

## PUBLIC POLICY CONTEXT SUMMARY

The Comprehensive Plan and Unified Development Ordinance were reviewed to assess their effect on the development of the study area and to determine areas where policy changes or revisions might be necessary to achieve plan goals. The full public policy review is included in the Appendix, with key points summarized below.

### Comprehensive Plan

- A central feature of the Comp Plan is its emphasis on community form and development typology. A Design District Master Plan applies a system in which the use of land is determined by the zoning map, while the design and layout of those uses are determined by the Design District Map and Design Guidelines.
- Similar to the New Urbanist “transect,” a Design Matrix illustrates the spectrum of development conditions from rural to urban. Within the Design Matrix, a “Town Center” designation applies to most of the study area. The intensity of this designation may not be supported by current market demand, consumer preferences, availability of transit in the near term, and type of transit system.

- The Design District Matrix, a tool for guiding the form and character of new development in the Town, reflects the best current thinking in the planning field. However, the village setting of Old Town may never have been calibrated along the spectrum of development types in the matrix, leading to a mismatch between what stakeholders would like to see and what development regulations allow.

◇ A modified “Neighborhood” design district, with a “Neighborhood Village” designation focusing on the depot district, should be considered in lieu of the current “Town Center” designation.

◇ The Highway design district provides quality standards for development along major roads, including architectural quality and building character, landscaping, parking, and service areas. It could be modified to form a “Boulevard Commercial” designation appropriate for use on the greenfield tract at the north end of the study area.

- The Comp Plan’s emphasis on interconnected street networks and its classification of streets according to typology reflect the best current thinking for creating livable communities that permit convenient transportation alternatives.

- The implementation matrix is somewhat lacking in management and programming / budgeting strategies for achieving plan goals, although these may have been developed internally by Town departments. The Town may find it desirable to provide more structure for this part of implementation by adding management and programming components to the implementation matrix.

### Unified Development Ordinance

- The Unified Development Ordinance (UDO), which was recently developed as part of Comp Plan implementation, is a quality document which will generally help the Town accomplish its planning and development goals.
- The form and uses allowed by zoning in Old Town are quite different from the built pattern and existing uses. For example, the TC zoning allows much more intense development and a wide range of commercial uses in areas that are currently residential, and applies dimensional standards very different from the existing pattern.
- A pair of new zoning districts are recommended for the residential areas and Depot District of Old Town Knightdale. They should carry out the principles of the Neighborhood

## PUBLIC POLICY CONTEXT SUMMARY

design district described in the Comp Plan. The zoning district for the depot district and its expansion area should reflect the principles of a somewhat modified Neighborhood Village focus area as described in the Comp Plan.

- Form and design principles based on those set forth in the “Architectural and Urban Design Principles” section should be applied as part of the zoning districts tailored for Old Town.
- A modified Highway Business district is recommended for the “boulevard office-commercial” area indicated along Knightdale Boulevard. It should apply the good design principles of the HB district, plus additional standards to ensure good layout of buildings, walkways, and vehicular use areas. The allowable uses should be mainly limited to office and professional uses, with a limited amount and range of other commercial uses sufficient to support the office-professional space.
- It is recommended that each of the uses allowed in the zoning that applies to Old Town Knightdale be reviewed to determine which have potential impacts that warrant public hearing review, or have generated citizen complaints. Those uses should be considered for elimination or, at a minimum, should be allowed only through a public hearing review via a Special Use Permit.

Application of additional performance standards might also be warranted, depending on the type of use.

- Section 4.3, Lot and Yard Requirements, requires consistent setbacks for new development within 300 feet or one block of existing development, and should be clarified to apply to residential areas of Old Town, if it does not already.
- Chapter 5 forms a good starting place for architectural standards applicable to existing Old Town lots either as part of a new zoning district for the residential areas, or as part of an NCOD (neighborhood conservation overlay district).
- For infill development and upgrades in the depot district, mixed-use building type standards in Chapter 5 could be modified and tailored according to the Architectural and Urban Design Principles section of this plan.
- For the boulevard office-commercial area at the north edge of Old Town, the commercial building type standards could be modified and tailored according to the guidance in the Architectural and Urban Design Principles section.
- Tree and vegetation preservation standards should be extended to apply to new lots smaller than 2 acres and to

new development on existing lots, if tree protection is to be effective in Old Town (which mostly has existing lots smaller than 2 acres).

- The maximum block length for new streets is somewhat long (660 to 1000 feet, in currently applicable Old Town zoning districts) for the existing urban pattern, which has blocks of only about 300 by 400 feet. These maximums should be shortened to ensure that new street extensions are compatible with existing streets. An indirect routing requirement for new streets in Old Town should also be applied to avoid cut-through and high-speed traffic on new street connections.
- The maximum height for street lights and lights for parking areas (27 feet) should be 16 to 20 feet in Old Town to reflect the smaller scale of buildings and the character of the area. Special upgraded light poles should be required for the commercial area, and the Town’s full cutoff (anti-glare) requirement extended to all new lighting.
- A local street cross-section for a “shared street” type should be added to the infrastructure standards to allow ribbon pavement and swale in areas designated for a shared-street approach in Old Town.

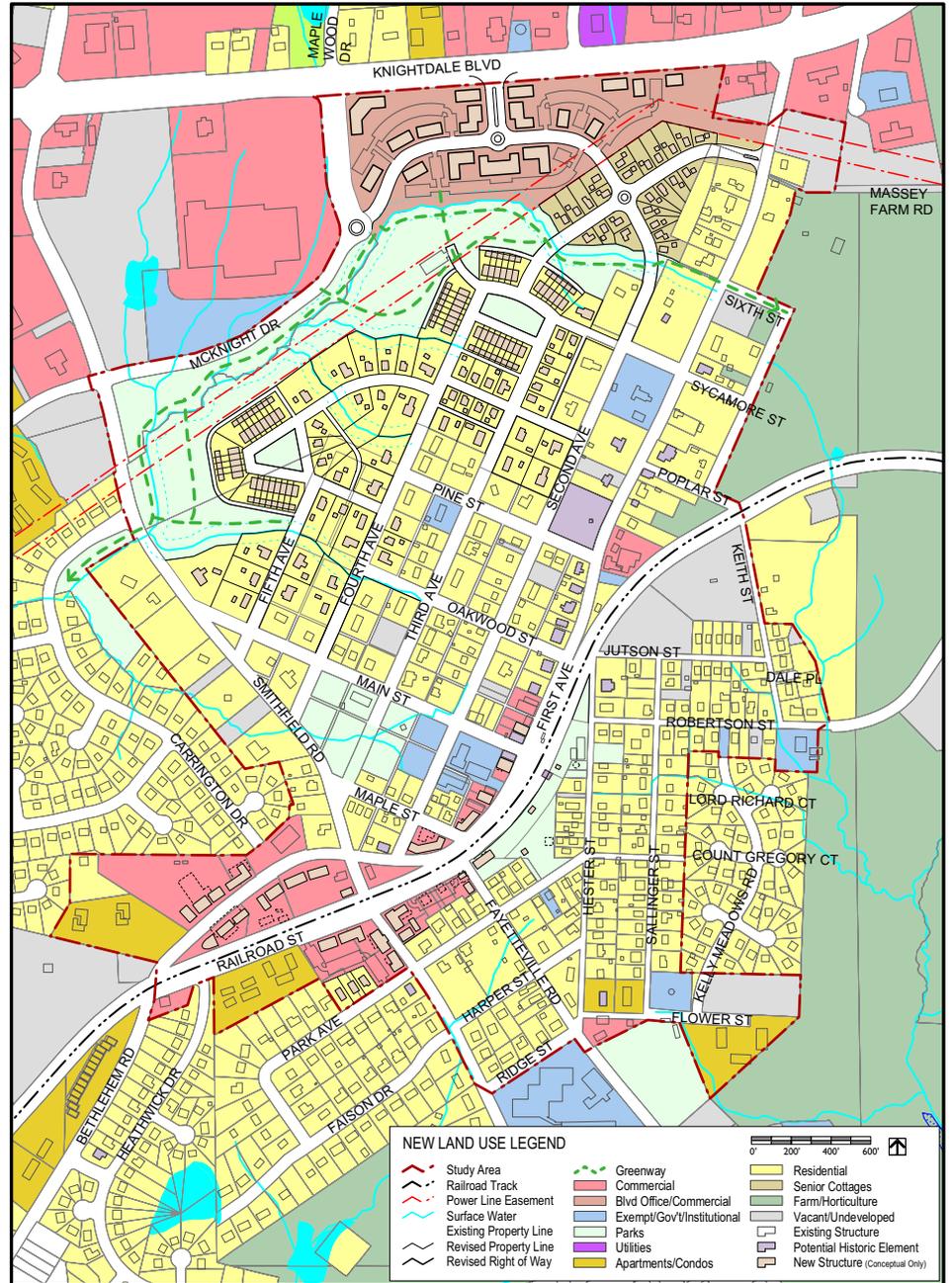
# LAND USE

The land use diagram for Old Town Knightdale envisions vibrant neighborhoods, successful commercial districts, and recreational and community/institutional uses, both existing and new. These uses of land are arranged in a physical pattern that enhances community character and allows multiple transportation options, including car travel, walking, and bicycling, as well as potential public transit service.

The text below and on the pages that follow describes the various land uses and areas on the diagram: residential neighborhoods, the historic depot district, greenfield (new) development, and parks and public facilities.

Residential areas focus primarily on single-family detached houses. New single-family houses are developed adjacent to existing ones at a similar building scale and lot size. The new houses act as a harmonious transition to small pockets of townhouses and senior housing, which occur in limited amounts and locations consistent with neighborhood stability in the north and west areas of the study area.

*Proposed Land Use*



## RESIDENTIAL USES

The residential areas will enjoy advantages that few neighborhoods in the region can claim: narrow roads shaded by mature hardwood trees, an authentic historical street layout, nearby parks, and a small nearby commercial area.

This small-town setting confers a market premium on existing homes in Old Town, and helps create a strong market for new single-family houses. Zoning rules ensure that infill residential development is compatible with the community's existing built pattern, particularly in terms of lot dimensions, house size, and setbacks.

Townhouses that face onto a common green are integrated into the neighborhood without fundamentally altering its character.

Another development option for single-family houses applies conservation lots that reserve significant natural areas in common ownership. The western side of the study area is a likely location for a conservation development, because multiple streams flowing through the site limit where streets and lot lines can go.



*View looking north along Third Ave toward new single family detached homes*



*Examples of possible townhouses*



## STRENGTHENING NEIGHBORHOODS

Old Town stakeholders strongly support protecting and enhancing existing neighborhoods. To that end, a variety of tools for neighborhood revitalization are recommended. These include zoning tools, rental licensing, code enforcement, low-interest rehab loans, homeownership incentives, and regulatory reform to encourage reinvestment in existing housing stock; more details about these tools are given in the Market Reconnaissance memorandum (see Appendix).

Zoning rules should reflect the community's goals for these neighborhoods, both for the underlying (basic) zoning district and a possible Neighborhood Conservation Overlay district (NCOD). The NCOD is a tool for protecting older neighborhoods by ensuring that the physical character of new development is basically consistent with certain elements of the old. The exact geographic boundaries of the overlay district and the specific provisions would be determined largely through neighborhood input as part of plan implementation, but community members have indicated so far that it should be applied to residential areas on both sides of First Avenue, and should include at least the elements of house size, lot size, and setbacks consistent with neighboring properties.

The underlying zoning should allow a fairly limited range of land uses compatible with single-family housing, and apply dimensional and form standards that reflect the desired physical pattern (mostly detached houses on moderate-sized lots). A neighborhood zoning category is recommended that would allow single-family houses and, for new development areas, townhouses as not more than 25% of the total number of dwelling units proposed.

The Town should invest in infrastructure in Old Town neighborhoods just as it expects to fund infrastructure in newer areas. Upkeep in older areas is as important as imposing quality standards on new development and sends a message about the importance of maintaining community-wide quality of life.

One or more voluntary neighborhood associations would also benefit residential areas. The unity of homeowners will help guide policy decisions of the Town, as well as provide some consensus and security about property upkeep and improvements, crime prevention, and social ties. An example of a voluntary program that a neighborhood association can undertake is designating a "Home of the Month" based on attractive landscaping, home improvements, or



appearance. The homeowner receives a sign for the yard, and the property is featured in the neighborhood newsletter or the local newspaper.

As the market reconnaissance report notes, there are significant opportunities to build on the restoration and upgrading of existing housing stock, since housing in Old Town is somewhat undersized to current market preferences. Regulatory policies should make it easy to upgrade and expand homes in Old Town in order not to put undue limits on the value that homeowners can add. This will serve as a natural prevention measure for new rental conversions, and help ensure that existing homeowners and new buyers will live in the area.

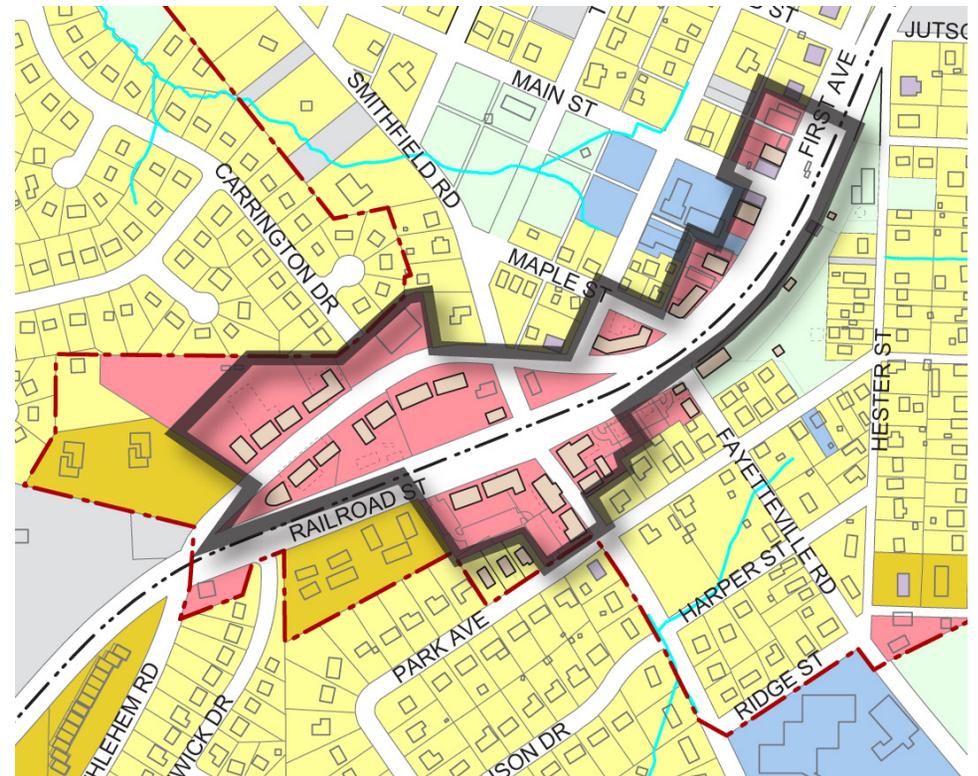
## HISTORIC DEPOT DISTRICT

The value of residential areas is enhanced by the nearby “Depot District” – a revitalized commercial district fronting First Avenue, and extending over time into a new expansion area west of Smithfield Road on both sides of First Avenue. It is shown on the map on this page.

The Depot District will draw from an increasing customer base as outlying suburbs continue to develop and modest increases in traffic improve commercial viability. Commercial uses here focus on destination retail as well as neighborhood-serving uses. Since the district is not well located to compete with abundant highway-oriented shopping centers nearby, the retail and service uses here will need to occupy a different niche.

Commercial types that would likely perform well in the depot district are:

- Personal service and convenience uses that serve as an amenity to the surrounding residential areas, such as a day care, small café or coffeehouse;
- Specialty / destination retail – stores that offer unique products not offered elsewhere in the region (as opposed to franchise or chain stores) that attract customers regardless of location, and therefore are not dependent on highway visibility; and
- Small professional offices.



*Historic Depot District*

## HISTORIC DEPOT DISTRICT

Representative businesses might include craft-oriented producers and retailers (such as if the existing stained glass business offered retail merchandise), antique stores, spas/personal service establishments, restaurants and cafés, professional services, neighborhood convenience, gift shops, and office-professional space for small companies and individuals who seek a “main street” location in a converted house or small office building.

A strong marketing strategy building on the unique visual characteristics of the district is crucial for business success. It should focus on:

- (1) the vintage architectural heritage and rail town setting,
- (2) the market base of new residential developments east and south of Old Town that generate pass-through trips, and
- (3) potential expansion of retail opportunities linked to the existing stained glass restoration studio that has national-level exposure.



*Depot District sidewalks should include pedestrian-friendly elements*



*Depot District storefronts should have inviting window displays and signage*



*Depot District should have parking on-street and behind stores*

## HISTORIC DEPOT DISTRICT

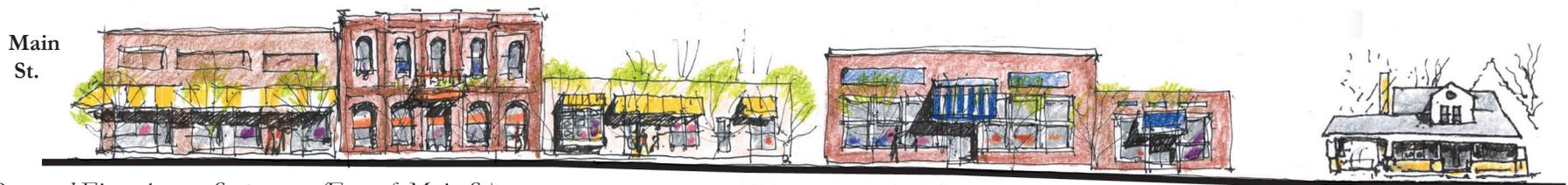
To supplement the marketing strategy, incentives for business development, improvements to commercial property, and construction of small-scale infill buildings are discussed in more detail in the Market Reconnaissance memorandum (see Appendix).

As part of the strategy, streetscape improvements should reflect good commercial district design, with appropriate street furniture (such as lighting, benches, and trash receptacles). Streetscape improvements such as street trees, wider sidewalks, and bulbouts will make the area more friendly to lingering pedestrians.

Other examples of streetscape enhancements include seasonal plantings of annuals and flowers both in public space (planting beds and sidewalk planters) and private space (window boxes, tubs by storefronts), and outdoor seating (both private for sidewalk cafés, and public benches).



*Proposed First Avenue Streetscape (West of Main St)*



*Proposed First Avenue Streetscape (East of Main St)*



*Existing First Avenue Streetscape*

## HISTORIC DEPOT DISTRICT

Design standards for the district will ensure that new development is pedestrian-oriented and visually harmonious; for example, buildings should have a street-front orientation with windows onto the sidewalk, and inviting elements such as canopies for visual interest. The materials

and style of new buildings should augment the vintage/railroad character of the existing buildings.

These improvements are further described and illustrated in the Architectural and

Urban Design Principles section of this plan. Re-investment by the Town in physical improvements to the streetscape and a new community park across the street will also build on visual character and help private revitalization efforts succeed.



*Conceptual illustration of new development in Depot District expansion area south of railroad (view looking north along Smithfield Road)*

## HISTORIC DEPOT DISTRICT

Incentives for revitalization include façade improvement and rehab loans and grants, business micro loans and revolving funds at local banks, tax increment financing, retail entrepreneur grants or rental subsidies, and business technical assistance. To facilitate the renovation and adaptive reuse of existing commercial buildings, the NC Rehab Code should be observed in building standards and inspections.

Attentive management is also key. As detailed in the Market Report for this plan, a strategy / business recruitment committee would help manage the depot district, work with property owners and encourage or recruit infill commercial uses, with a focus on those most likely to enhance the overall district and succeed: specialty retail, craft, professional office, and personal & community services. As an inexpensive starting point, the visibility of the depot district can be enhanced with temporary, changing displays of artwork; placing electric candles in windows, including unused spaces and upper floors, at holidays; and planters or sandwich board signs placed near building entries.

Expansion areas for the depot district (shown on the map on p. 24) exist along both sides of First Avenue and along Railroad Street west of the intersection with Smithfield Road. At the southwest block of this intersection, a community-serving use (such as a senior center or day care) could serve as a destination to draw people off of the main highway and into the old town area. The use should have an “active edge” physically designed to link the interior of the building to the street and sidewalk, perhaps with a small café or even a sit-down restaurant that is integrated with the main building and also acts as a destination. While a large, mixed-use commercial project is probably not viable here, a community or institutional use with active daily use, along with the private “active edge” for retail or food service, can generate daily visitation, enhance the critical mass for a successful commercial district, and create spin-off effects that benefit the overall area.

Adequate institutional and regulatory arrangements for parking are also critical to the success of the depot design district. Parking in the depot district is mostly



*A bright new coat of paint and awnings can transform dull building facades*

curb (on-street) spaces. Shared off-street lots that take advantage of time-of-day usage patterns are also used, although off-street lots that serve a single building or use are discouraged since they are deadly to community character and walkability. Routes from parking spaces to destinations are mainly along the street and storefronts. For special events in and around the district, overflow parking can occur on grassy areas and road edges.

## GREENFIELD DEVELOPMENT

The large vacant tract (“Suggs Tract”) at the north side of the Old Town study area is an excellent opportunity for new development that will enhance the area’s identity, adding value both to the existing neighborhoods and to the new construction on the greenfield tract itself.



*View looking south to new office and commercial development along Knightdale Boulevard (in foreground)*

# GREENFIELD DEVELOPMENT

Along the tract's frontage on Knightdale Boulevard (as shown on the map, top right), opportunities are highest for new office and commercial space. Particularly because of new subdivisions in the vicinity, there will be a need for finance, insurance, real estate, medical, and professional services to serve the increased household base. Further, aging and retirement trends will increase demand for medical and personal services in potential office space here, which is ideally situated between two planned medical centers.

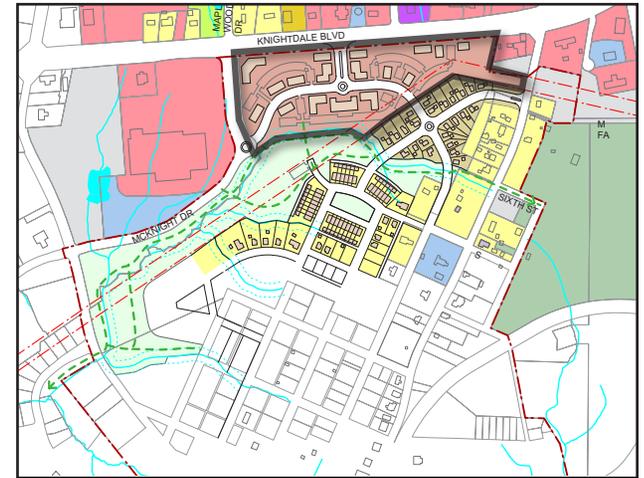
To avoid competing with the depot district, any retail establishments and services in this area should be accessory to or supportive of the primary office-professional uses in scale, amount, and focus. To distinguish the site from existing strip commercial development, it should be developed with a walkable pattern, including good building design and layout, although it will still need a substantial parking and vehicle orientation because of its highly auto-accessible location.

As shown on the lower map on this page, an active living retirement village with quality senior housing is proposed as a transition between new commercial/office development along the highway and the

existing single-family neighborhoods to the south.

No-maintenance patio homes or cottages in a condo ownership form are likely to be successful based on a strong area market for retirement and 55+ living options, as well as a highly desirable location near shopping, pleasant neighborhoods, and recreational opportunities (such as the neighborhood parks and greenway). The active living retirement village will also increase the opportunities for professional service offices and retail nearby. It is well connected to the existing neighborhood and depot district by neighborhood streets and pedestrian connections.

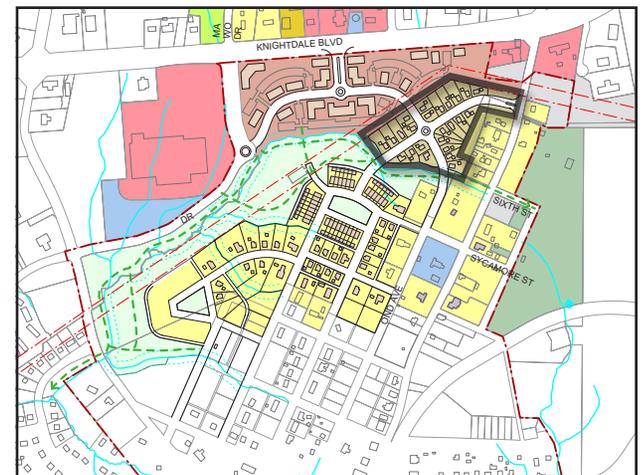
Also on the Suggs tract, wooded buffers along the upper tributaries of Mingo Creek provide separation, but also walkable links, between existing neighborhoods and highway commercial areas. This green space is improved with greenway trails, a dog park, and other amenities that connect and benefit the whole area. One or more small pocket parks are incorporated into the design of the neighborhood extension. These parks and recreational opportunities ensure that lots and residences in this area are at a premium compared to ordinary suburban development.



*Office and commercial area*



*Examples of senior patio homes*

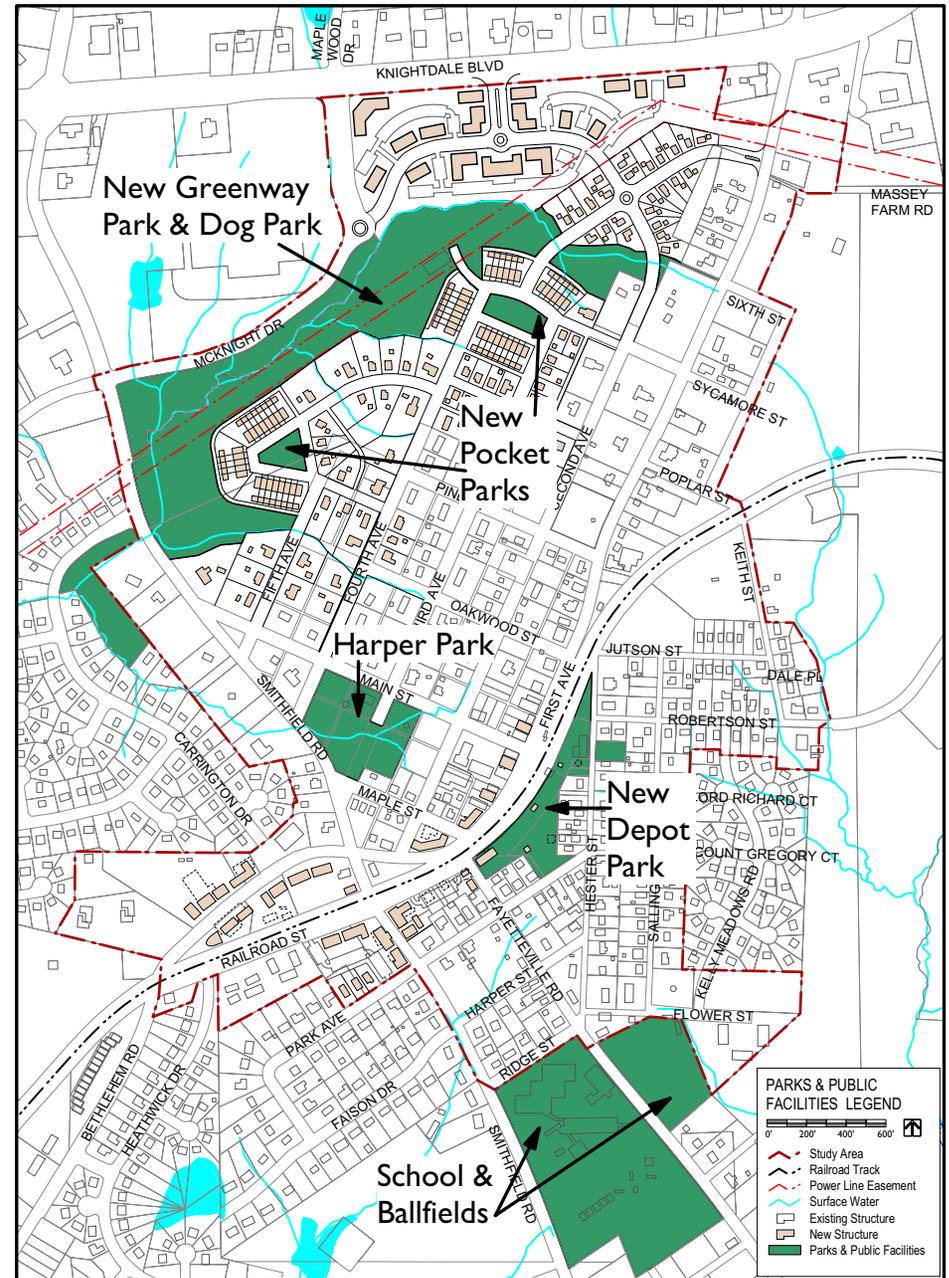


*Senior housing area*

# PARKS AND PUBLIC FACILITIES

In addition to the neighborhood pocket parks in the greenfield area, a primary site for a new park is along the railroad tracks across from the depot commercial district. Standing under the mature trees on this site, one has an excellent view of the historic depot commercial district and the row of historic houses extending north along First Avenue. This spot, like no other, gives one a sense of Knightdale as it was. This highly visible location should be enhanced with a central public place that gives identity to Old Town, both as a landmark to help people identify the “Heart of Knightdale” and to help unify the neighborhoods on either side of the railroad.

Physical improvements could include an outdoor gathering place, such as a small amphitheater with a lawn, for outdoor movies, festivals, and special events; it could also serve as a multi-purpose play area and picnic spot at other times. Tot swings and picnic tables or a shelter might also be located in the park. A water feature would provide particular interest. A reconstructed or relocated railroad depot would serve as a landmark and provide community identity, and could house a community-serving or public use, or serve as a rental facility for special events. Requisite furnishings include waste receptacles, drinking water fountains, and public restrooms.



## PARKS AND PUBLIC FACILITIES



Planning and programming for the park are essential to ensure that it appears as a high-quality, well-cared-for place. Regular landscape and building maintenance must be provided for. A small commercial presence in the park (such as a food kiosk) would limit vandalism and misuse of public facilities. Moreover, having food available in or near the park will attract park users. Special events programming is also key. Craft shows, farmers' markets, and summer movies are examples of events that can make the park a community anchor. Wake Forest has an excellent example of a small Saturday farmers' market that could serve as a model for Knightdale, while Saturday night "movies on the green" have proven wildly popular in Southern Village (Chapel Hill) and other communities.



*As one Old Town resident observed, people often get to know their neighbors through their dogs*



*A nearby café or sandwich shop will benefit from a seating area in the park where people can bring their food purchases*



*Families enjoy parks within walking distance of neighborhoods*



*Having a community gathering place helps bring neighbors together*

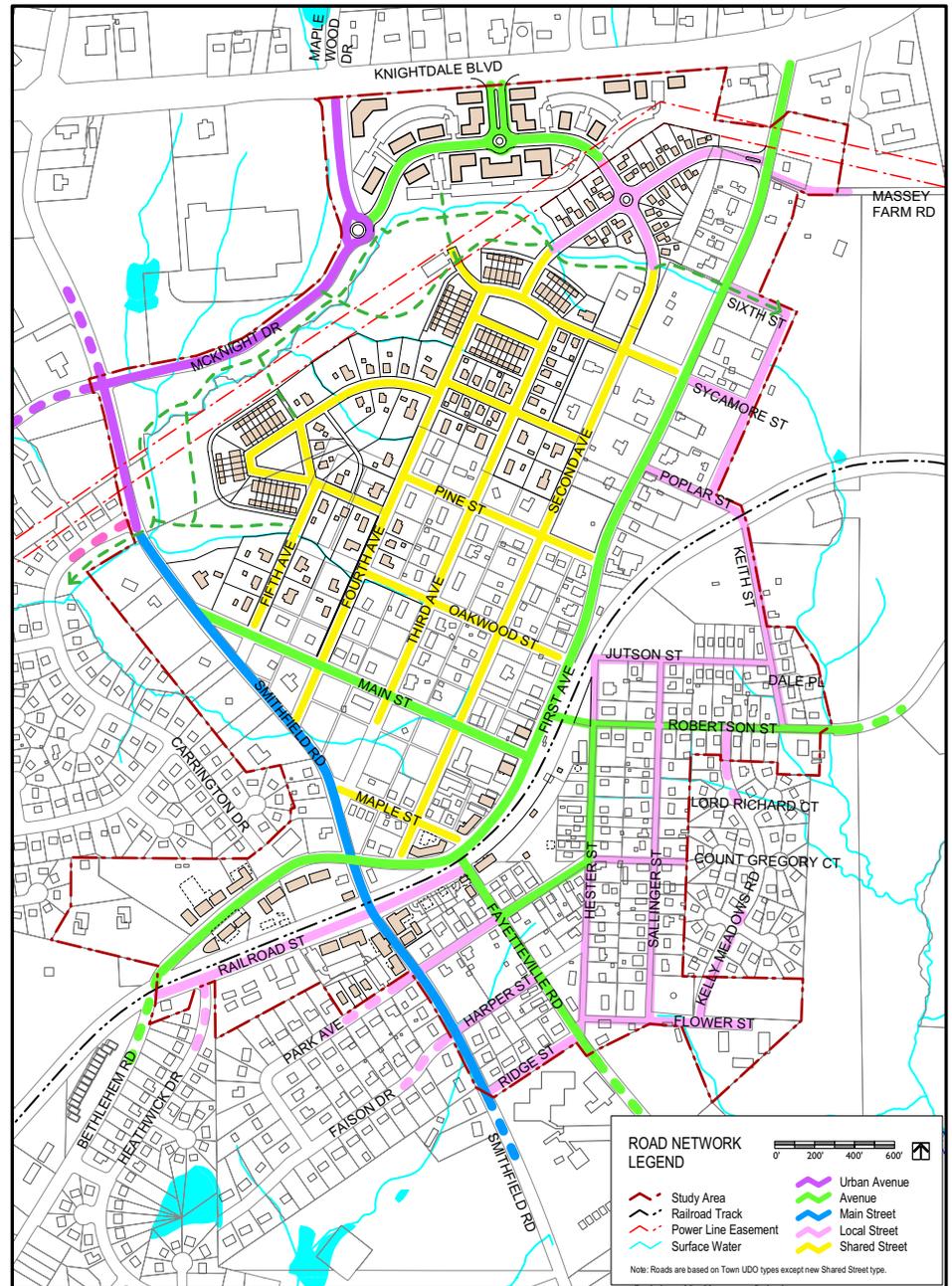
# TRANSPORTATION OVERVIEW

New roads connecting Old Town to new development are designed to protect community character, walkability, and safety. The existing historic street grid is preserved, and vehicular connections are extended into new greenfield development areas (using indirect routing, “T” intersections, a roundabout, and narrowed pavement) to prevent excessive cut-through traffic.

In the long term, the potential rail transit opportunity is maximized via the assemblage of public land adjacent to the rail corridor in the form of a community park in the heart of Old Town. If and when definite rail transit system plans become a reality for the region, the public-owned land is in place here to allow the development of a transit station next to the railroad corridor. Zoning changes could then be implemented to facilitate redevelopment in accordance with detailed plans for transit – whether that takes the shape of park-and-ride facilities or dense transit-oriented development. In the meantime, existing structures and neighborhoods can remain largely undisturbed until clear transit plans are in place.

In the future, any parking facilities to serve the potential transit stop near the depot district should be at a small remove from the boarding area. Trip chaining (additional customer patronage of uses in the depot district) will increase if there is a small distance between car storage and transit.

Road Network



## MAJOR ROADS

Currently two roadways within the core area function as minor arterials or major collectors. Smithfield Road serves as a connector between the US 64/264 major arterial and the Knightdale Boulevard (US 64 Business) commercial strip. First Avenue connects the core with Knightdale Boulevard, then becomes Bethlehem Road which connects with Old Faison Road.

Smithfield Road is the more heavily traveled of the two and traffic is expected to increase. Smithfield directly links a US 64/264 interchange with a major intersection on Knightdale Boulevard, so it serves not only residents of neighborhoods and subdivisions along it, but also travelers on one highway seeking to reach the other. Bethlehem Road does not have an interchange with US 64/264 and, although Old Faison does, most highway-to-highway travel using that interchange would use Hodge Road. Once I-540 is complete, much of the highway-to-highway traffic will redirect onto that route.

Residential development east of Knightdale in Wendell may result in much greater travel along Robertson Street (Knightdale-Eagle Rock Road) as an alternate to the Wendell Boulevard-to-Knightdale Boule-

vard route. Knightdale-Eagle Rock Road becomes Robertson Street, which intersects First Avenue near the center of Old Town.

### Smithfield Road

Earlier state-level plans for Smithfield Road called for a multi-lane roadway between the two highways. While a multi-lane segment may be appropriate for the commercial node proposed north of the US 64/264 interchange, extending such a wide roadway through the core would have substantial negative effects, including disrupting community cohesion through relocations and creating a pedestrian barrier between neighborhoods and the school and First Avenue commercial district.

The design of Smithfield Road must be responsive to the development along it, since accessibility is more important than mobility along this corridor. While the specific cross-sections and dimensions will need to be determined through engineering studies, the basic concept is for the road to have:

- 4 lanes divided by a narrow median from Knightdale Boulevard to McKnight Drive with turning pockets,

- 3 lanes from McKnight Drive to Carrington Drive,
- 2 lanes from Carrington Drive to Broadway Street, with turning pockets at Main Street, First Avenue, school and Broadway,
- 4 lanes (divided) from Broadway Street to the US 64/264 interchange.

From Knightdale Boulevard south to Broadway, the Smithfield Road right-of-way may be too constrained to permit use of 14-foot-wide lanes to accommodate bicyclists alongside drivers in a shared lane. If this is indeed the case, bicyclists may be better accommodated via a multi-use path along the east side of Smithfield Road providing access to Main Street, First Avenue and Fayetteville Street. South of Broadway there should be sufficient right-of-way to provide wide paved shoulders.

Due to these same right-of-way constraints, it is advisable to initially connect the multi-use path along northern Smithfield Road to the sidewalks or paths along Main Street, and from there connect to other pedestrian paths within the core. If land use patterns change or travel demands indicate a need, a sidewalk along the east side of Smithfield

## MAJOR ROADS

Road south of Main Street may become desirable. South of First Avenue, it may be possible to better accommodate some pedestrian travel along Fayetteville Street. While it is usually preferable to have a sidewalk or path along both sides of a major road, it may be more feasible to place a path along the west side of Smithfield if most pedestrian travel demand east of Smithfield Road can be met using Fayetteville Street.

### First Avenue

Main Street was built on an axis with the train station, whereas the businesses along First Avenue made it function as the true “main street.” Regardless, First Avenue does not provide the same level of accessibility as Smithfield Road so its main function is to provide direct access to abutting properties and intersecting streets.

The design of First Avenue must be responsive to the development along it, since access is the primary function along this corridor. While the specific cross-sections and dimensions will need to be determined through engineering studies, the basic concept is for the road to have: turning pockets at important cross streets, such as Smithfield Road, Robertson Street, and subdivision entrance streets north and

south of the core, and on-street parking within the central core’s commercial area, as discussed under “Depot Commercial District.”

It may not be feasible to accommodate bicyclists within shared lanes along the northern and southern segments of First Avenue, so from Oakwood Street north it may be preferable to direct bicyclists onto Second Avenue. Wide paved shoulders can be used along south First Avenue and Bethlehem Road to accommodate bicyclists. Due to right-of-way constraints and limited sight lines along South First near Smithfield Road, it may be preferable to direct bicycle travel along Railroad Street to access the central core area.

Sidewalks along both sides of First Avenue are preferred if feasible, and along just the west side if not. Sidewalks here should be thought of as radiating out from the central core in order to connect nearby neighborhoods with commercial, cultural and civic uses. While the Smithfield Road multi-use path is proposed to reach destinations on the other side of Knightdale Boulevard, pedestrian access to Knightdale Boulevard via First Avenue is not an objective until such time as pedestrian accommodations along Knightdale Boulevard are in place.



## MAJOR ROADS

### Robertson Street

Robertson Street is the “town” end of formerly rural Knightdale-Eagle Rock Road. As of the writing of this document, thousands of houses have been permitted for development along Wendell end of this road. It is expected that some Wendell residents will use Robertson Street as an alternate route to reach Knightdale Boulevard. If designed in accord with its core area context, Robertson Street traffic can help revitalize the depot commercial district along First Avenue.

Within the core area, the design of Robertson Street must be sensitive to its current function as a neighborhood street. While Knightdale-Eagle Rock Road may need to be multi-lane to accommodate traffic volumes and turning movements of the growth along it, the Robertson Road segment needs to remain as slow and narrow as possible. Neither speed nor capacity are important within the core area, and both are limited by the at-grade rail crossing just east of the T intersection with First Avenue. Wayfinding signs should direct drivers traveling from Wendell or

US 64/264 through the commercial area along First Avenue to Smithfield Road. Such signage should help steer most traffic through the length of the depot district while minimizing any neighborhood cut-through traffic.

While specific proposals need to be explored in much more detail through engineering studies, the basic concept is for the road to have:

- a gateway single-lane roundabout at Keith Street, and
- turning pockets at Hester Street, and possibly other intersecting streets.

It should be feasible to accommodate bicyclists within wide shared lanes between First Avenue and Keith Street. Outside of the core area, it is anticipated that a shoulder/swale cross section will be used, so as Knightdale-Eagle Rock Road is improved or expanded, wide paved shoulders should be installed to accommodate bicycle connections between Knightdale and Wendell.



*Multi-use path to accommodate bicycles and pedestrians*

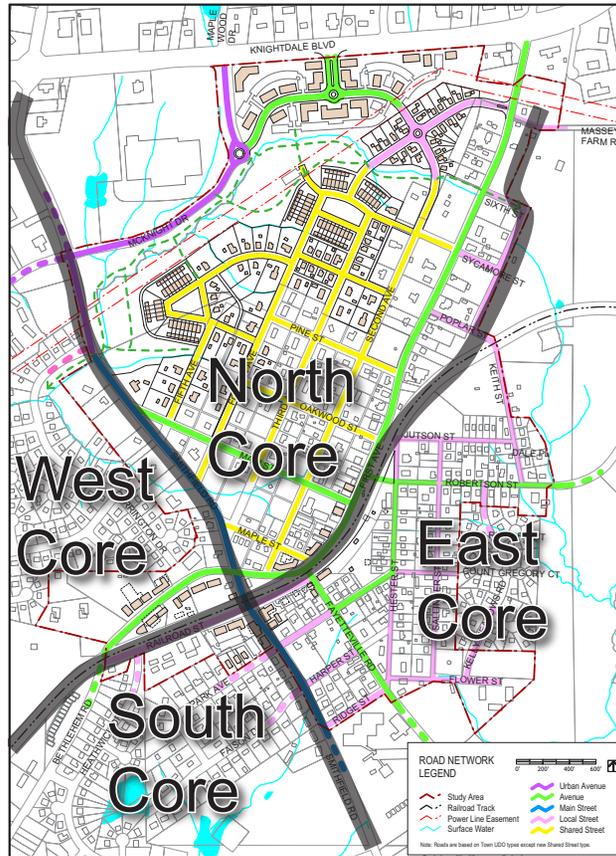
Sidewalks along both sides of Robertson are preferred if feasible, and along just the south side if not. Sidewalks here should be thought of as radiating out from the central core in order to connect nearby neighborhoods with commercial, cultural and civic uses. Pedestrian access to Hester Street and Park Avenue is essential if the area they encompass is to become a successful transit oriented development at some point in the future.

## LOCAL STREETS

### North Core Neighborhoods

New streets will augment old between North Smithfield and North First Avenue's east side, while connecting McKnight Drive with the depot district. New streets should provide a high level of connectivity within an indirectly routed network that discourages cut-through traffic and speeding. Indirect access includes both T and Y intersections of new and existing streets. From adjacent major roads, direct access to new development will be from McKnight Drive and the northern segment of First Avenue. The indirect "backdoor" access will link old and new neighborhoods for walkers, bicyclists and drivers making short trips along shared streets.

While most existing rights-of-way within the north core neighborhood would permit installation of sidewalks, residents expressed their preference for maintaining the shared street network where cars, both moving and parked, coexist alongside pedestrians and bicyclists. Curb and gutter construction is not needed along existing streets, although flat or horizontal curbing may be desirable as a means of protecting pavement edges. The same should be true of future single family residential development. In contrast, where new streets will serve multi-family or commercial development, curb-and-



Core areas

gutter cross sections with sidewalks may be needed.

New streets should be sufficiently wide so that bicyclists and drivers can continue to share lanes. Slower vehicle speeds can be encouraged by use of traffic calming measures such as reduced curb radii, curb extensions at intersections and mid-block

crossings, and the systematic use of speed humps or speed tables as needed. All traffic calming techniques, as well as all other elements of street design, need to keep the needs of bicyclists in mind during design and maintenance.

The core area's future may include transit oriented development (TOD) from First Avenue east to Hester Street/Park Avenue and surrounding blocks. At this area redevelops and revitalizes, homeowners within the north core neighborhood may want to become part of the TOD. If this neighborhood begins to densify, the desirability of shared streets should be reassessed against the higher pedestrian level of service provided by a sidewalk network.

### East Core Neighborhoods

Existing streets will redevelop in the area bounded by the railroad tracks to the north and west and Smithfield Road to the south. As noted under "Major Roadways", Robertson Street may in the future be redesigned to better accommodate core pedestrian traffic and increasing volumes of vehicular traffic from outside of town. Hester Street and Park Avenue would expand as part of future rail transit station

## LOCAL STREETS

plans to include wider lanes, turning pockets and wide sidewalks.

Most rights-of-way in east core neighborhoods are too narrow to allow wide shared lanes, on-street parking and sidewalks. In the near term, where street space is most limited yet bicycle travel is desired, it may be more prudent to slow vehicular traffic, rather than widen lanes, as a method of permitting safe shared use. As these streets already have small curb radii and narrow cross sections, slower vehicle speeds can be encouraged by the systematic use of speed humps or speed tables as needed. These traffic calming techniques, as well as all other elements of street design, need to keep the needs of bicyclists in mind during design and maintenance. Examples of elements to be addressed include edge traps or abrupt dropoffs that can catch bicycle wheels or pedals, as well as metal grates, plates, and covers that can affect tires, especially when wet.

Most of the east core's streets are well connected with the exception of Kelly Meadows Drive. Future redevelopment opportunities may allow House Street to connect with Count Gregory Court. In the near

term, a method of permitting non-vehicular access between Sallinger Street and Kelly Meadows Drive would improve pedestrian and bicycle connectivity.

Neighborhood streets here provide direct access to the school and ballfields. Where feasible sidewalks should be installed on at least one side of each street. If the Eastrans commuter rail station becomes a reality for Knightdale and the east core neighborhoods begin to redevelop in response, at that time densification of development should include provisions to widen rights-of-way to permit sidewalks along both sides as well as on-street parking along one side. This can be accomplished by having new development pull back from the existing street so that new growth is mostly up rather than out.

### **South Core Neighborhoods**

The neighborhoods between south Smithfield Road and south First Avenue/Bethlehem Road are the least intensively developed with the fewest connected streets. For the driver, bicyclist, and pedestrian, there is really no where to go in these neighborhoods but out and back.

The only street here with any through traffic

is Railroad Street. As noted previously within "Major Roadways", Railroad Street may provide what is basically a bicycle bypass of the congested and constricted First Avenue-Smithfield Road intersection area by providing an alternate route linking Bethlehem Road with Main Street, Fayetteville Street, north First Avenue and Robertson Street. As such, it is critical that vehicle speeds along this short but relatively straight segment be kept as low as possible, through use of traffic calming devices if necessary.

The South Core is expected to experience some redevelopment and infill as well as continued new development to the south. Both new development and redevelopment present opportunities to better connect these neighborhoods. Neighborhood connectivity should provide each resident with at least two routes to access their home from a major road. This also improves access for emergency vehicles as well as service vehicles such as school buses and garbage trucks. Improved connectivity also expands opportunities for walking and biking. Currently, the street pattern is so disconnected that a child trying to walk to school would have to cut across private property or take a lengthy indirect route.

## LOCAL STREETS

Residential street connections between neighborhoods should not provide a direct route between Bethlehem Road and Smithfield Road. If such a route is desired it should be designed as a collector road, with access limited to neighborhood and subdivision streets but no driveways.

### West Core Neighborhoods

The neighborhoods between Bethlehem Road and north Smithfield Road are the newest in the core as well as the most isolated from it. Although the internal connectivity is adequate, external connections of these neighborhoods are limited to Carrington Drive or McKnight Drive – one or the other, as there are no connections between subdivisions. A new development under construction at the time of writing may provide an additional street outlet onto South First Avenue, but at present it is unknown whether there will be street or pedestrian connections between this new subdivision and existing subdivisions accessed via Carrington.

The West Core may experience some continued new development to the west and southwest, although the railroad corridor fragments this area. New development

presents an opportunity to better connect neighborhoods. Neighborhood connectivity should provide each resident with at least two routes to access their home from a major road. This also improves access for emergency vehicles as well as service vehicles such as school buses and garbage trucks. Improved connectivity also expands opportunities for walking and biking. The current disconnected street patterns require a resident trying to walk to the depot district either to cut across private property or take a lengthy indirect route.

In the past the decision was made by residents to wall themselves off from commercial development along south First Avenue. It may be more acceptable for a pedestrian connection between Carrington and First Avenue to be created first, since the main change needed is a gate in the existing fence. Pedestrian access may be all the neighborhood desires or this pedestrian connection may evolve over time into a vehicular street. Any future vehicular connection should include an assessment of the need to traffic calm Carrington to discourage speeding and cut-through traffic seeking to avoid the signal at Smithfield and First.

### Depot District

To most travelers on Smithfield Road, the commercial district on First Avenue is nearly invisible. As the area is not suitable for or competitive as convenience retail, being “off the beaten track” is not necessarily a problem. Even destination specialty retail, however, can benefit from some degree of visibility. So rather than attempt to reroute through traffic past business, wayfinding signs at the Smithfield-First Avenue intersection should welcome people to Old Town Knightdale and direct attention to the depot commercial district. A distinctive design will help create awareness about the district.

The primary street segment within the depot district is First Avenue, and the main function of this segment is to provide on-street parking and access to adjacent land uses. The environment for pedestrians, bicyclists and drivers engaged in parking must be convenient and comfortable for the district’s economic viability, so vehicle speeds must be respectful of people crossing and slow moving vehicles maneuvering in the street.

## LOCAL STREETS

While the specific cross sections and dimensions will need to be determined through engineering studies, the basic concept is for this segment of First Avenue to have:

- on-street parking along both sides – angled, parallel or both,
- bicycle lanes or wide shared lanes,
- a sidewalk along the west side at least 5 feet wide and ADA accessible, and preferably wider,
- bicycle racks,
- street trees and other vertical elements that visually narrow the apparent road width;
- pedestrian crosswalks, possibly raised on top of speed tables, and
- other traffic calming devices as deemed necessary.

Main Street connects the depot district with north core neighborhood streets and with Smithfield Road. The main function of this street is to provide slow speed connections between all of these areas, as well as to the park and recreation facilities along the south side of the street. A secondary function is to provide on-street parking. A sidewalk

or multi-use path along Main Street will connect the Smithfield Road path with the depot district.

The environment for pedestrians, bicyclists, and drivers must be convenient, comfortable, and safe – particularly for children and older adults seeking access to the park – so posted vehicle speeds must be respectful of people crossing Main Street as well as drivers accessing neighborhood streets and parking.

While the specific cross-sections and dimensions will need to be determined through engineering studies, the basic concept is for this segment of Main Street to have:

- a multi-use path or sidewalk along the north side,
- marked crosswalks, possibly raised on top of speed tables, at Third and Fourth Avenues,
- on-street parking along the south side by the park,
- on-street parking along both sides near First Avenue, and
- wide shared lanes.



*Convenient seating for pedestrians*



*Sidewalk shared by pedestrians and retail businesses*

# PEDESTRIAN NETWORK AND TRANSIT CONSIDERATIONS

## Bicycle and Pedestrian Network

The depot district on First Avenue and the north core neighborhoods have functional pedestrian networks. Although they are too narrow and generally do not comply with contemporary Americans with Disabilities Act (ADA) standards, the depot district does have sidewalks. The north core neighborhoods have a interconnected network of shared streets, which allows residents to move around the neighborhood by car, bicycle or on foot. North core neighborhood residents can easily reach the depot district and the park, but would have difficulty reaching destinations outside of the neighborhood. West core neighborhoods have adequate internal street connectivity, but are even more isolated from destinations outside of the neighborhood.

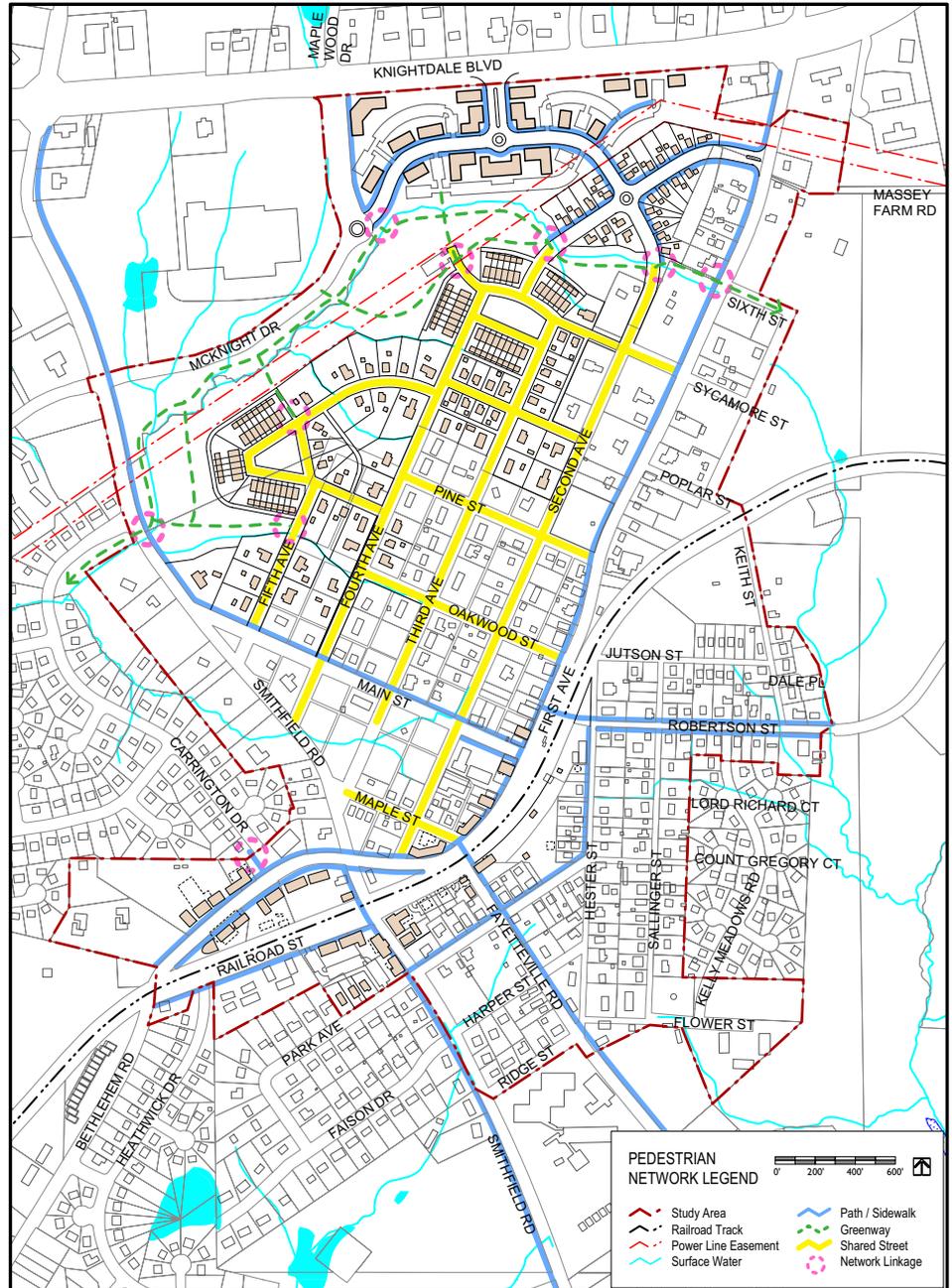


*Bike lane*



*Multi-use path to accommodate pedestrians and bicycles*

*Pedestrian Network*



## PEDESTRIAN NETWORK AND TRANSIT CONSIDERATIONS

The east core neighborhoods have the convenience of a connected street network but without the comfort of sufficiently wide shared streets. South core neighborhoods have the lowest connectivity and least pedestrian-friendly streets; moreover, to get to any external destination, residents must cross either south First Avenue or south Smithfield Road. Routing through this area can be so indirect that a child's walk to school here can be as long as if they lived in the north core, even though this area is across Smithfield Road from the school.

Neighborhood-level goals for bicycle and pedestrian improvements have been addressed as part of discussions about major roads and local streets. In a nutshell, the intent is to enhance and expand upon what currently exists in the north core neighborhoods and depot district, and to better accommodate walking and biking in the other neighborhoods while improving both internal and external connectivity.

Core-level goals are:

- connect the core with destinations on Knightdale Boulevard and beyond – particularly the library – via a multi-use path along the east side of north Smithfield Road,

- accommodate bicyclists with wide paved shoulders along Knightdale-Eagle Rock Road, south Smithfield Road and Bethlehem Road, while
- connecting these corridors a multi-use path along Main Street, and bike lanes within First Avenue and Railroad Street.

### Rail Transit and Transit-Oriented Development

The Eastrans rail plan proposes a commuter rail along the existing Norfolk Southern line into downtown Raleigh. Commuter rail, which focuses on peak period weekday work trips, does not allow the same redevelopment intensity as light rail or other rail systems that provide transport throughout the day. However, should commuter rail become a reality for Knightdale, all opportunities to harness market forces to create transit-oriented development (TOD) should be explored.

The older parts of the core generally fit the basic concept of walkable community design – moderate residential densities (4 to 6 dwellings per acre) in close proximity to schools, parks, religious institutions and other destinations, accessible via shared streets or a sidewalk network.

TODs, on the other hand, require higher densities (10+ dwellings per acre) in very close proximity to “live/work/play” areas accessible via a highly connected sidewalk network. The development intensities within a TOD can be thought of as a wedding cake – the most intensive uses surround the station and then decrease with distance.

Two aspects of commuter rail must be kept in mind. First, residents would be able to substitute train travel for car travel for the commute trip only. For other types of trips, a car will still be necessary, and so car ownership and use rates will continue to reflect the automobile orientation of the greater community. Second, many commuter rail users will be non-TOD residents, so the station area will require park-and-ride facilities.

Any park-and-ride facilities eventually developed if and when Eastrans becomes a reality should be scattered and located within a 1- to 3-block radius of the station. If commuters simply drove to and from an on-site parking facility immediately next to the station, the surrounding area would see few, if any, economic benefits from

## PEDESTRIAN NETWORK AND TRANSIT CONSIDERATIONS

commuter rail. Under this scenario, rail would simply relocate some congestion from highways leading to Raleigh and other job centers to smaller roads leading to the stations, since commuters would come and go in waves.

Scattering smaller parking facilities around the station area within a 1- to 3-block radius accomplishes several objectives – it reduces vehicle/pedestrian conflicts between commuters and TOD residents, it reduces peak traffic flows at any one driveway or intersection, and it requires commuters to walk through the TOD on their way from parking to the station and back. It is this last objective that has economic development implications for the existing commercial district, as well as for new commercial development that could spring up around Hester Street and Park Avenue. The commercial land development pattern within a TOD must be coordinated with the parking and pedestrian travel patterns to create maximum opportunities for linked trips or “trip chaining” by commuters. This would occur as commuters utilize service and retail establishments between parking facilities and the station. The decision

whether to commute by car or train can be influenced by other elements of the entire trip experience, so the convenience of coffee, dry cleaning, or the gym can be put to use to influence transportation choices and economic development.

### **Bus and Van Transit, and Para-transit**

Current Triangle Transit Authority (TTA) long range plans include the possibility of providing express commuter bus service to Knightdale. It is already possible to take a TTA coordinated car- or vanpool to Raleigh or RTP. New long-range regional plans may include bus rapid transit (BRT) as an option for eastern Wake and western Johnston Counties.

Neither bus nor vanpool transit services have any land use implications for Knightdale. While it is possible for BRT to result in a TOD around a station, this appears to be more likely in a greenfield setting or near an established employment center.

With no probable land development benefits from bus or van transit, such services are not beneficial to revitalization of the core



*Residential development in TOD*



*Residential development in TOD*

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## PEDESTRIAN NETWORK AND TRANSIT CONSIDERATIONS

area. Thus, if such transit services do become available, it is more important to get core residents to the service than to bring the service within the core.

This is not the case with para-transit, or demand-responsive transit providing services to the disabled, elderly and other non-drivers. Knightdale's population is aging along with the rest of the county, plus it is retaining and attracting a fair number of "near-retirees" who want to live in a small town setting close to their adult children. It is only a matter of time before personal mobility becomes a larger problem.

Personal mobility limitations of older and disabled residents can be overcome three

basic ways – by the resident relocating closer to desired land uses and services, by bringing desired goods and services to the resident, and by providing an alternative to driving. Even with more health services, shopping and recreation being developed in Knightdale, local para-transit services can help residents overcome personal mobility limitations to remain engaged and active within the community.

Para-transit services are well beyond the scope of this core area plan but, since personal mobility will become an issue for core area residents too, the need to further study para-transit is noted to encourage discussion and action.