



WALKABLE COMMUNITY PLAN

FOR KANNAPOLIS, NORTH CAROLINA



FEBRUARY 2007



Division of
Bicycle &
Pedestrian
Transportation



**PREPARED FOR KANNAPOLIS,
NORTH CAROLINA**

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*Large format maps located in the back of the Plan.

Section 1

Introduction



INTRODUCTION

The Kannapolis Walkable Community Plan was initiated by the City of Kannapolis and made possible through a \$24,000 North Carolina Department of Transportation Grant. The goals of the Plan are to create a more livable community through the promotion and development of pedestrian amenities and facilities which are safe, accessible, and connect destinations within the City (and larger region) through alternative transportation and circulation networks. A commitment to providing facilities and amenities for active lifestyles and access to destinations will positively contribute to the mental and physical health of residents, as well as their overall quality of life. By accommodating all modes of transportation, the City of Kannapolis will be an even more attractive place for citizens, visitors, new residents, and businesses.

Roadways and other circulation networks of a community should acknowledge and serve all users. This is of particular importance for bicyclists and pedestrians, as the majority of transportation systems focus on motor vehicles. Fortunately in the City of Kannapolis, residents understand this and find value in the existing pedestrian amenities, as well as promote improved and expanded pedestrian facilities within their community.

Pedestrian and bicycle issues are increasingly gaining notice and many public agencies, special interest groups, and municipalities are moving to integrate pedestrians and bicyclists into their comprehensive transportation systems. The Kannapolis Walkable Community Plan will participate in and contribute to this trend, as well as act as a model for other growing communities wishing to incorporate pedestrians and bicycles into the transportation system. Regardless of age or ability, Kannapolis's integrated system will allow all citizens to walk to areas within their communities safely, efficiently, and with ease.

Vision Statement

The Kannapolis Walkable Community Plan will contribute to the City's larger vision of establishing itself as one of "...the most dynamic and desirable communities in the Central Carolinas" (*Weaving a Shared Future for Kannapolis, 1999*). The Walkable Community Plan's Vision is to enhance and expand upon the pedestrian and bicycle networks within the City of Kannapolis by creating a safe, convenient, and accessible circulation network. The Plan will improve the quality of life for residents, attract visitors, and contribute to the unique character of Kannapolis.

Overview

The City of Kannapolis will gain numerous benefits from increased pedestrian amenities and facilities. These benefits include physical, social, and economic benefits for the City, as well as for its residents. For example, benefits of pedestrian facilities and walkable communities include:

- Enhanced community environment, "livability" and quality of life
- Reductions in vehicular traffic
- Reductions in air and noise pollution
- Heightened community interaction
- Improved health of community residents
- Attractive amenities for visitors
- Effective transit systems
- Help create a consistent community identity.

Enhanced community environment, “livability” and quality of life: Many people value living in, or visiting a community where walking is safe, pleasant and common. The ability to reach a destination by walking rather than driving offers numerous benefits to a community. Walkable communities increase the amount of face to face interaction between community members, time dedicated to exercise and recreation, visibility within communities, and therefore increases safety. These benefits all contribute to the quality of life for residents as well as the “livability” of a place.

Reductions in vehicular traffic: Kannapolis residents rely heavily on their motor vehicles to travel between home, work, errands, and recreation. As a result, the City affords more infrastructure and space for vehicles than other modes of transportation like walking and bicycling. Pedestrians require very little space in comparison to vehicles. Walking is a viable means of transportation over short distances and reduces the volume of traffic, as well as the need for additional infrastructure such as parking spaces and extra roadway lanes.

Reductions in air and noise pollution: Walking to a destination requires no fossil fuels and is very quiet in contrast to vehicular traffic. The quality and health of the physical environment contributes greatly to the quality of life and health of residents. A community that has clean air to breathe and quiet streets is an attractive community to visitors, new residents, and businesses. The physical and emotional health of residents is also heightened when air and noise pollution levels are low.

Heightened community interaction: Residents in pedestrian friendly communities interact at a much higher rate due to their incidental contact with other residents. This interaction and visibility enhances the overall sense of community as well as the safety of an area.

Improved health of community residents: Walking is a low-impact form of exercise that can greatly contribute to the physical and mental health of a population. Low to moderate levels of physical exercise has been shown to reduce the risk of heart disease, obesity, stroke, high blood pressure and cholesterol, as well as many other illnesses. Walking not only allows for people to travel to where they need to go, but also improves their health and quality of life. There are also public health benefits from increased walking. Many experts believe that increasing active transportation (walking, cycling, running and skating) is the most practical and effective way to improve public fitness. Physical activity and fitness are essential for healthy communities.

Attractive amenities for visitors: Visitors are attracted to places that are easy and safe to get around. By providing a variety of pedestrian facilities such as formalized routes, greenways, multi-use paths, wide sidewalks, and vehicle separation, a community can diversify the pedestrian experience and satisfy the needs of most visitors and residents.

Effective transit systems: Pedestrian facilities in transit corridors make transit systems more effective. By providing a safe environment for transit users to access their stops, communities can increase the number of people using the system and thereby reduce traffic congestion and pollution. A sidewalk on transit routes and local streets feeding the routes is an essential component to ensure safe accessibility.

Help create a community identity: A pedestrian system that is safe, diverse, and comfortable contributes to the overall identity and character of a community.

Previous and current projects in Kannapolis have embraced the promise of these benefits and the trend towards more walkable, livable communities. These include:

Commitments to Weaving a Shared Future

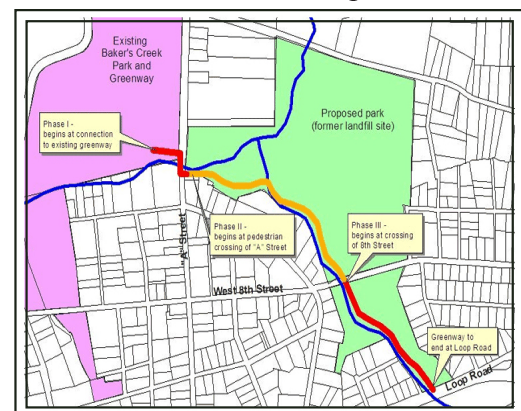
Commitments to Weaving a Shared Future for Kannapolis was a visioning process held between May 1998 and October 1999. The process of sharing ideas, memories, and potentials of Kannapolis over this period resulted in a strategic plan to address some of the challenges facing the City. The plan utilized over 100 volunteers who participated in a series of theme groups (Live, Work, Learn, and Play) where they developed ways to strengthen neighborhoods, recreational facilities and attract new businesses. Within these larger visions was a commitment to “walkable neighborhoods”, “inviting parks and greenways”, and a “dynamic business community”. This project won an ICMA Award for Citizen Involvement.

Livable Community Blueprint for Cabarrus County

The *Livable Community Blueprint for Cabarrus County* was developed in order to provide the necessary parks and recreation services for the growing County of Cabarrus which includes Kannapolis, as well as the four other incorporated towns of Concord, Harrisburg, Mt. Pleasant, and Midland. In addition to the development of parks and recreation facilities, the *Livable Community Blueprint for Cabarrus County* acknowledged the increase in traffic volumes, an aging population, and safety concerns and identified bicycle and pedestrian routes within the County. Recommendations were formulated in order to help guide the County in the development of bicycle and pedestrian routes. A survey was also distributed and revealed a desire for more pedestrian routes and amenities by the respondents. For example, the survey demonstrated that 49% of respondents wanted sidewalks on all new roads and 48% wanted more bike paths.

Proposed 8th Street Greenway

NCDOT has awarded a \$64,469 transportation enhancement grant under the Transportation Equity Act of the 21st Century (TEA-21) for a portion of the Proposed 8th Street Greenway. The Parks and Recreation Department has proposed the 8th Street Greenway to immediately connect West 8th Street and Loop Road with the longer term goal of adding two sections to create a complete two mile greenway linking Baker’s Creek Park to the Central Business District.



credit: www.ci.kannapolis.nc.us/parks_8.asp

Core Values

The core values guiding the Kannapolis Walkable Community Plan were developed by the City and include the following:

Pedestrian Enhancement

Preservation and enhancement of the existing pedestrian system is essential to sound municipal government. The existing pedestrian infrastructures are all integral components of an active and balanced community. New enhancements, including those under Loop Road and along major street connectors (Rogers Lake Road, Leonard Street, Oakwood Avenue) are essential to meeting the future needs of Kannapolis citizens. It is imperative that pedestrian connectivity and safety be accelerated to accommodate a rapidly changing demographic.

Pedestrian Funding

Flexibility to invest and prioritize funds for public purpose is essential to recreational and safe integrity of the pedestrian system. Kannapolis is challenged to use funds entrusted to them in the most efficient manner possible. Flexibility in funding options and expansion of creative partnerships can provide the basic tools to meet that challenge. The capacity to determine the nature and amount of an expenditure, based upon the totality of factors involved within our Walkable Community Plan, is essential to economic efficiency and recreational and alternative transportation management. Further, discretion to fund investments in local improvements such as affordable housing, redevelopment projects, and business and economic incentives, provide additional means to overcome any funding challenge.

Municipal Growth

A healthy municipal center is essential to the economic viability of Kannapolis. The City must maintain the ability to grow and provide the higher level of non-vehicular alternatives soon to be demanded by our citizens. A city center and healthy neighborhoods and commercial businesses are an economic engine of Kannapolis and must be permitted to grow in an orderly and reasonable manner that supports the continued economic development of the City. New growth in and around the City should be encouraged to utilize existing and new infrastructure for the most efficient use of public mobility. Revenue sources associated with growth should be maintained and enhanced to apportion the costs of pedestrian infrastructure between existing and new development.

Pedestrian Planning

City planning authority must be maintained for sound growth, long-range planning and growth management. Long range municipal planning is an essential aspect of City health and economic viability. Together, a vibrant well planned city can be the economic engine for the region, capable of attracting new businesses and industries, growing without undue pressure on the public infrastructure, all while providing the quality of life expected by those who live here. Public participation is a key element of alternative transportation management. Necessary tools for planning include the ability to exercise urban redevelopment and foresight for future demands. The City must have the capability to protect and plan for pedestrian infrastructure, as well as ensure that public safety and welfare of the citizens are preserved.

Goals and Objectives

Previous efforts by the City of Kannapolis and its citizens have demonstrated their commitment to improving and promoting pedestrian facilities, as well as the quality of life for residents now and in the future. Numerous meetings with City Staff, Steering Committee, and the public have informed the development of the goals and objectives for Kannapolis's Walkable Community Plan. The goals of Kannapolis's Walkable Community Plan fall under three categories: *Connectivity, Access, and Safety*.

Connectivity:

- Develop circulation corridors which link commercial centers, healthcare centers, public facilities, residences, and existing/proposed recreational facilities. (*Livable Community Blueprint for Cabarrus County*)
- Link neighborhoods and schools to one another by improving street and sidewalk connections and providing safer road crossings. (*Weaving a Shared Future for Kannapolis*)
- Incorporate the new NC Research Campus into the larger pedestrian circulation system.
- Develop connections between walking, bicycling, ridesharing, transit, taxis and other modes.
- Create an integrated transportation system that provides a high level of accessibility for non-drivers and the physically challenged.
- Increase public awareness of pedestrian and bicycle routes.
- Identify and remedy gaps within the existing pedestrian system and alternative transportation.

Access:

- Improve access for people of all ages and those with disabilities.
- Inform residents and visitors of safe pedestrian routes through mailings, fliers, and a comprehensive signage system.
- Establish formal and passive connections through the City and the larger region.
- Ensure accessible pedestrian accommodations are part of all new construction.

Safety:

- Provide a diverse and safe environment for pedestrians.
- Existing pedestrian facilities (street crossings, sidewalks, etc.) shall be safe and meet all ADA standards.
- Incorporate safe pedestrian facilities in coordination with all street programs. (*Livable Community Blueprint for Cabarrus County*)
- Provide safe crossing opportunities of major barriers and streets.
- Adopt traffic calming measures in high speed traffic areas.
- Enhance vehicle and pedestrian separation through planting strips and designated crosswalks.

Scope and Purpose of Plan

The Walkable Community Plan focuses on the pedestrian facilities in the City of Kannapolis, North Carolina. The plan will focus on both on-road and off-road facilities within the City. Off-road facilities include park facilities such as greenway trails and pedestrian routes. The project area is illustrated in Fig. 1.

The purpose of the master planning process is to improve the quality and connectivity of the pedestrian facilities in Kannapolis. It is the intent of this project to not only improve the pedestrian facilities within the City, but also to increase the number of people who walk on a daily basis for functional and recreational purposes, thereby achieving longer range goals of overall improved health and quality of life. In order to do this, it is necessary to review and evaluate the existing conditions of the pedestrian facilities in the City, current trends within the population, and opportunities and constraints that are specific to Kannapolis's pedestrian environment, all while understanding the needs and desires of community members.

Through embracing past efforts and future plans already in place, the Walkable Community Plan will:

- Provide standards and guidelines for new facilities and the retrofit of existing facilities.
- Recommend pedestrian routes and assign priorities to assist the City with implementation and construction.
- Identify appropriate funding opportunities to assist in implementation of the Walkable Community Plan.

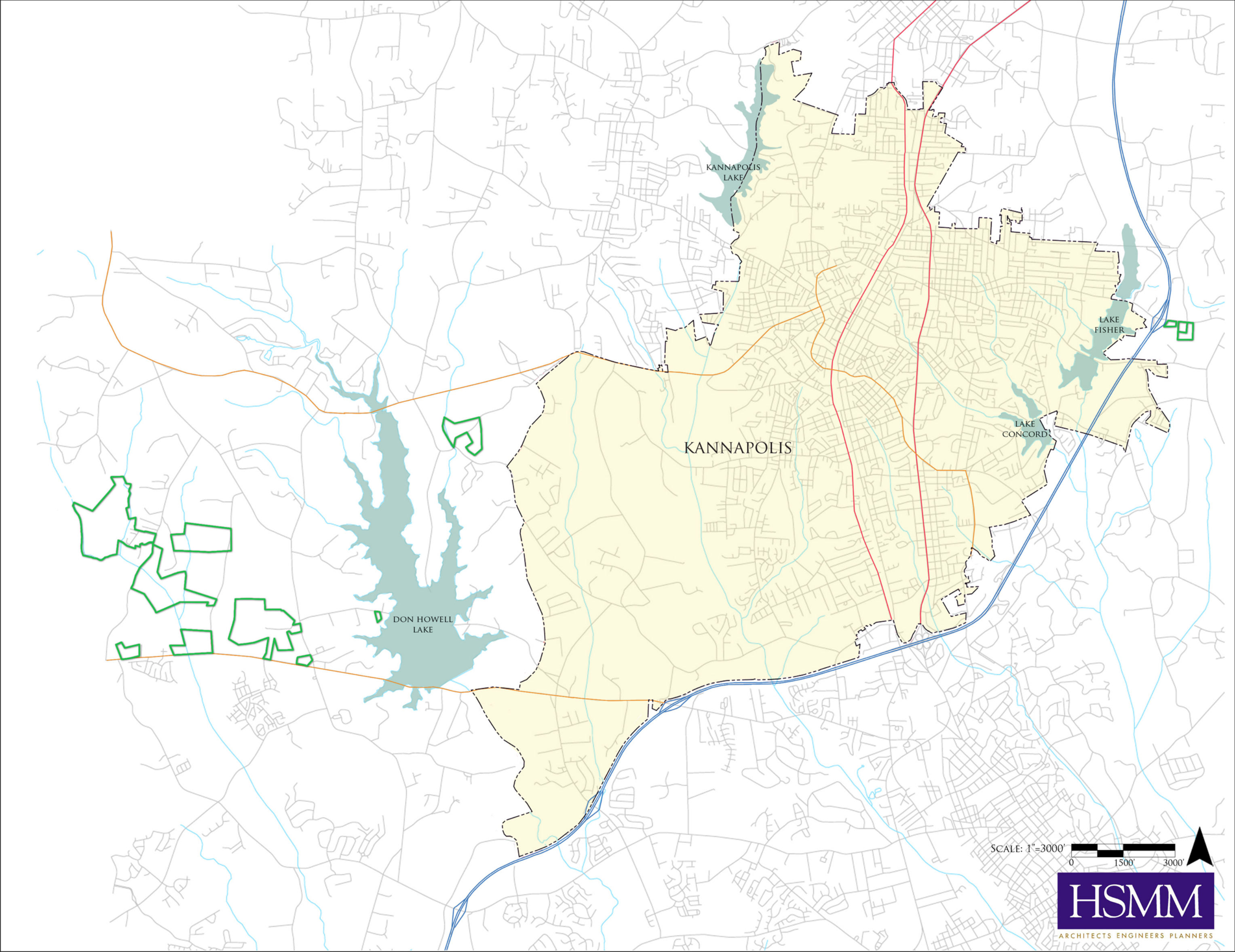


FIG. 1 PROJECT AREA

WALKABLE COMMUNITY PLAN
CITY OF KANNAPOLIS, NORTH CAROLINA

LEGEND

-  CITY LIMITS
-  ETJ
-  INTERSTATE 85
-  US HWY
-  NC HWY
-  PROJECT AREA

Section 2

Existing Conditions



Overview

The City of Kannapolis currently has four designated pedestrian and bicycle routes. These were identified in the *Livable Community Blueprint for Cabarrus County* and include the following:

- North Kannapolis Connector
- Kannapolis Route(s)
- Three Mile Branch Corridor
- Irish Buffalo Creek Corridor

The Blueprint identified Irish Buffalo Creek (7.7 miles), Kannapolis Routes- Centergrove Road: from the Loop to Pennsylvania (1.6 miles), and Three Mile Branch: from Royal Oaks Elementary to Cloverleaf Plaza (1.0 miles) as priorities. Connectivity throughout Kannapolis is enhanced through these routes, particularly between residential areas to schools and parks. However, all the routes do not have suitable sidewalks and crosswalks, nor are they consistent. The Kannapolis routes through the Central Business District are the most consistent and have the highest percentage of pedestrian facilities and amenities. The Irish Buffalo Creek will route provide a strong north-south connection on the western side of the City, however it is not linked back into the central part of the City and has not been constructed at the time of this plan. As it passes near six schools, Safrit Park, North Cabarrus Park, as well as numerous neighborhoods, it should be accessible to and from the center of Kannapolis.

Public opinion and involvement was crucial to the development of a coherent, consistent, and useful pedestrian system in Kannapolis. A variety of methods were used to integrate the citizens of Kannapolis into the analysis and design process including

- Formal public meetings,
- Surveys
- Mapping workshops
- Informal interviews

Following the design and implementation process, it is imperative that education of the pedestrian facilities, as well as safety continue to be addressed. This may be done through advocacy groups, pedestrian citizen committees, schools, or the media. This will ensure that new challenges can be addressed and that opportunities are identified and capitalized on.

Community Input and Involvement

Community Input - Survey

Public surveys were distributed at three venues in order to gather public opinion regarding the City of Kannapolis's pedestrian environment and provide insight into possible solutions. Surveys were available at public meetings and through general distribution where they could be filled out on site. During the month of April, a survey was available on the City's website where it could be printed out, completed, and returned either by mail or fax. Additionally, there was an option to fill out the survey online where the results were tabulated with an automate survey hosted on the City's website. Surveys were returned by mail to HSMM where they were reviewed and tabulated. 427 surveys were returned to HSMM and 21 were completed online accruing a total of 448 completed surveys. The questionnaire and tabulations are located in Appendix A.



Results of Community Input - Frequent Destinations

The areas most respondents frequently walk are those which currently have pedestrian amenities, (sidewalks, crosswalks, etc.) or are located away from vehicular traffic such as parks and greenways. Although the majority of residents drive to these places, they often walk once they arrive. The need to drive somewhere in order to walk may be related to the fact that many respondents (61%) feel they do not have access to walking and bicycling amenities from their homes. Frequent destinations in Kannapolis by walking or biking include:

- Cannon Village
- Downtown
- Loop Road
- Neighborhoods
- Baker's Creek
- YMCA
- Village Park

Respondents also walk or bike to destinations such as the grocery store, coffee shop, post office, churches, and stores. This indicates a desire, and possibly a need, to walk or bike regularly within the City for purposes other than recreation.

Results of Community Input - Main Deterrents

Results from the survey indicate there is substantial support for pedestrian and bicycle facilities. For example, 79% of survey respondents feel Kannapolis needs improved pedestrian and bicycle facilities. Many residents felt it was easy and safe to travel around Kannapolis by car, while on the contrary, many did not feel it was easy or safe to travel through the City on foot or bicycle. Overall safety was a major concern for residents. They emphasize traffic speeds, aggressive drivers, no sidewalks/insufficient sidewalks, no shoulders on roads, and lack of street crossings as some causes of their distress. Main deterrents from biking and walking include:

- No sidewalks
- Traffic
- Insufficient sidewalks
- No bike trails or lanes
- It is unsafe
- Speeding/dangerous traffic
- Narrow roads
- Distance and safety

Results of Community Input - Areas Where People Feel Most Unsafe

The locations respondents felt most unsafe were roads where there are no sidewalks (or where sidewalks are in poor condition), insufficient lighting, and wide intersections with no island or pedestrian refuge between them. Numerous people felt unsafe on all roads. It appears as though pedestrians and bicyclists feel out of place on roads, as there is not a safe, consistent, designated place for them alongside or in between roadways. Amenities such as lighting, vehicle-pedestrian separation, traffic calming, and sidewalk maintenance appear necessary. Areas where survey respondents felt most unsafe while walking and biking include:

- Areas where there is no sidewalk
- Loop Road
- Everywhere
- Dale Earnhardt Boulevard
- Little Texas Road
- Main Street
- South Main Street
- North Cannon Boulevard

Results of Community Input - Areas Where People Feel Safest

Respondents felt safest walking and biking in the downtown area. This area has the most pedestrian/bike amenities in Kannapolis in terms of well-lit areas, sidewalks, and places to rest. Parks are also areas where people felt safe. This is most likely due to the absence of vehicles and the area being designated for recreational use. Areas where survey respondents felt safest while walking or biking include:

- Loop Road
- Downtown
- Parks
- Bakers Creek Greenway
- In neighborhood
- YMCA
- Village Park
- Anywhere there are sidewalks

Results of Community Input - People Would Walk/Bike Places More If

Kannapolis residents indicated that they would like to walk and bike to destinations and would do so more often if there were appropriate, safe, and consistent facilities and these facilities were in good condition. Most of the survey comments dealt with facility and infrastructure shortcomings and driver behavior/safety issues. People would like a separation between sidewalk and street and accessible sidewalks. Reducing traffic speeds in high pedestrian areas and providing a separate place for pedestrians and bicycles within the street network would reduce the fear residents have of walking. Signage was also addressed and it was suggested that the signs communicate distances and locations of destinations. A comprehensive system of signs would compliment the Walkable Community Plan and would illustrate locations of pedestrian routes and safe street crossings. Survey respondents would walk and bike more places if:

- More sidewalks and greenways were available
- There were bike trails
- It were safer
- There were more bike lanes
- There was more police patrol
- More / improved streetlights
- Sidewalks were better connected
- If there were more walkways
- There was a good bicycle path

Current Plans, Programs, and Policies

Led by Planning Director Richard Smith, the City's Community Development / Planning Department manages the site plan review process, the administration and management of the land use plan and Unified Development Ordinance (UDO), all of which affect the pedestrian environment. The UDO outlines street design standards as well as landscape / buffer standards for the City and can be found at <http://www.ci.kannapolis.nc.us/businessdevelopment/UDO.asp>.

Led by Wilmer Melton, the Kannapolis Public Works Department coordinates street services which effect the pedestrian environment. Street improvements, paving and street repairs are managed by the Street Department. These services include planning traffic systems, street maintenance, sidewalk construction and repair, curb and gutter construction and repair, as well as street lighting, traffic signs / signals, and markings.

Kannapolis greenways and parks are under the direction of the Kannapolis Parks and Recreation Department. Led by Director Gary Mills, the Department has seven full time and twenty part-time employees who manage five parks, maintain over forty parcels of City-owned property as well as the Kannapolis Cemetery and other beautification projects. The Department is very proactive and has responded to the City's growth with new parks and additional greenways to better connect recreational facilities and destinations within the City.

Recent improvements in Kannapolis's pedestrian environment encourage safety and use. For example, a sidewalk and pedestrian crossing on Oakwood Avenue near North Cabarrus Park was recently approved and constructed. Primary funding for the project was from a Federal TEA-21 Transportation Grant totaling \$164,832 from the NCDOT. The City of Kannapolis matched \$33,708 as required and Cabarrus County contributed \$7,5000. There are over 500 residences in the immediate area which will benefit from this new construction.

The South Ridge Avenue Improvement Project also included pedestrian amenities of new sidewalks and decorative crosswalks, all of which are ADA compliant. The materials used in the improvement, such as the brick crosswalk, are consistent with pedestrian facilities in Cannon Village and provide a model for future installations.

The City of Kannapolis adopted a Neighborhood Traffic Calming Policy in order to address traffic issues and inform residents on the process for implementing traffic calming techniques in residential areas. It is the intention of this policy to deal with issues not directly addressed in the Manual of Uniform Traffic Control Devices (MUTCD). All local/residential, minor or major collector streets maintained by the City are included under this policy. The policy includes a process by which citizens may contact the City to make a request for traffic calming on a particular street(s).

Currently there are no formalized walking clubs or groups in Kannapolis. The Senior Center in Concord has a walking incentive-based program called *Walk Around the World*. The program provides pedometers, walking log book, Wellness Report Card, and fitness assessments every 6 months or quarterly. There is potential for this program to be implemented in Kannapolis as well as other walking programs and clubs.

The City of Kannapolis has a Unified Development Ordinance (UDO) to help guide development and zoning standards within the City. The UDO was revised in December 2006 and provides design standards which effect the pedestrian environment such as sidewalk widths, materials, and landscape separation between pedestrians and vehicles. The complete UDO can be found at: <http://www.cityofkannapolis.com/businessdevelopment/UDO.asp>

Local Pedestrian Accidents

Available data from the City of Kannapolis and the North Carolina Department of Transportation revealed patterns in local pedestrian and bicycle accidents throughout the City. In particular there is a clustering of accidents located in the following areas:

- Rainbow Drive between Mooresville Road and Leonard Avenue
- South Cannon Blvd. (29) between Summer Street and Michigan Street
- Throughout South Cannon Blvd.
- Intersections on Loop Road

These locations are most troublesome in that they are located near residential areas, schools, and high speed roads. For example, within a five minute walking radius of Royal Oaks Elementary there were 3 accidents and a total of 7 accidents within a 10 minute walking radius. This indicates a need for additional pedestrian facilities, education, and possibly traffic calming measures. Accidents are present throughout the City, but are heaviest in the center and southern half of the City. Generally, most of the accidents occurred in areas where there are no sidewalks or sufficient pedestrian facilities. Improvements to the physical infrastructure should help alleviate some of the hazards in the pedestrian environment.

Assessment of Kannapolis Transportation System

Highway and Street System Access

Kannapolis is easily accessible from Interstate 85 by five exits: Lane Street, Dale Earnhardt Boulevard (NC 3), Cannon Boulevard (US 29-601), Davidson Highway (NC 73), and Kannapolis Parkway.

I-85 runs north and south along the eastern and southern portions of the City. By far the most heavily travelled, the I-85 corridor provides connections between Greensboro and Charlotte as well as links to additional area highways such as US 29-601, NC 73, and NC 3. Major thoroughfares serving the City are described below and include *Cannon Boulevard, Dale Earnhardt Boulevard, Loop Road, Lane Street, Main Street, and Kannapolis Parkway.*

Cannon Boulevard (US 29-601) is an important and heavily used north-south connector and commercial strip. A variety of development occurs along this thoroughfare however, within the City limits commercial activity is dominant. Currently, sidewalks are lacking throughout most of Cannon Boulevard. There is evidence of heavy foot traffic alongside the street (dirt paths) and some pedestrians and bicyclists use the shoulder of the roadway where available. Commercial activity along this route encourages pedestrians and bicyclists, however presently there are no facilities for their use (sidewalks, crosswalks, pedestrian signalization). Average Daily Traffic (ADT) along this roadway is varied with the heaviest travel occurring between Dale Earnhardt Boulevard and Lane Street. In the year 2000, the ADT ranges from 17,000 - 23,000 along Cannon Boulevard.



Cannon Boulevard (US 29-601)

Dale Earnhardt Boulevard (NC 3) acts as a eastern extension of Loop Road in downtown. Development along this thoroughfare is primarily commercial and light industrial. There is heavy pedestrian traffic along this route and pedestrians have worn dirt paths along the road where no sidewalks are present. There is new sidewalk construction, however there is a need to connect the existing sidewalks. Crosswalks are striped and are not consistent. Development is most complete at the interchange with I-85 and this exit is heavily used and acts as a major entrance into the City. ADT varies along this route as well and is heaviest on the eastern end near I-85 and the intersection with Centergrove Road. The 2000 ADT ranges from 13,000 - 19,000 along Dale Earnhardt Boulevard.



Dale Earnhardt Boulevard (NC 3)

Loop Road circles the Central Business District and the future NC Research Campus. It connects with Lane Street and Jackson Park Road on the north and Dale Earnhardt on the south. Currently it is the most heavily used by pedestrians, as it is in the heart of downtown and the historic commercial center. There are sidewalks and crosswalks throughout



Loop Road

most of Loop Road. Currently, sidewalks are located on both sides of the street. Sidewalks are located flush with the top of curb and offer little separation between pedestrians and vehicles. Crosswalks are striped and not always ADA compliant. Development along this corridor is diverse with residential, industrial, commercial, and institutional uses. The 2000 ADT ranges from 14,000 - 16,000 on Loop Road.

Lane Street acts as an entrance into the City off I-85, however it is not as heavily used as Dale Earnhardt Boulevard. This is most likely due to the difference in character between the two streets: Lane Street is predominantly residential while Dale Earnhardt has heavy commercial development. Lane Street joins with Jackson Park Road as it heads into downtown. There are no sidewalks currently on Lane Street until it intersects with Jackson Park Road. Crosswalks on Lane Street are striped and mostly faded. This route may experience an increase in volume with the development of the NC Research Campus, as the Campus is located on axis with Lane Street on the northern half of the City. The 2000 ADT ranges from 8,000 - 13,000.

Main Street runs through the heart of downtown Kannapolis and acts as a north - south connector between Landis - China Grove and Concord. Paralleling Cannon Boulevard, this route is a much smaller scale (two lanes) and will run through the future NC Research Campus. A mixture of residential and small scale commercial uses, such as Cannon Village, can help maintain its character. Pedestrian amenities are mostly present in the downtown area along Cannon Village and the train station. Decorative crosswalks and sidewalks are concentrated along Cannon Village and are not present on the opposite side of the street. Sidewalks throughout the rest of Main Street are mostly concrete and are located flush with the top of curb. The southern portion of Main Street (from Bethpage Rd.) has no sidewalks or crosswalks. The 2000 ADT ranges from 11,000 - 4,800 with a significant reduction in traffic within Loop Road.

Kannapolis Parkway serves the western half of Kannapolis and has allowed for significant development to occur. This is an important thoroughfare servicing increased large scale residential and commercial uses. Similar to Dale Earnhardt Boulevard, this route is developing rapidly. This thoroughfare is a wide six lane road and is in need of significant pedestrian amenities due to the presence of schools on NW Cabarrus Drive and family housing. Sidewalk construction on the northern end of Kannapolis Parkway is a challenge due to the absence of curb and gutter. The southern portion of the roadway has available space and curb and gutter.



Lane Street at Ruth Avenue



Main Street along Cannon Village



S. Main Street



NW Cabarrus Dr. at Kannapolis Parkway

Pedestrian system access

Pedestrian access is variable throughout the City of Kannapolis. Pedestrian facilities are in good condition in downtown Kannapolis and relatively inconsistent throughout the rest of the City. Loop Road around the Central Business District is used most frequently by pedestrians. Pedestrian amenities such as crosswalks, benches, pedestrian scale lighting, and sidewalks are plentiful and in excellent condition in and around Cannon Village. The Oakwood Avenue and South Ridge Avenue roadway improvements are excellent examples of new construction and should be used as models where appropriate. The main challenge for pedestrian system access in Kannapolis is the consistency in pedestrian facilities such as sidewalks, crosswalks, and curb cuts which should be accessible and ADA compliant.

Greenways offer pedestrians alternatives to the street environment. Greenways offer more than recreation opportunities, they also provide for transportation, urban wildlife habitat, flood control, utilities, and education. Greenways are an important part of the pedestrian environment and can improve connectivity throughout the City. The parks and greenways in Kannapolis are in excellent condition and are used by City residents for recreational and fitness purposes. Baker's Creek Park and Greenway are a popular destination for walkers and recreation. Future plans for extensions and additions to the greenway network, such as the Irish Buffalo Creek Corridor, will help offer more connectivity to destinations and parks as well as alternatives to the pedestrian environment.

Transit interface

Public transportation is provided by Concord Kannapolis Area Transit system (*Rider* Bus), AMTRAK, and the State of North Carolina. *Rider* offers six routes serving Kannapolis and Concord and connects popular destinations such as shopping areas. Six rail passenger trains serve Kannapolis and a new train station on Main Street opened recently in 2005 and operates as a stop for AMTRAK between Washington D.C. and Charlotte as well as providing connections to the City's transit system. Figure 2 illustrates the Kannapolis public transportation system.

Public transportation is available and diverse in Kannapolis however, pedestrian access to it appears to be somewhat of a challenge. It is essential that all transit stops become accessible and fully ADA compliant, as well as provide the necessary amenities for safety and comfort (waste receptacles, signage, posted schedules, etc). At high volume stops this may necessitate a shelter with adequate lighting and seating. At less frequented stops it is still necessary to have adequate lighting for safety. *All* public transportation and mass transit stops shall be accessible and fully meet ADA standards. It is also important to stress the accessibility of the pedestrian environment surrounding transit stops. Users need to be able to reach transit stops safely and efficiently. This requires appropriate pedestrian facilities such as sidewalks, crosswalks, and pedestrian signalization around and between transit stops.

With the growth of the City, particularly in the southwestern portion, it may be necessary to expand *Rider* bus routes so as to serve the growing population and enhance the connection back to downtown and the new NC Research Campus. Route direction may also need to be addressed in order to better serve Kannapolis residents. Currently the *Rider* system only operates in one direction and many residents could benefit from some, if not all, routes running in both directions.

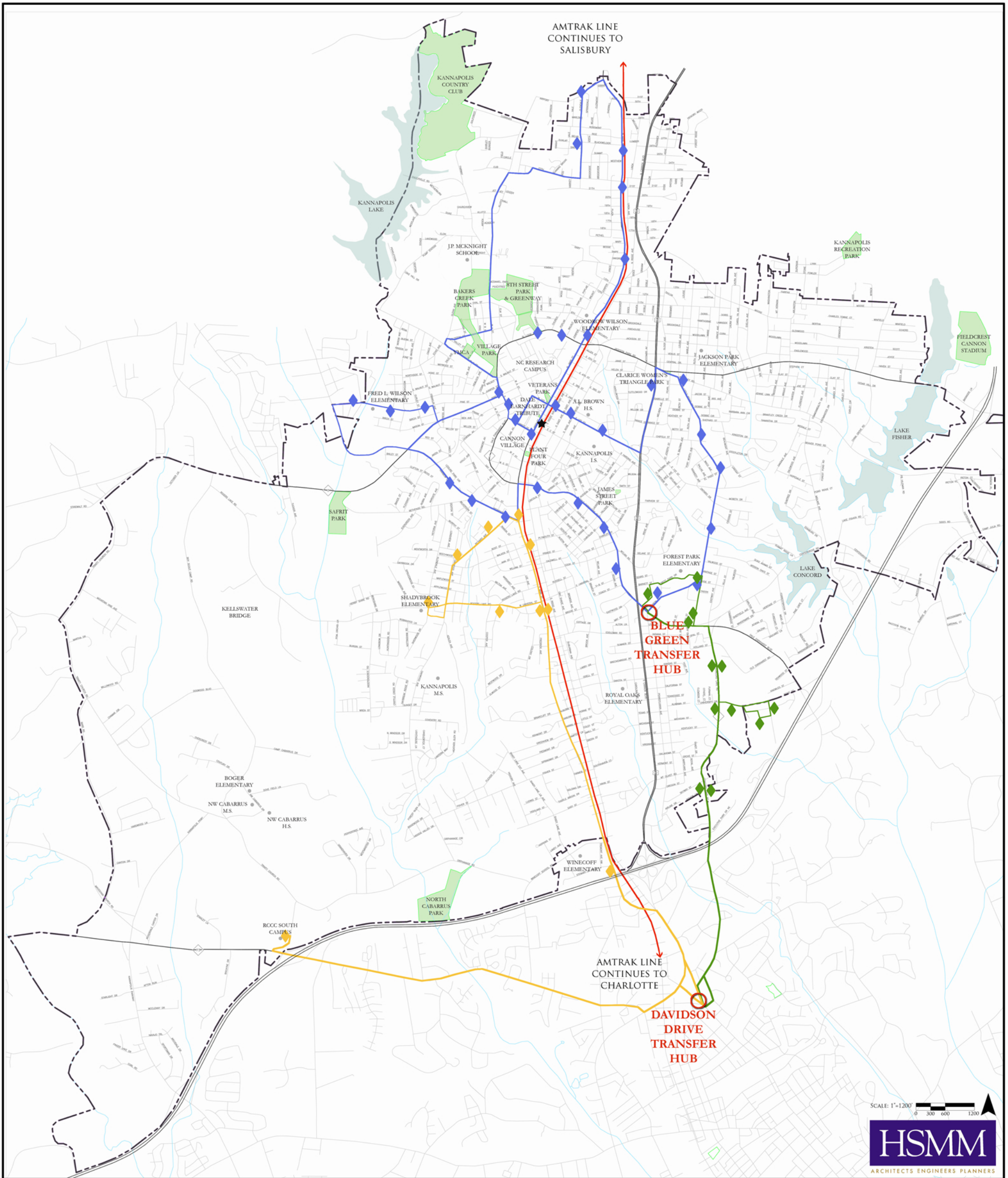


FIG. 2 KANNAPOLIS TRANSIT
 WALKABLE COMMUNITY PLAN
 CITY OF KANNAPOLIS, NORTH CAROLINA

LEGEND

- CITY LIMITS
- RIDER BUS ROUTE: GREEN
- RIDER BUS ROUTE: YELLOW
- RIDER BUS ROUTE: BLUE
- AMTRAK TRAIN
- TRANSFER HUBS
- ★ KANNAPOLIS TRAIN STATION
- ◆ ◆ ◆ RIDER BUS STOPS

Demographics

Currently, pedestrians in Kannapolis include low income, disabled, and elderly residents; children, visitors, and fitness/recreational walkers. Many residents in Kannapolis are pedestrians due to their inability to drive, such as children, the elderly, and those who cannot afford a vehicle. Aside from residents who rely on public transportation and walking to get where they need to go, there are many residents who enjoy walking for exercise and leisure. This group as a whole constitutes a larger portion of the population of Kannapolis. Based on the data from the 2000 U.S. Census, 20% of Kannapolis's population is under the age of 16 and therefore not able to drive. 8,229 residents are enrolled in school and should be afforded safe access routes to school. Currently, there are approximately 40,000 residents in Kannapolis. Figure 3 below describes the age distribution within the City during the last Census.

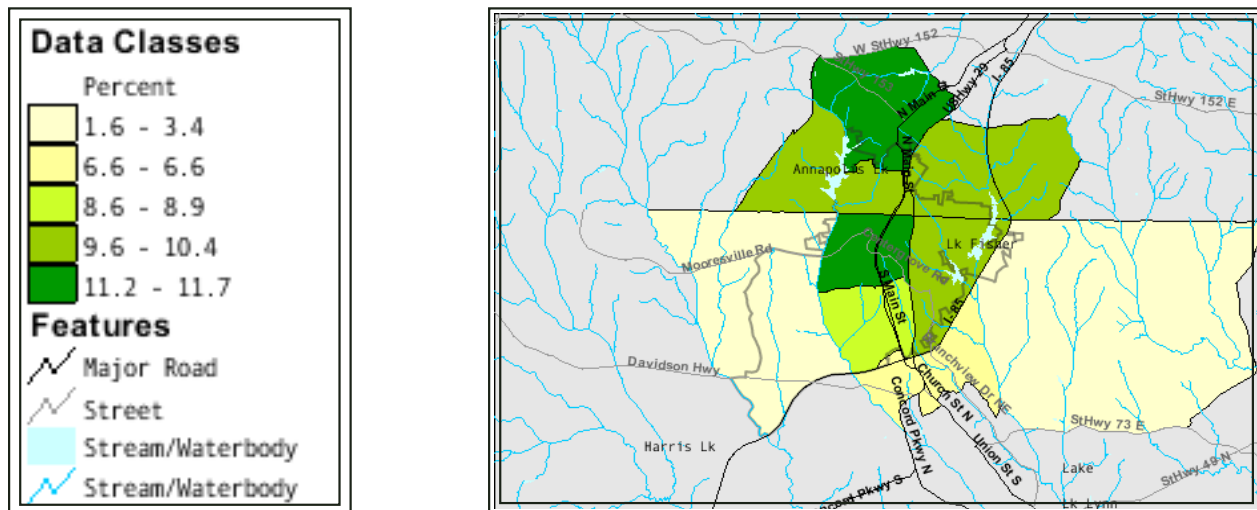
Figure 3. Ages of Kannapolis Population*

Age	Number	Percent (Kannapolis)
15 or younger	7,581	20.5
16-24	4,668	12.6
25-44	11,237	30.4
45-64	7,670	20.8
65+	5,754	15.6

*U.S. Census Bureau, 2000 Census

According to the 2000 Census, 3,797 Kannapolis residents live in poverty. Figure 4, shown below, illustrates the geographic distribution of poverty in the City. It is most probable that a higher percentage of residents in this area have less access to vehicles on a regular basis. Fortunately, public transportation through the bus system, *Rider*, is available throughout this area and the Train Station is located in the center of the City. 1,267 residents in the City do not own a vehicle and 5,269 residents own only one. Safe, accessible, and useful pedestrian facilities are essential to residents who do not own their own vehicles. 353 residents either walk or take public transportation to work every day, while 16,372 residents drive themselves or carpool to work daily.

Figure 4. Poverty Levels in Kannapolis, North Carolina



2000 U.S. Census

2000 U.S. Census

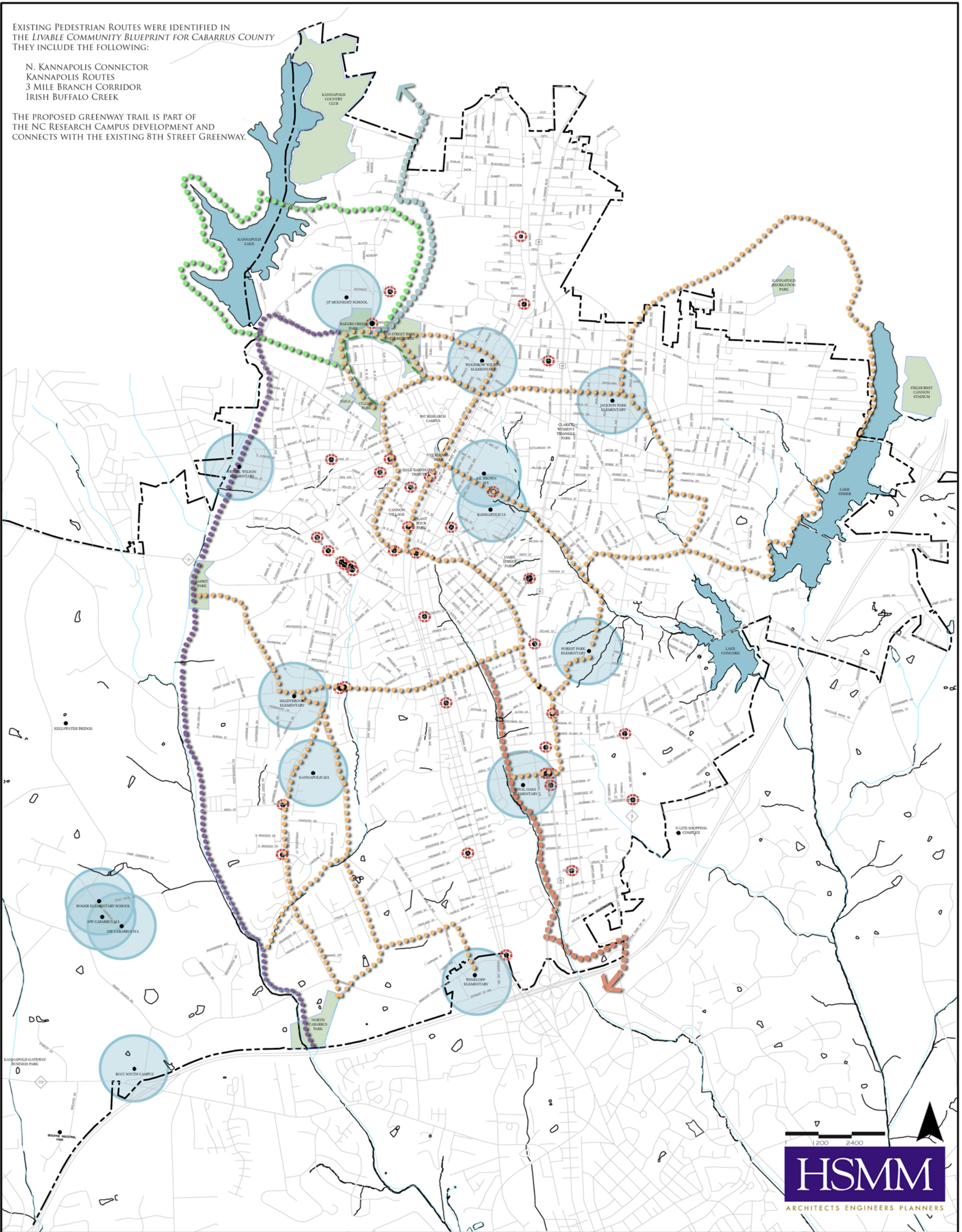
Existing conditions affecting the pedestrian environment in Kannapolis include such things as streets, locations of recent bicycle and pedestrian accidents, parks, greenways, and existing pedestrian routes identified in the *Livable Community Blueprint for Cabarrus County*. Figure 5 illustrates these existing conditions and demonstrates the spatial relationships between them. A five minute walking radius surrounds each school, as these areas are especially important for accessibility and the safety of the children.

In the following section the Existing Conditions Map is used to determine opportunities and challenges inherent in Kannapolis's pedestrian environment. These in turn form the basis for recommendations and priorities in the Walkable Community Plan.

EXISTING PEDESTRIAN ROUTES WERE IDENTIFIED IN THE LIVABLE COMMUNITY BLUEPRINT FOR CABARRUS COUNTY THEY INCLUDE THE FOLLOWING:

- N. KANNAPOLIS CONNECTOR
- KANNAPOLIS ROUTES
- 3 MILE BRANCH CORRIDOR
- IRISH BUFFALO CREEK

THE PROPOSED GREENWAY TRAIL IS PART OF THE NC RESEARCH CAMPUS DEVELOPMENT AND CONNECTS WITH THE EXISTING 8TH STREET GREENWAY.



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FIG. 5 EXISTING CONDITIONS
WALKABLE COMMUNITY PLAN
CITY OF KANNAPOLIS, NORTH CAROLINA

LEGEND

- CITY LIMITS
- PROPOSED GREENWAY
- 8TH STREET GREENWAY
- IRISH BUFFALO CREEK CORRIDOR
- 3 MILE BRANCH CORRIDOR
- KANNAPOLIS ROUTE
- N. KANNAPOLIS CONNECTOR
- PARK
- 5 MIN. WALKING RADIUS
- PED./BIKE ACCIDENTS

Section 3

Corridor Identification



Major Pedestrian Corridors

Major pedestrian corridors in Kannapolis were identified through site visits and public surveys. Loop Road, Cannon Village, Baker's Creek Greenway and Park, and Village Park were indicated to be heavy and favorable pedestrian corridors. These areas all have pedestrian facilities such as sidewalks and sufficient separation between themselves and vehicles. Site visits revealed other pedestrian corridors such as streets with heavily used transit stops like Rainbow Drive. These often did not have sufficient pedestrian facilities, but were used for functions other than recreation such as a means of getting to work or other destinations.

Currently Loop Road is a major circulation route for vehicles and pedestrians around downtown Kannapolis. With the development of the NC Research Campus and continued development of the downtown, this route will become an even more critical route for Kannapolis. Lane Street is a heavily used entrance into downtown from the I-85 interchange and provides straight access into the heart of the City. Dale Earnhardt Boulevard is also a heavily traveled entry and exit route to the City, as well as part of the Dale Trail which connects Concord to the southeast. Dale Earnhardt Boulevard links many commercial areas to downtown and is continuing to be developed. Figure 6 illustrates major pedestrian corridors in the City.

Pedestrian Generators and Attractors

Pedestrian generators and attractors were identified through site visits and public surveys. Schools, parks, transit stops, neighborhoods, and commercial districts attract residents in most cities. This was apparent in Kannapolis as residents indicated, through the survey, that they would like to walk to destinations such as the grocery store, coffee shop, post office, church, and stores if facilities were safe and consistent. Major corridors serving these functions include Dale Earnhardt Boulevard, Cannon Boulevard, Main Street, Loop Road, as well as various collector streets. These routes provide important connections to these destinations, however residents identified these same corridors as being routes they feel most unsafe while walking or biking. Schools and parks are often not located on the major corridors and also pose a challenge to the City's pedestrian facilities, connectivity, and accessibility.

Connections and New Links

Routes which connect the diverse attractions in the City could better serve pedestrians by adopting more consistent pedestrian treatments. The major routes identified above (Dale Earnhardt Boulevard, Cannon Boulevard, Main Street, and Loop Road) should act as the framework of pedestrian connections with smaller collector streets filling in the gaps. Commercial activity is concentrated on these corridors and they provide the most direct access.

New links, particularly those connecting new growth areas such as southwestern Kannapolis, should be acknowledged and tied back into the larger pedestrian network. Areas in need of this include the new NC Research Campus, business and residential development in southwestern and eastern Kannapolis, as well as the many schools and recreational facilities.

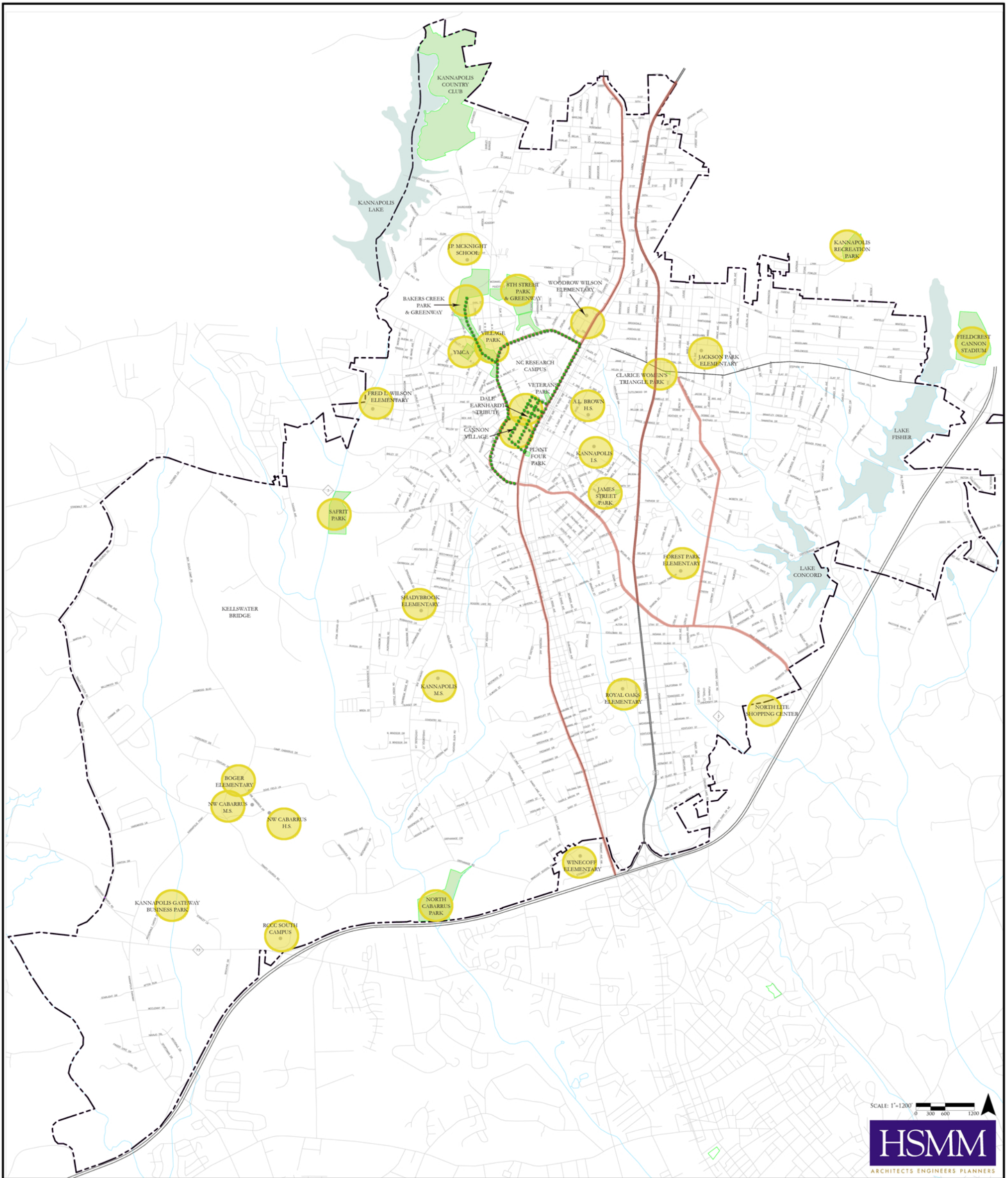


FIG. 6 PEDESTRIAN CORRIDORS & DESTINATIONS
WALKABLE COMMUNITY PLAN
CITY OF KANNAPOLIS, NORTH CAROLINA

LEGEND

- CITY LIMITS
- ROUTES RESIDENTS FEEL SAFE WALKING
- ROUTES RESIDENTS FEEL UNSAFE WALKING
- DESTINATIONS

Opportunities and Challenges

Opportunities

The City of Kannapolis has launched previous grassroots (*Weaving a Shared Future*) and regional (*Livable Community Blueprint for Cabarrus County*) efforts to improve the quality of life in the City. Results from the public surveys indicate there is also wide support for further efforts to improve the quality of the City's pedestrian environment.

Successful Pedestrian Environments

The Central Business District is already a frequent destination for residents with attractions such as Cannon Village and the Dale Earnhardt Tribute. With the construction of the new NC Research Campus this area will be even more attractive to residents and visitors. This center of the City is surrounded by Loop Road, a popular walking route, which provides access to area parks and greenways. Future plans outlined in the *Livable Communities Blueprint for Cabarrus County* will also contribute to the overall walkability and connectivity in the City. For example, the Irish Buffalo Creek Corridor will provide excellent connectivity through the western half of the City as well as access between Safrit Park and North Cabarrus Park. Additionally, this corridor will link new residential and commercial development in the area back to downtown.

New Growth and Development

Development occurring in the southwestern portion of the City along Kannapolis Parkway offers space for industrial, institutional, and residential uses. New construction has provided and proposed sidewalks, such as those connecting Kellswater Bridge development and Rogers Lake Road, as well as other pedestrian amenities. Dale Earnhardt Boulevard is also supporting new development and has incorporated some pedestrian facilities, such as sidewalks, in new construction. There is potential for all this new growth to incorporate design elements that will encourage and support a more walkable City.

As instructed by the City of Kannapolis Unified Development Ordinance (*Design Standards for Streets and Utilities*), sidewalks are required to be constructed on both sides of all new streets in a subdivision and streets providing access to the subdivision. Although a positive contribution to the overall walkability of the City, often this new construction results in gaps between facilities. Certain short lengths of sidewalk may need to be added to complete these improvements and provide continuity.

New Links

Routes on the north and eastern sides of the City provide important north - south connections as well as links between numerous schools, parks, and neighborhoods. Some of these routes have been identified in the *Livable Community Blueprint for Cabarrus County*, such as Jackson Park Road. There are some routes not identified by previous efforts and could support the goals of connectivity and a more walkable community, such as North Main Street above Cannon Village. These opportunities are illustrated in Figure 7.

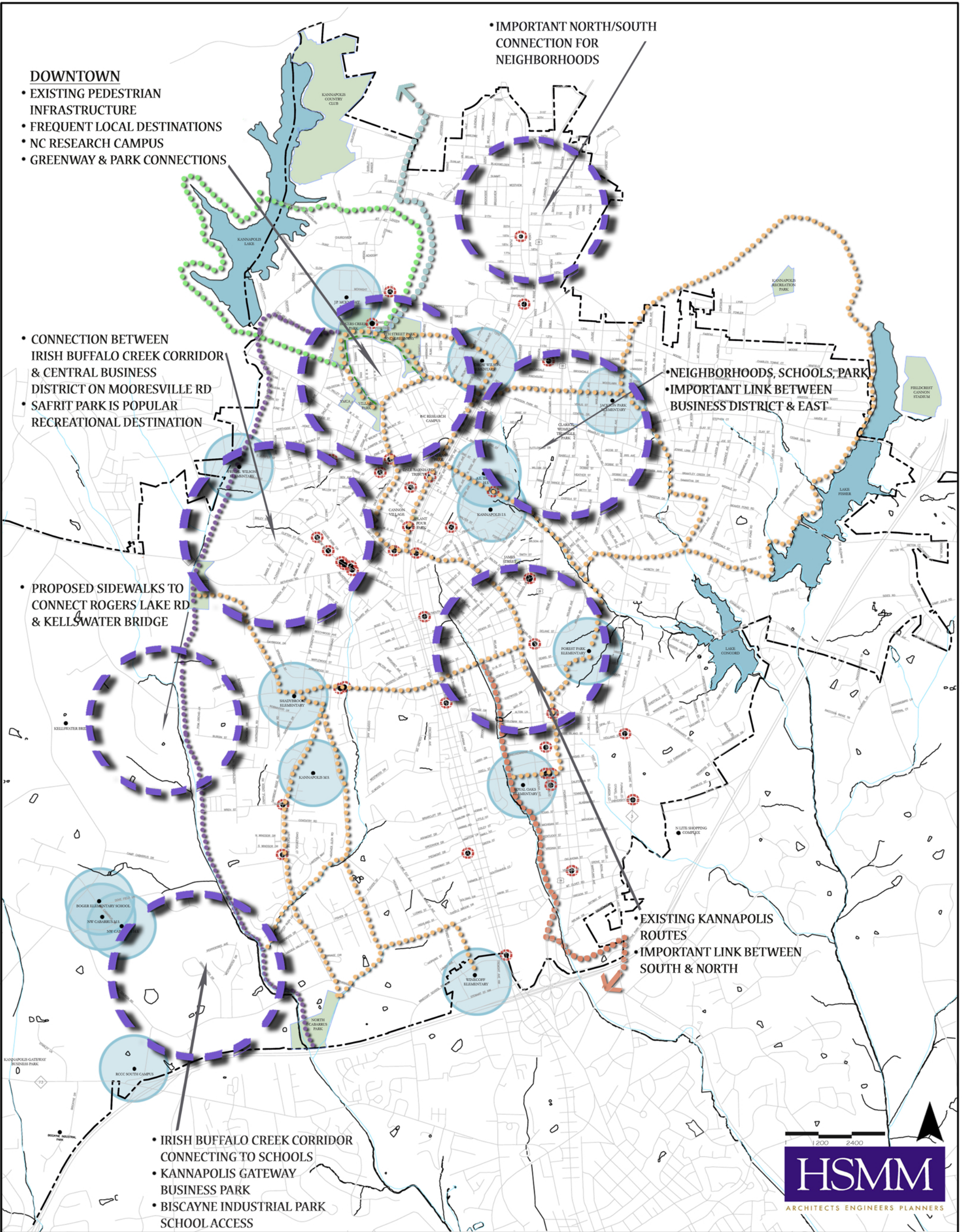


FIG. 7 EXISTING CONDITIONS: OPPORTUNITIES

WALKABLE COMMUNITY PLAN

CITY OF KANNAPOLIS, NORTH CAROLINA

Challenges

General challenges that must be met throughout the City of Kannapolis are the overall inconsistencies in pedestrian facilities, particularly the presence and conditions of sidewalks and crosswalks. Pedestrian facilities within existing routes identified in the *Livable Community Blueprint for Cabarrus County* are not consistent and often are not present at all. Finally, there is an overall lack of connectivity throughout the City due to these inconsistencies. Although areas of the City are more functional, such as the Central Business District, the overall quality of the pedestrian environment needs improvement. Figure 8 illustrates these challenges.

Pedestrian Accidents

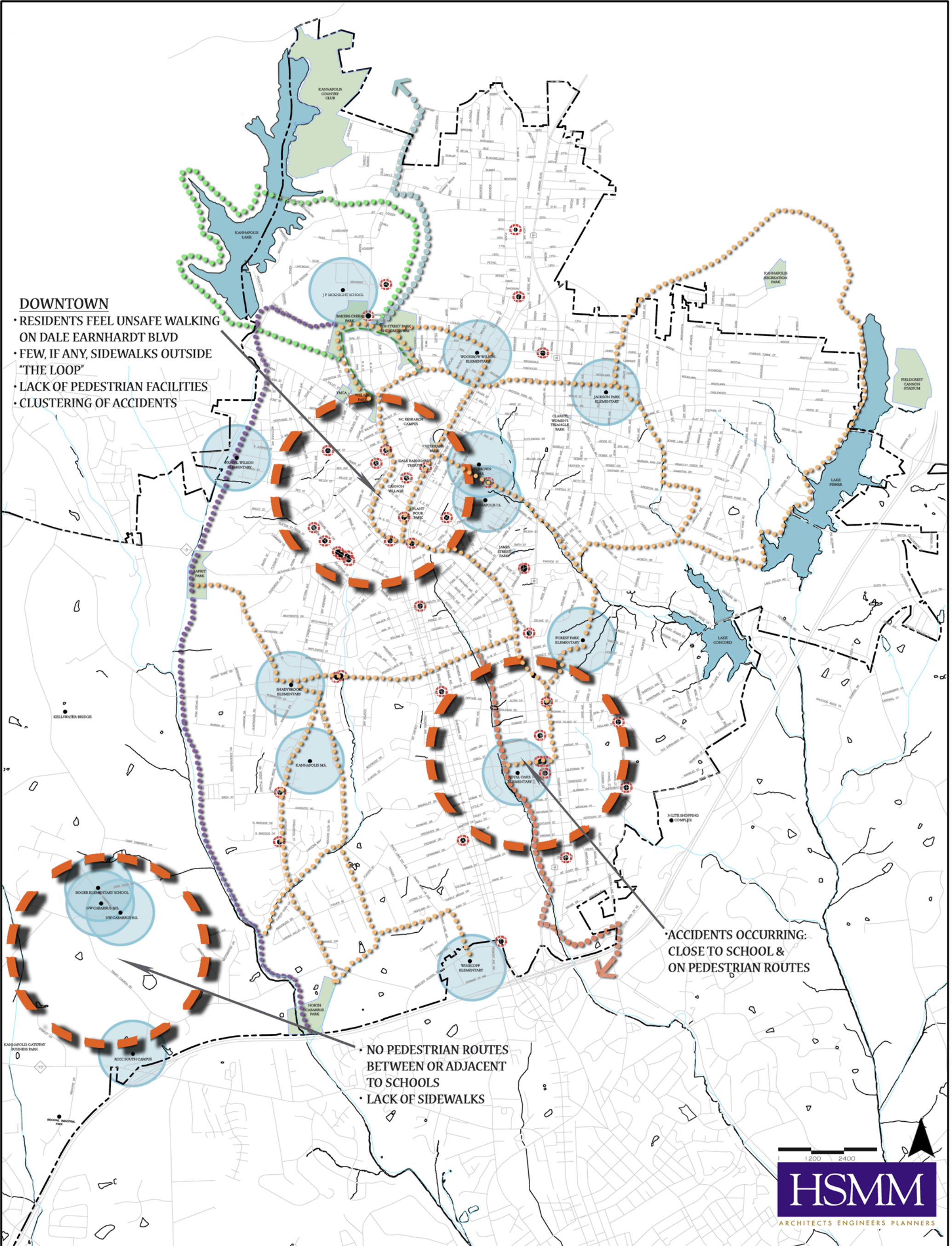
Overall, Kannapolis is a relatively safe City, however pedestrian and bicycle accidents do occur. Areas of most concern include Rainbow Drive between Mooresville Road and Leonard Avenue, all of South Cannon Blvd. (29), particularly between Summer Street and Michigan Street, and areas adjacent to and within Loop Road. Generally, areas where accidents have occurred have inconsistent or no pedestrian facilities and high speed traffic flow. This is of particular concern near schools, such as Royal Oaks Elementary, where there were multiple accidents within a five minute walking radius of the school. Areas or routes where accidents have occurred should be thoroughly evaluated and improved.

New Growth and Development

Currently there are no pedestrian routes between or adjacent to the three schools serving the western portion of Kannapolis. With the increased development in the area, particularly residential, it is necessary to address how neighborhood children can safely get to school. Although the new residential developments have interior sidewalks, it is necessary for the connecting routes, particularly Kannapolis Parkway, to link these neighborhoods safely. Vegetated buffers are essential for multi-lane and high traffic speed streets and should be considered as they tend to make pedestrians feel safe and less exposed to vehicles. Often these buffers and vegetated medians can also act as traffic calming techniques. Currently, new sidewalk construction is located flush with the top of curb and no separation is provided.

Pedestrian Safety

Overall pedestrian safety is a challenge in Kannapolis due to the lack of and condition of existing pedestrian facilities. Perception is also a challenge, as revealed in the public surveys where 79% of respondents felt pedestrian and bicycle facilities needed to be improved. Routes where residents feel most unsafe while walking include Loop Road, Little Texas Road, Main Street, North Cannon Boulevard, and Dale Earnhardt Boulevard. All of these routes either have no sidewalk or planting strip to provide separation between street and sidewalk. Some residents revealed they felt unsafe walking everywhere in the City. The perceptions expressed by the residents in response to the overall safety of the pedestrian environment indicate improvements need to be implemented.



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FIG. 8 EXISTING CONDITIONS: CHALLENGES

WALKABLE COMMUNITY PLAN
CITY OF KANNAPOLIS, NORTH CAROLINA

Section 4

Pedestrian System Plan



Overview

Following the assessment of existing facilities, current conditions, and public input of the pedestrian environment in the City of Kannapolis, it was necessary to identify the key challenges or issues to be addressed, as well as develop recommendations for existing and proposed pedestrian routes and facilities within the City. The key issues and challenges prevalent throughout the pedestrian environment in Kannapolis include the following:

- Inconsistent pedestrian facilities, such as a lack of separation between pedestrians and vehicles and inconsistencies in accessibility.
- Lack of signage and way finding cues.
- Connections to downtown.
- Target populations.
- Major thoroughfares and other pedestrian barriers.

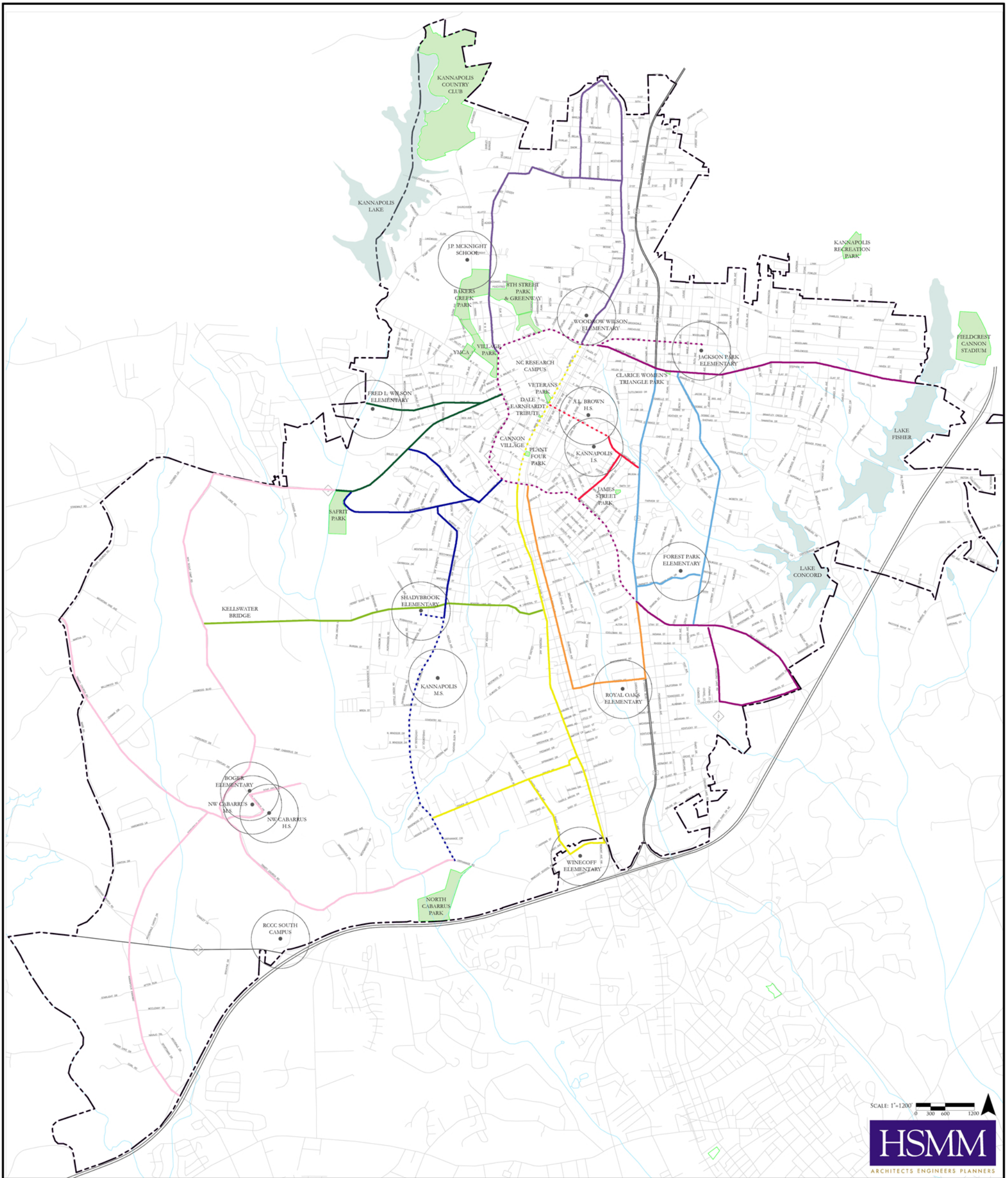
Route Identification

A series of pedestrian routes and connectors were developed in order to remedy inconsistencies in pedestrian facilities and ensure a coherent and usable pedestrian system throughout the City of Kannapolis. These routes are categorized into three layers: *major framework*, *greenways/off-street routes*, and *future connections*. Collectively these three (3) layers create the pedestrian system. Together they compose a pedestrian network that identifies walking routes to schools, parks, transit, neighborhoods, commercial districts and other pedestrian destinations. The pedestrian network identifies streets in greatest need of improvement and those which will have the greatest impact on pedestrian safety and accessibility. The ten (10) on-street routes create the Major Framework from which the additional two (2) layers relate (Fig. 9). There are three (3) routes and four (4) connectors that make up the Greenways/off-street layer (Fig. 10), and five (5) additional routes for Future Connections. Facility standards are recommended for each route or segments of routes. These routes are illustrated and described in detail on the pages to follow.

The pedestrian routes and connectors were developed based on the goals and objectives of the project, the key issues and challenges outlined above, and the following needs:

- Connect schools, transit, neighborhoods, the NC Research Campus, and commercial areas.
- Remedy areas of pedestrian and vehicular conflict (accident locations, multi-lane streets, etc.).
- Supplement existing pedestrian routes and bicycle routes.
- Provide safe routes across major barriers such as multi-lane streets and railroad tracks.
- Provide connections to bus stops and routes.

Streets not included in the pedestrian network may also be in need of improvements. Proposed standards and design guidelines for planning and designing pedestrian routes and facilities in Kannapolis are included in the Walkable Community Plan and should be applied to additional facilities within the City. Streets that are not included in the pedestrian network should still meet minimum safety and accessibility standards.



SCALE: 1"=1200'

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FIG. 9 PEDESTRIAN ROUTES
WALKABLE COMMUNITY PLAN
CITY OF KANNAPOLIS, NORTH CAROLINA

LEGEND

- PREVIOUSLY IDENTIFIED ROUTES*
- PROPOSED ROUTES
- CITY LIMITS
- N. KANNAPOLIS EXTENSION
- LOOP RD EXTENSION
- S. MAIN / FISHER ST CONNECTOR
- S. RIDGE / CANNON BLVD CONNECTOR
- ROGERS LAKE EXTENSION
- CANNON BLVD / LITTLE TEXAS CONNECTOR
- EAST 1ST ST CONNECTOR
- OAKWOOD AVE EXTENSION
- MOORESVILLE RD CONNECTOR
- W. KANNAPOLIS CONNECTOR

* IDENTIFIED IN THE LIVABLE COMMUNITY BLUEPRINT FOR CABARRUS COUNTY 2002.

On-Street Routes (Major Framework)

The ten on-street routes that create the Major Framework are described in detail in this section. They are as follows:

- Loop Road Extension (p. 4-2)
- North Kannapolis Extension (p. 4-5)
- Cannon Boulevard / Little Texas Connector (p. 4-7)
- S. Main / Fisher Street Connector (p. 4-10)
- East 1st Street Connector (p. 4-13)
- S. Ridge / Cannon Boulevard Connector (p. 4-16)
- Oakwood Avenue Extension (p. 4-19)
- Mooresville Road Connector (p. 4-22)
- Rogers Lake Extension (p. 4-25)
- West Kannapolis Connector (p. 4-28)

The *Loop Road Extension* consists of Lane Street, Loop Road, and Dale Earnhardt Boulevard and is approximately 9.5 miles long. Currently Loop Road is a major circulation route for vehicles and pedestrians around downtown Kannapolis. With the development of the NC Research Campus and continued development of downtown, this route will become a core route for Kannapolis. Lane Street is a heavily used entrance into downtown from the I-85 interchange and provides straight access into the heart of the City. Dale Earnhardt Boulevard is also a heavily traveled entry and exit route to the City, as well as part of the Dale Trail which connects Concord to the southeast. Dale Earnhardt Boulevard links many commercial areas to downtown and is continuing to be developed.

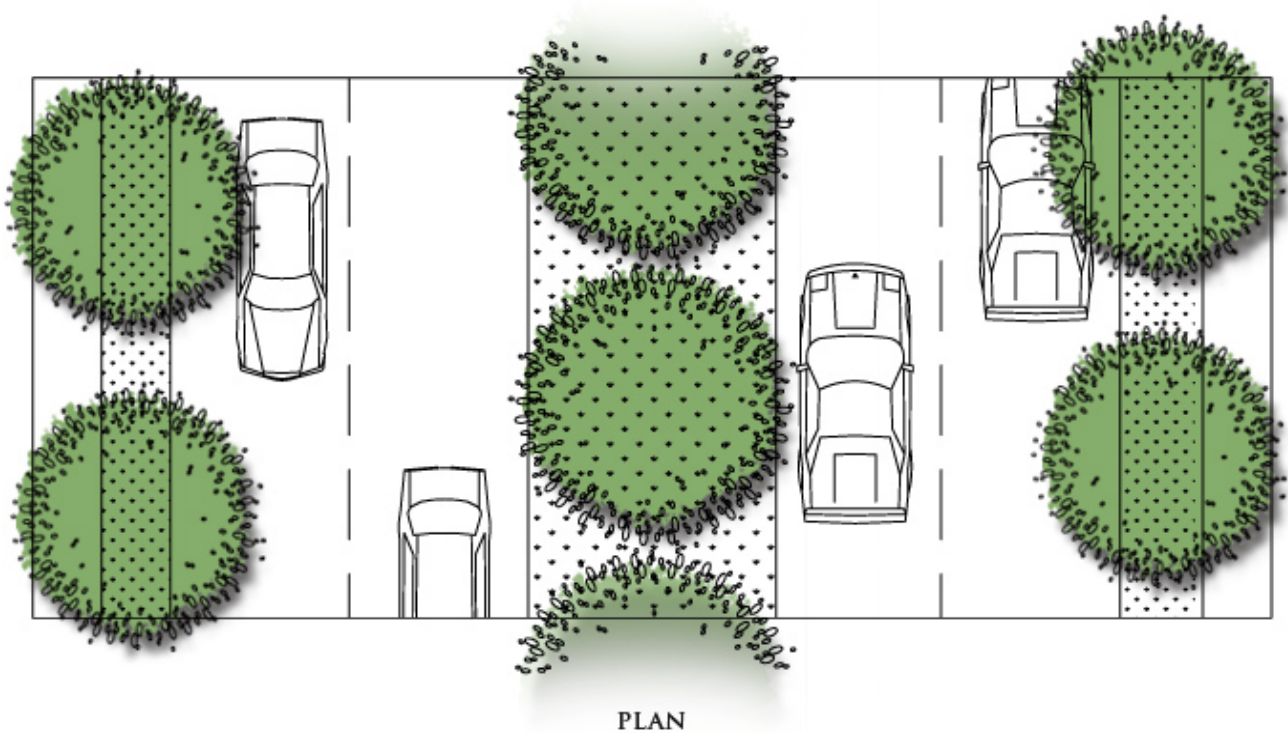
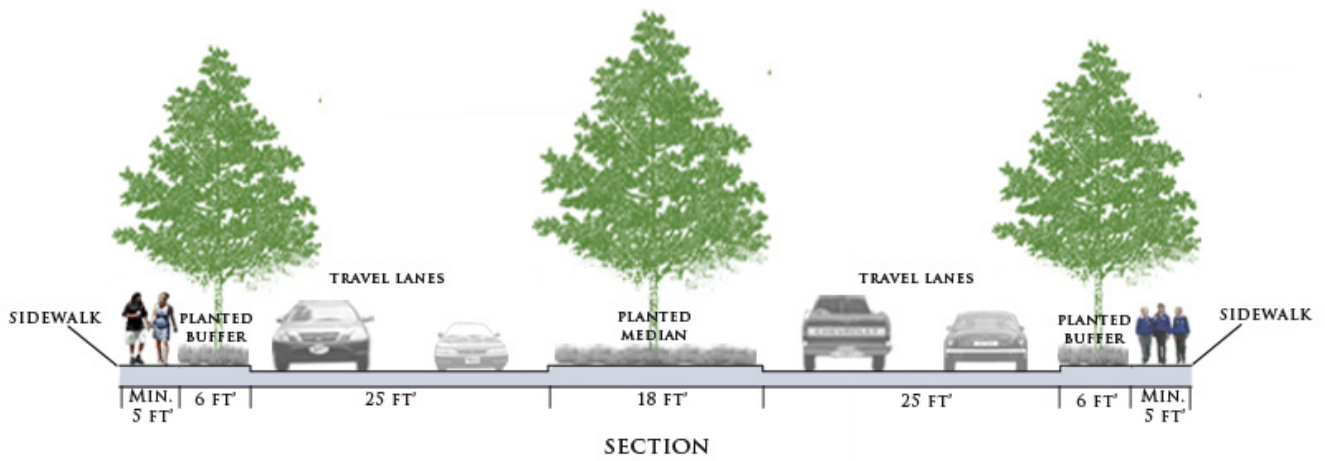
Currently, the pedestrian facilities along this route are inconsistent or non-existent with the exception of areas immediately adjacent to downtown. Portions of this route were identified in the *Livable Community Blueprint for Cabarrus County*, mostly on Loop Road. The extensions of Lane Street and Dale Earnhardt Boulevard will safely serve residential neighborhoods, major commercial areas to the east and south, downtown, the NC Research Campus, and Jackson Park Elementary School. It is also the intent of this route to provide safety improvements to the pedestrian connectivity across Cannon Boulevard.

Recommendations for this route include the following:

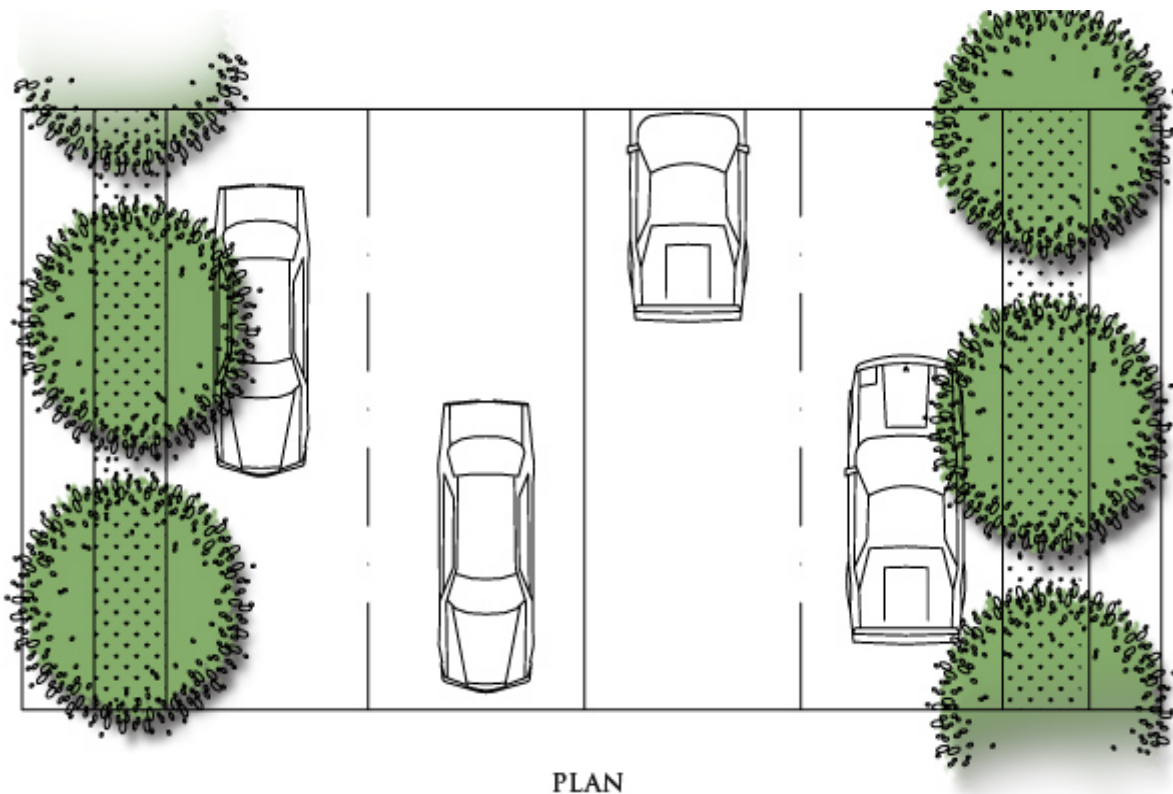
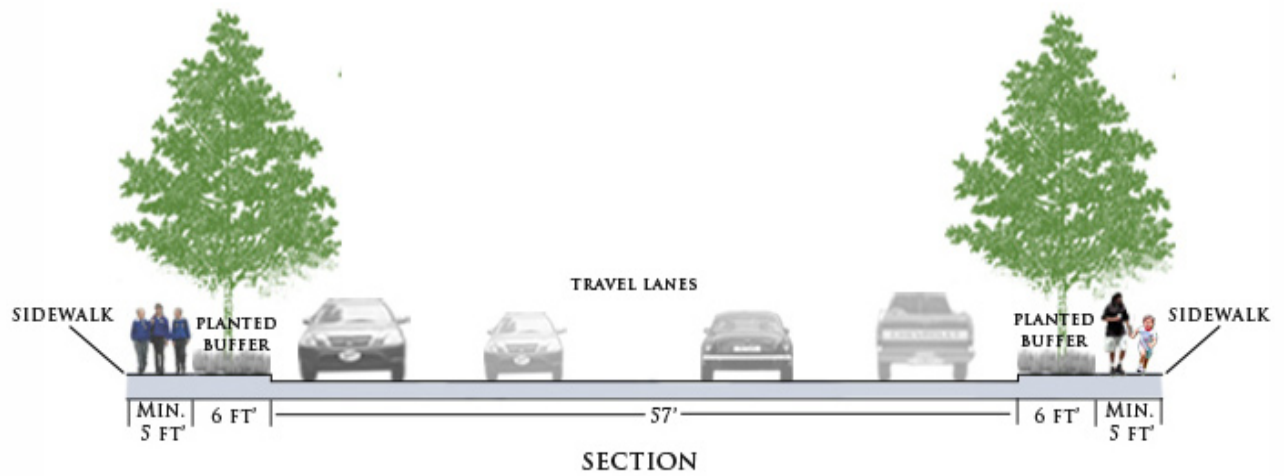
- Introduce traffic calming around Loop Road, Jackson Park Road, and Dale Earnhardt Boulevard near commercial areas through pavement pattern changes (decorative crosswalks, rumble strips, etc.) and vegetated medians where turning lanes are not necessary.
- Extend sidewalks on Dale Earnhardt Blvd. from Cannon Blvd to Roxie Street. (4,805 linear ft)
- Construct sidewalks at a minimum on one side of Lane Street until it intersects with Jackson Park Rd. (10,460 linear ft)
- Provide pedestrian signalization at all major intersections and bus stops.
- Install pedestrian refuge islands at these intersections to assist disabled, elderly, and young pedestrians cross the street safely.
- Re-stripe crosswalks on Lane Street.

The following street standards apply to the streets on this route.

FOUR-LANE DIVIDED STREET



FOUR-LANE UNDIVIDED STREET



The *North Kannapolis Extension* connects the northern part of the City with the rest of the City. This loop is recommended for the connectivity it provides to Loop Road, the NC Research Campus, Baker's Creek Park and Greenway, 8th Street Park and Greenway, J.P. McKnight School, as well as a nursing center, neighborhoods, and existing transit stops. Although located in a different NCDOT Division (Division 9) than the rest of Kannapolis, it would be beneficial to coordinate with Division 9 in an effort to better connect this portion with the downtown and the NC Research Campus.

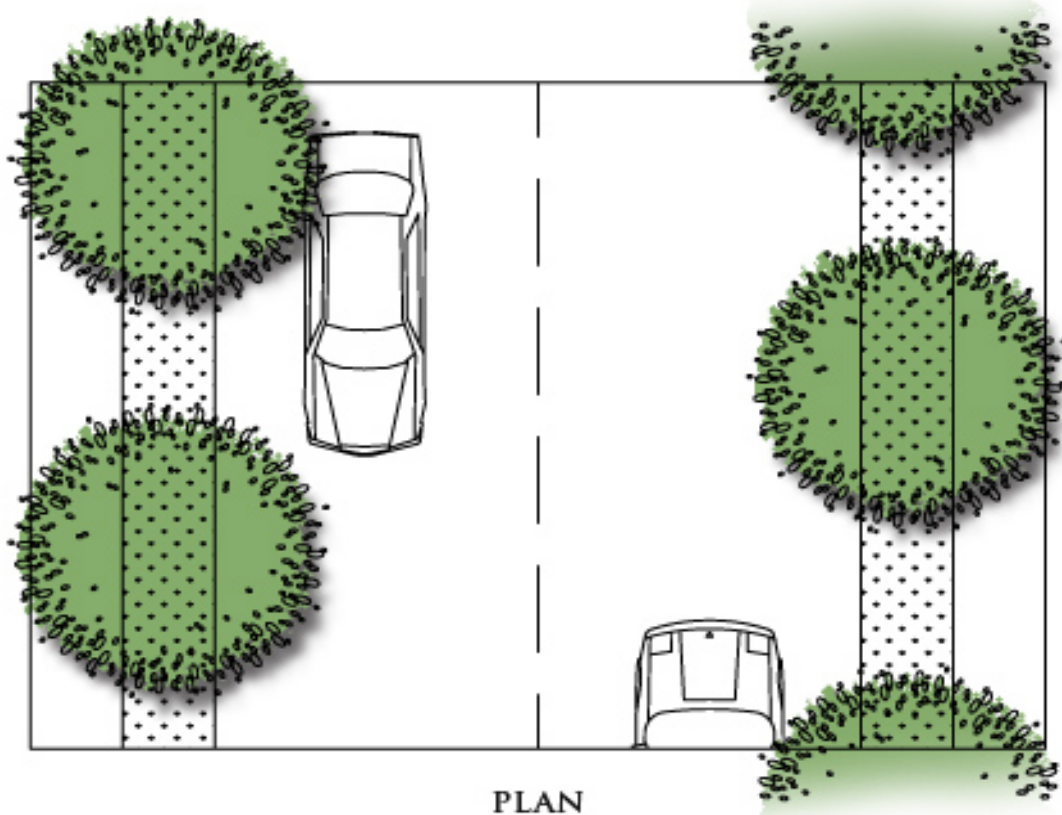
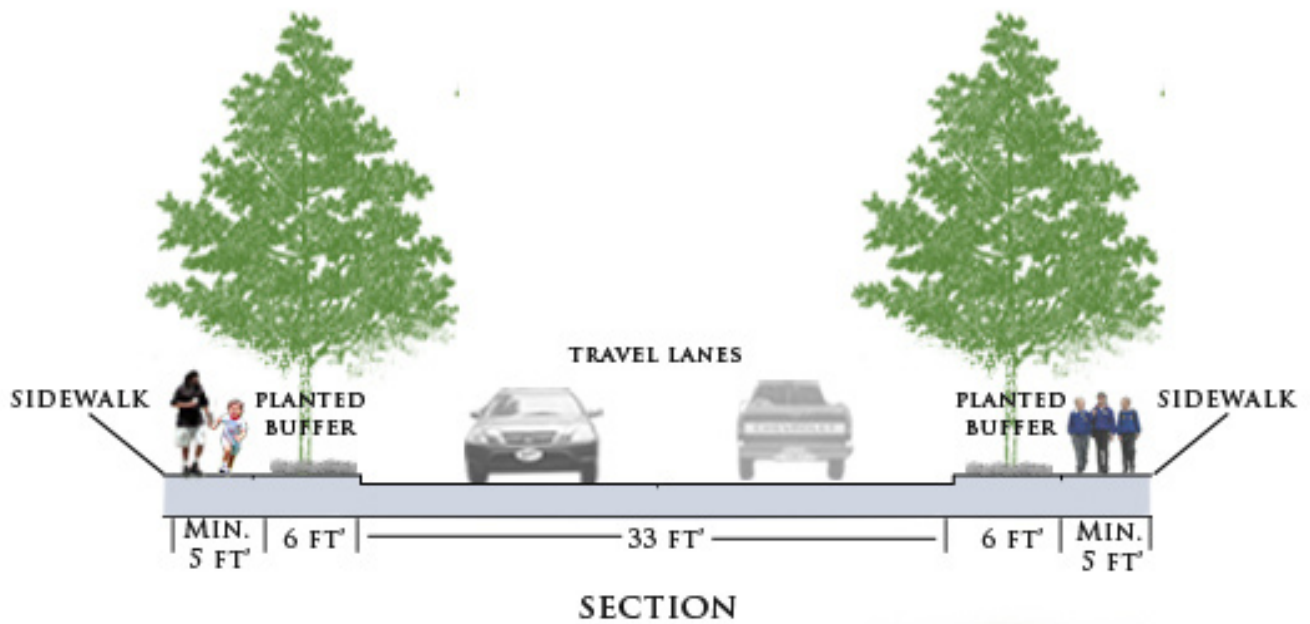
This route is approximately 9.5 miles long and currently no pedestrian facilities exist along this route, except for a sidewalk on the southern portion of Main Street to Kimball Street. This route serves an area in Kannapolis where there are lower income neighborhoods and residents who may not have ample access to private transportation and therefore rely on the pedestrian environment more heavily. There are 13 bus stops along this route.

Recommendations for this route include the following:

- Provide at a minimum sidewalks on one side of the street for pedestrian and vehicular separation along 22nd Street, West A Street, N. Main Street, Glendale Street.
- Pedestrian signalization and crosswalks at major intersections and bus stops, particularly the intersections with Loop Road and 22nd Street.
- Traffic calming techniques such as pavement changes, vegetation, and rumble strips at intersections with Loop Road.
- Pedestrian amenities at all bus stops on this route with a priority placed on the bus stop at Bakers Creek Park and the Nursing Center on West A Street.

The following street standard applies to the streets on this route.

TWO-LANE COLLECTOR STREET



The *Cannon Boulevard / Little Texas Connector* utilizes two main north-south routes on the east side of the City. This route is recommended as there is a need for safe pedestrian access across both streets. Cannon Boulevard services numerous commercial areas and is a multi-lane, high speed traffic road, while Little Texas Road is a two lane road with the potential for high speed traffic. Little Texas Road provides a less traveled, alternative north/south connection through Kannapolis. Both streets provide connection to Forest Park Elementary School.

This route is approximately 9 miles long and currently pedestrian facilities are inconsistent or non-existent on both of these streets. Cannon Boulevard has sidewalks, yet they are inconsistent, provide for little separation between vehicles and pedestrians, and afford few safe crossings. Little Texas Road currently has no sidewalks.

Recommendations for this route include the following:

Cannon Boulevard

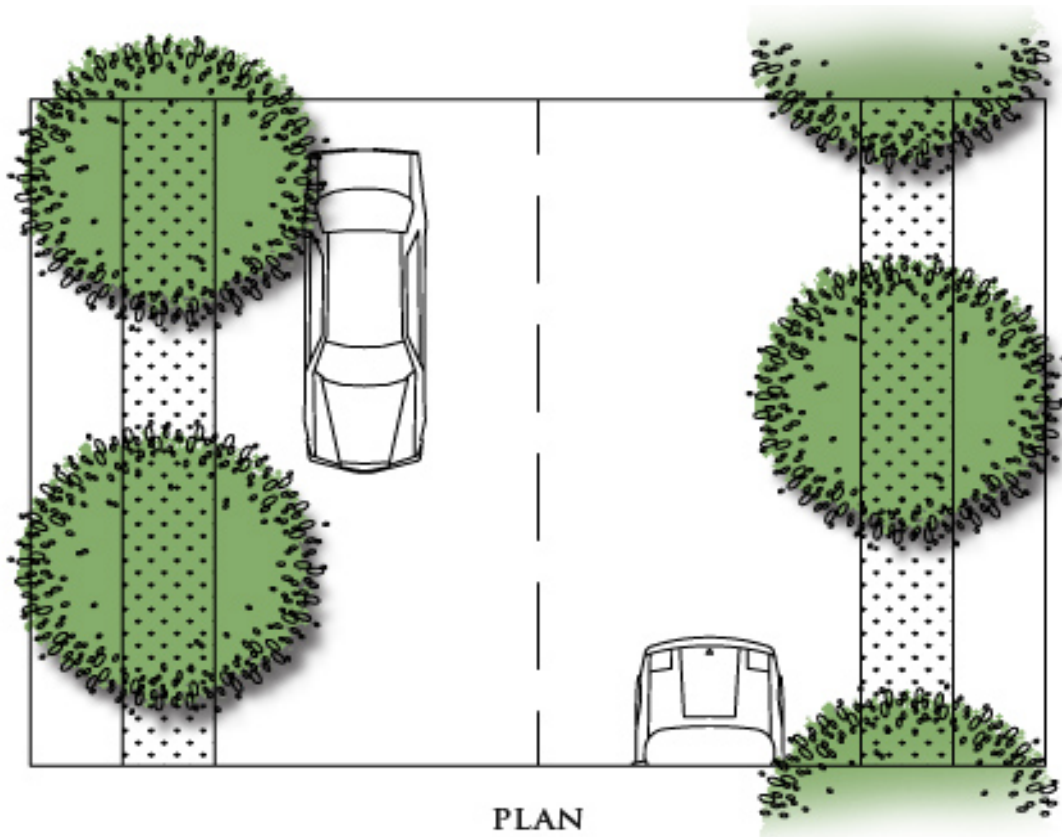
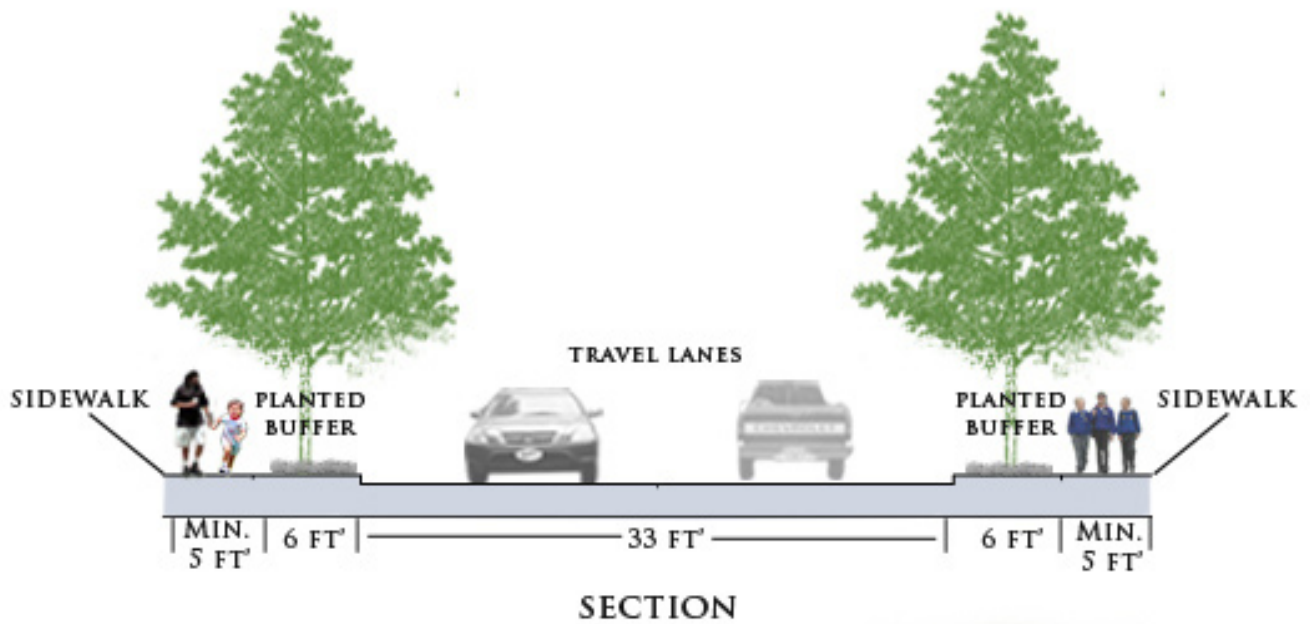
- Pedestrian signalization and crosswalks at all major intersections and bus stops.
- Pedestrian refuge islands at major intersections to assist disabled, elderly, and young pedestrians crossing the street safely.
- Vegetated median where turning lanes are not necessary.
- Traffic calming techniques such as pavement changes, vegetation, and rumble strips near commercial and heavily used pedestrian areas.

Little Texas Road and Jackson Park Road

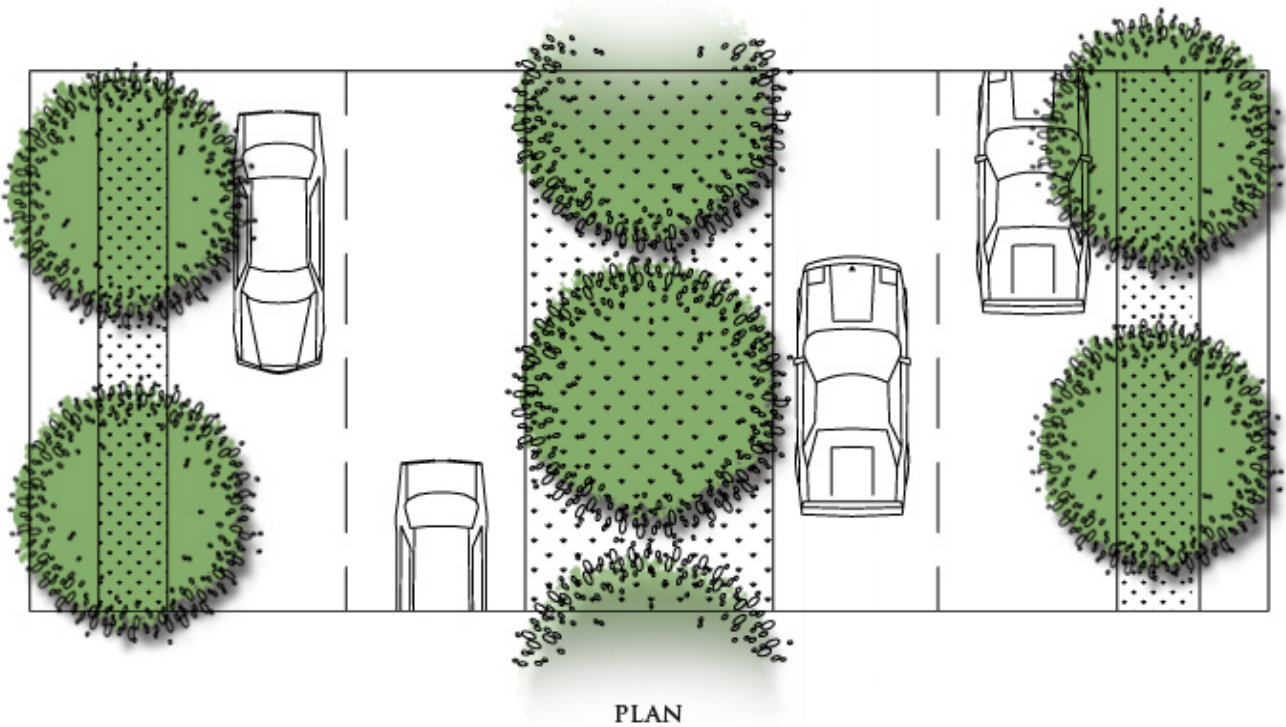
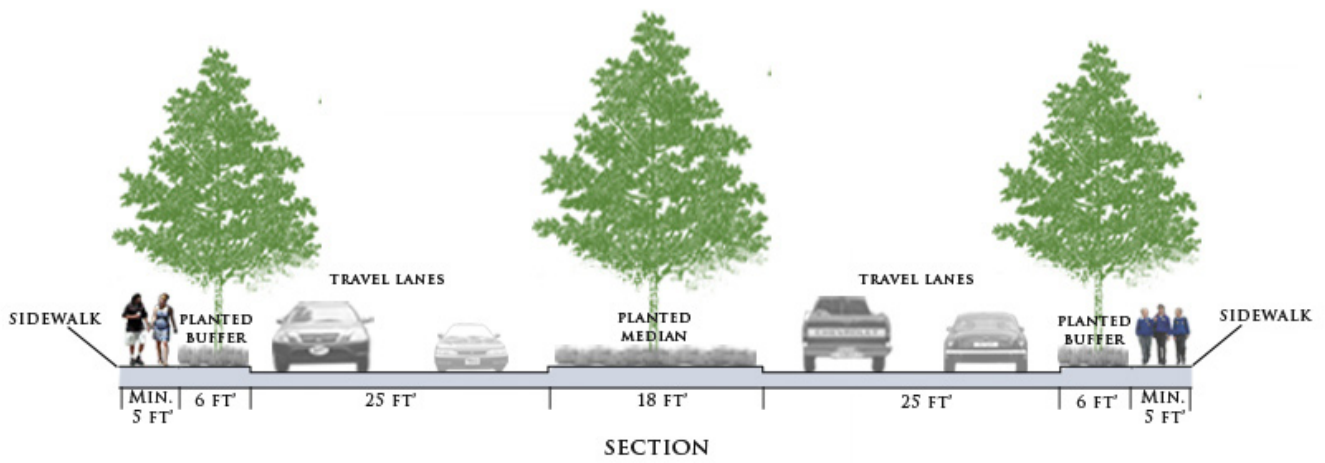
- Provide sidewalks at minimum on one side of the street.
- Pedestrian signalization and crosswalks at intersections with schools (Jackson Park Rd).
- Traffic calming techniques such as pavement changes, in-street signage, and crosswalks on Jackson Park Road at the elementary school.

The following street standards apply to the streets on this route.

TWO-LANE COLLECTOR STREET



FOUR-LANE DIVIDED STREET



The *South Main Street / Fisher Street Connector* provides a major north/south connection for the southern portion of the City to Loop Road, the NC Research Campus, and downtown. This route is also recommended for the connectivity it provides between Oakwood Avenue and South Main Street via Fisher Street, as well as to Winecoff Elementary School on Shady Lane Avenue.

This route is approximately 6 miles long and currently pedestrian facilities are inconsistent or non-existent. The commercial activity on South Main Street encourages pedestrian usage, however the street frontage is dominated by parking lots and entrance drives thereby creating a dangerous pedestrian environment with little or no separation between pedestrians and vehicles. No pedestrian facilities currently exist on Fisher Street.

Recommendations for this route include the following:

South Main Street

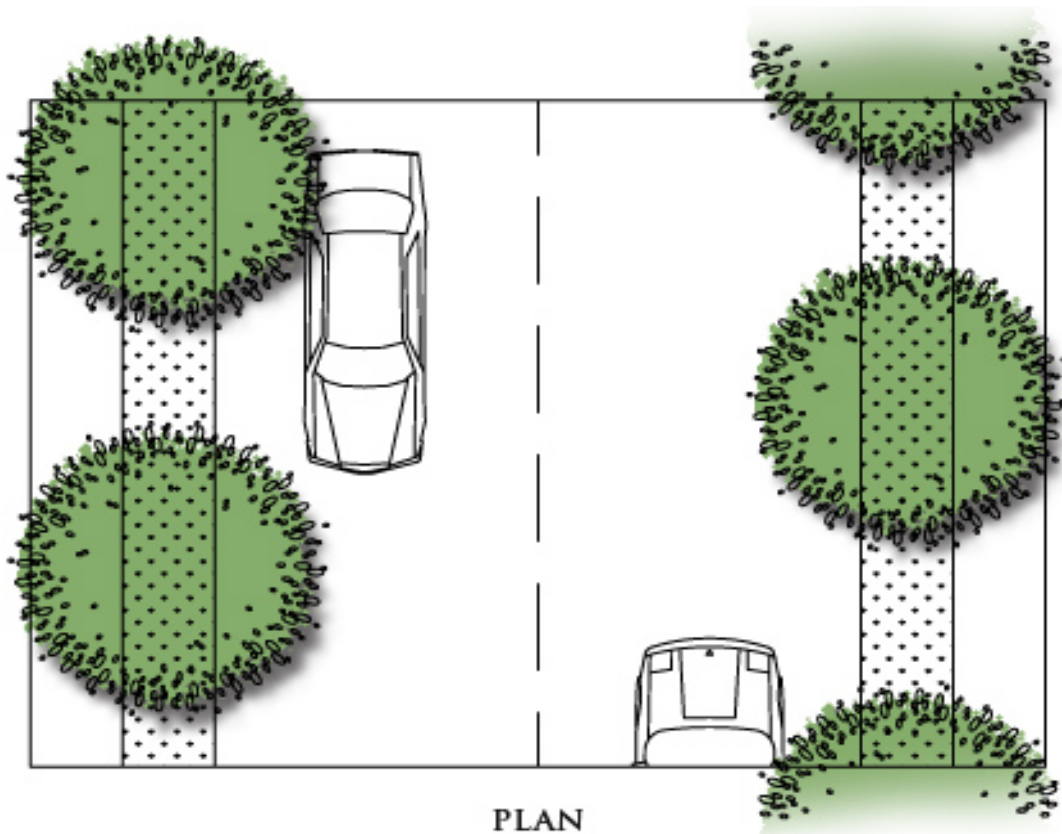
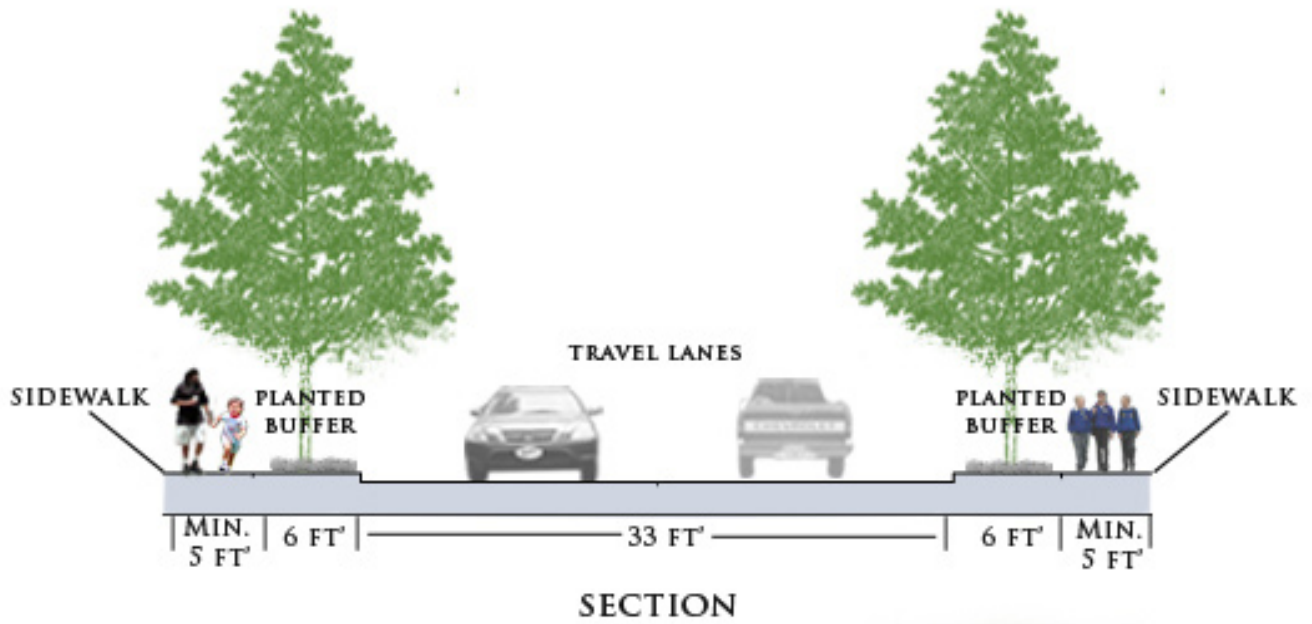
- Improve and delineate street frontage usage on S. Main Street and delineate space for pedestrians.
- Consider underground utility lines to maximize street frontage and space for pedestrians.
- Introduce pedestrian signalization and crosswalks at intersections, particularly at Bethpage Road and Loop Road.

Fisher Street

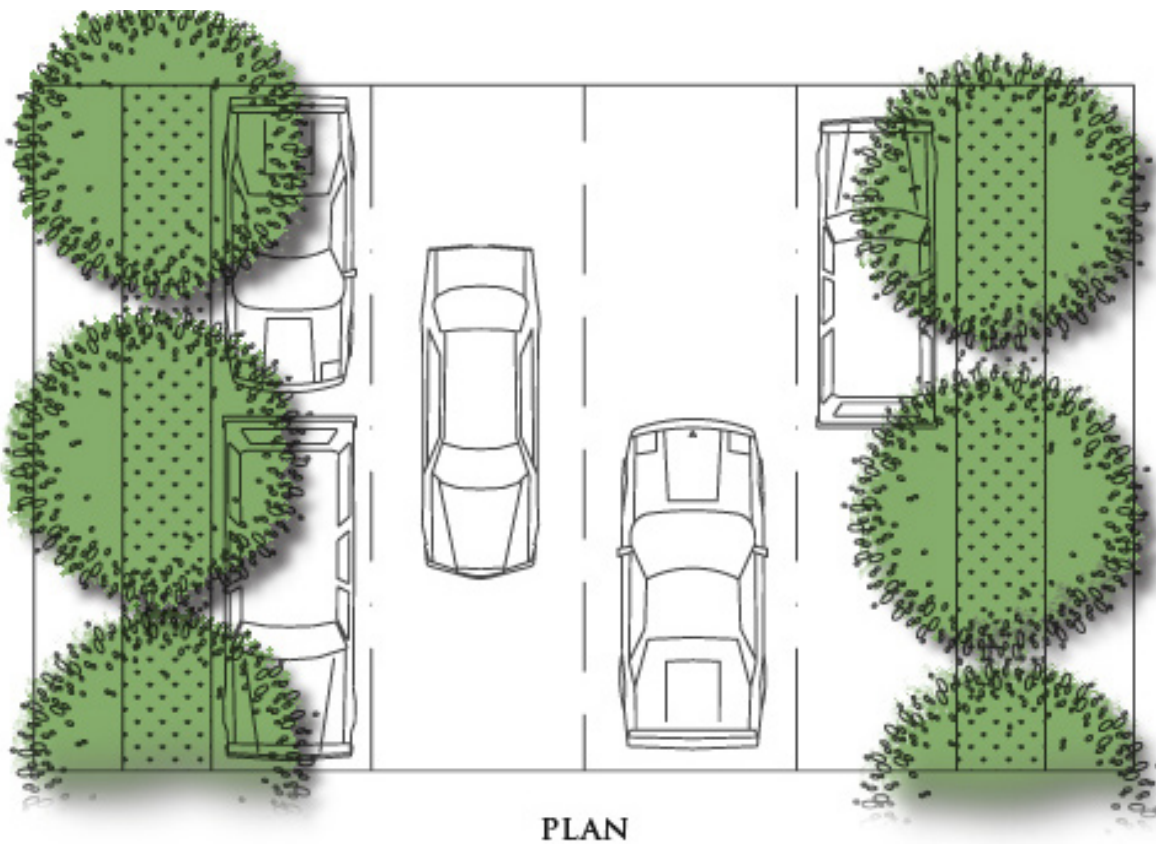
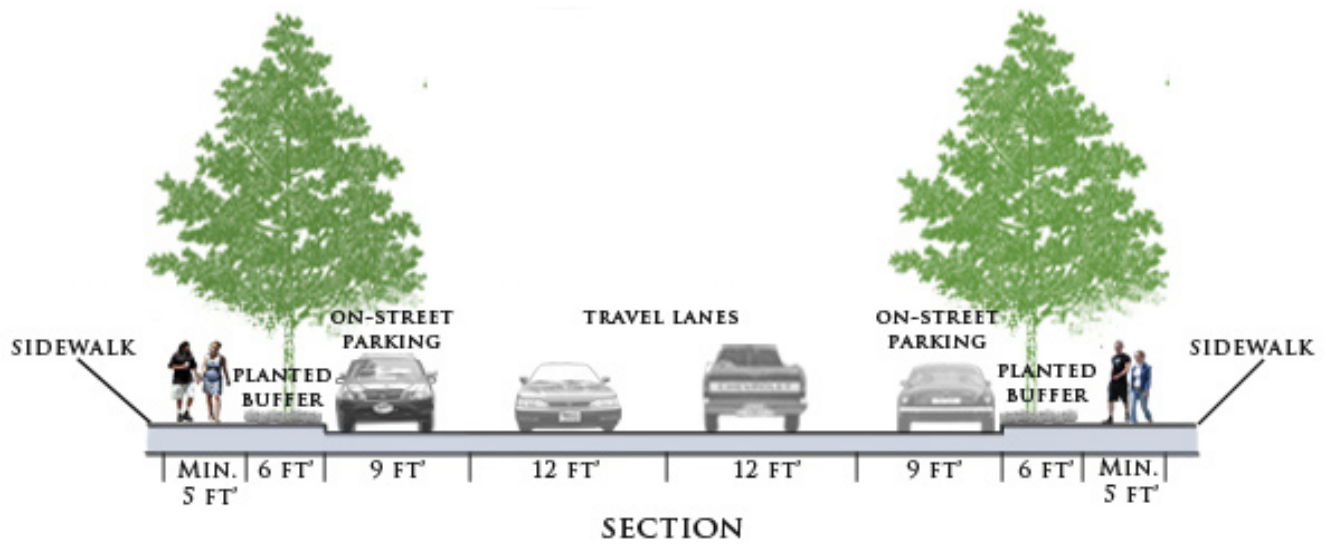
- Provide sidewalks at minimum on one side of Fisher Street and Shady Lane with crosswalks (i.e. Oakwood Avenue enhancements near Orphanage Circle).
- Introduce pedestrian signalization and crosswalks at intersections with Winecoff Elementary and Oakwood Avenue.

The following street standards apply to the streets on this route.

TWO-LANE COLLECTOR STREET



TWO-LANE STREET WITH ON-STREET PARKING



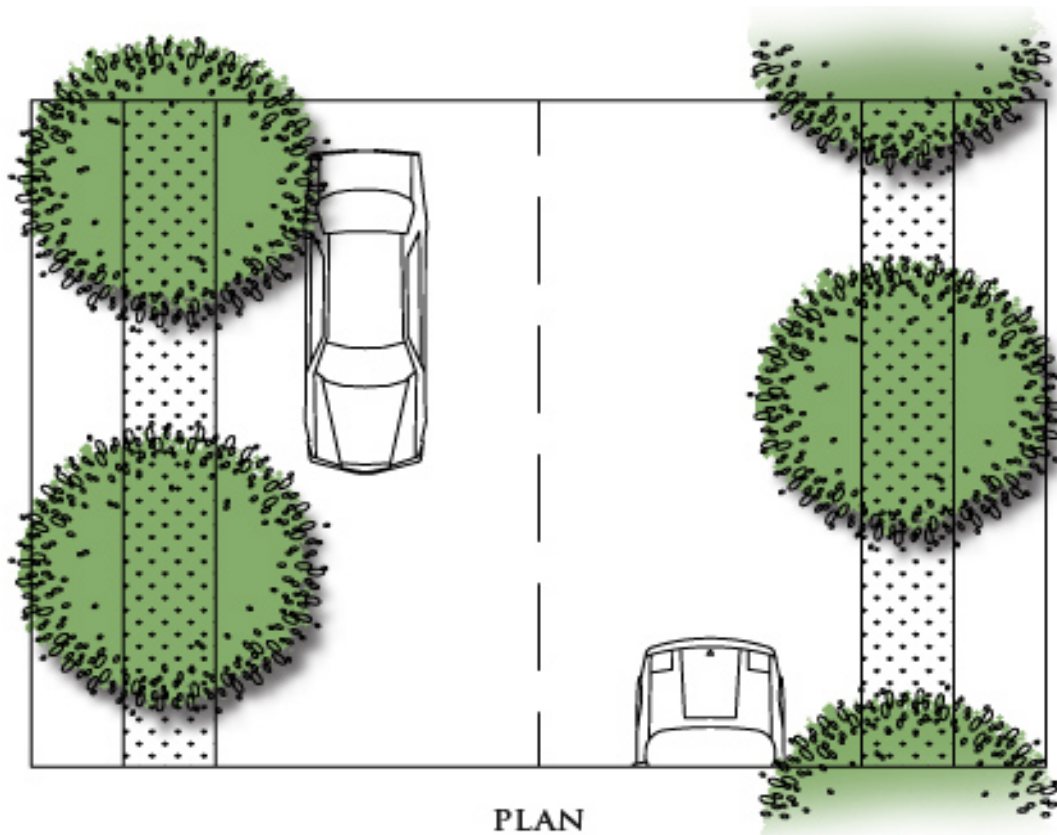
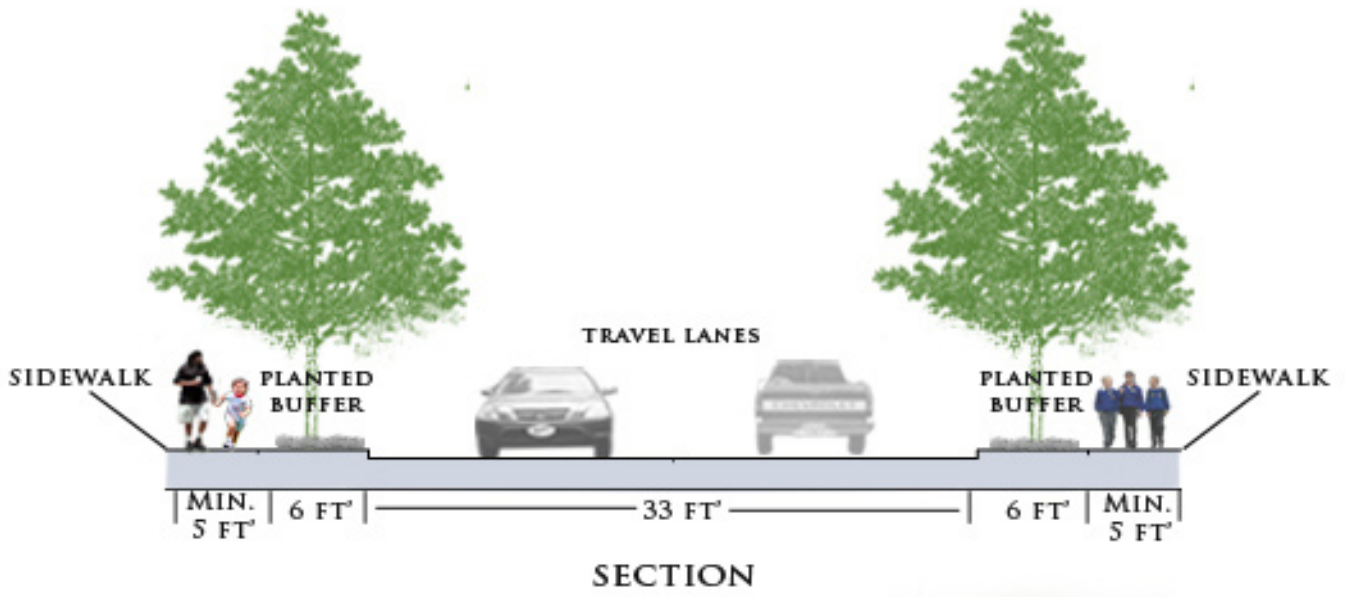
The *East 1st Street Connector* provides an interior pedestrian loop near downtown connecting Main Street, Dale Earnhardt Boulevard, the NC Research Campus and Cannon Village. This route is recommended to provide accessibility to Kannapolis Intermediate School and A.L. Brown High School, and as a connector from Cannon Boulevard to downtown via S. Harding Avenue, East 1st Street and to Dale Earnhardt Boulevard via Wood Avenue. This route is approximately 1 mile in length and pedestrian facilities currently exist along a portion of this route (sidewalks, crosswalks). Portions of this route were identified in the *Livable Community Blueprint for Cabarrus County*.

Recommendations for this route include the following:

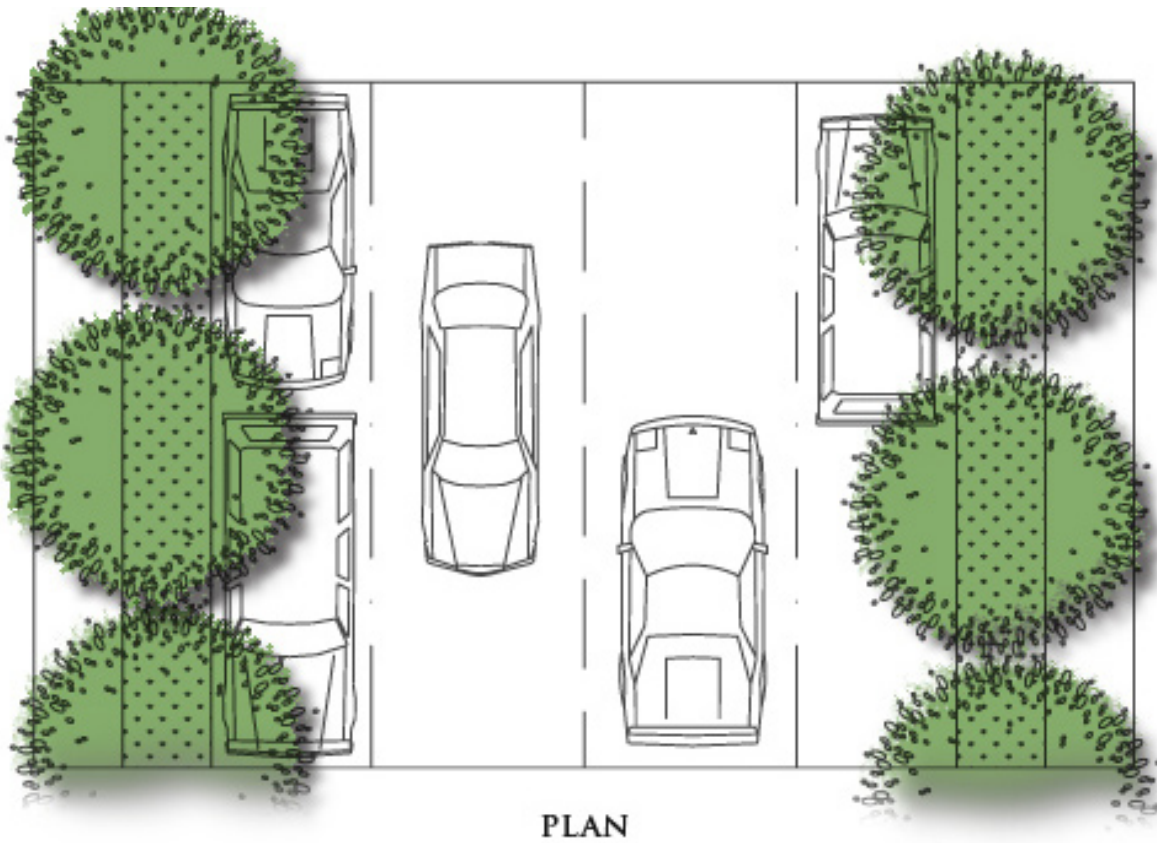
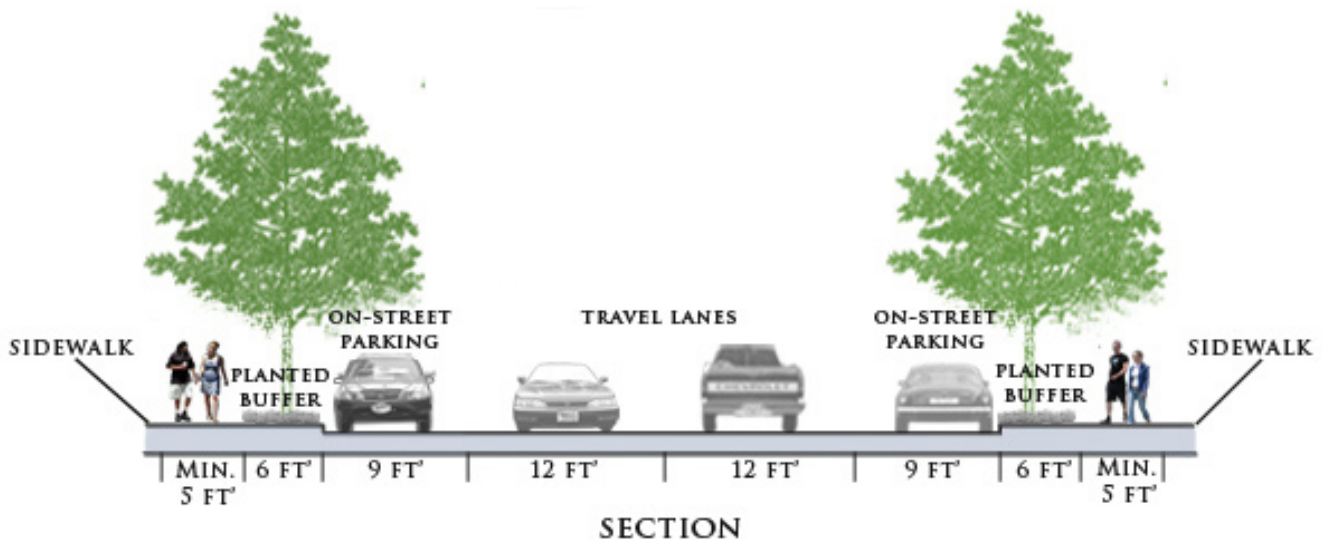
- Continue successful street treatments (S. Ridge Avenue’s planted separation, crosswalks, decorative paving, ADA accessibility) throughout entire route.
- Provide pedestrian signalization and crosswalks at A.L. Brown High School, Kannapolis Intermediate School and Dale Earnhardt Boulevard.
- Incorporate pedestrian signalization at S. Ridge Avenue and railroad track crossings.

The following street standards apply to the streets on this route.

TWO-LANE COLLECTOR STREET



TWO-LANE STREET WITH ON-STREET PARKING



The *South Ridge Avenue / Cannon Boulevard Connector* continues pedestrian access south along Cannon Boulevard from Dale Earnhardt Boulevard and provides an alternate to the South Main Street route along South Ridge Avenue. These routes are linked by Dakota Street, which also allows access to Royal Oaks Elementary School. This route is recommended as there is a need for safe pedestrian crossings across both streets, and at Royal Oaks Elementary School.

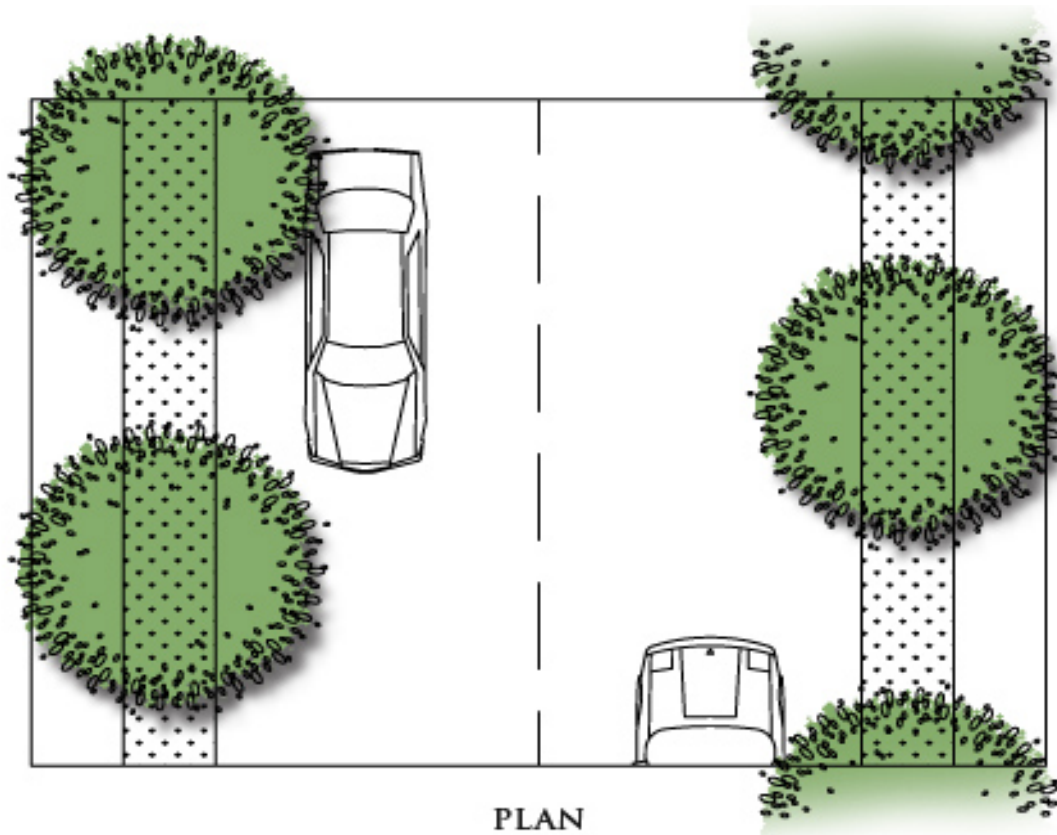
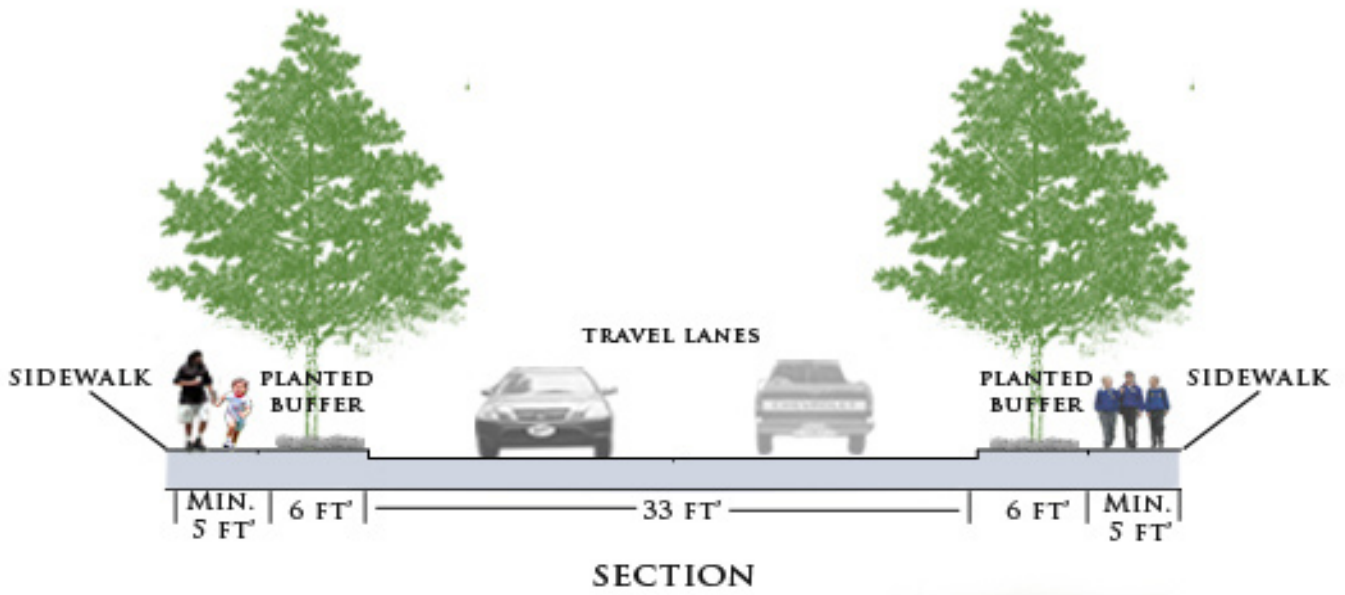
The route is approximately 3 miles in length and currently pedestrian facilities are inconsistent or non-existent. Cannon Boulevard has sidewalks, yet they are inconsistent, provide for little separation between vehicles and pedestrians, and afford few safe crossings. Roadway improvements (sidewalks, decorative crossings) have been completed on South Ridge Avenue in areas closer to downtown, and the opportunity exists to continue these treatments along South Ridge Avenue south of Dale Earnhardt Boulevard. Portions of this route were identified in the *Livable Community Blueprint for Cabarrus County*.

Recommendations for this route include the following:

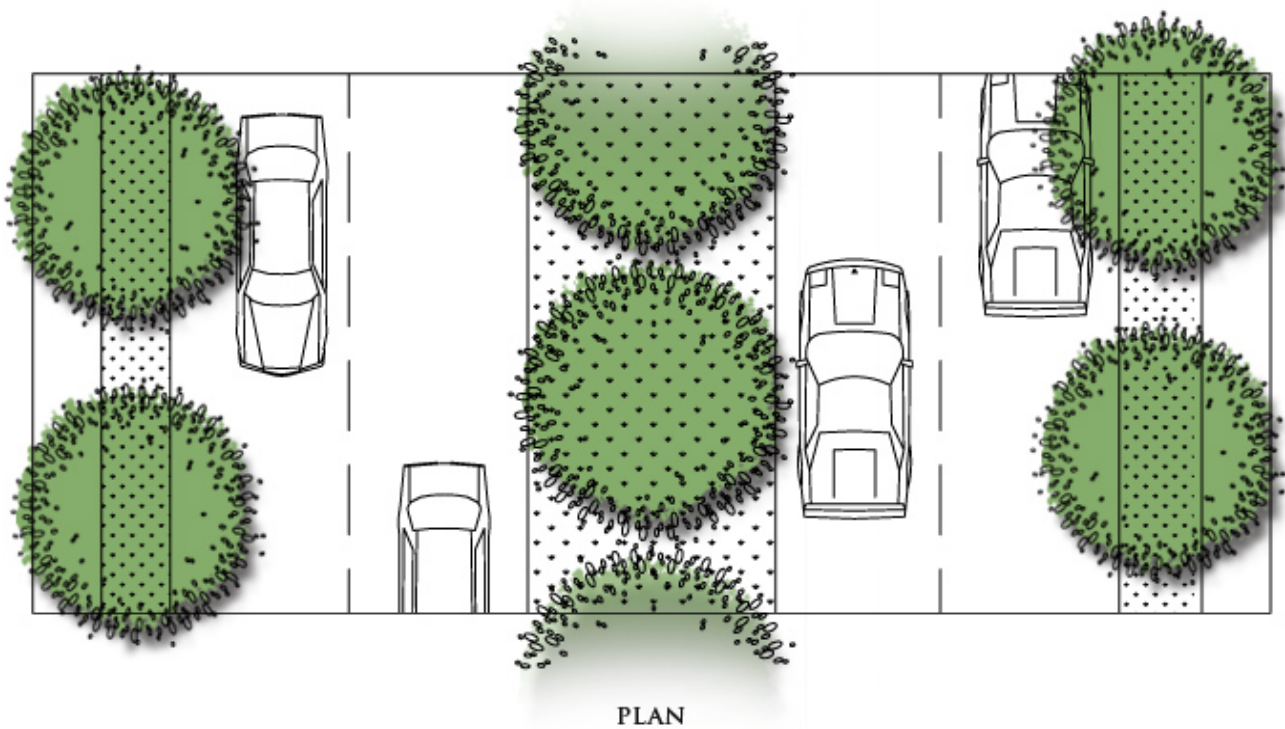
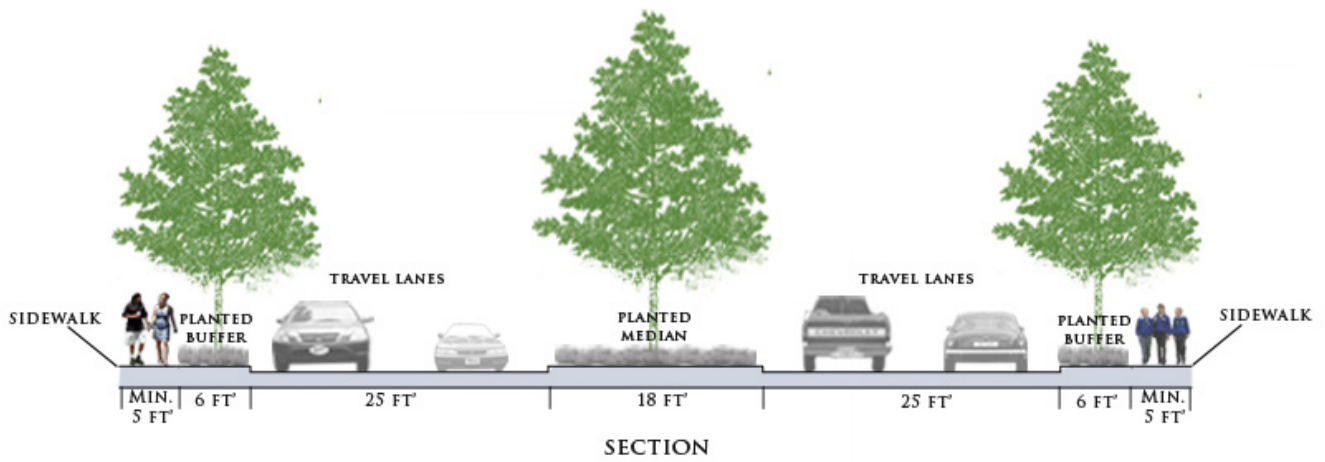
- Provide sidewalks at least on one side of the street along South Ridge Avenue and Dakota Street and provide crosswalks to connect sidewalks.
- Introduce pedestrian signalization and crosswalks at intersections along Cannon Boulevard and on Dakota Street at Royal Oaks Elementary School.
- Introduce traffic calming techniques such as pavement changes, in-street signage, and crosswalks on Dakota Street at Royal Oaks Elementary School.
- Provide sidewalks on both sides of Cannon Boulevard and pedestrian refuge islands at intersections with Dakota, Summer, Kansas Streets and Eddleman Road.

The following street standards apply to the streets on this route.

TWO-LANE COLLECTOR STREET



FOUR-LANE DIVIDED STREET



The *Oakwood Avenue Extension* continues a route that was identified in the *Livable Community Blueprint for Cabarrus County* and links North Cabarrus Park, Kannapolis High School, Shadybrook Elementary School, Safrit Park, downtown (The Loop) and the NC Research Campus. Extensions to the route include Rainbow Drive, Bethpage Road, and Leonard Avenue which will help serve high pedestrian traffic and lower income neighborhoods.

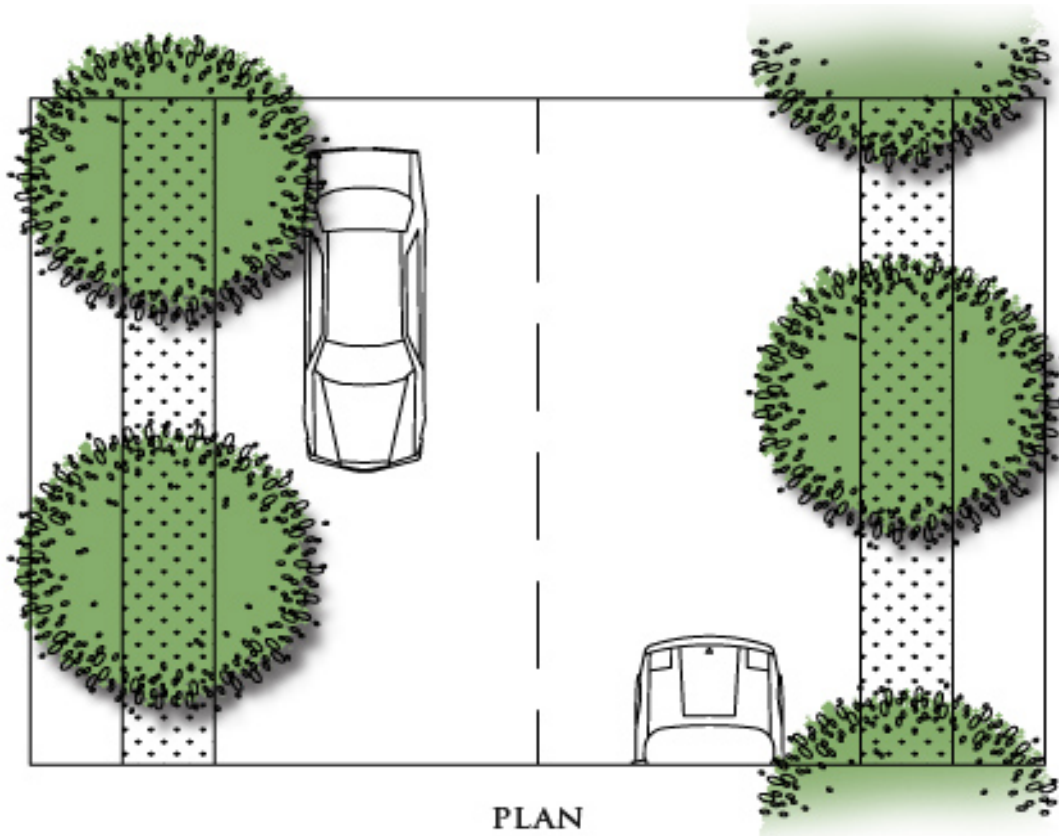
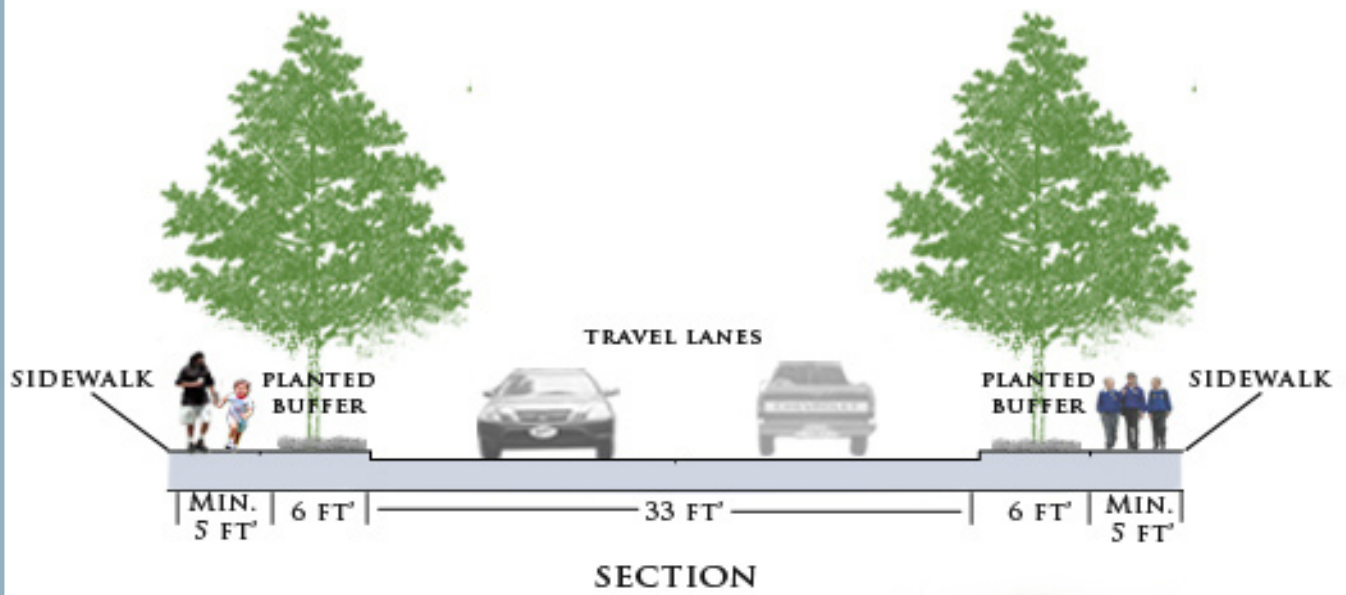
This route is approximately 5 miles in length and pedestrian facilities are currently inconsistent or non-existent. There is an opportunity to continue the recent street improvements (decorative crosswalks, sidewalks, planted buffer, safety graphics) along South Oakwood Avenue near North Cabarrus Park further north on South Oakwood Avenue to provide safe pedestrian facilities near the two schools. No pedestrian facilities currently exist on Rainbow Drive, which has high traffic speeds and low visibility, particularly at the intersection of Bethpage Road. This street is heavily used by pedestrians and has a number of active bus stops. There is a lack of crosswalks and signalization and no separation between pedestrians and vehicles is provided.

Recommendations for this route include the following:

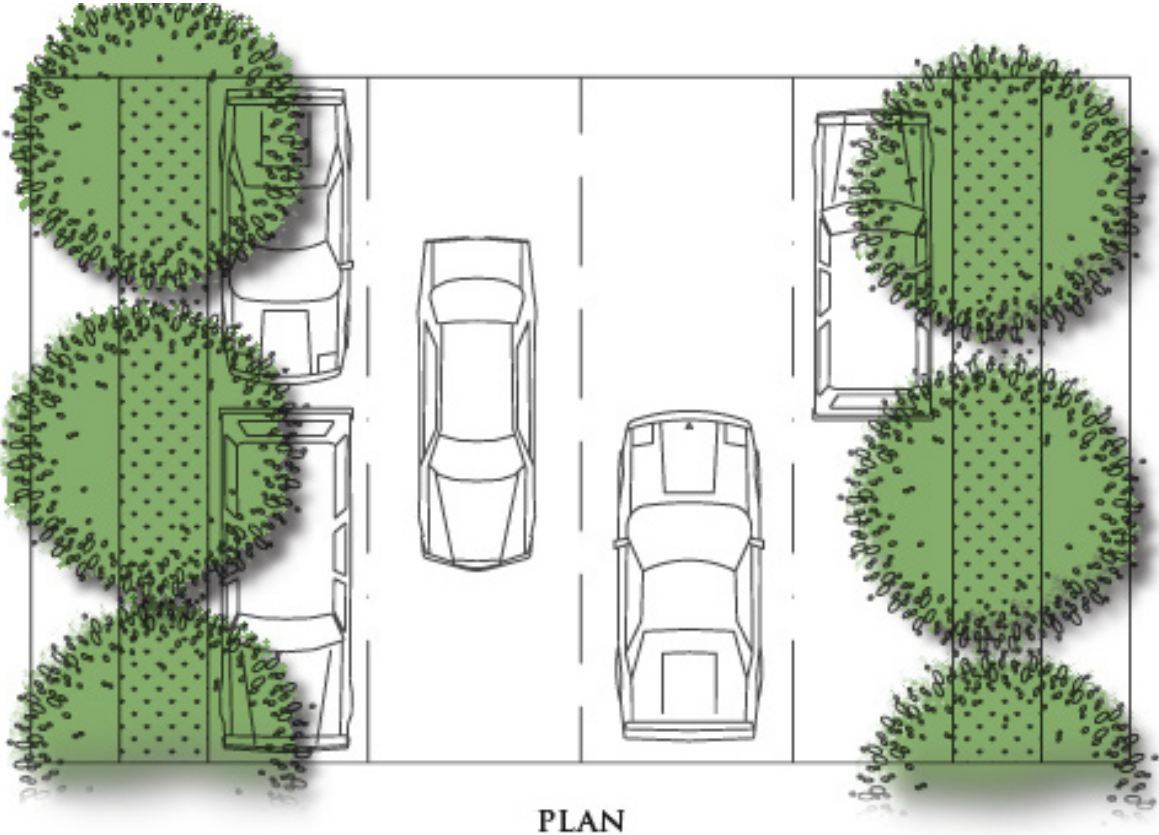
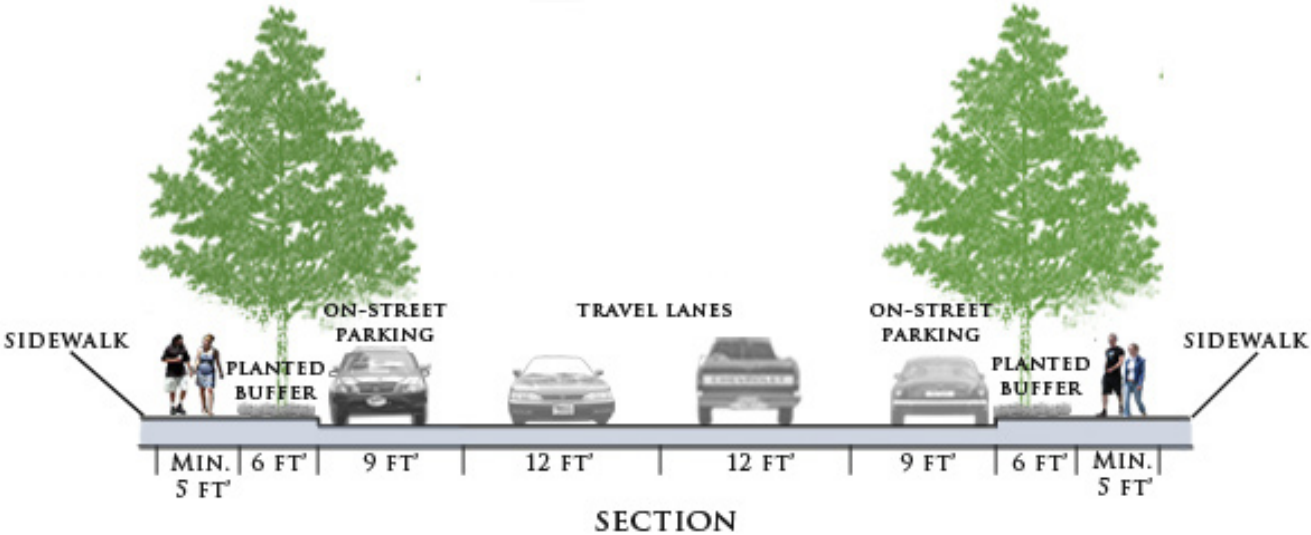
- Provide sidewalks on at least one side of the roadway with a planted buffer to increase pedestrian and vehicular separation along Oakwood Avenue, Bethpage Road, and Rainbow Drive.
- Introduce pedestrian signalization and crosswalks at intersections with Kannapolis Middle School, Bethpage Road, and Rainbow Drive.
- Provide pedestrian amenities at heavily used bus stops, especially on Rainbow Avenue.
- Re-design intersection of Rainbow Avenue, Bethpage Road and J Avenue to improve safety and visibility.
- Continue street improvements on Oakwood Avenue up to Bethpage Road.

The following street standard applies to the streets on this route.

TWO-LANE COLLECTOR STREET



TWO-LANE STREET WITH ON-STREET PARKING



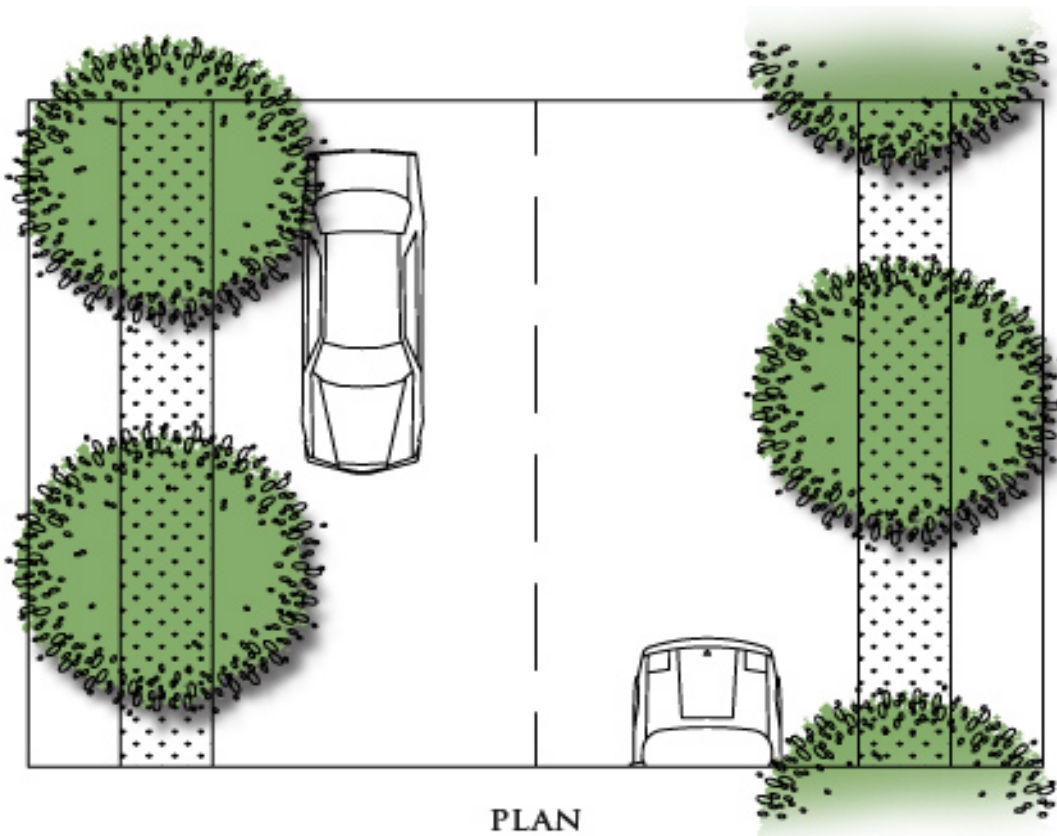
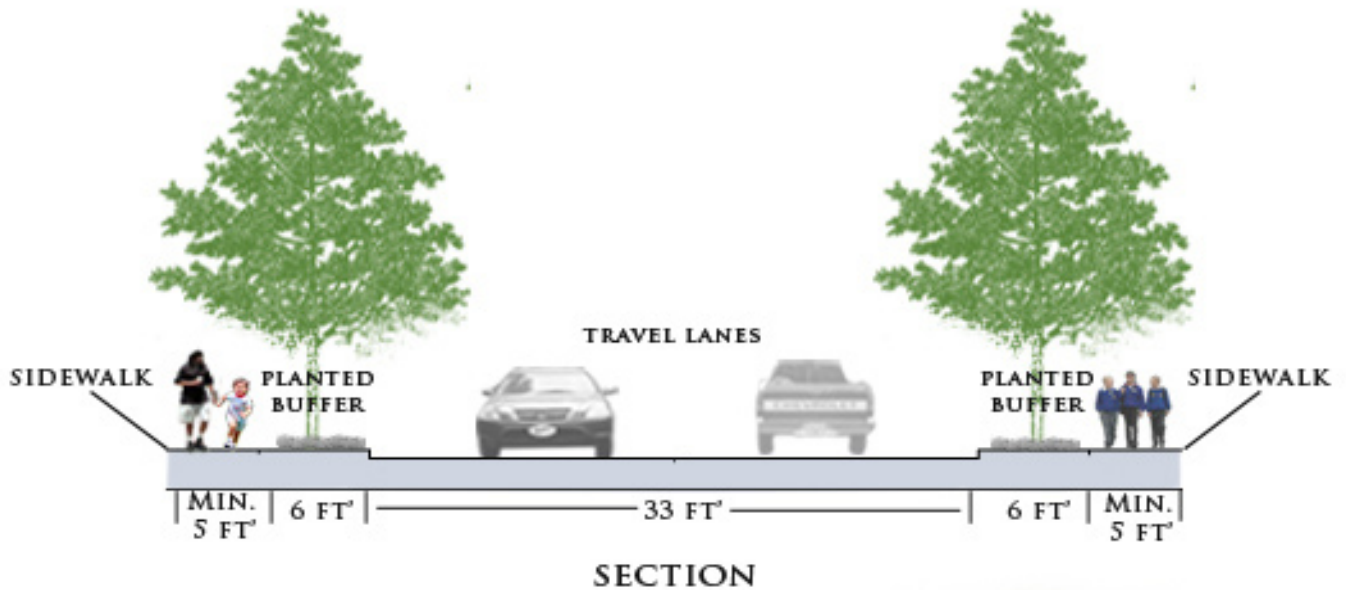
The *Mooreville Road Connector* is recommended to address the heavy development occurring to the west of downtown and provide a direct western connection to Loop Road and the NC Research Campus. This route also provides connectivity to Fred L. Wilson Elementary School, Safrit Park and the proposed Irish Buffalo Creek Greenway. This route is approximately 2.5 miles in length.

Recommendations for this route include the following:

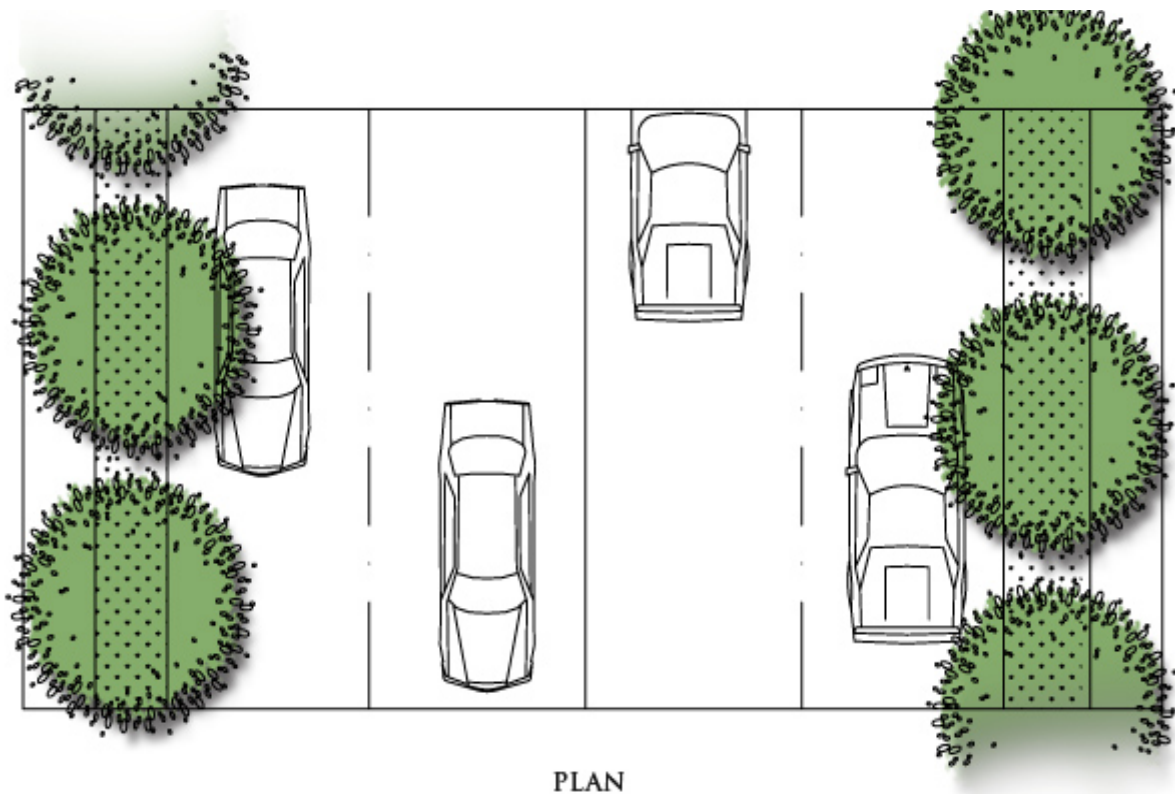
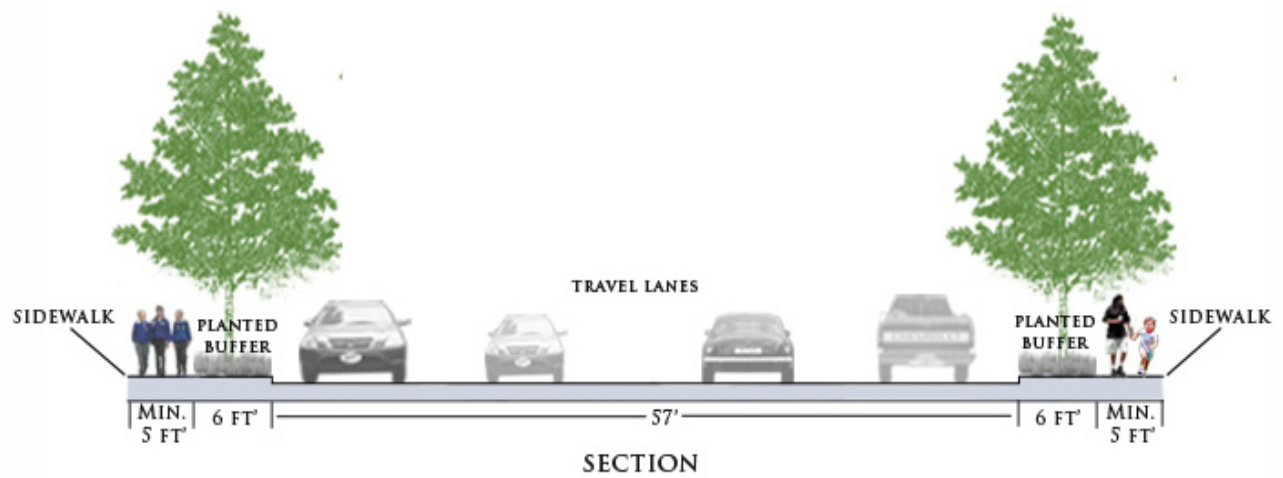
- Provide sidewalks with planted buffer on at least one side of the roadway to provide pedestrian and vehicular separation.
- Introduce pedestrian signalization and crosswalks at intersections with Fred . Wilson Elementary School, Loop Road, and Safrit Park.
- Introduce pedestrian amenities at bus stops.

The following street standards apply to the streets on this route.

TWO-LANE COLLECTOR STREET



FOUR-LANE UNDIVIDED STREET



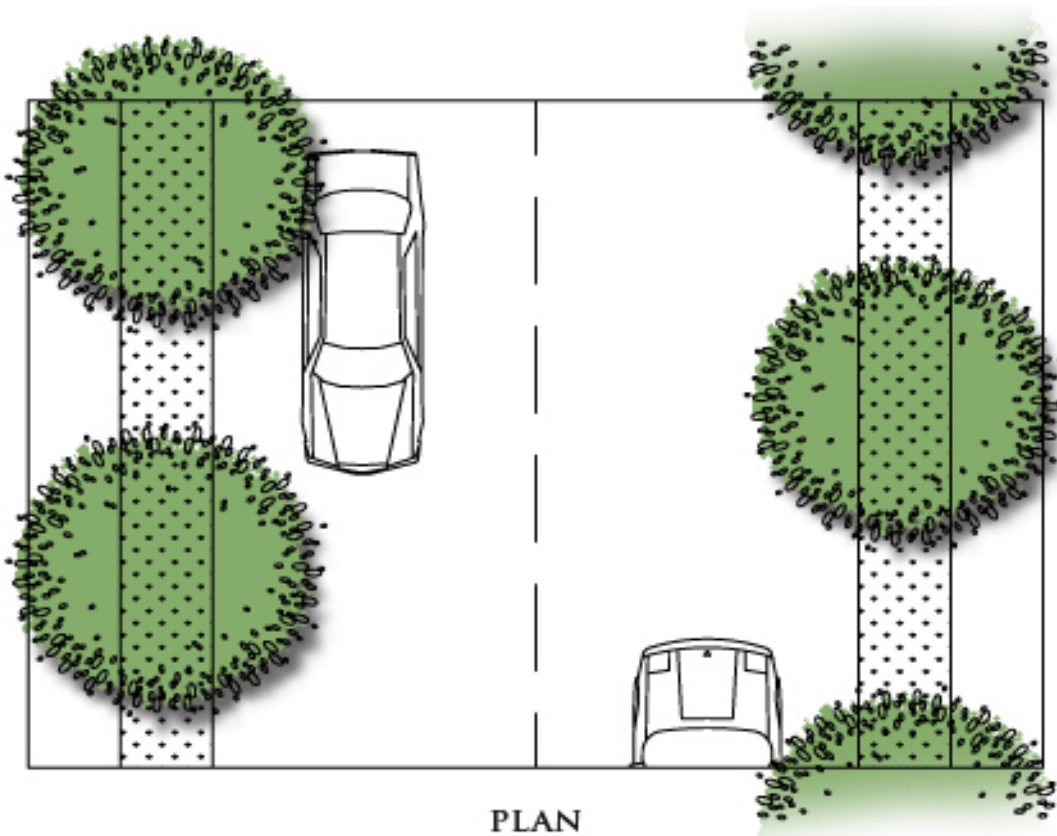
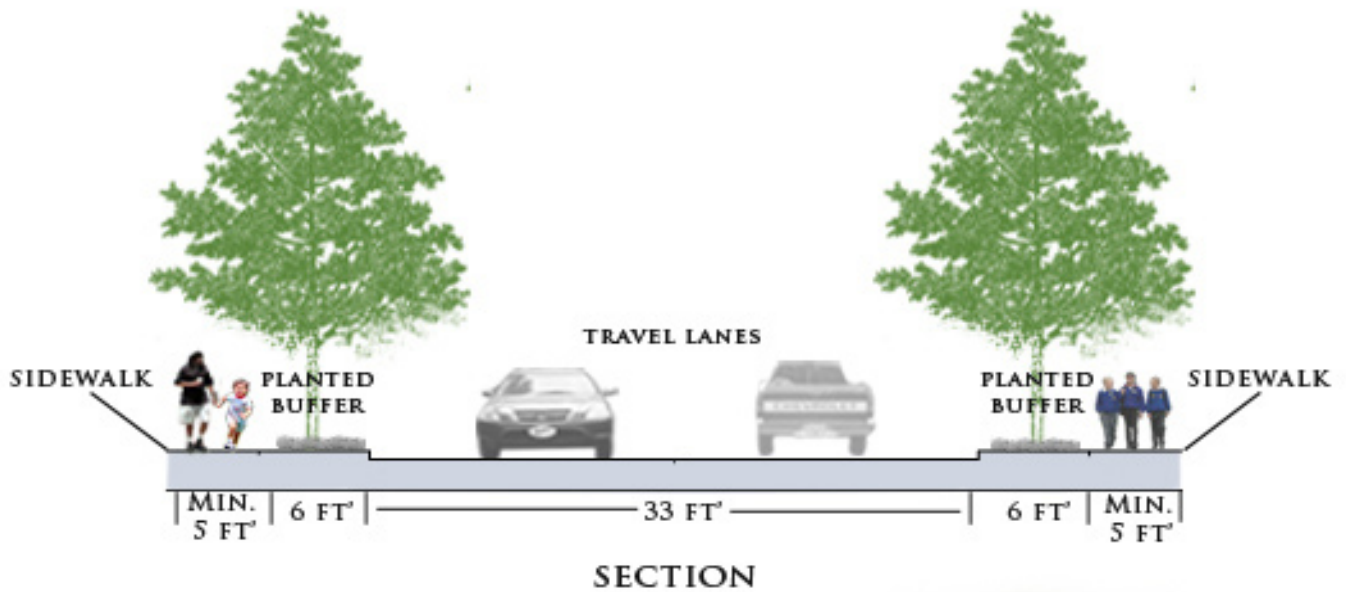
The *Rogers Lake Extension* addresses future plans for extending this road through Kellswater Commons, a commercial and residential development. This route will provide east - west connectivity in an area with increasing development and growth plans. The Rogers Lake Extension will connect three other proposed pedestrian routes (West Kannapolis Connector, Oakwood Avenue Extension, and S. Main / Fisher St. Connector), Kellswater Bridge, and Shadybrook Elementary. As this roadway will be undergoing construction in the near future, it offers an excellent opportunity to incorporate pedestrian facilities. This is of particular importance in the western portion of the City where there are few pedestrian facilities and increasing development and population growth. This route is approximately 3 miles in length.

Recommendations for this route include the following:

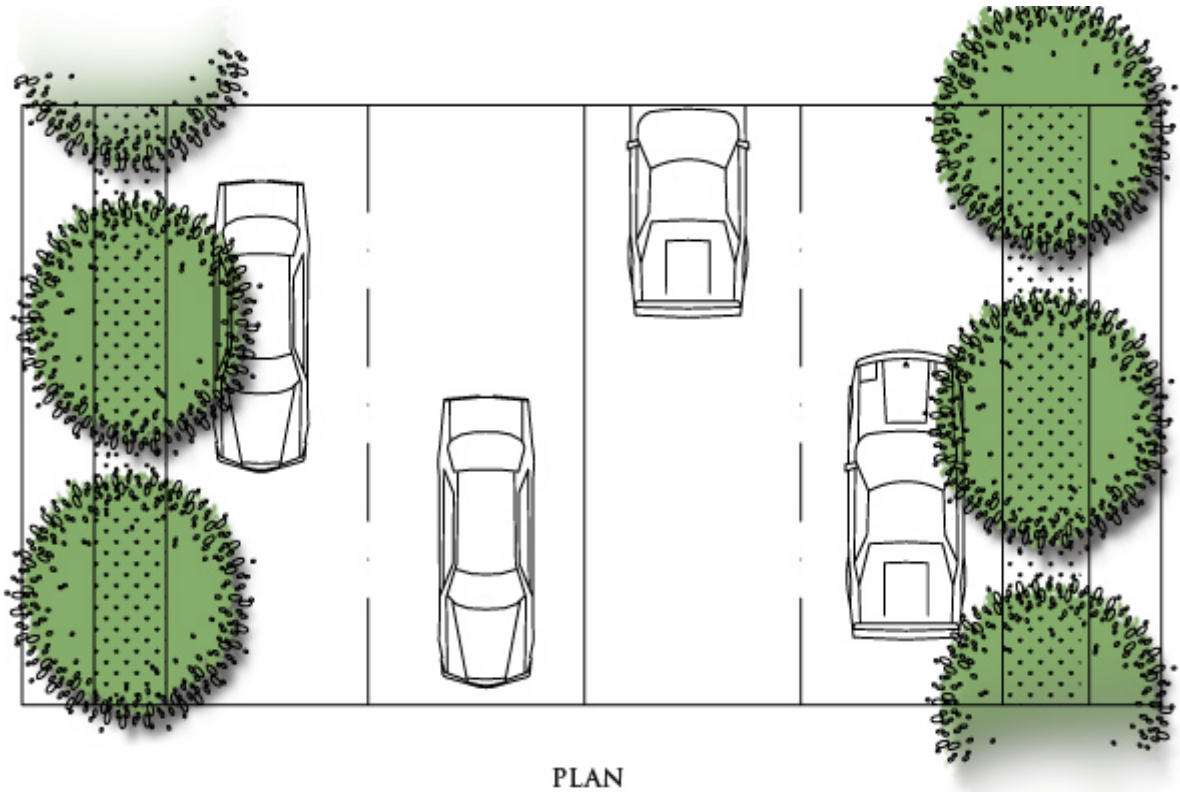
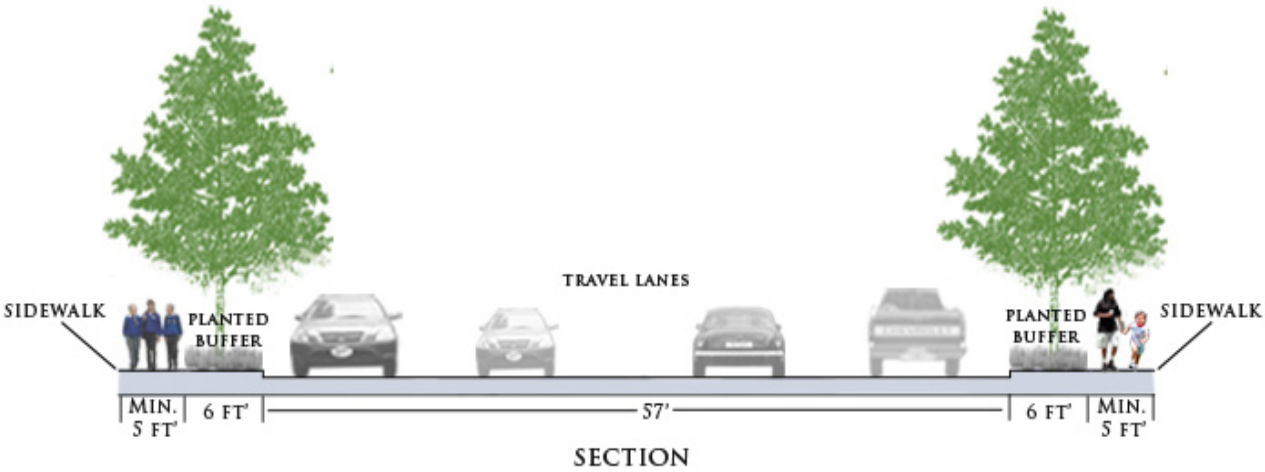
- Provide sidewalks with planted buffer on at least one side of the roadway to provide pedestrian and vehicular separation.
- Introduce pedestrian signalization and crosswalks at intersections with Shadybrook Elementary School, Kellswater Bridge, Kellswater Commons, and Kannapolis Parkway.
- Introduce pedestrian signalization and crosswalks at intersections with Shadybrook Elementary School, Kellswater Bridge, Kellswater Commons, and Kannapolis Parkway.

The following street standards apply to the streets on this route.

TWO-LANE COLLECTOR STREET



FOUR-LANE UNDIVIDED STREET



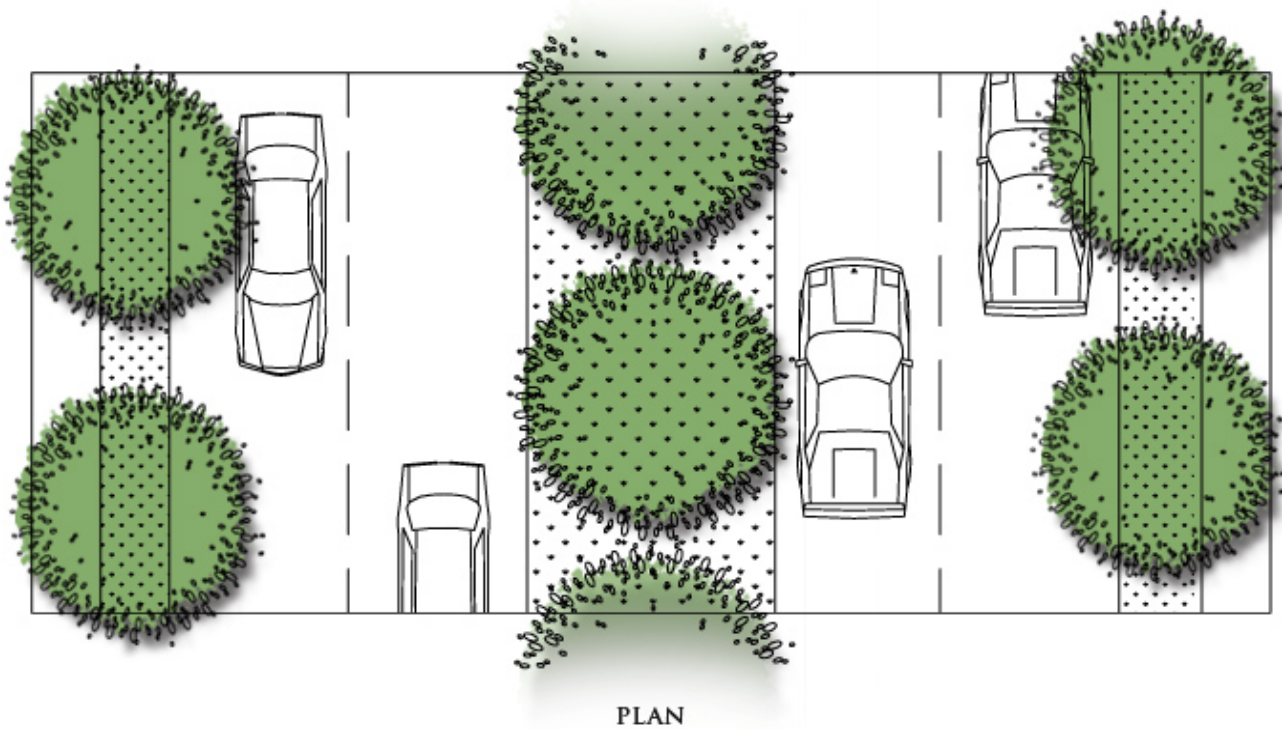
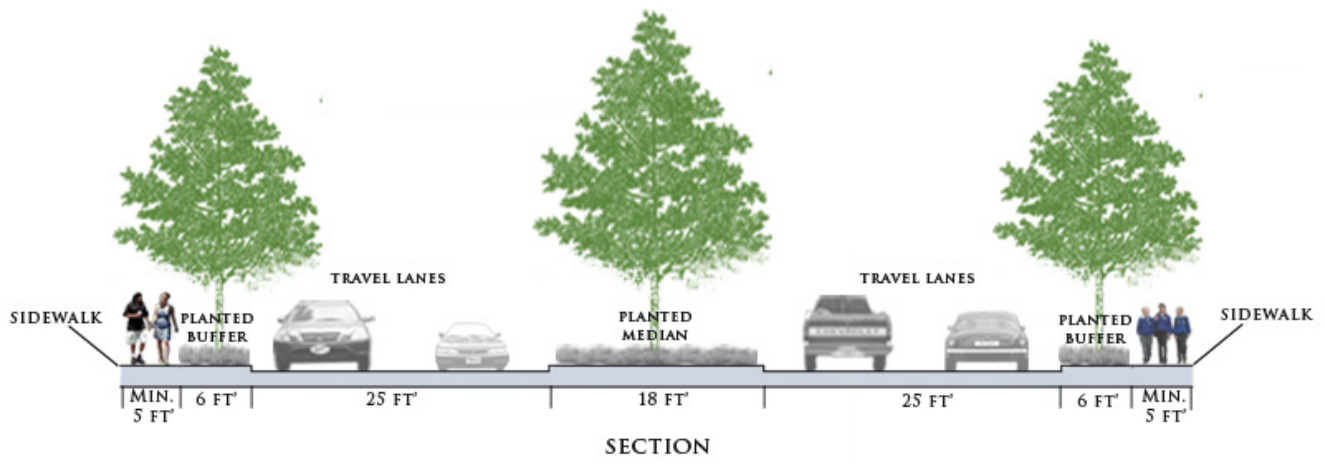
The *West Kannapolis Connector* is recommended to address the heavy development occurring along the western boundary of the City. This route is approximately 11.5 miles in length and the existing streets in this area are currently not designed with pedestrian amenities, which are necessary particularly in the area around the schools (Boger Elementary, NW Cabarrus Middle School and NW Cabarrus High School). These schools are currently accessed by Kannapolis Parkway which is a high speed road with multiple traffic lanes. The northern portion of Kannapolis Parkway (from HWY 3 to Macedonia Church Road) currently does not have curb and gutter and no sidewalks. On the southern portion of Kannapolis Parkway (from Macedonia Church Road to I-85) there is curb and gutter and This route also has the potential as an expansion to the *Rider* Bus service.

Recommendations for this route include the following:

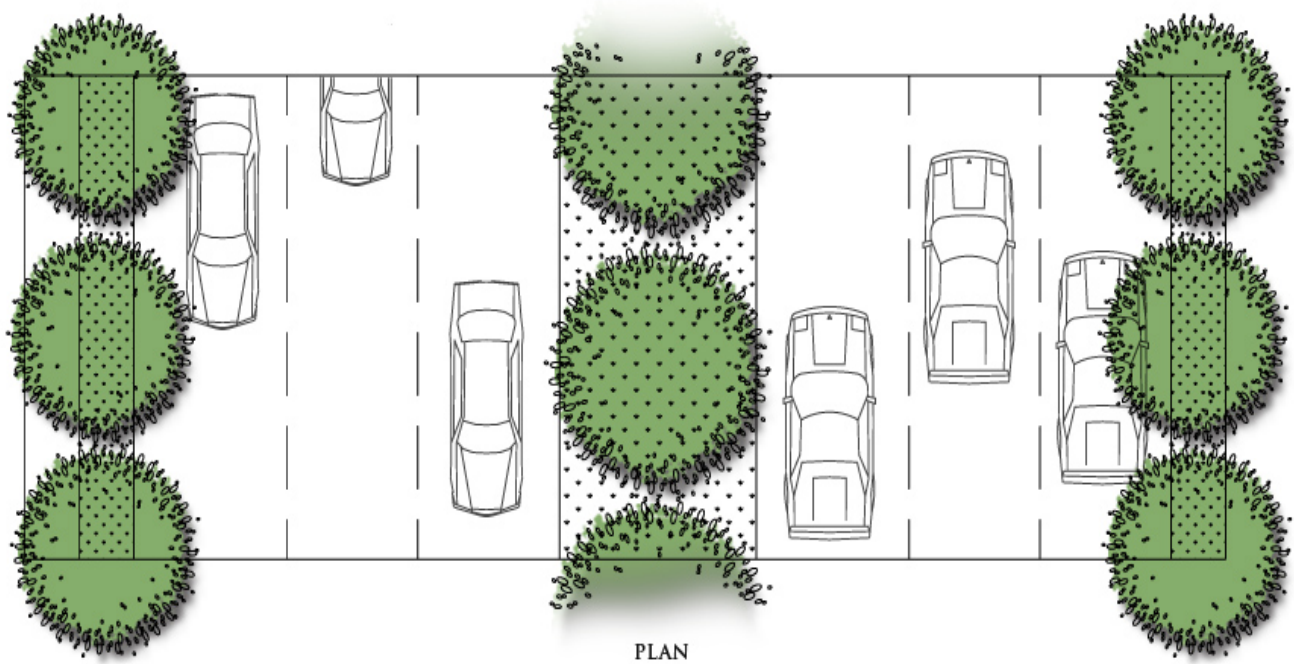
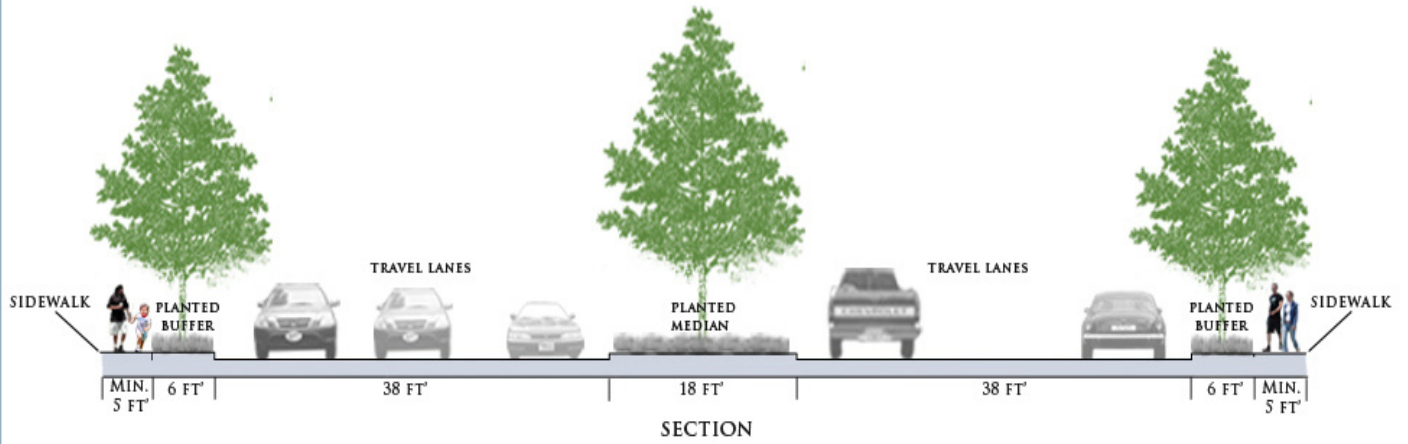
- Provide sidewalks with planted buffer to provide pedestrian and vehicular separation between schools on Cabarrus Drive.
- Introduce pedestrian signalization and crosswalks at intersections with schools.
- Expand *Rider* bus routes and include pedestrian amenities at stops.
- The City should provide sidewalk connections between new developments along this route.

The following street standards apply to the streets on this route.

FOUR-LANE DIVIDED STREET



SIX-LANE DIVIDED STREET

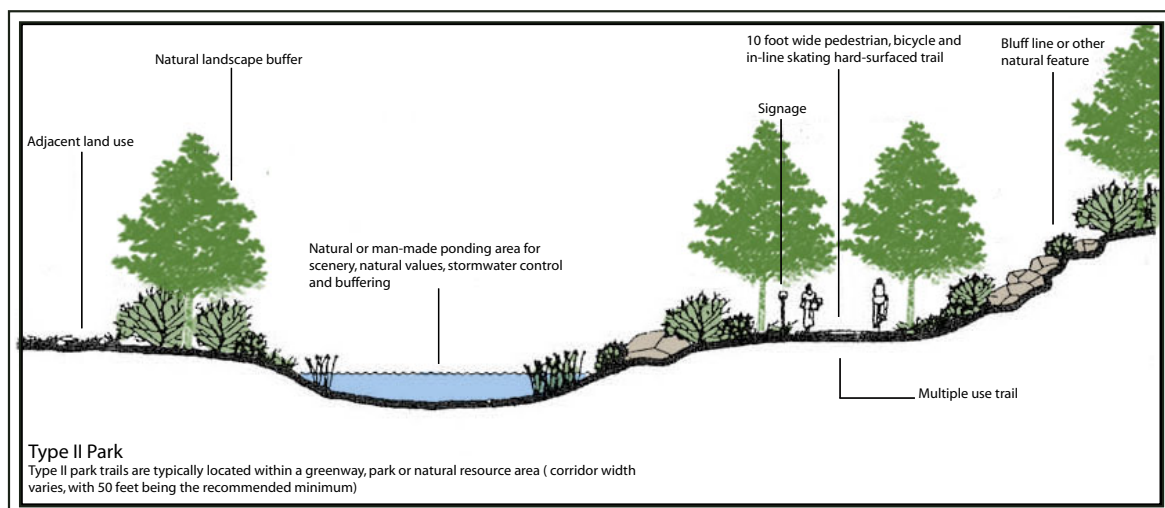


Off-Street Routes (Greenway Connections)

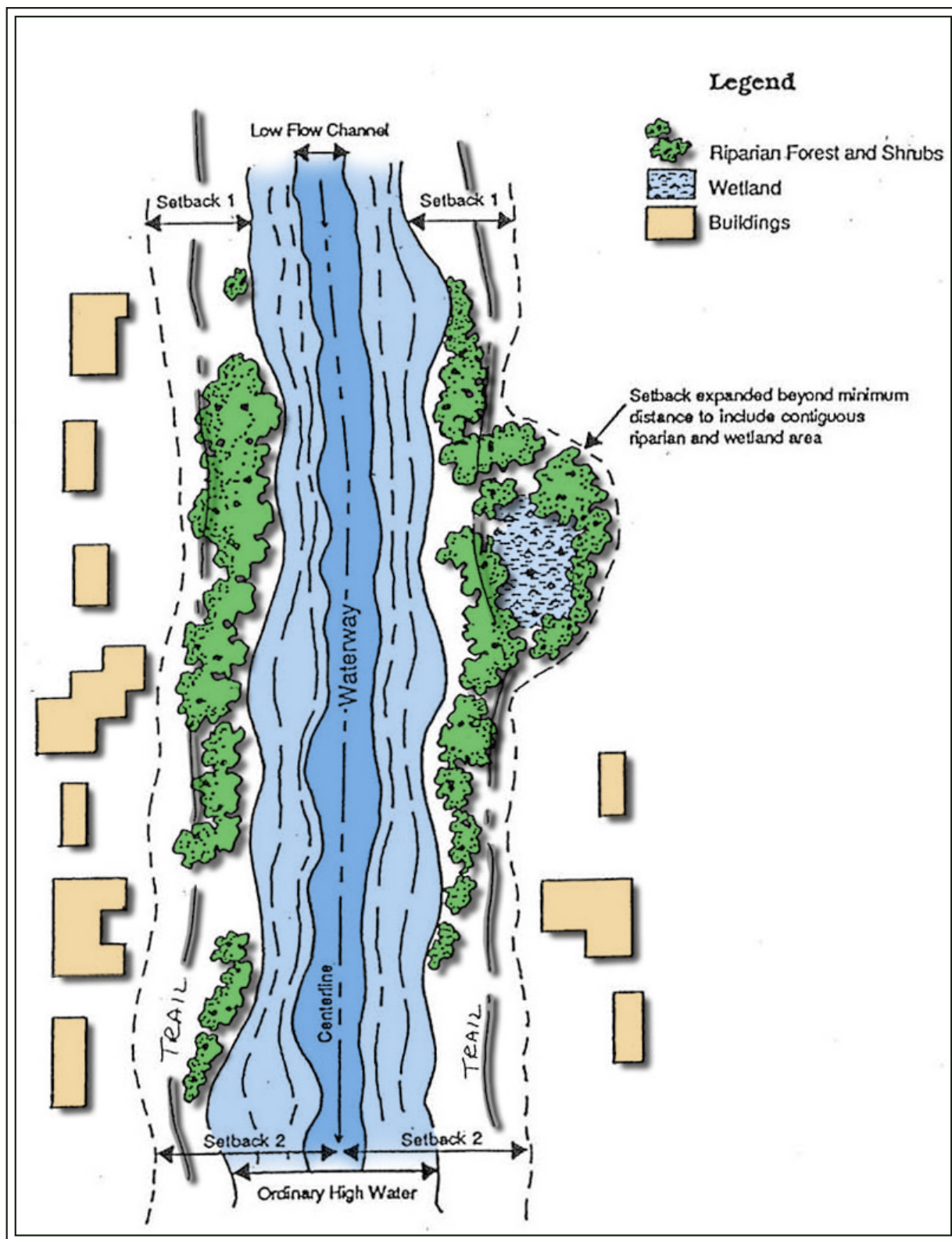
Off-street or greenway routes provide alternatives and diversity to the pedestrian environment in Kannapolis. Currently there are numerous existing and proposed greenways which do provide options for residents. These routes are mostly used for recreation activities, but they are also used for connectivity between parks and other Kannapolis destinations. For example, the existing Baker's Creek Greenway acts as a link between Baker's Creek Park and Village Park. This will also link with the proposed 8th Street Greenway and connect with Loop Road and the new NC Research Campus. Additional proposed greenways such as Irish Buffalo Creek Corridor and 3 Mile Branch also provide connectivity between parks, schools, and neighborhoods. The Walkable Community Plan includes all of the existing and proposed greenway routes identified in Kannapolis and recommends additional connectors which tie back into the larger pedestrian network. Figure 10 illustrates these greenway connections.

Recommendations for these routes include the following:

- Provide 10 foot wide multi-use path (Pedestrian, Bicycle, etc.).
- Implement hard-surface paths to allow walking, bicycling, and in-line skating.
- Introduce consistent signage throughout greenway with maps and destination information.
- Provide multiple access points for users and emergency vehicles.



NRPA Park and Recreation Open Space and Greenway Guidelines
Rendering by HSMM



NRPA Park and Recreation Open Space and Greenway Guidelines
 Rendering by HSMM

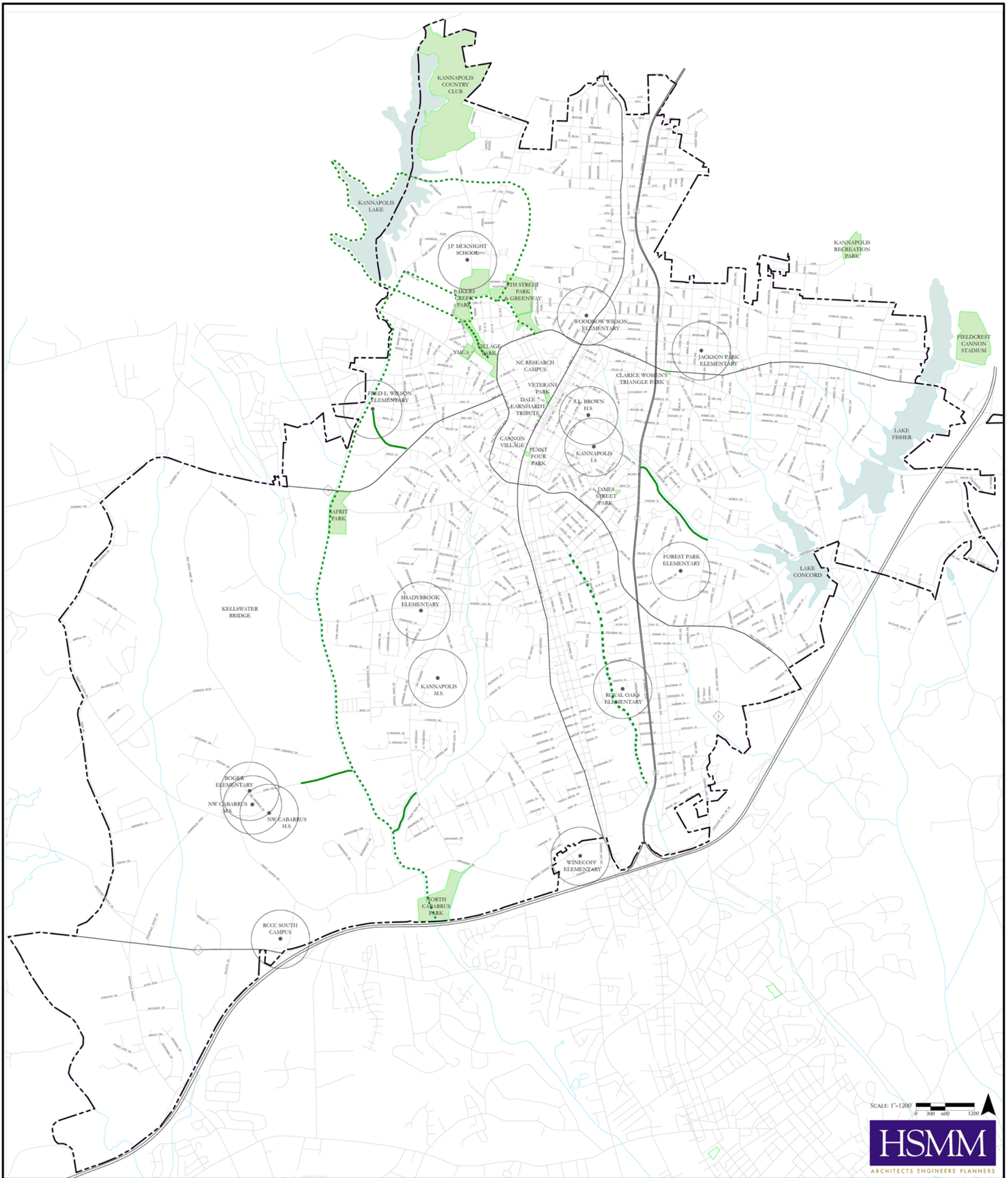


FIG. 10 GREENWAY CONNECTIONS
WALKABLE COMMUNITY PLAN
CITY OF KANNAPOLIS, NORTH CAROLINA

LEGEND

- PREVIOUSLY IDENTIFIED & EXISTING ROUTES*
- PROPOSED ROUTES
- - - - - CITY LIMITS
- OFF-STREET / GREENWAY CONNECTORS

* IDENTIFIED IN THE *LIVABLE COMMUNITY BLUEPRINT FOR CABARRUS COUNTY 2002* AND THE NC RESEARCH CAMPUS.

Future Connections

The final layer to the Walkable Community Plan consists of future routes which will expand the proposed pedestrian network as development occurs (Fig. 11). These routes illustrate a more detailed level of connection which would further increase the transportation options for pedestrians and tie back into the larger pedestrian network. Due to proposed land use and current development trends, the routes are primarily located in the southwestern and eastern edges of the City. These routes should be incorporated into all new construction and development plans. Future routes should be considered as long term projects (5-10 years and beyond).

For example in the southwest portion of the City, large scale commercial development is planned near I-85. A connection is recommended along NC 73 between Kannapolis Parkway and RCCC South Campus so as to allow for pedestrian connectivity. Dogwood Blvd is another future route to connect between Trinity Church Rd. and Boy Scout Camp Rd.

Similarly on the eastern side of the City, two recommended routes will connect with the Loop Road Extension and provide more connectivity for neighborhoods and schools to the increasing commercial development there. These routes are along Brantely Road, Midlake Avenue, and Centergrove Road. Midlake Avenue connects Brantely Road and Centergrove Road, both of which have transit stops at Midlake Avenue.

On the southern portion of the City a route is proposed along Concord Lake Road and Mt. Olivet Road to provide east - west pedestrian connectivity between Cannon Boulevard and S. Ridge Avenue. Mt. Olivet Road crosses over Three Mile Branch Creek which is part of a proposed greenway addition to the City.

It is recommended that a future connection in the form of a greenway or off-street route occur along Rogers Lake Branch Creek. This will provide an alternative connection between neighborhoods on either side of the creek. It is recommended as a future connection and long term project as easement acquisition will be necessary and it is not a high priority route. In this area, Oakwood Avenue Extension will provide north - south connectivity, while S. Main / Fisher St. Connector, and the W. Kannapolis Connector will provide the majority of the east - west connectivity.

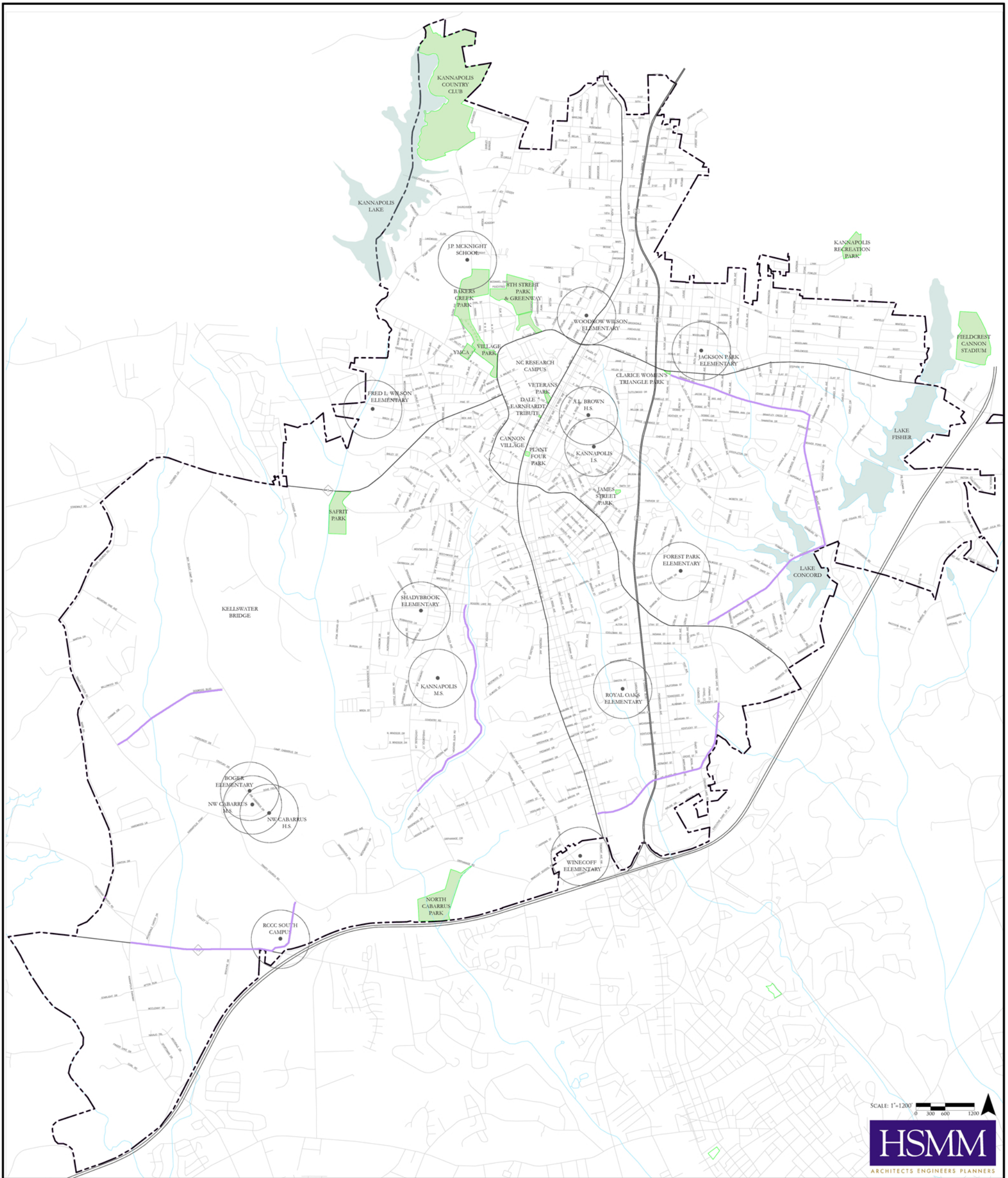


FIG. 11 FUTURE CONNECTIONS

**WALKABLE COMMUNITY PLAN
CITY OF KANNAPOLIS, NORTH CAROLINA**

LEGEND

- PREVIOUSLY IDENTIFIED & EXISTING ROUTES*
- PROPOSED ROUTES
- - - - - CITY LIMITS
- FUTURE CONNECTIONS

* IDENTIFIED IN THE LIVABLE COMMUNITY BLUEPRINT FOR CABARRUS COUNTY 2002 AND THE NC RESEARCH CAMPUS.

Section 5

Facility Standards and Guidelines



The following are proposed standards and design guidelines for planning and implementing pedestrian routes and facilities in Kannapolis. The application of these standards and guidelines will help enhance the legibility and cohesiveness of existing successful pedestrian facilities, such as in Cannon Village, as well as guide the development in less successful locations. The standards and guidelines outlined below will increase the “friendliness” of the pedestrian environment by creating a more attractive, useable, and safer pedestrian network.

Planning

Successful pedestrian plans are integrated into the larger organization and overall transportation network of a city. This seamless integration of pedestrian routes and facilities requires attention to issues such as land use, ordinances, environment and livability.

Land Use

The *1995 Oregon Bicycle and Pedestrian Plan* highlights the importance of land use issues for pedestrian design and safety. Land use patterns and their juxtaposition affect the use and comfort of the pedestrian environment. The modern built environment has responded to the intensity of automobile usage as well as increased it, as it is often necessary to drive to most destinations because:

- Segregated land use increases the distance between origin and destination points;
- Businesses are designed to be readily accessible by vehicle first, resulting in less pedestrian access, as often the buildings are set back from the street with parking areas in front;
- The transportation system discourages alternate modes of transportation (walking, bicycling) due to high traffic volumes and speeds.

(Oregon Bicycle and Pedestrian Plan, 1995)

Land use patterns that encourage and provide facilities for more pedestrian activity are:

- Greater housing densities, as this allows more residents to live near community destinations such as schools, stores, and downtowns;
- Mixed-use zoning, as a diversity of services can be located closer or within the neighborhoods themselves and therefore making it easier to get to them. These services include retail, office or professional buildings, and recreation;
- Multiple-use zoning, as it permits a diversity of uses to share the same building, such as residences and retail. This not only increases the safety of an area, but also reduces the travel time;
- Locating buildings close to the street and sidewalk allows for easier access by pedestrians;
- The conservation of open space areas between neighborhoods and communities creates a greenbelt that helps discourage urban sprawl;
- Traffic calming measures make streets more inviting and safer for pedestrians.

(Oregon Bicycle and Pedestrian Plan, 1995)

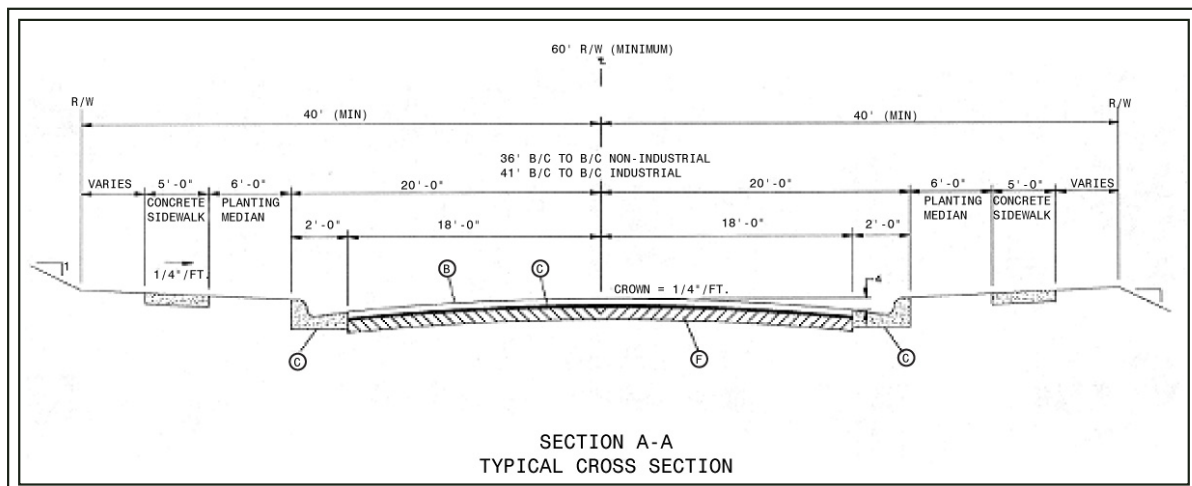
Regulatory Ordinances

Regulatory ordinances are able to help a municipality control the use of land, which can be an effective tool for developing and implementing pedestrian and bicycle facilities and routes. Common regulatory ordinances are zoning and subdivision regulations. These two regulatory measures may be used to encourage pedestrian and bicycle use as they can help regulate the preservation of open space and corridors (easements, right of way, greenways, etc) and guide development patterns that meet the needs of new communities as well as pedestrians and bicyclists. Standards and requirements for the design of streets, sidewalks, and utilities in new and existing communities ensure the connectivity and quality of pedestrian and bicycle facilities. Regulatory ordinances may also be used to require dedications of land or a fee for future parks, open space, trails, and greenways for new communities. These would further contribute to the connectivity of pedestrian and bicycle routes, while adding diversity to the facilities available to residents and visitors.

Standards and Guidelines

Sidewalks

The minimum sidewalk width, excluding curb and obstructions (signal poles, signs, parking meters, street furniture, etc.) shall be at least five feet (5') in residential areas as required by the City of Kannapolis Unified Development Ordinance (*Design Standards for Streets and Utilities*). This allows for two pedestrians to walk side by side or for two pedestrians to pass each other comfortably. The sidewalk should be wider in areas where there is heavier pedestrian traffic such as in central business districts, near schools, and heavily used corridors. A separation between the back of curb and sidewalk is also beneficial for the comfort and safety of pedestrians. This separation acts as a transition from the vehicular zone and pedestrian areas. Often this consists of a planting strip with street trees and/or low maintenance vegetation such as groundcover or grass. The minimum width of the landscape strip shall be six feet (6') as required by the City of Kannapolis Unified Development Ordinance (*Design Standards for Streets and Utilities*) as seen in the graphic below.



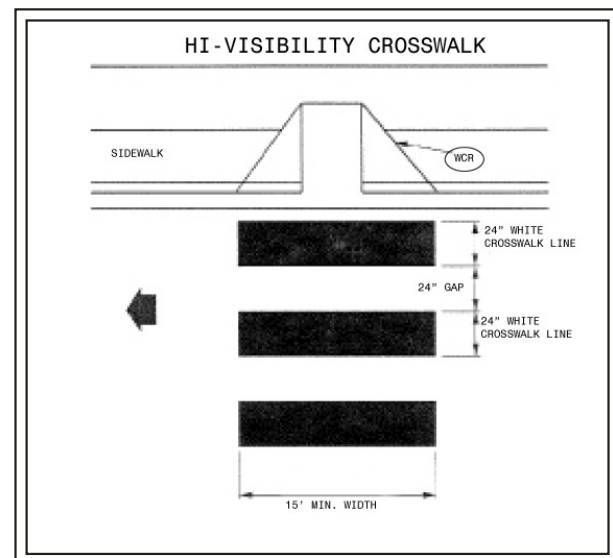
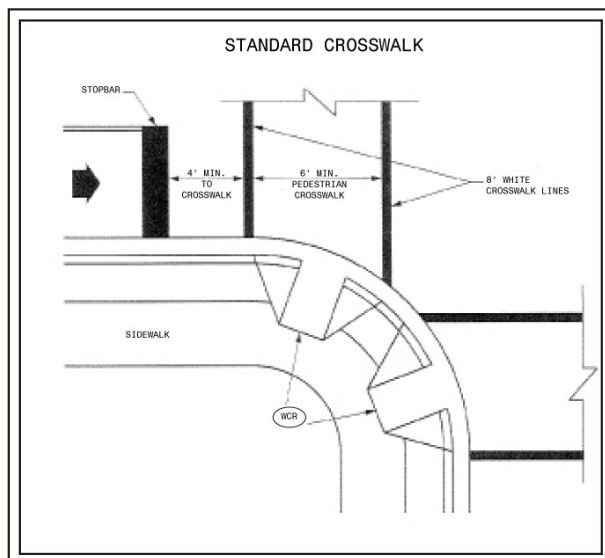
City of Kannapolis Unified Development Ordinance. Appendix C

The width of the planting strip shall increase up to twelve feet with a greater plant density as the intensity of development increases (*City of Kannapolis Unified Development Ordinance*). This separation from motorized traffic decreases road noise while increasing a pedestrian's sense of security and comfort. Added benefits of this separation include space for signage, utilities (fire hydrants), and vegetation. The photographs below illustrate application of these standards in a more urban setting such as Cannon Village and in a more suburban setting such as along Oakwood Avenue.



Crosswalks and Pedestrian Refuge Islands

Crosswalks are a necessary component to all safe pedestrian environments. Marked crosswalks alert drivers to watch for pedestrians and provide a place for pedestrians to safely cross the street. A “marked crosswalk” is a crosswalk illustrated on the surface of the street for the purpose of directing pedestrians to use that particular location to cross the street. Hi-visibility crosswalks should be used on streets around schools, commercial areas, and other heavily used locations and include signage and possibly signalization in certain areas.

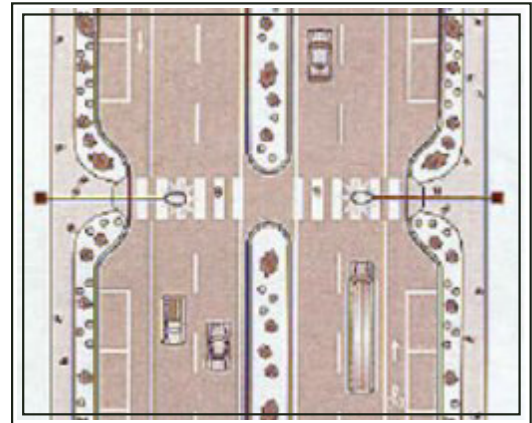


Credit: NCDOT Division of Highways Raleigh, NC

Pedestrian refuge islands are raised islands located in the center of the street at an intersection or at mid-block crossing locations to protect pedestrians from vehicular traffic. By allowing pedestrians to be concerned with only one direction of traffic at a time, refuge islands enhance the safety of street crossings. Pedestrian refuge islands are most beneficial for those who need more time to cross the street such as the elderly, disabled, and children. This type of crossing is extremely effective for multi-lane streets where the distance to cross can often be a considerable distance.

The City of Kannapolis should provide for safe pedestrian crossings of all public streets where there are signalized intersections with heavy pedestrian volumes. The following list details general standards for locations and materials of crosswalks and pedestrian refuge island installations. They are as follows:

- Crosswalks should not be installed where sidewalks are not present or where there is not appropriate ADA compliant accessibility on both sides.
- On local or residential streets the crosswalk shall be eight feet (8') in width.
- On larger streets (collectors and/or arterial streets) the crosswalk shall be ten feet (10') in width.
- Crosswalks should not be installed at intersections lacking a traffic signal, stop sign, or yield sign unless there is a pedestrian refuge island.
- All crosswalk markings should be visible to drivers and consist of highly reflective materials and meet NCDOT standards.
- When providing access to a sidewalk, all crosswalks should have curb ramps that meet ADA Accessibility Guidelines.
- Colored or textured pavement should be used for crosswalks in commercial areas and school zones. It is preferred that this treatment be consistent throughout the City and modeled after the crossings in and around Cannon Village.
- Pedestrian refuge islands provide increased safety in crossing streets, particularly streets with multiple lanes.
- Pedestrian refuge islands simplify decision making to one direction of traffic at a time.



Pedestrian Refuge Island

Credit: <http://www.safety.fhwa.dot.gov>



Decorative Crosswalks at East 1st St. and Ridge Avenue



Example of a Pedestrian Refuge Island in Raleigh, NC

School Areas

Safe crossings at schools are a high priority for everyone in a community. Safety programs should be developed and implemented at all grade levels and it is recommended that the City of Kannapolis adopt a “Safe Routes to School” program. These programs encourage and enable children to walk and bike to school safely. The National Center for Safe Routes to School is available to assist and support communities in developing programs and strategies to create successful Safe Routes to School. Safe Routes to School programs reduce traffic congestion and speeds around schools and allow children to experience a greater sense of independence and personal responsibility while learning important traffic safety skills. Schools have the potential to develop maps to illustrate the safest routes for children to take to and from school. These routes should take advantage of adult crossing guards, stop signs, traffic signals, and other traffic calming techniques. Currently, the City of Kannapolis has launched a preliminary Safe Routes to School Program at Woodrow Wilson Elementary. Based on the success of this pilot program, the City of Kannapolis should encourage other schools to initiate a Safe Routes to School Program as well.

Additionally, the following standards should be implemented at all school locations:

- Sidewalks should be installed within a 1/2 mile radius of all schools.
- Traffic calming techniques such as decorative pavement and raised crosswalks should be implemented.
- Incorporate appropriate signage to warn drivers they are in a school zone, including signs placed in the median or the middle of the street.
- Adopt a Safe Routes to School Program in all Elementary and Middle Schools, and provide educational programs or sessions on pedestrian and bicycle safety at all schools.

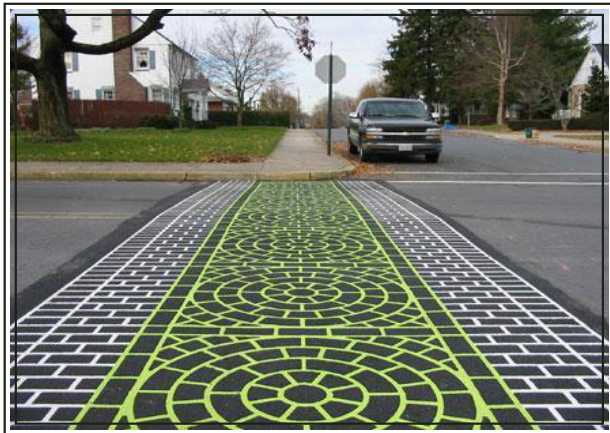


photo credit: www.streetprint.com



photo credit: www.sr2s.com

Pedestrian Amenities

Public sidewalks not only serve pedestrian movement from one location to the next, but also function as social spaces where people gather, rest, talk, meet friends, stroll or simply watch people go by. Benches, water fountains, signage, shade, trees, and street furniture provide places for pedestrians to sit, rest, people watch, and enjoy the public environment. These types of pedestrian amenities enhance the livability of an area and provide incentives for people to be active. It is important that all furniture be carefully placed and not obstruct paths for pedestrians. Bike racks encourage an alternative form of transportation and give bike riders a secure and pre-determined place to leave their bicycles. Most likely, there will be an even greater need for bike racks with the development of the NC Research Campus.

By enhancing the street environment with pedestrian amenities a city encourages and supports its use. This is present in Kannapolis and mostly concentrated in the Cannon Village area of downtown. This successful example within the City itself provides a helpful model for additional areas of high pedestrian use.



Cannon Village



Cannon Village



photo credit: www.shakeronline.com



photo credit: www.gatech.edu

Lighting

Pedestrian scale lighting should be provided in commercial areas and any other locations where there is pedestrian activity at night. Street lights often illuminate travel lanes rather than the sidewalk surface where people are walking. Lighting located over the sidewalk or alongside it has the potential to enhance the visibility of pedestrians as well as the character of the area. Appropriate lighting at transit stops and waiting areas is also necessary in order to illuminate route information, provide visibility to drivers, and increase a pedestrian's sense of security. The Cannon Village area also provides a successful example of pedestrian scaled lighting.



photo credit: www.myhamilton.ca.com



Period Style, Pedestrian Scaled Lighting Fixture in Cannon Village



photo credit: www.ci.lynnwood.wa.us

Signage

Signage can be an effective tool to alert drivers to reduce speeds and allow pedestrians to exercise extra caution. It is important not to cause “clutter” when using a variety of signage or using too much. This can cause complacency and noncompliance with signs in general. Signs, and the copied or printed text, should be large enough to be seen from an appropriate distance and incorporate pedestrian signalization where necessary (wide intersections, etc.). It is imperative that all signs are properly located so as not to obstruct the pedestrian and visibility triangles of motorists.

It is recommended that the City of Kannapolis adopt consistent and descriptive graphics to identify Kannapolis Pedestrian Routes. This signage system would assure pedestrians that they are safe and will not encounter gaps in facilities along these routes. A map should be incorporated into each route illustrating the entire pedestrian system and their location. Bus stops, destinations, and mileage should also be identified on the signs.



Decorative Crosswalk and Signage on Orphanage Rd.



photo credit: www.aucklandcity.govt.nz



photo credit: www.tfhr.gov/pubrds/05nov/03.htm

Transit

Accessible and comfortable transit stops typically increase the usage of the transit system and livability of a city. Incorporating pedestrian amenities into heavily used stops encourages residents to use them and can heighten their safety as they wait for their bus. The City of Kannapolis should strive to provide safe, convenient, and inviting access for all transit users regardless of their age or ability.

Below are recommendations for improving the conditions of transit stops in Kannapolis:

- Sidewalks should provide access to all transit stops and shelters. These connections should follow all standards and be fully ADA compliant.
- Access ramps should be incorporated into corner curbs, have a contrasting texture with adjacent sidewalks, and include truncated domes to be fully ADA compliant.
- Benches, along with other pedestrian amenities such as trash cans, should be located at transit areas with moderate usage and where shelters are not feasible.
- Lighting and route maps should be provided at all bus stops and waiting areas for passengers.
- Shelters should be set back from the street at a minimum of five feet (5').
- Passenger shelters should be provided at all high volume boarding sites.



photo credit: www.salisburync.gov



photo credit: www.mtc.ca.gov



photo credit: www.mtc.ca.gov

Pedestrian Friendly Devices

Pedestrian friendly devices contribute to the overall safety, accessibility, and comfort of the pedestrian environment. These devices include traffic calming techniques, signalization, and signage.

Traffic Calming Techniques

The installation of traffic control devices help to slow vehicles down and keep pedestrians safe. The following techniques should be used in the City of Kannapolis where there is a need to decrease the speed of vehicles, such as areas around schools, neighborhoods, commercial districts and other locations of high pedestrian use, provided the locations are approved by the Kannapolis Traffic Calming Policy.

Speed Humps

Speed humps are raised sections of a roadway. They are similar to a speed bump in their application, but a speed hump is wider and has a sloping side taper so they are easy to navigate at slower speeds. Studies indicate that speed humps reduce speeds by approximately six miles per hour. A standard speed hump has a length of approximately 22 feet and a height of 3 and 5/8 inches at its center. The cost of construction of a speed hump ranges from \$1,500-\$2,500 each.

Traffic Circles

Traffic circles are small landscaped islands located in an intersection to provide geometric control to traffic. Traffic circles reduce vehicular speeds as drivers need to slow down in order to maneuver around them. Studies have shown that traffic circles reduce the angle and turning crashes and are effective in reducing vehicle speeds in the immediate area. Traffic circles are a more costly device for traffic calming and require extensive evaluation to determine their effectiveness in a particular location.



Typical Traffic Circle with Greenscaping
photo credit: <http://www.wsdot.wa.gov>

Roundabouts

A roundabout is similar to a traffic circle as it uses a circular island rather than the typical stop sign or traffic signals, however it is often much larger and handles more than two streets. The following benefits of roundabouts and traffic circles include:

- Lower vehicle speeds
- Fewer accidents
- Increased pedestrian safety
- No signals to fail or maintain
- Provide opportunity for beautification.



Typical Modern Roundabout
photo credit: Reid Middleton, Inc.

School Zone Safety

School zone safety is necessary for students and staff. Throughout the School Safety Zone, traffic control devices such as mid-block crosswalks, signs, and speed limits should be implemented to protect students and other pedestrians from vehicular traffic.

Creating a School Zone Safety Program can be a helpful device for schools and can be done in conjunction with a Safe Routes to School Program and implemented district wide. A School Zone Safety Program provides information to students, parents, and community members of safe routes to school and safe pedestrian behavior. It will also help identify areas in need of improvements and traffic calming devices. The school, school district, or safety committee can develop a school route plan which consists of the following:

- Developing a school route plan
- Evaluating and configuring the school site
- Considering other safety elements
- Distributing and maintaining the plan.

Additionally, a public education campaign should be initiated to inform motorists of school zone laws.

Pedestrian Signalization

Pedestrian signalization helps inform pedestrians of where and when it is safe to cross the street. Often these take the form of a red or green pedestrian light. Another alternative is a countdown pedestrian signal which informs pedestrians of the amount of time they have to safely cross a street. Accessible pedestrian signals are also available to assist sight and hearing impaired pedestrians cross the street. These signals provide a multi-sensory device with auditory and vibro-tactile features to help pedestrians determine the safe time to cross an intersection. Pedestrian signals are especially helpful for children, the elderly, and handicapped residents who may need more time to cross the street. These signals should be incorporated into all intersections, but most especially those with multiple lanes and streets.

Signage

Signage should be used for informational as well as safety purposes. In school zones signs can be used to illustrate a school route map and provide suggested routes for children to follow. Throughout the City, pedestrian route maps should be located to instruct pedestrians of the different routes, distances, transit stops, and other destinations. This will allow pedestrians to make informed decisions about where and how long they want to walk and give them the confidence that pedestrian facilities are present and consistent throughout the route. Crosswalk instructional signs can also be used throughout the City to explain symbols on pedestrian signals (colors, sounds, graphics). Signage should also be used to warn motorists of upcoming school zones and areas where reductions in speed are necessary.

Pedestrian Safety and Health Programs

Pedestrian safety and health programs should be implemented through the City of Kannapolis. These programs can help target problem areas and educate the citizens of Kannapolis about pedestrian safety and accessibility.

Pedestrian Safety Campaign

The Pedestrian Safety Campaign is available to municipalities and communities. The Federal Highway Administration's Pedestrian Safety Campaign Planner is free to States and communities. It is a tool-kit for municipalities to customize and apply locally. There are three purposes of the campaign:

- Sensitize drivers to the fact that pedestrians are legitimate road users so that they expect them on or near roadways.
- Educate pedestrians about how to minimize risks to their safety.
- Develop program materials to explain pedestrian facilities (crosswalks, signals) and how they work.

The Campaign Planner provides materials that can be used in multiple medias: television, radio, cinema, and in print advertising. A Step by Step Guide is also included to help implement the campaign successfully at the local level. More information can be found at:

http://safety.fhwa.dot.gov/local_program/pedcampaign/index.htm

Share the Road Initiative

North Carolina Department of Transportation (NCDOT) Division of Bicycle and Pedestrian Transportation has been proactive in educating the public of bicycle and pedestrian rights and responsibilities. The Share the Road Initiative is part of their efforts to communicate to motorists and drivers of the presence of bicycles and pedestrians in traffic areas. The Division of Bicycle and Pedestrian Transportation also helped develop the North Carolina Driver's Handbook which has sections devoted to bicycle and pedestrian rights and responsibilities. These items can be found at:

http://www.ncdot.org/transit/bicycle/safety/programs_initiatives/share.html

North Carolina School Crossing Guard Training Program and Manual

The NCDOT Division of Bicycle and Pedestrian Transportation developed a program in 1998 to train law enforcement officers who in turn trained school crossing guards. The objectives of the course are to standardize procedures and instruction of school crossing guards and educate children of safe ways to cross streets. The program was updated in 1999 and is training law enforcement officers in 42 jurisdictions. The City of Kannapolis is not included in this list and can contact the Division of Bicycle and Pedestrian Transportation to take part in the program. The NC School Crossing Guard Training Manual and more information can be found at: http://www.ncdot.org/transit/bicycle/safety/programs_initiatives/crossing.html

National Walk a Child to School Program

The National Walk a Child to School Program is sponsored by Partnership for a Walkable America, the US Department of Transportation and the Pedestrian & Bicycle Information Center and aims to increase the number of children who walk to school. The program is usually held in October and has the following objectives:

- Encourage adults (teachers, parents, faculty, staff, community members) to teach children safe pedestrian behaviors for when they walk to school or elsewhere.
- Encourage adults to help children identify and use safe routes to school.
- Remind everyone in the community of the health benefits of walking on a daily basis.

NCDOT Division of Bicycle and Pedestrian Transportation encourages this program and information can be found at:

http://www.ncdot.org/transit/bicycle/safety/programs_initiatives/walk2school_national.html

Walk a Child to School in North Carolina

The State of North Carolina has its own initiative in an effort to encourage State residents to walk to school. Support from the NC Governor's Highway Safety Program has helped make this a growing and successful program. A list of schools participating in the program can be found at: http://www.ncdot.org/transit/bicycle/safety/programs_initiatives/walk2school_NC2001.html

Safe Routes to School Program

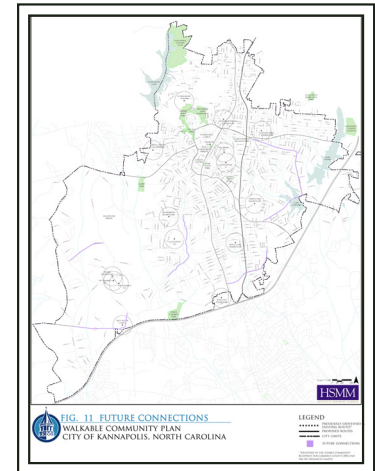
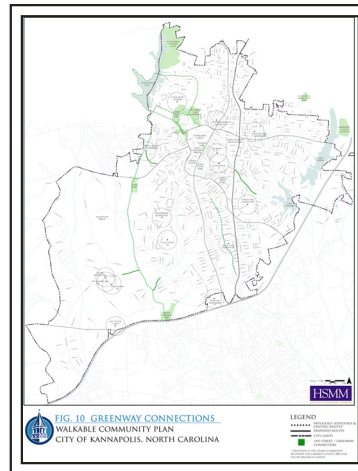
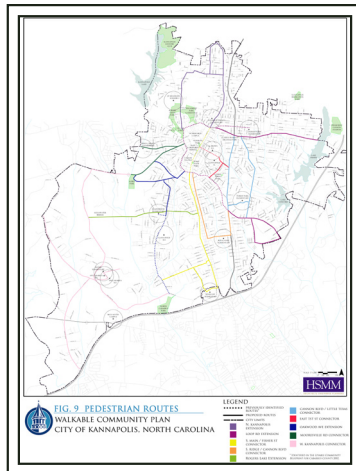
Safe Routes to School (SRTS) is a program that encourages and enables children to walk and bike to school safely. The program helps facilitate planning, developing, and implementing projects that not only improve the safety for pedestrians and bicyclists, but also helps make it an appealing mode of transportation. SRTS uses tools such as infrastructure improvements, educational programs, and funding to not only provide a safe and comfortable pedestrian environment, but also instill active lifestyles at an early age. Additional information of funding is found in Section 6 and at: http://www.ncdot.org/transit/bicycle/safety/programs_initiatives/Safe_Routes.html

Kannapolis Unified Development Ordinance UDO

It is recommended that Kannapolis adopt NCDOT pedestrian laws into their UDO. This will strengthen the UDO and focus more attention on the pedestrian environment. Currently, the Kannapolis UDO addresses the pedestrian environment only in its references to sidewalks and landscape strips. It is recommended that all pedestrian facilities (crosswalks, signalization, signage, etc.) be addressed in the UDO. It is also recommended that developers continue to be responsible for constructing sidewalks on the street frontage of all new developments. By incorporating and strengthening pedestrian oriented guidelines for new development, the UDO can ensure connectivity and pedestrian facilities are a part of all new construction.

Section 6

Project Implementation and Funding



Prioritization

This plan serves as a guide for the improvement of the pedestrian environment in the City of Kannapolis. Phasing is suggested as a means to implement the Walkable Community Plan in a way that is manageable and effective.

Phase 1: Major Framework

Implementation of the Walkable Community Plan should begin with the Major Framework (Fig. 9). These on-street routes provide the basis of pedestrian connections throughout the City. Within this framework it is recommended that implementation first occur in the following areas:

- Around schools where pedestrian environments are used by children,
- Parks,
- Greenways,
- Transit stops,
- Other areas of high pedestrian use such as Loop Road, Cannon Village, and around the new NC Research Campus.

Other streets of high priority include Dale Earnhardt Boulevard, Cannon Boulevard, and Main Street, as these are the main connectors in the City and are streets where there is heavy pedestrian use and a history of pedestrian accidents.

Secondly, implementation should occur between or around areas of recent improvement, such as the Oakwood Avenue sidewalk improvements and S. Ridge Avenue improvements. Prioritization of areas with recent improvements may help stimulate additional construction and use as well as begin to remedy gaps within the system.

Phase 2: Greenway Connections

The Greenway Connections (Fig. 10) and off-street routes should be phased in after the on-street routes are developed. Although a necessary part of the Walkable Community Plan, these routes support the on-street routes within the Major Framework and provide diversity to the pedestrian environment. Implementation should begin by remedying gaps between greenways and parks. An example is the Irish Buffalo Creek Corridor which will connect Safrit Park and North Cabarrus Park. Short connections which provide access to greenway trails from dead end streets could improve accessibility and encourage pedestrians to more actively use alternative transportation facilities.

Phase 3: Additional Design Elements

Signage, street furniture, and other amenities should be implemented after sidewalks, crosswalks and other infrastructure are developed. These design elements will enhance the comfort and overall appearance of the pedestrian environment and should be implemented once the appropriate infrastructure has been completed. Standards and/or specific styles should be determined by the City and adopted into UDO for consistency.

Phase 4: Future Connections

Development of routes identified in Future Connections (Fig. 11) should be implemented last, as these routes provide a finer degree of connectivity. These routes reflect trends in development and may be modified as appropriate. Individual projects may need to be considered as they relate to new development and growth areas, as well as when alternative funding sources are considered.

Construction Cost Estimates

Figure 12 provides a list of sample costs for recommended pedestrian facilities in the Major Framework. As other factors and cost fluctuations can increase actual costs, these estimates are intended to serve only as a rough guide for the City of Kannapolis.

Figure 12

Item	Cost*
<i>Sidewalks (5' wide concrete)</i>	<i>\$20 per linear foot</i>
<i>Concrete Curb and Gutter</i>	<i>\$15-\$20 per linear foot</i>
<i>Standard Handicap Ramp</i>	<i>\$500-\$800 per corner</i>
<i>Simple Crosswalk (Signs and Pavement markings)</i>	<i>\$500-\$1500 each</i>
<i>Decorative Crosswalk</i>	<i>\$5000-\$15000 each</i>
<i>Pedestrian Refuge Island (Signage and Markings)</i>	<i>\$7500-\$40,000 each</i>
<i>Pedestrian Signal</i>	<i>\$40,000-\$75,000 each</i>
<i>Pedestrian Sign</i>	<i>\$250 each</i>

* Estimates provided by NCDOT

The following list provides suggestions to reduce the total costs of pedestrian facilities:

- Include pedestrian facilities such as sidewalks in all road construction projects (water sewer lines, underground utility projects, roadway widening, etc.).
- Combine pedestrian facility projects. Rather than constructing sidewalks along one side of a street, combine it with several other smaller sidewalk projects to help reduce costs.
- Combine pedestrian facility projects with other compatible uses, such as School Bonds.
- Advanced land and right of way acquisition can help disperse the total costs of pedestrian facility projects. Growth and development trends indicate where future pedestrian facilities may be necessary.
- Utilize funding sources such as Tax Incremental Financing Bonds to offset costs through incremental payment.

Figure 13 provides a list of sample costs for recommended facilities for greenways and off-road trails. As other factors and cost fluctuations can increase actual costs, these estimates are intended to serve as a rough guide for the City of Kannapolis.

Figure 13

Item	Cost*
<i>Boardwalk</i>	<i>\$200-\$250 per linear foot</i>
<i>Speed Hump</i> <i>(Signs and Pavement markings)</i>	<i>\$1500-\$2500 each</i>
<i>Pedestrian Sign</i>	<i>\$250 each</i>
<i>Simple Crosswalk</i> <i>(Signs and Pavement markings)</i>	<i>\$500-\$1500 each</i>
<i>Decorative Crosswalk</i>	<i>\$5000-\$15000 each</i>
<i>Pedestrian Refuge Island</i> <i>(Signage and Markings)</i>	<i>\$7500-\$40,000 each</i>
<i>Pedestrian Signal</i>	<i>\$40,000-\$75,000 each</i>
<i>Multi-Purpose Path</i> <i>(8-10' wide asphalt)</i> <i>Clearing, Grading and Drainage**</i>	<i>\$40-\$60 per linear foot</i> <i>\$100 per linear foot**</i>

* Estimates provided by NCDOT

Funding Opportunities

There are a variety of funding sources available to assist with the implementation of the Kannapolis Walkable Community Plan. Fortunately, pedestrian projects are eligible for funding from many of the major Federal-aid highway, transit, safety, and other programs as well as a variety of State and private programs. Below is a list of potential funding sources for the implementation of the Kannapolis Walkable Community Plan.

The Safe, Accountable, Flexible, Efficient Transportation Equity Act (SAFETEA-LU)

SAFETEA-LU is a primary source of Federal funding for bicycle and pedestrian transportation projects. There are many sections of SAFETEA-LU that support and provide funding for greenways, sidewalks, and pedestrian corridors. The sections that apply to the recommendations made in the Kannapolis Walkable Community Plan include:

Surface Transportation Program (STP) funds may be used for the construction of pedestrian facilities such as walkways, as well as non-construction projects such as route maps, brochures, and public service announcements that deal with safety. The projects must be related to pedestrian transportation and be part of a Long Range Transportation Plan.

The *Transportation Enhancement Program* is funded by ten percent of North Carolina's annual STP funds. Transportation enhancements include a range of pedestrian projects such as trails, greenways, sidewalks, signage, and safety education. STP Enhancement Funding is a principal source of funding for pedestrian planning projects such as the Kannapolis Walkable Community Plan.

Congestion Mitigation and Air Quality Improvement Program (CMAQ) funds can be used for the construction of pedestrian walkways, as well as non-construction projects such as maps and brochures. These projects are not required to be within the right-of-way of a Federal Highway, but they must demonstrate improvements in air quality.

Recreational Trails Program (RTP) funds are Federal funds distributed at the State level which are available to help fund trails and trail related recreational projects. Of the funds distributed to North Carolina, thirty percent must be used for motorized trail uses, thirty percent used for non-motorized trail uses, and forty percent used for any combination of trail uses. These funds can be used for a variety of projects including new trail construction, trail renovation projects, trail head and trail side facilities, and land acquisition for trails. RTP funds should be pursued for implementing and continuing the recreational trail network in the City of Kannapolis.

The *National Recreational Trails Fund Act (NRTFA)* provides funding for the development of non-motorized and motorized trails. The funds can be spent on the acquisition of easements, trail development, construction and maintenance. This source of funding may be applied to the greenway portion of the Walkable Community Plan and may be beneficial in maintaining existing and proposed facilities.

Safe Routes to School Program funds are available for the planning, development, and implementation of projects which encourage walking and bicycling to and from school safely. The program focuses on elementary and middle schools and aims to improve the infrastructure around schools (within a 2

mile radius), as well as implement educational programs associated with pedestrian and bicycle safety.

State Construction Funds

Funds from State roadway construction are available for the construction of sidewalks which are part of roadway improvement projects. The North Carolina Department of Transportation (NCDOT) will also pay one hundred percent of the cost required to replace sidewalks which are removed due to the widening of a roadway.

Governor's Highway Safety Program (GHSP)

In order to promote highway safety and awareness, funds from the GHSP are available through an annual program for the planning and execution of safety programs, including pedestrian safety initiatives. Due to the number of pedestrians involved in traffic accidents, these funds should be sought to implement awareness and safety programs in the City of Kannapolis.

Tax Incremental Financing Bonds (TIF)

These bonds are issued by municipalities to fund public improvements and are repaid via incremental property tax revenues generated by the project. Kannapolis has issued a TIF for the NC Research Campus. These funds can also be used to improve the quality and safety of the pedestrian environment through a variety of measures such as the construction of sidewalks, crosswalks, and traffic calming devices. The City of Kannapolis should initially determine the most appropriate improvement projects on which to use these funds and continue to identify potential projects and finance these when funds are available.

Parks and Recreation Trust Fund (PARTF)

PARTF is the primary source of funding for the improvement and construction of State Park facilities and provides grants to acquire land, and develop parks and recreational projects which serve the general public. PARTF is allocated three ways with 65% provided to State Parks through the NC Division of Parks and Recreation, 30% as matching grants to local governments for parks and recreation, and 5% is reserved for the Coastal and Estuarine Water Access Program.

Land & Water Conservation Fund (LWCF)

LWCF provides matching grants to local governments and States for the development of recreation facilities and areas. LWCF provides funding for the acquisition of outdoor recreational areas and helps protect natural resources and valuable open spaces. Historically, the U.S. Congress has appropriated LWCF funds for "state-side" projects which may be used by communities to acquire and build park and recreation facilities such as greenways and trails. The City of Kannapolis should determine the most appropriate uses for this funding. Accessible areas of open space and linear corridors will help implement the Walkable Community Plan and expand the pedestrian environment.

American Greenways DuPont Awards

The American Greenways DuPont Awards are small grants (ranging from \$250-\$2,000) intended to stimulate the planning, design, and development of greenways. These grants may be used for a variety of purposes such as mapping, ecological assessments, surveying, brochures, interpretative displays, and building trails. This may be a useful source of funding for the greenways portion of the Walkable Community Plan and could provide amenities to existing facilities.

Fortunately, the City of Kannapolis is taking advantage of the many funding sources available. The City is utilizing TIF funds for the NC Research Campus and has recently initiated a Safe Routes to School pilot program at a local elementary school. Transportation Enhancement Grants were successfully utilized for the development of a portion of the 8th St. Greenway and the Oakwood Avenue sidewalk improvements, both of which contribute to the Walkable Community Plan. It is recommended that these funding sources continue to be used, as they can provide the necessary funding for the implementation of the Walkable Community Plan. Additionally, it is recommended that all new roadway improvements within the City consider the Walkable Community Plan and incorporate pedestrian facilities where necessary.



APPENDIX A

KANNAPOLIS WALKABLE COMMUNITY PLAN SURVEY/QUESTIONNAIRE

The City of Kannapolis, through a North Carolina Department of Transportation Grant, is launching a planning process to make Kannapolis a more walkable, bikable, and livable city. We would like to hear your opinion about how the Kannapolis pedestrian environment can be enhanced to improve safety and connectivity in the city and region.

Please take a few minutes to fill out this questionnaire. Return it by April 14, 2006 to the attention of the Assistant City Manager, City of Kannapolis, 246 Oak Avenue, Kannapolis, NC 28081. The survey can be faxed to 704-933-7463. Additional comments can be written in the space provided or on the back. The results of this survey and more information about the Walkable Community Plan will be announced at future public meetings and in City News.

1. Getting around Kannapolis by car is easy and safe.
a) Agree ____ b) Disagree ____ c) No Opinion ____
2. Getting around Kannapolis on foot or bicycle is easy and safe.
a) Agree ____ b) Disagree ____ c) No Opinion ____
3. Kannapolis needs improved pedestrian and bicycle facilities (trails, greenways, multi-use trails).
a) Agree ____ b) Disagree ____ c) No Opinion ____
4. I feel safe and comfortable walking/biking to and from places in Kannapolis.
a) Agree ____ b) Disagree ____ c) No Opinion ____
5. Kannapolis should promote and expand pedestrian connections and bikeways.
a) Agree ____ b) Disagree ____ c) No Opinion ____
6. The new NC Research Campus should be incorporated into the city's public pedestrian and bicycle system.
a) Agree ____ b) Disagree ____ c) No Opinion ____
7. How do your children get to school?
a) Car ____ b) Bus ____ c) Walk ____ d) Bike ____ e) N/A ____
8. How do you get to work?
a) Car ____ b) Bus ____ c) Walk ____ d) Bike ____ e) N/A ____
9. Would you bike or walk to work if you could?
a) Yes ____ b) No ____ c) Maybe ____

10. Where do you frequently walk in Kannapolis?

a) What park, greenway, or public open space did you most recently visit?

b) How did you get there?

11. List the most frequent destinations in Kannapolis you walk or bike to.

12. The main deterrents from walking and biking to destinations include...

13. Areas I feel most unsafe while walking/biking include...

14. Areas I feel safest walking/biking include...

15. I would walk and bike more places if...

16. Do you have access to walking and bicycling facilities from your home?

a) Yes ___ b) No ___ from work? a) Yes ___ b) No ___

17. If yes, are these routes safe and well maintained? a) Yes ___ b) No ___

18. Is there a safe route for your children to walk or bike to school? a) Yes ___ b) No ___

If no- If there was a safe route, would you let your children walk or bike to school?

a) Yes ___ b) No ___

19. Do you currently use existing greenways? a) Yes ___ b) No ___

-
20. Are you willing to pay additional taxes for improved sidewalks and other pedestrian/bicycle amenities? a) Yes ____ b) No ____
21. Are you aware that the City operates the following facilities? (indicate yes or no for each):
Baker's Creek Park ____, Baker's Creek Greenway ____, Village Park ____, Dale Earnhardt
Tribute Site ____, Walter Safrit Park ____, Veterans Park ____
22. Are you aware of the proposed 8th Street Greenway that will connect Baker's Creek Park
and Loop Road? a) Yes ____ b) No ____

Public surveys were distributed at three venues in order to gather public opinion regarding the pedestrian environment in the City of Kannapolis and provide insight into possible solutions. Surveys were available at public meetings and through general distribution where they could be filled out on site. During the month of April, a survey was available on the City's website where it could be printed out, completed, and returned either by mail or fax. Additionally, there was an option to fill out the survey online where the results were tabulated automatically. Surveys were returned by mail to HSMM where they were reviewed and tabulated. 427 surveys were returned to HSMM and 21 were completed online accruing a total of 448 completed surveys. The following statistics and lists reflect major trends in public opinion and response.

Getting around Kannapolis by car is easy and safe: Agree: 72% Disagree: 23%
No Opinion: 5%

Getting around Kannapolis on foot or bicycle is easy and safe: Agree: 20% Disagree: 69%
No Opinion: 11%

Kannapolis needs improved pedestrian and bicycle facilities: Agree: 79% Disagree: 12%
No Opinion: 9%

I feel safe and comfortable walking/biking to and from places in Kannapolis: Agree: 26%
Disagree: 60% No Opinion: 14%

Kannapolis should promote and expand pedestrian connections and bikeways: Agree: 59%
Disagree: 11% No Opinion: 8% No Response: 22%

The new NC Research Campus should be incorporated into the City's public pedestrian and bicycle system:
Agree: 78% Disagree: 9% No Opinion: 10% No Response: 3%

How do your children get to school? Car: 23% Bus: 17% Walk: 1% Bike: 0% N/A: 59%

How do you get to work? Car: 82% Bus: 0% Walk: 1% Bike: 1% N/A: 15%

Would you bike or walk to work if you could? Yes: 40% No: 31% Maybe: 15%
No Response: 14%

Do you have access to walking and bicycling facilities from your home? Yes: 26% No: 61%
No Response: 13%

Do you have access to walking and bicycling facilities from work? Yes: 13% No: 47%
No Response: 40%

If yes, are these routes safe and well maintained? Yes: 21% No: 18% No Response: 61%

Is there a safe route for your children to walk or bike to school? Yes: 5% No: 54%
No Response: 41%

(If no,) If there was a safe route, would you let your children walk or bike to school?

Yes: 30% No: 19% No Response: 51%

Do you currently use existing greenways? Yes: 35% No: 50% No Response: 15%

Are you willing to pay additional taxes for improved sidewalks and other pedestrian/bicycle amenities?

Yes: 49% No: 33% No Response: 18%

Are you aware that the City operates the following facilities?* Baker's Creek Park 68%

Baker's Creek Greenway 68% Village Park 72% Dale Earnhardt Tribute Site 74%

Walter Safrit Park 48% Veterans Park 53%

*Percentages assume all 448 respondents answered the question.

Are you aware of the proposed 8th Street Greenway that will connect Baker's Creek Park and Loop Road?

Yes: 23% No: 47% No Response: 30%

Frequent destinations in Kannapolis by walking or biking include:

None (57)

Cannon Village (36)

Downtown (33)

Loop Road (27)

Neighborhood (21)

Baker's Creek (20)

YMCA (17)

Village Park (15)

*Respondents also walk or bike to destinations such as grocery store, coffee shop, post office, church, stores, etc. This indicates a desire to walk/bike regularly within the city for purposes other than recreation. However, numerous respondents noted they could not walk or bike places because of a lack of sidewalks and unsafe roads.

Main deterrents from biking and walking include:

No sidewalks (100)

Traffic (46)

Insufficient sidewalks (34)

No bike trails or lanes (30)

Unsafe (25)

Speeding/dangerous traffic (24)

Narrow roads (15)

Distance and Safety (9)

*Many respondents expressed feeling unsafe while walking and biking in Kannapolis. They stressed traffic speeds, aggressive drivers, no sidewalks/insufficient sidewalks, no shoulders on roads, and lack of street crossings as some causes of their discomfort. Additionally, there was anxiety over crimes such as mugging and areas of drug use in particular areas. There was also concern over the lack of accessibility for disabled people and the elderly. Narrow shoulders on busy roads are too rough for wheelchairs and walkers and sidewalks are inconsistent and damaged in areas. Creating safe, accessible connections beyond downtown Kannapolis is necessary.

Areas survey respondents feel most unsafe while walking/biking include:

Areas with no sidewalks (27)

Loop Road (18)

Everywhere (16)

Dale Earnhardt Blvd (15)

Little Texas Road (9)

Main Street (9)

South Main Street (9)

N. Cannon Blvd (9)

*The locations respondents felt most unsafe were roads where there were no sidewalks (or the sidewalks were in poor condition), insufficient lighting, and wide intersections with no island or pedestrian refuge between them. Numerous people felt unsafe on all roads. It appears as though pedestrians and bicyclists feel out of place on roads, as there is not a safe, consistent, designated place for them alongside or in between. Amenities such as lighting, vehicle-pedestrian separation, traffic calming, and sidewalk maintenance are necessary to increase and improve pedestrian/bicyclist safety.

Areas survey respondents feel safest while walking/biking include:

Loop Road (42)
Downtown (42)
Parks (40)
Bakers Creek Greenway (28)
In my Neighborhood (27)
YMCA (9)
Village Park (8)
Residential neighborhoods (8)
Uptown (6)
Anywhere there are sidewalks (6)

*Respondents feel safest in the downtown. This has the most pedestrian/bike amenities in Kannapolis in terms of well-lit areas, sidewalks, and places to rest. Parks are also areas people feel safe. This is most likely due to the absence of vehicles and the area being designated for recreational use. Bicyclists felt more comfortable riding outside of the City where there are wider roads and less traffic.

Survey respondents would walk and bike more places if:

More sidewalks and greenways were available (89)
Bike trails (35)
Sidewalk and street lights (29)
If it were safer (16)
There were more bike lanes (10)
If there were more walkways (7)
Things (sidewalks) were better connected (7)
If I had a good bicycle path (5)
More police patrol (4)

*Most comments deal with facility and infrastructure shortcomings and driver behavior/safety issues. There is a desire for neighborhood sidewalks to connect with destinations in the City. The condition of the sidewalks is also a concern. People would like a larger space between the sidewalk and street and sidewalks that are accessible and in better condition. In general people would walk and bike more if they felt safer. By reducing traffic speeds in high pedestrian areas and providing a separate place for pedestrians and bicycles within the street network would help alleviate this fear. Signage was also addressed in order to communicate distances to locations. The addition of signs into the pedestrian plan would illustrate locations of pedestrian routes and safe street crossings.

Places survey respondents frequently walk include:

No where (168)
Loop Road (85)
In my neighborhood (52)
Cannon Village (37)
Downtown (32)
Bakers Creek Greenway (30)
Village Park (21)
North Cabarrus Park (13)
Parks (9)
Safrit Park (8)

*The areas most respondents frequently walk are those which currently have pedestrian amenities, such as sidewalks, and are away from vehicular traffic (parks and greenways). Most neighborhoods enjoy a lower volume of vehicular traffic and therefore appear safe for pedestrians and bicyclists. However, there are still a number of respondents that felt they cannot walk anywhere because of high speed traffic and a lack of accessible sidewalks.

Parks, greenways, and public open space survey respondents most recently visited include:

Baker's Creek (132)
Village Park (44)
North Cabarrus (24)
None (17)
Safrit Park (16)
YMCA (13)
Cannon Village (9)
Downtown (7) *

How survey respondents got there:

Car (254) 57%
Walk (44) 10%
Bike (13) 2%
Run (3) 1%
No response 30%*

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