2. Streets should interconnect both within a development and with adjoining development.
- ST-3. Cul-de-sacs are permitted only where topographic and/or environmental conditions offer no practical alternatives for connections.
- ST-4. Street stubs should be provided within a development adjacent to open land to provide for future connections.
- ST-5. Street designs should permit the comfortable use of the street by automobiles, bicyclists, and pedestrians.
- ST-6. The streetscape should include appropriate street trees planted in a manner consistent with their function.
- ST-7. Commercial streets should have trees which complement the façade of the buildings and which shade the sidewalk.
- ST-8. Residential street trees should provide a tree canopy that shades both the street and the sidewalk.
- ST-9. In the Countryside and Neighborhood Design Districts, natural features like streambeds and stands of significant trees or topographic features like rock outcroppings should be utilized as public amenities and for the visual enhancement of the streetscape.

-
- ST-10. Closed or gated streets should be discouraged as they do not reflect the public nature and purpose of a street.
- ST-11. Where practical, a “close” should be encouraged in place of a cul-de-sac. *(A close is a front space for buildings located in the interior of the block. It may be pedestrian or it may have a one-way roadway loop around a green area, typically used for passive recreation. Its minimum width must coincide with emergency vehicle turning radii.)*
- ST-12. The use of traffic calming measures such as raised (table) intersections, lateral shifts, changes in pavement material, and traffic circles should be encouraged as alternatives to conventional traffic control measures.
- ST-13. Speed bumps (or humps) should be discouraged as they obstruct the efficient delivery of emergency services.
- ST-14. The scale of lighting fixtures and the illumination provided should be appropriate for both pedestrian and vehicular movements.
- ST-15. Parking along all streets should be signed, marked or otherwise clearly delineated.
- ST-16. Blocks should not be less than 200 feet nor more than 1,320 feet (1/4 mile), unless special site, topographic or environmental factors are present; or the block is part of a Countryside Village Center, Neighborhood Center or Urban Village Design District.
- ST-17. Travel lanes should generally not be narrower than ten feet or wider than 12 feet unless accommodating alternative methods of transportation.
- ST-18. A modified grid street system should be designed throughout higher density areas of the town; thereby increasing the number of access routes for emergency response.



B. PEDESTRIAN AND BICYCLE TRAVEL

Walking and cycling serve an important role in Knightdale's local transportation system as well as being a component of a healthy lifestyle. Developing a walking and cycling network directly advances the Town Council's current vision of Knightdale being a Safe, Transparent, Active, Green and Engaged community. Adequate, convenient and safe facilities such as sidewalks, walking paths, multi-use paths, wide outside street lanes and trails are necessary to promote pedestrian and cycling activity. They should be designed to comfortably separate each of the different modes of transportation.

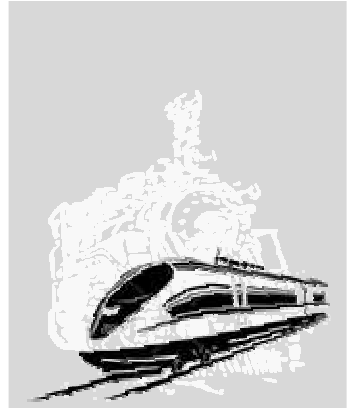
Cycling is also an excellent alternative to motorized transportation around town. While the current commute distances and travel patterns do not lend themselves to cycle trips, the increase in employment within Knightdale, coupled with more mixed-use and mix of use development will offer more cycling opportunities for Knightdale residents. In addition, opportunities for recreational cycling along greenways provide an excellent source of physical exercise that can have the added benefit of enhancing quality of life. For these reasons, Knightdale has developed a bicycle and pedestrian plan including both transportation and recreational uses. The plan recommends locations for independent trails such as the Mingo Creek Greenway, shared bicycle facilities along roadways and areas where sidewalk connectivity should be high. The recommendations of the bicycle and pedestrian plan along with the following design guidelines should form the basis of applicable regulations in the UDO and drawings in the Standard Specifications and Details Manual.

The following guidelines are established:

- BP-1. Sidewalks should be buffered from automobile traffic. Buffering may be accomplished through planting strips, on-street parking, larger sidewalk widths or similar methods.
- BP-2. In general, sidewalks should be located on both sides of the street within the Town Center and Neighborhood Districts.
- BP-3. Sidewalks serving non-residential uses within the Town Center or in any Village Center within the Neighborhood or Countryside Design Districts should be designed to the curb and provide for a minimum of eight (8) feet in width outside of outdoor seating areas, tree grates and other street furniture.
- BP-4. Planting areas between the sidewalk and the road should be a minimum of six (6) feet wide and designed to accommodate both plantings and

underground utilities. If this cannot be accomplished, utilities should be located behind the sidewalks within the right-of-way and/or a utility easement.

- BP-5. Planting strips should be typically located between the curb and sidewalk to provide a comfortable and safe separation between vehicular and pedestrian movement. Within commercial areas and other sidewalks with high pedestrian volumes, grated tree wells may be used in lieu of planting strips.
- BP-6. Street trees should be planted to not impede the sight distances of intersections.
- BP-7. Street furniture such as benches, waste containers, flower and shrub planters, lampposts and kiosks should be required for non-residential uses within Old Town or in any Village Center within the Neighborhood or Countryside Design Districts to enhance the area's pedestrian feel.
- BP-8. Mid-block crossings, bulb-outs, signaled crosswalks and similar techniques may be used to accommodate pedestrians when appropriate traffic and site conditions exist.
- BP-9. Streets and street intersections shall have well-marked and well-lit crosswalks, with medians on wider streets to encourage pedestrian safety.
- BP-10. Curb radii should be designed to reduce pedestrian crossing times along all streets requiring sidewalks. In general, curb radii should not exceed 25 feet and are encouraged to be 15 feet or less in pedestrian areas. Roll curbs should be allowed for access to commercial or industrial facilities to accommodate large vehicles.
- BP-11. Bicycle travel should be supported with striped lanes for bicycle routes on wider streets, and medians where multi-use trails intersect streets.
- BP-12. Striped bicycle lanes, where recommended, should be a minimum of four (4) feet wide, not including the gutter. In places where a lane is not recommended, a "sharrow" and/or wide outside lane along with appropriate signage should be used.



BP-13. Street designs should include bicycle-friendly stormwater grates and manhole covers.

VII. TRANSPORTATION OBJECTIVES AND ACTION ITEMS

The Objectives and Action Items are provided to direct the planning and implementation strategies related to transportation planning in Knightdale and are in accordance with the overall goals of the 2027 Comprehensive Plan.

A. OBJECTIVES

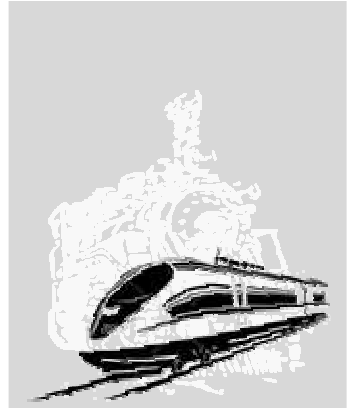
The Town of Knightdale shall seek to:

1. Ensure that multiple transportation options are provided for its citizens;
2. Coordinate transportation options and facilities with surrounding public and private entities to achieve a well-connected and accessible regional transportation network;
3. Ensure through the development approval process that access to transportation facilities promotes and balances safety, efficiency, convenience and economic considerations;
4. Ensure through its policies, ordinances and specifications that facilities are designed to promote safe interaction between different transportation modes;
5. Educate citizens on issues related to transportation such as, but not limited to: safety practices, efficiency measures, design, public health benefits and environmental protection; and
6. Encourage land use development patterns and connectivity that shorten average trip times across all modes of transportation; thereby reducing congestion and delay.

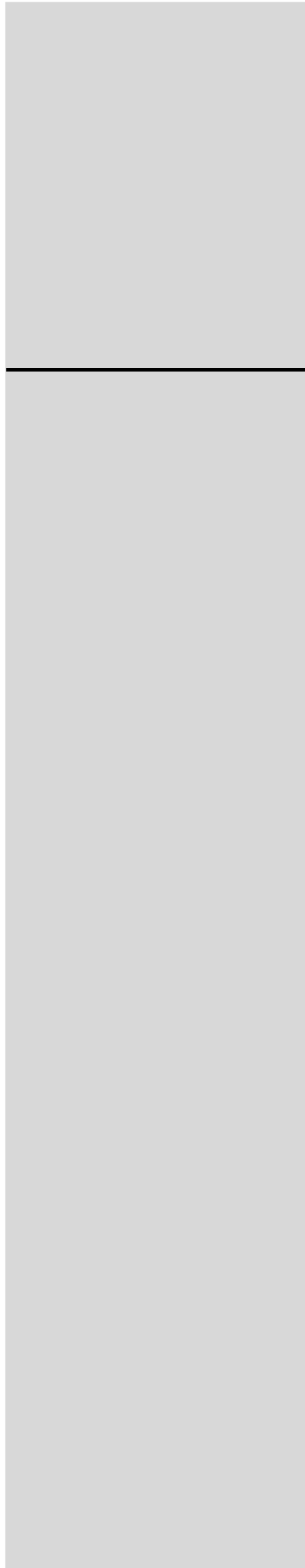
B. ACTION ITEMS

The following tasks provide a course of action for the Town to implement the previous transportation objectives:

-
- TR-1. Participate in the planning and/or decision-making processes (as appropriate) of regional and neighboring transportation agencies including CAMPO, Town of Wendell, City of Raleigh, Wake County Human Services and Triangle Transit;
- TR-2. Update and amend the Town's Arterial, Collector, Bike Route and Greenway plan maps found in the Town's Unified Development Ordinance at least once every five (5) years, including a comprehensive review of adopted plans from other transportation agencies covering or abutting the Town's jurisdiction;
- TR-3. Evaluate Arterial, Collector, Bike Route, Greenway and Pedestrian plan amendments by answering the following questions:
- Does the project promote public health and safety?
 - Does the project fulfill the Town's obligation to provide facilities and services?
 - Does the project increase the efficiency of existing facilities?
 - Does the project conform to the goals and objectives of this master plan?
- TR-4. Review and report construction progress annually on improvements required by the Town's Arterial, Collector, Bike Route, Greenway and Pedestrian plans;
- TR-5. Display transportation plans and plan amendments in Town Hall, on the Town's website, at relevant public hearings, at information booths, during open houses and other public outreach events;
- TR-6. Require and/or incentivize site plans to incorporate multi-modal access, including safe and direct access for pedestrians;
- TR-7. Review and inspect road improvements associated with new master plan submissions and construction documents for compliance with adopted transportation plans and standard specifications;
- TR-8. Secure dedicated right-of-way and/or public easements (as appropriate) during the plan approval process for planned road extensions, new roads, transit stops, park and ride lots, transit stations and greenways;



- TR-9. Require existing grid street patterns in “Old Town” to be extended where possible, and require the use of modified grid systems in new residential and mixed-use neighborhoods;
- TR-10. Develop and maintain an approved list of traffic calming devices that reinforce the posted speed or intended posted speed through residential areas;
- TR-11. Require landscape and hardscape enhancements and fine-scale design features for new collector and arterial corridors;
- TR-12. Work with NCDOT to adopt strategies for safe and convenient crossings of Knightdale Boulevard;
- TR-13. Explore, plan, implement and review mass transit services within and through Knightdale’s jurisdiction;
- TR-14. Facilitate dialogue and cooperation between regional public transportation providers and developers to construct, maintain and ensure the safety of park and ride stations and transit-oriented developments;
- TR-15. Pursue and participate in efforts to introduce commuter rail service along the existing rail corridor;
- TR-16. Create a Pedestrian Plan that prioritizes sidewalk and multi-purpose path construction, connectivity and repair; and
- TR-17. Apply for and secure funding from local, state, federal and non-profit sources to assist in the planning and construction of new transportation facilities as well as assisting in the addition of safety, efficiency and environmental enhancements to existing transportation facilities.





PUBLIC UTILITIES

I. INTRODUCTION

Following nearly 15 years of study that began in 1991, the Knightdale Town Council made the decision to merge its public water and sewer utility systems with those of the City of Raleigh on February 6, 2006. As part of the merger agreement, the Town of Knightdale secured ample water and sewer capacity from the City of Raleigh and set out a schedule of capital improvements for approximately the next five (5) years. The purposes of the merger agreement were identified as follows:

- To assure the continued provision of high quality, reliable, economical, safe and sanitary water and sewer service within the present and future corporate limits and Urban Service Area limits of Knightdale;
- To provide for the orderly and permanent transfer of responsibility for the ownership, construction, operation, maintenance, management and financing of Knightdale's water and sewer utility system from Knightdale to Raleigh; and
- To transfer the managerial, operational and financial responsibility of operating, maintaining and expanding the water and sewer utility systems service to the present and future corporate limits and Urban Service Area limits of Knightdale from Knightdale to Raleigh.

The City of Raleigh agreed to assume full responsibility for the provision of water and sewer services in Knightdale, including responsibility for Knightdale's water and sewer utility systems and related equipment and property rights. They further agreed to operate, maintain and expand the water and sewer systems to accommodate planned growth and development within Knightdale's planning and zoning jurisdiction per the terms of the agreement.

II. CITY OF RALEIGH PUBLIC UTILITIES

The City of Raleigh Public Utility Department has become a regional entity, providing utility service to the towns of Garner, Knightdale, Rolesville, Wake Forest, Wendell and Zebulon. Although the operations of the utility are ultimately the responsibility of the City of Raleigh, all city/town managers play a role in overall system guidance by appointing staff members to a permanent Water and Sewer Utility Advisory Committee (UAC). The UAC meets periodically to review and develop recommendations for the upgrade, expansion and extension of water and sewer services throughout the regional service area.



Driven by population growth, demand for water and sewer has been growing. Between 2000 and 2007, average daily demand at the E.M. Johnson Water Treatment Plant at Falls Lake rose from 44.4 to 50.7 million gallons per day (MGD). However, this rise was not linear. In 2003, a drought year, demand actually dropped to 43.4 MGD from 47.4 MGD in 2001. The vast majority of wastewater, including that generated from the Town of Knightdale, is delivered for treatment to the Neuse River Wastewater Treatment Plant, where volumes have grown from 36.2 to 42.0 MGD between 2000 and 2007. The peak volume during this period occurred in 2005 with an average daily throughput of 46.2 MGD.

Significant growth is anticipated in the future. Knightdale was cited by the State Demographer's Office as the fastest growing municipality for 2009. As a result, water treatment plants must be sized for peak daily demand, which is expected to grow from 80 MGD in 2006 to 130 MGD in 2030. Current plans to meet this demand include the recently opened Dempsey Benton plant at Lake Benson, rated at 20 MGD; an expansion of the E.M. Johnson plant to add 34 MGD of capacity; and the Little River plant that is to be built on a future reservoir and rated at 20 MGD. Expansions at existing wastewater treatment plants will increase total treatment capacity to a little over 84 MGD, mostly coming from a 15 MGD expansion at the Neuse River plant. Water and wastewater projects with the current Raleigh Capital Improvements Program (CIP) total \$545 million, the bulk of which is funded with Revenue Bonds backed by future utility billing receipts.

Beyond major fixed investments, the utility systems require continual investment to keep pace with demand, replace aging facilities and keep systems in a state of good repair. Financing of these systems depends upon future revenue streams. The water and sewer utilities are funded through water bills as well as one-time connection fees. Utility acreage, capacity and development fees; one-time fees assessed on new development, help Knightdale pay off the merger costs associated with constructing major water and sewer lines in the Town's Urban Service Area.

These vital infrastructure systems are critical to the area's continued growth and development, and their proper functioning has major environmental implications. Water, and wastewater systems are embedded in the region's hydrology, and the quality of our lakes, rivers and other surface waters is heavily influenced by the operation of these systems.



B. OBJECTIVES

The objectives of Raleigh Public Utilities, as expressed in The 2030 Comprehensive Plan for the City of Raleigh, are hereby adopted as part of the Town of Knightdale's 2027 Comprehensive Plan:

1. To make more efficient use of available water, matching source characteristics with intended uses, and establishing conservation as an ongoing process rather than a tool reserved only for crises;
2. To plan for water in the face of a changing and uncertain climate that may result in greater extremes of rainfall and drought;
3. To provide utility services in the face of rising fossil fuel costs by looking for efficiencies and alternative energy sources throughout the utility's operations;
4. To plan for the future in an ever-evolving regulatory environment at the state and federal level;
5. To plan for future water demands in a competitive resource allocation environment;
6. To provide the utility capacity necessary to accommodate the region's future growth, including the expansion of systems as well as the rebuilding and enhancements of systems in the older parts of cities and towns;
7. To better match the expansion of utility infrastructure with the region's preferred growth patterns and strategies while minimizing costs and maintaining the system's financial health; and
8. To fully educate and involve the public as informed customers and responsible users of vital natural resources.





*City of Raleigh – Neuse River
Wastewater Treatment Plant*

B. ACTION ITEMS

- UT-1. Assist Raleigh in developing a spatial growth projection for the town's future jurisdictional boundaries that will be used to plan for new water and wastewater infrastructure.
- UT-2. Update any parts of the Town Code or Town Policies governing utility extensions as needed to ensure consistency with the utility extension policies of the City of Raleigh and for new innovations such as water re-use.
- UT-3. Assist Raleigh in routinely updating utility plans based on the latest data and population projections so that plans for capital projects stay up-to-date.
- UT-4. Follow Raleigh's lead and investigate ordinance revisions regarding the provision of re-use pipes for irrigation in subdivisions or other allowable uses of reclaimed water.
- UT-5. Evaluate and consider Raleigh's efforts to study the option of encouraging dual plumbing in houses by offsetting the costs through reduced utility fees.
- UT-6. Support Raleigh's efforts in requesting that the Army Corp of Engineers perform what is known as a 219 study to look at any modifications to the current allocation configuration, including reallocating water in the conservation and flood pools to match changing climate conditions.
- UT-7. Evaluate and consider Raleigh's efforts to change appropriate regulations to mandate water-saving devices in new construction.
- UT-8. Assist with Raleigh's "Slow the Flow" public education campaign to promote water awareness and an ethic of water conservation.
- UT-9. Revise the Town's landscaping ordinance to incentivize the use of drought-resistant species to minimize the need for irrigation.
- UT-10. Evaluate and consider Raleigh's efforts to determine the feasibility of using incentives to encourage existing users to switch to water-saving devices and appliances.
- UT-11. Evaluate and consider Raleigh's efforts to design and implement a residential FOG (fats, oils and grease) collection program, similar in concept



to curbside recycling, that is a convenient alternative to dumping FOG down the drain.

- UT-12. Support Raleigh's efforts to construct a demonstration project for Pigeon House Branch, one of the area's most impaired streams, that utilizes re-use water to augment stream flow and improve water quality.
- UT-13. Support Raleigh's efforts to set and achieve a target of treating 100 percent of bio-solids to the Class A level, a level where bio-solids are pasteurized to eliminate all pathogens making them safe for public uses such as composting.
- UT-14. Support Raleigh's efforts to investigate and develop a program for capture and use of methane at the Neuse River Wastewater Treatment Plant site.
- UT-15. Support Raleigh's efforts to investigate and implement solar arrays at the Neuse River Wastewater Treatment Plant farm fields as the fields reach the end of their useful life for bio-solid application.

