

# Arrowwood

## Transit Station Area Plan

DRAFT DOCUMENT

SEPTEMBER 18, 2008

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# Executive Summary

## Purpose

The Arrowood Transit Station is the thirteenth station heading south from Center City along the South Corridor Light Rail Transit (LRT) line, also known as the LYNX Blue Line.

The Arrowood Transit Station Area Plan is the fifth of a series of plans for areas around the stations south of South End. The *Introduction to the South Corridor Station Area Plans* lays the foundation for the station area plans. This plan builds on that document. It analyzes current conditions in the area around the station, detailed in the Appendix.

The Concept Plan makes recommendations to bring the right mix of development to complement the transit investment, and to optimize the land use and infrastructure within the wider surrounding area to support its continued viability. The Concept Plan is the only section of this document to be adopted by City Council.

## Study Area

The plan examines the area within approximately 1/2 mile of the Arrowood Transit Station. The actual station is visible just west of South Boulevard, but accessible by vehicle only from further west on England Street. The plan area covers a much larger area, encompassing Old Pineville Road, Kings Ridge Drive, England Street, Arrowood Road, and Sweden Road. It is mostly in a Growth Corridor, as envisioned by the City's Centers, Corridors and Wedges growth framework, but also includes a portion of the adjoining Starmount and Starmount Forest neighborhoods, in a Wedge.

## Opportunities & Constraints

Through examination of existing conditions in the Arrowood plan area (see Appendix), opportunities to build upon and constraints to overcome were identified. The station location is visible from South Boulevard but with poor access. The area around the station has a significant catalyst TOD development underway, and other large underutilized properties. The surrounding area has stable neighborhoods and diverse housing stock. The plan area is challenged by the freight rail line that parallels the light rail line, which cuts off pedestrian and vehicular connections to South Boulevard, existing land uses that do not generate transit activity, its relatively poor pedestrian environment, and the disconnected street network.

*Arrowood Transit Station Area Plan*

## Vision

The desired future for the plan area is highlighted in the following vision statement:

The Arrowood plan area will become part of the series of vibrant, high density transit villages along the South Corridor. Within its boundaries, there will be three distinct areas:

- **Transit Station Area:** The core of the study area will transform into a pedestrian-oriented urban district. This district will include opportunities for living, working, and shopping.
- **General Corridor Area:** The area between the Transit Station Area and the west, north and south plan boundaries will include uses appropriate for a Growth Corridor. Existing commercial, industrial, warehouse, office, and institutional uses will remain. Over time, some of these uses closest to the transit station may redevelop as higher density mixed uses. Existing multi-family areas may remain or redevelop with higher density housing.
- **Wedge Neighborhood Area:** The lower density residential character of the existing Starmount and Starmount Forest neighborhoods will be maintained.

## Land Use and Community Design

The plan contains a number of recommendations related to Land Use and Community Design within each of the three areas noted in the vision statement. The recommendations, shown on Map 3, include:

### **Transit Station Area**

- Promote mix of transit supportive land uses in Transit Station Area, generally within 1/2 mile of the station; support more intense development of CATS Park & Ride lot.
- Provide active, ground floor, non-residential uses such as retail or office, at key locations.
- Create urban parks and plazas near the Transit Station.
- Encourage redevelopment of the former Wal-Mart site with integrated transit supportive uses.
- Ensure that development adjacent to single family neighborhoods provides good transition.
- Make adjustments to South Growth Corridor boundary.



## General Corridor Area

- Maintain locations for low to moderate intensity office, commercial, light industrial, and warehouse uses in the vicinity of England Street and Sweden Road.
- Support continued moderate density residential use off of Arrowood Road and Kings Ridge Drive under specific criteria.
- Provide for a mix of retail and office land uses along South Boulevard north and south of the Station Area.

## Wedge Neighborhood Area

- Maintain single family portion of Starmount and Starmount Forest neighborhoods consistent with existing zoning.
- Maintain moderate density residential uses along the west edge bordering the station area, and recognize the opportunity for redevelopment of parcels directly abutting the station area under specific criteria.

## Transportation and Streetscape

Transportation recommendations address proposed new streets and enhancements to existing streets to make them more pedestrian and bicycle friendly. The recommendations, shown on Map 4, include:

- Provide new street connections at key locations; Maintain and enhance existing street network.
- Eliminate sidewalk system gaps in Transit Station Area, and in sidewalk connections to the residential areas.
- Widen sidewalk system along South Boulevard.
- Enhance pedestrian and bicycle crossings at key locations.
- Extend bicycle lanes along Arrowood Road, England Street, Sweden Road, and Sharon Lakes Road; site new development to allow for future bicycle lanes on South Boulevard.
- Create a bicycle-pedestrian overpass over the freight rail line to provide access to the station from new development along South Boulevard.
- Install pedestrian lighting in key locations.

## Streetscape Cross-Sections

This section recommends future cross sections for streets, and identifies building setbacks and streetscape standards based on the ultimate curbline location. These standards supplement requirements in TOD and other urban zoning districts. Based on the City's *Urban Street Design Guidelines*, they will be met by developers who undertake new development or major renovation in the plan area. Map 5 shows the location for each type. The following street types are recommended for the plan area:

- **Avenue:** 4-lane divided, 2-lane undivided, and 2-lane divided
- **Main Street**
- **Office/Commercial Street-** wide
- **Local Residential Street-** wide

## Infrastructure and Environment

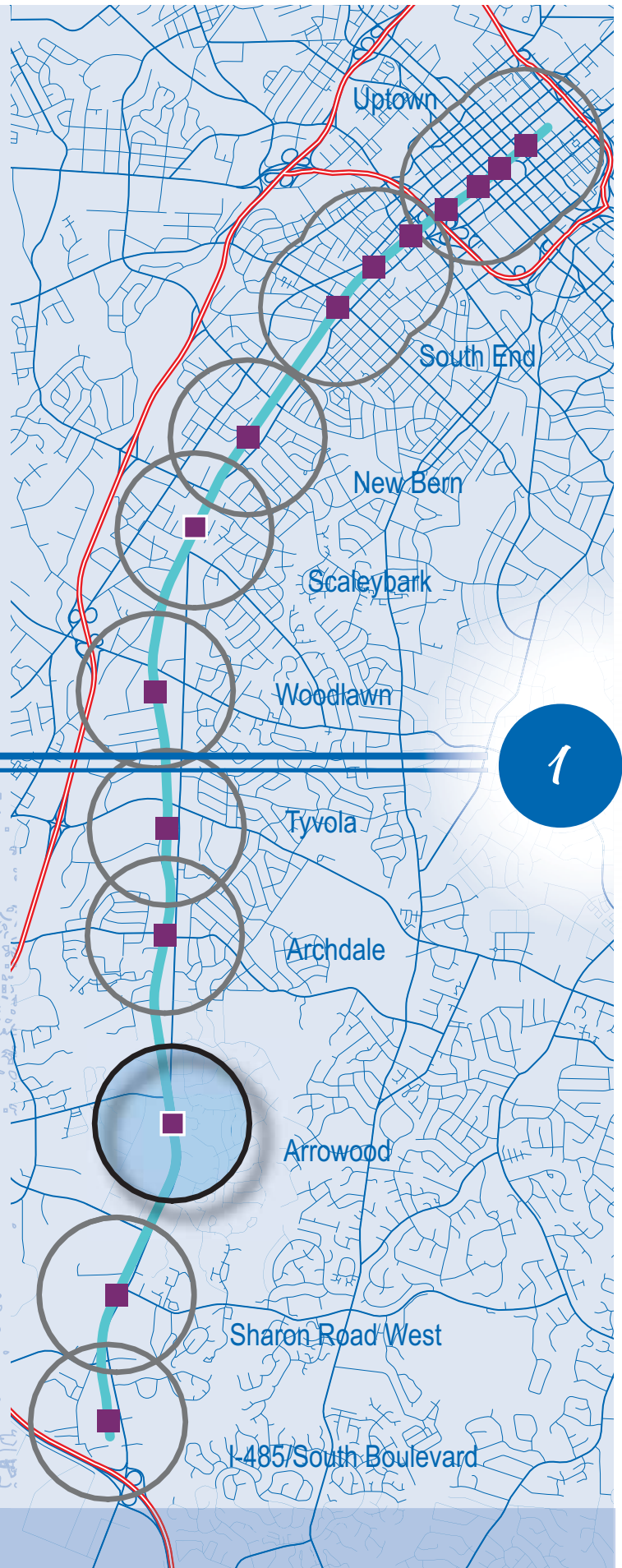
The core of the plan area includes present and former commercial and industrial development, much of which is expected to be redeveloped. Its infrastructure may require augmentation for more intense new uses. The plan recommendations include:

- Encourage small urban open spaces in Transit Station Area.
- Make street trees a feature of all streets, and reduce impervious surfaces.
- Design new buildings to reduce stormwater runoff and improve water quality; protect and enhance watersheds.
- Encourage burying of overhead utility lines.

## Implementation Plan

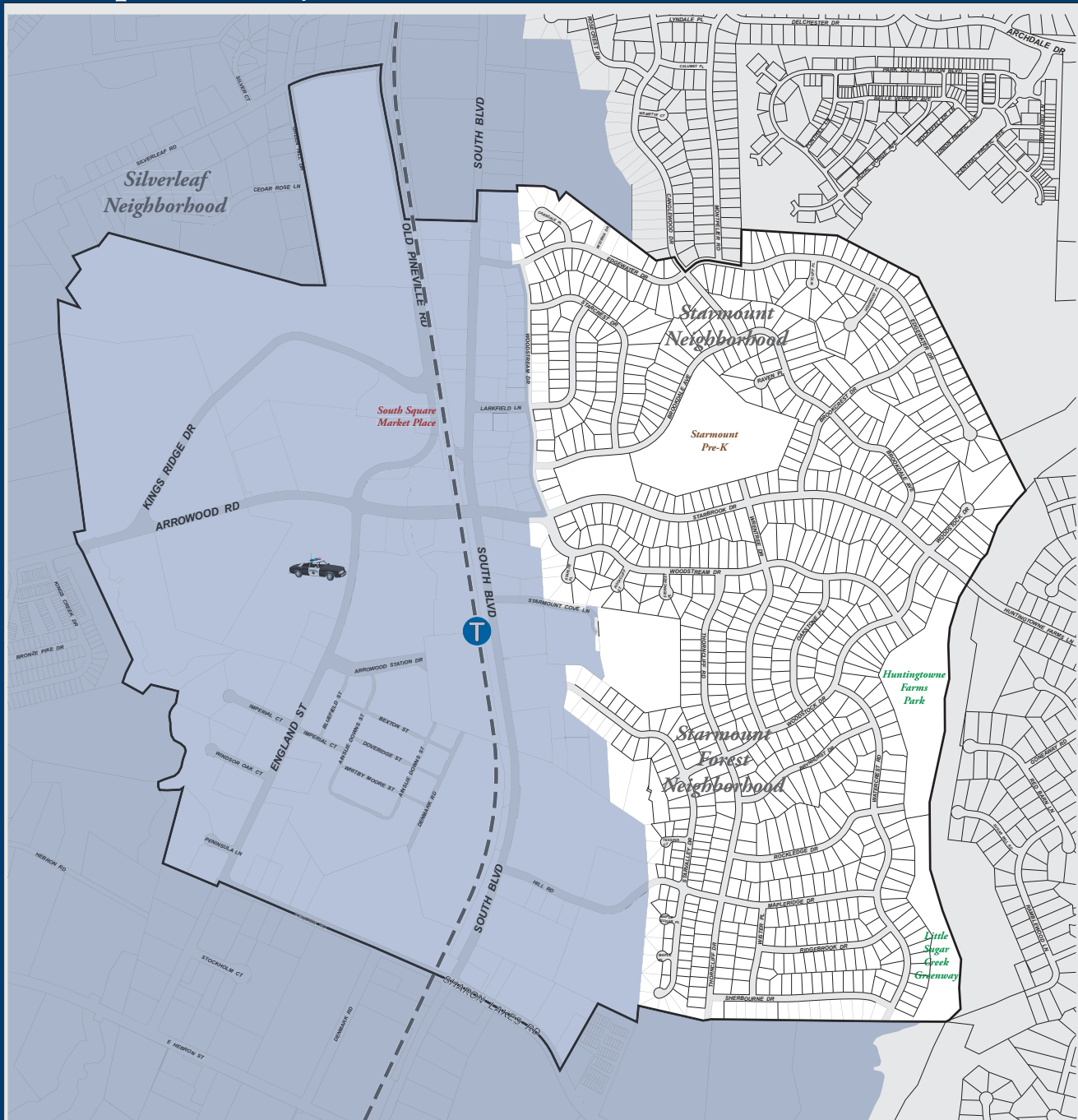
The Implementation Plan recommends projects to implement the policy recommendations of the Concept Plan. Because the Implementation Plan is not adopted by elected officials, it is a guide, not a commitment. The Implementation Plan recommends a number of sidewalk improvement and street connection projects, as well as corrective rezonings as shown on Map 6.

*Volume 1:*  
*Concept Plan*



# Arrowood Transit Station Area Plan

## Map 1: Study Area and South Corridor Boundaries



South Corridor Boundary  
 Study Area Boundary



Produced by the Charlotte-Mecklenburg Planning Department.

0 500 1,000  
feet



Date: September 11, 2008



# Study Area Context

The Arrowood Transit Station is the thirteenth station heading south from Center City along the South Corridor Light Rail Transit (LRT) line, also known as the LYNX Blue Line. Arrowood is toward the end of the corridor, with just two stations, Sharon Road West and I-485/South Boulevard, further south.

This document is the fifth of a series of plans for the station areas extending south from South End. The plan is divided into the Concept Plan, the Implementation Plan, and an Appendix containing a thorough review of existing conditions. The Concept Plan is the only section of the plan adopted by City Council. The Concept Plan:

- Defines the growth and development vision for the area surrounding the Arrowood LRT station;
- Makes recommendations for land use, transportation, urban design, and other development-related topics;
- Updates the Centers, Corridors and Wedges boundaries for the plan area from those initially outlined in the *Transportation Action Plan*; and
- Serves as the official streetscape plan for the combined station area once the Concept Plan is adopted.

## Planning Process

Initial planning for the Arrowood plan area began in conjunction with planning for the South Corridor LRT line. A community planning and urban design consulting firm and an interdepartmental staff team, led by Planning Department staff, held public meetings to gather initial input from area residents and property owners. The staff team has developed plan recommendations based on citizen input, the area context, and guidance from a number of City Council adopted policies.

Prior to adoption of the plan, staff will hold additional public meetings with area residents and property owners to present the plan recommendations and to receive feedback. The next step of the process will be presentation to the Planning Committee of the

Charlotte-Mecklenburg Planning Commission who will hear citizen comments and make a recommendation to the Charlotte City Council. The City Council will also hear citizen comments and make a final decision concerning adoption of the plan.

More detailed information on the background, purpose and process for developing this, and other, station area plans can be found in the companion document, *Introduction to the South Corridor Station Area Plans*.

## Plan Boundaries

The Arrowood Transit Station is located on the South Corridor light rail line on South Boulevard, south of Arrowood Road. While the station is visible from South Boulevard, it is accessible only from a road connection from England Street on the west side of the rail line, just south of Arrowood Road. This station is not accessible from South Boulevard as most other stations to the north and south are.

The Arrowood station functions as a Community Station which is designed to serve an area within a 3-mile radius with a heavy reliance on bus connections and a 289-space park-and-ride facility. The station has pedestrian access to Arrowood Road from a pedestrian path that slopes down from the park-and-ride facility towards the Arrowood Road.

A Transit Station Area is defined as the property generally within about a ½ mile walk of a transit station. The Transit Station Area is the primary focus of this plan, as it will be most influenced by the LRT line. For contextual purposes, the boundaries of the Arrowood Transit Station Area Plan cover an area larger than this transit station area.

The plan area is bisected by the light rail line and the parallel Norfolk-Southern freight rail line. The plan area includes major streets such as South Boulevard, Old Pineville Road, England Street, Arrowood Road, Kings Ridge Drive, and Starbrook Drive. The western portion of the plan area falls within the South Growth Corridor, with the eastern part included as a portion of a Wedge as defined by the Centers, Corridors and Wedges growth framework. The plan boundaries are shown on Map 1; they follow existing zoning and block configurations.



*Arrowood Station is slightly elevated and visible from South Boulevard, but not accessible from that side.*



*The shopping center just west of the Arrowood Station platform does not connect at grade.*

## Opportunities and Constraints

Review of the existing conditions reveal a number of opportunities and constraints to transforming the core of the study area into a transit supportive environment. Success will depend upon effectively dealing with the constraints and capitalizing on the opportunities described below.

For a complete discussion of existing conditions, see the Appendix of this document.

### Opportunities

- Station Facilities and Proximity:** The Arrowood Transit Station location with its CATS Park and Ride lot is accessible from England Street on the west side of the line, with acceptable vehicular accessibility from all directions. Several bus routes converge on the station as feeders. The raised station platform provides a visible location that can be a catalyst for the redevelopment of properties surrounding the station, and might in time become a focal point for a transit oriented district.
- Assembled Land:** There are a number of large parcels under single ownership which could be redeveloped for higher density mixed use in the future. These include several shopping center properties, vacant sites, and underutilized properties, and sites with additional development capacity along Arrowood Road, South Boulevard, Old Pineville Road, and Kings Ridge Drive (formerly part of Old Pineville Road).
- Catalyst Project:** A significant transit oriented development project is already underway on land just south and west of the transit station park and ride lot. Current phases are residential, but future phases closer to the station, are expected to include retail and other uses
- Redevelopment Opportunities:** A 2003 market study by Charles Lesser & Company found that the overall Arrowood Station Area likely represents a longer-term development opportunity with some infill residential possible in the near term.
- Housing Diversity:** The Arrowood study area has considerable diversity in the type and cost of its housing stock, including single-family neighborhoods, townhouse condominiums, and multi-family apartments. If perceptions of the area regarding crime are addressed, the Charles Lesser & Company study projects a strong market for mixed-income residential redevelopment, with accompanying new neighborhood serving retail uses.
- Stable Residential Neighborhoods:** The Starmount and Starmount Forest neighborhoods provide a strong residential element to the station area. Protection of these neighborhoods will be especially important as new higher intensity development is added to the station area.

- **Improved Transportation Environment:** As a part of the Light Rail construction project and the South Corridor Infrastructure Program (SCIP), a number of physical and visual improvements to the streetscape were made along portions of Arrowood Road, South Boulevard, and England Street. These have made the area safer, more attractive, and with better access for pedestrians, cars, and bikes. As development occurs, additional transportation improvements should include similar facilities to accommodate a variety of users.
- **Pedestrian Environment:** Many of the streetscapes in the industrial and commercial districts of the study area are uninviting to pedestrians. With intermittent narrow sidewalks, absent planting strips, few street trees, multiple curb cuts, and poor lighting, the streets are currently more oriented to vehicular travelers than to pedestrians.
- **Need for Open Space:** The Little Sugar Creek Greenway and Huntingtowne Farms Park run along the eastern boundary of the study area. There also is a private swim club in the plan area, and while it has a number of amenities, their use is limited to private members only. There is one school in the study area and two churches which offer open space. A Kings Branch Greenway is projected for the west edge of the plan area, but is not funded currently. Additional open space, consistent with an urban environment, is desirable in the station area.
- **Limited Tree Canopy and Landscaping:** Currently, the core of the Station Area has few trees and minimal landscaping on the area west of South Boulevard. The area east of South Boulevard, which consists of the Starmount and Starmount Forest neighborhoods, has an extensive tree canopy. As the area redevelops, there will be a need to improve the quality of the environment, especially in the core of the plan area, by planting additional trees and landscaping.

## Constraints

- **Railroad Line and East-West Mobility:** The Norfolk-Southern freight railroad line bisects the plan area and parallels the LYNX light rail line the entire length of the plan area. With the freight line immediately adjacent to South Boulevard, there is little or no opportunity for active use on that street frontage. Arrowood Road, (which becomes Starbrook Drive east of South Boulevard) and England Street (which becomes Sharon Lakes Road) provide the only two east/west connections through the station area. This limits opportunities for safe pedestrian and vehicular crossings of the line.
- **Recent Office Park and Warehouse Development:** The development in the vicinity on England Street between Sweden Road and Arrowood Road includes relatively recent industrial and warehouse properties, and flex office space. Some of these uses are in close proximity to the Arrowood Transit Station. While they are viable uses, they do not represent the higher density transit-oriented development desired close to the station.
- **Street Network:** The plan area currently has a largely disconnected and sparse street network. The area to the west of the Arrowood Station has few connections across to South Boulevard. The office, commercial, and industrial area south of Arrowood Road consists of a series of cul-de-sacs and dead end parking lots. Better connections and an extensive street network leading into and through the station area will be needed to support the high intensity transit oriented development anticipated.



*The vehicular approach to Arrowood Station is from England Street.*



## Vision

The Arrowood plan area will become part of the series of vibrant, high density transit villages along the South Corridor. Within its boundaries, there will be three distinct areas:

- **Transit Station Area:** The core of the study area will transform into a pedestrian-oriented urban district. This district will include opportunities for living, working, and shopping.
- **General Corridor Area:** The area between the Transit Station Area and the west, north and south boundaries of the plan area will include a range of uses appropriate for a Growth Corridor. Existing commercial, light industrial, warehouse, office, and institutional uses will remain, especially in the area close to Arrowood Road and Kings Ridge Drive (formerly Old Pineville Road), and England Street and Sweden Road. Over time, some of these uses closest to the transit station may redevelop as higher density mixed uses. Existing multi-family areas may remain or redevelop with higher density housing.
- **Wedge Neighborhood Area:** The lower density residential character of the existing Starmount and Starmount Forest neighborhoods will be maintained.

Map 2 illustrates the development concept for the Arrowood plan area.



*The Arrowood Station platform is at grade with the park and ride lot, but above most surrounding uses.*

## Goals

To achieve this vision, the following goals have been identified for the Arrowood plan area. The goals draw on adopted, or in-progress, City policies, many of which were discussed in the *Introduction to the South Corridor Transit Station Area Plans*.

1. **Land Use:** Promote higher density uses that are served by the high capacity transportation facilities in the Corridor, while protecting the fabric of the existing residential neighborhoods.
2. **Community Design:** Create a high quality urban environment by enhancing the identity of the station area, creating attractive streetscapes, building on the synergy of public infrastructure investments, and respecting the character of the neighborhoods.
3. **Transportation:** Enhance the area's transportation system by providing new street connections and improving the pedestrian and bicycle environment.
4. **Infrastructure/ Public Facilities:** Provide the infrastructure and public facilities needed to support development in the Growth Corridor.
5. **Environment:** Improve the quality of Arrowood's environment, focusing on enhancing the tree canopy, improving water quality from stormwater run-off, and providing open space for the station area.

The vision and goals serve as the basis for the recommendations in the chapters that follow.

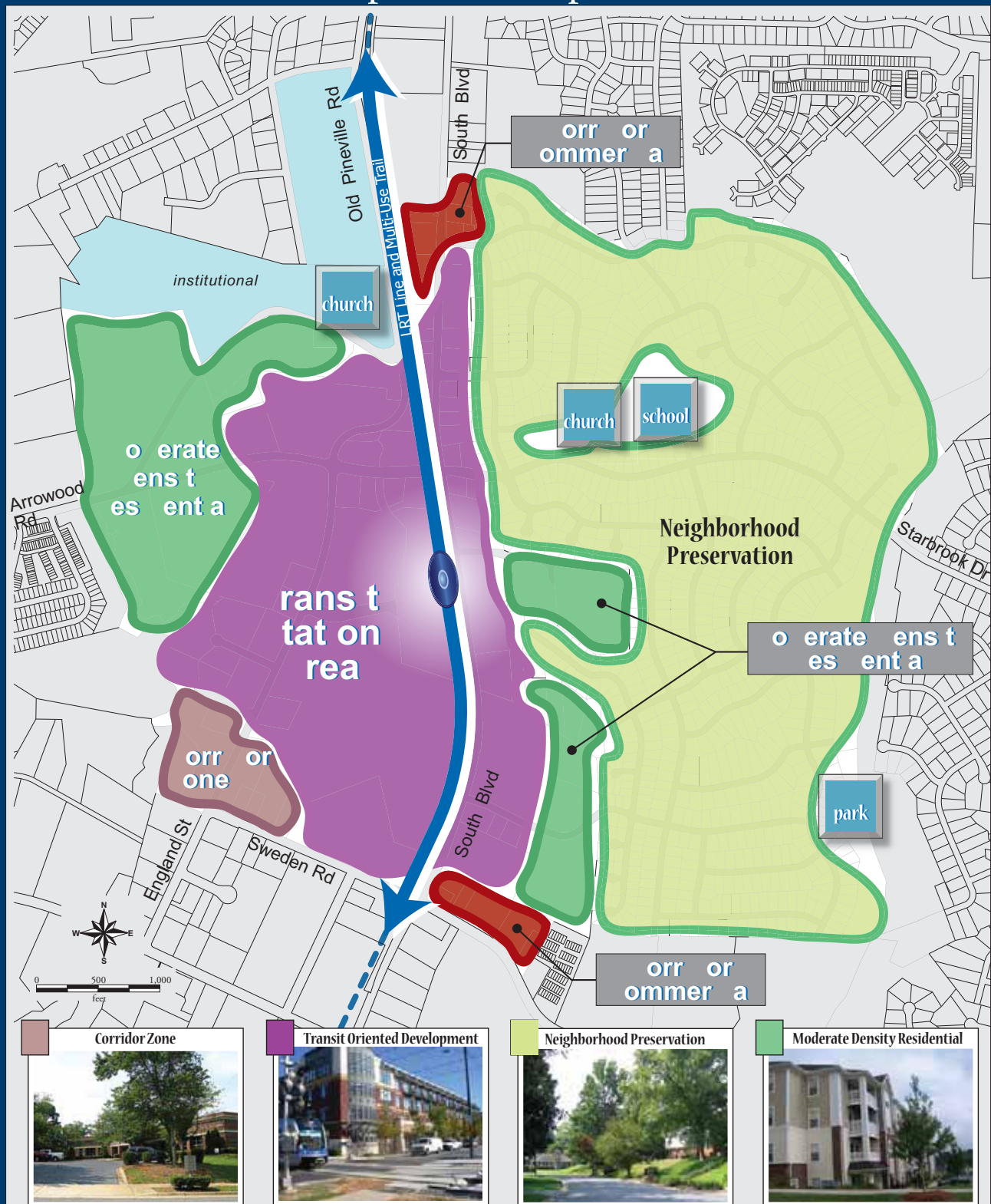


*New residential development directly abutting the LYNX line at New Bern station is a model for future development.*

*Arrowood Transit Station Area Plan*

# Arrowood Transit Station Area Plan

## Map 2: Concept Plan

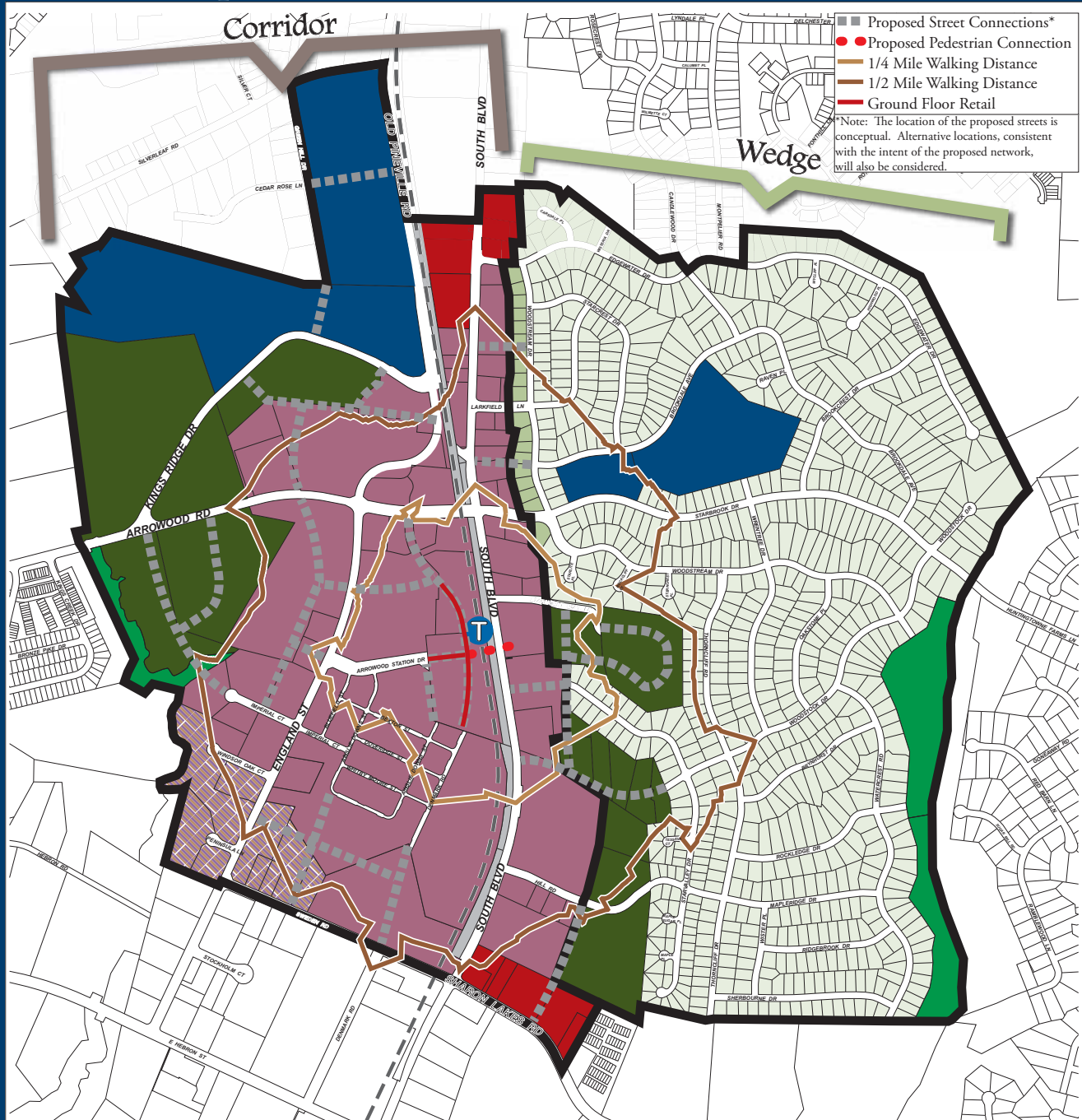


Produced by the Charlotte-Mecklenburg Planning Department.

Date: September 2008

# Arrowood Transit Station Area Plan

## Map 3: Recommended Future Land Use



Produced by the Charlotte-Mecklenburg Planning Department.



Date: September 15, 2008



# Land Use and Community Design

This chapter sets forth land use and community design recommendations to achieve the vision and goals for the Arrowood plan area. An overview of the proposed street network is also included.

This chapter divides the study area into three distinct districts:

- **Transit Station Area**, the portion of the South Growth Corridor that surrounds the Arrowood light rail station;
- **General Corridor Area**, which includes general corridor commercial, office/industrial and moderate density residential land uses of the South Growth Corridor; and
- **Wedge Neighborhood Area**, which is a part of the Wedge area including the Starmount and Starmount Forest neighborhoods just east of the South Growth Corridor.

The land use recommendations are shown on Map 3. The general location for each recommendation is noted on the map extracts within each section, using the item numbers below. The recommendations also are cross referenced using the item numbers in the Implementation Section of this plan.

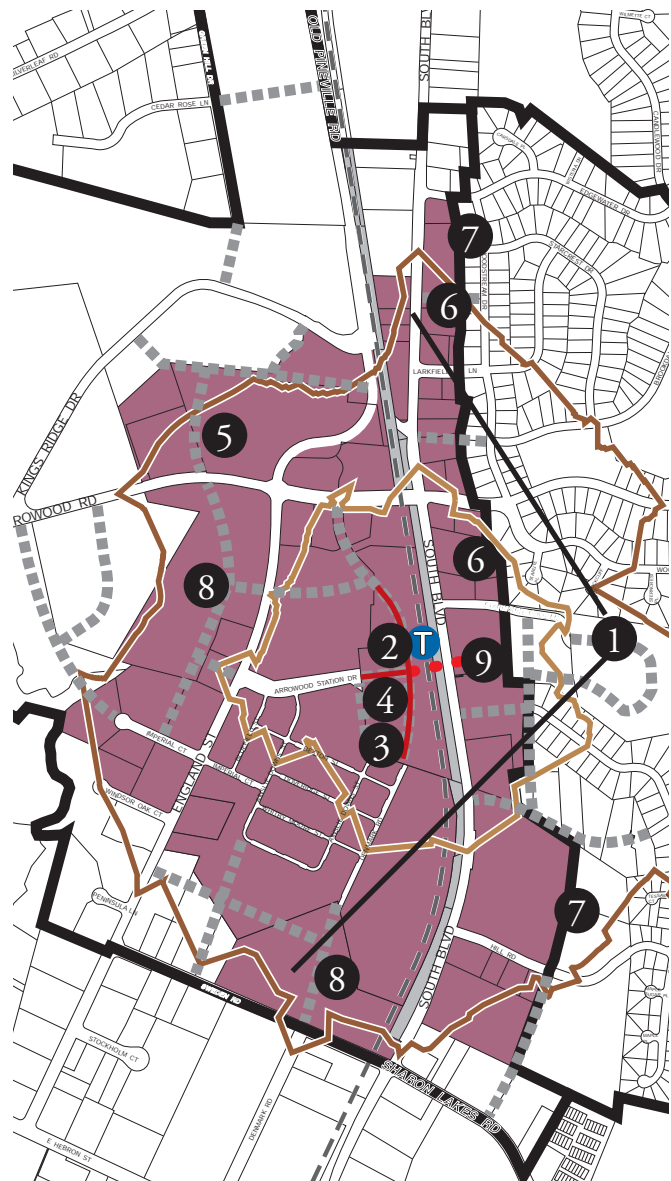
## Transit Station Area

The Transit Station Area is located at the center of the larger plan area. The station area currently is home to a wide array of industrial, retail, office, and warehouse uses. The following recommendations are designed to allow this lower intensity suburban area to transform, over time, into a higher-intensity urban district.

### Land Use and Community Design

1. **Promote a mix of transit-supportive land uses** (residential, service-oriented retail, civic, office) within the Transit Station Area. This will occur primarily through new development over a period of time. The area desired for future transit-oriented development includes land now in use as individual commercial facilities, strip shopping centers, all or part of multi-family residential properties, and industrial/warehouse uses generally within a 1/2 mile walk distance of the transit stations.

- For new development within the Transit Station Area, ensure that uses, intensity, site and facade design, and transportation elements are consistent with the Transit Station Area Principles outlined in the *Introduction to South Corridor Station Area Plans*.
- Design new development to support pedestrian activity, with buildings brought close to the sidewalk and parking to the rear.



Map 3.1: Transit Station Area Recommendations

- While some of the commercially and industrially zoned property along South Boulevard and Sweden Road is currently vacant, a number of properties are occupied by ongoing businesses. This includes the Charlotte Department of Transportation's Street Maintenance facility on Sweden Road. These properties should retain their commercial or industrial zoning to allow them to continue as-of-right operations until such time as they are proposed for redevelopment.
  - Walk distance measurements from the LRT station shown for the area east of South Boulevard are based on a pedestrian/bicycle link from the station across the freight rail line. This pedestrian link most likely will involve a bridge crossing, and is not currently funded. Development of properties along South Boulevard at TOD densities is dependent on the provision of an actual link to make the the development within a 1/2 mile walk of the station.
2. **Provide active ground floor non-residential uses**, such as retail or office, in the area immediately surrounding the station: along Arrowood Station Road and other proposed new streets within 500 feet of the transit station, as shown on Map 3. To be most accessible to transit users, design these ground floor uses to include clear glass windows and doors, as well as entrances that front on and connect to the sidewalk.
  3. **Encourage redevelopment of the CATS park-and-ride surface parking lot** and adjacent land to integrate a mix of transit-supportive land uses (residential, retail, civic, office, as well as the needed parking.) Development should include active ground floor uses that wrap a parking facility to create an active streetscape.
  4. **Create urban plazas or parks** near the transit station. An open space should be incorporated into park-and-ride redevelopment. Public property along South Boulevard at the edge of the Norfolk-Southern rail line should be landscaped and used for green space to the extent possible.
  5. **Encourage the redevelopment of the former Wal-mart property** with an integrated mix of transit-supportive land uses (residential, retail, civic, and office). The Victory Christian Center has plans for retrofitting the old Wal-mart store for use as a community center, which is an appropriate use within a TOD area; however future growth and development of the site should be consistent with the Transit Station Area Principles outlined in the *Introduction to South Corridor Station Area Plans*.
  6. **Ensure that development adjacent to the Starmount and Starmount Forest neighborhoods** provides a good transition from the low scale neighborhoods to the taller buildings at the core of the station area. In addition, ensure that building and site design for development across the street from single family housing in these neighborhoods is of a scale and design that complements the existing housing.
  7. Through the adoption of this plan, adjust the **official boundary between the South Growth Corridor** and the adjacent Wedge to the east to be consistent with the boundary shown on Map 3.

### Supporting Street Network

Key street network recommendations related to proposed land use in this area are noted here. The Transportation and Streetscape section of this plan provides more detail.

8. **Provide new street connections** needed to create typical block lengths of 400 feet (desired), or 600 feet (maximum), as shown on Maps 3 and 4. These connections are the highest priority for the plan area.

It should be noted that the street network shown on Map 3 and Map 4 provides a representation of the desired street network for the Arrowood plan area and may require adjustments to address site conditions. An alternative but comparable network, consistent with the intent of providing connectivity, will also be considered.

9. **Consider a new pedestrian bridge crossing of the freight rail line at the Arrowood Station**, in conjunction with the street connections outlined above. The potential pedestrian crossing of the rail line should be thoroughly studied to assess its impact on the LRT line, The freight line, the transportation system, and the area's economic development potential.

## General Corridor Area

The section of the study area west, north, and south of the Transit Station Area is classified as the General Corridor Area. It is a part of the larger South Growth Corridor. It has nearby interstate access from Arrowood Road, and includes a range of uses designed to take advantage of interstate and other vehicular access. These include retail development, suburban office/warehouse properties, and institutional/civic uses. The Victory Christian Center is a major presence in the area. There are also a number of multi-family developments along Arrowood Road and Kings Ridge Drive (formerly Old Pineville Road).



Map 3.2: General Corridor Areas Recommendations

Arrowood Transit Station Area Plan

## Land Use and Community Design

10. **Maintain a mixture of office, commercial, warehouse, and industrial land uses along portions of England Street** extending south to Sweden Street. This area is currently developed with a mixture of low density office/flex development, other commercial uses, and warehouse/light industrial uses. Development may be single use or include a mixture of uses. New development plans should also be consistent with the applicable design guidelines in the General Development Policies. The properties at the north and east edges of this area are in proximity to the transit oriented development that is recommended around the Arrowood Transit Station. The properties within the 1/2 mile walking distance of the station could be converted to TOD if consolidated for redevelopment.
11. **Indicate the Victory Christian Center as an institutional use.** New development plans should be consistent with the application design guidelines in the *General Development Policies*.
12. **Support continued moderate density residential use at the multi-family developments off of Arrowood Road and Kings Ridge Drive** (formerly Old Pineville Road) at a density not to exceed 22 dwellings per acre (dua). This area is generally beyond a 1/2 mile walk from Arrowood Station and has poor potential street connectivity. It consists largely of existing multi-family developments. Redevelopment at a density not to exceed 30 dua may be considered if the following criteria are met:
  - Usable park / open space, and connections to the greenway where adjacent, are provided;
  - A significant low to moderate income housing component in accordance with Council-adopted Affordable Housing Policies is included in a mixed income environment;
  - A mixture of housing types is provided;
  - Existing mature trees are preserved, and an appropriate street network is provided in accordance with this plan;
  - The Residential Design Guidelines in the *General Development Policies* are met.
13. **Provide an opportunity for a mixture of retail and office land uses for the properties along South Boulevard at the northern and southern ends of the plan area.** This area is beyond the 1/2 mile walk distance from the Arrowood Station.



It is envisioned to accommodate a mixture of pedestrian-oriented uses, similar to transit oriented development, but at a lesser intensity. Development may be single use or include a mixture of uses. New development plans also should be consistent with the applicable design guidelines in the *General Development Policies*. Building heights should not exceed four (4) stories or 40' in height in this area.

14. Recognize the long term plan by County Park and Recreation to establish the **Kings Branch Greenway** as park and open space.

### Supporting Street Network

Key street network recommendations related to proposed land use in this area are noted here. The Transportation and Streetscape section of this plan provides more detail.

15. **Maintain and enhance the existing street network in the General Corridor Area** as shown on Maps 3 and 4. Provide new street connections needed to create typical block lengths of 600 feet desired, or 650 feet maximum.

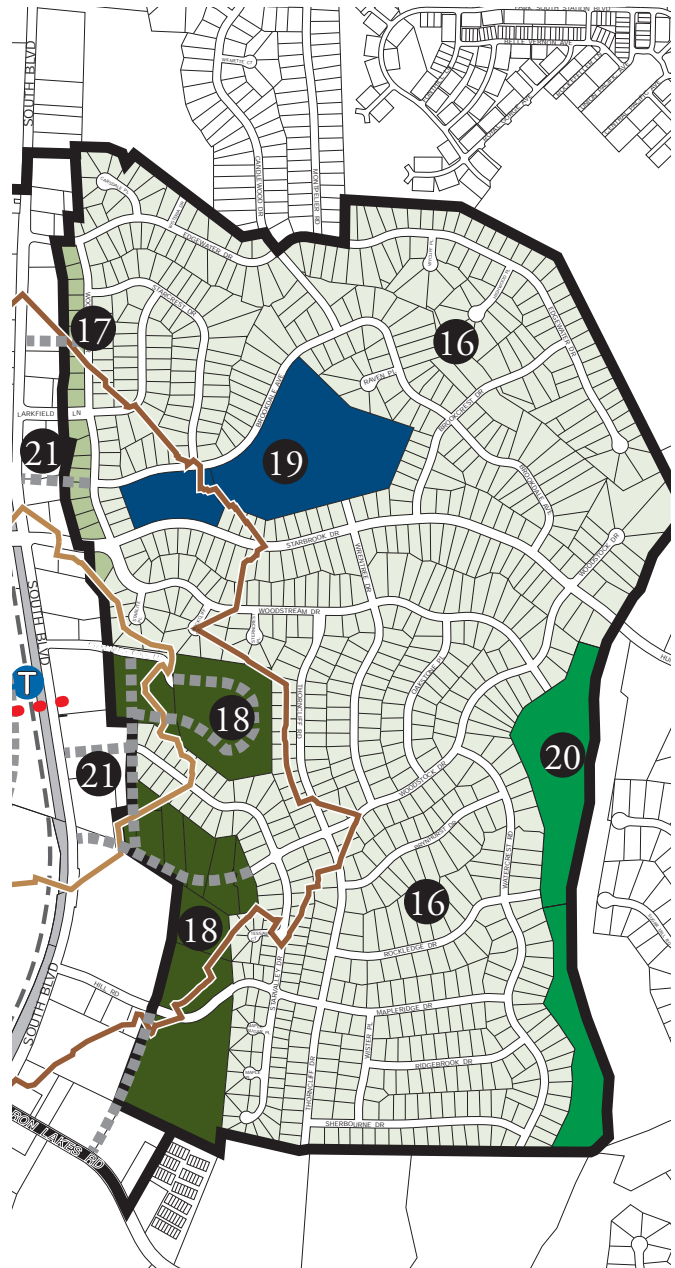
It should be noted that the street network shown on Map 3 and Map 4 provides a representation of the desired street network for the Arrowood plan area and may require adjustments to address site conditions. An alternative but comparable network, consistent with the intent of providing connectivity, will also be considered.



England Street and Sweden Road are home to existing office, flex, and warehouse uses.

## Wedge Neighborhood Area

The Starmount and Starmount Forest neighborhoods are located in a Wedge, on the east side of the Transit Station Area. These neighborhoods include single family, duplex, and multi-family housing, as well as the Starmount Elementary School (presently used as a pre-kindergarten center). The following recommendations are designed to protect the predominantly low density residential character of the neighborhood.



Map 3.3: Neighborhood Area Recommendations

Arrowood Transit Station Area Plan

## Land Use and Community Design

16. **Maintain the single family portion of the Starmount and Starmount Forest neighborhoods** at a density up to 4 dwellings per acre (dua), consistent with existing land use and zoning.

17. **Maintain moderate residential density** at up to 8 dua, consistent with existing zoning, along the west side of Woodstream Drive where there currently are duplexes.

Recognize the opportunity for redevelopment of the R-8 single family parcels fronting Woodstream Drive in the two blocks north of Starbrook Drive. These duplexes are adjacent to properties fronting South Boulevard that are proposed for TOD development. If these properties are redeveloped and they incorporate multiple parcels, they should be developed for residential use up to 8 dua. Such redevelopment should be oriented to the street, and be limited to two stories to maintain compatibility with the single-family homes in the neighborhood.

18. **Support moderate density residential use of the multi-family developments and vacant properties at the west edge of the neighborhoods**, at an average density of 22 dua. In the event of redevelopment, the area closest to South Boulevard should be developed with the highest intensity, with lower densities at the edge of the site adjacent to single family neighborhoods. Residential TOD development for the land within the 1/2 mile walk distance to the Arrowood Station should be considered if the following criteria are met:

- Usable park/open space is provided;
- A significant low to moderate income housing component in accordance with Council-adopted Affordable Housing Policies is included in a mixed income environment;
- A mixture of housing types is provided;
- Existing mature trees are preserved; and
- The Residential Design Guidelines in the *General Development Policies* are met.

19. Indicate **Starmount Elementary and Reformed Presbyterian Church** as institutional/civic uses.

20. Indicate the **Little Sugar Creek Greenway and Huntingtowne Farms Park**, and adjoining private open space, as park and open space.

## Supporting Street Network

Key street network recommendations related to proposed land use in this area are noted here. The Transportation and Streetscape section of this plan provides more detail.

21. **Maintain the existing street network for the Wedge Neighborhood Area**, and enhance the network by extending neighborhood streets to South Boulevard at a locations shown on Maps 3 and 4. Provision of the new street connections would most likely occur in conjunction with redevelopment of property in the Transit Station Area and of the moderate density properties in the Wedge.

It should be noted that the street network shown on Map 3 and Map 4 provides a representation of the desired street network for the Arrowood plan area and may require adjustments to address site conditions. An alternative but comparable network, consistent with the intent of providing connectivity, will also be considered.



*The Starmount and Starmount Forest single family neighborhoods should be preserved.*

# Transportation and Streetscape

Transforming the existing streets into an attractive and functional multi-modal street network is critical to the success of the plan area, especially the area around the LRT station where transit-oriented development is planned. Providing a well-connected street network is important throughout the study area to facilitate mobility choices and minimize congestion.

In conjunction with the establishment of the LRT line, the City made a number of improvements to the Arrowood street network through the South Corridor Infrastructure Program (SCIP). This chapter recommends additional transportation improvements for the plan area for new streets, street cross-sections, and streetscape elements.

## Transportation/Street Design Recommendations

This section outlines transportation recommendations addressing both proposed new streets and enhancements to existing streets to make them more pedestrian and bicycle friendly. These include both City sponsored capital improvements, as well as improvements that will be required in conjunction with new development and redevelopment.

The general locations of the recommendations are noted on Map 4. It should be noted that this map provides a representation of the desired street network and may require adjustments to address site conditions. An alternative but comparable network consistent with the intent of providing connectivity will also be considered.

The recommendations also are cross referenced using the item numbers in the Implementation section of this plan.

### Street Network

**22. Provide new street connections in the Transit Station Area**, as discussed in item 8 in the Land Use Section. Street connections in the Transit Station Area are the highest priority for this Plan, as these are needed to support high density development and to provide additional travel routes. The streets planned as part of the new development southwest of Arrowood station exemplify this principle.

**23. Provide new street connections in the General Corridor Area**, as discussed in item 15 in the Land Use Section. Street connections in the General Corridor Area are critical to alleviating congestion on South Boulevard and Arrowood Road. New connections also support redevelopment and provide a more balanced network of route choices.

**24. Increase access to South Boulevard from the Starmount Forest neighborhood** by extending existing street stubs of Starvalley Drive, Woodstock Drive, and Mapleridge Drive via redevelopment along South Boulevard.

### Sidewalks

**25. Eliminate gaps in the sidewalk system leading from the residential areas to the transit station.** The Starmount and Starmount Forest neighborhoods provide a large base of potential transit riders. Gaps in the sidewalk system leading to the transit station should be eliminated to promote better pedestrian access. Specific sidewalk projects could include: Edgewater Drive, Brookdale Avenue, Starbrook Drive, Woodstock Drive, Mapleridge Drive, and Watercrest Road. The boundaries are shown on Map 4.

**26. Widen sidewalk system along South Boulevard.** Many of these sidewalks are only five feet wide, inconsistent with the recommended width found in the Streetscape Standards on subsequent pages. Additionally, planting strips which separate pedestrians from vehicular traffic are narrow or completely lacking. This plan recommends widening the sidewalks and adding planting strips along South Boulevard within the study area boundaries in conjunction with redevelopment.

**27. Improve the sidewalk network in the Transit Station Area.** As the streetscape cross-sections recommend, new development and redevelopment should install sidewalks on all streets. New streets shown in the plan are largely located on blocks closest the station.





*The pedestrian system along South Boulevard typically lacks a planting strip.*



*Recent improved sidewalk and planting strip at 3030 South Boulevard provides a model for improved sidewalks and greater pedestrian safety in a higher density Station Area.*

## Pedestrian Crossings

28. **Enhance pedestrian and bicycle crossings.** Area thoroughfares and major collectors can be difficult for pedestrians and bicyclists to cross due to factors such as traffic volume, traffic speed, number of lanes, frequent turning movements, and distance between signalized crosswalks. While SCIP resulted in enhanced intersections of Arrowood Road at both South Boulevard and England Street, other intersections still have room for improvement. This plan recommends adding enhanced crossings, as shown on Map 4. In the plan area, these include:

- South Boulevard at Sharon Lakes Road;
- South Boulevard at Edgewater Drive;
- South Boulevard at Woodstock Drive extension;
- Arrowood Road at Kings Ridge Drive;
- England Street at Imperial Court; and
- England Street at Sweden Road.

Enhanced crossings may include a combination of vehicle traffic signals, pedestrian countdown signals, painted or textured cross walks, ADA curb ramps, and pedestrian refuge islands in the median.

## Bicycle Accommodations

29. **Extend designated bicycle lanes on Arrowood Road, England Street, Sweden Road, and Sharon Lakes Road.** To tie into recently added bicycle lanes provided by SCIP, bicycle lanes are recommended along the entire length of Arrowood Road, as well as England Street, as an extension of the newly realigned Old Pineville Road. Bicycle Lanes also are recommended on Sweden Road and Sharon Lakes Road.

30. **Site new development to allow future addition of bicycle lanes on South Boulevard.** This plan recommends the long-term installation of bicycle lanes in the station area along South Boulevard as shown on Map 4.

## Bicycle-Pedestrian Connections

31. **Create a bicycle-pedestrian overpass over the Norfolk Southern Railroad and South Boulevard.** Currently, access to the Arrowood station is greatly hampered to the southeast by the physical barrier of the active Norfolk Southern freight line. This plan recommends constructing a pedestrian overpass from the transit station over the freight line, as well as South Boulevard. As discussed in Land Use Item 9, there is potential to construct the overpass with a private partner willing to connect a transit-oriented development along South Boulevard to the station.



*Arrowood Road includes recently constructed amenities including sidewalks, planting strips, and bike lanes.*



*Old Pineville Road is being rerouted through a segment of a shopping center parking lot to connect to England Street.*

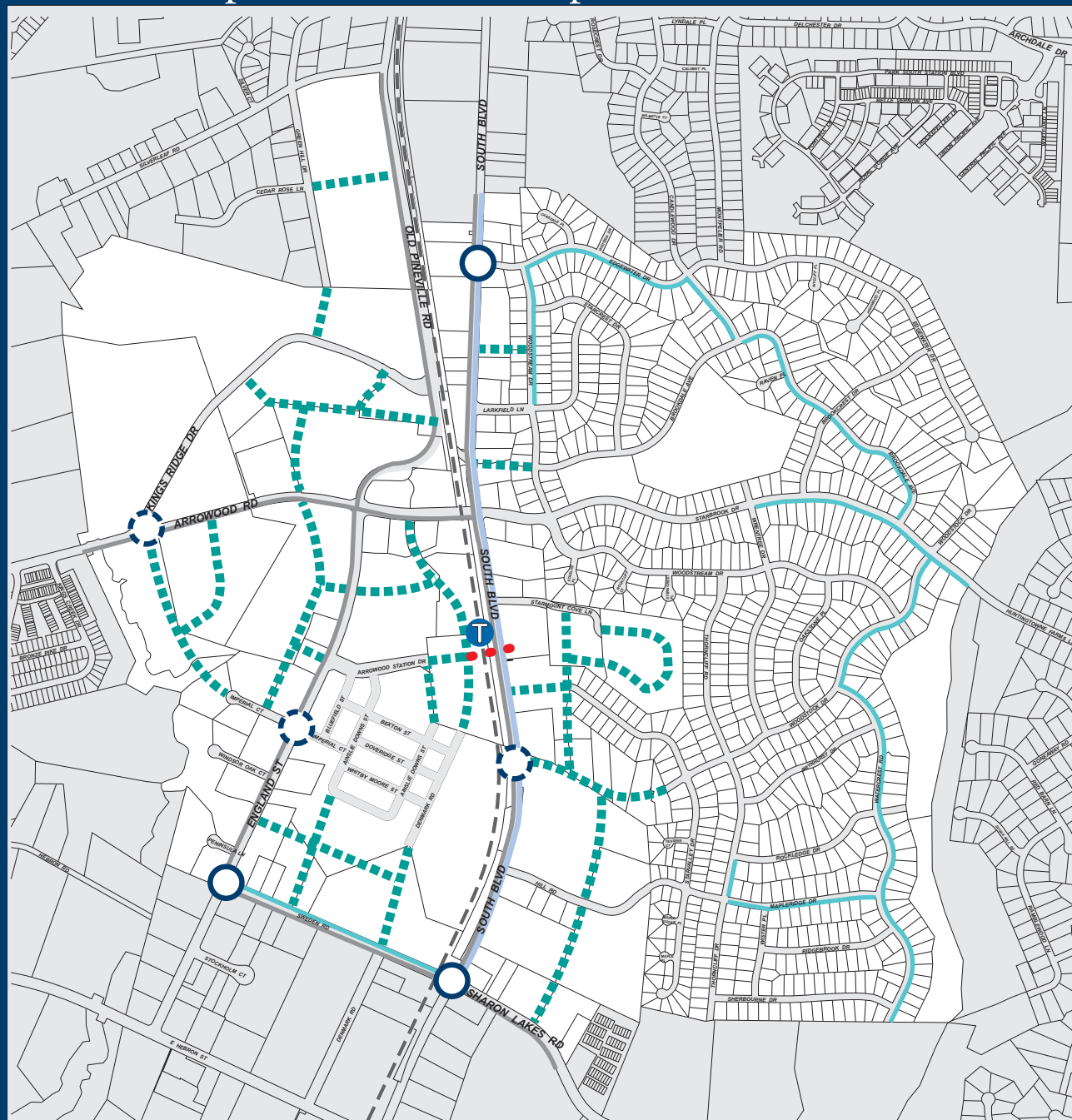
- 32. Create more bicycle-pedestrian connections to and across the Little Sugar Creek Greenway.** Currently, there are footbridges across Little Sugar Creek at the end of Starbrook Drive and near Ridgebrook Drive. There are also stub street connections to the greenway at Woodstream Drive and Rockledge Drive. This plan recommends adding additional bicycle-pedestrian connections across and through the greenway to connect neighborhoods to each other and to the light rail system.

### Street Lighting

- 33. Install Pedestrian Scale Lighting in key locations.** Typical streetlights illuminate the roadway, but do not provide significant lighting for the pedestrian area of a street. Pedestrian scale lighting is shorter in height than streetlights and focuses on lighting sidewalk areas. It should be installed in the public right-of-way, with special attention to blocks between and along South Boulevard, Old Pineville Road, and England Street.

# Arrowood Transit Station Area Plan

## Map 4: Future Transportation Network



- |  |   |   |
|--|---|---|
|  Enhanced Pedestrian Crossing                           |  Street Connections*   |  Bicycle Lanes             |
|  Enhanced Pedestrian Crossing Pending Street Connection |  Pedestrian Connection |  Widened Sidewalk          |
|  |   |  Complete Gaps in Sidewalk |

\*Note: The location of the proposed streets is conceptual. Alternative locations, consistent with the intent of the proposed network, will also be considered.



Produced by the Charlotte-Mecklenburg Planning Department.

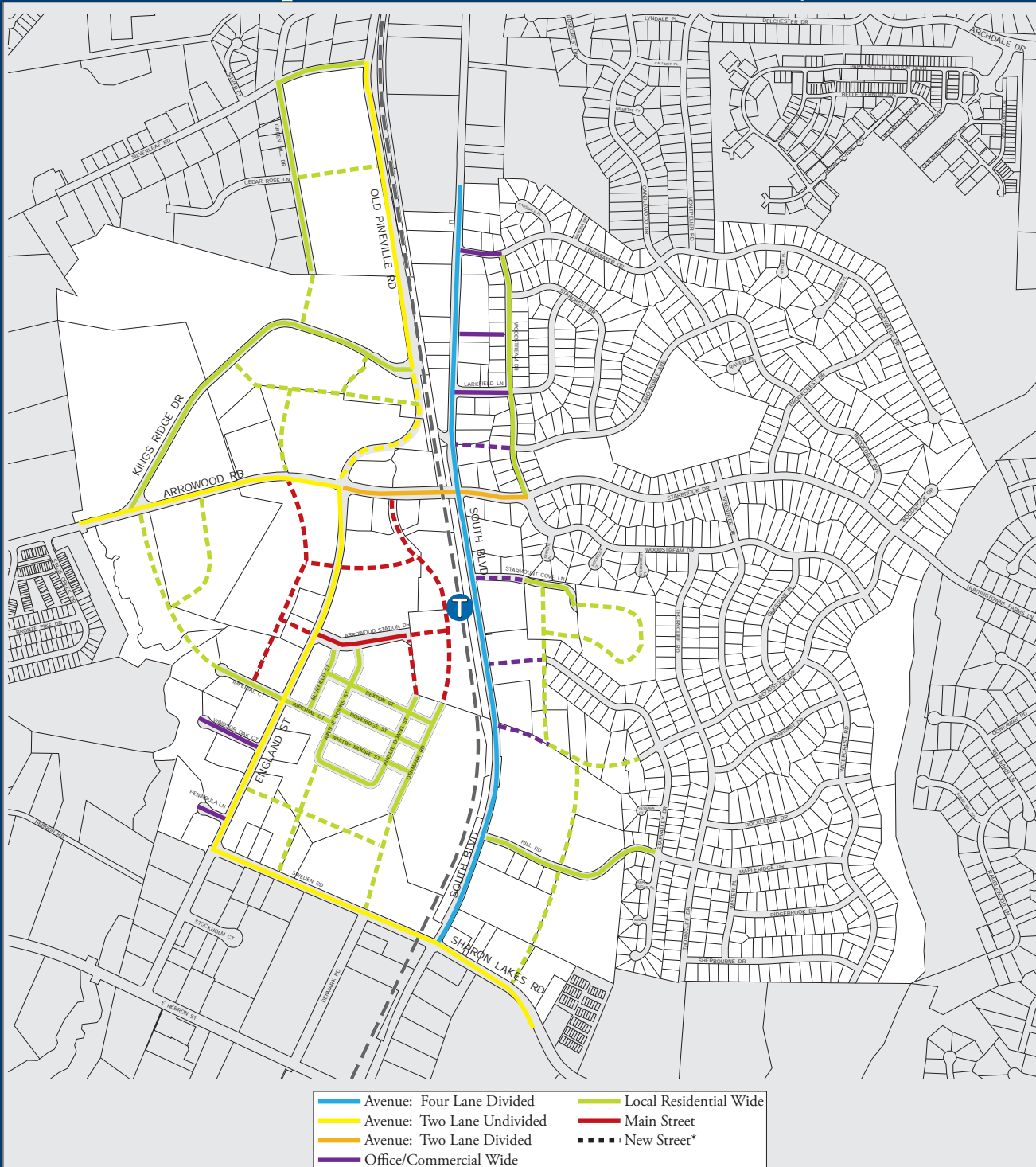


Date: September 16, 2008



# Arrowood Transit Station Area Plan

## Map 5: Street Cross Section Key



\*Note: The location of the proposed streets is conceptual. Alternative locations, consistent with the intent of the proposed network, will also be considered.



Produced by the Charlotte-Mecklenburg Planning Department.



Date: September 15, 2008

## Streetscape Standards

Streets are more than just pathways to and through a place. Streets are one of the most highly visible types of urban places. As the entrance and exit to a community, streets have the ability to set the tone for the surrounding environment.

The streetscape cross-sections on the following pages are essential to “setting the tone” for the type of setting desired in the plan area. The cross sections have been developed in accordance with the *Urban Street Design Guidelines* (USDG), adopted by City Council in October 2007. The cross-sections set forth:

- Building setback requirements,
- Streetscape, sidewalk, and street tree requirements, and
- Future character of the streets regarding the number of lanes, bicycle, pedestrian and transit accommodations and provisions for on-street parking.

When this plan is approved, the streetscape standards specified herein will become the official “Streetscape Plan” for the study area, as referred to in the zoning standards for a number of the City’s urban zoning districts. As such, all new development on sites zoned TOD, TS, PED, UMUD, MUDD, NS, UR, or other urban zoning districts that may be established must be designed in accordance with these standards. The specifications in the cross-sections are based on typical conditions and may vary based upon further study and in unique circumstances.

Note that these cross-sections are not plans for immediate road improvements, but many are recommended long-term changes. Improvements such as on-street parking, streetscape enhancements, and sidewalk installation typically will be implemented through private redevelopment, although the City may fund minor improvements. New streets also typically will be implemented through private development, while major improvements to existing streets generally will be constructed by the City.

## Street Cross-Sections

Based on the City’s *Urban Street Design Guidelines*, the future cross-sections have been determined for streets within the Arrowood plan area, with the exception of the single family neighborhood areas where little change to existing streets is expected. The following street types are recommended for the plan area:

- **Avenue** - Four-Lane Divided
- **Avenue** - Two-Lane Undivided
- **Avenue** - Two-Lane Divided
- **Main Street**
- **Office/Commercial Street - Wide**
- **Local Residential Street - Wide**

Map 5 shows the desired location for each of these street types. Consult this map to identify the recommendation for a specific street, then refer to the matching cross-section on the following pages. Streets within neighborhood areas slated for preservation are intended for preservation as well, so new cross sections for these areas are not provided.

**Description:** The Avenue is the most common (non-local) street type in Charlotte, providing access from neighborhoods to commercial areas, between areas of the city, and, in some cases, through neighborhoods. It is designed to provide a balance of service for all modes of transportation, including accessibility for transit, pedestrians, and bicyclists in addition to carrying significant automobile traffic.

**Land Use:** The land use will vary; within the plan area the desired uses will be typically medium to high density mixed use, residential, office, and retail.

**Situation:** The major thoroughfares in the plan area are classified primarily as Avenues. The four lane divided type is recommended for South Boulevard. The proposed cross-section will allow this street to continue to perform an important mobility function for motorists, as well as to support safe and comfortable pedestrian and bicycle travel.

**Existing Condition:** This street typically has two lanes in each direction, widened for left turn lanes near some intersections. Right-of-way is typically 60 feet, although South Boulevard varies significantly in some locations.

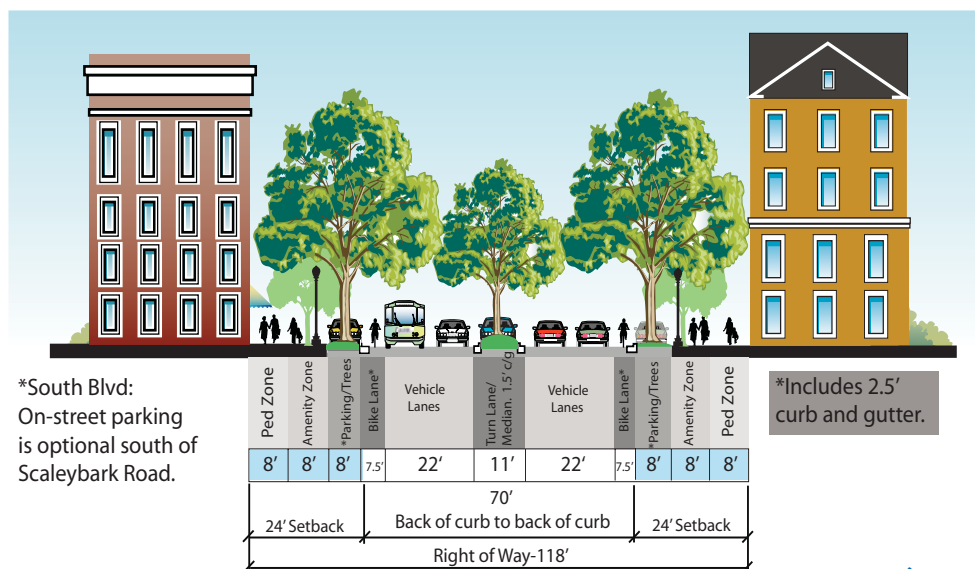
**Proposed Curb to Curb:** Recommended width is 70 feet from back-of-curb to back-of-curb; right-of-way is 118 feet.

- Two travel lanes and bike lane in each direction.
- Continuous center lane for left turns and pedestrian refuge; to include mid-block landscaped pedestrian refuge islands in some locations.

- Additional widening for turn lanes may be required in some circumstances in accordance with CDOT standards.

**Behind the Curb:** Minimum building setback is 24 feet from back of (unrecessed) recommended curb. Tree planting is required with spacing, irrigation, subdrainage, and adequate soil space for roots per the Charlotte Tree Ordinance.

- Planting strip or recessed on-street parallel parking serves as buffer from traffic to pedestrians on sidewalk. Planting strip with trees is the standard expectation. South Boulevard is designated as a state highway, and current state regulations do not permit on-street parking in most cases. If circumstances change in the future such that on-street parking would be allowable, the recessed on-street parking option would be available there per zoning and CDOT standards, and with intermittent planter islands to break up parking into bays no more than 100 feet in length.
- Amenity zone provides supplemental tree planting location. Trees in the amenity zone should be planted in curbed planters. The amenity zone also provides additional paved area for street furniture, paved access to on-street parking, and merchandising purposes.
- Ped zone is the usual location for the clear sidewalk. Where there is no on-street parking and planting strips are in place, the clear sidewalk can be pushed into the amenity zone location and the ped zone can be used for landscaping, sidewalk dining, or paved merchandising purposes. Encroachments into the ped zone for features such as steps and open porches are allowed in accordance with the zoning ordinance, but encroachments at grade may not reduce the clear sidewalk to less than 8 feet.



## Avenue - Two-Lane Undivided

**Description:** The Avenue is the most common (non-local) street providing access from neighborhoods to commercial areas, between areas of the city, and, in some cases, through neighborhoods. It is designed to provide a balance of service for all modes of transportation, including accessibility for transit, pedestrians, and bicyclists in addition to carrying significant automobile traffic.

**Land Use:** The land use will vary; within the plan area the desired uses will include medium to high density mixed use and residential, and some office, industrial, warehouse, and distribution uses.

**Situation:** This Avenue cross section is narrower than the four-lane divided version used for South Boulevard. It is recommended for Old Pineville Road, most of Arrowood Road, England Street, Sweden Road, and the section of Sharon Lakes Road within the Transit Station and General Corridor Areas. The proposed cross-section will allow this street type to continue to perform an important mobility function for motorists, as well as to support safe and comfortable pedestrian and bicycle travel.

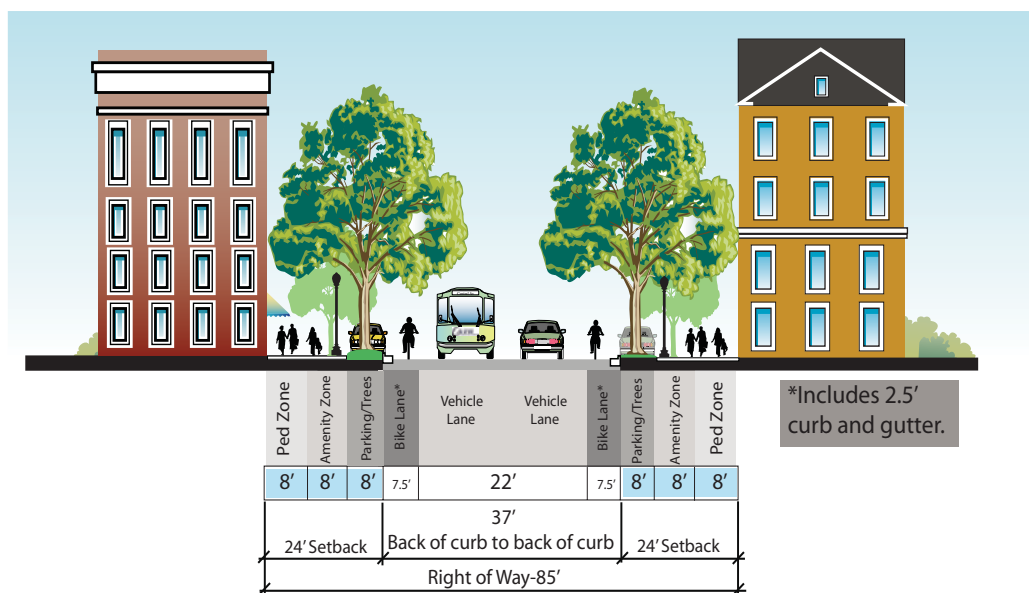
**Existing Condition:** These streets have one lane in each direction, generally without turn lanes or landscaped median but with some variation at major intersections. Right-of-way is generally 60 to 80 feet, but varying more and less.

**Proposed Curb to Curb:** Recommended width is 37 feet from back of curb to back of curb; right-of-way is 85 feet.

- One travel lane and bike lane in each direction.
- Widening for left turn lanes may be required in some circumstances in accordance with CDOT standards.

**Proposed Behind the Curb:** Minimum building setback is 24 feet from back of (unrecessed) recommended curb. Tree planting is required with spacing, irrigation, subdrainage, and adequate soil space for roots per the Charlotte Tree Ordinance.

- Planting strip or recessed on-street parallel parking serve as buffer from traffic to pedestrians on sidewalk. The recessed parking is required in all locations feasible under CDOT standards, with intermittent planter islands to break up parking into bays no more than 100 feet in length. Planting strip with trees is required in all other situations.
- Amenity zone provides supplemental tree planting location. Trees in the amenity zone should be planted in curbed planters. The amenity zone also provides additional paved area for street furniture, paved access to on-street parking, and merchandising purposes.
- Ped Zone is the usual location for the clear sidewalk. Where there is no on-street parking and planting strips are in place, the clear sidewalk can be pushed into the amenity zone location, and the ped zone can be used for landscaping, sidewalk dining, or paved merchandising purposes. Encroachments into the ped zone for features such as steps and open porches are allowed in accordance with the zoning ordinance, but encroachments at grade may not reduce the clear sidewalk to less than 8 feet.





## Avenue - Two-Lane Divided

**Description:** The Avenue is the most common (non-local) street providing access from neighborhoods to commercial areas, between areas of the city, and, in some cases, through neighborhoods. It is designed to provide a balance of service for all modes of transportation, including accessibility for transit, pedestrians, and bicyclists in addition to carrying significant automobile traffic.

**Land Use:** The land use will vary; within the plan area the desired uses will be typically medium to high density mixed use and residential.

**Situation:** This Avenue cross section is narrower than the four-lane divided version used on South Boulevard. It is recommended for the portion of Arrowood Road and Starbrook Drive between England Street and Woodstream Drive. The proposed cross-section will allow this street type to continue to perform an important mobility function for motorists, as well as to support safe and comfortable pedestrian and bicycle travel.

**Existing Condition:** This street has one lane in each direction, with landscaped median and left turn lanes near intersections. Right-of-way is about 80 feet.

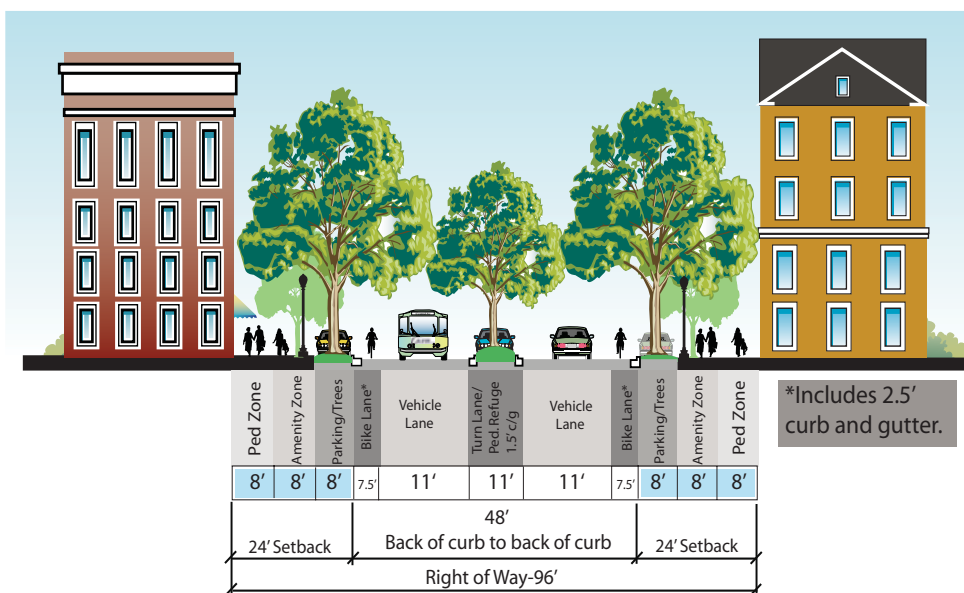
**Proposed Curb to Curb:** Recommended width is 48 feet from back-of-curb to back-of-curb; right-of-way is 96 feet.

- One travel lane and bike lane in each direction.

- Continuous center lane for left turns and pedestrian refuge; to include mid-block landscaped pedestrian refuge islands in some locations.

**Proposed Behind the Curb:** Minimum building setback is 24 feet from back of (unrecessed) recommended curb. Tree planting is required with spacing, irrigation, subdrainage, and adequate soil space for roots per the Charlotte Tree Ordinance.

- Planting strip or recessed on-street parallel parking serve as buffer from traffic to pedestrians on sidewalk. The recessed parking is required in all locations feasible under CDOT standards, with intermittent planter islands to break up parking into bays no more than 100 feet in length. Planting strip with trees is required in all other situations.
- Amenity zone provides supplemental tree planting location. Trees in the amenity zone should be planted in curbed planters. The amenity zone also provides additional paved area for street furniture, paved access to on-street parking, and merchandising purposes.
- Ped Zone is the usual location for the clear sidewalk. Where there is no on-street parking and planting strips are in place, the clear sidewalk can be pushed into the amenity zone location, and the ped zone can be used for landscaping, sidewalk dining, or paved merchandising purposes. Encroachments into the ped zone for features such as steps and open porches are allowed in accordance with the zoning ordinance, but encroachments at grade may not reduce the clear sidewalk to less than 8 feet.



## Main Street

**Description:** Main Street is a “destination” street that provides access to and functions as a center of civic, social, and commercial activity. Development along main streets is dense and focused toward the pedestrian realm.

**Land Use:** In the plan area, the desired land use is medium to high density mixed use with ground level retail.

**Situation:** Main Streets are recommended in the heart of the station area: at Arrowood Station Drive, on proposed new streets in or bordering the existing park and ride lot, on new streets on the properties north of the park and ride lot, and new streets on property west of England Street. Here, pedestrians receive the highest priority of all the transport modes. To accommodate pedestrian traffic, a wide pedestrian zone and an amenity zone are recommended.

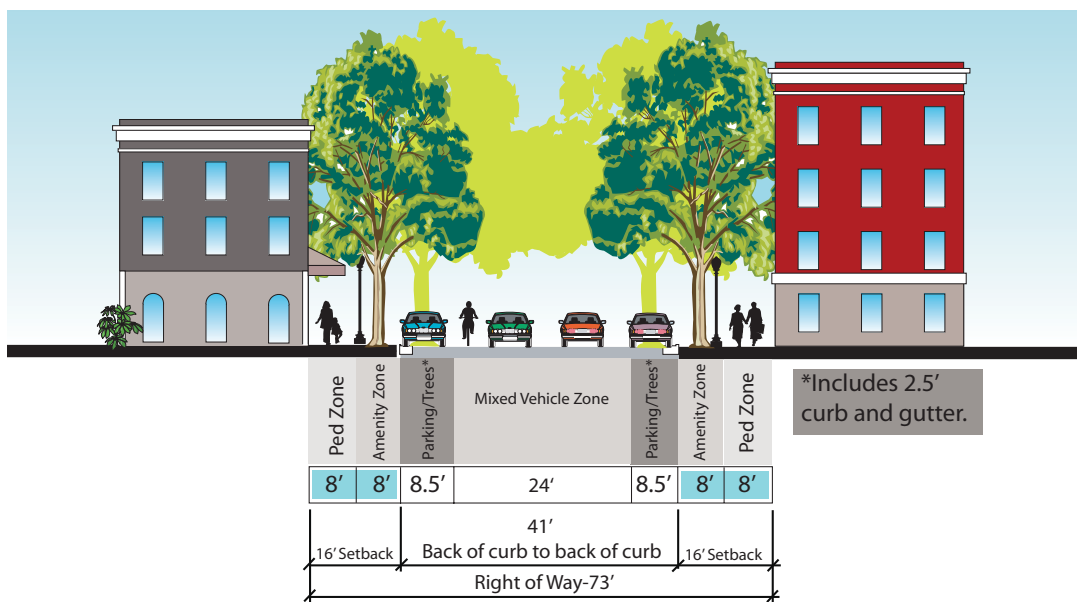
**Existing Condition:** Arrowood Station Drive has one lane in each direction. Although built to public street standards, it is not dedicated at present. The other proposed Main Streets are not in place at present.

**Proposed Curb to Curb:** Recommended width is 41 feet from back-of-curb to back-of-curb; right-of-way is 73 feet.

- One travel lane in each direction shared with bicyclists.
- Widening for left-turn lane may be required in accordance with CDOT standards.

**Proposed Behind the Curb:** Minimum building setback is 16 feet from back of recommended recessed curb. Tree planting is required with spacing, irrigation, subdrainage, and adequate soil space for roots per the Charlotte Tree Ordinance.

- Planting strip or recessed on-street parallel parking serve as buffer from traffic to pedestrians on sidewalk. The recessed parking is required in all locations feasible under CDOT standards, with intermittent planter islands to break up parking into bays no more than 100 feet in length.
- Amenity zone provides supplemental tree planting location. Trees in the amenity zone should be planted in curbed planters where planting strip is not in place. The amenity zone also provides additional paved area for street furniture, paved access to on-street parking, and merchandising purposes.
- Ped zone is the usual location for the clear sidewalk. Where there is no on-street parking and planting strips are in place, the clear sidewalk can be pushed into the amenity zone, and the ped zone can be used for landscaping, sidewalk dining, or paved merchandising purposes. Encroachments into the ped zone for features such as steps and open porches are allowed in accordance with the zoning ordinance, but encroachments at grade may not reduce the clear sidewalk to less than 8 feet.





## Office / Commercial Street - Wide

**Description:** Local streets provide access to residential, industrial, commercial, or mixed use development. The majority of Charlotte's streets are classified as local streets and are typically built through the land development process.

**Land Use:** In the study area, the land use along these streets is typically office, warehouse/industrial, and retail development with an auto orientation. It may include medium density mixed use development.

**Situation:** The office/commercial streets are recommended in the portions of the Transit Station Area and General Corridor Area where residential uses are not anticipated. Office/commercial streets are appropriate because they provide basic pedestrian amenities while allowing for reasonable vehicular access and speeds.

**Existing Condition:** These streets generally have one lane in each direction; some have on-street parking. Right-of-way is typically 50 to 60 feet.

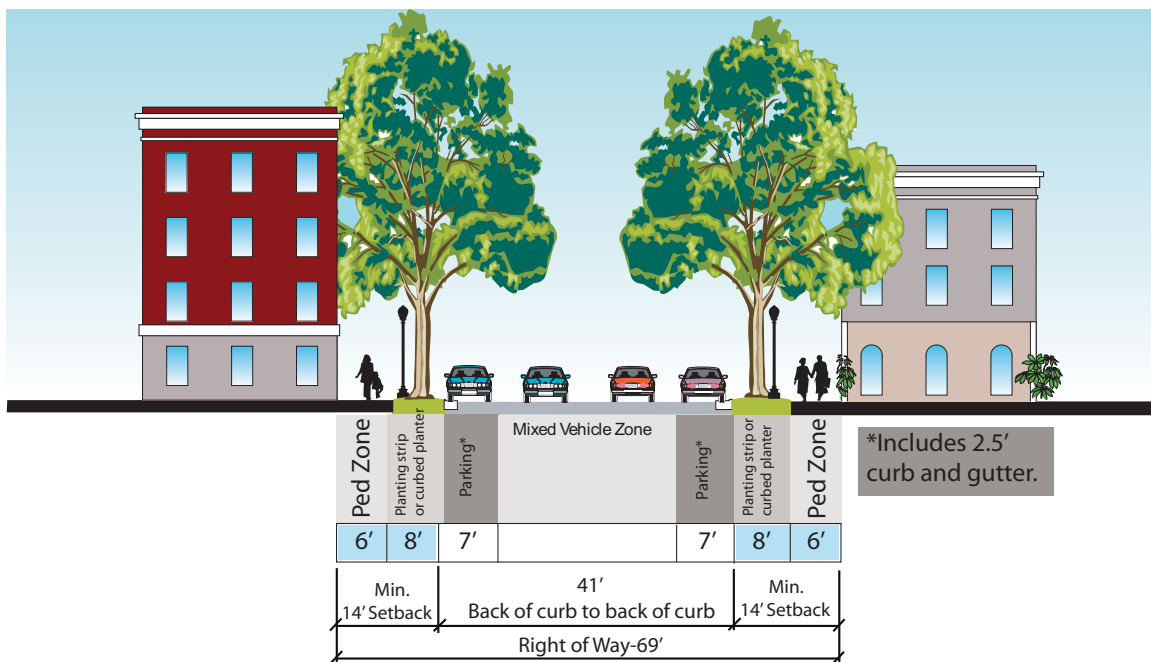
**Proposed Curb to Curb:** Recommended width is 41 feet from back-of-curb to back-of-curb; right-of-way is 69 feet.

- One travel lane in each direction shared with bicyclists.

- On-street parking on both sides. Curb extensions may be used to narrow street width at intersections and other locations where on-street parking is not appropriate.
- Widening for left-turn lanes may be required in some circumstances in accordance with CDOT standards.

**Proposed Behind the Curb:** Minimum building setback is 14 feet from back of (recessed) recommended curb, or 21 feet from back of any extended curb. Tree planting is required with spacing, irrigation, subdrainage, and adequate soil space for roots per the Charlotte Tree Ordinance.

- Planting strip provides buffer from traffic to pedestrians on the sidewalk, and a landscaping opportunity. In locations with retail frontage or other high density applications, tree planting in curbed planters, with paved amenity zone for street furniture, paved access to on-street parking, and merchandising purposes should be substituted for the planting strip.
- Ped Zone is the usual location for the clear sidewalk. Encroachments into the ped zone for features such as steps and open porches are allowed in accordance with the zoning ordinance, but encroachments at grade may not reduce the clear sidewalk to less than 6 feet.



## Local Residential Street - Wide

**Description:** Local streets provide access to residential, industrial, commercial or mixed-use development. The majority of Charlotte's streets are classified as local streets and are typically built through the land development process.

**Land Use:** The land use is typically medium to high density residential, with some mixed use development.

**Situation:** Wide local residential streets are recommended in portions of the plan area where residential uses higher in density than single-family are in place or expected. They also are recommended in portions of the transit station area off of the main thoroughfares where a predominance of residential development is expected. The local residential street cross-section is designed for low traffic speeds and a comfortable walking, cycling and living environment.

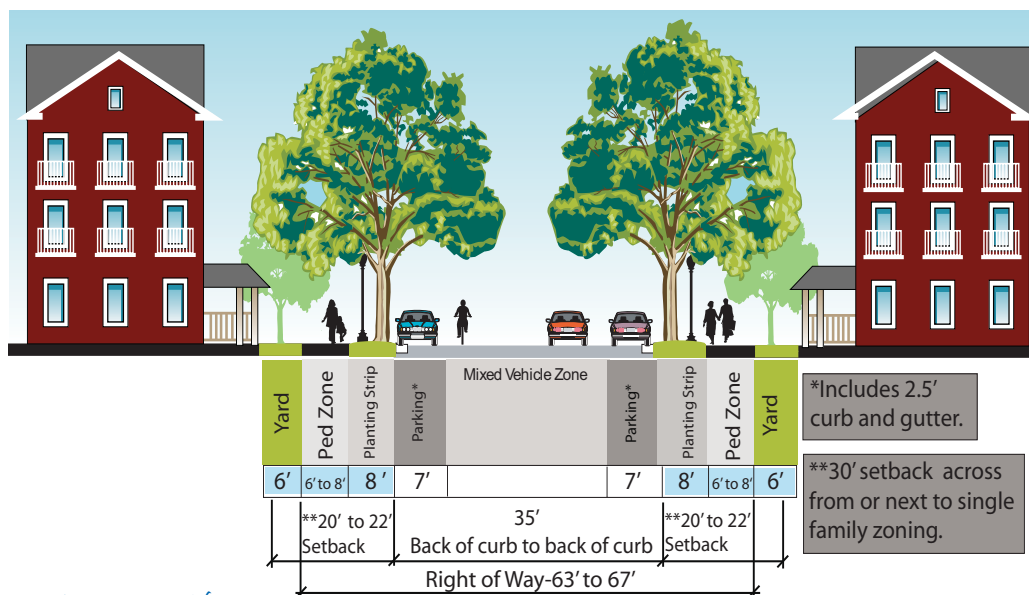
**Existing Condition:** These streets have one lane in each direction. Some have on-street parking. Right-of-way varies widely, but is typically 50 feet.

**Proposed Curb to Curb:** Recommended width is 35 feet from back-of-curb to back-of-curb; right-of-way is 63 to 67 feet, depending on the sidewalk requirement.

- One travel lane in each direction shared with bicyclists.
- On-street parking on both sides. Curb extensions may be used to narrow street width at intersections and other locations where on-street parking is not appropriate.
- Widening for left-turn lanes may be required in some circumstances in accordance with CDOT standards.

**Proposed Behind the Curb:** Minimum building setback is 20 to 22 feet from back of (recessed) recommended curb, or 27 to 29 feet from back of any extended curb, depending on the sidewalk width requirement. Tree planting is required with spacing, irrigation, subdrainage, and adequate soil space for roots per the Charlotte Tree Ordinance.

- Planting strip provides buffer from traffic to pedestrians on the sidewalk, and a landscaping opportunity. In locations with retail frontage or other high density applications, tree planting in curbed planters, with paved amenity zone for street furniture, paved access to on-street parking, and merchandising purposes should be substituted for the planting strip.
- Ped zone is the usual location for the clear sidewalk. For streets located within 1/4 mile walk of the transit station, the minimum sidewalk width is 8 feet. Elsewhere in the plan area the minimum width is 6 feet.
- The yard area is intended to provide additional landscaping and a buffer between sidewalk and residential uses. Encroachments for features such as steps and open porches are allowed in accordance with the zoning ordinance, but encroachments at grade may not reduce the clear sidewalk to less than the required width.
- Parcels located on streets that have existing single-family zoning designations (R-3, R-4, R-5, R-6, and R-8) either across the street, or abutting on the same side of the street, shall have a minimum setback of 30 feet.



# Infrastructure and Public Facilities

The core of the Arrowood plan area includes properties that currently are industrial and auto-oriented commercial; however these properties are recommended for higher density redevelopment. Their infrastructure, while sufficient and appropriate for its former uses, may require capacity increases for more intense new uses. The following recommendations are intended to address needs for additional or expanded infrastructure and public facilities.

## Public Facility/Infrastructure Recommendations

34. **Conduct an infrastructure study to evaluate the adequacy of infrastructure** (water, sewer, storm drainage) in the station area. The ability of the station area's infrastructure to support high density redevelopment and capacity of the other utility systems is not known. To ensure that the station area will be able to support the new, higher-density development recommended by this plan, a detailed infrastructure analysis is recommended.
35. **Encourage the burying of utilities.** Overhead utility lines detract from the appearance of the station area, which in turn may impact the economic competitiveness of a project. Overhead lines also may impact development density due to required clearances from the lines. As redevelopment occurs, opportunities to relocate or bury utility lines should be pursued.

## Park and Greenway Recommendations

36. **Provide opportunities for expansion and improved access for the Little Sugar Creek and Kings Branch Greenways** in accordance with Mecklenburg County Park and Recreation master plans.
37. **Encourage urban open spaces in the Transit Station Area.** New developments in the area should provide usable urban open spaces, either on-site or off-site within the station area. Desirable types of urban open spaces include pocket parks, plazas, and community gardens. The areas in immediate proximity to the Arrowood Transit Station are high priority for open space.



*The former Starmount Elementary School is presently used as a pre-kindergarten center.*



*Entry to Huntingtowne Farms Park is locked in the evenings.*



# Environment

The Arrowood plan area includes a substantial area of present and former commercial and industrial development, much of which is expected to be redeveloped in the coming years. The environmental recommendations focus on means to improve air, water and land quality through the redevelopment process.

It should be noted that the establishment of dense transit oriented development within station areas is intended to improve the environment of the region by concentrating growth where it can be supported by transit and other infrastructure, by relieving the pressure for growth on outlying greenfield locations, and by reducing vehicular trips and trip lengths that otherwise would extend to the outer edge of the metropolitan area.

## Environmental Recommendations

### 38. **Make trees a key feature of the entire plan area.**

Arrowood residential neighborhoods are characterized by their mature tree canopy. A large portion of the residential areas has a significant tree canopy. Trees could become a key feature for the entire study area if they are added to streets in the Transit Station and Corridor Areas. In addition to their aesthetic value, trees help to reduce stormwater run-off, slow soil erosion, absorb air pollutants and provide shade. Where street trees currently exist in the station area, they should be maintained and replaced as necessary. In parts of the station area where street trees do not currently exist, they should be planted as part of any new development or redevelopment in accordance with the streetscape cross-sections.

### 39. **Design site plans for new buildings and renovations in the station area to improve water quality for stormwater run-off.**

Over the last decade, innovative design solutions have been developed to address the water quality of stormwater runoff. These best practices in on-site stormwater management include the use of bioswales or rain gardens, rooftop rain capture, and pervious parking areas. Because of the large amount of impervious surface area and the proximity of nearby creeks, new developments and redevelopments in the station area are encouraged to incorporate design features that improve the quality of stormwater leaving their site, consistent with the Council-adopted Post Construction Controls Ordinance.

### 40. **Protect or enhance the watersheds when possible.**

The Arrowood plan area sits on a ridge line between Little Sugar Creek to the east and Kings Branch Creek to the west. Degradation to either creek would be a negative impact to the community. Any development or redevelopment in the area will have a goal to improve the quality of runoff, reduce flooding impacts, and reduce runoff if possible. This will primarily be achieved with the provisions of the Post Construction Controls Ordinance.

### 41. **Assist property owners with remediation of sites known or perceived to have contaminated soil.**

Soil contamination poses an obvious hazard to the environment; however, it can also serve as an obstacle to development. Since contamination is a potential issue in the transit station area, property owners should be encouraged to participate in the funding programs offered by the City of Charlotte to financially assist with the assessment of contaminated sites.



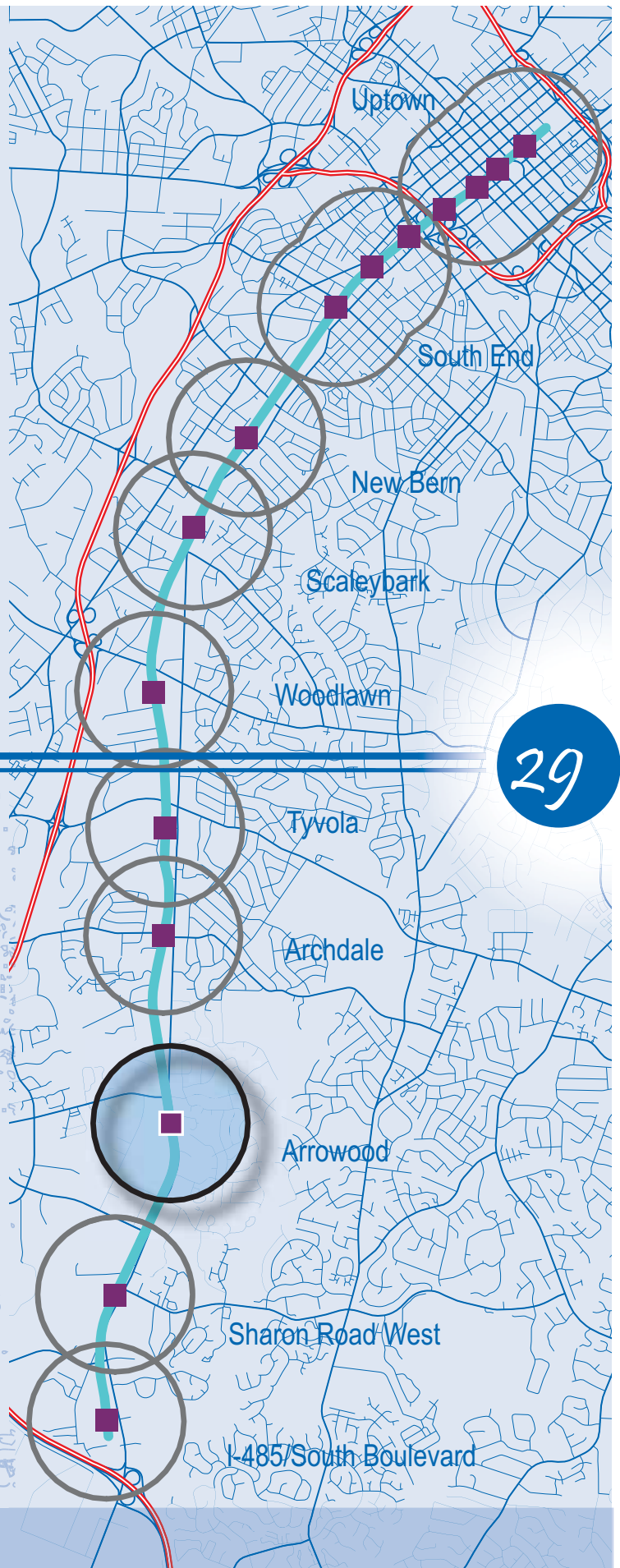
*The tree canopy in existing neighborhoods of the plan area is an amenity to be preserved and emulated in new development.*



Volume 2:  
*Implementation  
Plan*

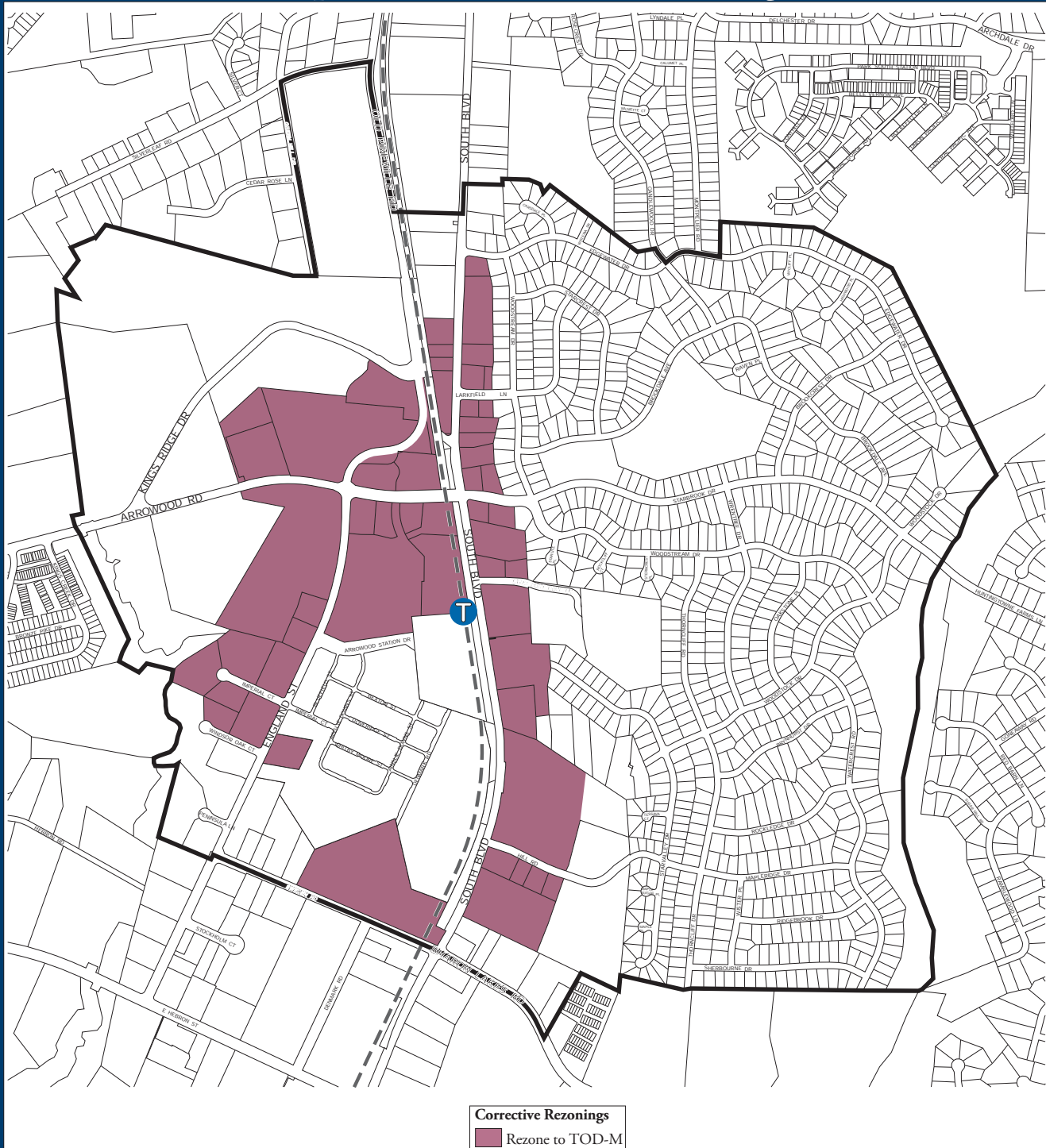
29

Arrowood Transit Station Area Plan



# Arrowood Transit Station Area Plan

## Map 6: Corrective Rezonings



Produced by the Charlotte-Mecklenburg Planning Department.

0 500 1,000  
feet



Date: September 15, 2008

*Arrowood Transit Station Area Plan*

**IMPLEMENTATION PLAN**

# Implementation Plan

The recommendations of the *Arrowood Transit Station Area Plan* will be implemented in a number of ways. First and foremost, all of the recommendations in the plan, once adopted, are City policy. As such, the recommendations will guide future decision-making in the study area, such as requests for rezoning.

This Implementation Plan outlines the strategies to help implement the land use, community design, transportation, and other development-oriented recommendations contained in the adopted Concept Plan. Implementation strategies are listed on the following pages. The number of each action corresponds to the number for the recommendation in the Concept Plan. The responsible agency and possible time frame also are included.

These implementation strategies will not be approved by elected officials as part of the Concept Plan adoption. The strategies that require City Council approval will be brought forward on a case by case basis after the Concept Plan has been adopted and the public has had an opportunity to give input.

Because this Implementation Plan is not adopted by elected officials, the public sector sponsored items listed on the following pages are ideas for implementation, not a commitment. The projects may be revised over time; as such this Implementation Plan should be updated periodically to reflect changes and progress.

## Public Sector Responsibilities

With input from the community, the public sector will provide the policy framework for land development and will be responsible for making a number of infrastructure improvements. In addition, the Charlotte-Mecklenburg Planning Department, in consultation with other City and County departments, is responsible for initiating and guiding the corrective rezoning process and monitoring and reviewing rezonings proposed for the plan area to ensure that future development meets the required standards and reflects the intent of the adopted policy.

## Private Sector Responsibilities

The private sector will be responsible for developing and redeveloping properties within the plan area consistent with the vision, policies, and recommendations included in the Concept Plan. Ensuring that the infrastructure required in conjunction with development is provided will be part of these development responsibilities.

## Corrective Rezonings

The Planning Department will initiate corrective rezonings to implement the land use vision and recommendations adopted as part of the Concept Plan. The proposed rezonings are shown on Map 6. The rezoning process will occur after the adoption of the Concept Plan.

The proposed rezonings to TOD-M may be initiated in one or more groups, or may be proposed on a case-by-case basis in order to insure that new streets and other recommendations of this plan are provided by new development.

While some of the commercially and industrially zoned property along South Boulevard and Sweden Road is currently vacant, a number of properties are occupied by ongoing businesses. This includes the Charlotte Department of Transportation's Street Maintenance facility on Sweden Road. These properties should retain their commercial or industrial zoning to allow them to continue as-of-right operations until such time as they are proposed for redevelopment.

## Implementation Strategies

The number of each action corresponds to the number for the recommendation in the Concept Plan.

	Action Item	Type	Lead Agency	Priority
	<u>Land Use and Community Design</u>			
1a	Rezone area recommended for transit oriented development to TOD-M per Map 6.	Zoning	Planning	Short (0-5 yr)
1b	Use land use recommendations to guide and evaluate development proposals.	Zoning	Planning	as devel occurs
2	Use land use recommendations to guide and evaluate development proposals.	Zoning	Planning	as devel occurs
3	Use land use recommendations to guide and evaluate development proposals.	Zoning	Planning	as devel occurs
4	Create urban plazas or park on both sides of South Blvd. at the entrance to the Arrowood Transit Station.	Park	Park & Rec	Medium (0-5 yr)
5	Use land use recommendations to guide and evaluate development proposals.	Zoning	Planning	as devel occurs
6	Use land use recommendations to guide and evaluate development proposals.	Zoning	Planning	as devel occurs
7	Update Centers, Corridors & Wedges Boundaries	Planning	Planning	Short (0-5 yr)
8	New street connections - Provide new street connections needed to create typical block lengths of 400 feet desired, or 600 feet maximum, as shown on Map 4. Specifically, extend streets as noted in the plan.	Transp.	CDOT	as devel occurs
9	Consider new pedestrian bridge crossing of the rail corridor at the Arrowood Station.	Transp.	CDOT / CATS	as devel occurs
10	Use land use recommendations to guide and evaluate development proposals.	Zoning	Planning	as devel occurs
11	Not Applicable	NA	NA	NA
12	Use land use recommendations to guide and evaluate development proposals.	Zoning	Planning	as devel occurs
13	Use land use recommendations to guide and evaluate development proposals.	Zoning	Planning	as devel occurs

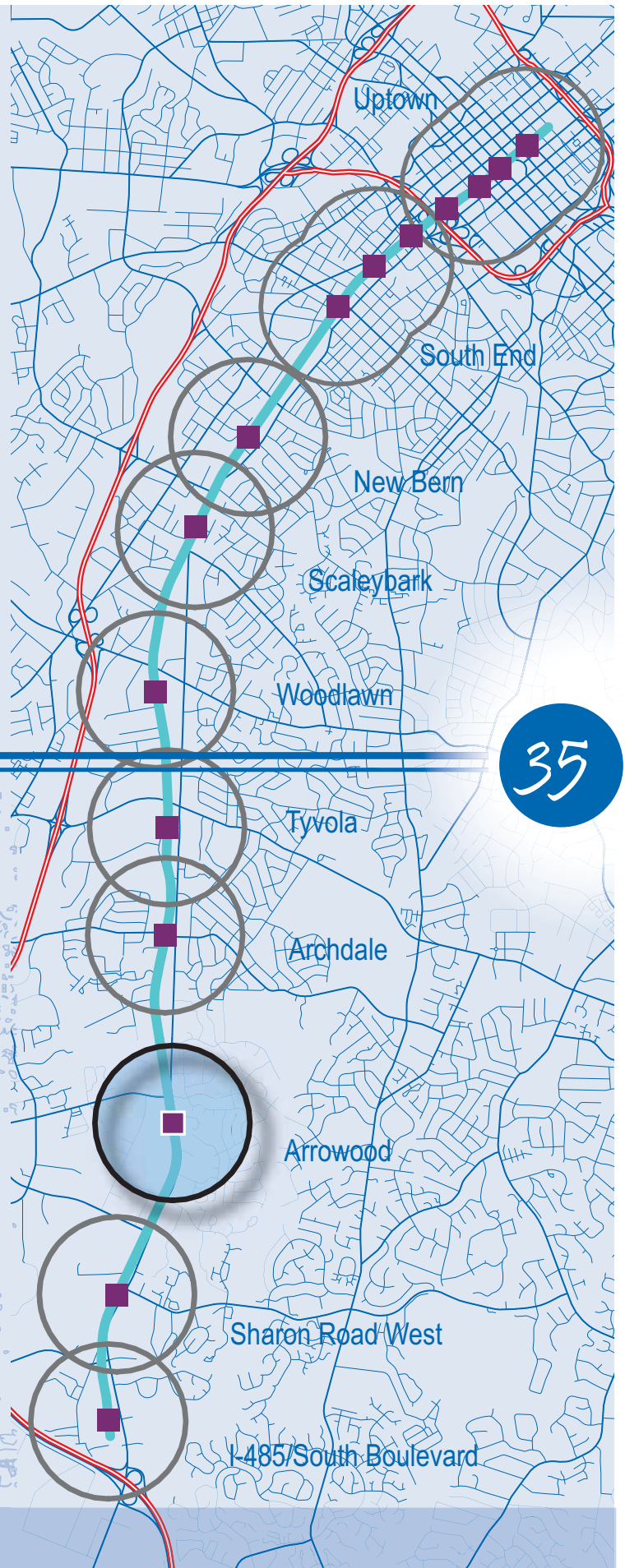


Action Item		Type	Lead Agency	Priority
14	Recognize the long term plan by County Park & Rec to establish the Kings Branch Greenway as park and open space.	Park	Park & Rec / Planning	as devel occurs
15	Maintain and enhance the existing street network for the Corridor area.	Transp.	CDOT	as devel occurs
16	Maintain the single family portion of the Starmount and Starmount Forest neighborhoods.	Planning	Planning	as devel occurs
17	Use land use recommendations to guide and evaluate development proposals.	Zoning	Planning	as devel occurs
18	Use land use recommendations to guide and evaluate development proposals.	Zoning	Planning	as devel occurs
19	Not Applicable	NA	NA	NA
20	Not Applicable	NA	NA	NA
21	Maintain the existing street network for the Wedge Neighborhood area.	Transp.	CDOT	as devel occurs
	<u>Transportation / Street Design</u>			
22	see # 8	Zoning	Planning	as devel occurs
23	see # 15	Zoning	Planning	as devel occurs
24	Improve access to South Blvd. from the Starmount Forest neighborhood by extending existing stubs of Starvalley Drive, Woodstock Drive, and Mapleridge Drive.	Transp.	CDOT	Long (>10 yrs)
25	Eliminate gaps in the sidewalk system within the Transit Station Area	Transp.	CDOT	as devel occurs
26	Widen sidewalks along South Boulevard.	Transp.	CDOT	Medium (5-10 yr)
27	Improve the sidewalk network in the Transit Station Area.	Transp.	CDOT	Medium (5-10 yr)
28	Enhance pedestrian and bicycle crossings on major thoroughfares.	Transp.	CDOT	Medium (5-10 yr)
29	Extend designated bicycle lanes on Arrowood Road, England Street, Sweden Road, and Sharon Lakes Road.	Transp.	CDOT	Medium (5-10 yr)
30	Site new developments to allow future addition of bicycle lanes on South Blvd.	Transp.	CDOT	Medium (5-10 yr)

	Action Item	Type	Lead Agency	Priority
31	Create a bicycle-pedestrian overpass over the Norfolk Southern Railroad and South Blvd.	Transp. Planning	CDOT / CATS	as devel occurs
32	Create more bicycle-pedestrian connections to and across the Little Sugar Creek Greenway.	Transp.	CDOT / Park & Rec	Medium (5-10 yr)
33	Install pedestrian scale lighting	Transp.	CDOT	Medium (5-10 yr)
	<u>Infrastructure and Public Facilities</u>			
34	Conduct an infrastructure study to evaluate the adequacy of infrastructure	Utilities	E&PM / CMU	Medium (5-10 yr)
35	Encourage the burying of utilities	Utilities	Planning	as devel occurs
36	Provide opportunities for expansion and improved access for the Little Sugar Creek and Kings Branch Greenways.	Park	Park & Rec / CDOT	as devel occurs
37	Encourage urban open spaces in the Transit Station Area	Park	Planning / Park & Rec	Medium (5-10 yr)
	<u>Environment</u>			
38	Make trees a key feature of the entire plan area.	Zoning/ Tree Ord.	Planning / Park & Rec	Medium (5-10 yr)
39	Design site plans for new buildings and renovations in the station area to improve water quality for stormwater run-off.	Stormwater	E&PM	as devel occurs
40	Protect or enhance the watersheds when possible.	Stormwater	E&PM	as devel occurs
41	Assist property owners with remediation of sites known or perceived to have contaminated soil.	Brownfield	Econ. Dev.	as devel occurs

# Appendix:

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# Existing Conditions

This chapter examines existing demographic, environmental, land use, design, transportation, and infrastructure conditions in the Arrowood plan area. It provides a framework for understanding the opportunities and constraints identified in the Concept Plan.

## Demographics

According to the 2000 U.S. Census, the Arrowood study area is home to approximately 5,383 residents. The majority of these residents are white (54%) and about 25% are black. Hispanic residents comprise 24% of the area's population, significantly greater than the 7% for the city as a whole.

A majority of residents in the plan area (73%) are working age adults, between ages 18 and 64 years. Twenty-two percent are below the age of 18, while only five percent (5%) are over the age of 65.

Approximately 40% of residents in the plan area have a household income of less than \$35,000, compared to 36% for households in Charlotte overall.

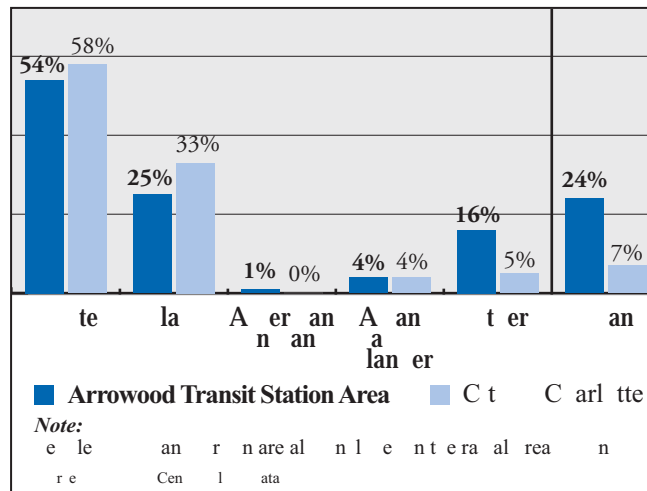
The highest level of educational attainment for most residents in the plan area varies, as seen on the accompanying diagram. The differences in educational levels may contribute to the range of occupations for residents in the plan area, as noted in the accompanying diagram.

Although the occupations are diverse within the area, the mode of transportation to work among residents is very similar. Of the working population, 95% travel to work by car, truck or van; 1% use public transportation, and the remaining 4% are split between individuals who walk to work and work at home. The average travel time to work is approximately 22 minutes.

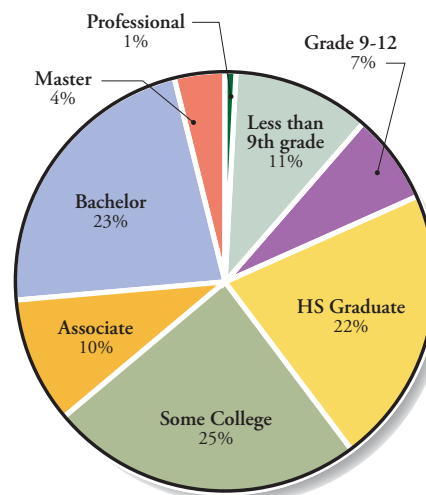
### Issues/Opportunities

*As the area continues to grow, the diverse population provides an opportunity for this area to become a unique place for people to live and work.*

*In addition, the LYNX Blue Line can provide an alternative mode of transportation for some residents within the area.*

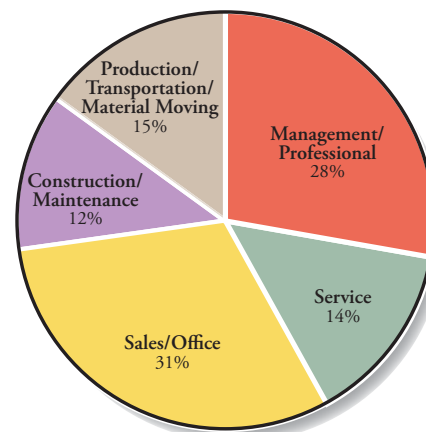


Population Characteristics for Arrowood and Charlotte



Source: 2000 U.S. Census Block Group Data

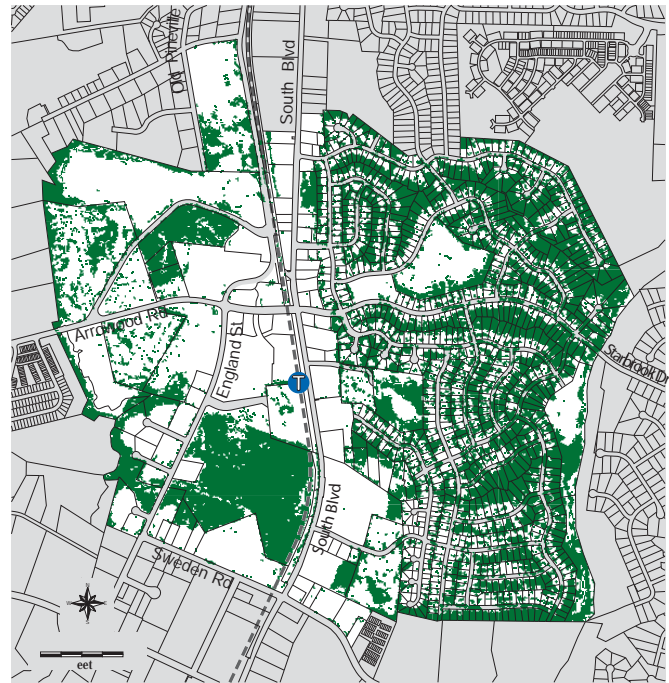
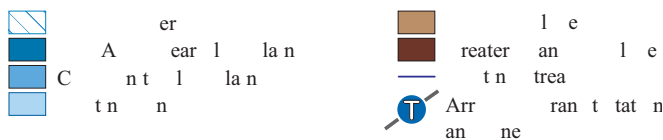
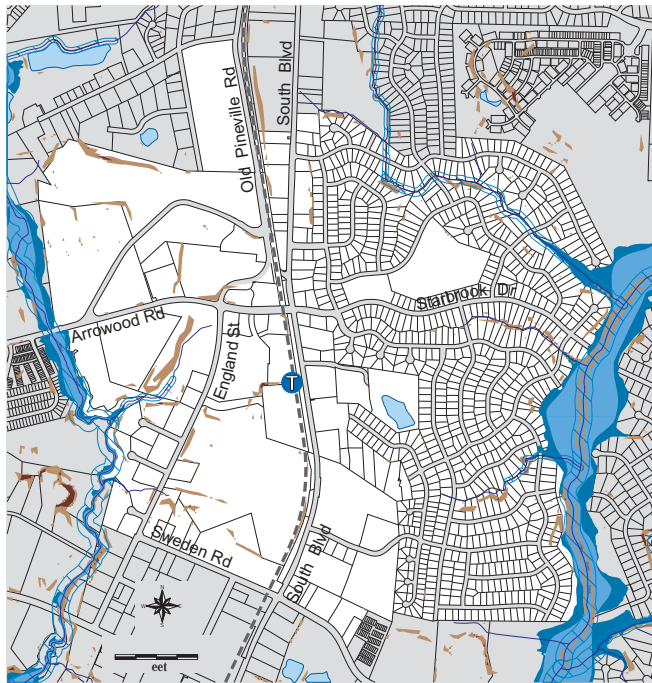
Educational Level for Arrowood Station Area Plan



Source: 2000 U.S. Census Block Group Data

Employment Industry for Arrowood Station Area Plan





## Environment

### Natural Features

The Arrowood Transit Station Area, like most stations along the South Corridor, does not have many sensitive natural features. However, Kings Branch Creek borders the west side of the study area boundary and Little Sugar Creek borders the east side of the study area. There are SWIM Buffers and floodplain areas that must be considered and protected when developing. Topography is relatively gentle with a few mild slopes throughout the area.



Little Sugar Creek borders the plan area.

### Tree Cover

The South Boulevard corridor and the industrial areas to the west of the rail line have few trees, minimal landscaping, and vast parking areas which results in higher amounts of stormwater run-off. However, established residential neighborhoods in this area have a mature tree canopy.

### Issues/Opportunities

*Currently, the South Boulevard corridor and the industrial area to the west have few trees and minimal landscaping. As the plan area redevelops, there will be a significant opportunity to improve the quality of the environment by planting additional trees and landscaping.*

## Land Use and Design

### *Industrial*

Most industrial uses in the station area are on Sweden Road and England Street. Only the properties on the north side of Sweden Road are within the plan area boundary. Of these, the largest is a vehicle maintenance facility operated by the City of Charlotte. Most of Sweden Road's industrial buildings date to the 1960's and 1970's. Several one-story buildings dating to the 1990's, located on England Street and three cul-de-sacs on its western side, house light industrial, warehousing, and office uses. There is also a walk-in medical center on England Street opposite the driveway to the transit station.

The architecture of the newer industrial buildings is of good design and primarily of masonry construction. Some of the older industrial buildings on Sweden Road are constructed of metal siding, and the architectural style is typical of the era in which they were built. All industrial properties in the station area appear to be well-maintained, and most are adequately landscaped. Industrial uses extend into some areas where transit oriented development is desired.

### *Commercial*

Commercial land use on South Boulevard includes new and used car dealers, fast food restaurants, and auto-oriented retail establishments. The Norfolk Southern railroad tracks and Lynx light rail lines occupy the west side of South Boulevard below Arrowood Road, limiting land use in this area to the east side of the street. Commercial properties on South Boulevard are utilitarian in design. Signage is designed and sized for maximum visibility by car, site landscaping is modest, and there is no appreciable tree canopy.

Near the intersection of England Street and Arrowood Road are two medium-sized retail shopping centers, forming a second commercial node in the plan area. Each is within a short distance of the transit station and nearby multi-family residential areas. Compare Foods is the largest single commercial use in these centers, which also feature outparcels with restaurants and smaller retail uses. The commercial center to the north of Arrowood Road presently is being renovated. Surface parking at these centers is ample. Commercial and retail building design varies, with newer or more recently renovated buildings generally of a higher architectural standard. The retail and commercial uses in proximity to the station are not consistent with higher density mixed uses generally desired around a transit station.



*Light industrial and office uses are typical of England Street.*



*This retail center off East Arrowood Road serves the station area's diverse population.*



*Oak Crossing multi-family residential development is opposite the victory Christian Center on Old Pineville Road.*





*This driveway and parking area provides access from the station area to the Little Sugar Creek Greenway and Huntingtowne Farms Park.*

### **Residential**

East of South Boulevard, Starmount and Starmount Forest are well-established single-family neighborhoods that comprise one-story or split-level homes on pleasant winding streets and cul-de-sacs with mature trees and landscaping. Most of these homes were built in the 1960's, although a few additional homes were constructed in the late 1990's. A multi-family development of twelve two-story wood frame buildings lies between the commercial uses on South Boulevard and the Starmount Forest neighborhood, and dates from the 1970's. It appears well-maintained but minimally landscaped.

Virtually all residential use in the plan area west of South Boulevard is multi-family, located in five developments off of Arrowood Road. All have been built since 1980, with the newest, South Oak Crossing, dating to 2006. Mostly comprising two, three, and four story wood frame buildings with surface parking, the area's multi-family developments appear to be well-maintained and landscaped.

In 2008 work began to redevelop a 24.6 acre site adjacent to the Arrowood transit station. Known as Hadley, the initial phase comprises 307 new residential units in 50 townhome buildings, with a network of new public and private streets. This site is zoned TOD-M. Future development on this site may include mixed-use.

### **Civic**

There are two churches in the plan area, one of which, Victory Christian Center, is the area's largest single property owner. The former Starmount Elementary School on Brookdale Avenue is presently used as a pre-kindergarten center by Charlotte-Mecklenburg Schools. There are no post offices, public libraries,

fire stations, or police substations within the plan area boundary.

Little Sugar Creek forms the eastern border of the plan area. A small parking lot accessed from Rockledge Drive serves the Little Sugar Creek Greenway and provides a pedestrian connection via a footbridge to Huntingtowne Farms Park on the east bank of Little Sugar Creek. Pedestrian access from the transit station to the greenway is impractical given the walking distance and lack of a direct and identifiable pathway.

There are no active public recreation uses in the station area, but the Starclaire Park Club, a private club situated on Little Sugar Creek at the end of Woodstream Drive, has facilities for swimming, tennis, and other recreational activities.

### **Issues /Opportunities**

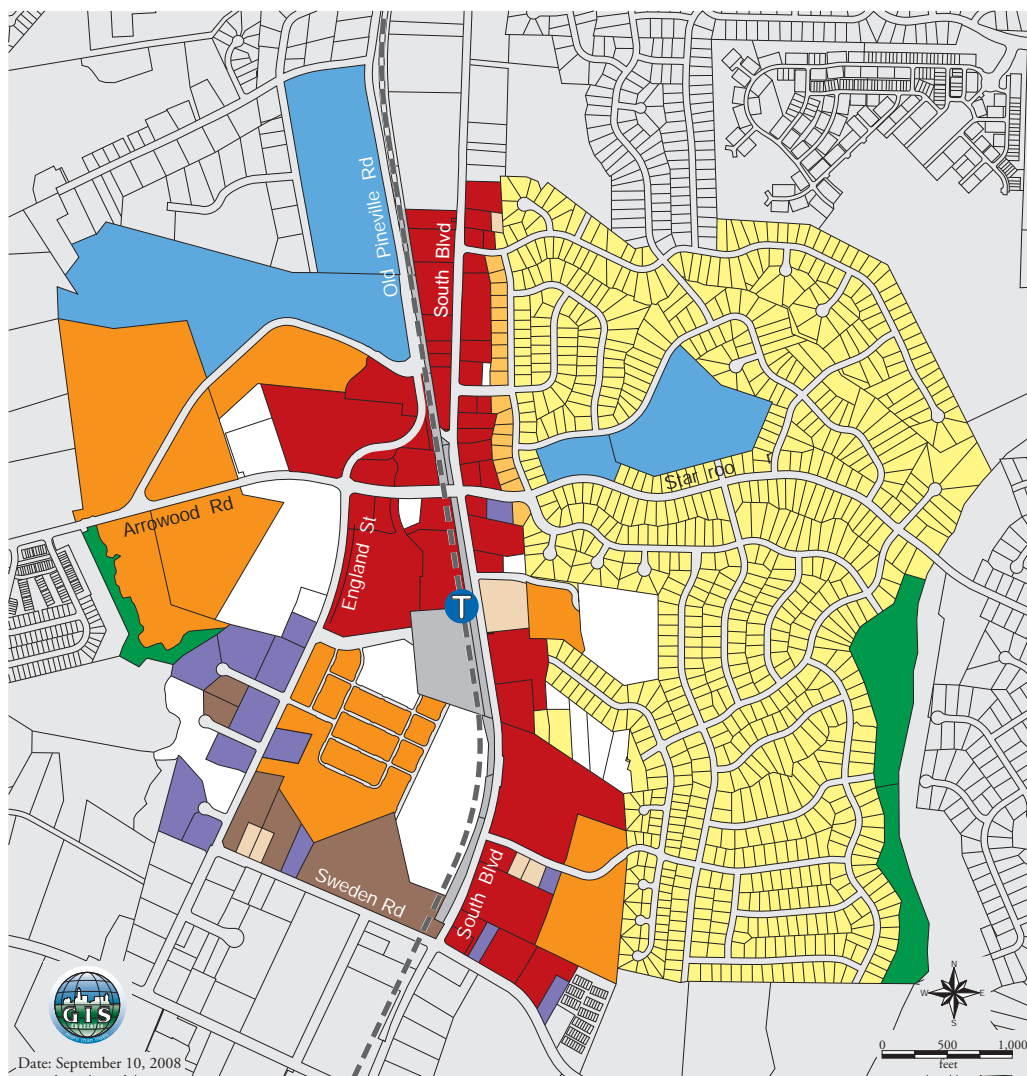
*Pedestrian access between the transit station and the commercial and retail nodes in the plan area is poor. The retaining wall adjacent to the station, combined with the Norfolk Southern tracks, absence of sidewalks, and high-speed traffic impose both a physical and visual barrier that separates it from the commercial and retail uses on South Boulevard. An overhead crossing similar to the bridge at the Sharon Road West station would help provide greater connectivity for pedestrians.*

*There are few residential or employment opportunities within an easy walk of the transit station. Even those that are within a short straight-line distance are difficult to walk to because of poor pedestrian connections. All future development within one-half mile of the transit station should be encouraged to enhance pedestrian access to the station.*



*There are many physical and psychological obstacles to walking from the transit station to South Boulevard and adjacent residential neighborhoods.*

## Arrowood Existing Land Use



*Victory Christian Center is a major presence in the plan area.*

*Arrowood Transit Station Area Plan*

### Existing Land Use

	Acres	Percent of Total
Residential	272.8	38.2
Commercial	6.0	0.8
Industrial	110.4	15.4
Water	99.2	13.9
Forest	21.7	3.0
Other	5.6	0.8
Transportation	19.6	2.7
Public	78.5	11.0
Unimproved	15.5	2.2
Open Space	22.5	3.2
Other	63.1	8.8
<b>Total</b>	<b>714.9</b>	<b>100.0</b>

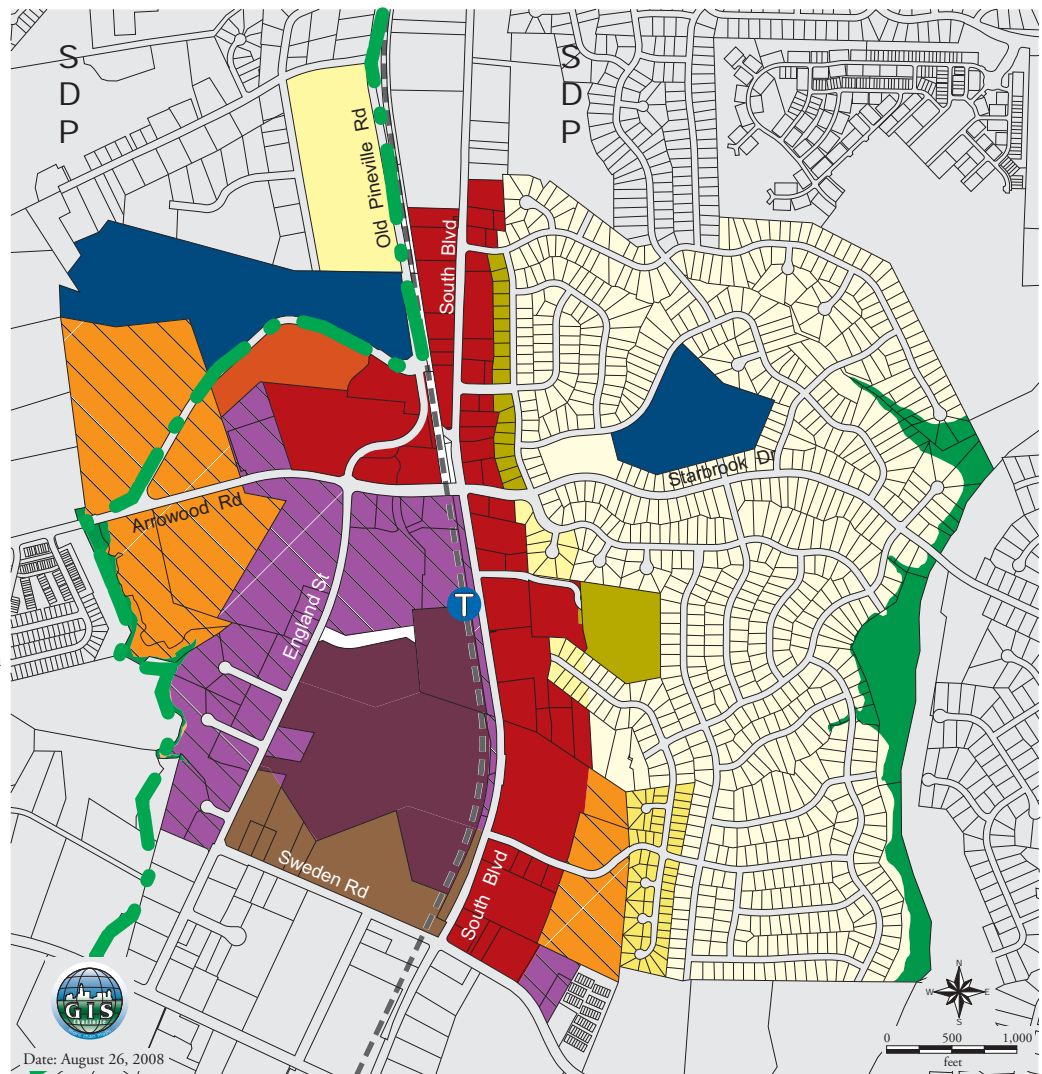
Arrowood Transit Station



# Arrowood Adopted Land Use South District Plan (1993) & Southwest District Plan (1991)

## Adopted Land Use

- Single Family <= 4 DUA
- Single Family <= 5 DUA
- Single Family <= 8 DUA
- Multi-Family
- Multi-Family <= 17 DUA
- Multi-Family > 25 DUA
- Institutional
- Office
- Retail
- Industrial
- Greenway
- Transit Oriented - Mixed
- T Arrowood Station Area



## Adopted Future Land Use

Prior to the adoption of this plan, the Charlotte City Council adopted the *Southwest District Plan* (1991) and the *South District Plan* (1993) that served as the governing land use policies for the plan area.

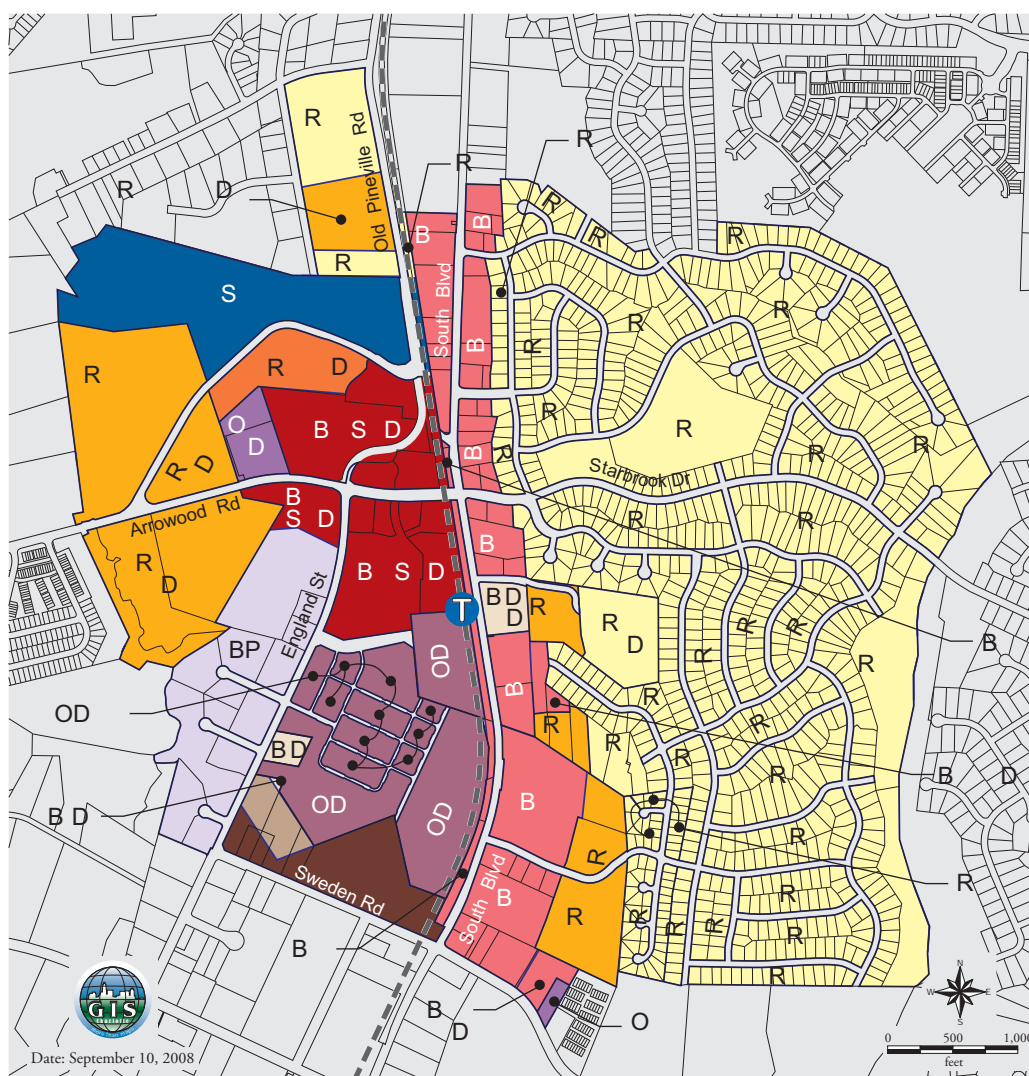
For the Arrowood station area, both district plans recommend protecting existing neighborhoods. The *South District Plan* recommends the area east of South Boulevard for retail and business uses, while the west side of South Boulevard should be business, office and some industrial uses. The area west of South Boulevard around Arrowood Road and Old Pineville Road is recommended for Multi-Family uses. The *Southwest District Plan* covers an area north of Kings Ridge Drive (formerly a segment of Old Pineville Road.) It recommends multifamily and institutional uses in that area. Neither plan anticipated a light rail transit line, nor the higher density uses supportive of the line.

Upon adoption, the *Arrowood Station Area Plan* becomes the governing land use policy document for properties within the plan boundaries. This plan reinforces some of the recommendations in previous planning efforts, but also encourages a balanced mixture of pedestrian-friendly, transit-oriented developments. These changes are discussed in the Land Use Recommendation section of this document.

## Issues/Opportunities

*An update to the currently adopted land use plans provides an opportunity to promote a higher intensity and pedestrian oriented development that is critical in transit stations areas.*

## Arrowood Existing Zoning



### Existing Zoning

In general, the zoning for the Arrowood transit station area reflects the existing development pattern. Along South Boulevard, there is mainly retail zoning. There is also more retail property along Arrowood Road and England Street, with multi-family zoning further west on Arrowood Road. Properties along England Street, south of Arrowood Road are zoned for office park and industrial uses. Existing neighborhoods east of South Boulevard are zoned for single family residential development, with some smaller multi-family property at its edge. The parcels just west of the Arrowood transit station park and ride lot are zoned for transit oriented development, along with office park and industrial uses. There is also a large institutional property, the Victory Christian Center.

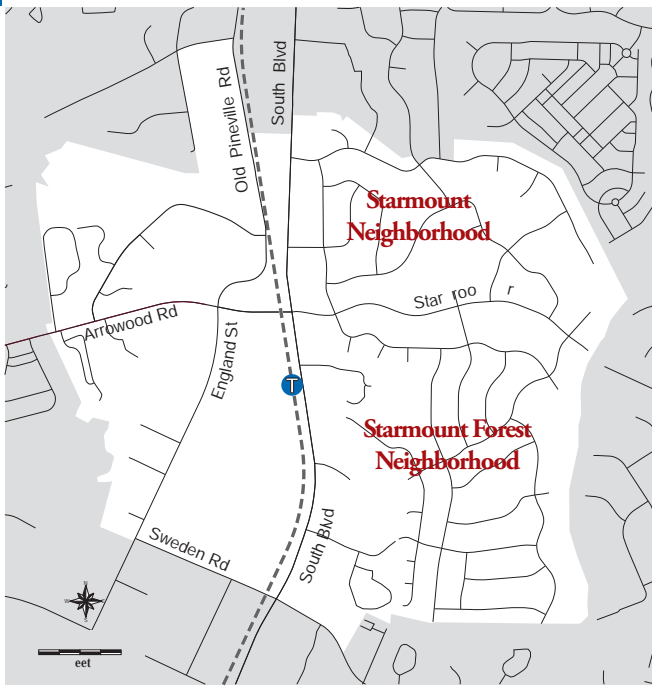
### Issues/Opportunities

*The development built under the existing industrial and business zoning typically will not meet the intensity, use and community design guidelines for transit oriented development.*

Arrowood Transit Station Area Plan

Zoning Category	Acreage	Percent of Total
Single Family	341.7	47.7
Multi-Family	90.9	12.7
Urban Residential	9.8	1.4
Office	6.2	0.9
Business Park	36.1	5.0
Business	65.7	9.2
Commercial Center	47.8	6.7
Business-Distribution	6.5	0.9
Industrial - Light	4.2	0.6
Industrial - Heavy	15.4	2.2
Transit-Oriented	54.7	7.6
Institutional	37.5	5.2
<b>Total</b>	<b>716.6</b>	<b>100.0</b>

**T** Arrowood Transit Station



### Established Neighborhoods

The Arrowood Station area includes significant portions of two established neighborhoods: Starmount and Starmount Forest. These neighborhoods are categorized as “stable” and “transitioning” respectively by the Charlotte Neighborhood Quality of Life Study (2008). The study considers variables such as social well being, physical characteristics, crime, and economic vitality.

### Issues and Opportunities

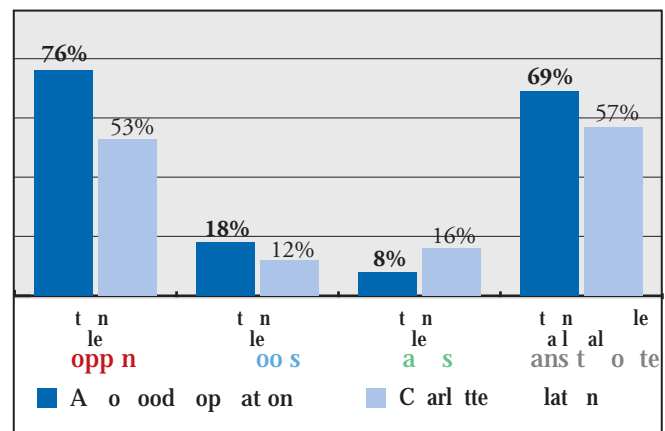
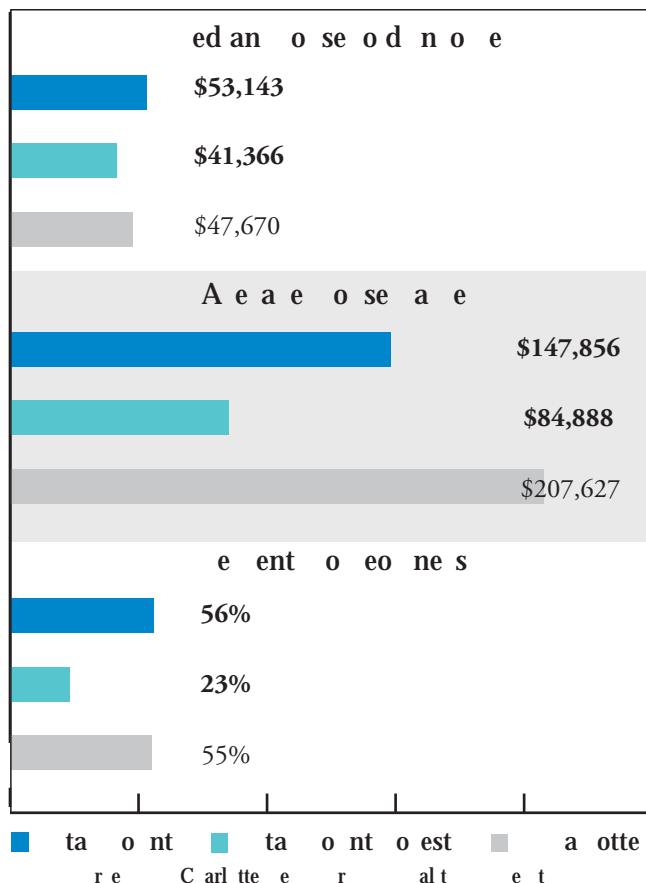
*Single family neighborhoods border the eastern edge of the station area and will complement the more intense transit oriented development planned along the rail corridor.*

### Land Use Accessibility Index

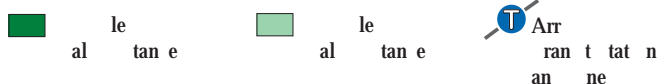
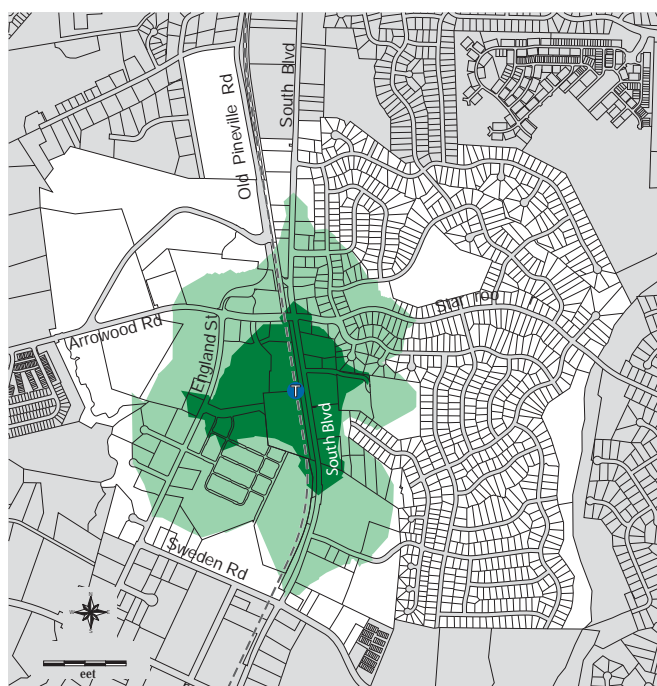
Land use accessibility is often described as convenience or ease to reach activities and destinations, particularly shopping, schools, parks and local transit routes. As seen from the data below, the residents in the plan area have better access to shopping and transit than do residents of the City of Charlotte overall. They are slightly more likely to be near a school, but less likely to be near a park or greenway than residents of the City overall. For example, 69% of plan area residents are within 1/4 mile of a bus route or rapid transit station, whereas only 57% of City residents overall are so close.

### Issues/Opportunities

*Potential development around the station area provides an opportunity to improve the mixture of land uses that are accessible to Arrowood residents.*







#### 1/4 and 1/2 Mile Walk Distance

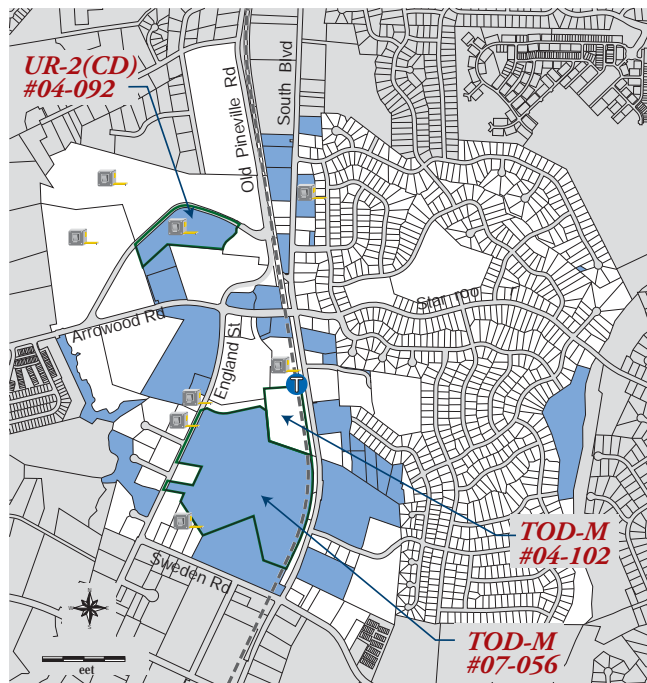
The Arrowood Station Area has an extensive amount of land within a 1/2 mile walk (typically 10 minutes) on the west side of the Norfolk Southern Railroad tracks. The grade separated rail line creates a barrier to pedestrian movement eastward from the station, where movement across South Boulevard is only possible at Arrowood and Sweden Roads.

#### Issues/Opportunities

*Although there is an extensive area within 1/2 mile walk of the transit station, there is an opportunity to expand the area within the 1/4 mile and 1/2 mile walk distance by adding additional street networks and pedestrian connections.*

*The biggest obstacle to extending the street network and pedestrian connections is the existing freight railroad track, which runs parallel to the light rail track blocking access to South Boulevard from the Arrowood Transit Station.*

*The 1/4 mile and 1/2 mile walk distance also extends into multi-family developments on the west side, but reaches little of the single family neighborhoods on the east side of the transit station.*



#### Development Activity / Potential Opportunities

**Rezoning:** Since 2004, there have been 3 rezoning petitions filed in the plan area. One TOD-M rezoning was filed by CATS for the station park and ride lots. A second TOD-M rezoning was filed by Harris Development Company for a townhouse development adjacent to the park and ride lot. The third rezoning, about 1/2 mile north of the station, was for UR-2 (CD) Urban Residential Conditional, designed in accordance with Transit Station Area Principles.

**Building Permits:** There have been eight building permits issued in the plan area since 2004, both residential and non-residential.

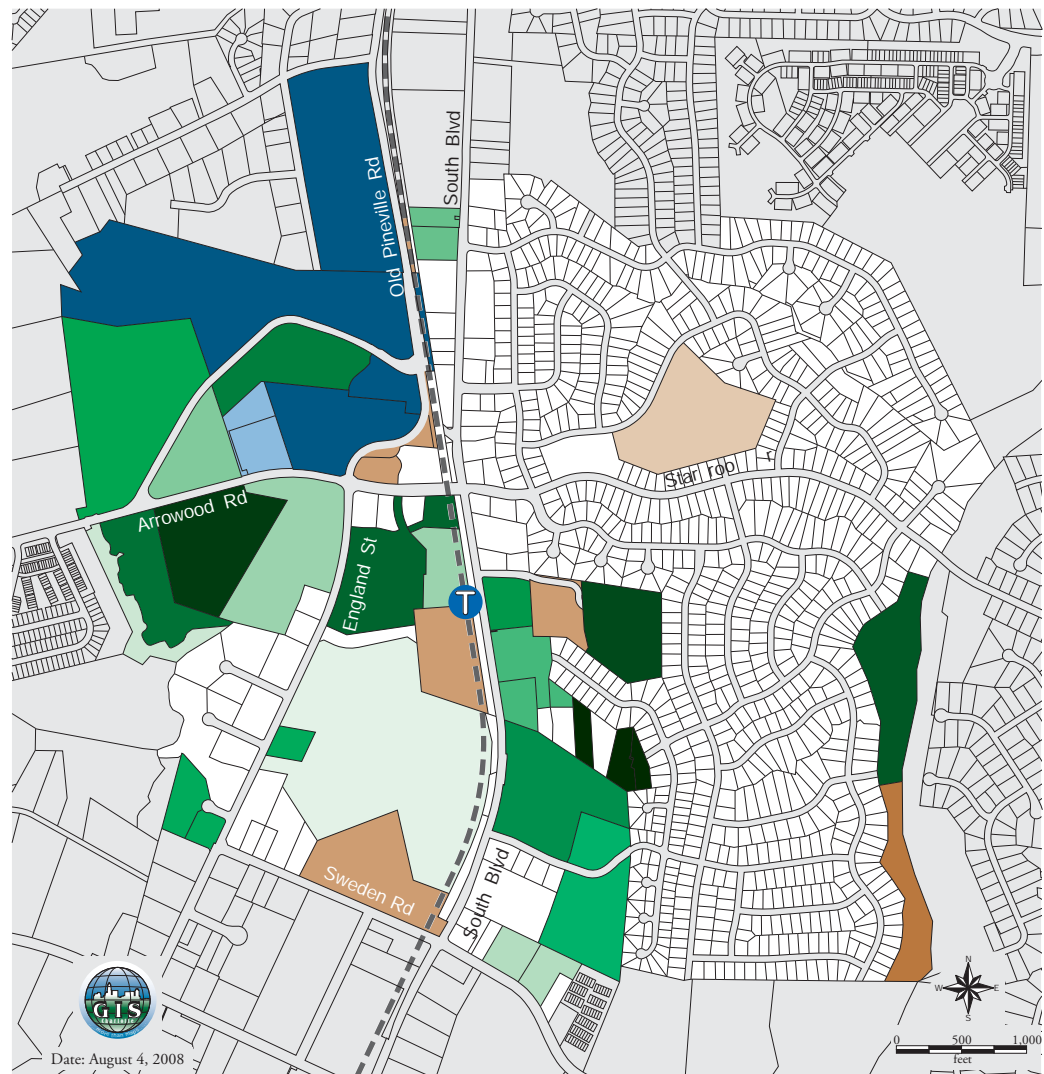
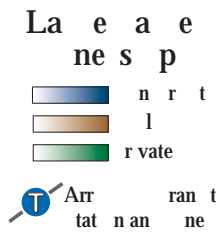
**Vacant and Underutilized Land:** Although the plan area is largely developed, there are 127.9 acres of land that is either vacant or underdeveloped. These are highlighted in the above map. Some of these parcels are developed with older retail and/or industrial buildings, and the opportunity exists for redevelopment at a higher density.

#### Issues/Opportunities

*Vacant and underdeveloped land around the station provides an opportunity to improve the mixture of land uses in the plan area. However, the Norfolk Southern Railroad line hampers the Transit Oriented Development potential east of the rail line.*



## Arrowood Large Parcel Ownership



### Large Parcel Ownership

The above map shows large property holdings of public, private and non-profit owners. These include both single large parcels and holdings of adjoining smaller properties over 4 acres, as shown on tax records. Public holdings include Charlotte-Mecklenburg Schools and the County's Park and Recreation Department. The Victory Christian Center is a large non-profit owner in the area, with a number of large tracts of land in the northwest area of the plan area. However, as indicated on the map, the majority of the property along the corridor is privately owned.

### Issues/Opportunities

*The large parcels within the study area have the potential of accommodating higher density transit oriented development uses with less assemblage than would be necessary with smaller holdings.*

### Market Research:

In early 2003, Robert Charles Lessor & Company completed a market study of the future South Corridor light rail station areas entitled *Station Area Allocations for New Office Retail and Multi-family Development along the South LRT Line 2000-2025*. The study found that "...like other southern stations along the South LRT line, Arrowood likely represents a longer-term development opportunity with some infill residential possible in the near term." The study noted the following factors impacting transit-supportive development in the Arrowood Station area:

1. Infill residential in the long term holds potential while office development would most likely be limited to smaller scale, local-serving users in multi-use developments.
2. Additional retail could be supported in the station area if it were integrated into a mixture of uses.
3. Redevelopment efforts should be focused on the west side of the LRT line where underutilized and vacant parcels exist.

However, the report does suggest that the changing topography in the western portion of the station area could hinder future development. Retail has struggled at this station because of limited east-west connectivity, a nearby residential core with a lack of significant spending power, and in some cases visibility of retail facilities from major thoroughfares. Like other stations, the Arrowood station is in need of the creation of a sense of place, and of east-west connections.

### Development Projections:

Robert Charles Lessor & Company produced the following projections for new office and residential development in the Arrowood plan area by 2025. These projections assumed a proactive role by local government in promoting station area development and continuation of current economic trends. The projections were made *in January 2003, prior to the economic downturn of 2008* and the increases in energy costs:

- 46,852 square feet of new office space
- 1,589 new multifamily residential units
- 150,000 square feet of retail

### Issues/Opportunities

*The Arrowood station area represents the first station area on the South LRT line where significant Greenfield sites currently exist. There is little development pressure currently in the area, aside from the townhome community being developed across from the Arrowood Station.*

*Development intensity in the station area is very modest today, with retail and church uses having very large parking lots and large setbacks.*

*In spite of its connection to I-77, Arrowood Road in the vicinity of the station area is not a high traffic, high visibility location. I-77 is located well to the west with residential areas lying between the station area and the interstate.*

*The existing retail on Arrowood Road appears to be struggling, with an empty Wal-Mart store having been bought by a neighboring church and being converted into a community center. Further, terrain to the west of the LRT is relatively challenging, limiting development between the station area and the interstate.*

*Industrial development, largely comprised of service and distribution space, is located to the south of the station area, with several large tracts of property being undeveloped between the station site and the industrial development.*



*Existing uses along South Boulevard include Car Dealers.*

## Transportation

### The Existing Street Network

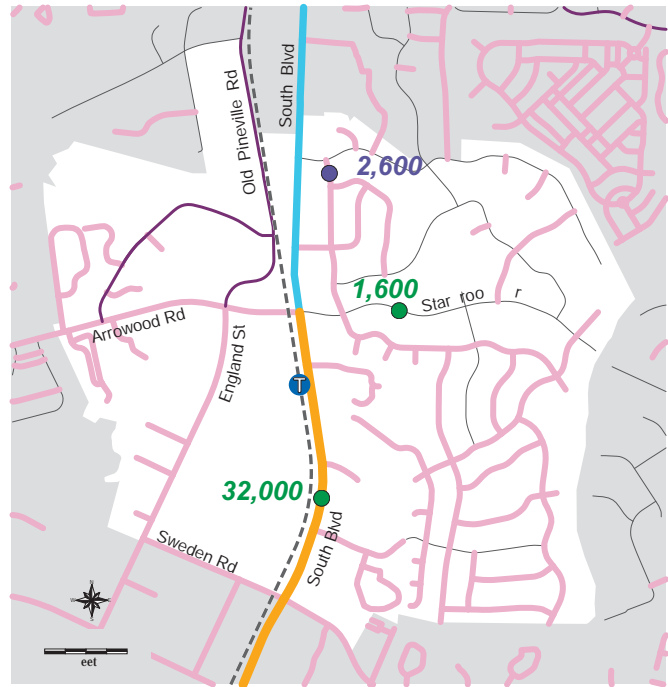
The number of route choices available to pedestrians, bicyclists and motorists describes the adequacy of an area's street network. A dense, well-connected network offers greater choices of routes and more direct routes to destinations than does a less connected network, and therefore provides greater overall system capacity.

Route choices are measured by the number of lane-miles of streets, number of intersections (nodes), number of blocks (links), and the connectivity index. A lane-mile is one mile of a single roadway lane. The more lane-miles of streets there are, the greater the overall traffic carrying capacity. The connectivity index quantifies how well a roadway network connects destinations and is calculated by dividing the number of roadway links by the number of roadway nodes. A connectivity index of 1.45 or more is desirable for transit station areas.

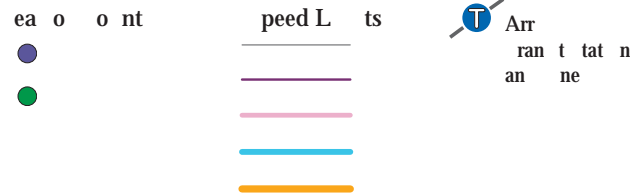
#### Arrowood Station Area

Area size (square miles)	1.26
Miles of streets:	15.6
Lane-mile of streets:	36.4
Connectivity Index:	1.18

Work is nearing completion on a new segment of roadway extending from the former sharp bend of Old Pineville Road, through the existing shopping center property, extending to Arrowood Road, and aligning with England Street. This new road segment is likely to be called Old Pineville Road. The old loop formerly called Old Pineville Road extending west from the sharp bend to Arrowood Road has been renamed Kings Ridge Drive. This new street pattern will provide a continuous north-south route through the plan area.



Traffic Counts: Average Daily Volume

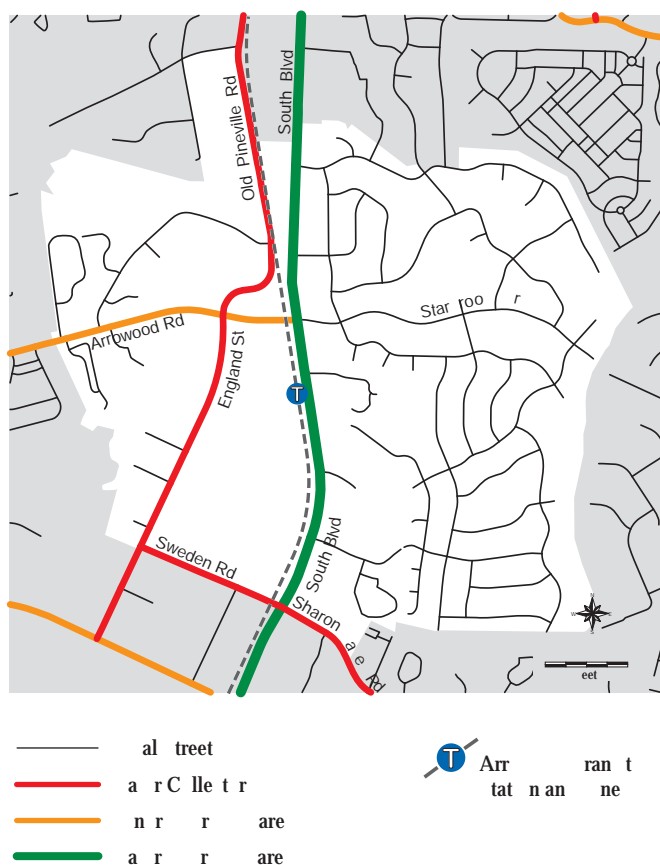


### Issues/Opportunities:

*There is a noticeable lack of street connectivity from the neighborhoods to South Boulevard, especially south of Starbrook Drive. As commercial properties redevelop along the east side of this thoroughfare, there will be opportunities to provide a more robust street network that better links people and places.*

*The freight railroad presents a major barrier to station access from the east. A pedestrian bridge over the freight railroad, and possibly across South Boulevard, appears highly desirable in conjunction with redevelopment and improved connectivity along South Boulevard.*

*There is also a noticeable lack of street connectivity across England Street, stretching from Arrowood Road to Sweden Road. As these properties redevelop, a new grid should emerge, enhancing connectivity to the somewhat hidden station, as well as facilitating greater route choices as alternatives to the few thoroughfares and collector streets serving the area.*



**Local Streets:** The remaining roadways are local streets that carry low traffic volumes, have slow operating speeds, and provide access to individual properties.

### Interstate Highway

Interstate 77 runs north-south, as a cross-country, interstate highway between Columbia, South Carolina, and Cleveland, Ohio. Within Charlotte, I-77 travels between the North Carolina state line with South Carolina and the Lake Norman area. Although it runs along the western edge of other South Corridor Station Areas, I-77 is outside the boundary of the Arrowood plan area. Arrowood Road connects to I-77 about 1 1/4 miles west of the plan area.

### Issues/Opportunities:

*Old Pineville Road is classified as a major collector. However, the road functions more like a thoroughfare, especially with its realignment with England Street. There appears to be an opportunity to reclassify Old Pineville Road on its new alignment and England Street as minor thoroughfares to more closely match their actual function.*

### The Thoroughfare Plan

The Mecklenburg-Union Thoroughfare Plan is the adopted major roadway plan for Mecklenburg and Union counties and is used to assure that the most appropriate street system is developed to meet existing and future travel needs. Streets are classified and designed according to their intended functions so that land use and traffic conflicts are minimized. The street classifications applicable to the Arrowood station area are as follows:

**Thoroughfares:** South Boulevard is a major thoroughfare, and Arrowood Road is a minor thoroughfare. As thoroughfares, these streets are designed to accommodate large volumes of traffic at moderate speeds and provide access to major commercial, residential and residential land uses.

**Collectors:** Old Pineville Road, England Street, Sweden Road, and Sharon Lakes Road are major collectors. Starbrook Drive, Woodstream Drive, Brookdale Avenue, and Edgewater Drive are minor collectors. Collector streets carry traffic between the thoroughfares and local streets at moderate volumes and speeds, as well as providing access to adjacent land uses.



*England Street is a Major Collector Street in the plan area.*



## Street Classifications

### *Streetscape and Typical Sections*



*South Boulevard looking north towards Arrowood Road*

▲ South Boulevard is generally four travel lanes wide with turn lanes added at its signalized intersections. Sidewalks are generally located only along the east side of the street, sometimes separated from travel lanes by planting strips, but more often, placed directly behind the curb and gutter. Street lighting is provided on utility poles.



*Arrowood Road looking east towards England Street*

▲ Arrowood Road is two travel lanes wide, with bike lanes and pedestrian-scaled lighting between Old Pineville Road and South Boulevard. Elsewhere, there are wide mixed travel lanes with street lighting on utility poles. Sidewalks are generally located on both sides of the street, often separated from travel lanes by planting strips, albeit fairly narrow planting strips in places.



*England Street looking south near LYNX station entrance*

▲ England Street is two travel lanes wide, though there are dedicated left-turn lanes, or even a center two-way left-turn lane in places. Sidewalks are located on one or both sides of the street, often separated from travel lanes by planting strips, albeit fairly narrow planting strips in places. Street lighting is provided on utility poles.



*Sharon Lake Road looking southeast towards El Vernao Circle*

▲ Sharon Lakes Road is two travel lanes wide, with dedicated left-turn lanes in places. Sidewalks are generally located on both sides of the street, often separated from travel lanes by planting strips, albeit fairly narrow planting strips in places. Street lighting is provided on utility poles.



*Starbrook Drive looking west towards Woodstream Drive*

▲ Starbrook Drive is a local residential street with speed humps. Sidewalks are generally located on one side of the street, separated from travel lanes by a narrow planting strip. Street lighting is provided on utility poles.



*Starcrest Drive looking north towards Larkfield Lane*

▲ Most of the local residential streets are fairly narrow (approximately 24 feet wide) with sidewalks on one side of the street or no sidewalk at all.



## Street Typology

The Urban Street Design Guidelines recommend how Charlotte's streets should be planned and designed to provide viable transportation choices. The guidelines are intended to ensure that the street design process considers the needs of pedestrians, bicyclists and motorists, as well as the effects on adjacent land uses. Streets are classified according to land use and transportation contexts and should be designed accordingly. Regardless of their classification, a number of streets in the study area fail to consistently provide the street elements or element dimensions desired.

**Avenues:** Within the context of the street design guidelines, South Boulevard, Arrowood Road, Sharon Lakes Road, Sweden Road, England Street, and Old Pineville Road function closest to Avenues. Avenues are intended to serve a diverse set of functions in a wide variety of land uses and should be designed to provide a balance of service for all transportation modes. Avenues provide an important mobility function for motorists, but also are expected to provide a high level of comfort, safety and convenience for pedestrians and bicyclists. Avenues are generally limited to four or fewer travel lanes (except at major intersections) with block lengths up to 600 feet. Common elements should include sidewalks, planting strips or amenity zones with street trees, and bicycle lanes.

**Locals:** The majority of roadways are local residential and local commercial streets that provide direct access to residential and commercial properties. These streets are intended to accommodate pedestrians and bicyclists safely by providing sidewalks, planting strips with trees, and low speed limits.

### Issues/Opportunities:

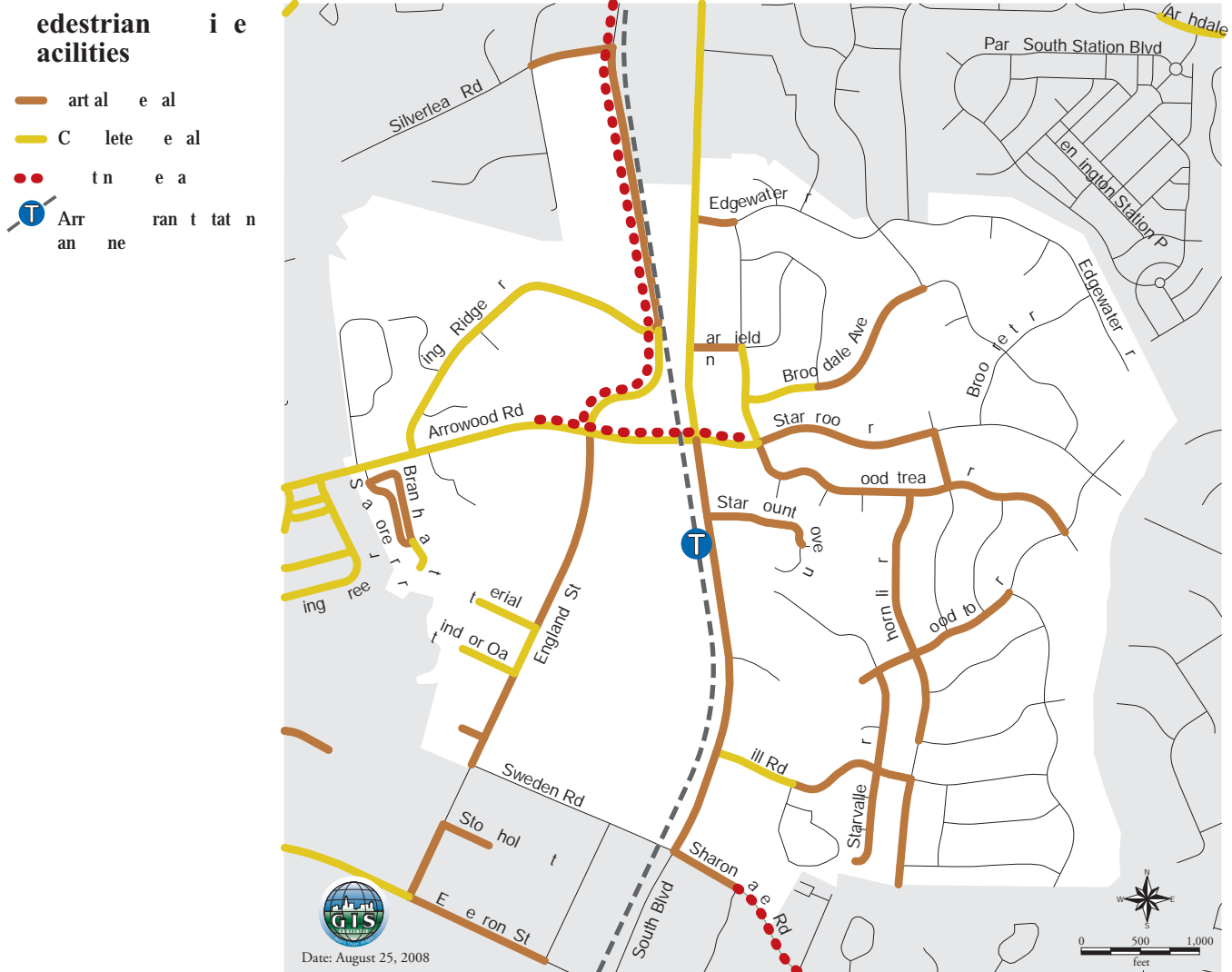
*Realistically, South Boulevard today functions more like a Boulevard than an Avenue. However, with added street connections and more urban land uses, South Boulevard can transition into a more pedestrian-friendly Avenue.*

*Regardless of their classification, a number of streets in the study area fail to consistently provide the street elements or element dimensions desired in an urban environment. While new streets will be built to provide the desired features, deficiencies on existing streets can be addressed when adjacent properties redevelop.*



*Arrowood Road includes recently constructed amenities including sidewalks, planting strips, and bike lanes.*

## Arrowood Pedestrian & Bike Facilities



### Existing Pedestrian & Bicycle Facilities

**Pedestrian System:** Of the approximate 16 miles of streets in the Arrowood station area, 14% have sidewalks on both sides of the street, 16% have sidewalk on one side and 47% have no sidewalk. These figures include sidewalks recently built by the South Corridor Infrastructure Program (SCIP) along several key local streets that are along or connect to South Boulevard, Old Pineville Road, Arrowood Road and Starbrook Drive. Additionally through SCIP, the intersections of Arrowood Road with South Boulevard and England Street now have enhanced crosswalks.

**Bicycle System:** As part of SCIP, bicycle lanes were added to Old Pineville Road and its new connection to England Street, as well as Arrowood Road and Starbrook Drive between Old Pineville Road and Woodstream Drive.

### Issues/Opportunities:

*More streets that connect to South Boulevard and England Street are needed to provide better pedestrian and bicycle mobility in the study area. The current large block sizes along these streets discourage these alternative forms of travel, especially pedestrian travel.*

*Better north-south pedestrian and bicycle routes are needed parallel to South Boulevard, Old Pineville Road and England Street. Better east-west routes parallel to Arrowood Road also are needed. The opportunity to build these routes will come as commercial properties redevelop along South Boulevard, Old Pineville Road, England Street and Arrowood Road.*

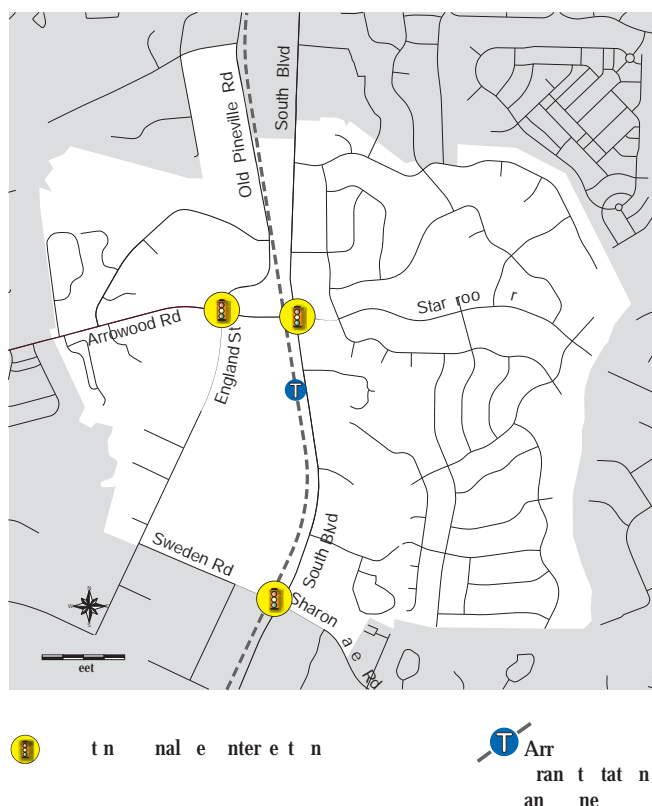


## Level of Service

Level of Service (LOS) measures the quality of service provided by a transportation facility to its users. The City of Charlotte evaluates level of service for pedestrians, bicyclists and motorists and uses the results to help balance their competing needs when planning and designing streets. Levels of service range from A through F, with desirable levels of service based on the street typologies of the Urban Street Design Guidelines. Transit station areas are intended to be highly accessible for pedestrians and bicyclists, and therefore should have good pedestrian and bicycle level of service (A to B). Lower levels of service for motorists are acceptable if necessary to achieve the desired pedestrian and bicycle levels of service.

Pedestrian and bicycle level of service is rated according to the level of comfort and safety offered by the design features at signalized intersections, while motor vehicle level of service is based on

Level of Service	Category
A	Excellent
B	Good
C	Fair
D	Marginal
E	Poor
F	Very Poor



Level of Service (LOS) for Year 2007							
	Signalized Intersection	Pedestrian	Bike	Vehicular			
				Volume to Capacity Ratio AM Peak		Volume to Capacity Ratio PM Peak	
1	Arrowood Rd & South Bv	C+	D	.62	D	.67	D
2	Sharon Lakes Rd & South Bv	C	E	.64	D	.81	D
3	Arrowood Rd & England St	B	C+	.41	D	.69	C

motorist delays. Motor vehicle quality of service is also measured by the volume to capacity ratio (v/c), which describes an intersection's ability to process traffic within peak time periods. Values greater than .95 suggest an intersection is near its capacity during this time period and that motorists may experience substantial congestion.

Existing traffic conditions in the Arrowood station area are reasonably good. South Boulevard and Arrowood Road have adequate capacity and motorists do not typically experience excessive delays or stops at major intersections.

### Issues/Opportunities:

*While vehicle level of service and travel times are generally good in the Arrowood area, expected growth and intensified development in the future will likely result in increased congestion on existing streets. Without a more extensive street network, motorists will experience longer delays and travel times as more people are forced to travel on the few through-streets that serve the area, such as South Boulevard, Arrowood Road, Sharon Lakes Road, Old Pineville Road, and England Street. An improved street grid will aid motorists, pedestrians and bicyclists by providing more routes to travel destinations.*

## Public Transportation

Charlotte Area Transit (CATS) offers public transportation service in and through the Arrowood area with a combination of light rail vehicles and buses.

**Light Rail Service:** The LYNX light rail line is located between Old Pineville Road/England Street and South Boulevard within the Arrowood station area. Light rail patrons are able to access the line by foot from Arrowood Road by walking south along the rail line. By vehicle, access is from England Street. A 263-space park-and-ride facility is sited west of the center-platform station. Light rail service was projected to carry 9,100 passengers per day, but thus far has been averaging over 16,900 per day as of July 2008.

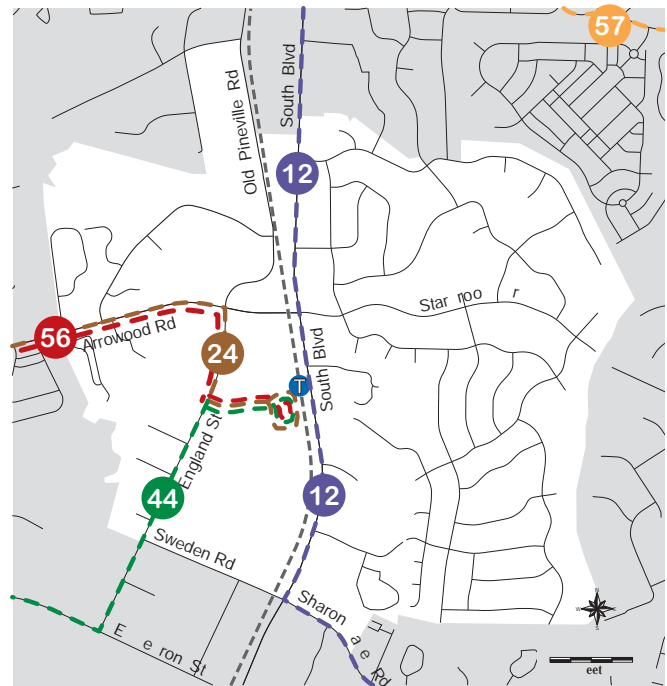
**Bus Service:** In coordination with the late 2007 opening of light-rail service in the South Corridor, CATS restructured area bus service to improve connections with light-rail stations. Currently, CATS provides bus service in the Arrowood area with four local bus routes:

- Route 12 along South Boulevard from Carolina Pavilion to Woodlawn Road;
- Route 24 along Nations Ford Road between Woodlawn Road and Arrowood Stations;
- Route 44 along Nations Ford Road from Fort Mill to Arrowood Station; and
- Route 56 along Arrowood Road and South Tryon Street from Rivergate Shopping Center to Arrowood Station.

Annual ridership numbers in Fiscal Year 2007 were 795,595 for Route 12 and 712,853 for Route 24, though such figures are prior to major bus re-routings implemented with the start of light-rail service. Routes 44 and 56 are completely new routes.

### Issues/Opportunities:

*Despite its visibility from South Boulevard, the Arrowood station is not walkable from areas along and east of South Boulevard. Street connections to Arrowood Road, as well as a pedestrian bridge to South Boulevard could drastically improve the walk-access.*



- Route 12
  - Route 24
  - Route 44
  - Route 56
  - Route 57
- Transit Station

## Freight Rail Line

Norfolk Southern is a major Class I railroad. The Norfolk Southern network extends 20,000 miles over 22 states, the District of Columbia and Ontario. Within the Arrowood plan area, Norfolk Southern owns and operates a mainline freight track at grade along the east side of the LYNX Blue Line the full length of the plan area from north to south. Although the LYNX Blue Line is elevated above Arrowood Road, the freight railroad crosses Arrowood Road at-grade. Both the light rail and freight line cross Sweden Road at grade.

### Issues/Opportunities:

*The location of the freight railroad immediately west of South Boulevard greatly inhibits the creation of additional street connections westward from South Boulevard, and prevents development on the west side of South Boulevard. Creation of urban forms and connections on the east side of South Boulevard may still create a pedestrian-friendly Avenue.*

*Additionally, a pedestrian bridge at the Arrowood station over the freight railroad, and possibly over South Boulevard, could greatly improve the walk access of a station otherwise separated by this major barrier from neighborhoods and development east of South Boulevard.*

## Infrastructure/Public Facilities

### Education

There is one Charlotte-Mecklenburg Schools facility in the plan area. The former Starmount Elementary School on Brookhill Avenue is presently used as a pre-kindergarten center.

### Issues/Opportunities:

*With provision of an overhead crossing of the freight rail line to the eastern neighborhoods, Starmount Elementary School would be within a 1/2 mile walk of the LYNX station.*

### Parks, Public Libraries, Police, Fire, and Streets

Mecklenburg County Park and Recreation facilities in the plan area include Huntingtowne Farms Park and the Little Sugar Creek Greenway, located along the eastern boundary of the plan area. The Greenway Master Plan also includes development of the Kings Branch Greenway along the western boundary of the plan area, although to date no land has been acquired for this purpose.

Public Libraries of Charlotte-Mecklenburg County currently has no existing or planned facility within the plan area.

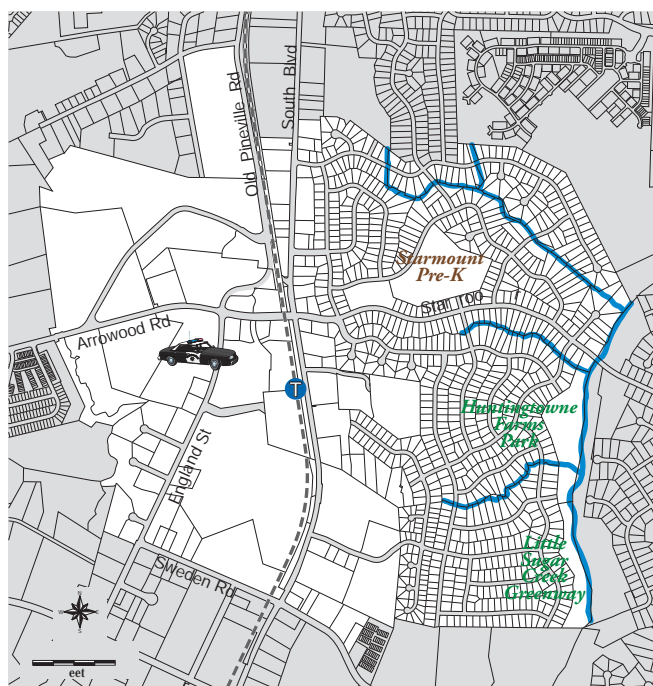
Police provide service through the Westover and Steele Creek Divisions. A police substation is located off of Arrowwood Road and England Street. Police also oversee CATS Transit Police.

There are no fire stations located in the plan area, but Fire Station 20 is just to the southwest at Hebron Street and Nations Ford Road.

The City of Charlotte has a Street Maintenance facility serving a large segment of the City, located on Sweden Street.

### Issues/Opportunities:

*Service facilities outside the station areas may be adequate to serve the areas. In many cases public services can be provided to densely developed areas with fewer resources.*



— t r a n s i t s e r v i c e a r e a  
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A r r o w w o o d  
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### Water and Sewer and Storm Water Management

Charlotte-Mecklenburg Utilities Department has worked proactively to replace and install upgraded lines under the light rail line in anticipation of density increases. Many of the upgrades have been financed by SCIP (South Corridor Improvement Program).

Charlotte Storm Water Services currently lists one project within the plan area:

- Starmount South: Storm Water Services intends to reduce street and house flooding and replace old and failing storm drainage infrastructure.

### Issues/Opportunities:

*Increased density will increase demand on CMU services allowing them to serve a larger number of customers per square mile compared to a more suburban setting.*

*Redevelopment should address the quality of storm water runoff. Future development would have to meet more stringent requirements than existing development.*





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